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BETWEEN A ROCK AND A HARD PLACE: A CRITIQUE OF ECONOMIC UPGRADING IN GLOBAL VALUE CHAINS

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PLAIN LANGUAGE SUMMARY

The fragmentation and dispersion of the multinational enterprises' (MNE) value-adding activities allows developing countries firms (DCFs) to insert themselves in the MNEs' value chain. Within both academic and policy spheres, DCFs are encouraged to participate in GVCs as it allows for knowledge and resource transfers from the MNE (upgrading opportunities). In this paper, we offer a critique on this notion of economic upgrading. We argue that researchers have focused on the benefits that new or improved value chain activities can bring, but have largely ignored how these benefits are shared between the chain participants OR members. We address this assumption by introducing power-dependence and bargaining power to explicate the conditions under which an economic upgrading trajectory can positively influence the DCF's value-added appropriation.

TECHNICAL SUMMARY

Researchers have tried to understand how insertion into global value chains (GVCs) can lead to economic upgrading for the developing country firms (DCFs) involved. Many of these studies operationalize upgrading as a DCF's movement into higher value-added activities, where the creation and appropriation of value-added are assumed to be symbiotic. In doing so, they divorce economic upgrading from its effect on inter-firm bargaining power. We address this core assumption by introducing insights from theories on power-dependence relations. We argue that pursuing an economic upgrading trajectory can be positioned a necessary but insufficient condition for DCF value-added appropriation. In so doing, we theoretically explicate the conditions under which an economic upgrading trajectory is likely to result in DCF value-added capture.

INTRODUCTION

The economic phenomenon of rising fragmentation of production networks has been driven by the actions of multinational enterprises (MNEs) and technological progress (OECD, 2013). Since the 1960s, researchers have noted the organisational shift of US multinationals towards the fine slicing of various activities via outsourcing strategies (Gereffi & Lee, 2012). This trend has intensified in today's economic landscape and foreign direct investment (FDI) is no longer considered the primary mechanism for the internationalization of value chains (Banga, 2013; Feenstra, 1998). MNEs are now increasingly willing to engage in various forms of non-equity production strategies and it is estimated that almost 60 percent of MNE-related trade is contractually based (UNCTAD, 2013).

This increased fragmentation of international production has given rise to studies on economic upgrading. Disaggregated value chains have allowed developing country firms (DCFs) an increased opportunity to insert themselves into global production. To a large extent, the notion of economic upgrading through the participation in MNE-led global value chains (GVCs) is supported by the assumption of MNEs' technological superiority (Humphrey & Schmitz, 2002; Inge Ivarsson & Alvstam, 2010). From this perspective, MNEs are in possession of knowledge, resources and experience that allows for firm-specific advantages (Hansen, Pedersen, & Petersen, 2009; Rodríguez-Clare, 1996). It is common for GVCs studies to start with the implicit assumption that relationships with the MNE will place DCFs on dynamic learning curves through the unidirectional flow of technological, managerial and financial support, learning by doing and the existence of other knowledge-based externalities (Gereffi, Humphrey, & Sturgeon, 2005; UNCTAD, 2013).

Our paper builds on this perspective by focusing on instances of upgrading that occur through the MNE-DCF relationship and are manifested in knowledge and resource transfers from the

former[1]. We adopt this perspective acknowledging that GVC studies have, to a lesser extent, explored other factors that can facilitate economic upgrading, for instance, broader institutional settings (McDermott, Corredoira, & Kruse, 2009; Tokatli, 2007) and domestic clustering (Bair & Gereffi, 2001; Humphrey & Schmitz, 2002). Even so, the inter-firm governance relationship between the MNE-DCF is frequently posited as the strongest conduit for DCF upgrading (Humphrey & Schmitz, 2002), and has thus attracted the most attention (Inge Ivarsson & Alvstam, 2010).

By reviewing existing studies, we address a fundamental shortcoming in the research agenda, one that has led to oversimplification of the outcomes of pursuing economic upgrading. We demonstration that a large number of prior studies implicitly assume a symbiotic relationship between the creation and appropriation of value-added by the "upgraded" DCF (Tokatli, 2013). Guided by observational evidence, many studies associate visual improvements in the operations of DCFs (upgrading trajectories) as indisputable evidence of economic upgrading (Sako & Zylberberg, 2017). Considerations around bargaining power are subdued and economic upgrading is seen as a DCF's way of capturing greater value-added from its chain activities.

In order to address this theoretical oversight, we introduce an explicit power-dependence and bargaining power dimension to the GVC relationship. We argue that the manifestation of an upgrading trajectory can be positioned as a necessary but insufficient condition to facilitate greater value-added capture by the DCF. By moving beyond the traditional symbiotic assumption, we are able to better understand the conditions that must accompany various upgrading trajectories in order for the DCF to enjoy greater value-added appropriation.

[1] A DCF can also pursue economic upgrading trajectories driven by innovations that the firm itself has developed.

Using conceptual insight from theories on power dependence relations (Crook & Combs, 2007; Dwyer & Walker Jr, 1981; Emerson, 1962), inter-firm bargaining is positioned as a function of the GVC relationship in question, rather than the characteristics of the value chain actors themselves. Economic upgrading is an ex-post change to the GVC governance structure, in that it occurs subsequently to initial MNE and DCF contracting. These changes not only affect value-added creation, but is also likely to alter the distribution of bargaining power within the relationship. Rather than simply assuming that the effect of this adjustment is favourable to the DCF, we advance a theoretical framework that explicates the conditions under which economic upgrading trajectories can offer positive value-added to the DCF. Recent studies have begun to explore the conditions that lead to value-added appropriation. Even so, they have tended to focus on factors that are largely external to the GVC relationship, for instance, the role of appropriability regimes and complementary assets (Sako & Zylberberg, 2017). In this paper, we take an endogenous perspective, by probing the manner in which upgrading can alter inter-firm governance by changing bargaining power dynamics.

This paper provides meaningful theoretical utility by contributing to our understanding of two important aspects within the GVC upgrading literature. First, we highlight the conceptual disconnect in the literature and the tendency for studies to implicitly assume that measuring upgrading via activities associated with traditional trajectories is sufficient to capture the appropriation of greater value-added (Tokatli, 2013). We address this knowledge gap by introducing greater considerations around inter-firm bargaining power. In the process, we are able to better explicate the conditions under which a typical economic upgrading trajectory can positively influence the DCF's value-added appropriation.

The outline of the paper is as follows. Section 2 discusses the GVC literature on economic upgrading and the implicit assumptions around DCF value-added creation and its appropriation.

As part of the review, we highlight recent theoretical developments and the role that they have played in revealing and addressing this longstanding implicit assumption. In Section 3, we introduce theoretical insights on power-dependence relations to build on the discussion by providing a dynamic and endogenous perspective on the conditions that support value-added appropriation from economic upgrading. Section 4 discusses the implications of the framework by drawing on industry insight from published sources.

ECONOMIC UPGRADING: THE CURRENT RESEARCH AGENDA

The notion of economic upgrading has become synonymous with the study of GVC participation (UNCTAD, 2013). In this context, economic upgrading is broadly taken to indicate the positive impact that is accrued to various economic actors from their involvement in GVCs (Gereffi, 2005). Earlier work by Gereffi (1994; 1999) established the empirical foundation for later studies that focused on developing the notion of economic upgrading. He described upgrading as the process that allows firms to move into more profitable and/or technologically sophisticated capital and skill-intensive niches (Gereffi, 1999). Humphrey and Schmitz (2002) later referred to it as increases in the skill content embedded within products or shifts in firm activities that allow for movement into market niches.

These earlier definitions emphasized the idea that DCFs can become "better" through GVC induced strategies that work to enhance various aspects of its operations. For example, a firm may improve its current production processes to make them more efficient. Other DCFs may broaden their activity scope to encompass new functions that they were not involved in previously, e.g., research and development or own brand marketing. Table I outlines the categorizations that are frequently used to label various manifestations of firm level improvements.

INSERT TABLE I ABOUT HERE

More recent upgrading definitions have begun to explicitly emphasize the value-added component of value chain participation (Gereffi, 2005; Gibbon, 2005; Giuliani, Pietrobelli, & Rabellotti, 2005; Milberg & Winkler, 2011; UNCTAD, 2013). Here, the notion of value-added is captured as an accounting measure (Mudambi, 2008). It represents the monetary benefits that a firm can achieve from its value chain activities. It is important to separate the concept of value from that of value-added. Value can be broadly defined as the price that a party is willing to pay for a good or service, usually based on the party's utility function for good or service in question (Grewal, Monroe, & Krishnan, 1998). Value-added on the other hand represents the accounting different in the price that is paid for the good and the cost to produce or acquire the good (Haller & Stolowy, 1998).

Gereffi, Humphrey, and Kaplinsky (2001) proposed three metrics to assess the extent of economic upgrading. Two of these metrics are related to firm-level economic upgrading, where they capture the DCF's ability to gain increases in either overall profitability or profit margins (Gereffi et al., 2001). Overall profitability captures what could be considered absolute value-added, where overall sales are subtracted from total intermediate input cost (Girma, Görg, & Strobl, 2004). It reflects absolute value-added as it is affected by the total product output sold by the DCF. Conversely, profit margins capture what could be considered relative value-added. This income proxy is based on the activity itself and accounts for the relative gains attributed to any particular upgrading initiative[2].

[2] We use the word upgrading initiative to represent the traditional proxies for economic upgrading that are typically associated with the greater appropriation of value-added (upgrading). It can also be interpreted as the various manifestations of upgrading trajectories.

Recent papers such as J. Lee and Gereffi (2015) share this conceptual underpinning. The authors provide a synthesis of the current GVC research landscape, of which economic upgrading is positioned as a significant aspect. They touch on issues ranging from GVC governance to social upgrading and shifting patterns of value chain organization. While Lee and Gereffi (2015) aim to provide renewed perspective on GVC research, its treatment of economic upgrading remains consistent with previous studies. Economic upgrading is defined as the movement into activity niches that are "more profitable and/or technologically sophisticated capital- and skill-intensive." (Lee and Gereffi, 2015: 323). Choksy, Sinkovics, and Sinkovics (2017) noted that the link between upgrading and profit margins for DCFs has not been adequately analysed within the extant literature. Focusing on functional upgrading, the authors contend that "most studies simply tend to assume that functional upgrading can be equated with higher profit margins" (Choksy et al., 2017:380). Here the authors assert that prior studies have tended to assume a symbiotic relationship between upgrading and value-added appropriation. Our argument diverts slightly from the views of Choksy et al. (2017). Value-added capture is a core tenet of economic upgrading and there is little definitional ambiguity with the concept itself. As such, our critique does not reside in the manner in which economic upgrading has been traditionally defined. While the upgrading overview provided above illustrates evolution, it is reasonable to assume that it is all indicative of the firm's ability to increase its value added appropriation related to its value chain activities.

We contend that the underlying conflict resides in the manner that prior studies have operationalized and measured upgrading. It is now commonplace to encounter studies that relegated themselves to assigning activities to various upgrading trajectories, where these activities are interpreted as instances of upgrading. This analytical approach has resulted in a large number of GVC studies fixating themselves on describing the manner in which a perceived

upgrading trajectory may manifest itself within the underdeveloped firm e.g. Jer (2014); Rossi (2013) and I. Ivarsson and Alvstam (2011). So much so that studies have described upgrading as hard to quantify, but one of those things that "you know when you see it" (Milberg & Winkler, 2011: 343). Humphrey and Schmitz (2002) focused on understanding the combinative effect that local clustering and GVC participation has on DCF upgrading. This paper is one of the first to incorporate the popular typology for achieving economic upgrading (Table 1). Here, upgrading is facilitated if the DCF is able to implement structural changes that lead to product, process, functional or inter-sectoral improvements (Humphrey & Schmitz, 2002). Giuliani et al. (2005) defined upgrading as "the capacity of a firm to innovate to increase the value added of its products and processes" (Giuliani et al., 2005). Even with explicit consideration given to value-added, the paper relegated itself to measuring upgrading by aligning its existence to activities that exemplify the various typological classifications.

We acknowledge that this approach is partially the manifestation of methodological and data constraints. Gereffi, Humphrey et al. (2001) acknowledged that it is often difficult to get accounting records for firms that participate in GVCs. These DCFs are either not publically traded or they fail to keep proper accounting records. It is also common for suppliers in GVCs to resist commenting on issues of value-added appropriation, especially with regards to its arrangements with the MNE (Ivarsson and Alvstam 2011).

This tendency of aligning evidence of improved activities to instances of upgrading can be problematic. First, undertaking a functional upgrading trajectory by, for example, extending operations into R&D activities cannot be considered upgrading without understanding its underlying influence on value-added. While investments in functional areas such as R&D or marketing can positively impact value-added, they are also costly, inherently risky and prone to failure (Fernandes & Paunov, 2014; Fu, Pietrobelli, & Soete, 2011). A similar line of argument

can be made against recent attempts to link upgrading to product and process changes motivated by quality standards compliance (Kaplinsky, 2010). Adhering to international or MNE standards requires DCFs to make significant changes to its operations. Adopting stricter quality standards may result in higher end prices, lower costs and larger volume sales, however, it is also costly to acquire and maintain (Kaplinsky, 2010; J. Lee, Gereffi, & Beauvais, 2012).

A critical reading of the study by Pavlínek and Ženka (2011) on the automotive GVC in Central and Eastern Europe illustrates the severity of potential imbalances between traditional notions of upgrading and value-added appropriation. Using data from the Czech automotive sector, the authors argue that various forms of upgrading trajectories had been undertaken by domestic firms. For example, the authors capture a process upgrading trajectory by measuring the turnover per employee. This ratio increased by 72 percent between 1998 and 2006 and it was argued that domestic firms had become more efficient. This proxy, however, merely indicates that over the period domestic firms were able to generate more revenue per employee, that is, generate efficiency benefits which could potentially be captured by the domestic firms. Details on domestic value-added over the same period illustrate a different situation. In 1998, the average value-added across domestic firms stood at CZK 0.119 bn. This average increased to CZK0.121 bn in 2006, a difference of CZK 0.002 bn in average value-added across all the domestic firms in the sector (Pavlínek & Ženka, 2011). This negligible and less than proportional increase in value-added raises concerns regarding domestic firms' ability to appropriate value-added from its initiatives aimed at achieving process upgrading.

The pitfalls of this assumption can also be inferred from Ponte and Ewert (2009), a study that gave rise to the notion of "economic downgrading". Drawing empirical insight from the South African wine industry, the analysis positioned upgrading as a complex and multi-dimensional concept. Firms in the sample were able to improve their position in the GVC by engaging in

activities that were incompatible with activities associated with the widely held typology of upgrading trajectories (Morris & Staritz, 2014). Instances of greater value-added appropriation were achieved in cases where the domestic firm relinquished branding or sold more basic products at larger scales (Ponte & Ewert, 2009). The study cautioned the agenda's overreliance on process, product and functional shifts as ideal proxies for economic upgrading. Instead, they argued that these manifestations should be only used as "partial guides to arrive at a more complex and fine-tuned picture of upgrading" (Ponte & Ewert, 2009).

Sako and Zylberberg (2017) has been one of the first studies to move towards a more robust operationalisation for economic upgrading, and the conditions that must accompany empirical proxies for economic upgrading. Rather than assume this symbiotic relationship, the paper outlines a set of conditions under which an upgrading trajectory is likely to result in value-added capture for the DCF. In particular, the authors highlight appropriability regimes and complementary assets as necessary pre-conditions for value-added capture. From this perspective, the supplier is able to capture the value-added from upgrading if it operates in an institutional environment that is able to starve off imitation through robust appropriability regimes. Likewise, the possession of specialized complimentary assets can also act as mechanism that prevent rent leakage to competitors. Complimentary assets effectively increase barriers to entry by making value-added capture contingent on the possession or control of multiple pieces of assets e.g. distribution channels or logistical networks (Sako & Zylberberg, 2017). These two pre-conditions need not be simultaneously present. When one is absent or weakly represented, the other is able to buffer value-added capture.

Sako and Zylberberg (2017) have make significant headway in disentangling the assumptions around value-added creation and its capture. However, they do so by making certain implicit assumptions of their own. For instance, the framework does not consider knowledge and

resource transfers originating from within the GVC relationship, particularly those transferred from the lead firm. Instead, it positions upgrading solely as a strategic initiative of the suppler firm, based on endogenous innovation, and developed independently of the MNE's input. Prior empirical insight has however shown that the engagement with the MNE is still one of the strongest conduits for economic upgrading (Gentile-Lüdecke & Giroud, 2012; Saliola & Zanfei, 2009; UNCTAD, 2013). However, the terms on which MNE-led upgrading can lead to DCF value-added capture may be contingency on an alternative or additional set of pre-conditions, ones that are outside the scope of Sako and Zylberberg (2017)'s framework.

A lead firm's support for upgrading is likely to be driven by the ability of an upgrading initiative to generate addition value-added only within the boundaries of the relationship. As such the strategic intent of the DCF is now confronted by the MNE's own strategic objective. These intentions are sometimes in conflict, as maximising value-added capture is frequently the end game for both parties (Peter J Buckley & Strange, 2015; Cox, 1999). When focusing on supplier upgrading activities attributed to MNE-led initiatives, it is important that adequate consideration be given to the manner in which value-added is distributed between both actors. Remaining silent on these distributional effects underscores the tendency for studies to implicitly assume that increases in value-added, by way of enhanced firm operations, will be allocated to the DCF in which the initiative has materialized. However, a DCF may undertake a process upgrading trajectory to increase production efficiency by reducing input wastage and increasing production speed. At a given price point, value-added creation is facilitated through a cost reduction mechanism. If the MNE is able to dictate pricing conditions, then the value-added created can be appropriated away from the DCF (Mansfield, Rapoport et al. 1977, Cox 1999).

Likewise, value-added may be created if a DCF broadens its activity base by adding more functions to its in-house operations, for example, design or R&D. These functions allow the DCF

to provide a more complete and idiosyncratic intermediary good to the MNE. This value-added can only be captured by the DCF as long as it is reflected in the agreed contract price. If the MNE is able to bargain for a lower price, the value-added created from upgrading can be transferred to the MNE. To understand this dimension of value-added capture, it is important to consider how enhanced supplier activities may influence inter-firm bargaining power. This requires a theoretical discussion that transcends the widely held assumption of a positive correlation between widely held upgrading proxies and its ability to enhance value-added capture. In the next section, we incorporate the theory on power-dependence (Emerson, 1962) to explicate a set of GVC specific conditions under which traditional MNE-led upgrading initiative may result in value-added capture for the DCF. We accomplish this by examining changes to inter-firm dependence.

INTEGRATING UPGRADING AND INTERFIRM BARGAINING POWER

Our aim is to better understand the circumstances that lead to greater DCF value-added accrued from MNE-led upgrading trajectories (new or enhanced value-adding actives). To achieve this, it necessary for us to consider explicitly, issues around dependence and inter-firm bargaining power. Ponte and Ewert (2009)'s work on economic downgrading reinforces this need to look beyond merely performing activities associated with high value-added as adequate proxies for upgrading. Their work has demonstrated that while moving into sophisticated activities is a promising upgrading strategy, it need not constitute a necessary condition to foster greater value-added appropriation.

While these consideration have been subdued within the extant literature, they are not absent. For instance, the Gereffi et al. (2005) governance typology (henceforth GHS) has been the most common analytical tool to assess variation in power-asymmetries across varying GVC governance types. Transaction complexity, transaction codification and the capabilities of the

supplier base are seen as instrumental in governance choice. Table II provides an overview of the typology and the level of power asymmetries associated with each governance option.

INSERT TABLE II ABOUT HERE

Upgrading trajectories introduces dynamism into the GVC relationship by altering one or more of GHS's transactional characteristics. In its purest iteration, GHS implicitly consider inter-firm dependency by noting the role of switching costs and dedicated equipment in establishing the extent of power-asymmetry across governance types. For instance, captive relationships result in favourable power asymmetry for the lead firm as suppliers usually "make non-standard products using machinery dedicated to the buyer's needs" (Gereffi et al, 2005: 83). Even so, widely accepted proxies of economic upgrading have dampened the ability of GHS to predict the effects of upgrading on value-added capture by discounting the conditions on which upgrading initiative occurs.

These MNE-led upgrading initiatives alter the GVC relationship by amending one or more of the three factors outlined in GHS. According to GHS, once the DCF moves out a market governance type, it is likely that it will experience an increase in bargaining asymmetry (see Table II). Even so, the DCF's movement into either a captive or modular governance is predicated on the conditions upon which the upgrading initiative is made. Operationalizing upgrading as simply the movement into activities of higher value-added biases the analysis towards favouring a governance type that offers marginal increases in power asymmetry. However, scenarios may also exist where upgrading focused initiatives can occur while the supplier simultaneously experiences many of the predefined captive effects that GHS has described. These effects may include, "a great deal of intervention", "transactional dependency" and "lock-in'' (Gereffi et al.,

2005). This produces an interesting conundrum, one that requires us to revisit how we integrate upgrading considerations within the GHS typology.

To address this theoretical void, we introduce explicit considerations around dependence and inter-firm bargaining. In so doing, we provide a means to explicate the conditions under which MNE-led upgrading initiatives can lead to greater value-added appropriation for the DCF.

To develop this perspective, we draw on the seminal work of Emerson (1962) and his theoretical insights on power-dependence relationships. In doing so we acknowledge that recent GVC work have endeavoured to provide a more nuanced conceptualization of power. For instance, Dallas, Ponte, and Sturgeon (2019) argue that power can assume transmission mechanisms that are either direct or diffused, and can occur within dyads or collectives. In other words, power can manifest itself in softer, diffused and sometimes unintentional applications (Dallas, 2014). Even so, we have opted to focus on applications of power that are more direct and coercive, as it is typical for lead firms to operate within these parameters (Cox, 1999; Phillips, 2017).

From this perspective, power is defined as the extent to which a party (A) can get another party (B) to do something that they (B) would not otherwise do (Dahl, 1957). We are specifically concerned with value-added appropriation power, and the extent to which a party (A) can coerce the other party (B) to accept a share of value-added that they would not otherwise have agreed to. The MNE and the DCF can theoretically take the role of either (A) or (B) depending on their relative bargaining position. In GVC governance theory however, it is typically assumed that the MNE is (A) (Dallas et al., 2019; Gereffi, 1994; Gereffi, 1999).Based on this approach, we posit superior bargaining power as positively correlated with the ability to appropriate value-added. Both of which are derived from variations in the inter-firm dependence of each contractual party (the MNE and DCF in this case). Though Emerson's work is grounded in the study of interpersonal interaction, the arguments can be extended to understand relationships at the group

or firm level (Pfeffer & Salancik, 1978). The theory positions superior bargaining power not as a direct attribute of the actors, but rather as a property of the relationship (Brass & Burkhardt, 1993; Emerson, 1964). A particular MNE does not possess generalized bargaining power across all of its value chain relationships. It is more likely that it possesses favourable bargaining positions within certain nodes, while being in weaker positions within others. For example, a large and resource-rich MNE may assume a favourable bargaining position with some of its suppliers that provide various factor inputs. Concurrently, the MNE may be in a less favourable bargaining position with a potential host country that it wishes to operate in. From this perspective, the bargaining power differential has less to do with the firm characteristics of the MNE and more to do with the properties of the specific relationship (Emerson, 1962).

Wal-Mart provides a good illustration of this argument. The world's largest multinational retailer is often fingered for its controversial negotiations with many of its suppliers. These relationships are frequently characterised significant pressure to cut costs and provide precise delivery times (Bloomberg, 2017; Reuters, 2015). In the past, this bargaining pressure has been attributed to, for example, failure and bankruptcy of Vlasic, an American pickle manufacturer (Crook & Combs, 2007). The power relationship was reversed when Wal-Mart tried to enter the Indian retail market where it struggled to broker terms and conditions that were favourable to its operations. For retail operations, India required firms to purchase at least 30 percent of its merchandise from local small and midsize businesses (New York Times, 2013). Despite intense efforts, in 2013 Wal-Mart announced that it would abandon any immediate plans to open consumer stores in India. As a key factor in this decision, Wal-Mart executives cited the unwillingness of Indian lawmakers to make concessions on the regulation (Forbes, 2013).

Our immediate focus is to understand how bargaining power shifts within a dyadic relationship that is altered by an upgrading initiative (between the MNE and a supplier). Even so, to

understand this from a dependence perspective requires us to consider a broader arena of actors (Dallas et al., 2019). The efficacy of a particular upgrading trajectory is influenced by the barrier that it is able to erect vis-à-vis the wider spectrum of suppliers that service the lead firm. In other words, "power exerted between the dyadic pair is partly shaped by relative bargaining positions rooted in the buyer (purchasing) power of lead firms and the competence power of suppliers" (Dallas et al., 2019:380)

Based on the inter-firm bargaining assumption, the theoretical argument to be adapted for the purpose of this paper is as follows. The bargaining power of the DCF is positively related to the dependency of the MNE on the DCF. Moreover, the dependence of the MNE upon the DCF is (1) directly proportional to the MNE's need for the product input produced by the DCF and (2) inversely proportional to the availability of those inputs to the MNE outside of the MNE-DCF relationship (Emerson, 1962, 1964).

Alternatively put[3]:

$P_{md} = D_{dm}$ (m=MNE; d=DCF)

Power **(P)** of the MNE **(m)** over DCF **(d)** is equal to the dependence **(D)** of the DCF **(d)** on the MNE **(m)**

Or

$P_{dm} = D_{md}$ (m=MNE; d= DCF)

Power **(P)** of the DCF **(d)** over MNE **(m)** is equal to the dependence **(D)** of the MNE **(m)** on the DCF **(d)**

The effect that a perceived upgrading trajectory has on bargaining power within the GVC is thus contingent on two dependency factors. In the case of the DCF, the ability to capture value-added is closely related to (1) whether the move in new value chain activities (upgrading initiative)

[3] For reference, $\mathbf{P}_{md}$ signifies the **P**ower that the MNE (m) has over the DCF (d). $\mathbf{D}_{dm}$ symbolises the **D**ependence of the DCF (d) on the MNE (m).

allows the DCF to cultivate relationships and sell its output outside of the MNE's relationship (Ponte & Ewert, 2009; Sako & Zylberberg, 2017) . In our framework, we refer to this as upgrading redeployment. The extent of bargaining is further influenced by the extent to which the MNE is able to source similar inputs from entities outside the relationship (Wernerfelt, 1984). We denote this as the scope of alternative supplier sourcing. Using GHS as a foundation, Table III provides an analytical overview of governance outcomes that are likely to occur due to variation in the two factors mentioned above. Four scenarios are explicated based on different combinations of the upgrading specific dependency factors outlined above.

INSERT TABLE III ABOUT HERE

The genesis of our analysis is one where the DCF's relationship with the MNE exist under circumstances where "the transactions are easily codified, product specifications are relatively simple, and suppliers have the capability to make the products in question" (Gereffi et al., 2005). Subsequent to this, a particular upgrading initiative can shift the relationship in one of three directions (Table III). The value-added appropriation potential of each scenarios is then determined by the conditions on which the upgrading initiative occurs.

For instance, let us assume for the following the extreme case that the DCF and MNE engage in a relationship where each party becomes the other's primary client. In this scenario, a DCF upgrading initiative may, for instance, take the form of technological asset investment that is both dedicated to the relationship while possessing little productive use outside of it (Oliver E. Williamson, 1996). While value-added is created in the process, it also give rise to a bilateral dependence, and the challenges attached to small numbers bargaining (Blair & Kaserman, 1987). These challenges affect value-added capture, since both parties are bilaterally dependent and thus

equipped to act in a manner that is opportunistic (Pisano, 1990). However, even in the presence of protracted negotiation and hold up problems, the DCF is likely to capture a meaningful share of the value-added.

On the other hand, the upgrading initiative can be characterised by (1) low levels of DCF activity redeployment and (2) high MNE alternative supplier sourcing. In such cases, we hypothesize a relationship that is slanted towards Table III's DCF captivity (superior MNE bargaining power). Under these circumstances, the MNE-led upgrading initiative may offer little productive use outside the GVC relationship. Even so, the MNE may have been able to cultivate numerous similar relationships across a network of DCFs (P. J. Buckley, 2009). The DCF thus becomes beholden to and dependent on the MNE, thus shifting bargaining power in the latter's favour. Any value-added created by the MNE-led upgrading initiative is likely to be captured by the MNE itself.

Finally, an upgrading initiative may provide the means to transform the relationship into one that offers (1) high DCF activity redeployment and (2) low MNE alternative supplier sourcing. Here we posit a situation where the relationship favours MNE captivity, thus allowing the DCF to capture a majority of the value-added. In this scenario, the DCF is able to adopt, assimilate and incrementally improve the initial MNE-led upgrading initiative. The activity evolves into a value-adding activity that the MNE struggles to access from alternative sources. Even so, the DCF is able to redeploy the upgrading activity beyond the confines of the MNE GVC. This redeployment need not only be in the form of soliciting alternative buyer. Instead, it can manifest itself in DCF's ability to successfully enter into own brand manufacturing (OBM) (Gereffi, 1999).

In our theorization thus far, the three inter-firm bargaining configurations outlined above can originate from the implementation of various upgrading initiatives, where each outcome results in different levels of value-added appropriation for the DCF. A shift into a captive relationship in the DCF favour provides the DCF with the power imbalance needed to appropriate all of the value-added surplus from the upgrading trajectory. In extreme cases, it may also allow the DCF to appropriate value-added that initially resided with the MNE. Likewise, a shift into a captive relationship in the MNE favour can allow the MNE to capture all of the value-added from the upgrading trajectory, as well as the possibility to appropriating value-added that was initially held by the DCF. Table III further explicates a case of mutual dependency that can manifest itself in the form of a bilateral monopoly (Oliver E Williamson, 1975).

While these three bargaining power relationships are key to our theorization, it is important to note that even in situations where upgrading initiatives create power imbalance, it does not negate the possibility that some level of mutual dependence may remain present. In other words, mutual dependence is not restricted to instances of bilateral monopoly only. While GVC relations that involve bilateral monopolies will result in the highest levels of mutual dependence, it is also possible that relationships that move towards DCF captivity or MNE captivity can also involve shared dependency.

It is important that such a distinction be made as even weaker manifestations of mutual dependence can still permit the entity with weaker bargaining power to capture some of the value-added from the upgrading initiative. While their focus is on constraint absorption, Casciaro and Piskorski (2005) expands on Emerson (1962) seminal ideas and provides us with an opportunity to unlock a broader range of theoretical possibilities.

Based on the conditions on which the upgrading initiative is made (low DCF activity re-deployability and high MNE alternative supplier sourcing), the relationship may incrementally move towards unilateral dependence in the MNE's favour. This weakens the MNE's dependence on the DCF, but may be insufficient to completely nullifying mutual dependency. As such, the MNE may remain open to share in the upgrading surplus, thus allowing the DCF to marginally benefit from the additional value-added generated from these new chain activities.

Take our previous example where the upgrading initiative is characterised by a decreased level of DCF activity redeployment and increased levels of MNE alternative supplier sourcing. In line with Table III, if these shifts are intense, then the relationship is likely to result in unilateral dependence in the MNE's favour – where the MNE is able to achieve full appropriation of the value-added. However, the upgrading initiative may take the form of a specialized piece of equipment that is able to produce widgets needed for the MNE's product. Given its specialized nature, the DCF can only service the MNE demands as the productive value outside the relationship is negligible. That being said, "power needs to be considered dyadically by taking into account each actor's dependence on the other" (Casciaro & Piskorski, 2005:171). From the MNE's perspective, it has provided upgrading support to four other suppliers who are in similar positions to deliver the specialized widget, made possible by similar upgrading initiatives. According to Emerson (1962), this relationship is characterised by significant power imbalance in the MNE's favour. Even so, mutual dependence may exist at low to moderate levels. The MNE may consider the time and effort devoted to assisting the DCF in setting up the manufacturing line. Even though it has cultivated alternative relationships, the MNE may further wish to maintain a robust supply chain network in order to withstand supply shocks. As such, the now higher-powered actor (the MNE) is still somewhat dependent on the now lower-powered actor (the DCF) and is thus willing to stabilize the relationship by allowing the DCF to capture a

minimal amount of the value-added from the upgrading initiative (Casciaro & Piskorski, 2005). Due to the existence of albeit low mutual dependence, DCF value-added appropriation is able to co-exist with weaken bargaining power.

TENETS OF REDEPLOYABLE UPGRADING AND ALTERNATIVE SUPPLIER SOURCING

Having introduced these four scenarios, we now address the core elements that determine the extent of value-added capture from MNE-led upgrading trajectories, that is, (1) DCF activity redeployment and (2) MNE alternative supplier sourcing.

As it relates to DCF activity redeployment, our discussion below focuses on shifts that are internal to the DCF-MNE governance relationship and brought about predominantly by changes from the upgrading initiatives itself. We highlight three important dimensions (a) the specificity of the knowledge/resource that is embodied within the upgrading, (b) inter-firm contractual agreements between the MNE-DCF, and (c) the DCF post-upgrading activity scope.

These three dimensions are underpinned by a theoretical logic derived from previously integrated theories on exchange, inter-firm contracting and bargaining (Emerson, 1962; Pfeffer & Salancik, 1978; Oliver E Williamson, 1975). In conceptualizing these dimensions, we emphasize the actor's capacity to extend its cultivation of alternative relationships – in other words, the DCF's ability to source or exploit alternative opportunities from its post-upgrading productive output. These dimensions are further advanced by embedding these arguments within the context of GVCs. More specifically, all three dimensions are manifestations of situations that the DCF may experience when engaging in economic upgrading from GVC participation.

Even so, and as argued by Casciaro and Piskorski (2005), bargaining power needs to be considered dyadically by taking into account each actor's dependence on each other. As such,

these three dimensions are combined with considerations around MNE alternative supplier sourcing. The result is the ability to understand the overall effect of upgrading initiative and inter-firm dependence - and thus the implications for value-added appropriation for each party.

(a) *Specificity embodied within the upgrading.* The extent to which the knowledge or asset is specific to the MNE needs is instrumental in determining asset redeployment (Buvik & Reve, 2001). Such specificity can manifest itself in site specificity, physical asset specificity or human asset specificity (Joskow, 1988). As specificity increases, upgrading redeployment becomes difficult for the DCF (Casciaro & Piskorski, 2005).

(b) *Inter-firm contracting between the MNE-DCF*. The terms on which MNE-led upgrading occurs may be dictated by explicit and legally binding contractual agreements. In this sense, redeployment may be constrained by the extent to which contracts prohibit the use of knowledge/resource transfers (upgrading) outside the MNE relationship. Such redeployment restrictions are common in, for instance, franchising agreements (Brickley, 1999) - where knowhow, processes and machinery cannot be used outside the relationship. This class of redeployment restrictions differs from (a) above in that high value-added alternative use are possible but redeployment is instead dampened by the possibility of legal ramifications.

(c) *Scope of upgraded activity.* As GVCs become increasingly fine sliced, the outsource activity/task that each DCF is responsible may be only a small fraction of the overall product or service (Peter J Buckley & Ghauri, 2004). MNE-led upgrading may occur within such relationships where the upgrading initiative is focused on improving a narrow range of outsourced activities. Depending on the extent of such fine slicing intensity, the DCF may find itself in a situation where it is unable to understand and strategize on alternative uses – even if such redeployment may exist. This argument is illustrated in a

recent study by Gooris and Peeters (2016). The authors show that the degree of activity fine slicing is not solely influenced by the prospect of tapping into location advantages (Dunning, 2000). They empirically show that MNEs also engage in value chain fragmentation to reduce spillover effects within the host country, especially when host countries offer weak legal protection (Gooris and Peeters, 2016).

In the case of MNE alternative supplier sourcing, insights from studies such as Sako and Zylberberg (2017) become useful towards a deeper GVC contextualization. If the DCF achieves activity redeployment without restricting the MNE's alternative supplier sourcing, then the value capture benefits to the DCF can be minimal. In this scenario, the strategy of the DCF becomes important in restricting alternative MNE supplier sourcing. The question becomes – in the presence of re-deployable upgrading, how can the DCF limit the MNE's outside access to these activities? According to Sako and Zylberberg (2017), DCF complementary assets and the existence of strong appropriability regimes become important tools in limiting MNE alternative sourcing. From this perspective, they effectively restrict the MNE's access to alternative supplier sources by increasing barriers to entry.

As it relates to specialized complementary assets, the DCF may be able to intertwine their core GVC activity with other resources in order to provide products and services that are difficult for the MNE to replicate through other suppliers. In this case, MNE-led upgrading can form a foundation to further innovate or differentiate. For instance, the DCF may be able to cultivate favourable relationships with domestic government officials (Li, Meng, Wang, & Zhou, 2008). These hard to develop relationships can be used to, for instance, reduce product lead times by reducing holdups and delays in local customs. If other firms are unable to access such resources, the DCF is able to enhance its bargaining power by reducing the MNE's options for comparable suppliers.

Strong appropriability regimes provide a similar mechanism to restrict alternative MNE suppliers. As we mentioned earlier, engagement with the MNE is usually the strongest conduit for DCF upgrading. Even so, the DCF is likely to seek out upgrading from various avenues, including those from endogenous research and development (K. Lee, Szapiro, & Mao, 2018) and domestic clustering (Bair & Gereffi, 2001; Humphrey & Schmitz, 2002). In such cases, it is reasonable to assume that if the DCFs are further enhanced, the MNE benefits from a superior value-added input. If strong appropriability regimes exist, then the DCF is able to erect strong barriers to entry that prevent other suppliers from copying its enhanced products, processes or functions. In such cases, if the MNE wishes to benefit from this superior input, then it must contract with the DCF. Our motive in this section was to present a more nuanced understanding of how the paper's two main mechanisms for value-added capture apply within a GVC context. The framework outlined in Table III provided a means to evaluate the benefits of MNE-led upgrading initiatives beyond the traditional focus on value-added creation. We argued for greater theoretical discourse on the role of dependence and inter-firm bargaining. This argument provided the reader with an understanding of how these two conditions (DCF activity redeployment and MNE alternative supplier sourcing) may manifest itself within a GVC relationship. In the next section, we further develop the analysis by leveraging on insights from publish cases. This allows an opportunity to illustrate the explanatory utility of our theoretical arguments.

DISCUSSION

In this section, we illustrate and elaborate on the theoretical arguments by applying the theoretical logic to published GVC case studies and other secondary sources. We discuss two scenarios outlined in Table III and show how attempts to move into higher value-added activities can have varying effects on value-added appropriation. We focus on two cases as each represents

a unique application of the scenarios that have been explicated in Section 3. The two cases are (1) Foxconn/Apple and (2) IKEA/Southeast Asian suppliers.

The insight from the Foxconn/Apple GVC relationship illustrates how economic upgrading initiates can alter bargaining power in a manner that creates bilateral monopolies. Likewise, the case study insight on IKEA and its Southeast Asian suppliers shed light on how various upgrading initiates can contribute towards weakening DCF bargaining power. Together, these two examples illustrate how the conditions upon which an upgrading trajectory occurs can influence the distribution of value-added.

Upgrading to a bilateral monopoly

The relationship between Apple and the Foxconn has long been the centre of academic and policy debates (Dedrick, Kraemer, & Linden, 2010). This relationship dates back to the early 2000s and thus provides a wealth of empirical insight regarding GVC participation. It offers a useful context for us to relate the theoretical discussions that have been developed in previous sections. Prior to the early 2000s, in the earlier stages of its operations, Foxconn focused on providing generic assembly service for many electronics brands. These brands ranged from Intel, Nokia, Sony and Hewlett-Packard (Xu & Li, 2013). As its relationship with Apple deepened, Foxconn engaged in various upgrading initiatives, some of which were supported directly by Apple (Lin, Wu, & Chiou, 2017). These initiatives included the building of new production plants (Holmes, 2011), the incorporation of cutting edge assembly technology (Denning, 2011) and the acquisition of already developed technologies (Enderwick & Buckley, 2017). Pursuing these various forms of process and product upgrading trajectories, Foxconn was able to develop engineering competencies while managing to achieve unmatched productivity with the shortest lead times (Financial Times, 2013; The Economist, 2015).

To a large extent, much of these upgrading initiatives were pursued to service the interests of Apple. This became so acute that Foxconn's operations in Chengdu China was commonly referred to as "iPad City" (Chan, Pun, & Selden, 2015). While Foxconn continues to serve other buyers, Apple remains its dominant client, accounting for a substantial proportion of its operations. For instance, in 2011 it was estimated that approximately 40% of Foxconn's revenue came from Apple-focused business (Chan, Pun, & Selden, 2013). This client concentration was not unilateral. Foxconn also satisfied the majority of Apple's production requirements. In fact, over time Apple began to find it difficult to source services from other contractors (Denicolai, Strange, & Zucchella, 2015; Deutsche Welle, 2013; Wall Street Journal, 2013). For instance, in 2013 Apple attempted to diversify its supplier base by assigning the production of its low cost iPhone to Pegatron, a domestic Chinese competitor to Foxconn (Deutsche Welle, 2013). This supplier diversification strategy has since stagnated, as Foxconn still fulfils the majority of Apple's production needs.

Having reviewed the specifics of this GVC relationship, it is possible to explicate the conditions underpinning upgrading, and the effects has on value-added appropriation. Considering the implications to (1) DCF activity redeployment and (2) MNE alternative supplier sourcing, we are able to understand the relationship's bargaining power situation. From the details provided above, it is evident that Foxconn possesses low activity redeployment – owning primarily to its levels of asset specificity (Lin et al., 2017). As its relationship with Apple deepened, so did its investment in activities that are critical to supply Apple.

Apple also possesses minimal scope for alternative sourcing, despite numerous attempts to do so (Wall Street Journal, 2013). This inability to achieve this is in part due to Foxconn's continued investment in specialized complementary assets. These assets have been instrumental in providing Foxconn with a clear competitive advantage when compared to its rival contract

manufactures (Enderwick & Buckley, 2017). In principle, these complementary assets function as effective barriers to entry that competing firms find hard to overcome (Sako & Zylberberg, 2017).

Characterized by (1) low DCF activity re-deployment and (2) low MNE alternative supplier sourcing, the Foxconn-Apple relationship approaches what could be considered a bilateral monopoly (Jim & Scaramozzino, 2017). Casciaro and Piskorski (2005) referred to this situation as having high levels of mutual dependence, implying that a failure of exchange damages both actors (Foxconn and Apple) to a significant degree. In such a case, both actors experience uncertainty in the procurement of resources outside the relationship (Casciaro & Piskorski, 2005). This situation creates substantial incentives for both parties to exchange with each other, and also provides scope for negotiation between both actors. Both parties are thus willing to compromise, and effectively bargaining for a share of the value-added, including that which have been derived from upgrading.

Upgrading towards a captive relationship - MNE favour

The case of IKEA and its South-East Asian suppliers exemplify a different scenario. Even so, we contend that the case remains consistent with our theoretical arguments. IKEA is arguable one of the largest furniture manufacturers and retailers in world. In 2011, the company was actively engaging with over 1350 suppliers in the Southeast Asian region. As part of its sourcing strategy, IKEA leads a multitude of upgrading initiatives aimed at advancing the capabilities of its suppliers (I. Ivarsson & Alvstam, 2011). I. Ivarsson and Alvstam (2011) describe situations where IKEA assisted suppliers in achieving what Ivarsson and Alvstam called (1) improved operational capabilities, (2) improved duplicative capabilities, (3) improved adaptive capabilities, (4) improved innovative capabilities.

In many cases, these capability improvements were specific to the needs of IKEA. For instance, the authors describe situations where IKEA assisted local producers to rearrange their production layout to suit the needs of IKEA. Likewise, financial assistance was offered to purchase production technology specific to the merchandise being manufactured for the MNE. In most cases, supplier capacity was allocated to IKEA demands (Ivarsson & Alvstam, 2010; Ivarsson & Alvstam, 2011). The sampled suppliers on average allocated 70 percent of their production output to IKEA and the figure was 80 percent -100 percent for almost half of the sample (p. 737).

From the case studies, it is evident that many suppliers engaged in what could be considered upgrading initiatives – where there was movement into activities of higher value-added. Even so, the authors reported that post-upgrading, IKEA was still able to bargain extensively for lower prices to the extent where the DCFs become dissatisfied with the value-added they were capturing. By probing for insight on (1) the extent of DCF activity re-deployment and (2) MNE alternative supplier sourcing, it is possible to explain why IKEA's relationship with its suppliers favoured a captive relationship in the MNE favour. A relationship that severely dampened DCFs' ability to capture value-added.

As it relates to activity redeployment, IKEA's suppliers have engaged in significant levels of relationship specific investments, ranging from physical asset specificity to site-specific asset specificity (Dyer, 1996). Exploiting its operations outside the IKEA relationship becomes challenging. This situation is intensified when on average, 70% of production capacity is allocated to IKEA. The case studies make no mention of instances where suppliers engage in strategies that allow for increased barriers to entry. In fact, the insight from the case study illustrate a situation where IKEA has access to a large pool of homogenous but "upgraded" suppliers. This GVC relationship is thus characterised by (1) low DCF activity re-deployability and (2) high MNE alternative supplier sourcing. These conditions relegate the DCF to intense

captivity and low bargaining power, to an extent where it becomes difficult to capture much of the value-added that has been brought about by upgrading initiative.

In the case of IKEA, it is interesting to note that even in the presence of diminished bargaining power, it is possible for the DCF to capture some of the newly found value-added. This may be in part due to the trade-offs between value-added creation and seemingly, albeit low levels of mutual dependence. As the GVC relationship evolved into (1) low DCF activity re-deployability and (2) high MNE alternative supplier sourcing, the majority if the value-added increase was appropriated by IKEA through an application of coercive power. For instance, IKEA's official position is to share cost savings from rationalization on a 50/50 basis. Insight from the case study show that this agreement is often reneged on. Instead, it is common for a "disproportionally large share of cost-savings goes to IKEA, even after taking into consideration the value of their technological support" (I. Ivarsson & Alvstam, 2011:748). While this illustrates a power imbalance in IKEA's favour, it is evident that DCFs within the GVC are still able to appropriate a minimal share of the value-added. The higher-powered actor (IKEA) may thus be unwilling to nullify all of the DCF's surplus as this may drive such firms out of operation (an indication of low levels of mutual dependence). As such, the now higher-powered actor is willing to stabilize the relationship by allowing the DCF to capture a minimal amount of the value-added from the upgrading initiative (Casciaro & Piskorski, 2005).

To summarize, the two case studies presented above are meant to illustrate the utility of our theoretical arguments. We are able to demonstrate that an upgrading initiative is usually predicated on certain conditions, and these conditions affect the ability of the DCF to appropriate value-added from the relationship. Upgrading initiatives cannot be taken at face value where observed activities of deemed to be of higher value-added will result in value-added capture for

the DCF. Instead, we must devote explicit considerations around dependence and inter-firm bargaining.

CONCLUSION

This paper has engaged with a conceptual shortcoming of our understanding and application of MNE-led DCF upgrading. We have highlighted a problematic assumption embedded within much of the extant research on the topic. Often, studies fail to make a distinction between value-added creation and its appropriation – especially when operationalising and measuring instances of economic upgrading. In fact, it is common for many studies to rely heavily on observational evidence of upgrading as signals for value-added appropriation. This approach has discounted the role that bargaining power plays in the distribution of value-added.

In this paper, we contend that economic upgrading must encompass both the creation and appropriation of value-added, and that the observation of various upgrading categorizations are at best only an indication of the former. We have further argued that physical upgrading of the production process in the DCF and the appropriation of the new value-added so created are not coterminous. Technical improvements, for example, through capital deepening and new embodied technology, generate increases in total product (and therefore productivity) but may not necessarily benefit the supplier in terms of the supplier's appropriation of value-added. Value-added creation and appropriation are liable to diverge in supplier-buyer relationships as a consequence of changes in bargaining power.

By illustrating this contention in the literature, our theoretical arguments provides a succinct explanation for why disparity in the appropriation of value-added can co-exist with a DCF's pursuit of what may be otherwise classified as appropriate measures for upgrading. In doing so, we have not only highlighted issues with existing operationalisation of economic upgrading, but

have endeavoured to provide a way forward. By assuming a symbiotic relationship between value-added creation (upgrading initiatives) and its appropriation, prior studies have also implicitly assumed away the implications of bargaining power asymmetry. We address this, we introduced the seminal work of Emerson (1962), we have argued for and illustrated the need for deeper emphasis on understanding the dependence implications of upgrading initiatives, so as to understand the overall effect on bargaining power and value-added appropriation.

From the arguments in this paper, it is evident that upgrading, as currently operationalised and measured, may not assist DCF's in avoiding the "race to the bottom" (J. Lee & Gereffi, 2015). Instead, these firm level improvements may, under certain conditions, contribute to and enhance asymmetry in the bargaining power between the DCF and the MNE. To address this misspecification, the theoretical discussion within this paper advances our understanding of the conditions under which value-added appropriation may accompany economic upgrading.

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Table I. Conventional view of upgrading trajectories

Category of Upgrading	Key Elements
Product	• The movement into sophisticated product lines (Gereffi, 1999; UNCTAD, 2013) • Introducing new products or improving old products faster than rivals (Kaplinsky & Morris, 2002)
Process	• The ability to transform inputs into outputs more efficiently through superior technology or reorganized production systems (Humphrey & Schmitz, 2002; Schmitz, 1999; UNCTAD, 2013) • Increasing the efficiency of internal processes such that these are significantly better than those of rivals, both within individual links in the chain and between the links in the chain (Kaplinsky & Morris, 2002; Ponte & Ewert, 2009)
Functional	• Acquiring new functions within the chain. For example, Moving from production to design or marketing in order to increase the overall skill content of activities (Bair & Gereffi, 2001; UNCTAD, 2013) • Increasing value-added by changing the mix of activities conducted within the firm (for example, taking responsibility for, or outsourcing accounting, logistics and quality functions) or moving the locus of activities to different links in the value chain (for example from manufacturing to design) (Kaplinsky & Morris, 2002)
Chain	• The application of competencies acquired in a particular function of a chain to an entirely new industry (Guerrieri & Pietrobelli, 2004; UNCTAD, 2013) • Moving to a new value chain (Kaplinsky & Morris, 2002)

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Table II. Key determinants of global value chain governance

Governance type	Complexity of transactions	Ability to codify transactions	Capabilities in the supply base	Degree of coordination and power asymmetry
Market	Low	High	High	Low
Modular	High	High	High	↕
Relational	High	Low	High	
Captive	High	High	Low	
Hierarchy (internalization)	High	Low	Low	High

Reproduced from Gereffi et al. (2005)

Table III. Integrating Upgrading initiatives and GVC bargaining power

	MNE GVC position		
DCF GVC position	• Low DCF activity re-deployability • Low MNE alternative supplier sourcing **(Bilateral monopoly)**	• Low DCF activity re-deployability • High MNE alternative supplier sourcing **(Captive relationship- MNE favour)**	↑ Increasing MNE bargaining power
	• High DCF activity re-deployability • High MNE alternative supplier sourcing **(Market driven arrangement)**	• High DCF activity re-deployability • Low MNE alternative supplier sourcing **(Captive relationship- DCF favour)**	
	→ Increasing DCF bargaining power		

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