

Unpacking state-led upgrading: Empirical evidence from the Uzbek horticulture value chain governance

Abstract

This paper contributes to the endeavour of bringing the Global Value Chain/Global Production Network (GVC/GPNs) and the Developmental State (DS) literature closer in the analysis of state-led upgrading. By triangulating primary and secondary data of the Uzbekistan's horticulture value chain (i.e. Fresh Fruits Vegetables - FFVs), it provides a micro-meso analysis of how the state, by creating vertical and horizontal linkages, shaped the pace and direction of agro-industrial upgrading. Also, it discusses how targeted macroeconomic policies contributed to enable such upgrading. Finally, by bridging these two levels of analysis, it argues for the need to consider the state not only as a regulator, a facilitator, a buyer and a producer within GVC/GPNs, but as a coordinator of strategic developmental objectives beyond and across the GVCs. Drawing upon a strategic-relational approach and by using the concept of *organisational upgrading*, it discusses how the state articulates the institutional context of GVC/GPNs through the establishment of financial and political partnerships with international actors to avoid predatory competition in the GVC/GPNs; the coordination of inter-sectorial spillovers for short and long-term collective learning and capacity building; and the creation of linkages to enable multi-dimensional and inter-temporal developmental objectives. Coordinated state interventions and a gradual approach to market reforms are proven instrumental to ensure the stability and sustainability of the economic transformation.

Keywords: state; upgrading; governance; industrial policy; trade; agri-business; GVC/GPN

1. INTRODUCTION

Despite diverse theoretical perspectives, economic upgrading has been identified as a desirable objective upon which developing countries should focus to promote their growth (Lee, 2013; Gereffi, 2014; Wade, 2018). Economic upgrading is defined as a shift to higher productive value-added activities, as a result of improved access to, and use of, technology, knowledge and skills (Barrientos et al. 2011; Selwyn, 2013). Humphrey and Schmitz (2002) identified four types of economic upgrading: product-related; process-related; functional (skill-related) and inter-sectorial. This article, building on the growing debate on the role of the state in GVC/GPNs (Gereffi 2015; Alford and Phillips, 2018; Horner, 2017; Behuria, 2019; Horner and Alford, 2019), and combining it with the Developmental State (DS) literature (Cramer, 1999; Chang 2004; Wade, 2003; 2018) expands the understanding of the role of the state vis-à-vis upgrading in GVCs in three ways.

First, although agriculture has often been identified as a strategic sector for triggering development in low- and middle-income countries (WB, 2007), research on upgrading has been focussing mostly on manufacturing (Gibbon, 2001). This paper, through micro-meso evidence, shows how inter-sectorial upgrading represents a viable driver of development and how the state can create specific spillovers between agriculture and the industrial sector (Kaplinksi and Morris, 2016). Second, it strengthens the empirical understanding of the *state's functions* conceptualised in the GVC/GPNs literature (Gereffi and Mayer, 2006, Mayer and Phillips, 2017; Horner, 2017), namely a) *facilitative* (i.e. assisting firms in the market), b) *regulatory* (and *distributive* combined, i.e. mitigating inequality and negative market externalities), c) *buyer* (i.e. public procurement) and d) *producer* (i.e. state owned companies), and it links them analytically with the 'developmental' macroeconomic policies –i.e. innovation, public finance, trade and industrial policy - investigated in the more state-centric developmental state (DS) literature. It argues that a closer interface between these two parallel debates allows

understanding how state governance in GVC/GPNs can be operationalised through public policies, and how it can trigger multiple forms of upgrading in (and to and from) agro-industrial value chains.

Third, by expanding the political economy analysis of the state's functions (Horner, 2017) and bridging micro- and macro-level evidence, it introduces the concept of 'organisational upgrading', defined here as a state-led coordination strategy able to link economic upgrading in GVCs with developmental objectives. Organisational upgrading emphasises the unique *strategic-relational* (Jessop, 2008; Smith, 2015) and *multi-scalar* (Lee, 2013) mandate that the state holds to mediate inter-temporal developmental objectives *beyond* economic upgrading in GVCs.

The article is structured as follows: the next section reviews the literature on the challenges of upgrading and the role of the state in the GVC/GPNs governance. Section Three discusses the Uzbek agricultural policies and puts forward a micro-meso analysis of state-led agro-industrial upgrading. Section Four presents and critically discusses the macroeconomic interventions for the Uzbek FFVs value chain upgrading. Section Five highlights the multidimensional outcomes of economic upgrading and discusses how *organisational upgrading* configured socio-economic objectives in and out the GVCs. Section Six concludes by highlighting that coordinated state interventions through a gradual approach to market reforms are crucial to ensure the stability and sustainability of the economic transformation processes.

2. CHALLENGES OF AND POSSIBILITIES FOR STATE-LED UPGRADING

Although economic upgrading is a significant driver of economic development, various constraints affect its success. Upgrading depends firstly on the expansion of technological, human and financial capacities to produce added-value commodities (Chang, 2004). Secondly, it depends on the ability to enter new GVC/GPNs and survive international competition over

price, quality, volume and reliability through the capture of market shares, value, and compliance with certification schemes (Gereffi, 2014; Dolan and Humphrey, 2004). Thirdly, it depends on how well coordinated is the development (and management) of vertical and horizontal spillovers¹ (Hirschman, 1958; Wade, 2018). Thus, a centralised agent able to plan and organise complex socio-productive dynamics within the chain is crucial, not only to trigger upgrading, but also to maintain such process once it is in place.

The GVC/GPNs literature focused largely on private governance to understand the processes and challenges of upgrading in the era of neoliberal globalisation (Gereffi, 2014; Horner, 2017). Given the Multinational Corporations (MNCs)' hegemonic position in the market, the GPNs/GVC literature devoted vast attention to the ability of MNCs to maintain control over the technological, financial and commercial flows involved in GPNs/GVC through private governance (Dicken, 1994; Dolan and Humphrey, 2004; Selwyn, 2013). Similarly to other labour-intensive industries, the agro-industrial chain is often characterised by a buyer-driven captive governance (Gereffi et al, 2005; Barrientos et al., 2015), where transnational private retailers apply strict private quality standards and exploitative sub-contracts with farmers, often resulting in little or no horizontal or vertical spillover effects for skills and capability transfers in low-income countries (Bair, 2005; Humphrey and Memedovic, 2006; Barrientos et al., 2015). However, as Bair stated, "closer attention to the larger *institutional* and structural environments in which commodity chains are embedded is needed in order to inform our understanding of the social and developmental dynamics of contemporary [capitalistic growth]" (2005:154).

The DS literature, from a different lens which is centred more on national industrial policy, has challenged the axioms of mainstream debates exactly on the central role of the *state* (as opposed

¹ Horizontal spillovers occur between firms in similar or related production. Vertical spillovers occur between firms in contractor- supplier relationships. Backward linkages take place when there is flow of information and resources between a firm and its suppliers. Forward linkages take place when investment in higher-value production is enabled.

to private agents) in triggering upgrading. Authors argued that state intervention, not only does not lead to efficiency losses, distortions, and poor economic performance (WB, 2007; Schiff and Valdes, 1992; Krueger, 1997), but that it is crucial to finance investments, implement strategic inter-sectorial policies and spur systemic learning to trigger development (Hirschman 1954; Chang, 2004; Hausmann and Rodrik, 2003; Rodrik, 2004; Wade, 2003; 2014; Andreoni, 2019; Mazzucato, 2013). Indeed, because the ‘laissez-faire’ paradigm failed its mission of successful pathway to development (Rodrik, 2004), starting with the Post-Washington Consensus, the role of the state regained some legitimacy in the development agenda and more attention is now paid to empirically investigate how state policies can trigger economic upgrading and developmental outcomes while capturing value from GVC/GPNs.

Indeed, recent works, many of which appeared in *Review of International Political Economy*, started untangling the multiple state’s *functions* in GVC/GPNs. Some authors classify these functions as *facilitative*, *regulatory* and *distributive*, and examined how neoliberal reforms outsourced these governance functions from the state to the market (Gereffi and Mayer, 2006; Mayer and Phillips, 2017; Alford and Phillips, 2018). Horner (2017) added to these functions those of *buyer* and *producer*, noting that the state is actually an active economic agent in the GVCs. Behuria (2019) recently integrated these functions with the political settlements framework to highlight that domestic politics shaped the upgrading in Rwanda’s coffee value chain. Wengle (2018) also shows that in the post-Soviet region, countries like Armenia and Russia have pursued state-led developmental strategies in rural and agrarian sectors. These important contributions signal the crucial need to further disentangle the multidimensional role and context-specificity of public governance in economic upgrading within GVC/GPNs (Behuria, 2019; Horner and Alford, 2019).

Yet, further work is needed to unpack the role of the state also *within* and *beyond* these functions. Indeed, the state strategically selects, mediates and coordinates local capabilities,

financial resources and societal objectives through different non-economic functions *on, off* and *between* GVCs. Also, private agents cannot be de-contextualised from the social relations, including the government, that shape production and exchange with the GPNs (Barrientos et al. 2015), nor from the contextual *institutional strategies* and *organisational forms* through which private and public goods and services get produced, sold, and regulated by the state. The concept of ‘organisational upgrading’, namely the state-led continuous (*ex-ante, in-itinere* and *ex-post*) configuration of coordinated strategies which link economic upgrading with developmental objectives, tries to make explicit the relationships among these ontological categories in three ways.

First, it highlights the fact that the state operates through non-market, inter-sectorial, and inter-temporal mechanisms at the micro-meso-level and beyond the GVC/GPNs (Ponte and Sturgeon, 2014:17; Andreoni, 2019). Second, it helps understanding how the state governance functions play out through context- and time-specific macroeconomic policies which enable economic upgrading. Finally, it shows that inter-scalar state-led coordination not only foster a ‘sound’ business environment and productive capabilities for the establishment of GVC/GPNs linkages (Ponte and Sturgeon, 2014; Gereffi; 2014; Horner, 2017), but also it encompasses societal *developmental* outcomes outside the GVC/GPNs.

Figure 1 here

Hence, organisational upgrading is a conceptual tool useful to make explicit and assess whether public governance can be an alternative to the private buyer-led governance, but also whether it is able to organise a developmental governance which makes domestic agents and firms capture value and power within the GVC/GPNs (Gereffi, 2014; Fishwick, 2018; Ponte and Sturgeon, 2014) and societal benefits in and outside the GVC/GPNs.

The discussion draws on primary and secondary data of the agro-industrial sector gathered through fieldwork research undertaken from August 2015 to January 2016. 16 unstructured interviews were conducted with key national stakeholders to map the institutional governance and policies on upgrading (questionnaire in Appendix). A stratified farmer survey of 120 units was conducted in Samarkand, among the aims of which was to assess differentiation in assets, commercialisation, and linkages with agro-firms. Samarkand was chosen because, as it is one of the country's most fertile areas, the Government of Uzbekistan (GoU) is investing enormously in FFVs. The sampling criteria aims to compare and contrast FFVs and non-FFVs, namely 30 cotton/ wheat farmers, 30 FFVs farmers and 60 smallholders, and drew on previous data collection exercises (Petrick and Djanibekov, 2016). Additionally, participant observations and semi-structured interviews were conducted at two firms in the Samarkand region, one a major FFVs consortium and the other an agro-processing firm. The aim of these was to grasp firm-level business operations, upgrading, and procurement challenges. Archival research consisting of publicly available company data, news articles, national data and reports helped to map and investigate the organisational and coordination dynamics of the institutions involved. Although international organisations suggest treating official national statistical data with caution, they have also been used to grasp the main trends.

Section Three discusses the Uzbek agricultural policies and puts forward a micro-meso analysis of agro-industrial upgrading.

3. THE UZBEK STATE-LED AGRO-INDUSTRIAL UPGRADING

While Uzbekistan is often described as an authoritarian state (see Lombardozzi, 2018b; Djanibekov et al. 2010) it is also one of the few case of moderniser state in the present days. Through a model based of 5-year economic planning, the GoU developed a coordinated ecosystem of inter-sectorial public investment, subsidies and expansionary fiscal policy. These

targeted interventions made Uzbekistan becoming one of world's fastest growing country of next 10-20 years. Moreover, after years of economic and political closure, it has adopted an outward-looking strategy, which intensified once the new president Mirziyoyev took office in 2016. Therefore, this case study has been selected because, although under-investigated, it offers an insightful example of how the state, by proactively interplaying with local and international economic interests and powers, shaped GVC/GPNs while mediating domestic societal and political objectives. Over the last decades Uzbekistan registered a steady growth in GDP of around 8 per cent (WB, 2015). Although the agricultural sector has declined from 28 per cent of GDP to 17 per cent in just a decade, similarly to other lower middle-income countries, it still employs around 25 per cent of the labour force and nearly 60 per cent of the population – 17 million people – still live in rural areas. (Staritz and Reis, 2013; Djanibekov et al., 2010). These factors made the GoU consider agriculture as a key driver of economic upgrading (Lombardozzi, 2018a), on which implemented a series of strategic policies.

Agricultural reforms can be separated into three main stages. First, after independence from the Soviet Union in 1991, the GoU placed unprocessed cotton for export at the core of agricultural production. This strategy allowed the GoU to acquire foreign exchange due to its centrally-managed procurement system. Second, in the late 1990s, the GoU undertook an initial crop diversification consisting of an increase in winter wheat and a reduction of 1.1 million hectares of cotton to increase grain supply (WB, 2015). Third, in the early 2000s, the GoU invested in a reconfiguration of agriculture production towards FFVs. This crop conversion was incentivised by the problem of water scarcity and low cotton yields (Petrick and Djanibekov, 2016) and by Uzbekistan's comparative advantage in labour-land ratio. As a result, until the late 1990s, 70 per cent of FFVs were produced by 4.7 million smallholders. Then, starting in 2005, the GoU established 40,000 additional hectares as orchards, and converted 240 thousand hectares from cotton and grain into FFVs (USDA, 2014 – Figure 2

shows FFVs' volume increase) allocating 280 thousand hectares more to FFVs than compared to 1990s. Since 2006 the GoU has also established 267 hybrid non-governmental agro-firms involved in the processing of FFVs and their distribution on the international market (WB, 2015).

Figure 2 here

The GoU has recognised the high developmental potential of FFVs for inter-sectorial upgrading, having FFVs a market value between two and four times that of cotton and wheat (WB, 2015; CER, 2017b) and being an important input for agro-processing firms. This objective was also embedded into the national '*Programme of Measures to Expand and Develop the Food Industry*' for 2012-2015 (FAO, 2014), aimed at improving the conditions for inclusive growth in rural areas, enhancing food security and creating productive employment with decent wages for the poorest in rural areas (Altenburg, 2011). The GoU plans to create jobs in the sector, while contributing to the diversification of the economy and to the expansion of exports. Hence, given the intersecting social, political and economic goals attached to the FFVs value chain, it provides an insightful lens to explain organisational upgrading. Before exploring that in section 5, I now investigate how, by enabling 'strategic coupling' between institutional and productive agents at the micro-meso level (Lee et al. 2014) the state triggered agro-industrial upgrading through the FFVs value chain.

3.1 Enabling upgrading through horizontal and vertical linkages: micro-meso evidence

Intra- and inter-firm linkages do not involve just private agents and require coordinated meso-level and actions by the government, which act as an inter-sectorial and inter-scalar mediator (Lee et al. 2014). Based on participant observations in two agro-firms in the Samarkand region and on semi-structured interviews, I present and discuss the micro-meso level state

interventions which triggered the Uzbek agro-industrial upgrading, and by creating backward and forward linkages, enabled economic development.

Okhalik Oltin Boghi Mevasi, a public-private consortium established in 2008 covering 680 ha producing FFVs, was created as a result of the state's multiple roles of *facilitator*, *regulator*, *buyer* and *producer* (Mayer and Phillips, 2017; Horner, 2017). Initially, the state financed investment in the intensive gardening of plums, apples and peaches. As a result, the consortium acquired high-yield seedlings from Ukraine, Serbia and other European countries. The investment in seedlings are subject to slow increasing marginal returns. Indeed, returns on investment in the first year of harvest are low, as the trees produce only 4 tonnes of fruit, but it increases to 8 tonnes in the second year, 15 tonnes in the third, 20-25 tonnes in the fourth (to arrive to a maximum of 40 tonnes). Secondly, through state-subsidised credits, the consortium invested in drip irrigation (propylene tubes), which is an expensive water-saving technology. Also, contrary to cotton producers who access agro-chemicals from public providers, the consortium uses more expensive international brands (e.g. Syngenta and Bayer). Thirdly, the need to monitor and manage a more sophisticated production cycle generated a demand for high-skill labour such as managers, agronomists and chemists. Fourthly, the GoU facilitated the import of machinery for grading and differentiating harvested products from specialised companies such as Italy's Unitec. Thanks to these interventions, according to survey data, farmers manage to differentiate and increase their earnings by exporting the best classes of fruit at one US dollar per box, whereas they sell the lower classes at a price four times lower to local markets or to agro-processing companies to make concentrated juice or jam. Once product, process and functions upgrading were put in place, further dynamics of upgrading occurred. The new activities of washing, chopping, bagging, packaging and branding (Figure 3- Humphrey and Schmitz, 2004), also called 'industrialization of freshness' (Cramer, 2015) led

to inter-sectorial upgrading through the deepening of production diversification, which also created opportunities for economic development.

Figure 3 here

Agromir is a lead firm in the national agro-processing sector which established a plant in Samarkand in 2010 to produce fruit juice, concentrates and paste, pickled and canned vegetables, and marinated preparations. To begin with, although production follows the seasonal availability of raw FFVs, the company's massive storage capacity allows the finished product to be distributed on the market all year round and a stable supply to be maintained on supermarket shelves. Investment in machinery amounts to around US\$ 40 million, including fermentation silos, fruit processing line, sterilisers, fridges, vacuum evaporation plant with an aroma collector and pressing machines imported from European companies, including Tetra Pak. Furthermore, the company has passed international tests for quality control certification in sanitary, hygienic and inventory capacity, which improves GVC/GPNs integration. In addition, employers increased from 233 in 2010 to 519 in 2013, reaching over 600 employees in 2015. The average wage for unskilled jobs is 30,000 soms per day (around US\$ 6) for a 12-hour shift with a meal provided (24h/7 cycle), which is above the average farmers' wage. Finally, the raw commodities are sourced locally from the Samarkand region, the Fergana valley and Surkhandarya. According to interviews with farm managers and local administrators, a three-party contract is signed annually between the supplier, the processing company and the local government (*hokimiat*) which coordinates, regulates and acts as a guarantor for farmers who receive a fixed price guaranteed. However, the agro-processing companies also operate in a closed production cycle through the vertical integration of FFVs production. As a result, the amount of FFVs processed by Agromir rose from 21 million tonnes to 31 million tonnes between 2010 and 2013, producing 6 million jars of pickles/conserves and 42 million fruit juice bricks per year, with revenue reaching 88 billion Uzbekistani soms (US\$ 21 million) in 2013

and net profits increasing 10 fold in three years. Exports increased from US\$ 2 million to 7 million between 2010 and 2013.

The two case-studies show that the creation of state-led consortiums and a publicly-coordinated and regulated contracting system along the value-chain facilitated horizontal (i.e. backward-upstream) and vertical (i.e. forward-downstream) linkages. First, these multidirectional interventions triggered more sophisticated processes of inputs transformation and faster forms of supply which deepened the social division of labour through new functions and competencies, thus creating direct and indirect employment across producers, traders, processors and suppliers (Gereffi, 2014; Bair, 2005). This fuelled a demand for new professional profiles and specialised labour triggering functional upgrading. Chemists, agronomists and engineers, formally trained in local higher education, have the skills to build an internationally competitive industry.

Second, food-processing gave to the food product a longer shelf life and added value to the raw commodities, hence also fiscal revenues increased through such product and process upgrading (Gereffi, 2015; Cramer and Sender, 2015). It has created market segmentation and product diversification along different sectors and value chains. New service agencies dealing with marketing, logistics and quality control have been created which provide the laboratory tests and certification necessary to trade fresh and processed agricultural products abroad, expanding commercial networks while maintaining an arm's-length market.

Third, food processing production is endowed with new technologies and know-how. In addition to agro-chemicals, Uzbekistan is becoming a major regional producer of farm machinery, including combine harvesters, tractors, trailers, ploughs, hay balers, sprayers, rotary mowers and cultivators (FAO, 2014). The state-led efforts at expanding productive capabilities across new economic segments helps explaining the patterns seen in Figure 4,

which shows how agriculture has decreased in relevance as a source of national employment, while the absorptive capacities of other sectors have increased.

Figure 4 here

Backward linkages, which here are exemplified by the state-led vertical spillovers between local FFVs suppliers and contractors (agro-processing firms), have been also crucial for the upgrading of the domestic agro-business industry. Those linkages here occurred through public interventions which, by organising the provision of technology necessary to produce FFVs, i.e. affordable and specialised machinery, tools, fertilisers, high-yield seeds, irrigation systems and credit, enhanced the quantity and quality of FFVs supplied by national farmers. Also, ‘triangle’ contracts among farmers, local administrators and agro-business companies, coordinated by local public administration, were crucial in the upgrading of the agro-industrial chain and its integration into GPN. Survey data also shows that FFVs farmers who engage with processing companies have on average higher technological endowments (input index i.e. tractors, high-yield seeds, fertilizers, irrigation) and asset index (household assets such as car, fridge, cows etc.) than farmers who produce cotton and wheat and do not engage with agro-processing companies.

Table 1 here

Based on interviews, it is noted that FFVs farmers prefer to sell to agribusinesses than to local bazars because the former offer more stable, although sometime unfavourable, prices and contracting arrangements. By the same token, agribusiness managers confirmed that they tend to rely on local suppliers to avoid exposure international to price volatility while reducing transportation costs and import dependency. Thus, state-led governance in agribusiness can be identified as trailblazing, able to incentivise introduction of new technologies along the chain

and enable a reliable demand for local farmers, making the whole sector less mobile (i.e., ‘footloose industry’ Flamm, 1984).

Hence, empirical evidence suggests that state-led horizontal and vertical linkages have been instrumental in widening the scope and scale of upgrading, in facilitating the introduction of know-how and technology, enabling inter-sectorial spillovers, and reducing the short-term burden of financial barriers to investment. State intervention entailed product, process, functional and inter-sectorial upgrading of the FFV industry, while addressing societal goals. In the next session I explore in detail why state intervention was crucial for technological upgrading.

3.2 Technological upgrading

Short-term capital constraints can be an obstacle for the successful integration of local production into the GVC/GPNs and the broader development of the economy, therefore the state is instrumental to fill such gaps to enable technological upgrading. During interviews, policy makers acknowledged that because private capital was scarce, inputs and technology such as machinery, new seedling fertilizers and drip irrigation were only accessible with the support of (large-scale) public investment (Wade, 2018). In the FFVs value chain, state-owned and joint-venture companies acted as risk-bearing businesses, without the pressure of short-term returns and unfavourable high interest rates to initiate capacity building. As a result of the introduction of processing technologies, upgrading mechanisms and linkages to GPNs have started.

Participant observations at the consortium have shown that when harvests are smaller than expected, grading machines are not activated and the grading process is executed manually by low-wage unskilled labour, typically young women. This is because when the volume of FFVs is low, labour becomes cheaper than the cost of the electricity required to operate the machines. Relatively high energy costs prevent full-capacity utilisation of the technology in place in the

sector, creating inefficiency. This example is crucial to understand the constraints on technological upgrading in a developing economy. Indeed, as long as rural wage levels are very low, manual labour has a competitive advantage over the implementation of technology. Thus, existing firms, being in a position of oligopsony for labour demand, have no incentive to use technology systematically. Calculations based on interviews with farmers show that agro-firms employ four permanent workers per hectare on average, plus an additional four fruit pickers per hectare in the harvest season. Figures show that the overall demand for unskilled and skilled wage-labour in the FFV agro-sector, estimated at 300,000 units in 2015, is still scarce and is unable to absorb the current active workforce, estimated at 2 million people in the Samarkand region, despite the presence of other industries like tourism and services. Interviews with farmers confirmed that rural workers would prefer to be employed in the agro-processing companies rather than working seasonally in the farms.

Therefore, empirical evidence shows that the slow pace and cost of upgrading, and the fact that supply rarely creates its own demand, can be addressed by public expenditure through the creation of complementary sources of demand for technology, especially at the beginning of the catching-up process (Chang, 2009). This case study shows that the given factor endowments, namely a relative abundance of cheap labour and agricultural land per-capita, have been channelled into the transformation of the agro-industrial sector by injecting public capital. In fact, given the overwhelming supply of ‘low-cost’ labour alongside capital scarcity in rural areas, large-scale interventions have used public finance to invest in capital-intensive technology in a context where, similar to many developing countries, the initial costs are too high for private domestic investors and too risky for foreigners. Although the use of technology is disrupted in the short-run, public interventions enables long-term positive outcomes for both employment creation and eventually wage levels. By subsidising the initial demand for technology, such short-run inefficiencies will be countered in the long-run, because it is

expected that the domestic nodes of the value chain will expand and the relative fixed costs of technological inputs over labour will decrease due to the creation of more employment.

In conclusion, the huge gap between capital and labour costs in low-income countries hinders dynamics of upgrading. If the labour price defined by the ‘market’ is too low relative to the price of capital, upgrading will not take place automatically because lead firms can still make a profit. In this scenario, both human and physical resources will remain underemployed. Indeed, an abundance of rural labour and tight wage-labour dependency can imply an extremely high rate of return from labour exploitation, dis-incentivising any productivity improvement and therefore perpetuating conditions of captive governance and slow economic transformation (Bernstein, 2010). Furthermore, local suppliers and nodes of production will get stuck in low-quality production with limited virtuous linkages to GPN (Selwyn, 2013). Such constraints suggest that introducing technology and innovation is necessary but not enough, and complementary state-led capacity-enhancing strategies have to come into play if upgrading is to be made effective and sustainable in the long-term. In the next section I will discuss which, how and why state macroeconomic policies have co-enabled the vertical and horizontal spillovers behind the upgrading of the FFV value chain.

4. THE MACRO INTERVENTIONS BEHIND THE UZBEK AGRO-INDUSTRIAL UPGRADING

Uzbek FFVs’s upgrading and its integration into the GVC/GPNs did not pass through the typical ‘shock-therapy’ based on neoliberal prescriptions – i.e. rapid market deregulation, price liberalisation and privatisation - (Chang and Nolan, 1995; Spechler, 2008). That is why it is crucial to investigate how strategic macroeconomic policies on innovation, public finance, trade and industrial policy have enabled such dynamics of upgrading.

4.1 Innovation policy and R&D

Although there is no automatic linear relationship between R&D and growth (Mazzucato and Perez, 2015:45), the GoU subsidised research tailored around strategic sectorial objectives. Product upgrading in FFVs occurred through a combination of coordinated macroeconomic policies on innovation. The GoU, given its budget and capacity constraints, has integrated investment in R&D and ‘leapfrog’ solutions to expand the quantity and quality of local FFVs value chain, thus acting as *facilitator*, *buyer* and *producer* of innovation. First, the Ministry of Agriculture and Water Resources has financed agro-related R&D in Uzbekistan. The GoU has created two national Research Institutes, one for vegetables, melons and potatoes and one for the plant industry. It has established 161 branches across the country and manages 45 research institutes (Musaevich, 2013) which enabled strong innovation linkages with local consortiums. Although available data on the amount of public investment in agriculture R&D are outdated, Table 2 shows a small but steady increase in funds allocated to research in agriculture. Moreover, in 2013 the commitment to R&D increased, with expenditure rising from 0.3 to 0.41 per cent of GDP (UNESCO, 2015).

Table 2 here

Interviews with FAO, UNDP and farmers suggest that, although resources are still insufficient for the objectives set for the sector by the GoU, the breeding of new seeds and FFVs varieties has nevertheless increased yields and expanded productive capacity. Second, as shown by the case of Okhalik consortium, new seedlings have been imported to compensate for the lag in local innovation outputs. As result of such crop-diversification, over 160,000 FFV agro-firms have been established in the country, which supply both domestic and foreign players with higher returns on sale (CER, 2017b).

Such combined types of innovation have been possible because of the GoU’s political commitment to prioritising long-term investment in the value chain rather than focussing on

short-term gains (Mazzucato, 2013). This is a unique feature of state governance irreplaceable by profit-driven private businesses (Wade, 2018). As noted in the previous section, evidence suggests that in a context characterised by low skills and low private capital accumulation, technological upgrading is not automatically created, but can be developed through a combination of state-led innovation and enhancing-capacity policies (Dosi et al. 1988; Rodrik, 2004). R&D, emulation and transfers, if promoted by the state (Lall, 1992) and operationalised through public institutions, can enable these objectives.

4.2 Public Finance and Foreign Direct Investments

Another key aspect useful to understand the role of the Uzbek state in FFVs' upgrading and GPN/GVC governance is to unpack its *regulatory* role on foreign capital and public finance. Through these two combined forms of investment, the GoU captured value from the GVC and shaped capital accumulation by retaining solid ownership of prominent firms in FFVs. The GoU has invested in the food-processing sector through various creative arrangements, including private-public partnerships, joint-ventures and contractual consortiums facilitated by tax incentives, restrictions and financial agreements.

As evidence from other countries suggests, the relation between upgrading and FDIs is controversial. FDIs can be detrimental to low income countries' ability to upgrade. The nature of joint-venture contracts can be rigid and biased against the country's interests, particularly when the public objective is to tackle inequality and reach inclusive growth (Van Waeyenberge and Bayliss, 2017). To avoid predatory investment, the GoU has shaped the flow and type of FDIs through 'local-content' conditionalities: companies must have funds of at least US\$ 150,000 and must earn over 60 per cent of income from the sale of the goods or services they produce or provide; the share of foreign investments must be no less than 30 per cent of the company's capital. Furthermore, ad-hoc frameworks are in place to attract FDIs to trigger FFVs upgrading specifically: FDIs in agribusiness benefit from targeted tax incentives such as

the waiving of customs duties on the import of special ingredients, technological equipment, components and spare parts for equipment which are not produced domestically but used in the processing of vegetables and grapes². To encourage the timely replacement of obsolete equipment, a charge of 0.25 per cent of the equipment's historical value is collected from legal entities (except micro and small enterprises) for the continued use of such equipment, but revenue from the sale/disposal of fully-depreciated equipment is exempted from tax. Foreign companies producing agricultural products are exempted from asset tax (PwC, 2012) and have protection against expropriation (USDA, 2014; Decree № 105 7 April 2011). Furthermore, the tax burden on companies has been eased and now corporate tax rate is nine per cent, and a performance-based reduction is available if export sales exceed 15 per cent, but at least 50 per cent of the income generated must be reinvested in the development of the company (Deloitte, 2015). As a result, new Greenfield investment appeared in the economy, and this injection of foreign capital has permitted the development of processing sites where technology and innovation were scarce, enhancing the local technological base. Although interviewees noted that both public and private investment are low and are increasing very slowly, these investments made Uzbekistan become the fourth transition economy by number of joint-ventures (WIR, 2016)³. Indeed, since the country's independence, the FFVs value chain has attracted more than 200 joint-ventures involving investors from Europe, Turkey, Russia, Switzerland, the USA and South Korea. FDIs in the agro-processing sector are growing, with total investments deployed in the agri-sector amounting to US\$ 2.3 billion in 2015 (WIR, 2016). The state-led mix of restrictions and incentives *facilitated* the development of vertical and horizontal spillovers to domestic industries, protected national champions in a coordinated the industrial strategy (Horner, 2017).

² Presidential decrees № YI-3860, dated 14.03.2007 and № UP-4354, dated 24.08.2011.

³ According to the World Investment Report (WIR, 2012), Uzbekistan was ranked 78th/181 by the FDI Inward Attraction Index in 2011, significantly improving its 2000 position of 143.

Interviews with policy makers suggested also that foreign businesses faced transaction costs due to the complicated bureaucracy to repatriate earnings. Such business environment discouraged foreign private investment. However, as part of the market-oriented reforms, in 2017 the currency market was liberalised, allowing citizens and companies to buy foreign currency at a market-set rate (UzDaily.com, 2017) which, according to interviewees, simplified also the mobility of international capital.

In addition, farmers in 2015 frequently identified a lack of cheap credit to invest in technology or skilled labour as a limitation on upgrading. Yet, recently not only private FDIs but also International Financial Institutions such as the IFC-WB group have become increasingly involved in financing the Uzbek agro-food industry. Through the Global Trade finance program, the portfolio of local commercial banks has been expanded to issue agro-loans to agro-firms. Moreover, in 2014 IFC has invested US\$ 120 million to support 31 projects in the agro-food chain, as well as acting in an advisory role. Although those loans have contributed to increase investment in the private sector, the GoU still borrows at a much lower interest rate, avoiding the pressures of profit's short-terminism (Naqvi, 2018). Indeed in 2013 the state was still the major funding source for domestic investments (available data- Figure 5).

Figure 5 here

Therefore, in this case study we do not observe a case of a 'foreign capital-driven sector' or a 'captive' value-chain in which foreign firms use their financial power to subordinate local suppliers by creating technological, financial and job dependency. Here the state attracts foreign capital while regulating the financial system, which is recognised as a necessity to escape the middle-income trap (Wade, 2018). Agro-processing firms, while engaging with international capital, through state's support have been able to invest and upgrade, a proposition which contradicts the literature that sees FFVs global lead-retailers as the only window for upgrading (Humphrey and Schmitz, 2004). The GoU has intervened as a *facilitator* to attract

FDIs, but through *regulatory* conditionality it retains a ‘golden stake’ in crucial nodes of the sector, thus acting also as a *producer*. Venture capital operates under the government’s coverage and warranty for the most uncertain and costly investments (Mazzucato and Perez, 2015).

This case-study suggests that, in a situation of financial constraint, governments have a crucial role in balancing risks and long-term returns over time and people’s needs. Virtuous forms of partnership, if effectively regulated and incentivised by the state, can be beneficial for technological transfer and employment creation. The state configured a legislative and regulatory framework able to attract and retain FDIs while promoting industrial development (Ahrens, 2008; Khan, 2007, Horner, 2017) but also while guaranteeing that local actors maintain the power to influence the GVC/GPNs for their own developmental objectives.

4.3 Trade Policy

The Uzbek agro-industrial upgrading was supported by a state-led expansion of FFVs domestic production, which was facilitated by various trade policies. First of all, the GoU used its role of *regulator* to implement targeted protectionist policies, subsidies and indirect taxation to modulate the quality and quantity of import of intermediate and final commodities. Table 3 shows that different food types’ imports were taxed at different rates depending on whether they enter or not into direct competition with strategic local production. While fresh FFVs and dairy products are severely taxed, intermediate products such as sugar and oil, which are scarce domestically but necessary for the agro-processing sector, are subject to a lower level of taxation.

Table 3 here

As confirmed by unstructured interviews with ministries, managers and FAO, the state actively and selectively protected agri-commodity import to support and favour the upgrading of local agro-processing value-chain. Indeed, protecting domestic infant industries can trigger positive

effects for commercial agriculture (Friedman and McMichael, 1989). Furthermore, because the quality of FFVs reached a level which is attractive for regional and international markets, that created a new source of fiscal revenue for the state budget to support long-term local investments and integrate and expand local business within GVC/GPN (Mazzucato and Perez, 2015).

Another way through which the GoU facilitated and regulated the upgrading of the FFVs value chain was by arranging bilateral trade agreements and trading blocks. The geography of the Uzbek trading network suggests that historical, linguistic and political closeness played a crucial role in setting the current strategic commercial linkages. Public governance has therefore prioritised geographical and relational proximity in GVC/GPNs to minimise multiple transaction costs. The Government has used political partnerships and cultural-linguistic affiliations to build regional and bilateral commercial networks with former Soviet countries (Gereffi, 2014). For instance, trading with Kazakhstan, a member of the Eurasian Economic Union (EEU), allows Uzbekistan to trade with the entire EEU block free of charge. Moreover, the GoU also used the geo-political friction between the EU and Russia and the consequent embargo in place since August 2014 (EP, 2015) to strengthen the commercial relationship with Russia. In April 2017, Russian and Uzbek representatives signed a bilateral trade agreement for FFVs and processed food worth US\$ 612 million.

In its role of *facilitator* of FFVs' commercialization, the GoU also developed a national and international strategy of rebranding aimed at expanding the export potential of the FFVs value chain through a series of marketing operations. The GoU financed stalls at the Expo Milan 2015, established trading houses and representative offices in Russia and Kazakhstan, and plans to open commercial hubs in Europe, India, the UAE, and East Asia. Through a presidential resolution on 'measures to organise and hold an international fruit and vegetable fair', in 2016 the GoU organised an international fair involving ministries of foreign economic

relations, investments and trade, agriculture and water management, ‘Uzbekoziqovqatholding’ – a foodstuff holding company – and ‘Uzbekoziqovqatzahira’, an association for storing and harvesting fruit.

Hence, the GoU, in its role of *regulator*, of *facilitator* and effectively of *seller*, has organised a trade policy built around a combination of selective protectionism, export orientation based on regionalism and bilateralism and timely marketing operations, which contributed to the strengthening of domestic agro-industrial upgrading and engagement with GPNs while bypassing multilateral trade nodes.

4.4. Industrial policy

FFVs are ‘time-sensitive’ commodities subject to seasonality, perishability and are scattered in remote rural areas, which make their commercialisation difficult. Hence, FFVs need to be efficiently stored in cold-chain infrastructures (i.e., backward linkages) to be then commercialised towards various market destinations in a timely manner (i.e., forward linkages). Despite being fundamental for commercial access, infrastructures and storage facilities were considered insufficient by interviewees. Post-harvest losses due to logistical barriers and high transport costs have been identified in the tomato and apple supply chains in many districts (Hasanov, 2016; CER, 2017b; USDA, 2014). These gaps have contributed to the fluctuation of FFVs’ prices and supply. Furthermore, procedures for sanitary and hygiene standards were neither standardised nor sufficiently widespread, especially in the most remote areas, creating barriers to exporting FFVs.

However, in 2016 the president founded Uzagroexport, a governmental agency which acts as export marketing board and industrial planner as in other latecomer countries (Lee, 2013; Mazzucato and Perez, 2015). Uzagroexport has been instrumental in investing in ad-hoc infrastructures such as refrigerators, warehouses in harvest areas, storage facilities and sorting

and grading machinery. Uzagroexport coordinates the supply of packaging materials with firms, deals with logistics and transportation, and provides a quality management and standardisation centre, thus acting as a *co-producer*.

Uzagroexport also implemented a monopsony system of procurement and a monopolistic export system. When the scheme was launched in 2016, producers received 25 per cent of the revenue gained from their exports in local currency, because the GoU converted this proportion in order to retain hard currency. Interviewees noted that this ‘commission fee’, together with a lack of insurance, corresponded to a loss for farmers because of the non-convertibility of the Uzbekistani som. However, new president Mirziyoyev suspended this measure in September 2017 which shows that the implementation of ad-hoc and time-specific policies is possible and useful. Indeed, although this measure temporarily increased production costs for FFVs farmers, it stabilised both food supply and food prices (CER, 2017b) which contributed not only to the stability of the value chain but avoided food shortages and price volatility for consumers.

State governance have thus played a significant role in expanding access to GVC/GPNs through investment, commercial partnerships, regulations and non-market incentives. The GoU has helped to transform agri-industrial productive capabilities, expanding infrastructure and marketing operations (UNIDO, 2013). These policies boosted local revenue through the integration into GVC while fostering product and processes diversification. This case study highlights that the state not only has strengthened horizontal and vertical linkages through public and private institutions, but it has also linked private actors’ businesses to its own developmental objectives. It also confirms that policy makers and academics should go beyond the issue of whether or not the state should intervene in the GVC governance and focus instead on how it should do this (Khan, 2008; Cramer, 1999; Humphrey and Schmitz, 2004).

5. ORGANISATIONAL UPGRADING

In this section, using a strategic-relational approach and the concept of organizational upgrading, I will discuss the links between state-led upgrading and development outcomes.

5.1. The recent outcomes of Uzbek state-led agro-industrial upgrading

Data show that, through such multi-directional and multi-scalar interventions, Uzbekistan has become one of the main producer of FFVs in the Commonwealth of Independent States (CIS) region. In 2016 Uzbekistan produced more than 9 million tonnes of FFVs, and around 800 thousand tonnes, or around 7 per cent of total output, were exported. The volume of FFVs exports expanded exponentially over recent years, replacing traditional export commodities (WB, 2015-Figure 6). In 2015 the value of FFVs exports amounted to US\$ 492 million and it reached US\$ 708.8 million in 2017. The GoU's objective is to export 2 million tonnes of FFVs annually by 2020 (Uzagroexport, 2017; FAO, 2014)

Figure 6 here

Also the export destinations expanded, including Azerbaijan (46 per cent), Kazakhstan (37 per cent), Ukraine (7 per cent), Russia (4 per cent) and the USA (2 per cent) (Figure 7).

Figure 7 here

Exports of processed FVs are smaller in volume than those of unprocessed FFVs, which form 75 per cent of Uzbekistan's agro exports. Exports of processed food and nuts from Uzbekistan amount to US\$ 254 million (CER, 2017a) and face steady growth as a result of such continuous public investment. The main destinations are regional markets, with 46 per cent going to Azerbaijan and much of the rest going to Kazakhstan and other Central Asian countries, although Eastern Europe and China are becoming increasingly important destinations (Figure 8).

Figure 8 here

Such results have been possible due to a multi-scalar state-led strategy, which enabled multiple upgrading of the Uzbek horticulture value chain and beyond. The GoU has acted as a coordinator of vertical and horizontal spillovers along the FFVs value chain, across and within sectors and towards the GPNs while maintaining a productive system based on an arm's length market. The value of production in the overall agricultural sector – Figure 9 – has increased as result of the expansion of livestock and FFVs production, as well as of employment and of income.

Figure 9 here

The underpinning state-led institutional reconfiguration through which inter-sectorial and spatiotemporal developmental objectives were coordinated, and resources and information transmitted, is here described as 'organisational upgrading'. Organisational upgrading did not affect only the GVC/GPNs, but enabled the development underway.

5.2 Organizational upgrading and the political-economy of development

The GoU realised organizational upgrading by intervening in and out the GVC/GPNs while coordinating developmental objectives. In order to untangle organizational upgrading, a first point to expand is about the 'developmental' implications of a state which is *buying* and *producing*. A criticism being raised within the literature on the Uzbek economy, but also on other developing countries, is that the GOU, by maintaining control of the FFVs' production and distribution through a parastatal agency, distorts market signals, creates rent-seeking and efficiency-losses while hampering market competition and local investment (Ergashev, 2015; Petrick and Djanibekov, 2016). Similarly to other developing economies, deregulation, privatisation and market liberalisation have been depicted by the WB and IMF as the best policy solutions for triggering upgrading dynamics in Uzbek agriculture (WB, 2015, IMF,

2008). However, as the DS literature points out, even if rent is produced through public institutions such as Uzagroexport, it is retained and re-circulated within the national economy (Khan, 2007; Chang, 2009). Indeed, in cases of market liberalisation, profits have often been co-opted by foreign traders and MNCs, meaning that revenue is expatriated without any multiplier or spillover effects being created in the local economy. Indeed, empirical evidence in other developing countries shows that in the early 1990s, once cash-crop exporting countries had dismantled their marketing boards and liberalised their markets, the value deriving from the reduction of post-farm costs were not appropriated by farmers, but rather by consuming countries (Kaplinsky, 2004:12). As a result, sub-contractual terms worsened and small producers were unable to escape the low rank positions assigned to them by the buyer-driven GVC governance, producing with low input intensity and inefficiency and thus halting the dynamics of upgrading and inter-sectorial growth. As this case study shows, the creation of local linkages and spillovers not only provides economic incentives such as profit maximisation, but also supports political and social goals such as creating employment in rural areas, boosting wages, and guaranteeing a stable income for farmers, which are explicit political objectives of the GoU. Yet, it has to be recognised that this process of productive transformation is not a win-win overall and it has undesired distributional implications. **Smallholders** are currently squeezed in the middle of this transition on two fronts: first, and as mentioned above, because the capacity of labour absorption of the processing sector and become wage labour is still low and second of all, because those who are not producing at the scale or capacity necessary, are excluded by this more profitable circuits linked to international markets. Nonetheless, if small suppliers are exposed to unregulated markets, the related risks will be individualised by the farmers themselves. This scenario will not create a driver for long-term sustainable and inclusive growth and predatory governance will outflow the value created by the GVC/GPNs outside the country. Instead, a coordinated state-led strategy based on

continuous multi-scalar support, time-sensitive incentives and institutional reforms, including public procurement and provision, can enable not only economic upgrading but incremental social and economic change at scale.

A second point to highlight is about the desirable multiplier effects that the state triggered by acting as a strategic *regulator*, a *facilitator* and a *seller* in the market. In a global trade dominated by WTO rules, it is often believed that trade liberalisation would stimulate the integration of domestic suppliers in the labour-intensive GVC/GPNs, enabling the transfer of technology and know-how (Cramer, 1999). In countries with abundant supply of unskilled workers and land per capita, World Bank agri-chain policies focus on strengthening the links between local small-holder farmers and the lead-firms of the GVC/GPNs (Webber et al., 2010). Free market and supply-side policies based on quality and productivity enhancement alone are believed to be conducive to development and upgrading (Krueger, 1997; Lin and Chang, 2009). However, these propositions have been widely criticised in the DS literature and disproved in this case study. Firstly, they overlook and/or overrate the economic and financial capacity of the local private governance, which limits both the upgrading of the agro-industry and the creation of local demand in the market. Secondly, they overestimate the developmental potential of joining the GPNs through small-scale farming. Productivity enhancement remains the main driver of capitalistic growth, and small-scale suppliers are often disadvantaged, especially in commodity production, where initial costs are high and increasing marginal returns are slow, thus creating a barrier to entry (Mazzucato and Perez, 2015; Lee 2013). In fact, structural obstacles linked to the creation of economies of scale, technological upgrading, viable commercial channels and capacity building have been overlooked, as have the structural power asymmetries between local farmers and MNCs (Bernstein, 2010; Selwyn, 2013). Hence, upgrading seems unlikely to be driven by market liberalisation, deregulation and small scale businesses (Horner, 2017). Successful socio-economic transformations were historically based

on uneven and discriminatory state-policies, often relying on subsidies, credit and price stabilisation schemes in agriculture (Chang, 2009; Bernstein and Oya, 2014), as this case study suggests. Indeed, protective tariffs were widely used by western economies in the 20th century to facilitate the commercialisation of domestic agriculture (Friedman and McMichael, 1989). Thus, although protectionism and import substitution policies have been criticised for creating corruption and bureaucratic rent-seeking and for hampering the expansion of the private sector (Krueger, 1997), evidence suggests that selected protectionist trade policy and industrial policies could be essential to enable developmental upgrading (Rodrik, 2004). Short-term distortions can determine a long-term increase in productivity, which allows spillovers between domestic suppliers and global capital markets. The state can put in place regulation to shape domestic comparative advantage and add value to traded commodities. In this case, the GoU, while creating inter-sectorial upgrading, has also facilitated new commercial partnerships. It has negotiated economic agreements by establishing ties between nation states. It has supported the establishment of large and stable commercial contracts for FFVs farmers, providing them with a stable income. It has exploited economies of scale in order to acquire machinery, source reliable and affordable inputs, train and employ rural labour, and access credit and information. These multidimensional achievements enhanced the position of the Uzbek industry in the GVCs but also developed societal benefits.

All these state's functions were strategically coordinated with one another and linked with inter-temporal societal and political objectives which lie outside the GVC (Jessop, 2008; Chang, 2009). In particular, the GoU, by supporting national food production, by mediating the flow of food exports and subsidising inputs, and by using protectionist policies, has avoided fluctuations of food supply in the domestic market and in particular risks of food shortages which served the objective of food security (Lombardozzi, 2018b) and indeed Uzbekistan is one of the few countries which halved hunger by 2015, as targeted by the Millennium

Development Goals. Another example of how the GoU linked upgrading to societal and ecological objectives is the state-led conversion of land from cotton to FFVs. Indeed, FFVs are less water-intensive crops compared to cotton but also much more labour-intensive, so they were crucial to boost employment in rural areas and preserve natural resources. Only the state has the capacity to identify and address such societal needs by planning timely and inter-scalar strategies of such scale and scope. In other words, the state sits in a unique position to mobilize and transfer resources and assets which could have not be deployed by private governance.

Evidence suggests that organisational upgrading is needed to arrange complex shifts in production capabilities which require large investments in the acquisition of technology, innovation and know-how. The government has identified strategic and potentially interlinked value chains, has invested in them, planned and created incentives which purposively provided initial rent to incentivise productive and learning opportunities for infant firms (Lee, 2013; Horner, 2017). It has shaped and coordinated market and non-market institutions in their early stages of development which enabled social and economic transformation (Bair, 2005). Through state ownership and public procurement the GoU was able to stimulate domestic production and its integration into GVC/GPNs while allowing technology to be accessed and diffused. Such state-led institutional reconfiguration has shaped the nodes and power of commodity chain (Dicken, 1994; Talbot, 2002; Ponte and Sturgeon, 2014) but at the same time served distributional outcomes for firms and workers (UNCTAD, 2016), created jobs and increased incomes and fiscal revenues. The state through organizational upgrading responded to various needs and pursued multiple strategic developmental objectives.

6. CONCLUSIONS

This article used the Uzbek FFVs value chain to shed light on how state-led coordination strategies cross sectors, institutions, time and scales, shaped inter-sectorial economic upgrading

at the micro level and triggered the developmental change underway. This case suggests that organisational upgrading was essential for the redefinition of the production structure and employment regimes in the long-run (Gereffi, 2014; Fine and Dimakou, 2016), as well as for overcoming the boundaries of the agriculture-industry-service complex, driving pro-poor growth through strategic horizontal and vertical linkages in the domestic economy and within GVC/GPNs through inter-sectorial upgrading.

The article has also bridged the micro-meso level analyses of upgrading with macro-level discussions on the role of the state in GVCs. In particular, looking at the multiple state's functions of buyer, regulator, facilitator and producer, it has shown that the GoU has managed to attract FDIs and avoided instances of captive governance and predatory sub-contracting. Macroeconomic policies provided the institutional space to build local capabilities at the micro-level. Trade policies and selected protectionism have been crucial for technology transfer and for the creation of new market channels. The challenge is now to phase out tariffs while capturing value and market share in the GVC/GPNs.

In conclusion, this case study has shown that, in contradiction with neoliberal diagnosis, gradual state-led institutional and regulatory reforms, by securing stable food prices, inputs and income, have been able to minimise the negative impacts on the weakest nodes of the local value chain during processed of GVC/GPNs' integration (Chang and Nolan, 1995). By the same token, despite rent-seeking and rather authoritative public governance, gradual and targeted liberalisation has allowed the implementation of stable, large-scale economic investments to trigger upgrading in local value-chains (Stark and Ahrens, 2012) and the acquisition of foreign exchange to finance upgrading processes. Therefore, it is argued that a solid state-led coordination of market and non-market institutions and agents – organisational upgrading- is fundamental for the creation of coherent and inclusive developmental linkages with GPNs, hence it has to be incorporated systematically in GVC analysis and policy design.

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