When value chains go South: Upgrading in the Kenyan leather sector

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ABSTRACT

South-South value chains have grown to play a central role in the organisation of global trade, yet little is known about how this phenomenon affects suppliers’ upgrading prospects. This article theorises whether and how links to North-South and South-South value chains differ in terms of their impact on suppliers’ delivery of product quality and value-added tasks, as well as their improvement over time (respectively defined as product and functional upgrading). To empirically evaluate this question, we draw on a combination of firm-level export data and interviews across the Kenyan leather sector. Results show that product quality and value-added tasks are higher for exports to the North than to the South, but that there is no systematic difference in product and functional upgrading to the two aggregate destinations. Digging deeper, however, we show significant variation in outcomes across Southern destinations. On the one hand, China-led value chains present similar product quality and steeper functional upgrading than North-South value chains. On the other hand, intra-Africa value chains emerge as platforms for small suppliers to specialize in higher value-added tasks. These findings contribute to scholarship on global value chains and the global factory, enhancing our understanding of the implications for suppliers participating in value chains with different product standards and consumer preferences.

1. Introduction

Between 2001 and 2018 South-South trade increased at a compound rate of 11.3%, significantly faster than the 6.9% growth experienced by North-South trade. Driven largely by trade in intermediate goods, developing countries’ exports to the South have since 2009 surpassed their exports to the North (UNCTAD, 2019). This ‘new geography of trade’ has been underpinned by the growing importance of global value chains (GVCs) in which buying and supplying firms are both located in the Global South (Horner & Nadvi, 2018).

Scholars have started reflecting on the implications of South-South value chains for suppliers’ innovation and economic upgrading (Buckley & Strange, 2015; Chataway, Hanlin, & Kaplinsky, 2014; Kaplinsky & Farooki, 2011; Barrientos, Gereffi, & Pickles, 2016). Nevertheless, these arguments remain inconsistent.

One set of studies has argued that less sophisticated products in developing countries provide suppliers access to comparatively less advanced knowledge, reducing their ability to improve product quality (product upgrading) (Dahi & Demir, 2016; Horner, 2014; Kaplinsky, Terheggen, & Tijaja, 2011). Another set of articles, then again, has countered that lower pressure from Southern buyers, owing to similar institutional settings and lower product standards, enables suppliers to move into production tasks with larger shares of value-added (functional upgrading) (Brandt & Thun, 2010; Navas-Aleman, 2011). Despite these arguments, to date there has been few studies that have systematically addressed the differential opportunities that South-South value chains present for suppliers’ upgrading opportunities (Horner, 2016, p. 11).

The paucity of empirical research on the topic has been an additional part of the problem (Horner & Nadvi, 2018). The literature has shown that developing countries tend to export products of comparatively lower quality to the South than to the North (Manova & Zhang, 2009; Staritz, Cattaneo, & Gereffi, 2011). Yet there are no studies that we are aware of which have analysed this dynamic in the context of GVCs and have evaluated the differential effect of North-South and South-South value chains on economic upgrading.

In this paper, we address this gap by systematically analysing the impact of North-South and South-South value chains on the economic upgrading of suppliers in developing countries. We start off by developing a set of hypotheses on how linkages to Southern buyers differentially influence product quality and the value-added activities in which suppliers specialize, and whether links to South-South value chains allow for significantly faster product and functional upgrading over time. We next use a combination of firm-level export data and semi-structured interviews from the Kenyan leather sector to test the
hypotheses and shed further light on the mechanisms shaping firms’ upgrading strategies.

The analysis shows that Kenyan suppliers specialize in lower quality products and lower value-added tasks when exporting to the South than they do when exporting to the North. Nevertheless, there is no discernible difference in suppliers’ product and functional upgrading between the two aggregate destinations. Distinguishing across different markets in the South, however, points to some significant variations in outcomes. On the one hand, Kenyan leather exports to China present similar product quality and steeper functional upgrading than exports to the North. On the other hand, Kenyan suppliers specialize in relatively higher value-added tasks when they export to African buyers. The remainder of the article is structured as follows: sections 2 and 3 provide an overview of the literature on upgrading and develop four testable hypotheses. Section 4 describes the data and methods. Section 5 presents the models’ results, while section 6 discusses the outcome in relation to the study’s hypotheses. Section 7 complements the analysis by means of qualitative evidence from a set of Kenyan suppliers. Finally, section 8 concludes and points to further theoretical and policy implications.

2. Innovation, upgrading, and South-South GVCs

2.1. Innovation and upgrading in GVCs

Neoclassical economics understands innovation in Schumpeterian terms as the creation or adoption of new products, processes, and organisational and marketing practices (Lundvall, 2007). In its different forms, innovation is expected to create and sustain firms’ competitive advantages and successful business performance (Jiménez-Jiménez & Sanz-Valle, 2011; Rosenbusch, Brückmann, & Bausch, 2011).

The participation of firms in global trade has been shown to favour innovation, as larger and more competitive markets trigger an efficient re-allocation of firms’ internal resources (Baldwin & Gu, 2004; Siba & Gebreyesus, 2017). Yet, as 70% of international trade takes place in global value chains (OECD, 2019), how the latter impacts on firms’ innovation remains underexplored (Van Asche et al., 2016; Pirotten & Staritz, 2018). Notably, concerns have been raised over the imbalance between buyers in developed countries specializing in knowledge-intensive activities, and their suppliers in lower income economies performing tasks with ‘inferior technology paths’ (Buckley & Strange, 2015; Mudambi, 2008; Ravenhill, 2014; Van Asche et al., 2016). In this context, scholars have asked whether and how suppliers in the Global South can strengthen their capabilities and innovate by tapping into their buyers’ resources and skills (Gereffi & Lee, 2012; Van Asche et al., 2016; Strange & Humphrey, 2018).

Building on the definition of innovation, GVC scholars have adopted the concept of economic upgrading to indicate a process by which supplying firms ‘increase the returns deriving from participation in GVCs’ through improved technology, knowledge, and skills (Barrientos, Gerffi, & Rossit, 2011; Kaplinsky & Morris, 2002). There are multiple ways for a firm to achieve economic upgrading, including: (i) the introduction of new and more sophisticated products (product upgrading); (ii) the implementation of new methods to transform inputs through superior technology and/or industrial organisation (process upgrading); and (ii) the specialisation in new value-added production tasks, defined as activities that further increase the value of a product net of its initial cost (functional upgrading) (Kaplinsky, Morris, & Readman, 2002, p. 4).

Economic upgrading in GVCs further depends on a complex set of interactions and arrangements shaping the knowledge flow between buyers and suppliers – a phenomenon indicated as value chain governance (Gereffi, Humphrey, & Sturgeon, 2005; Strange & Humphrey, 2018). With a focus on suppliers and multinational buyers respectively, the literatures on GVCs and the global factory acknowledge the critical link between value chain governance and suppliers’ upgrading (Barrientos et al., 2011; Buckley, 2009). According to Humphrey and Schmitz (2002), whereas product and process upgrading can be achieved through the sharing of codified information, functional upgrading requires a longer accumulation process upheld by continuous experience and learning. In this context, closer interaction with buyers via more captive forms of governance is expected to favour suppliers’ product and process upgrading, while constraining functional upgrading by limiting suppliers’ access to alternative sources of knowledge. For instance, Singaporean Hard-Disk suppliers have failed to become ‘dynamic innovators’ as a consequence, among others, of their dependency on ‘overseas-controlled’ computing tasks (Cooke, 2013). Similarly, drawing on the concept of learning-by-supplying, Alcacer and Oxley (2014) argue that in the mobile telecommunication industry, restrictive outsourcing agreements with leading branders significantly limited suppliers’ ambitions for functional upgrading into own-brand manufacturing.

This article builds on this literature by focusing on suppliers’ product and functional upgrading in relation to their participation in North-South and South-South value chains. An analysis of these dynamics requires an additional discussion of the scholarship on South-South trade in relation to the concepts of innovation and upgrading.

2.2. South-South trade and upgrading

Since 2009, the Global South has exported more to other developing countries than to the developed North, with South-South trade reaching a quarter of the total world exports by 2012. In 2018, developing economies sent 43% of their exports to Asia, 4% to Latin and Central America, and 3.5% to Africa. Furthermore, in the same year, less developed countries (LDCs) sent 57% of their exports to the Global South, while products originating from the latter accounted for 79% of LDCs’ imports. GVCs have also played a critical role in the organisation of South-South trade, with intermediate goods constituting close to 60% of the South’s export share (UNCTAD, 2019).

The macroeconomic literature on the relationship between South-South trade and innovation has a long tradition. Building on the Heckscher-Ohlin theorem, economists theorised that North-South trade could confine developing countries to sectors with a comparative disadvantage in the production of innovative goods (Flam & Helpman, 1987; Stokey, 1991). Conversely, South-South trade was indicated as a potential source for ‘structural innovation’ among countries with similar factor endowments (Amsden, 1986). Empirical studies also observed that firms in the Global South present superior market knowledge when investing in other developing countries and a tendency to transfer technologies that are more accessible and cost-effective to their South ern suppliers (Chataway et al., 2014; Cuervo-Cazurra & Genc, 2008; Fu & Gong, 2011; Pérez-Villar & Seric, 2015).

More recent studies have nevertheless revealed the uneven dynamics characterising South-South trade (Thrasher & Najam, 2012). This is particularly the case of China and its ‘rebalancing’ away from processing and assembling tasks towards higher value-added capital- and knowledge-intensive activities (Kang & Liao, 2016; Van Assche & Van Biesenbroek, 2018; Wang & Wei, 2010). In this context, trade between Africa and China has been described by some as ‘asymmetric’, fostering the reproduction of North-South inequalities and the lock-in of suppliers in sectors and products with limited upgrading potential (Gallagher, 2012; Kaplinsky & Farooki, 2011).

Similarly, intra-regional South-South trade has often been discussed separately in the literature (Mohanty, Franssen, & Saha, 2019). The concept of regional value chains (RVCs) has been used to indicate production networks linking firms across geographically proximate
countries with similar institutional and market characteristics (Krishnan, 2018). In this respect, case-study research has pointed to RVCs as more suitable platforms to achieve functional upgrading for local producers (Graner & Isaksson, 2009; Navas-Alemán, 2011; Staritz & Morris, 2017). However, to date, no systematic comparison has been conducted between regional and global South-South value chains.

3. Hypotheses: upgrading in North-South and South-South value chains

Product standards and firms’ capabilities have been shown to differ across developed and developing economies – what this study refers to as the North and the Global South (Lall, 2000; Staritz et al., 2011). Nevertheless, whether and how participation in North-South and South-South value chains differently affect suppliers’ upgrading remains understudied (Barrientos et al., 2016; Horner & Nadvi, 2018).

This section advances four hypotheses on the implications of participating in North-South and South-South value chains for firms’ product quality, product upgrading, specialisation in value-added tasks, and functional upgrading. To do so, we draw on four main concepts: value chain governance, upgrading, product standards, and supplier capabilities.

Value chain governance and upgrading have been defined in the previous section. In addition to the two concepts, supplier capabilities pertain to the skills, knowledge, and organisational structures required to bring a product to market efficiently (Lall, 1992; Gereffi et al., 2005). These include the capability to source the required inputs, monitor product quality, meet buyers’ specifications, and guarantee on-time delivery. Furthermore, product standards is broadly defined to embrace all private codes and public regulations benchmarking a product’s technical specifications, its compliance with health and safety criteria, and the processes by which it is produced and sourced (Nadvi, 2008). Building on these concepts, it is possible to outline four main hypotheses.

Suppliers in developing countries possess relatively lower capabilities than those in developed countries, which limit their capacity to compete in export markets (Lall, 2000). This is particularly the case when exporting to the North, where they face major entry barriers (Cuervo-Cazurra & Genc, 2008; Maskus, Otsuki, & Wilson, 2005). More demanding product standards in the North have been shown to generate a ‘trade impeding effect’ for a large number of Southern suppliers (Ouma, 2010; Sheldon, 2012). Conversely, price-driven markets in the South have been associated with less stringent product standards and, consequently, lower entry barriers for firms that cannot meet the costs of exporting to Northern markets (Maskus et al., 2005; Staritz et al., 2011).

There is some empirical evidence to back this up. In a study of Indian pharmaceutical suppliers, Horner (2014) shows that Southern markets act as price-driven platforms for firms that are unable to achieve the product standards of premium Northern markets. Barrientos et al. (2016) identify South-South value chains as more accessible networks for East African horticultural producers not meeting the quality and scale demanded by European buyers. Focusing on Chinese manufacturing exports, Manova and Zhang (2009) provide evidence that a firm tends to export higher quality versions of the same product to comparatively richer countries. This evidence leads to our first hypothesis:

**Hypothesis-1.** (product quality): suppliers in developing countries export products of higher quality to Northern buyers than they do to Southern buyers.

The demand for higher quality products in the North has an impact on how buyers govern their interactions with Southern suppliers. In order to export to developed countries, firms in developing countries have to master foreign technology and develop the organisational and managerial capabilities needed to achieve the specifications demanded by their buyers (Acemoglu & Zilibotti, 2001). When these are not readily available in the South, Northern buyers have been observed to provide suppliers with the knowledge and assistance required to meet the standards (Alcacer & Oxley, 2014; Gereffi, 1999; Gereffi et al., 2005). As discussed in section 2.1, this is usually achieved via more captive forms of value chain governance (Kano, 2018; Strange & Humphrey, 2018). Over time, we can therefore expect that suppliers who export to Northern buyers are more likely to experience product upgrading as they are exposed to more complex knowledge from their buyers. Conversely, to the extent that selling into low-income markets requires little product differentiation, links to Southern buyers will entail relatively less knowledge transfer, reducing the scope for product upgrading.

There are a few studies that have tried to build a link between participation in North-South value chains and product upgrading, even though their arguments remain disjoint. Comparing changes in unit values for different exports across developed, emerging, and low-income economies, Dahi and Demir (2016), p. 101) find that ‘North-South trade integration is more likely to generate quality upgrading than South-South trade’. Furthermore, Kaplinsky et al. (2011) argue that more complex standards in North-South value chains drive product upgrading among Thai cassava and Gabonese timber suppliers, whilst the same phenomenon failed to materialise for producers trading with China. Likewise, in the Brazilian footwear and furniture sectors, product upgrading has been more pronounced among suppliers operating in North-South networks, as more sophisticated products required buyers to share critical knowledge with their suppliers (Navas-Alemán, 2011). Taken all these arguments and findings together, we develop our second hypothesis:

**Hypothesis-2.** (product upgrading): over time, suppliers in developing countries experience a larger improvement in product quality when exporting to Northern buyers than when exporting to Southern buyers.

Knowledge-intensive tasks have been associated with better returns, higher wages, and lower relocation potential (Mudambi, 2008; Mudambi et al., 2018). This dynamic is been ‘deepening’ over time as the share of value-added through processes other than material production has progressively grown (Timmer, Miroudot, & De Vries, 2019). In this context, Southern suppliers participating in South-South value chains are expected to specialize in tasks with a higher value-added component compared to their counterparts trading with the North. This follows from two considerations.

First, as higher value-added tasks entail more sophisticated product standards in the North than in the South, suppliers need to master a wider set of capabilities in North-South compared to South-South value chains (Staritz et al., 2011). This is compounded by the fact that the capabilities required to access developed economies are more likely to be capital- and knowledge-intensive, reducing the comparative advantage of developing countries in traditionally labour-intensive activities (Rodrik, 2018).

Second, due to similar factor endowments and institutional settings, firms from the South arguably possess superior market knowledge and a better capacity to deliver more accessible and cost-effective products to other developing markets (Chataway et al., 2014; Cuervo-Cazurra & Genc, 2008; Fu, Pietrobelli, & Soete, 2011). Accordingly, it is expected that Southern suppliers will find it comparatively easier to engage in higher value-added tasks within the South. This dynamic is supported in several studies. For instance, in their analysis of Lesotho’s apparel firms, Staritz and Morris (2017) argue that companies operating in regional South-South networks perform a wider range of value-added tasks compared to their competitors supplying the US market. Similarly, Taiwanese electronics manufacturers have been successful in selling branded products in Southern markets that were of little interest to their contract-manufacturing customers in the North (Sturgeon & Kawakami, 2011). This leads to our third hypothesis:

**Hypothesis-3.** (value-added tasks): suppliers in developing countries specialize in higher value-added tasks when exporting to Southern buyers.
than they do when exporting to Northern buyers.

Firms have an interest in retaining control over core value-added tasks (Humphrey & Schmitz, 2002; Kedia & Mukherjee, 2009). Yet, inferior product standards imply that Southern buyers establish less captive linkages with their suppliers, allowing them more leverage to venture into their core competencies. Conversely, buyers in developed countries have an immediate advantage in preventing suppliers’ functional upgrading, limiting their ability to ‘embrace upon successful upgrading strategies’ (Buckley & Strange, 2015, p. 246). In other words, the same factor expected to favor product upgrading – i.e. more captive value chain governance – is also likely to limit functional upgrading, as buyers from the North have no incentive to provide Southern suppliers with the knowledge and support required to compete with them (Brandt & Thun, 2010).

A set of studies have started associating functional upgrading with participation in South-South value chains. According to Navas-Aleman’s (2011) analysis of Brazil furniture and footwear sectors, suppliers exporting to the South are more likely to venture into higher value-added production tasks compared to their competitors exporting to the US. This is in turn the consequence of less demanding product standards and less captive governance characterising South-South value chains. Similarly, international business research on the Chinese electronics sector points to the benefits of co-participation in North-South and South-South value chains for product and functional upgrading respectively. Accordingly, whilst interaction with Northern buyers is crucial in stimulating the creation of new and improved products, South-South markets provide local firms with an incubation space to ventured into value-added tasks free from foreign competition (Brandt & Thun, 2016; Zhou, 2008). This outcome resonates with the concept of learning-by-supplying described in section 2.1 and brings further support to both hypotheses two and four. This leads to our last hypothesis:

Hypothesis-4. (functional upgrading): over time, suppliers in developing countries experience a faster specialisation in higher value-added tasks when exporting to Northern buyers than when exporting to Southern buyers.

4. Data and methods

The Kenyan leather sector is well suited to answer the article’s research question for several reasons. First, the sector is organised in GVCs. With about 86% of the total output exported as intermediate goods in semi-processed forms, most local producers operate under the coordination of international buyers within regionally and globally structured production networks. Second, over the 2006–15 period, the sector exported 42% and 58% of its total share to the North and the South respectively, making it an ideal candidate for a comparative study. Furthermore, the heterogeneous nature of the South, including 8% share in the African regional market and 30 % share in the Chinese market, allows for a comparison across different Southern destinations. Finally, this article sheds light on a key industry for the Kenyan economy with wide potential for sustainable economic development in a country where livestock contributes to about 10% of the country GDP and South-South trade has become predominant (Mwinyihija, 2014).

4.1. Data

The analysis draws on firm-level export data from 2006 to 2015 collected by the Kenya Revenue Authority. Every observation corresponds to an export transaction that provides information on quantity, real value in USD, date of transaction, names of the exporting and importing firms, country of destination, and the World Customs Organization’s Harmonized System (HS) 6-digits code identifying the traded product.

The quantitative analysis is complemented by interviews with 17 Kenyan tanneries carried out between 2016 and 2017. Tanneries were selected as they jointly account for about 80% of the Kenyan leather sector’s export value over the 2006–2015 period. Information was collected on firms’ production capacity, export markets, the number of product improvements recently introduced, new value-added tasks attained as of 2016, and the motivation informing their upgrading strategies.

Specifically, semi-structured interviews with tanneries are used to shed further light on the mechanisms shaping product and functional upgrading in relation to suppliers’ participation in North-South and South-South value chains. Notably, interviews capture three dynamics that do not emerge from the quantitative analysis: (i) product and functional upgrading within the domestic (non-export) market; (ii) planned and on-going product and functional upgrading that is not yet reflected in our dataset; and (iii) the impact of inter-destination upgrading, which occurs when a supplier operating in one value chain upgrades in relation to a different market. For instance, this would be the case of a firm exporting raw material to China which upgrades into leather processing within the domestic and regional market. The remainder of this section focuses on the methodology for the quantitative analysis.

4.2. Measurement of variables

The dependent variables in our analysis include an indicator of product quality and a measure of the value-added task a firm specializes in. These are explained in turn:

Product quality: We use the common practice of measuring product quality with the unit value. This is calculated by dividing the transaction’s real value by the quantity exported (Hallak, 2006; Schott, 2004; Van Assche & Van Biesebroeck, 2018).

Value-added task: The leather value chain comprises four production tasks. When going from upstream to downstream, these include: (i) the provision of raw skins and hides, (ii) the processing of raw material into chrome-tanned leather, which is more commonly known as wet-blue, (iii) further processing into crust and finished leather (crust leather in short), and (iv) the manufacturing of leather products (Mwinyihija, 2014).

Table 1 provides estimates of the value-added and average mark-ups in the production tasks comprising the Kenyan leather sector. As we move downstream along the value chain, the share of value added at each stage increases progressively. Moreover, mark-ups increase as more value is added to raw material. Drawing on the HS codes of the various products, value-added tasks are operationalised using a discrete variable that equals 1 for raw material, 2 for semi-processed wet-blue, 3 for crust leather, and 4 for manufactured products.

The main independent variable in our analysis is the destination of a supplier’s export transaction, which includes: North, South (excluding China and Africa), China, and the African continent. The singling-out of China and Africa from the Global South follows from the discussion in section 2.2 and finds further support in qualitative accounts provided in the interviews. The categorisation of intra-Africa trade is based on Graner and Isaksson (2009) and extends to the whole African continent. Across the article, the terms intra-Africa and regional value chains are used as synonyms, whilst the term South is used to indicate the Global South, excluding China and Africa.

Finally, a set of control variables and fixed effects are used to capture

| Table 1                                                                 |
|-----------------|-----------------|-----------------|-----------------|
| Value-added and mark-ups by production task (2016).                     |
| Task                     | Market value (2016) | % Value-added | Mark-ups |
| Raw material             | 0.90 USD/kg      | +0%           | 6–8%          |
| Wet-blue                 | 0.80 USD/sqft    | +50%          | 8–10%         |
| Crust leather            | 1–1.50 USD/sqft  | +18–76%       | 15–20%        |
| Manufactured products    | 3–4 USD/sqft     | +100%         | 20–50%        |

Notes: the percentage of value-added is calculated relative to the previous task. Data for manufactured products refer to leather footwear only (excluding other leather goods).

Source: author’s interviews.
observed and unobserved dynamics that are likely to influence product quality and value-added across destinations. These include:

Firm size: The size of a firm positively impacts on its ability to catalyse gains from trade, trigger an efficient reallocation of resources, and upgrade (Almeida, Dokko, & Rosenkopf, 2003; Dallas, 2015; Gebreeyesus & Mohnen, 2013, p. 309). In this way, larger firms are in a better position to face the higher entry costs characterising North-South value chains, while smaller firms are more likely to compete in less demanding markets (Buckley, 2009, p. 141; Granner & Isaksxon, 2009). As firms’ employment figures are not available, this study adopts an indicator of size that corresponds to the average exported value of the firms during their years of operation.

Product fixed effects: different products have different units of measurement and, hence, incomparable unit values. Product fixed effects are used to control for product specific characteristics that may bias the estimation of product quality across different destinations. Products are identified from 6-digit HS codes.

Firm and year fixed effects: Unobserved firms’ characteristics, such as proximity to raw material, resources, and networks may affect their capacity to access certain markets and upgrade. Firm fixed effects help control for firms’ heterogeneity, allowing for unbiased and consistent estimates when firm effects are correlated with the independent variables. Similarly, time-specific events may impact the Kenyan leather market in multiple ways. The influence of aggregate time trends is partialled out by means of year fixed effects.

4.3. Empirical models

The impact of firms’ participation in North-South and South-South value chains on product quality, product upgrading, value-added tasks, and functional upgrading is explored using four regression models. The first two use the unit value (UV) of export of firm i and product p to destination j at time t as the dependent variable:

\[
\ln(UV)_{ijpt} = \beta_0 + \beta_2 destination_j + \beta_3 x_{ijpt} + \delta_t + \delta_i + \varepsilon_{ijt} + \mu_{ij}\]

(1)

\[
\ln(UV)_{ijpt} = \beta_0 + \beta_1 time_t + \beta_2 destination_j + \theta(time_t \times destination_j) + \beta_3 x_{ijpt} + \delta_t + \delta_i + \varepsilon_{ijt} + \mu_{ij}\]

(2)

To test hypothesis one, model (1) regresses the dependent variable on a vector of destination dummies (the North is the reference category) and a control variable x for firm size. Model (1) includes product, firm, and year fixed effects indicated by \(\delta_t, \delta_i, \) and \(\delta_t\) respectively.

To evaluate product upgrading (hypothesis two), model (2) adopts a latent growth model (LGM) estimated through a multilevel linear regression, which allows for both the intercept and slope to vary across firms. For each destination (but the North), a positive and significant coefficient in the interaction term \(\theta\) would suggest that product upgrading is taking place faster than in the North. Following Van Asche and Van Biesebroeck (2018), to control for persistent differences between observables, uninteracted destination dummies are also included. As the time variable is normalised to be 0 in the first year, the coefficients of the uninteracted variables are interpreted as the percentage difference between each destination compared to the North in year 2006. As for model (1), a control variable x for firm size and product fixed effects are also included. The two terms \(\mu_0\) and \(\mu_1\) represent the random effects capturing the variation between each firm regression model and the average intercept for all firms \(\mu_0\), as well as the variation between each firm yearly change in \(\ln(UV)\) and the average yearly change in \(\ln(UV)\) across all firms. In other words, \(\mu_0\) and \(\mu_1\) capture the firm-variance around the intercept and the yearly firm-variance around the slope respectively – where the random intercept is defined by \(\beta_0 + \mu_0\) and the random slope by \((\beta_1 + \mu_1)time_t\). The variation between individual observations and the regression model within each firm is captured in the error term.

The third and fourth regression models use value-added task (VA task) of firm i to destination j at time t as the dependent variable.

\[
VA_{ijw} = \beta_0 + \beta_2 destination_j + \beta_3 x_{ijw} + \delta_t + \delta_i + \varepsilon_{ijw}
\]

(3)

\[
VA_{ijw} = \beta_0 + \beta_1 time_t + \beta_2 destination_j + \theta(time_t \times destination_j) + \beta_3 x_{ijw} + \delta_t + \delta_i + \varepsilon_{ijw} + \mu_0 + \mu_1 time_t + \varepsilon_{ijw}
\]

(4)

Models (3) and (4) test hypotheses three and four respectively. Their explanation is tantamount to that of models (1) and (2). The only difference rests on the discrete nature of the dependent variable, the value-added task (indicated as VA task in (3) and (4)). For this purpose, the models are estimated through a generalized ordered logistic regression along with a set of linear probability models. Estimates in all models are weighted by transactional real values.

4.4. Estimation strategy

Models (1) and (3) are estimated through linear and generalized ordered logistic regressions respectively, while models (2) and (4) are estimated using multilevel linear regressions (MLRs). Since generalized ordered logistic regressions and MLRs are not commonly used estimation strategies, we briefly illustrate the reasoning underpinning their adoption.

A generalized ordered logistic model works as a cumulative logit
model comparing the categories greater than the current one to those less than or equal to it (Williams, 2016). In model (3), the four categories of the dependent variable are collapsed into three groups: (1) comparing raw material to wet-blue, crust leather, and manufactured products; (2) comparing raw material and wet-blue to crust leather and manufactured products; and (3) comparing raw material, wet-blue, and crust leather to manufactured products. The interpretation of the coefficients for each group is tantamount to those of a logit model, with average marginal effects (AME) reported for each group.

MLRs are used in the estimation of models (2) and (4) to allow for nested levels of analysis that account for both intra- and inter-firm variation. Contrary to hierarchical linear modelling with firm fixed effects, multilevel analysis entails a set of advantages for the present study: (i) it uses all observations including those for firms that appear only once; (ii) it enables the use of time-variant weights (in this case, transactions’ values); (iii) it accounts for both time-variant and time-invariant covariates (e.g. destinations and firm size); and (iv) if the variation between firms’ upgrading and the average yearly upgrading across all firms is significantly different from 0, a model without time random slopes would result in a violation of the independence assumption, yielding biased standard errors (Schielzeth & Forstmeier, 2009).

## 5. Results

### 5.1. Descriptive figures

Between January 2006 and December 2015, 1250 exporters engaged in 28,471 trade transactions for a total of around 800 million USD. The top 15 and 100 exporting companies accounted for about 90 and 99% of the total exported value respectively. In the 10-year period covered by the data, as a percentage of total real value, Kenya exported 3.4% raw material, 82.24% wet-blue, 5.83% crust leather, and 8.53% manufactured products. Of this, 42% went to the North, 8.1% to Africa, 30% to China, and 19.9% to the rest of the South.

The large number of products involved makes a graphic representation of unit values across destinations complex. Fig. 1 displays unit values for two of the most exported products: cow wet-blue and crust leather. The outcome points to similar unit values associated with the North and China, whereas products directed to the South and Africa attract lower unit values.

Fig. 2 reports the value acquired by the North and the South (with China and Africa forming separate categories) as a percentage of each value-added task. The South is associated with comparatively lower value-added tasks compared to the North. Nevertheless, a surprising outcome emerging from Fig. 2 concerns the African market. Regional markets have been acquiring essentially manufactured products, with a share of 83% of all exported value for this task. Whether or not this implies a positive trend in terms of functional upgrading is further explored in the subsequent sections.

### 5.2. Product quality and product upgrading

This section presents the results of regression models (1) and (2).

#### 5.2.1. South

In Table 2, column 1, wet-blue exported to the South (excluding China and Africa) is on average 25% cheaper than wet-blue exported to the North.\(^3\) Once firm fixed effects are introduced in Table 2, column 2, unit values for wet-blue remain 25% lower in South-South compared to North-South value chains. The coefficients in Table 2, columns 1 and 2, are both significant at the 1% level. In Table 2, columns 3, crust leather exported to the South presents a negative, though not statistically significant coefficient. This result remains consistent once firm fixed effects are introduced in Table 2, column 4. The results for wet-blue are in line with hypothesis one: Kenyan exports of wet-blue to Southern buyers are of lower quality than those to Northern buyers.

The outcome of the LGM in Table 3, column 1, shows that, whilst starting from significantly lower quality in 2006, wet-blue exports to the South did not experience a different product upgrading trend compared to wet-blue exports to the North. Concerning crust leather, Table 3, column 3, indicates no significant difference in quality in 2006. Yet, the coefficient of Time×South Rest points to comparatively less steep product upgrading for crust leather in South-South compared to North-South value chains. The coefficient is slightly significant at the 10% level. Once firm random intercepts and slopes are introduced in Table 3, columns 2 and 3, crust leather quality in South-South compared to North-South value chains. Furthermore, in Table 3, column 4, the coefficient of Time×South Rest for crust leather turns insignificant. These results therefore do not provide support for hypothesis two: we do not find systematic evidence that exporting to Northern buyers leads to a steeper increase in product quality than exporting to Southern buyers.

#### 5.2.2. Africa

In Table 2, columns 3 and 5, crust leather and manufactured products present significantly lower quality in intra-Africa value chains than they do in North-South value chains. The coefficients are statistically significant at the 5% and 1% levels respectively. Once firm fixed effects are introduced in Table 2, columns 4, crust leather is 61.4% cheaper

\(^3\) Percentage calculated as \((e^β - 1)100\)

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**Table 2**

| Dependent variable: ln(UV) | Wet-blue | Crust leather | Manufactured products |
|---------------------------|----------|---------------|-----------------------|
|                           | (1)      | (2)           | (3)                  |
| South, Rest               | -0.225***| -0.229***     | -0.268               |
|                           | (0.045)  | (0.05)        | (0.334)              |
| Africa                    | -1.94**  | -0.248***     | -0.695**             |
|                           | (0.093)  | (0.066)       | (0.301)              |
| China                     | -0.018   | 0.171***      | -1.283***            |
|                           | (0.031)  | (0.025)       | (0.0598)             |
| Firm size                 | 0.101*** | 0.078**       | 0.116***             |
|                           | (0.021)  | (0.032)       | (0.047)              |
| Constant                  | 2.335*** | 1.067***      | 1.481***             |
|                           | (0.254)  | (0.121)       | (0.578)              |
| Time and product fixed effects | YES | YES            | YES                   |
| Firm fixed effects        | NO       | NO             | NO                   |
| Observations              | 12,373   | 12,373        | 1208                 |
|                           | 1208     | 13,334        | 13,334               |
| R-squared                 | 0.49     | 0.44          | 0.82                 |
|                           |          |               | 0.24                 |
|                           |          |               | 0.43                 |

Notes: SEs clustered by firm are reported in parenthesis. P-values (***, **, * indicate significance at 1%, 5% and 10% levels). R-squared in columns 2, 4, and 6 is within-firm.
when sold to Africa than to the North. The coefficient is negative and significant at the 1% level. Similarly, in Table 2, column 6, manufactured products present 35.3 % lower unit values in intra-Africa compared to North-South value chains. The coefficient is slightly significant at the 10 % level. These results support hypothesis one and suggest that intra-Africa value chains reflect the dynamics observed for the rest of the South.

The outcome of the LGM in Table 3, column 3, shows no significant difference in the quality of crust leather exported in 2006 to Africa and the North; yet the negative and significant coefficient of Time*Africa suggests that that exports of crust leather to the former destination experienced significantly less steep product upgrading than exports to the latter. For manufactured products, Table 3, column 5, indicates that despite starting from significantly lower unit values in 2006, product upgrading in intra-Africa value chains was not significantly different from the North. Accounting for firm random intercepts and slopes, Table 3, column 4, points to no significant difference between Africa and the North for crust leather, either in initial values or in the upgrading trend. For manufactured products, Table 3, column 6, shows no significant difference in quality between intra-Africa and North-South value chains. The coefficient of China-led value chains experienced faster product upgrading than in North-South value chains. The coefficient of Time*China is positive and significant at the 5% level. In Table 3, column 3, no significant difference emerges between China and the North for crust leather, either in initial values or in the upgrading trend. In Table 3, column 2, once firm random intercepts and slopes are introduced, the quality of wet-blue going to China in 2006 remains significantly lower than the quality of wet-blue exported to the North. Yet, product upgrading for wet-blue in China-led value chains is not significantly different from the one characterising North-South value chains. In Table 3, column 4, the quality of crust leather exported to China in 2006 does not differ from the North. Product upgrading relative to the North is also insignificant. These results fail to support hypothesis two for China.

In Table 2, the positive and significant coefficient for firm size indicates that larger firms export higher quality products. Except for wet-blue, the outcome is mostly consistent across tables 2 and 3. Moreover, as reported in Table 11 in the Appendix A, the interaction between firm size and the time trend is significant and positive for crust leather and manufactured products, suggesting that larger firms are more likely to experience product upgrading compared to smaller firms.

5.2.4. Robustness

Robustness tests were carried out using sub-samples that exclude firms exporting below 50,000 and 100,000 USD respectively. Results are provided in Tables 7 and 8 in the Appendix A. Overall, the outcome of tables 2 and 3 are mostly confirmed, with the coefficient for firm size in Table 6 changing its sign and significance as smaller firms are progressively excluded. The main difference concerns the coefficient for Time*Africa in Table 8, column 6, which becomes insignificant. Importantly, this suggests that slower product upgrading in regional value chains overwhelmingly affects small producers with limited market share.

5.3. Value-added tasks and functional upgrading

This section presents the results of regression models (3) and (4).

5.3.1. South

In Table 4, columns 1, 3, and 5, exports to the South (indicated as South_Rest) are associated with lower value-added tasks than exports to the North. All coefficients are significant at the 1% level. AMEs in

| Table 3 |
| Product upgrading. |
| Dependent variable: ln(UV) | Wet-blue | Crust leather | Manufactured products |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| South_Rest (2006) | -0.289*** (0.063) | -0.259*** (0.045) | -0.061 (0.434) | -0.405 (0.621) | 0.179 (0.445) | 0.732 (0.455) |
| Africa (2006) | -0.449*** (0.157) | -0.449*** (0.117) | -0.229 (0.370) | -0.560 (0.622) | -0.899*** (0.230) | 0.188 (0.230) |
| China (2006) | -0.159*** (0.036) | -0.094* (0.055) | -0.059* (0.243) | 0.041 (0.179) | -0.115* (0.716) | -0.116** (0.408) |
| Time*South_Rest | 0.004 (0.012) | 0.004 (0.014) | 0.004 (0.034) | 0.004 (0.067) | 0.004 (0.069) | 0.004 (0.058) |
| Time*Africa | 0.022 (0.037) | 0.012 (0.031) | -0.082*** (0.023) | 0.058 (0.105) | 0.025 (0.046) | -0.081** (0.041) |
| Time*China | 0.022*** (0.009) | 0.004 (0.006) | 0.029 (0.031) | 0.029 (0.023) | 0.072 (0.121) | -0.135 (0.083) |
| Firm size | 0.095*** (0.019) | 0.024 (0.052) | 0.034 (0.035) | 0.159*** (0.057) | 0.075*** (0.019) | 0.275*** (0.026) |
| Constant | 2.571*** (0.231) | 3.457*** (0.590) | 1.664 (0.633) | -0.201 (0.640) | 2.759 (0.307) | -0.061 (0.330) |
| Firm and time random slopes | NO | YES | NO | YES | NO | YES |
| Sd Time | – | 0.170*** (0.73) | – | 0.211*** (0.87) | – | 0.390*** (0.45) |
| Sd Constant | – | 1.076*** (0.47) | – | 1.687*** (0.85) | – | 2.428*** (0.86) |
| Observations | 12,373 | 12,373 | 1208 | 1208 | 13,334 | 13,334 |
| R-squared / ICC | 0.47 | 0.85 | 0.73 | 0.87 | 0.45 | 0.86 |

Notes: SEs are clustered by firm and reported in parenthesis for all models. P-values (***, **, * indicate significance at 1%, 5% and 10 % levels respectively). Uninteracted time trend and product fixed effects not reported. The multilevel models in columns 2, 4, and 6 report the ICC score to indicate the proportion of the variance explained by the firm-year grouping.
Table 4
Value-added tasks.

| Dependent variable: value-added task | Wet-blue, crust leather, manufactured products – 1 | Crust leather, manufactured products – 1 | Manufactured products – 1 |
|--------------------------------------|--------------------------------------------------|------------------------------------------|---------------------------|
|                                      | (1)                                             | (2)                                      | (3)                       |
| South_Rest                           | –2.603*** (0.422)                               | –2.622*** (0.714)                        | –2.746*** (0.594)         |
| Africa                               | 4.056*** (1.222)                                | 4.442*** (0.881)                         | 3.725*** (0.958)          |
| China                                | –4.033*** (0.622)                               | –3.914*** (1.037)                        | –5.604*** (0.799)         |
| Firm size                            | 0.32*** (0.078)                                 | –0.488*** (0.067)                       | –0.567*** (0.060)        |
| Constant                             | –0.832 (1.080)                                  | 5.982*** (1.085)                         | 5.996*** (1.079)          |
| Time fixed effects                   | YES                                             | YES                                      | YES                       |
| Firm fixed effects                   | NO                                              | NO                                       | NO                        |
| Observations                         | 28,471                                          | 28,471                                   | 28,471                    |
| R-squared                            | 0.61                                            | 0.61                                     | 0.61                      |

Notes: SEs are clustered by firm and reported in parenthesis. P-values (***, **, * indicate significance at 1%, 5% and 10% levels respectively). The multilevel models in columns 2, 4, and 6 report the ICC score to indicate the proportion of the variance explained by the firm-year grouping.

Table 5
Functional upgrading.

| Dependent variable: value-added task | Wet-blue, crust leather, manufactured products – 1 | Crust leather, manufactured products – 1 | Manufactured products – 1 |
|--------------------------------------|--------------------------------------------------|------------------------------------------|---------------------------|
|                                      | (1)                                             | (2)                                      | (3)                       |
| South_Rest (2006)                    | –2.619*** (0.634)                               | –1.363* (0.781)                         | –1.729*** (0.599)         |
| Africa (2006)                        | 6.541*** (1.863)                                | 4.974*** (1.169)                        | 4.489*** (1.060)          |
| China (2006)                         | –3.741*** (0.577)                               | –9.484*** (2.463)                      | –9.146*** (2.488)        |
| Time*South_Rest                      | 0.117 (0.102)                                   | –0.101 (0.070)                         | 0.019 (0.059)             |
| Time*Africa                          | –0.302** (0.127)                                | –0.129 (0.099)                          | –0.079 (0.082)            |
| Time*China                           | –0.149 (0.116)                                  | 0.187*** (0.051)                      | 0.167 (0.130)             |
| Firm size                            | 0.328*** (0.085)                                | –0.482*** (0.088)                       | –0.550*** (0.080)        |
| Constant                             | –0.490 (1.412)                                  | 5.814*** (1.572)                        | 5.828*** (1.568)          |
| Firm and year random slope           | NO                                              | NO                                       | NO                        |
| Sd Time                              | –0.304*** (0.026)                               | –0.240*** (0.107)                       | –0.360*** (1.540)        |
| Observations                         | 28,471                                          | 28,471                                   | 28,471                    |
| R-squared / ICC                      | 0.60                                            | 0.60                                     | 0.60                      |

Notes: SEs are clustered by firm and reported in parenthesis for all models. P-values (***, **, * indicate significance at 1%, 5% and 10% levels). Regressions 2, 4, and 6 are unweighted as linear regressions with fixed effects do not allow for non-constant weights within clusters. R-squared in columns 2, 4, and 6 is within-firm.

Tables 6 show that raw material and wet-blue are respectively 8.8 % and 19.4 % more likely to go to the South than to the North, while crust leather and manufactured products are respectively 6.3 % and 21.9 % less likely to go to the South than to the North. Once firm fixed effects are introduced, the coefficients in Table 4, columns 2 and 6, turn insignificant. However, the coefficient in Table 4, column 4, indicates that suppliers are significantly less likely to engage in more sophisticated tasks (crust leather and manufactured products) when exporting to the South than when exporting to the North. Overall, these results fail to support hypothesis three.

The outcome of the LGM in Table 5, columns 1, 3, and 5, indicates that, despite a significantly lower probability of specializing in higher value-added tasks in 2006, suppliers did not experience either more or less functional upgrading in South-South than in North-South value chains. In Table 5, columns 2, 4, and 6, including firm random intercepts and slopes shows no significant difference in functional upgrading for suppliers across South-South and North-South value chains. These results do not support hypothesis four.

5.3.2. Africa

In Table 4, columns 1, 3, and 5, Africa is associated with higher value-added tasks compared to the North. Coefficients are positive and statistically significant at the 1% level for all tasks. AMEs in Table 6 show that wet-blue is 55.2 % less likely to go to Africa than to the North, while crust leather and manufactured products are 52.8 % more likely to go to Africa than to the North. Crust leather is equally likely to be sold regionally or to the North. Coefficients are significant at the 5% and 10 % levels respectively, bringing partial support to hypothesis three.

The outcome of the LGM in Table 5, columns 1, 3, and 5, indicates...
that in 2006 suppliers were more likely to engage in higher value-added tasks when exporting to Africa than to the North. Yet, suppliers in intra-Africa value chains experienced neither more nor less functional upgrading than they did in South-North value chains. The only exception pertains to the relatively slower upgrading trend from raw material in Table 5, column 1, which is significant at the 5% level. In the model with firm random intercepts and slopes in Table 5, columns 2, 4, and 6, all coefficients for Time*Africa turn insignificant. As for the global South, these results do not support hypothesis four.

5.3.3. China

In Table 4, columns 1, 3, and 5, the outcome for China is tantamount to the one observed for the rest of the South. All coefficients are negative and significant at the 1% level. AMEs in Table 6 show that China-led value chains are respectively 25 and 9.7 % significantly more likely to acquire raw material and wet-blue, while they are respectively 5.8 % and 28.8 % less likely to acquire crust leather and manufactured products compared to the North. Once firm fixed effects are introduced, the coefficients in Table 4, columns 2 and 6, turn insignificant. However, the negative and significant coefficient in Table 4, column 4, indicates that suppliers are less likely to export crust leather and manufactured products to China than they are to the North. These results do not support hypothesis three.

The outcome of the LGM in Table 5, column 3, indicates that despite a significantly lower probability of specializing in higher value-added tasks in 2006, suppliers in China-led value chains experienced functional upgrading into crust leather significantly faster than in North-South value chains. Once firm random intercepts and slopes are introduced in column 4, the coefficient for Time*China remains significantly greater than the North at the 1% level. This result provides partial support to hypothesis four. The coefficients for firm size in Table 4 indicate that larger suppliers are less likely to export crust leather and manufactured products. Coefficients are all significant at the 1% level and consistent with those reported in Table 5. In Table 12 in the Appendix A, the interaction between firm size and the time trend points to an insignificant coefficient. This suggests that larger suppliers are neither more nor less likely to experience functional upgrading than their smaller counterparts.

In tables 3 and 5, the significant coefficient of the standard deviation for the time- and constant-variables, as well as the intra-class correlation (ICC) suggest the presence of significant heterogeneity across firms, both in terms of their initial unit values and upgrading trends, further warranting the use of MLRs for the estimation of models (2) and (4).

5.3.4. Robustness

Models (3) and (4) were also estimated using sub-samples of firms who exported over 50,000 and 100,000 USD respectively. Results are presented in Tables 9 and 10 in the Appendix A and they are consistent with those reported in tables 4 and 5.

6. Discussion

6.1. Product quality and product upgrading (hypotheses 1 and 2)

The results of model (1) provide some support to hypothesis one, in that Kenyan wet-blue exports to Northern buyers have significantly higher unit values than exports to Southern and African buyers. Despite this evidence, a clear difference emerges between China and the rest of the South, with the former featuring quality and price characteristics similar or higher than premium Northern markets. This outcome casts doubts on the homogeneity of Southern buyers and, more specifically, on the role that China plays within South-South value chains. One explanation may be that China itself is gradually catching up with the North (Van Assche & Van Biesebroeck, 2018), especially in the coastal provinces in which most Chinese leather buyers are concentrated. Another reason may be that China is acting as a processing hub for Northern markets (Ma & Van Assche, 2010). Kenyan leather exports to China may therefore need to comply with higher product standards as they are further processed and exported to Northern countries. More research is needed to analyse China’s atypical role in South-South value chains.

Concerning hypothesis two, the evidence from model (2) is mixed. No significant difference in product upgrading emerges between North-South and South-South value chains, including China. Nevertheless, at the manufacturing stage, intra-Africa value chains experienced significantly lower product upgrading than North-South value chains. We speculate here that this trend is hardly the consequence of learning by exporting occurring in North-South value chains (Siba & Gebreyesus, 2017). Conversely, it is possible that more efficient and larger firms export to Northern markets, whilst smaller suppliers join less demanding regional markets where higher competition leads to lower prices. The fact that the relatively slower product upgrading associated with intra-Africa value chains disappears once smaller firms are excluded in the robustness test warrants this conclusion.

More generally, a reason why our analysis does not find systematic differences in product upgrading among suppliers exporting to Northern and Southern buyers may be because product upgrading occurs before suppliers enter North-South value chains. That is, it may be the case that Northern buyers help Southern suppliers develop higher-quality products, but this has already materialized by the time they are exporting. Further research should explore in more detail the processes and timing at which exporters conduct product upgrading to comply with the product standards imposed by Northern buyers. This would help establish whether this was the result of a self-selection process or rather of inter-destination upgrading in which participation in South-South value chains helped firms achieve the product standards required to export to the North.

6.2. Value-added tasks and functional upgrading (hypotheses 3 and 4)

Our analysis highlights a negative association between South-South value chains and value-added tasks, failing to support hypothesis three. Kenyan exporters are more likely to specialize in the less sophisticated value-added tasks (raw material and wet-blue) when exporting to the South, while they are more likely to specialize in the more sophisticated tasks (crust leather and manufactured products) when exporting to the North. These results are consistent for the Global South, including China. Yet, they differ for intra-Africa value chains in that Kenyan suppliers are more likely to specialize in manufactured products when exporting to Africa than to the North, providing limited support to hypothesis three.

| Table 6 |
|---------------------------------|----------------|----------------|----------------|----------------|
| | Raw material | Wet-blue | Crust leather | Manufactured products |
| South_Rest | 0.088*** (0.025) | 0.194*** (0.046) | -0.063*** (0.030) | -0.219*** (0.055) |
| Africa | -0.010** (0.004) | -0.552*** (0.049) | 0.034 (0.085) | 0.528*** (0.119) |
| China | 0.250** (0.074) | 0.097* (0.053) | -0.058*** (0.022) | -0.288*** (0.055) |

Notes: SEs clustered by firm are reported in parenthesis. P-values (***, **, * indicate significance at 1%, 5% and 10 % levels).
Model (4) confirms hypothesis four for China-led value chains, yet not for other Southern destinations. Results do not point to any significant difference in functional upgrading between South-South and North-South value chains. Neither is this the case for intra-Africa value chains. Nevertheless, despite specializing in lower value-added tasks in the starting year, suppliers experienced steeper functional upgrading into crust leather when exporting to China than when exporting to the North.

Concerning hypotheses three and four, the outcomes of models (3) and (4) lead to three major considerations. First, the lack of any significant differences across North-South and South-South value chains casts doubt on the link between standards, governance, and functional upgrading presented in the literature (Gereffi et al., 2005; Humphrey & Schmitz, 2002; Navas-Alemán, 2011; Strange & Humphrey, 2018). In other words, there is no systematic evidence that suppliers’ functional upgrading is directly influenced by lower product standards and less captive governance underpinning South-South value chains. Considering the importance that this link plays in the GVC literature, more work is needed to validate or invalidate this relation.

Second, the relatively faster functional upgrading characterising China-led value chains provides fresh evidence in support of studies associating this market with specialisation in increasing value-added tasks (Van Assche & Van Biesenbroeck, 2018; Wang & Wei, 2010). In fact, as Chinese buyers experience functional upgrading so do their upstream suppliers. For instance, as reported by the chair of the Kenya Leather Development Council (KLDC), China’s recent implementation of stricter environmental standards which led to the closure of several tanneries in the Hebei and Guangdong regions (Smith, 2013), has played a pivotal role in stimulating the country’s import of higher value-added inputs from Kenya.

Finally, the role of Africa as a Southern hub for higher value-added tasks brings partial support to studies indicating RVCs as suitable platforms for value addition (Brandt & Thun, 2018; Navas-Alemán, 2011; Staritz & Morris, 2017). While not displaying faster functional upgrading, firms exporting to Africa present no slower trend either. This suggests that firms entering this market may do so directly from manufacturing rather than via functional upgrading from lower value-added tasks. In this respect, section 7 sheds light on how suppliers participating in South-South value chains upgrade into higher value-added tasks within regional and domestic markets – we conceptualise this dynamic as inter-destination upgrading.

7. Inter-destination upgrading: evidence from interviews

Drawing on interviews with 17 Kenyan tanneries, this section explores the mechanisms shaping suppliers’ upgrading strategies. Specifically, it focuses on the role of intra-Africa value chains as a hub for specialisation in high value-added tasks, nonetheless characterised by lower unit values and relatively slower product upgrading.

Fig. 3 reports on the horizontal axis the value-added task attained by each tannery over the last five years and relates it to their average monthly production (vertical axis), the main destination of the value-added task (dots’ colour), and the number of product-related improvements recently carried out by the firm (indicated by the number of + next to each dot). The outcome supports hypothesis one pointing to a positive relation between product quality and participation in North-South compared to South-South value chains. The four suppliers exporting to the North are all endowed with new machineries and operate frequent renovations and scheduled maintenance. As Tan-1 remarks, ‘European buyers share specifications on the product they want and make recommendations on how production should take place’ (Thika, 26/08/2016). Tan-3 further identifies stiffer EU regulations as the main trigger for European clients’ involvement in defining product standards: ‘Europeans, because of EU-REACH regulations, are stricter about the product. This does not happen with other clients [in the South]’ (Nairobi, 24/08/2016).

Improvements in product quality have been carried out also by two wet-blue suppliers operating in South-South value chains, while firms exporting into Africa and selling domestically display much lower scores. This outcome is in line with the results of models (1) and (2), in which intra-Africa value chains (including Kenya) maintain relatively lower quality and product upgrading.

In Fig. 3, product quality is positively associated with firm size, suggesting that smaller suppliers face a barrier when it comes to accessing premium markets. In contrast to large suppliers, smaller tanneries exporting wet-blue to the South use second-hand machineries which cannot provide the quality demanded by buyers in the North. According to a trader working with a mid-sized tannery, ‘there is only so much quality that you can achieve with these machineries… They buy second-hand machineries, maintenance is scarce, and workers lack the knowledge to achieve quality throughout the tanning process… At least the one required to export to Europe’ (Nairobi, 07/09/2016). In this context, tanneries interested in exporting a premium product to Northern buyers try to upgrade their products and re-organise production. However, these upgrading plans are often constrained by lack of institutional support, credit, and, more importantly, access to quality raw material. Whilst large tanneries control the supply chain through upstream collection points, smaller tanneries often procure what remains via middlemen or as sub-contractors (KLDC, Nairobi, 03/08/2016).

Limited access to raw material, along with the lack of machineries and skills required to improve product quality, not only prevents smaller suppliers from accessing premium markets, but puts further pressure on account balances negatively affecting profits from wet-blue exports. In a situation characterised by low quality and low profit margins, small tanneries operating in South-South value chains embark on functional upgrading within the domestic and regional markets – defined here as inter-destination upgrading. For instance, Tan-8 stresses: ‘the margins on poor quality wet-blue are zero… Now, if you process it for the local market and you make leather-goods, you find a way to make it profitable…’ (Nakuru, 05/09/2016). As to why he engaged in functional rather than product upgrading, Tan-5 responded: ‘mark-ups on wet-blue were dropping and we needed to add value… However, the capacity to produce high quality leather for premium markets is not there, so we looked inwards to the local and regional market and we saw a business case for leather footwear’…’ (Nairobi, 27/09/2016).

In this context, domestic and regional markets provide a unique platform for sales of processed leather and manufactured products, which are in high demand among the over 300 informal manufacturers in the Nairobi Kariokor hub, as well as across Tanzania, Uganda, and Burundi (COMESA-LLIP, Addis Ababa, 06/03/2017). Furthermore, the regional
market for leather and manufactured products represents a guarantee of stability, as prices are less prone to sudden shocks compared to semi-processed wet-blue. Tan-9, who used to export wet-blue to the South, argues in this sense: ‘the growth of the local market for leather and manufactured goods is a guarantee of more stable and constant orders that we do not have from other markets’ (Nairobi, 19/09/2016).

In sum, our qualitative analysis suggests that functional upgrading into crust leather and manufactured products allows producers to secure more stable profits within domestic and regional value chains, especially when scarce resources preclude the investment required to improve product quality and access premium North-South value chains. In line with the analysis in section 5, this evidence supports hypothesis three for the African market. Furthermore, to the extent that firms participating in South-South value chains experienced steeper functional upgrading than their counterparts working with the North, hypothesis four is also supported. This appears to be the result of inter-destination upgrading (not captured by model (4)), whereby producers exporting low-quality wet-blue to the South are more likely to engage in functional upgrading within domestic and regional value chains.

8. Conclusion

As stressed in this special issue, the impact of GVCs on firms’ innovation and upgrading is an area that warrants closer investigation (Pietrobelli & Rabellotti, 2011; Van Assche et al., 2016). Such an agenda is all the more critical as suppliers increasingly serve multiple value chains across the North and the Global South (Horner & Nadvi, 2018, p. 207). Drawing on evidence from the Kenyan leather sector, this article has explored how trade in North-South and South-South value chains differently affects suppliers’ upgrading prospects. The study contributes to the literatures on GVCs and the global factory, shedding further light on the link between GVCs and upgrading as suppliers export to markets with different product standards and consumer preferences. Although the results of our country-specific study are not immediately generalisable, the methodological framework is constructed to allow for replication and further testing in different geographical contexts and sectors.

The article supports the hypothesis that product quality is positively associated with suppliers’ participation in North-South value chains. Qualitative evidence in section 7 links this result to the presence of more stringent product specifications in developed countries. Conversely, the hypothesis that suppliers are more likely to engage in comparatively higher value-added tasks when operating in South-South value chains is not supported. However, it is important to point out that we observe significant variations among Southern destinations. Notably, Kenyan leather exports to China exhibit similar and, at times, higher unit values than exports to the North, while exports to other African countries are associated with comparatively higher value-added tasks than all other destinations. Further research is needed to shed light on the role of public regulations and consumer preferences in driving the governance of GVCs among different Southern markets.

Concerning economic upgrading, no significant difference emerges between North-South and South-South value chains, failing to support the hypotheses that participation in North-South value chains favours comparatively higher product upgrading, while participation in South-South value chains boosts functional upgrading. Once more, however, there is significant variation in outcomes across Southern destinations. On the one hand, exporting to China leads to more rapid functional upgrading than exporting to the North. This outcome supports the scholarship associating China with increasing value-added and knowledge-intensive tasks (Van Assche & Van Biesebroeck, 2018; Wang & Wei, 2010). On the other hand, the African market is associated with relatively slower product upgrading. This is especially the case among smaller firms, suggesting that less demanding product standards and lower entry barriers can lead to increasing competition in Southern regional markets (Ouma, 2010; Sheldon, 2012).

Overall, the lack of a systematic difference in the upgrading trends characterising suppliers’ participation in North-South and South-South value chains does not imply that Northern and Southern markets have no role in shaping how Kenyan suppliers upgrade. Their impact may simply not be as immediate as suggested by the literature. In this respect, this article provides three major contributions.

First, the association of South-South value chains with a ‘race to the bottom’ in terms of product quality and specialisation in value-added tasks is called into question (Gereffi, 2014; Kaplinsky et al., 2011; Staritz et al., 2011). Accordingly, policymakers should acknowledge that trade with developed countries does not necessarily translate into more (or less) upgrading for local suppliers than South-South trade; whilst factors such as industrial and trade policy may play a more prominent role (Pietrobelli & Staritz, 2018). Moreover, by challenging the concept of a homogeneous Global South, this article warns against an holistic approach to the study of South-South trade (Dahi & Demir, 2016; Horner & Nadvi, 2018; Klinger, 2009; Mohanty et al., 2019), calling for further research on the roles played by firms from different developing countries in governing global and regional value chains.

Second, firm-specific characteristics are crucial in shaping upgrading. The fact that higher product standards in the North do not translate into steeper product upgrading suggests that suppliers may improve their production before entering North-South value chains. Buttesting the outcome of the econometric model, the qualitative analysis points to how profitability, access to raw material, and firm size interact across North-South and South-South value chains to inform suppliers’ upgrading strategies. In this context, inter-destination upgrading emerges when local suppliers exporting low-quality products to the Global South engage in functional upgrading within domestic and regional value chains. This dynamic, which is not captured in the models, suggests the need to bridge the literature on GVCs with systematic evidence on the agency of suppliers in shaping upgrading, whilst calling for a more nuanced understanding of how different destinations drive this phenomenon (Kadarusman & Nadvi, 2013; Pietrobelli & Rabellotti, 2011).

For instance, how do suppliers self-select in North-South value chains? If this is the result of inter-destination upgrading, what mechanisms enable some firms to move into more profitable export markets and others not?

Finally, this article has implications for the emphasis on upgrading and governance as leading narratives to understand the ‘shifting geography of trade’ marking the formation of South-South value chains (Gereffi, 2014; Horner, 2016). As discussed in section 7, suppliers’ upgrading not only rests on vertical interactions with their buyers, but it further depends on a set of institutional constraints shaping firms’ strategies. These dynamics have been recently explored by the literature on global production networks and uneven development, in an effort to disclose the combined role of states, firms, and civil society in governing value chains (Alford & Phillips, 2018; Gereffi & Lee, 2016). Similarly, the work of Kano (2018) and Hao, Flynn, and Zhao (2017) has pointed to the complex configuration of outsourcing practices in the global factory, whose structure hinges on social mechanisms influencing suppliers’ capabilities. Incorporating these views into the study of firms’ upgrading will help scholars to grasp the implications of growing South-South trade for suppliers in developing countries, providing a lens to interpret global trends in relation to contextualised experiences of participation in global and regional value chain.

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Appendix A
Table 7
Robust regression testing model (1) for firms exporting over 50,000 and 100,000 USD.

| Dependent variable: ln(UV) | Wet-blue | Crust leather | Manufactured products |
|----------------------------|----------|---------------|-----------------------|
|                            | >50,000  | >100,000      | >50,000               | >100,000              |
| South_Rest                 | –0.231*** | –0.231***     | –0.160                | –0.160                |
|                            | (0.05)   | (0.05)        | (0.302)               | (0.305)               |
| Africa                     | –0.253*** | –0.253***     | –0.528***             | –0.529***             |
|                            | (0.068)  | (0.068)       | (0.152)               | (0.153)               |
| China                      | –0.014   | –0.014        | 0.206***              | 0.206***              |
|                            | (0.025)  | (0.025)       | (0.004)               | (0.004)               |
| Constant                   | 1.068*** | 1.069***      | 2.117***              | 2.134***              |
|                            | (0.121)  | (0.121)       | (0.119)               | (0.119)               |

Notes: SEs clustered by firm are reported in parenthesis. P-values (***, **, * indicate significance at 1%, 5% and 10 % levels). R-squared is within-firm.

Table 8
Robust regression testing model (2) for firms exporting over 50,000 and 100,000 USD.

| Dependent variable: ln(UV) | Wet-blue | Crust leather | Manufactured products |
|----------------------------|----------|---------------|-----------------------|
|                            | >50,000  | >100,000      | >50,000               | >100,000              |
| South_Rest (2006)          | –0.251*** | –0.252***     | –0.410                | –0.410                |
|                            | (0.045)  | (0.044)       | (0.634)               | (0.639)               |
| Africa (2006)              | –0.467*** | –0.467***     | –0.566                | –0.568                |
|                            | (0.113)  | (0.114)       | (0.635)               | (0.642)               |
| China (2006)               | –0.094*  | –0.094*       | 0.027                 | 0.025                 |
|                            | (0.055)  | (0.055)       | (0.184)               | (0.187)               |
| Time*South_Rest (2006)     | –0.003   | –0.004        | 0.043                 | 0.042                 |
|                            | (0.014)  | (0.014)       | (0.068)               | (0.069)               |
| Time*Africa (2006)         | 0.014    | 0.014         | 0.059                 | 0.060                 |
|                            | (0.031)  | (0.031)       | (0.107)               | (0.108)               |
| Time*China (2006)          | 0.004    | 0.004         | 0.030                 | 0.030                 |
|                            | (0.005)  | (0.006)       | (0.024)               | (0.024)               |
| Firm size (2006)           | 0.083*   | 0.066         | 0.062                 | –0.291**              |
|                            | (0.043)  | (0.047)       | (0.155)               | (0.143)               |
| Constant (2006)            | 2.142*** | 2.301***      | 0.973                 | 5.941                 |
|                            | (0.487)  | (0.523)       | (2.065)               | (1.776)               |
| Firm and year random slopes| YES      | YES           | YES                   | YES                   |
| Sd Time                    | 0.152*** | 0.154***      | 0.257***              | 0.256***              |
|                            | (0.079)  | (0.084)       | (0.151)               | (0.144)               |
| Sd Constant                | 0.970*** | 0.934***      | 1.787***              | 1.536***              |
|                            | (0.970)  | (0.971)       | (2.065)               | (1.776)               |
| Observations               | 12,339   | 12,318        | 989                   | 983                   |
| ICC                        | 0.82     | 0.81          | 0.87                  | 0.83                  |

Notes: SEs are clustered by firm and reported in parenthesis for all models. P-values (***, **, * indicate significance at 1%, 5% and 10 % levels respectively). Uninteracted time trend and product fixed effects not reported.

Table 9
Robust regression testing model (3) for firms exporting over 50,000 and 100,000 USD.

| Dependent variable: value-added task | Wet-blue, crust leather, manufactured products – 1 | Crust leather, manufactured products – 1 | Manufactured products – 1 |
|-------------------------------------|---------------------------------------------------|----------------------------------------|---------------------------|
|                                     | >50,000                                           | >100,000                               |                           |
| South_Rest                          | 0.001                                            | 0.001                                  | –0.043***                |
|                                    | (0.011)                                          | (0.011)                                | (0.015)                  |
| Africa                              | 0.002                                            | 0.003                                  | 0.161***                 |
|                                    | (0.007)                                          | (0.009)                                | (0.066)                  |
| China                               | –0.046                                          | –0.046                                 | –0.032***                |
|                                    | (0.031)                                          | (0.031)                                | (0.012)                  |
| Constant                            | 0.887***                                         | 0.885***                               | 0.342***                 |
|                                    | (0.035)                                          | (0.035)                                | (0.031)                  |
| Firm and time fixed effects         | YES                                              | YES                                    | YES                       |
| Observations                        | 23,530                                          | 21,993                                 | 23,530                   |
| R-squared (within)                  | 0.05                                             | 0.05                                   | 0.05                      |

Notes: SEs clustered by firm are reported in parenthesis. P-values (***, **, * indicate significance at 1%, 5% and 10 % levels). Regressions are unweighted as linear regressions with fixed effects do not allow for non-constant weights within clusters. R-squared is within-firm.
Table 10
Robust regression testing model (4) for firms exporting over 50,000 and 100,000 USD.

| Dependent variable: value-added task | Wet-blue, crust leather, manufactured products – 1 | Crust leather, manufactured products – 1 | Manufactured products – 1 |
|-------------------------------------|---------------------------------------------------|-------------------------------------------|---------------------------|
|                                     | >50,000 >100,000                                   | >50,000 >100,000                          | >50,000 >100,000           |
| South Rest (2006)                   | -0.003 -0.004                                     | -0.020** -0.021**                        | -0.001 -0.001             |
|                                     | (0.024) (0.025)                                   | (0.009) (0.009)                           | (0.002) (0.003)           |
| Africa (2006)                       | -0.003 -0.001                                     | 0.342** 0.335**                          | 0.048 0.048               |
|                                     | (0.017) (0.017)                                   | (0.159) (0.164)                           | (0.037) (0.040)           |
| China (2006)                        | -0.076 -0.076                                     | -0.047*** -0.047***                      | -0.002 -0.002             |
|                                     | (0.054) (0.054)                                   | (0.008) (0.008)                           | (0.002) (0.002)           |
| Time*South Rest                     | 0.001 0.001                                      | 0.000 0.000                               |                           |
|                                     | (0.004) (0.004)                                   | (0.003) (0.003)                           |                           |
| Time*Africa                         | -0.000 -0.001                                     | -0.004 -0.003                             | -0.000 -0.000             |
|                                     | (0.003) (0.002)                                   | (0.003) (0.003)                           | (0.000) (0.000)           |
| Time*China                          | 0.009 0.009                                      | 0.005** 0.005**                          | 0.000 0.000               |
|                                     | (0.024) (0.025)                                   | (0.002) (0.001)                           | (0.000) (0.000)           |
| Firm size                           | 0.003 0.023                                       | -0.132*** -0.116***                      | -0.167*** -0.164***       |
|                                     | (0.022) (0.027)                                   | (0.021) (0.030)                           | (0.020) (0.025)           |
| Constant                            | 0.856*** 0.391*                                   | 1.931*** 1.742***                        | 2.373*** 2.347***         |
|                                     | (0.246) (0.339)                                   | (0.284) (0.406)                           | (0.233) (0.307)           |
| Firm and time random slope          | YES YES                                          | YES YES                                   | YES YES                   |
| Sd Time                             | 0.021*** 0.024***                                | 0.000 0.002***                           | 0.001 0.001               |
| Sd Constant                         | 0.455*** 0.551***                                | 0.097*** 0.107***                        | 0.167*** 0.179***         |
| Observations                        | 23,530 21,993                                    | 23,530 21,993                             | 23,530 21,993             |
| ICC                                 | 0.97 0.97                                        | 0.75 0.76                                 | 0.99 0.99                 |

Notes: SEs are clustered by firm and reported in parenthesis for all models. P-values (***, **, * indicate significance at 1%, 5% and 10 % levels respectively). Uninteracted time trend not reported.

Table 11
Product upgrading by firm size.

| Dependent variable: ln(UV) | Wet-blue | Crust leather | Manufactured products |
|----------------------------|----------|---------------|-----------------------|
|                            |          |               |                       |
| Time                       | 0.003    | -0.206*       | -0.098**              |
|                            | (0.065)  | (0.118)       | (0.045)               |
| Firm size                  | 0.101*** | -0.052        | 0.004                 |
|                            | (0.030)  | (0.060)       | (0.025)               |
| Time*Firm size             | 0.003    | 0.015**       | 0.013***              |
|                            | (0.004)  | (0.007)       | (0.004)               |
| Observations               | 12,373   | 1208          | 13,334                |
| R-squared                  | 0.45     | 0.72          | 0.43                  |

Notes: SEs clustered by firm are reported in parenthesis. P-values (***, **, * indicate significance at 1%, 5% and 10 % levels). Control variables not reported are products.

Table 12
Functional upgrading by firm size.

| Dependent variable: value-added task | Wet-blue, crust leather, manufactured products – 1 | Crust leather, manufactured products – 1 | Manufactured products – 1 |
|-------------------------------------|---------------------------------------------------|-------------------------------------------|---------------------------|
|                                     | >50,000 >100,000                                   | >50,000 >100,000                          | >50,000 >100,000           |
| Time                                 | 0.015 -0.348 -0.121                               | -0.072*** -0.735***                      |                           |
|                                     | (0.119) (0.274) (0.216)                           | (0.107) (0.166) (0.218)                   |                           |
| Firm size                            | 0.008 0.025 0.006                                | 0.006                                    |                           |
|                                     | (0.009) (0.020) (0.014)                           | (0.006)                                  |                           |
| Time*Firm size                       | 0.35 0.37 0.45                                   | 0.35 0.37 0.45                           |                           |
| Observations                        | 28,471 28,471 28,471                             | 28,471                                  | 28,471                    |

Notes: SEs clustered by firm are reported in parenthesis. P-values (***, **, * indicate significance at 1%, 5% and 10 % levels).

Appendix B. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi: https://doi.org/10.1016/j.jwb.2020.101161.

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