The University of Manchester
Global Development Institute

# Global Development Institute

## Working Paper Series

2021-060

November 2021

ISBN: 978-1-912607-18-1

# Polycentric governance of global and domestic horticulture value chains: shifting standards in Kenyan fresh fruit and vegetables

Giovanni Pasquali[1]

[1] Global Development Institute, The University of Manchester, UK

Email: Giovanni.pasquali@manchester.ac.uk

Stephanie Barrientos[1]

[1] Global Development Institute, The University of Manchester, UK

Email: Stephanie.barrientos@manchester.ac.uk

Maggie Opondo[2]

[2] Institute for Climate Change and Adaptation, University of Nairobi, Kenya

Cite this paper as:

Pasquali, G., Barrientos, S and Maggie Opondo (2021) Polycentric governance of global and domestic horticulture value chains: shifting standards in Kenyan fresh fruit and vegetables. GDI Working Paper 2021-060. Manchester: The University of Manchester.

**Abstract**

Global value chain (GVC) research has long analysed private governance by Northern lead firms, with an increasing focus on the role of public governance. The expansion of domestic value chains (DVCs) within the Global South, which overlap with GVCs, has been shown to incorporate private governance by Southern lead firms. However, we know little about the role of public governance in this evolving value chain context. Kenya provides an example of rapid changes in domestic retail value chains, combined with the introduction of public standards that replicate private standards in fresh fruit and vegetable (FFV) value chains supplying domestic and global retailers. This paper asks: how are shifts taking place between private and public governance of value chains as GVCs increasingly overlap with DVCs that also intersect with open markets? Analytically, the paper advances the concept of polycentric governance as a dynamic process that reflects the diffusion of lead firms' power in intersecting value chains *vis-à-vis* the growing importance of public actors. Empirically, it draws on research in the Kenyan avocado and green bean sectors to reveal a private governance void at the intersection between GVCs and DVCs that was recently filled by the government's introduction of the public standard KS-1758(2). Critically, our paper reveals the limits of lead firms' dyadic and direct power in governing their interactions with Kenyan suppliers. Rather, we argue that a more diffuse and collective form of power emerges from the intertwining of private and public governance in a polycentric context, spanning global and domestic value chains. Furthermore, despite highlighting significant challenges in implementing public standards, the paper illustrates how polycentric governance in FFV could become the norm as DVCs expand across the Global South.

**Keywords**

Polycentric governance, Value Chains, Horticulture, Kenya, Standards

**JEL Codes**

O13; Q13; Q17; Q18

**Acknowledgements**

This paper is based on research funded by the ESRC–GCRG research project (ES/S0004) 'Shifting South: Decent Work in Global Value Chains and South–South Trade'. It represents work in progress for discussion and feedback. We thank Matthew Alford for comments on a previous version. The paper does not represent the views of the funding organisation or any other body; the authors alone are responsible for any shortcomings.

## 1. Introduction

Global value chain (GVC) studies have traditionally focused on how lead firms in the Global North "exercise their corporate power to actively shape the distribution of profits and risks" *vis-à-vis* their suppliers in the Global South (Gereffi et al, 2005; Gereffi & Lee, 2016, p 27). This dynamic is known as private governance. More recent contributions have further highlighted the roles of public and civil society actors in shaping GVC institutional and regulatory environments by means of public and social governance (Alford & Phillips, 2018). Importantly, this emerging literature describes the governance of GVCs as 'multipolar', in that the power to regulate global production networks increasingly depends on the interaction of private, public and social governance (Alford et al, 2017; Ponte & Sturgeon, 2014). However, this scholarship has primarily focused on GVCs dominated by lead firms in the Global North (Pasquali & Alford, 2021).

The geography of value chains is nevertheless changing, underpinned by the rise of regional and domestic value chains (RVCs and DVCs) governed by lead firms within the Global South (Horner, 2016). The concept of polycentric trade has recently been introduced to indicate a situation in which suppliers in developing countries increasingly serve a variety of value chains oriented towards different end-markets across the Global North and South (Horner & Nadvi, 2018). As argued by numerous studies, the geography of value chains entails important economic and social implications for firms and workers (Kaplinsky et al, 2011; Pasquali, 2021; Tessmann, 2018). Notably, private governance has been found to play a differential role in emerging RVCs and DVCs compared with traditional North–South GVCs, with comparatively less attention paid to private codes of conduct and quality standards (Barrientos et al, 2016; Langford, 2021; Pickles et al, 2016). Despite this evidence, little is known about the role of public governance in these emerging value chains, or its interaction with the private governance of both Northern and Southern lead firms. In this paper we therefore ask: how are shifts taking place between private and public governance of value chains, as GVCs increasingly overlap with DVCs that also intersect with open markets?

To address this analytical gap, we advance the concept of 'polycentric governance' as a framework for analysing private and public governance arrangements in a context where global and domestic value chains overlap with more traditional and often informal arm's length markets (hereafter termed 'informal markets'.[1] This approach unpacks power as a key dimension of GVC governance in a context where diverse market channels intersect, involving a range of lead firms, state and civil society actors, and suppliers. In this way, we aim to complement existing literatures on the role of public governance in GVCs led by firms in the Global North (Alford, 2016; Alford & Phillips, 2018; Tallontire et al, 2014) by bringing in a focus on expanding DVCs in the

[1] In this paper we use the term GVCs where lead firms coordinate cross-border intercontinental sourcing; and DVCs where lead firms coordinate supply within the same country. Furthermore, these are both distinct from more traditional, often informal arm's length markets, where transitions occur on a spot-market basis with no lead firm's coordination.

Global South. Critically, our paper posits that polycentric governance in the Global South arises in response to a private governance void. This occurs when the intersection of GVCs and DVCs with more informal markets constrains lead firms' dyadic power to coordinate suppliers, as well as their ability to directly enforce private standards. In response, as we shall observe, the state emerges next to lead firms in (re)shaping the value chain regulatory environment. As such, power becomes increasingly collective – as it is shared among a broader range of actors beyond lead firms – and diffuse – involving a multiplicity of regulatory actors (Dallas et al, 2019). But we argue that governance remains polycentric, given that national public governance is insufficient to displace global private governance in a GVC world.

Empirically, the paper focuses on horticulture value chains, in which global and domestic supermarkets have been playing an increasingly dominant role within the Global South (Das Nair, 2018; Henson & Reardon, 2005). Here, private governance involves adherence to standards covering product (food safety), social (labour and smallholders) and environmental characteristics of production processes across a diverse range of farmers supplying global and domestic supermarkets (Das Nair & Landani, 2019; Pickles et al, 2016). This is illustrated by examination of Kenya's fresh fruit and vegetables (FFV) sector, with a focus on: (1) avocados, a fruit traditionally produced for the Kenyan domestic market but increasingly exported; and (2) green beans, traditionally an export vegetable now increasingly sold in domestic supermarkets. Kenya is a country that has experienced rapid change in its retail sector, and local supermarkets increasingly source FFV through DVCs that intersect with GVCs and informal markets (Krishnan, 2018). On the one hand, this process has led to a 'convergence' of food regulations through the spill-over of private standards (such as GlobalGAP) from GVCs to DVCs (Pickles et al, 2016; Pasquali et al, 2021). On the other hand, as we shall observe, it has further disclosed the limitations of supermarkets' private governance in addressing food safety standards, leading to crises in international and domestic markets. Together these aspects have led the Kenyan government to define and introduce a mandatory public standard, known as KS-1758 (Part 2).[2] Critically, the case of Kenya FFV and KS-1758 illustrates how polycentric governance can arise where challenges to food standards in consumer-facing value chains intensify. This is especially true where lead firms' power to enforce private standards becomes limited by the private governance void that emerges when sourcing involves a complex web of large and small-scale suppliers.

To explore the polycentric governance of Kenya's horticulture value chains, we rely on two data sources. Our first and primary source is semi-structured interviews with staff from ten large producers and first-tier suppliers, four supermarkets, four consolidators (operating in Nairobi Wakulima market), 16 informal vendors across Nairobi Wakulima and City Park markets, and seven institutional government and trade bodies.[3] All

[2] KS-1758 is composed of two parts: Part 1, floriculture, and Part 2 fruits and vegetables. In this paper we focus only on Part 2, often abbreviated to KS-1758.
[3] All the actors interviewed and cited in this paper (except for public bodies) have been anonymised using codes to protect confidentiality.

interviews were conducted by the authors between August and October 2019 in Nairobi, Murang'a and Nakuru counties, with selected follow up interviews conducted virtually between May-June 2021. To inform and complement this evidence, as a second source we have consulted transaction-level customs data from the Kenya Revenue Authority (KRA), which records all export transactions between first-tier Kenyan suppliers and foreign buyers, reporting the value of each transaction, the product type and quantity, and firms' unique identifiers.[4]

The paper is divided into five sections. The next section examines the concepts of governance and power in GVCs. It further advances the concept of polycentric governance to explore how power dynamics involving private firms, governments and civil society unfold in a context of intersecting global and domestic value chains. Section three examines the changing profile and rapid transformation of Kenyan supermarket retail and FFV sourcing through three intersecting channels: GVCs, DVCs and informal open markets. Examples from Kenyan avocado and green bean sectors inform the analysis of these intersecting channels. Section four reveals a governance void resulting from uncertified produce entering DVCs (and probably GVCs), and how the Kenyan government has responded to this void through the introduction of KS-1758 (part 2). Section five discusses the implications of polycentric governance for Kenyan horticulture global and domestic value chains that intersect with informal markets, and further relates it to the broader GVC literature.

## 2 Value chain governance: a polycentric perspective

### *2.1* From private to multipolar governance

Private governance is arguably the most studied aspect of GVCs, spanning the economic geography, international development and business study literatures (Kano et. al. (2020); Ponte et al, 2019). It focuses on how lead firms organise and control the sourcing of products and knowledge flows with their globally dispersed suppliers (Gereffi & Lee, 2016).[5] Approaches to the analysis of GVC governance have evolved over time. Gereffi (1994) first distinguished between 'buyer-driven' and 'producer-driven' GVCs, depending on whether the regulatory power rested with downstream retailers or more upstream producers. Horticulture is usually identified as 'buyer-driven', with large supermarkets in developed countries governing the chain (Dolan & Humphrey, 2004). In turn, suppliers in developing countries need to adhere to lead firms' governance, which normally involves compliance with strict private standards, codes of conduct and traceability requirements dictating product and process specifications, as well as labour and environmental conditions (Nadvi, 2008).

---

[4] Previous research shows how these data can be used to explore patterns of market consolidation and the private governance buyer–supplier interaction over time (Dallas, 2015; Pasquali, 2021).

[5] The definition of governance used here has also been termed 'private governance', distinguishable from 'public' and 'social' governance, where GVC dynamics are, respectively, shaped by the action of national governments and those of civil society actors (Alford & Phillips, 2018).

As products and knowledge exchanged through GVCs became increasingly complex, more nuanced GVC analysis explored differing levels of codifiability and constraints on suppliers' capabilities. Gereffi et al (2005) first examined how lead firms were establishing more hierarchical governance structures as product specifications become more difficult to codify, suppliers' capabilities more constrained and the risk deriving from non-compliance higher. Conversely, when specifications are simple and easily codifiable, buyers can avoid incurring the additional costs associated with coordinating suppliers, and may revert to arm's length exchanges. Between fully integrated hierarchical value chains and arm's length transactions, Gereffi et al (2005) identified a taxonomy of private governance. This includes: 'modular' networks, where suppliers make products to a buyer's specifications and standards; 'relational' networks, in which suppliers are further dependent on buyers' assistance to carry out production; and 'captive' networks, where suppliers are intensively monitored and face significant switching costs.

Gereffi et al's (2005) taxonomy of GVC governance has played a critical role in the analysis of lead firms' ability to dictate supplier compliance with product and social standards (Nadvi, 2008; Ouma, 2010; Tallontire et al, 2011). However, their taxonomy has been criticised for a too rigid approach when applied to the analysis of the regulatory framework (including both standards and public legislation) in which firms operate. First, while providing conceptual insights by distinguishing five coordination mechanisms underpinning private governance, in reality sourcing by lead firms often occurs through a mix of these mechanisms, including variations across segments of the same value chain (Barrientos, 2019; Ponte & Gibbon, 2005). Second, the power dynamics underpinning the interaction between lead firms and suppliers are critically influenced by the institutional and social contexts in which such actors operate (Dallas et al, 2019).

In this respect, lead firms are not the only actors shaping the governance of value chains: public bodies and civil society organisations also play an important regulatory role (Horner & Alford, 2019; Mayer & Phillips, 2017). To the extent that the power to govern GVCs emanates from different 'poles' cutting across lead firms, civil society and state actors, scholars have characterised the governance of GVCs as 'multipolar' (Ponte & Sturgeon, 2014). Several case studies examine the incidence of multipolar governance in GVCs coordinated by lead firms in the Global North.[6]

Combining the Gereffi et al (2005) taxonomy of private governance with a multipolar approach facilitates a deeper analysis of power in GVCs as a multidimensional concept spanning the 'coordination and governance' activities of lead firms and the 'regulation' activities of states and civil society (Ponte et al, 2019). In this respect, power in GVCs may stem either from individual lead firms – ie dyadic power – and/or from a wider group of actors including social and public bodies – ie collective power. Furthermore,

[6] For example, see Pasquali and Alford (2021), Amengual, M. (2010) 'Complementary Labor Regulation: The Uncoordinated Combination of State and Private Regulators in the Dominican Republic', *World Development*, 38(3), pp. 405–414. doi: 10.1016/j.worlddev.2009.09.007 and Ponte and Gibbon (2005).

power may be either direct, when it stems from the intentional action of lead firms leveraging their dominant position to impose their own private standards, or diffuse, when power emanates from less direct processes, including societal trends and regulations that originate beyond the intentional action of single lead firms (Dallas et al, 2019). In this conceptualisation, the bargaining position of lead firms is greater in more hierarchical or modular chains, involving close inter-firm relations underpinned by dyadic and direct power. But power asymmetries become more diffuse where arm's length linkages are predominant, and a collective range of actors (including governments, civil society organisations and multi-stakeholder initiatives) is involved.

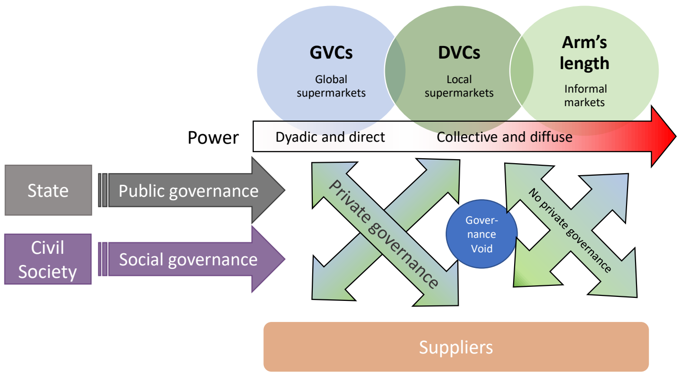
## 2.2 Polycentric governance

The literature on governance is overwhelmingly focused on GVCs coordinated by lead firms in the Global North. Research is still at an early stage in understanding how private standards and public regulations coexist within DVCs in the Global South (Horner, 2016; Horner & Nadvi, 2018), and examination of the interaction of public, private and social governance is limited (Langford, 2019; Schouten & Bitzer, 2015; Pickles et al 2016). This pattern is further complicated by the fact that GVCs and DVCs do not exist in a vacuum. Firms are often 'multi-chain', in that they simultaneously navigate different value chain channels based on complex cost–benefit calculations (Pasquali et al, 2021).

The intertwining of trade flows through GVCs and DVCs across multiple end-markets has been defined as 'polycentrism': "with more polycentric trade, producers may face, and simultaneously be involved in, a variety of different value chains and production networks oriented towards various end-markets with distinct requirements" (Horner & Nadvi, 2018, p 220). A critical aspect of polycentrism is that suppliers need to adhere to multiple governance structures emanating from value chains serving multiple lead firms across the Global North and South, and by extension to more traditional arm's length trade (Horner & Nadvi, 2018).

We propose an analytical framework that extends the concept of multipolar governance (originally limited to a GVC context) to a polycentric context where GVCs, DVCs and informal markets intersect. The conceptual underpinnings of this matrix are illustrated in Figure 1, where private, public and social governance together shape firms' interactions across the three market segments. It is important to note that our choice of market segments is informed by our case study of Kenya's FFV (see Section 3). However, the geographical configuration of value chains is likely to vary depending on the country or sector analysed, which calls for a potential (re)adaptation of this analytical framework to specific cases.

**Figure 1: Polycentric governance**




*Source*: Authors' compilation.

A key feature of Figure 1 is the overlapping of the circles depicting GVCs, DVCs and informal markets. While much GVC analysis in the horticulture sector assumes flows (of product and information) between buyers in the Global North and suppliers in the Global South, there is growing evidence of producers supplying lead firms in different markets, including domestic and regional ones (Das Nair, 2018; Pickles et al, 2016). In this scenario, researchers have observed that DVCs' lead firms are often positioned at the intersection between GVCs and informal markets, effectively sourcing from suppliers dedicated to GVCs, as well as those selling into the informal local economy. Many producers supply more diversified value chain and market channels, enhancing their bargaining power with different buyers (Ouma, 2010; Barrientos et al, 2016). This has implications for private governance to the extent that global lead firms have a relatively stronger ability to govern their dedicated suppliers *vis-à-vis* lead firms in DVCs sourcing through different channels (Navas-Alemán, 2011; Pasquali & Alford, 2021). Open markets have previously been observed to display no private governance in a context dominated by arm's length transactions (assumptions discussed further in Section 3).

Here we build on the conceptualisation of governance and power advanced by Dallas et al (2019). We posit that interactions between GVCs' lead firms and suppliers are more likely to be characterised by dyadic and direct power, enhancing lead firms' bargaining position and ability to coordinate their immediate suppliers via their own private standards. Conversely, moving into intersecting DVCs and informal markets, the power of domestic lead firms is expected to become comparatively less dyadic and direct. This is because, as new markets emerge and suppliers increasingly operate in a polycentric context, spill-over effects are likely to reduce the bargaining power experienced by lead firms in previously dedicated GVCs (Barrientos et al, 2016; Pasquali et al, 2021). For instance, this would be the case if GVC suppliers offloaded part of their certified produce into DVCs, increasing their bargaining power *vis-à-vis* global buyers (Krishnan, 2018). Expansion of the supply base also reduces the ability of lead firms to coordinate a wider number of small and sub-contracted suppliers, some of whom also produce for informal markets where no private governance prevails. Overall, in a situation characterised by a wider range of suppliers operating across multiple channels, a private governance void may occur (depicted to the right in Figure 1), where lead firms' dyadic power is constrained and their ability to directly coordinate a complex supply base reduced.

The occurrence of this private governance void, we posit, is an important driver towards what Dallas et al (2019) term 'collective power'. Notably, in the absence of strong private governance by lead firms, DVCs are expected to present a more multipolar structure, with power being collectively exercised by a broader range of private and public actors. However, rather than use the term 'collective', which implies a significant level of private–public collaboration or synergy (Gereffi & Lee, 2016), we argue that the term 'polycentric' is more relevant, as it indicates more than one centre of authority coexisting. This occurs especially where both global and national actors are involved and the judicial scope of government regulation is geographically limited to the sourcing country. This means public governance can at best complement but not necessarily displace the private governance that continues to be exercised globally by GVCs' lead firms across borders. Hence we posit polycentric governance is more relevant in intersecting GVCs, DVCs and informal markets. We will now explore this analytical framing empirically through examination of Kenyan FFV.

## 3 Governance of Kenyan FFV value chains

Horticulture GVCs evolved from the 1980s as large North American and European supermarkets expanded their sourcing from the Global South. A key feature of GVCs in comparison to more traditional wholesale retailing was a high level of coordination of suppliers undertaken by Northern retailers through the use of exclusivity contracts, plus strict product and process standards (Barrett et al, 1999). This uni-directional North–South flow began to fan out in the early 2000s with the expansion of retail chains based within Asia, Latin America and later Africa (Reardon & Hopkins, 2006). Evidence from South America and Sub-Saharan Africa suggests that local supermarkets have led the formation of regional and domestic value chains, largely replicating the sourcing strategies of their counterparts in the Global North. Importantly, the expansion of supermarkets in the Global South has not displaced traditional arm's length trade, which in many cases still dominates the FFV sector, but it emerged alongside pre-existing markets to serve the growing middle class in urban centres (Reardon et al, 2007).

Kenya has been at the centre of the expansion of horticulture GVCs, as well as the more recent emergence of DVCs led by local supermarkets. First, starting from the early 1990s, Kenya has become an important location for European retail sourcing of

FFV (Evers et al, 2014). Commercial fruit and vegetable production for GVCs has grown to represent a key industry for the Kenyan economy, accounting for 8% of the country's total exports and 26% of its agricultural GDP.[7] 'Non-traditional' export produce, including green beans, mangetouts, sugar snap peas and baby corn, was rarely consumed locally (Dolan & Humphrey, 2004). An extensive literature describes the private governance characterising Kenyan suppliers' participation in GVCs, dominated by stringent private standards to ensure product quality and traceability (see Section 4).

In parallel with the expansion of GVCs, local supermarkets have led the emergence of DVCs for FFV. In Kenya, supermarkets have grown over the past two decades in what is known as the fourth wave of the 'supermarket revolution' (Pickles et al, 2016; Reardon & Hopkins, 2006).[8] This process has been driven by urbanisation, which in Kenya increased from 19% in 1998 to 27% in 2018,[9] with continued growth projected. Urban residents have less access to their own food sources, and supplying an urban population requires more sophisticated distribution and retail networks than in rural areas. Moreover, rising female labour force participation (which rose from 61% in 2008 to 64% in 2018[10]) has also reduced the time women have to shop and prepare food, leading to greater dependence on supermarket shopping and ready prepared food (Barrientos, 2019).

Early supermarket expansion was dominated largely by Kenyan owned companies, with minimal global retail penetration. By 2010, four Kenyan supermarkets (Nakumatt, Tuskys, Uchumi and Naivas) effectively dominated the market, with around 200 outlets across urban areas in Kenya and East Africa. This profile has been severely disrupted since the 2000s, with the demise of dominant nationally owned supermarkets, the expansion of emerging retail chains and the entry of international companies. These include the French company Carrefour in 2015, followed by South African GAME (a subsidiary of Massmart Holdings owned by Walmart) in 2016. Subsequently, financial challenges and escalating debt led to Nakumatt, Tuskys and Uchumi being reduced to only a handful of stores by 2019, with Nakumatt and Tuskys finally collapsing in 2020. In the same period the South African supermarket Shoprite and the Botswanan Choppies also entered the Kenyan market, but quickly retreated (RETRAK official, August 2019).

[7] Data for 2016, calculated based on Kangai and Gwademba (2017), by excluding floriculture from the total horticulture output.
[8] Such a 'global supermarkets revolution' occurred in four major waves (Reardon & Hopkins, 2006): the first was across Latin America and East Asia in the 1990s, the second covered Central America, South Africa and Southeast Asia, the third extended to less developed areas of Latin and Central America, China and India in the early 2000s, while the fourth wave has characterised large portions of Eastern and Southern Africa over the past two decades.
[9] See https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=KE.
[10] See https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS?locations=KE.

Despite the expansion of supermarkets selling fresh produce in Kenya's main cities, cultural norms shaped a consumer preference for purchasing much FFV from vendors in informal markets. Nevertheless, Kenya's retail shift was associated with a changing offer of quality FFV within supermarkets, including a broader range of non-traditional vegetables previously produced for export only. Formal retail of FFV is likely to continue expanding, and different estimations suggest it already accounts for 10% to 15% of domestic sales of fresh produce (Chemeltorit et al, 2018; Matui et al, 2017), up from about 4% in 2003 and zero in the mid-1990s (Reardon & Neven, 2004). While research on the private governance of DVCs remains limited, recent studies have found that local suppliers serving domestic supermarkets in South Africa and Kenya face more demanding private standards, revealing a potential 'convergence' trend between DVCs and GVCs (Das Nair, 2018; Kamau et al, 2019).

Our research focuses on green beans and avocados because of their simultaneous sale in GVCs, DVCs and informal markets. Green beans have traditionally been regarded as an export crop for the European market (Njoba, 2016). However, following a major crisis in 2013 (see Section 4), green bean exports to Europe have decreased significantly – from 44% to 22% of Kenya's FFV total exported value since the pre-crisis period (Ajwang, 2020). Simultaneously, domestic and regional trade in and consumption of green beans has increased, largely driven by the expansion of local supermarkets and the redirecting of export production (including reject produce) towards domestic markets (Koigi, 2016; Krishnan, 2018; SNV, 2012, p i). In 2017, it was estimated that 20% of the 45,000 tons of annual green bean production was for local consumption (of which more than two-thirds were export rejects) (European Commission, 2018).

In contrast to green beans, avocados have only recently become an export crop. While this fruit's production was previously limited to domestic markets, exports have risen by 400% – from 7% to 25% of Kenya's total FFV export value between 2008 and 2018 (ITC, 2020). In 2018, it was estimated that roughly 35% of total avocado production was exported, with the remainder consumed in Kenya (Amare et al, 2019). Domestic consumption of avocados has also grown significantly, along with consumers' awareness of its benefits for health and a balanced diet.[11] Importantly, 70% to 80% of Kenyan FFV production (including of both green beans and avocados) comes from smallholder farmers with land holdings of an average 0.47 hectares (Kangai & Gwademba, 2017; Matui et al, 2017). This aspect is crucial for further understanding the role of private governance across GVCs and DVCs.

## 4 Private governance and the power dynamics of Kenya's FFV

The key dimension of private governance is the power of lead firms to require compliance with private standards and coordinate their application throughout the value chain. This is particularly critical in fresh produce, where non-compliance with food safety standards potentially endangers consumer health. In FFV, coordination includes

[11] Interview, Kenya Agricultural and Livestock Research Association (KALRO) official, August 2019.

traceability across all chain actors (from farmer to retailer) to facilitate identification of all those producing and handling products at every stage and to identify hazards. In hierarchical and modular horticulture GVCs with a limited number of suppliers, traceability is fairly straightforward. But where GVCs intersect with DVCs and local markets, coordination of standards and traceability becomes more problematic. Here we analyse the governance of the three intersecting channels through which Kenyan FFV producers sell produce: first, GVCs that operate across continents (mainly to European markets); second, DVCs organised by supermarkets operating in Kenya; for simplification we also include RVCs here, given that African supermarkets often (but not always) use their national distribution centres to direct produce to their stores in other African countries; and third, traditional networks feeding into local open markets.

### 4.1 G*VC*s: modular and consolidated networks

GVCs linking large first-tier suppliers to lead retailers in the UK and the EU are largely characterised as modular (Dolan & Humphrey, 2004).[12] These value chains acquire about 5% of Kenya's FFV production and are dominated by tight product and process standards, including social and environmental compliance (Kangai & Gwademba, 2017). They are tightly coordinated and monitored by large international retailers, with the bargaining power to dictate terms and require the application of private product, environment and social standards. Such standards reflect strict EU phytosanitary regulations, food safety requirements and the need to assure consumer quality and reduce contamination risk (Okello et al, 2011). They also result from civil society campaigns on the environment and labour standards (Barrientos, 2019).

The private governance of GVCs reflects lead firms' dyadic and direct power. Power is dyadic because the interaction between lead firms and suppliers is modular, repeated over time, and directly managed by lead firms controlling all aspects of production (Krishnan, 2018; Pasquali et al, 2021). It is also direct in that it operates through private standards and codes of conduct written and enforced by European lead firms (eg Tesco Nature, M&S Food to Fork). In some cases, lead firms have also joined together to establish common standards, which are often more stringent than EU import regulations (Nadvi, 2008). These include: (1) GlobalGAP, which sets standards of good agricultural and environmental practices and limited social compliance; (2) KenyaGAP (now largely redundant), a domestic scheme benchmarked to GlobalGAP and tailored to Kenya's smallholder farming profile (Otieno & Knorringa, 2012); (3) the Hazard Analysis and Critical Control Points (HACCP), a systematic preventive approach to food safety from biological, chemical and physical hazards in production processes throughout the value chain; (4) the Ethical Trading Initiative (ETI) Base Code, covering labour conditions based on core International Labour Organization (ILO) conventions (including no forced or child labour, freedom of association and no discrimination), and the implementation of national labour legislation.

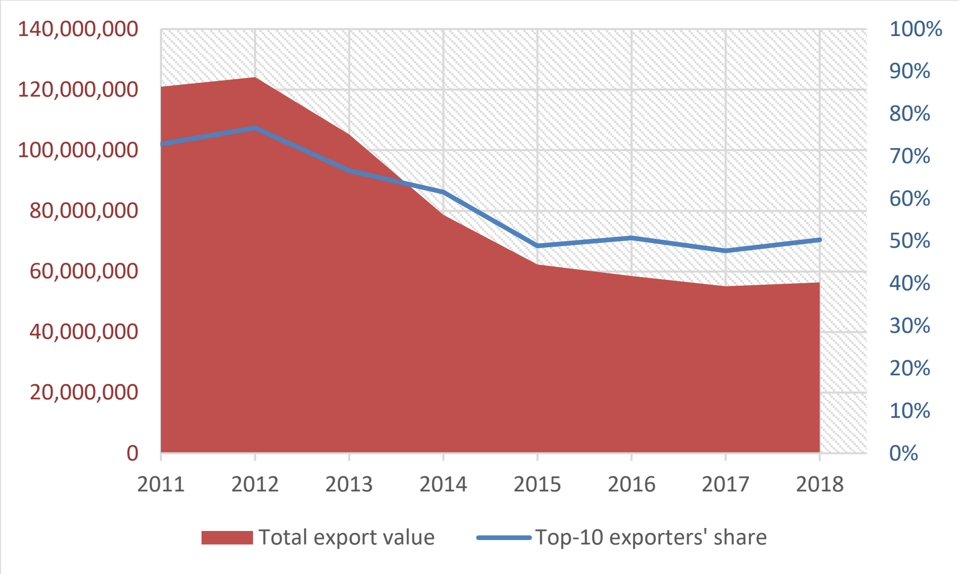
[12] UN-COMTRADE data suggest that 30% and 32% of Kenya's fruit and vegetable exports for 2019 went to the UK and the EU, respectively, with the remaining share going largely to the Middle East and Africa.

Private governance of GVCs by European lead firms leverages coordination mechanisms that ensure traceability at every FFV value chain tier. In Kenya, GlobalGAP is most relevant at farm level (Otieno et al, 2017), requiring certified suppliers to provide lead firms with records on all production practices, including the size of plot earmarked for production, the timing of planting, fertilising, spraying and harvesting, and everyone who handles produce from farm level, including farmers and hired labour. GlobalGAP certifies larger farms individually, but requires smallholders to be organised in small producer organisations (self-help groups – SHGs – or cooperatives) for group certification.

All ten GVC suppliers interviewed in this study confirmed that European retailers operated through modular networks where lead firms demand and directly verify compliance with GlobalGAP and other certifications: "Our European buyers are very rigorous. Everything has to be GlobalGAP certified and there is no room for error!" (Supplier S-3, September 2019). Seven of 10 interviewed suppliers further reported organising and sourcing from smallholder SHGs, thereby leading to a trickling-down of standards from lead firms to smallholders via large first-tier suppliers.

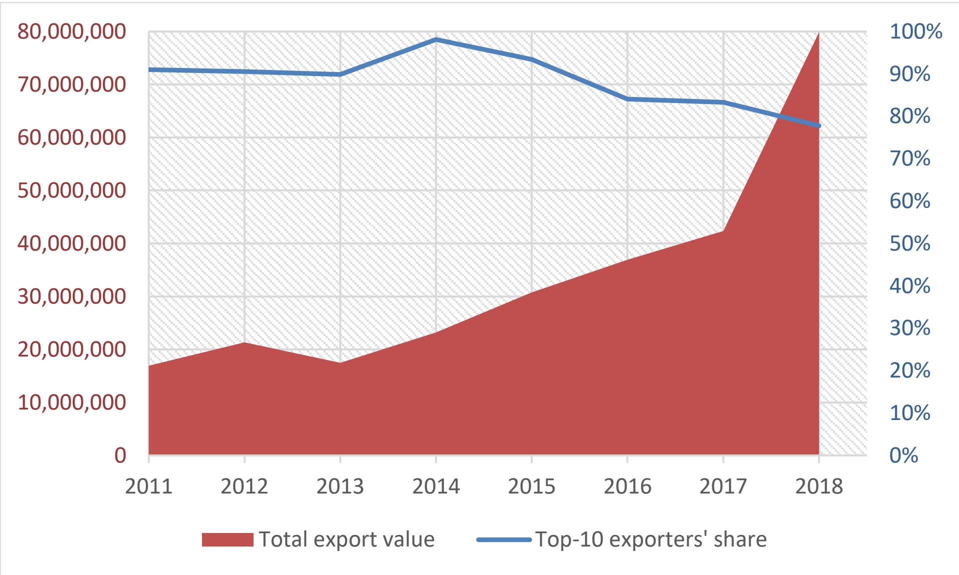
Trade data collected by the Kenya Revenue Authority (KRA) for avocados and green beans export transactions reveal that lead firms' dyadic power translates into a consolidation process, whereby Kenyan exporters enter long-term relationships with European buyers. In 2018, the largest five and ten first-tier suppliers accounted for, respectively, 35% and 50% of green bean exports to Europe, while the same figures increase to 65% and 78% for avocados. We also found that this consolidation trend has been reducing slightly over the 2011–18 period (Figures 2 and 3), as the export share of the top ten exporters oscillated between 76% and 50% for green beans and between 95% and 78% for avocados. The consolidation of GVCs is further illustrated by the fact that the top five Kenyan suppliers to Europe (for both crops) remained fairly stable over the years: three of the top five Kenyan suppliers of both avocado and green beans in 2007 were the same in 2018.

**Figure 2: Green bean exports to Europe and the UK, total value ($US) and share of top ten exporters**




Source: KRA (2019).

**Figure 3: Avocado exports to Europe and the UK: total value ($US) and share of top ten exporters**




*Source*: KRA (2019).

## 4.2 Domestic value chains: emerging supermarket-driven networks

The second channel underpinning Kenya's trade in FFV is that of DVCs governed by supermarkets operating domestically and regionally within Africa (Pickles et al, 2016). As discussed in Section 3, supermarket-driven DVCs roughly account for 10% to 15% of Kenyan FFV production (Chemeltorit et al, 2018; Horticultural Crops Directorate (HCD) official, August 2019). Larger supermarkets and groceries within Kenya source some FFV from farms that also supply GVCs, as well as from uncertified agents supplying informal markets. In this respect, DVCs present multiple private governance dynamics, spanning GVC-like dyadic and direct power relations as well as more arm's length transactions.

All four Kenya-based supermarkets we interviewed reported having an organised sourcing system in place that guaranteed traceability. These supermarkets keep an official list of suppliers and their scheduled deliveries, with information about their location, farm size and products. Normally, these suppliers are large to medium-sized farms (above two acres) that can guarantee consistent and regular deliveries. Despite this, as of 2019 no supermarket had implemented any explicit private standards (either their own or from third-party auditing bodies) throughout their supply chain. Instead, to the extent that standards were monitored, this was done by leveraging producers' GlobalGAP certifications required to participate in GVCs. As one international supermarket Store General Manager stated: "We have a list of registered suppliers at each branch. Our registration system allows full traceability. We prefer to source from large companies, because they already apply GlobalGAP and look after standards implementation with their outgrowers" (Retailer R-1, August 2019). Overall, all four interviewed retailers reported leveraging GlobalGAP certifications as a guarantee of quality, which "reduces headaches" in case traceability issues arise (Retailer R-3, September 2019).

A more detailed inquiry with suppliers revealed that domestic supermarkets are also an outlet for produce that fails to meet GVC standards. Four exporters of green beans and avocados reported supplying 'reject' produce that did not meet export standards to local supermarket chains: "What is sold domestically is the reject from export. It is not grade 1. However, it still comes from GlobalGAP certified farms. The difference is only visual in terms of size and grading" (Supplier S-5, August 2019). On the one hand, therefore, supermarkets operating in DVCs establish dyadic power relations with selected suppliers. On the other, however, they do not exert private governance directly, but rely instead on standards set and enforced by GVCs' lead firms. Power is therefore dyadic, in that it operates through modular networks; yet it is more diffuse (and hence less direct) than in GVCs, in that standards and regulations are not dictated by supermarkets themselves.

The sourcing system characterising DVCs is more complex than it appears. Across all the supermarkets we surveyed, we found instances in which produce was sourced from local consolidators – ie third-party brokers who collect different types of produce from multiple smallholders and consolidate stocks. The majority of consolidators operate informally without any certification or traceability mechanisms. Notably, all the supermarkets reported sourcing from informal consolidators when their scheduled supplies fell short from meeting the expected quantity and time of delivery. As emphasised by the Store General Manager of a Kenyan supermarket chain: "We try not to use brokers, but sometimes we have to ... When there is a product shortage, we need to find it somewhere" (Retailer R-2, August 2019). A large supplier of GlobalGAP certified avocados to domestic and international supermarkets, when asked if domestic supermarkets sometimes sourced produce that was not compliant with standards replied: “Of course. It is a free-for-all system. And not just locally, everywhere, there is a backdoor” (Supplier S-6, August 2019). Importantly, when sourcing from consolidators, domestic supermarkets do not implement any form of private governance, and purchasing occurs via arm’s length interactions where price is negotiated on the spot, based exclusively on availability and visible quality considerations. This adds a further layer of complexity to the private governance underpinning DVCs – one characterised by less dyadic power dynamics, generating a private governance void where practically no formal standards are in place.

### 4.3 Informal arm’s length markets

The third channel reaches consumers via street vendors and informal ‘wet’ markets (locally known as *marikiti*). This is by far the largest segment, acquiring an estimated 75%–80% of the country’s total production of fruits and vegetables. These markets are characterised by arm’s length transactions, driven by consolidators acting as brokers connecting informal vendors to smallholder farmers.

This channel is essentially ungoverned – at most product quality is evaluated by means of visual inspection (carried out by consolidators and vendors), which affects price variations (Consolidator C-4, September 2019; KALRO, August 2019). Most of the 2000 vendors in Nairobi Wakulima market buy their produce from brokers who source it from multiple smallholder farmers across the country. In Wakulima, transactions occur early in the morning as traders bring their goods to the market. As one broker in Nairobi City Park market reported, “I come here twice a week. I buy all the avocados you see from small farmers in Muranga and Mount Kenya, and then I sell them to the best bidder in these stalls” (Consolidator C-1, September 2019). This suggests not only that there is little to no interaction between producer and retailer but also that the exchange with brokers is price-driven and occurs on a spot-market basis, with little or no possibility of tracing produce origin back to the farmer.

While contracts are sometimes used, they are normally limited to informal agreements on the time and amount to be delivered. They are rarely enforced and easily broken. Consolidators interviewed lamented that smallholder farmers often engaged in side-selling, with detrimental consequences for their business (Consolidators C-1, C-3, September 2019). In turn, smallholders complained that they were subject to poor practices by unscrupulous brokers, including failure to pay according to contractual terms (Barrientos, 2019).

There is an extensive literature analysing arm’s length interactions between consolidators/brokers and smallholder farmers in Kenya (Dolan, 2005; Mwambi et al, 2016; Tallontire et al, 2014). Power is understood here in terms of the actors’ bargaining positions and, as such, often rests with the brokers, who leverage information asymmetries and lack of coordination across smallholder producers and informal street vendors (Kilelu et al, 2017). Nevertheless, there are also several cases of producers bringing their own produce directly to markets (an occurrence reported by three out of ten vendors interviewed), or vendors sourcing directly from producers and hence bypassing consolidators (reported by three vendors). Hence, in a largely unregulated, market-driven context with an overall lack of private standards, the concepts of dyadic and direct power (as originally conceived within GVCs) become meaningless.

Despite operating via arm's length interactions with no formal standards, spill-overs from GVCs do occur. Focusing on avocados and green beans, we were able to trace produce sold in Wakulima all the way to GlobalGAP certified farms and SHGs exporting to Europe. For green beans, vendors will often report sourcing from brokers based near Nairobi International Airport, a preferred location for the packhouses of large exporters. Eight of ten vendors of green beans interviewed across Wakulima and two of six at City Park reported (re)stocking from the airport or from consolidators who sourced from there. While avocados are largely sourced via consolidators, four reported systematically selling rejects to local traders at the packhouse's door: "About 50% of our product is classified as 'reject' and goes to *marikiti*. Brokers come to the gate and buy it after we have done the grading. This happens for all our products, including avocados and green beans. We are talking of 3.5 tons per week. Another 3 tons are exported to Europe and 0.5 tons are sold to a local supermarket" (Supplier S-9, August 2019).

FFV value chains: *i*ntersecting channels and spill-overs

Mapping of the three channels (GVCs, DVCs and informal markets) via the supply of avocados and green beans shows that produce can simultaneously flow in two directions: from GVCs into DVCs and local markets, as well as from *marikiti* into DVCs.

First, as Section 4.2 revealed, an important shift is taking place in Kenyan FFV value chains, with some leading suppliers who previously only supplied European GVC lead firms now increasingly supplying supermarkets operating in DVCs. Critically, according to our supplier interviews (Suppliers S-1, S-4, S-5, S-10), most produce sold to domestic supermarkets from major GVC suppliers also meets EU supermarket requirements on GlobalGAP food safety and working conditions. Similarly to GVCs, the private governance of DVCs is therefore characterised by dyadic power, although this power link is not direct in that it leverages standards dictated by international lead firms.

Second, domestic supermarkets have been observed to source uncertified produce from local consolidators. Supermarkets reported sourcing from consolidators when their scheduled supplies fell short of meeting the expected quantity and time of delivery. From a private governance perspective, these channels are characterised by arm's length transactions and an overall lack of dyadic and/or direct power. Finally, as section 4.3 observed, our research also confirms spill-overs of produce from GVCs into local open markets: surplus or low-grade produce originally destined for export sold in informal markets often originates from GlobalGAP certified farms, although such information is normally lost in transit.

Overall, we can observe that export-oriented GVCs, supermarket-driven DVCs and informal markets present critical differences in terms of private governance and power dynamics. These channels are often blurred, as local supermarkets leverage export companies to source certified production within modular networks, while at the same time operating in informal markets when produce is not available from the former. By highlighting the growing role of domestic supermarkets as mediating actors between these channels, our results advance Ouma's (2010) empirical findings that certified and non-certified produce flows across channels. Domestic supermarkets provide FFV producers (large and small) with more options and greater value chain flexibility in terms of compliance. As we shall observe, such a context of interconnected value chains limits the power of global lead firms to tightly govern a core group of direct suppliers. This has important implications for the interaction of private and public governance of value chains more broadly, which we examine in the next section.

## 5 Polycentric governance of Kenyan FFV

Into this mix of GVCs, DVCs and informal markets, in 2019 the Kenyan government introduced a public standard, KS-1758 (Part 2). In this section we first explore how the private governance void in intersecting value chain and market channels was reflected in the failure to ensure food standards and consumer safety through the EU 'MRL crisis' and domestic health scares. Second, we examine the response of the Kenyan government to this governance void via public governance and the enactment of KS-1758.

### 5.1 Private governance void: crises in FFV value chains

An early industry-level attempt to enhance private standards in Kenyan FFV was the introduction of KenyaGAP in 2009. The aim was to adapt GlobalGAP to the local production environment with its preponderance of smallholders (Tallontire et al, 2014). However, KenyaGAP failed to take off in GVCs, as European supermarkets continued to insist on full GlobalGAP compliance; it also had very limited momentum and take-up among domestic supermarkets (KALRO official, August 2019). The failure of KenyaGAP reinforced an emerging private governance void ultimately addressed through public governance by the Kenyan government. As one interviewee pointed out, a limitation was that "KenyaGAP was not a mandatory regulation, but voluntary. If the consumer does not ask for KenyaGAP, it makes no sense for any producer or retailer to implement it. For exporters, it was also not important, as they had GlobalGAP and other international standards" (FPEAK official, August 2019). The introduction of national regulation KS-1758 was spurred by crises emerging on two fronts – international and domestic – as a result of a failure in private food standards.

*International front – the EU MRL crisis*

A crisis erupted in 2013, when the EU restricted importation of Kenyan horticultural products (largely green beans, snow peas and mangetouts) following the discovery of maximum (pesticide) residue levels (MRL) exceeding the legal limit at Europe's ports of entry (Krishnan & Pasquali, 2020).[13] This emergency (known in Kenya as the 'MRL crisis') was occurring as a result of: (1) inadequate documentation and inspection of export crops at Kenyan ports; and (2) produce with poor standards entering export channels, either through 'backstage arrangements' and/or via crops for domestic markets being diverted to exports (KEPHIS official, August 2019;[14] Ajwang, 2020). KS-1758 was precisely aimed at averting MRL crises recurring. As reported by an FPEAK official in August 2019:[15]

> If every smallholder complies with KS-1758, the risk of exporting unsafe food is also lower. If a farmer is not compliant, you don't know what is ending up there, but if everybody is compliant you know. Also, it increases our chance of exporting as more production becomes suitable for exporting.

*Domestic front – health scares*

By 2016, Kenya had been riddled by a number of scandals relating to food safety and public health. Vegetables contaminated with pesticide residues, heavy metals and nitrates significantly above the legal limits were repeatedly found in Kenya's largest open markets and supermarkets (Gathura, 2018; Yen et al, 2018). Furthermore, the growing cancer incidence in the country was increasingly attributed to changing diet patterns, entailing (among others) consumption of food-borne contaminants such as aflatoxin and mycotoxin (Karuku et al, 2019; Maiyoh & Tuei, 2019; Njagi et al., 2017). As explained by a KALRO official, increasing pressure from the press, research institutions and consumer associations (eg the Kenya Consumer Information Network) provided the momentum to push for state intervention and, as such, to uphold the KS-1758 agenda:

> The MRL crisis was a push to improve traceability! But not only that … Another major trigger was people's health. You grow good food for *wazungu* [white men] in Europe, but how about our people? In 2000, we had less than 3,000 cancer cases. Now it is almost 40,000 annually! [data checked] We are committed to stop this, and reduce the use of pesticide … At KALRO, we found out that there were many other issues

[13] The Kenyan government's first mooted engagement in FFV value chains came in 2002, when the introduction of KS-1758 was proposed by the technical multi-stakeholder, the National Food Safety Committee under the aegis of KEBS (Otieno, 2016). Nevertheless, the initial draft failed to be converted into law and went for over ten years without review.
[14] KEPHIS is the Kenya Plant Health Inspectorate Service.
[15] FPEAK is the Fresh Produce Exporters Association of Kenya.

> with produce beyond pesticide and MRL: we found heavy metals! The government commitment comes also from this … Who is testing the produce that we consume? (KALRO official, August 2019)

The MRL crisis highlighted 'regularity malfeasance', providing the impetus for a number of public governance interventions, including the introduction of licensing for third-party brokers by HCD, the obligation for exporters (later extended to importers) to renew their licence annually (instead of every five years), the strengthening of KEPHIS phytosanitary controls on both imports and exports, and, most importantly, the enactment of public standard KS-1758 (Ajwang, 2020).[16]

## 5.2 Public governance response: KS-1758 in Kenyan FFV

The government response to the private governance void in Kenya was legislating the KS-1758 Code of Practice for Horticulture Industry as a publicly driven standard seeking to minimise risks to the country's reputation as a global leader in the horticulture industry. KS-1758 Part 2 adopts a value chain approach by extending its scope to include all industry stakeholders – including growers, plant breeders, propagators, seed merchants, consolidators, transporters, shippers and cargo handlers – instrumental in ensuring compliance and sustainability along the chain. It specifies the hygienic and safety requirements during the production, handling and marketing of fruits and vegetables.

Provisions for environmental sustainability and social accountability in both the domestic and global FFV value chains are also included in the standard. An important aspect of KS-1758 is that it replicates many aspects of private standards, particularly GlobalGAP (and its local version KenyaGAP) and the ETI Base Code. However, in contrast to voluntary private standards, KS-1758 aims to be legally binding for all actors:

> KenyaGAP is a private standard, so unless you remove it from the GlobalGAP association, you cannot just take it and make it public. So, KS-1758 is compliant with KenyaGAP … But some clauses in KenyaGAP cannot be implemented for domestic production in rural areas (eg your captivation should be 50m away from any water source. But most farmers have smaller than 50m piece of land. Toilet at least 50m from production area, but smallholders have not even 50m land) so KS-1758 takes that into account! Also, what is a vessel for domestic farmers? In KenyaGAP it is for export or for moving, but farmers have a *boda* [motorbike], so you had to change these things … KenyaGAP

[16] KEPHIS phytosanitary controls were also significantly strengthened with the creation of the Electronic Certification System (ECS) for exporters and the Plant Import & Quarantine Regulatory System (PIQRS) (for importers), allowing KEPHIS to assign and revoke import licences (ie Plant Import Permits), while enabling a direct communication channel with HCD, which manages export licences.

> was already a localised version of GlobalGAP. KS-1758 is even more so! (KALRO official, August 2019)

Importantly, as reported by an officer in charge of KS-1758 at the Kenya Bureau of Standards, KS-1758 does not want to bypass or replace GlobalGAP and other private standards. Instead, it aims to cover the governance void left by the latter:

> Upon discussion it became clear that the government would not use or rely on a private standard, we needed to have a government-driven standard applicable across [the value chain] and mandatory. KenyaGAP was for few exporters and large suppliers only … We wanted to have a control applicable to everybody. (Kenya Bureau of Standards (KEBS) official, September 2019)

The creation of KS-1758 in response to the MRL crisis was largely a public move, led by the Kenyan government in collaboration with exporters' associations and the EU (along with SNV), which effectively funded the formation of the Kenya Horticultural Council (KHC) and the drafting of KS-1758. However, Kenyan civil society also played a critical role in stimulating the government response. This is reflected in the interaction between public, private and civil society actors through the process of its development. KHC was created as a multi-stakeholder forum to discuss broader issues facing the industry across the GVCs and domestic segments.[17] As of 2019, the active members of KHC included FPEAK as a representative of exporting firms; the Fresh Produce Consortium (FPC), representing domestic market producers; KALRO, tasked with research and training activities; KEPHIS as the national phytosanitary inspection body; and the main public regulatory board, HCD.

One of the first KHC initiatives occurred in 2016, as it invited the KEBS to kickstart the process of reviewing the Horticulture Code of Practice – KS 1758 Parts 1 and 2.[18] This coalesced into a multi-stakeholder initiative far beyond KHC, further involving representatives of the government and public bodies (Ministry of Agriculture, KEBS, the Pest Control Products Board, KEPHIS and HCD), private firms (FPEAK, FPC, RETRAK), research bodies (KALRO, JKUAT, SOCAA), and civil society actors (Consumer Information Network and SNV). Importantly, the Council of Governors (CoG), drawn from 47 Kenyan counties, was also involved to ensure that the standard did not remain 'toothless' and fail at the implementation stage.

KEBS, in collaboration with KHC, launched the Horticulture Code of Practice KS-1758 Part II in July 2017, with the standard being gazetted and becoming law in November

[17] Previously KFC and FPEAK dealt with sub-sector matters separately, leading to delays in responding to the challenges facing the horticultural sector.
[18] This review was a byproduct of the National Mechanism for Compliance (NMC) project funded by the Dutch government. The NMC, which was an industry-wide initiative spearheaded by KFC, sought to build capacity for sustained market access for horticultural exports into the EU market.

2019. KS-1758 represents a first attempt to include food-safety, environmental and social compliance regulations within a legally mandatory standard across all Kenya's horticultural value chains, and not just those that are export-oriented. As a KEBS official explained:

> KE-1758 borrowed from both GlobalGAP and the public standard traditions. Along with the food safety aspects, we introduced aspects that were never part of public standards in Kenya! I am talking of things like child labour, and breast-feeding mothers, toilets at work and other social and labour aspects that are not strictly related to food safety but now they are in KS-1758. (KEBS official, September 2019)

Driven by a combined effort from public, private and civil society actors, the first phase of KS-1758 was launched by KHC in 2019 and aimed to ensure compliance among exporters and importers. As acknowledged by a representative of HCD, this was a low-hanging fruit since "most of these producers were already compliant with GlobalGAP and did not require any further training" (HCD official, August 2019). At the same time, with the support of the county governments, HCD had already started a country-wide effort to register retailers, consolidators/brokers and producers in order to facilitate traceability.

As of 2021, all major GVC suppliers are legally required to be KS-1758 compliant (or risk their export licence being revoked). While no equivalence system with GlobalGAP is yet in place, all the suppliers interviewed confirmed that this was *de facto* the case, as GlobalGAP significantly facilitated their ability to meet KS-1758 standards and inspections. Where DVCs are concerned, suppliers and supermarkets are being trained and registered under KS-1758, while KEPHIS has started undertaking regular inspections at retailers' premises (KEPHIS official, June 2021). In addition, despite critical delays caused by Covid-19, in 2021 KALRO and KEPHIS initiated the process of 'training trainers' at the county level, while producing a number of KS-1758 training manuals for smallholder farmers. Nevertheless, our research suggests that consolidators and vendors operating in informal markets are still largely non-compliant, and the government's plan is to progress gradually from GVCs, to DVCs and finally to informal markets.

Overall, the enactment of KS-1758 highlights a shift in the power dynamics underpinning the interaction of GVCs, DVCs and informal markets. Notably, the role of the state and civil society emerges next to that of lead firms in shaping the regulatory environment of Kenya's multiple and intersecting FFV value chains. As such, power is becoming increasingly collective – shared among a broader range of commercial and non-commercial actors – and diffuse – including a multiplicity of standards shaped and enforced by these different actors (Dallas et al, 2019). This scenario leads to what we define as polycentric governance, to which we turn in the next section.

## 6 Discussion: polycentric governance

Drawing the above analytical and empirical exploration together, the framework of polycentric governance advanced in section 2 provides a basis for highlighting key drivers of private–public governance across this complex scenario of intersecting GVCs, DVCs and informal traditional market channels. Section 3 explored how this is playing out in the rapidly changing Kenyan supermarket sector, sourcing FFV through this combination of overlapping channels. Section 4 described private governance and power dynamics across each channel, and section 5 examined the emergence of a private governance void, contributing to new forms of public governance. The intersection of value chains is illustrated by the framework elaborated in Figure 1, extending analysis of GVC/DVC governance to incorporate open markets. Combined with the empirical findings above (summarised in Table 1), this analytical framework helps identify four key dimensions of polycentric governance.

First, it adds to the insights of Ponte and Gibbon (2005) that coordination mechanisms underpinning the private governance of value chains are not distinct (as per Gereffi et al, 2005), but intertwined. We have shown that DVC expansion further deepens this mix of coordination mechanisms, but also extends value chain linkages into local markets traditionally characterised by ungoverned, arm's length transactions. This finding extends beyond the identification of spill-overs from GVCs into domestic markets (Krishnan, 2018) towards greater blurring of the distinction between global and domestic value chains.  Driven by new regulatory actors (the state and civil society), we have found that the commercial drivers of quality standards found in GVCs are being replicated within DVCs and potentially to informal markets, particularly in relation to food safety, which is critical to consumer wellbeing.

Second, in a context of expanding DVCs and intersecting channels, our analysis of governance is enhanced by distinguishing between power and coordination (Dallas et al, 2019; Palpacuer, 2000). Where GVCs are distinct from other channels, lead firms' power can arguably be ring-fenced in relation to their selected group of suppliers, through which coordination occurs. However, as DVCs expand and overlap with GVCs, those same suppliers have a wider range of outlets, thereby limiting the dyadic and direct power of global lead firms to control production and impose their own standards (Pasquali et al, 2021). Coordination of private standards across a more complex network of large and small suppliers becomes more challenging, and standards can easily be undermined through surreptitious entry of low-quality produce, even into more rigorous GVCs (Ouma, 2010; Dannenberg & Nduru, 2013).

Interrogation of these power dynamics is further deepened by distinguishing dyadic and direct from collective and diffuse power. Global lead firms are comparatively more able to exert dyadic power over a core group of suppliers (and their subcontractors). Furthermore, power in GVCs is also direct in that lead firms are more able to define and enforce their own standards in comparison to DVCs intersecting with informal markets, which present more opaque forms of power. DVC expansion thus leads to a private governance void, which in Kenya's FFV was reflected in food safety crises cutting across international and domestic markets.

Third, much GVC analysis has emphasised the influence of social and public actors on value chain governance (Gereffi & Lee, 2016; Neilson et al, 2014; Ponte & Sturgeon, 2014). Kenyan FFV is a sector where informal markets and smallholder farmers continue to play significant roles. Our research shows that these channels are not immune from compliance pressures and, where a private governance void arises, export performance and consumer welfare are threatened. Public governance through the authority of the state has greater potential power than do global lead firms to implement and enforce rules in relation to production for global and domestic markets. In the case of Kenyan FFV, public governance has taken a value chain format that cuts across producers, consolidators and retailers in GVCs, DVCs and potentially informal markets.

Fourth, drawing these dimensions together, polycentric governance emerges as the outcome of the private governance void that has affected Kenya's FFV sector over the past decade, manifested in the MRL and health crises. We have adopted the concept of 'polycentrism' to highlight the coexistence of diverse poles of authority – where global lead firms retain power and private governance over cross-border value chains, and public governance emerges to address the void within the national judicial domain. This is illustrated by the public standard KS-1758 mirroring GlobalGAP, but further adapting and extending it beyond GVCs to domestic markets. Importantly, polycentric governance reshapes power dynamics. In Kenyan FFV, power has become less dyadic and more collective, characterised by the growing importance of state and civil society actors next to lead firms. Moreover, power has also become less direct and more diffuse, in that lead firms do not have full control over standard-setting, and regulatory power is increasingly shared with public institutions.

**Table 1: Polycentric governance across GVCs, RVCs/DVCs and local open markets**

| | Private governance and standards | Power dynamics | Public governance |
|---|---|---|---|
| **GVCs** | Modular, driven by European retailers through private standards (including GlobalGAP, HACCP, ETI Base Code, etc) | Traditionally characterised by dyadic and direct power linkages, with standards shaped and enforced by lead firms. However, KS-1758 is shifting power dynamics towards diffuse and collective power | All producers exporting their produce are required to be KS-1758 certified. De facto equivalence with GlobalGAP, although separate training and inspections take place |
| **DVCs** | Mixed governance:<br>(1) Modular, driven by supermarkets operating domestically, but leveraging global standards (as above)<br>(2) Arm's length exchanges with consolidators, no private standards (visual inspection only) | Mixed power dynamics:<br>Before KS-1758, dyadic power in modular networks (indirectly leveraging GVC standards) and lack thereof in arm's length interactions with consolidators<br>KS-1758 is shifting power dynamics towards diffuse and collective power | KS-1758 extended to cover most retailers and their suppliers. Registration of suppliers and supermarkets conducted. KEPHIS doing product checks in supermarkets |
| **Open markets** | Arm's length exchanges (either mediated by consolidators or between vendors and producers). No private standards | Lack of value chain power dynamics. Potential power-shift to take place as KS-1758 is progressively implemented | The market remains largely unregulated, though KS-1758 will apply in the future |

*Source*: Authors' compilation (2021).

## 7 Conclusion

This paper has advanced an analytical framework for polycentric governance, which provides a basis for (re)considering the power dynamics underpinning the interaction between lead firms and suppliers in a context where DVCs are expanding and increasingly intersecting with GVCs and informal markets. We explored how this is playing out empirically in the rapidly changing Kenyan horticulture sector. In this context, the emergence of global and domestic food safety crises over the past decade have highlighted a private governance void, which the Kenyan government sought to address via the introduction of public standard KS-1758, largely replicating GVC private standards but extending them to the domestic market.

We showed how intervention by the Kenyan government, supported by growing civil society concerns, is dramatically shifting power dynamics in the FFV sector across all value chains and market segments. In particular, we argued that public governance in Kenya is playing an innovative role in addressing a void in the ability of private standards to address food safety, resulting in more collective and diffuse power dynamics characterised by a broader range of actors (cutting across firms, state and civil society) and a multiplicity of private and public regulatory frameworks. As discussed in Section 6, polycentric governance has emerged as the power to regulate value chains and increasingly originates from multiple poles of authority, effectively reducing the dyadic and direct power of global lead firms. Such a phenomenon, we argue, is not necessarily synergistic and collective (Gereffi & Lee, 2016), but it can lead to tensions and inefficient replications of standards – as we saw was the case for KS-1758 *vis-à-vis* GlobalGAP.

Importantly, we do not argue that public governance is replacing governance by lead firms. Private standards will continue to play a key role in supply networks that cross international borders. KS-1758 can at best act as a complementary standard, covering export and domestic production within Kenya. Currently, exporters are expected to be certified for GlobalGAP by European retailers and by the government for KS-1758. Whether KS-1758 will ever be recognised by European retailers remains to be seen. However, there is room for optimism, as KS-1758 originates from an unprecedented multi-stakeholder effort across domestic and export producers, as well as private, public and civil society actors. To date, its introduction exemplifies a growing trend towards a greater role for public regulation in intersecting value chains, and pressure for traceability and quality assurance from producers, traders and vendors across GVCs, DVCs and local markets (Alford et al, 2017; Barrientos et al, 2016; Langford, 2021). But we acknowledge that, as a relatively recent standard, KS1758 faces many challenges in terms of the scope of implementation at smallholder level, and whether it will become a vehicle for enforcing social standards equivalent to the ETI base code or domestic labour legislation.

In conclusion, there are limitations generalising from a single country or sector study in terms of advancing the concept of polycentric governance. However, research on global value chains and global production networks increasingly emphasises the importance of power in shaping the dynamics of lead firms' sourcing across diverse socioeconomic contexts (Bair, 2006; Dallas et al, 2019; Mayer & Phillips, 2017). We therefore advance our empirical research findings as contextual illustrations of an important driver of polycentric governance, while not precluding other drivers, especially in different sectors and geographical context.

## References

Ajwang, F. (2020). 'Responsive regulation and its implications for smallholder participation in the Kenyan fresh fruit and vegetable export value chain'. *European Journal of Development Research 32*, 1288–1311.

Alford, M. (2016). 'Trans-scalar embeddedness and governance deficits in global production networks: crisis in South African fruit'. *Geoforum 75*, 52–63.

Alford, M., Barrientos, S. and Visser, M. (2017). 'Multi-scalar labour agency in global production networks: contestation and crisis in the South African fruit sector'. *Development and Change 48*, 721–745.

Alford, M. and Phillips, N. (2018). 'The political economy of state governance in global production networks: change, crisis and contestation in the South African fruit sector'. *Review of International Political Economy 25*, 98–121.

Amare, M., Mariara, J., Oostendorp, R. and Pradhand, M. (2019). 'The impact of smallholder farmers' participation in avocado export markets on the labor market, farm yields, sales prices, and incomes in Kenya'. *Land Use Policy 88*. https://doi.org/ 10.1016/j.landusepol.2019.104168.

Bair, J. (2006). 'Regional trade and production blocs in a global industry: towards a comparative framework for research'. *Environment and Planning A 38*, 2233–2252.

Barrett, H.R., Ilbery, B.W., Brown, A.W. and Binns, T. (1999). 'Globalization and the changing networks of food supply: the importation of fresh horticultural produce from Kenya into the UK'. *Transactions of the Institute of British Geographers 24*, 159–174.

Barrientos, S. (2019). *Gender and Work in Global Value Chains: Capturing the Gains?* Cambridge: Cambridge University Press.

Barrientos, S., Gereffi, G.  and Pickles, J. (2016). 'New dynamics of upgrading in global value chains: shifting terrain for suppliers and workers in the global south'. *Environment and Planning A 48*, 1214–1219.

Barrientos, S., Knorringa, P., Evers, B., Visser, M. and Opondo, M. (2016). 'Shifting regional dynamics of global value chains: implications for economic and social upgrading in African horticulture'. *Environment and Planning A: Economy and Space 48*, 1–36.

Chemeltorit, P., Saavedra, Y. and Gema, J. (2018). *Food Traceability in the Domestic Horticulture Sector in Kenya: An Overview*. 3R Kenya Research Report 003. Nairobi: 3R.

Dallas, M.P. (2015). '"Governed" trade: global value chains, firms, and the heterogeneity of trade in an era of fragmented production'. *Review of International Political Economy 22*, 875–909.

Dallas, M.P., Ponte, S. and Sturgeon, T.J. (2019). 'Power in global value chains'. *Review of International Political Economy 26*, 666–694.

Dannenberg, P. and Nduru, G. (2013). 'Practices in international value chains: the case of the Kenyan fruit and vegetable chain beyond the exclusion debate'. *Tijdschrift voor Economische en Sociale Geografie 104*, 41–56.

Das Nair, R. (2018). 'The internationalisation of supermarkets and the nature of competitive rivalry in retailing in southern Africa'. *Development Southern Africa 35*, 315–333.

Das Nair, R. and Landani, N. (2019). *The Role of Supermarket Chains in Developing Food, other Fast-moving Consumer Goods and Consumer Goods Suppliers in Regional Markets*. WIDER Working Paper 59. Helsinki: WIDER.

Dolan, C. (2005). 'Benevolent Intent? The development encounter in Kenya's horticulture industry'. *Journal of Asian and African Studies 40*, 411–437.

Dolan, C. and Humphrey, J. (2004). 'Changing governance patterns in the trade in fresh vegetables between Africa and the United Kingdom'. *Environment and Planning A: Economy and Space 36*, 491–509.

European Commission (2018). Green beans value chain analysis in Kenya. *European Commission*, *Value Chai*.

Evers, B., Opondo, M., Barrientos, S., Krishnan, A., Amoding, F. and Ndlovu, L. (2014). *Global and Regional Supermarkets: Implications for Producers and Workers in Kenyan and Ugandan Horticulture*. Capturing the Gains Working Paper 39. Manchester: GDI.

Gathura, G. (2018). 'Those succulent tomatoes and vegetables may mess your feast'. *The Standard*, 22 December [available at https://www.standardmedia.co.ke/health/health-science/article/2001307116/those-succulent-tomatoes-and-vegetables-may-mess-your-feast]. Accessed on 25th July 2021.

Gereffi, G. (1994). 'The organisation of buyer-driven global commodity chains: how US retailers shape overseas production networks'. In Gereffi, G. and Korzeniewicz, M. (eds), *Commodity Chains and Global Capitalism* (pp. 95–122). Westport CT: Praeger.

Gereffi, G. (2005). 'The global economy: organization, governance, and development'. In Smelser, N.J. and Swedberg, R. (eds), *The Handbook of Economic Sociology* (pp. 160–182). Princeton NJ: Princeton University Press.

Gereffi, G., Humphrey, J. and Sturgeon, T. (2005). 'The governance of global value chains'. *Review of International Political Economy 12*, 78–104.

Gereffi, G. and Lee, J. (2016). 'Economic and social upgrading in global value chains and industrial clusters: why governance matters'. *Journal of Business Ethics 133*, 25–38.

Henson, S. and Reardon, T. (2005). 'Private agri-food standards: implications for food policy and the agri-food system'. *Food Policy 30*, 241–253.

Horner, R. (2016). 'A new economic geography of trade and development? Governing

South–South trade, value chains and production networks'. *Territory, Politics, Governance 4*, 400–420.

Horner, R. and Alford, M. (2019). 'The roles of the state in global value chains'. In Ponte, S., Gereffi, G. and Raj-Reichert, G. (eds), *Handbook on Global Value Chains* (pp. 555–569). Cheltenham: Edward Elgar.

Horner, R. and Nadvi, K. (2018). 'Global value chains and the rise of the Global South: unpacking twenty-first century polycentric trade'. *Global Networks 18*, 207–237.

Kamau, P. Thomsen, L. and McCormick, D. (2019). 'Identifying entry barriers for food processors to supermarkets in Kenya'. *Scientific Africa 6*, 1–9.

Kangai, E. and Gwademba, G. (2017). *Creating Employment in Horticulture Sector in Kenya: Productivity, Contracting and Marketing Policies*. Utafiti Sera Policy Brief 002 [available at https://includeplatform.net/wp-content/uploads/2019/08/Creating-employment-in-horticulture-sector-in-Kenya-Productivity-contracting-and-marketing-policies.pdf]. Accessed on 25th July 2021.

Kano, L., Tsang, E. W. K. and Yeung, H. W. (2020) 'Global value chains: A review of the multi-disciplinary literature', *Journal of International Business Studies*, 51, 577–622.

Kaplinsky, R., Terheggen, A. and Tijaja, J. (2011). 'China as a final market: the Gabon timber and Thai cassava value chains'. *World Development 39*, 1177–1190.

Karuku, K.J., Mburu, D., Munga, L.K., Kurgat, R., Mukasa, B., Naliaka, F. L. et al.. (2019). 'Food-borne mycotoxin hazards in the Kenyan market – a retrospective study'. BioRxiv preprint. https://doi.org/10.1101/773747. Accessed on 25th July 2021.

Kilelu, C., Klerkx, L. and Leeuwis, C. (2017). 'Supporting smallholder commercialisation by enhancing integrated coordination in agrifood value chains: experiences with dairy hubs in Kenya'. *Experimental Agriculture 53*, 269–287.

Koigi, B. (2016). 'Kenya's EU export: good for Europeans, bad for Kenyans'. *Euractiv*, 9 December [available athttps://www.euractiv.de/section/entwicklungspolitik/news/kenias-eu-export-gut-fuer-europaeer-schlecht-fuer-kenianer/?_ga=2.88064088.1342654656.1612969646-413389997.1612969646]. Accessed on 25th July 2021.

Krishnan, A. (2018). 'The origin and expansion of regional value chains: the case of Kenyan horticulture'. *Global Networks 18*, 238–263.

Krishnan, A. and Pasquali, G. (2020). *Do more Diversified Suppliers Rebound Faster than Concentrated Suppliers in Times of Shocks? Insights from Kenya*. UNU-WIDER, 2020-8. Helsinki: UNU-WIDER. https://doi.org/10.35188/UNU-WIDER/WBN/2020-8.

Langford, N. (2019). 'The governance of social standards in emerging markets: an exploration of actors and interests shaping Trustea as a Southern multi-stakeholder initiative'. *Geoforum 104*, 81–91.

Langford, N.J. (2021). 'From global to local tea markets: the changing political economy of tea production within India’s domestic value chain'. *Development and Change*. https://doi.org/10.1111/dech.12652.

Maiyoh, G.K. and Tuei, V.C. (2019). 'Rising cancer incidence and role of the evolving diet in Kenya'. *Nutrition and Cancer 71*, 531–546.

Matui, M.S., Gonzalez, Y.S., Gema, J. and Koomen, I. (2017). 'From aid to sustainable trade: driving competitive horticulture sector development'. *Wageningen Centre for Development Innovation*.

Mayer, F.W. and Phillips, N. (2017). 'Outsourcing governance: states and the politics of a "global value chain world"’. *New Political Economy 22*, 134–152.

Mwambi, M.M., Oduol, J., Mshenga, P. and Saidi, M. (2016). 'Does contract farming improve smallholder income? The case of avocado farmers in Kenya'. *Journal of Agribusiness in Developing and Emerging Economies 6*, 2–20.

Nadvi, K. (2008). 'Global standards, global governance and the organization of global value chains'. *Journal of Economic Geography 8*, 323–343.

Navas-Alemán, L. (2011). 'The impact of operating in multiple value chains for upgrading: the case of the Brazilian furniture and footwear industries'. *World Development 39*, 1386–1397.

Neilson, J., Pritchard, B. and Yeung, H.W. (2014). 'Global value chains and global production networks in the changing international political economy: an introduction'. *Review of International Political Economy 21*, 1–8.

Njagi, J.M., Akunga, D.N., Njagi, M.M., Ngugi, M.P. and Njagi, E.M.N. (2017). 'Heavy metal concentration in vegetables grown around dumpsites in Nairobi City County, Kenya'. *World Environment 7*, 49–56.

Njoba, J.W. (2016). *Evaluation of the Role of GlobalGAP Standard on Smallholders' Income and Technical Efficiency: A Case of French Beans Production in Kirinyaga and Nyeri Counties, Kenya*. Njoro: Egerton University.

Okello, J.J., Narrod, C.A. and Roy, D. (2011). 'Export standards, market institutions and smallholder farmer exclusion from fresh export vegetable high value chains: experiences from Ethiopia, Kenya and Zambia'. *Journal of Agricultural Science 3*, 188–195.

Otieno, G.A. (2016). *Standards and Development: Perspectives from Kenya’s Horticultural Export Industry*. Rotterdam: Erasmus University.

Otieno, G. and Knorringa, P. (2012). 'Localising global standards'. In Van Dijk, M.P. and Trienekens, J. (eds), *Global Value Chains: Linking Local Producers from Developing Countries to International Markets* (pp. 119–136). Amsterdam: Amsterdam University Press.

Otieno, P.S., Ogutu, C.A., Mburu, J. and Nyikal, R.A. (2017). 'Effect of Global-GAP policy on climate change perceptions of smallholder french beans farmers in central and eastern regions, Kenya. *Climate 5*, 1–14.

Ouma, S. (2010). 'Global standards, local realities: private agrifood governance and the restructuring of the Kenyan horticulture industry'. *Economic Geography 86*, 197–222.

Palpacuer, F. (2000). 'Competence-based strategies and global production networks: a discussion of current changes and their implications for employment'. *Competition & Change 4*, 353–400.

Pasquali, G. (2021). 'When value chains go south: upgrading in the Kenyan leather sector'. *Journal of World Business 56*.

Pasquali, G. and Alford, M. (2021). 'Global value chains, private governance and multiple end-markets: insights from Kenyan leather'. *Journal of Economic Geography*.

Pasquali, G., Krishnan, A. and Alford, M. (2021). 'Multichain strategies and economic upgrading in global value chains: evidence from Kenyan horticulture'. *World Development 146*. https://doi.org/10.1016/j.worlddev.2021.105598.

Pickles, J., Barrientos, S. and Knorringa, P. (2016). 'New end markets, supermarket expansion and shifting social standards'. *Environment and Planning A 48*, 1284–1301.

Ponte, S. and Gibbon, P. (2005). 'Quality standards, conventions and the governance of global value chains'. *Economy and Society 34*, 1–31.

Ponte, S. and Sturgeon, T. (2014). 'Explaining governance in global value chains: a modular theory-building effort'. *Review of International Political Economy 21*, 195–223.

Ponte, S., Sturgeon, T.J. and Dallas, M.P. (2019). 'Governance and power in global value chains'. In Ponte, S., Gereffi, G. and Raj-Reichert, G. (eds), *Handbook on Global Value Chains* (pp. 120–137). Cheltenham: Edward Elgar.

Reardon, T., Henson, S. and Berdegué, J. (2007). '"Proactive fast-tracking" diffusion of supermarkets in developing countries: implications for market institutions and trade'. *Journal of Economic Geography 7*, 399–431.

Reardon, T. and Hopkins, R. (2006). 'The supermarket revolution in developing countries: policies to address emerging tensions among supermarkets, suppliers, and traditional retailers'. *European Journal of Development Research 18*, 522–545.

Reardon, T. and Neven, D. (2004). 'The rise of Kenyan supermarkets and the evolution of their horticulture product procurement systems'. *Development Policy Review 22*, 669–699.

Schouten, G. and Bitzer, V. (2015). 'The emergence of Southern standards in agricultural value chains: a new trend in sustainability governance?' *Ecological Economics 120*, 175–184.

SNV (2012). 'The beans value chain in Kenya'. SNV Netherlands Development Organisation [available at http://www.fao.org/sustainable-food-value-chains/library/details/en/c/245193/]. Accessed on 25th July 2021.

SOCAA (2018). *KS 1758-2:2016 Horticulture industry-Code of Practice. Part 2: Fruits and Vegetables*. Retrieved from https://snv.org/cms/sites/default/files/explore/download/ks1758_standards_quick_guide.pdf Accessed on 25th July 2021.

Tallontire, A., Opondo, M. and Nelson, V. (2014). 'Contingent spaces for smallholder participation in GlobalGAP: insights from Kenyan horticulture value chains'. *Geographical Journal 180*, 353–364.

Tallontire, A., Opondo, M., Nelson, V. and Martin, A. (2011). 'Beyond the vertical? Using value chains and governance as a framework to analyse private standards initiatives in agri-food chains'. *Agriculture and Human Values 28*, 427–441.

Tessmann, J. (2018). 'Governance and upgrading in South–South value chains: evidence from the cashew industries in India and Ivory Coast'. *Global Networks 18*, 264–284.

Yen, E., Hoffman, V., Grace, D., Karugia, J. and Aguda, R. (2018). *Food Safety in Kenya: Focus on Fruits and Vegetables*. International Food Policy Research Institute report [available at https://www.ifpri.org/publication/food-safety-kenya-focus-fruits-and-vegetables]. Accessed on 25th July 2021.