

Rethinking Economic Upgrading in Apparel GVCs

Value Capture Through Strategic Partnerships in Product Innovation Cycles

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RETHINKING ECONOMIC UPGRADING IN APPAREL GVCs: VALUE CAPTURE THROUGH STRATEGIC PARTNERSHIPS IN PRODUCT INNOVATION CYCLES

Felix Maile and Lindsay Whitfield

September 2025



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ABSTRACT

The global value chain (GVC) literature usually approaches the question of value capture among supplier firms in global supply chains through the conceptual lens of economic upgrading, conventionally defined as moving from contract manufacturing to design and then to own brand. However, in the global apparel industry, research shows that few if any apparel manufacturers have developed their own global brand, and it also shows that apparel suppliers have taken on ever more tasks within manufacturing and logistics without increasing their profit share per product. Yet, GVC scholars generally have been concerned with the distribution of the profit share within the chain and how supplier firms can capture more of it. Thus, this paper argues that it is time to re-think how the GVC approach conceptualizes value capture in globalized industries. We offer one way of re-thinking value capture that is tailored for the global apparel industry, building on the work of scholars in economic geography and business studies as well as iterative theory building with our original empirical data on the top transnational apparel suppliers. However, we think that aspects of our product innovation cycle framework proposed in this paper can contribute to a broader rethinking of how to explain value capture by supplier firms in globalized industries.

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1. INTRODUCTION

The concept of economic upgrading was introduced by Gereffi (1999) to explain the expansion of Hong Kong, Taiwanese, and South Korean apparel suppliers beyond apparel assembly into activities such as input sourcing, transnational subcontracting, and design in global supply chains. In that article, Gereffi suggested that progression from contract manufacturing to design and eventually own brand would lead to more value capture by supplier firms. Gereffi's article became the seminal work for research on apparel GVCs, and subsequent studies focused on examining the reasons for successes and failures of apparel supplier firms to pursue this functional upgrading trajectory. Twenty-five years later, the large GVC literature on the global apparel industry has shown the many difficulties that supplier firms in the global South face in achieving economic upgrading with greater value capture. It demonstrates that product and process upgrading within contract manufacturing typically is a survival strategy for retaining buyers and orders and does not lead to higher unit prices.¹ Furthermore, it illustrates how functional upgrading from contract manufacturing to design to branded apparel was blocked by buyers, because branding, marketing and retailing are their core competences, or this upgrading path was too difficult to obtain because they required different capabilities and significantly more finance than required for manufacturing.

Given this misalignment between what the economic upgrading theory posited and what the empirical studies of the global apparel industry show, we argue that it is time to rethink, or reconceptualize, economic upgrading. In other words, we need a new answer to an old question: how do supplier firms capture value in the global apparel industry? This paper offers one such reconceptualization. We do so by building on the work of Tokatli (2013), who argued that instead of focusing on upgrading and then looking at the value captured, we should flip the research enquiry. We should identify supplier firms that have appropriate extraordinarily higher profits and examine what explains their different financial positions among supplier firms. We also acknowledge, as she did, that GVC research had not clearly linked upgrading with improvement in the supplier firm's financial position partly because of the difficulty in collecting firm-level financial data. This paper attempts to overcome this obstacle through a novel methodological approach and thus link upgrading, empirically and conceptually, to supplier firms' profit margins.

This paper presents a first step in constructing such a generalized theory by rethinking the concept of upgrading for the global apparel industry. In doing so, it incorporates the 'upgrading paradox' highlighted by Kaplinsky (2005), Schrank (2004) and Brewer (2011). The upgrading paradox refers to the economic phenomenon where wealth creation is an outcome of the oligopolistic position of firms in an industry, which produces oligopolistic rents, or higher profit margins (as Schumpeter argued), and thus the widespread upgrading of supplier firms in particular functions depresses the profitability of all supplier firms. The upgrading paradox led GVC scholars to question the benefits of upgrading for fostering economic

¹ See for example, Bair and Gereffi (2003), Tokatli (2007), Anner (2019, 2020) and Nathan et al. (2023).

development and call for a better conceptualization of the linkage between upgrading and development outcomes at the industry and country levels.

Our conceptualization is based on iterative theory building between extensive and intensive research on apparel supplier firms and recent ideas about value creation and capture in global supply chains discussed by GVC and Global Production Network (GPN) scholars. This iterative theory-building effort started with the identification of diverging trajectories among top apparel suppliers over time as consumer market dynamics shifted. A set of Asian apparel suppliers grew in tandem with large apparel brands and retailers since the 2000s, becoming their strategic suppliers by offering a transnational sourcing portfolio of sourcing locations as the Multi-Fiber Agreement (MFA) quota system was phased out, based on labor costs, duty free access to US and EU markets, and speed to market considerations. Appelbaum (2008) and Azmeh and Nadvi (2014) were the first to document this trend of ‘giant transnational contractors’, based on a small number of firms from Hong Kong and Taiwan. Since their pioneering work, there have been substantial differences in the trajectories of these suppliers, with new firms having emerged and grown large while others stagnated or even declined. For example, Nien Hsing was presented as a prime example of the success of transnational first tier apparel suppliers by Azmeh and Nadvi (2014) and Raj-Reichert (2019), but its revenue eroded from USD 473 million in 2007 to USD 275 million in 2022, despite its incumbency in catering global buyers with a transnational sourcing base.

In seeking to explain these divergent trajectories among the largest transnational suppliers, we took up Tokatli’s call to look at factors other than power relations between branded firms and suppliers, or rather to understand what factors shaped those power relations and thus supplier firms’ financial position. Our conceptual framework focuses on product market dynamics and supplier firms’ capabilities. It identifies different product markets within the apparel industry, and the distinct value capture opportunities they entail. In commoditized product markets, branded firms face competition on market shares and depressed retail prices. To escape this competition, they seek to commercialize innovative products that entail a unique product market dynamic of high consumer demand in combination with high retail prices. We term this specific product market dynamic the *product innovation cycle*. To pioneer a new product innovation cycle, branded firms concentrating on marketing and distribution need suppliers that can provide the co-specialized complementary capabilities in manufacturing necessary to bring the innovative product to market. This mutual dependence forces the branded firm to make concessions on profit sharing, thus offering the opportunity for supplier firm value capture. We refer to this mutual dependence as *strategic partnerships*. However, these strategic partnerships are temporary, depending on how long the product innovation cycle lasts and whether other supplier firms emulate, making upgrading a transient situation that must be renewed through new strategic partnerships.

In sum, product innovation cycles offer the most conducive conditions for supplier firms to increase their share of the profit margin, and to exploit these opportunities, supplier firms must build co-specialized complementary capabilities that match the strategies of branded firms operating in the product innovation cycles. Our framework can explain why some firms have captured higher value at a given point in time, and the capabilities necessary to capture that profit share, and why it changed over time. In doing so, we explicitly define upgrading as an outcome in terms of the distribution of the profit share per product unit among firms in the global supply chain. When assessing the profit share captured by supplier firms, we operationalize this as the gross profit margin.

Section 2 discusses the genealogy of the apparel GVC upgrading literature and the gaps that have emerged. It explains how our conceptual approach addresses these gaps, drawing on and advancing previous work by scholars outside the GVC literature, notably Yeung (2016), Sako and Zylberberg (2019), which have sought to rethink upgrading generally. We explicitly build on Yeung's concept of strategic partnerships, emphasizing the importance of supplier capabilities matching the product strategies of branded firms to create mutual dependence, and advance it in two ways. We specify the profit distribution within strategic partnerships, and we explain why strategic partnerships change or decline over time if supplier firms are unable to adapt their complementary capabilities to shifting product market dynamics.

The remainder of the paper provides the empirical evidence for these propositions, drawing on the financial data of apparel branded firms and a selection of the top transnational apparel suppliers as well as 32 semi-structured interviews with top transnational apparel suppliers from Hong Kong, South Korea, and Sri Lanka. Section 3 presents our novel methodology, which traces apparel *product innovation cycles*, the branded apparel firms that pioneered them, and the value capture opportunities they offered for suppliers. Section 4 explains changes in the product market dynamics and concomitant changes in the value capture opportunities they offered, identifying three distinct product innovation cycles: lingerie casual/denim in 1980s and 1990s; activewear from the 2000s; and athleisure from the 2010s. Section 5 specifies the co-specialized complementary capabilities that were necessary for supplier firms to enter these cycles and exploit the value capture opportunities. It explains the diverging profit trajectory of transnational apparel suppliers over the past 30 years based on whether they were able to build co-specialized complementary as well as the extent to which they were able to repurpose those capabilities for subsequent product innovation cycles. In concluding, we consider whether this approach can be applied to other industries.

2. Rethinking economic upgrading in apparel GVCs

The literature examining buyer-supplier relations and upgrading among suppliers in the global apparel industry is extensive, and it has contributed important insights and housed valuable debates over how to measure and explain upgrading and value capture among apparel suppliers, or the lack of it. Nevertheless, there are important limitations or gaps in this literature, which primarily result from studies focusing on firms in a single supplier country, at the expense of supplier firms' value capture at global scale; from the lack of a theory of firm-level value capture; and from not considering different product market dynamics, which shape the value capture opportunities that suppliers face. We first discuss these limitations and then offer a conceptual approach that tries to address them, by drawing on and extending the work of scholars outside the GVC literature combined with iterative theory-building based on our own research on the apparel industry (presented in sections 4 and 5). The conceptual approach is presented simplistically in Figure 1.

2.1 Limits to explaining value capture outcomes in the apparel upgrading literature

Around the turn of the millennium, two articles were published that subsequently shaped the way in which GVC scholars investigated development and value capture pathways of apparel supplier firms. The contribution by Gereffi (1999) became the standard model for studying functional upgrading. His principal proposition was that apparel suppliers from Hong Kong, South Korea and Taiwan grew along their US buyers, by meeting the branded firms' strategy and offer them sourcing, apparel design, and production capacity in different sourcing locations, thus moving from assembly towards a 'full package' or even ODM arrangements. Gereffi (1999: 60) did not explicitly conceptualize value capture in this contribution, but he asserted that these firms managed to move into 'higher value-added functions'. It is important to note that in this context, increased 'value added' referred to the firm capturing more revenue streams along the chain, but it remained unclear on whether these same firms managed to capture more profits from their expanded revenue streams.

The second influential contribution was the conception of process and product upgrading made by Humphrey and Schmitz (2002). It was argued that specific governance arrangements shape the upgrading opportunities of supplier firms. They made the proposition that chains with 'quasi-hierarchy'/captive² governance forms were conducive for process and product upgrading, because these types of upgrading were encouraged and supported by branded firms. However, the very same buyers blocked the functional upgrading of their apparel suppliers to avoid competition on the high profit functions along the chain. Humphrey and Schmitz provide empirical evidence from the Brazilian footwear industry, and notably their data showed that competition from Chinese firms eroded the unit prices of Brazilian firms, despite continuous process and product upgrading of the Brazilian firms. Thus, even the

² Quasi-hierarchy forms were later coined as 'captive' governance form in the seminal GVC governance literature by Gereffi and colleagues (2005).

earliest and seminal contributions were sceptical about the link between process and product upgrading and value capture in global supply chains with captive governance relations, and most studies argued that apparel and footwear industries were characterized by captive buyer-supplier relations.

In the following two decades, a large array of studies on the global apparel industry used these two contributions as a conceptual starting point. Their emphasis was on investigating functional, process and product upgrading in individual supplier countries as a potential pathway for supplier firm development and value capture. The empirical material included studies of supplier firms in Mexico and Central American countries (Bair and Gereffi 2003; Gereffi and Memedovic 2003); Slovakia and Bulgaria (Pickles et al. 2006); Romania, Bulgaria and Poland (Pickles and Smith 2011); Turkey (Tokatli 2007); China (Zhu and Pickles 2014; Zhu et al. 2019); India (Anner 2019; Kumar 2020; Nathan et al. 2023), Bangladesh (Anner 2020; Nachum and Yoshiteru 2023); Lesotho and Eswatini (Morris et al. 2011); Mauritius and Madagascar (Gibbon 2008; Morris and Staritz 2014; Whitfield and Staritz 2021); Kenya (Phelps et al. 2009); and Jordan (Azmeah and Nadvi 2014).

Synthesizing this set of country case studies, we can conclude upgrading as conceptualized by Gereffi, Humphrey and Schmitz became a survival strategy, as input sourcing and design within an FOB/full package and improved processes and products became the norm to sustain orders. As an exception in this literature, Kumar (2020) and Nachum and Yoshiteru (2023) argue that apparel supplier firms were able to capture more value vis-à-vis the branded firms; however, we find that the evidence that presents to support these claims are thin. In particular, the evidence presented by Kumar (2020) is limited to one data point on the 2014 profit margin of the Indian firm Arvind. Nachum and Yoshiteru (2023) provide interesting profit data at the industry level in Bangladesh, but do not provide profit margins or unit values for the individual firms that they present as success case of value capture from upgrading.

Overall, the GVC apparel upgrading literature provides fine-grained analyses on whether and to which degree suppliers have added functions and pursued process and product upgrading. They also provide important insights on the role that domestic labor markets, institutions and broader political economy factors played in supporting or limiting firm-level upgrading. At an industry level, we also learn how individual supplier countries and the apparel firms that operated in them have gained, lost or adapted in the context of China's entry into the WTO and the phase out of the MFA quota system, which overall led to much higher competition since the early 2000s.

However, as Tokatli (2013) convincingly argued in her critique on apparel upgrading studies, the predominant focus on the upgrading story prevents us from understanding the underlying drivers for supplier firm value capture, and whether adding new functions, improving production processes, and shifting to products with higher complexity to produce culminate in capturing additional value. She suggested to move away from the upgrading typology

altogether and instead start from individual firms' position (i.e. profits) and then re-construct the factors that led to the firm-specific financial positions and their change over a given time. Taking up Tokatli's critique as a starting point, we identify four major shortcomings in the GVC apparel upgrading literature that need to be addressed to establish a link between upgrading and value capture.

The first and second limitations are primarily methodological in nature. First, apparel upgrading studies trace value capture at an aggregated country level but not at the firm level. Most studies draw on national export volumes (and in some cases, export unit prices) and combine this data with interview data from individual firms, mainly asking about constraints and success in pursuing process, product and functional upgrading. Perhaps because it was hard to obtain individual firm-level financial data, we did not learn about an explicit link between value capture of the specific firms that were interviewed and the upgrading pathways that these firms pursued. Profit margin data as an indicator of value capture is hard to get, but not impossible. If we want to make an argument about upgrading, we need to have data on value capture outcomes, such as profit margins or even transaction unit prices at the supplier firm-level. Supplier country export volumes or unit values do not tell us anything about value capture at the firm-level. They do tell us something about value capture at the supplier country level, but this perspective glosses over differences among firms, which is important because some firms may be capturing greater value while others are not.

Second, given that these studies focus on supplier firms in one country, value capture is studied in a single location. However, most apparel suppliers today are transnational companies with subsidiary factories across many countries that operate on a CMT basis, which means the profit is captured at the headquarter level. Thus, studying firm-level value capture needs to focus on the (aggregated) profitability and the supplier firm global headquarter. We discuss in section 3 how we address both challenges in our methodological approach.

The third limitation is that conceptualizations of upgrading generally are not embedded in a theory of firm-level value capture. The contributions by Gereffi and of Humphrey and Schmitz suggest that production efficiency, new functions, as well as moving into products with a higher retail price result in the supplier firm's ability to capture the profit that it creates. This is a static conception, as it does not consider whether the activities and functions themselves become the minimum requirement (i.e. commoditized). Some GVC scholars have highlighted the 'upgrading paradox', as discussed above, but thus far we are lacking a theory of how firms then capture value in globalized industries. We address this by drawing on the 'profiting from innovation framework' by Sako and Zylberberg (2019), which in turn draws on the work of David Teece regarding dynamic capabilities that is influential in business and management studies.

Finally, apparel upgrading contributions focus on the buyer-supplier relationship but generally are agnostic about specific product segments and the business strategies of buyers (apparel brands and retailers) in these product segments. As a result, the discussions of buyer-supplier relations often become dis-embedded from the global consumer market dynamics and competition among brands and retailers within them. But these consumer market dynamics and competition among buyers are key factors determining the size of the profit ‘cake’ that can be distributed between the buyer and its suppliers, and the product categories that are considered ‘higher’ value based on their retail price as well as their market growth are subject to constant change. To reflect these changing product market dynamics and the strategies of apparel brands and retailers to capture market share within them, we draw on the concept of strategic partnership introduced by Yeung (2016). This concept emphasizes that branded firms require product specific customized manufacturing ‘solutions’ from their key suppliers, through which the branded firm can commercialize new products and capture market shares in novel and fast-growing product markets.

2.2 Strategic partnerships in product innovation cycles: our conceptual approach

As noted above, we build on the work of Sako and Zylberberg, which uses the profiting from innovation theory of the firm introduced by Teece (1986) a long time ago and which has become influential in thinking about how the profit share is distributed across firms in buyer-supplier relations. Teece first suggested this approach exactly when globalization was taking off and global supply chains were being built. The contribution of Sako and Zylberberg was to link the ideas of Teece and other scholars writing in the discipline of management studies with the concept of upgrading to explain why and how some suppliers capture the value they create.

Sako and Zylberberg argue that whether or not a supplier firm profits from its efforts at upgrading depends on three factors: (1) the appropriability regime, which is concerned with the barriers against imitation, especially the intellectual property rights regime in place; (2) whether the innovative product or service is in the pre-paradigmatic or in the paradigmatic stage of technological development in which an industry coalesces around a dominant design and emulators begin to compete on price, eroding the advantage of the early innovator; and (3) access to complementary assets, which allow them to capture more value from their investments. Complementary assets become more important for profiting from innovation in the context of weaker appropriability regimes and in more established the technological paradigm. For Teece (1986), the innovator is the lead firm in the global supply chain, so the apparel branded firm in the case of the apparel industry. He distinguished between generic, specialized and cospecialized complementary assets, and the value of a given complementary asset depends on how critical it is to the lead firm’s ability to generate revenue from innovative activity. Generic assets would be those capabilities of supplier firms that do not need to be tailored to the lead firm and the innovation that the lead firm is pursuing, whereas

specialized ones do. The difference between specialized and co-specialized is whether there is a one-way (unilateral) dependence or a two-way (bilateral) dependence between the innovating firm and the supplier. Teece notes that if the innovating firm (i.e. the apparel branded firm that commercializes the innovation) is dependent on the supplier for specialized, unique assets and competences, then this increases the bargaining power of the supplier. In sum, the apparel brand is still the innovator, but it depends on the specialized complementary assets of the supplier firm to commercialize its product.

We tailor these propositions by Teece (1986) and Sako and Zylberberg (2019) to explain the conditions under which suppliers can capture more of the profits that accrue along the chain. Given that apparel has a weak appropriability regime and operates with mature technology, it is the co-specialized complementary assets that matter for supplier firm value capture. Which co-specialized complementary assets matter can only be identified in a particular industry context. Focusing on the global apparel industry allows us to specify which specialized complementary assets matter as well as how and why the assets that matter change over time. We can then compare suppliers in terms of whether they have these specialized complementary assets. We argue that the specialized complementary assets that matter change over time because innovation is a constant process. As innovations are emulated, they lose their wealth generating capability, and thus some firms pioneer new innovations to increase their profitability again. We call these product innovation cycles. Thus, we focus on the product markets in which opportunities for specialized complementary assets occur as a result of product innovation, as it is in these product markets where opportunities for supplier upgrading occur.

Yeung's concept of strategic partnerships also captures this argument that supplier firms' capability building needs to be tailored to specific brands and their products, providing 'solutions' to branded firms (Yeung 2016: 83-110).³ His concept of strategic partnership was one pathway of supplier development, which is based on the supplier-specific initiatives of Taiwanese contract manufacturers Quanta, Compal and Hon Hai, and Singapore-based Venture Corp from the mid-1990s to the mid-2010s. These firms experienced rapid revenue growth and captured significant market shares from competing US-based manufacturers in the PC and mobile handset markets. They did this by matching the strategies and developing co-specialized capabilities for branded firms innovating in these product markets, notably Apple, Dell and HP. Becoming a strategic partner to these branded firms required vertical specialization and system integration, by providing turnkey solutions and a rapid upscaling of production capacity for key customers.

³ Strategic partnership is one element of Yeung's wide-ranging contribution on 'strategic coupling', which explains the multiple ways in which East Asian firms have developed by coupling with global production networks since the 1990s. For the specific purpose of this inquiry, we focus on Yeung's concept of strategic partnerships.

We extend the work by Yeung in two areas. We seek to understand the value distribution within strategic partnerships and to explain how and why strategic partnerships change over time. In terms of measuring value distribution, Yeung (2016) focuses on the revenue and market share growth of strategic suppliers, but we emphasize the importance of higher price per unit (profit margin), which means that the supplier is not only receiving large orders but also sharing in value capture with the branded firm. In adding this dimension to the work by Yeung, we highlight the *inherent antagonism* and struggle between buyer and suppliers over the appropriation of profits.

We also adapt Yeung's strategic partnership concept to specify that they occur around the joint commercialization of innovation in product innovation cycles, during which the antagonism is alleviated for a given time. Therefore, increased supplier value capture through strategic partnerships is of temporary nature. They end when the antagonism over profit margin distribution returns as growth and high prices in the product innovation cycle fade, which can occur due to several factors. Due to decreasing market shares and profit margins, branded firms return to 'squeezing' the profit margins of suppliers. Thus, upgrading is temporary as supplier firms see their profit margins fall. Yeung's primary emphasis in his study of Asian electronics supplier firms was on the emergence and sustainment of strategic partnerships, covering the period of the mid-1990s to the early 2010s. Based on our observation of declining strategic partnerships in the apparel industry, we hypothesize that if the timeline for Yeung's analysis were extended, it might be plausible to find cases where the strategic partnership has declined or been terminated.

Building on these insights, Figure 1 presents a stylized version of our conceptual framework for explaining supplier firm upgrading with value capture. Insights from our research on apparel supplier firms, presented in the following sections, also contributed to its formulation. The figure stylizes the introduction of a product innovation cycle and the emergence of a strategic partnership between a branded firm and supplier as well as the end of the strategic partnership when the product innovation cycle runs its course. The external forces such as competitive pressures are depicted on the left side. The boxes in the center indicate branded and supplier firms' responses. The outcomes in terms of product market dynamics and supplier value capture opportunities are summarized on the right side.

The value capture strategies of both branded firms and their suppliers in globalized industries are driven by two aims. The first is growing revenue streams and thus capturing global market shares from similar actors in the chain. The second is advancing profit margins and thus capturing as much profits as possible from realized product prices in consumer markets vis-à-vis other actors along the chain. These forces create a three-level competition environment. At the first level, branded firms compete among each other on capturing as much market share as possible in product markets. At the second level, suppliers compete among each other to obtain orders from branded firms so that they expand their shares in underlying input markets. At the third level, there is an inherent antagonism between branded firms and

suppliers over the appropriation of profit margins within jointly captured market shares.

In commoditized product markets, where branded firms face high competition, prices have fallen, and branded firms face constant pressure on their market share. Thus, the product market is characterized by stagnating growth and stagnating or even depreciating product prices. The maturity of the product typically results in the related technologies being widely available and thus emulation has occurred among suppliers as well, leading to high competition among suppliers. Given competition between branded firms and their suppliers over the shrinking profit margin and the availability of many suppliers, branded firms squeeze the margin of their suppliers by lowering unit prices. As a result, supplier firms must fight for market share and experience pressure on their revenue flows as well as profit margins, which causes them to invest in production processes to increase efficiency or more complex products to retain their limited value. Thus, in commoditized product markets, there are few or no opportunities for upgrading.

This is why supplier firm actions described in the GVC literature as product and process upgrading may not lead to more value capture. If investments in increasing production efficiency take place in a commoditized product markets where many suppliers have the same capabilities, then branded firms capture the gains from the efficiency increases in the production process through lower unit prices paid to their suppliers. Our interviews with top apparel suppliers and apparel branded firms confirm that branded firms are aware of the production costs of their suppliers through 'open costing' practices in the negotiation of prices and that branded firms negotiate lower prices for larger volume orders. Similar, moving into more complex but commoditized products does not result in better prices either. Branded firms tend to give lower volume orders for complex products and higher prices, but the overall production cost to suppliers is higher because complex products take more labor hours to produce and the smaller volumes reduce efficiency on the assembly lines. Thus, more complex products do not necessarily lead to higher profit margin per product unit.

Opportunities for supplier firms to capture a greater share of the profit margin per product occur in product innovation cycles, where incumbent branded firms seeking to escape competitive pressures, or new branded firms that aim to enter the market through innovations, initiate a new product innovation cycle. It is the distinct dynamic of the product innovation cycle that alters the three-level competition environment and thus the value capture trajectories of the firms involved. The first mover branded firms face no or limited competition in the new product market, giving it a dominant position in the market, and the new product experiences high growth and high prices. This is where the opportunity for upgrading in combination with value capture arises, as the antagonism over the distribution of profit within the chain is relaxed.

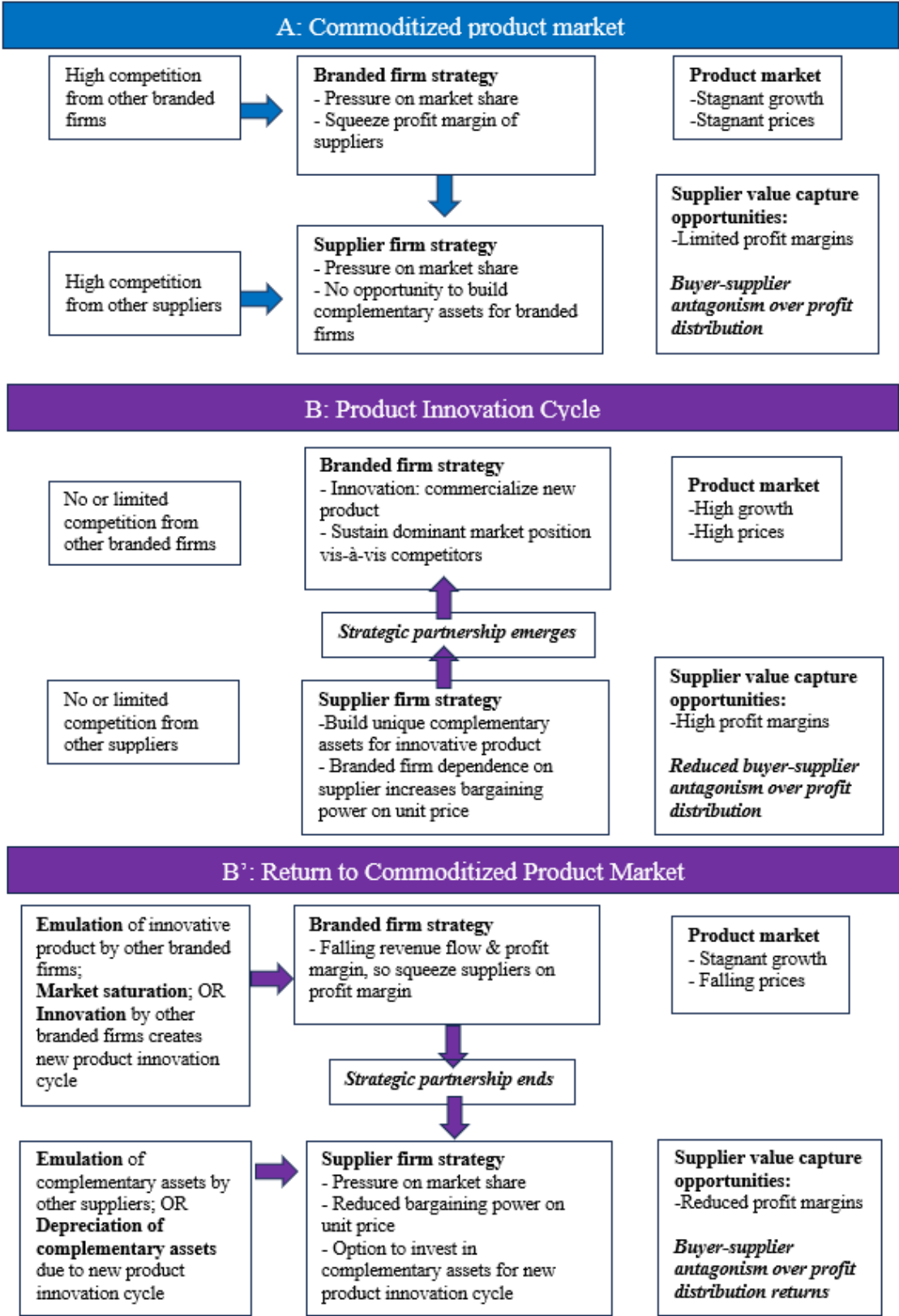
To realize that opportunity, we argue that suppliers must be first movers in providing these co-specialized assets, because that is when they face little or no competition and thus, the

innovating branded firm is dependent on these suppliers to create and sustain its position in the new product market. Thus, the supplier firm captures both large revenue streams and extracts concessions on obtaining higher profits margins from the branded firm. The pace at which other suppliers can emulate depends on the capabilities required and the risk profile of other supplier firms.

The factors that cause product innovation cycles to run their course include the following. Emulation by other suppliers that seek to build similar specialized complementary capabilities increases competition among suppliers, reducing the dependency of the branded firm and thus driving down the margins of suppliers. Emulation of the product innovation by other branded firms increases competition and drives down market prices of the product, reducing the profit margin. How rapidly emulation happens depends on the complexity of the innovation. Finally, consumer demand for the new product stops growing due to market saturation so that both revenues as well as profit margins for branded firms diminish. The same effect occurs if the next iteration of technological change is commercialized by a different branded firm-supplier strategic partnership. Thus, a new product innovation cycle initiated by a radically new product can make the former product innovation obsolete, and thus also the related specialized capabilities of their suppliers. Given at least these four factors, it is not possible to know in advance how long a strategic partnership will last, even in a specific industry.

The concept of strategic partnership in product innovation cycles explains how and why previous supplier upgrading investments may depreciate over time, no longer resulting in higher value capture. The evolution of product innovation cycles creates opportunities for supplier firms to upgrade as well as downgrade, if they fail to enter a strategic partnership with a branded firm in the next product innovation cycle. It is contingent upon the strategies of branded firms and supplier firms as well as the policies of governments supporting these firms to emulate and/or create alternative product innovation cycles.

Figure 1: Upgrading through Strategic Partnerships in Product Innovation Cycles



3. Methodology

Informed by our conceptual approach, we developed a methodology for identifying where innovation and related value capture opportunities for apparel supplier firms occurred and thus where strategic partnerships emerged. In doing so, we again built on the work of Yeung (2016), which entails methodological innovations that we adopted and adapted for our inquiry. Yeung's analysis provides detailed statistical data on revenue market growth in different product markets in the consumer electronics industries, the market shares of branded firm as well as supplier firm data within each particular product category. It also focuses on transnationally operating supplier firms as the central unit of analysis. Moving away from single supplier country-case studies allows us to understand how these global suppliers link to branded firms with a range of producing countries, while analyzing how product innovation and value capture dynamics play out at the headquarter level of global suppliers. Yeung obtained interviews with high-level executives and managers conducted at the headquarters of the supplier firm or central production locations to comprehend the investments and initiatives that were necessary for achieving a strategic partnership (Yeung 2016: 136; 224-225).

Our starting point was to obtain detailed data on innovation dynamics in apparel product markets and market shares of branded firms and suppliers within each product category. We searched for databases like the one Yeung (2016, 2022) draws on for the electronics industry, such as IHS Markit or Gartner Research. However, we found that there was no all-encompassing data set for the global apparel industry that provides a detailed breakdown on different product segments and market shares of branded firms and suppliers.

In absence of such a database, we sought to turn the logic on its head and instead take the supplier firm value capture strategies as the starting point to trace product market dynamics, innovation and value capture opportunities. We used an iterative two-step process, combining firm-level revenue and profit data of the largest transnational apparel branded firms and qualitative data from a sub-set of these supplier firms which we were able to access and hold interviews with several senior executive members.

To our knowledge, there is no list of the largest apparel suppliers by revenue. We therefore created a list based on the Capital IQ database (see Table 1). We focused on apparel suppliers that were listed under the industry code 'apparel manufacturing' and achieved a revenue of more than 200 million USD by 2022. Because the Capital IQ database is limited to firms that are publicly listed, we sought to complement the database with other large suppliers that are privately owned, by asking industry experts and publicly listed suppliers during interviews whether they are aware of other competitors that are privately-owned. Based on this information, we included seven large private firms in the list: MAS, Brandix, Hirdaramani, Classic Fashion, TAL, Epic, and Anon. We obtained data on their revenue during the interviews and from online sources. Our list excludes large apparel suppliers from Bangladesh and India

that achieved more than 200 million, because these firms gained less than 75% of their revenue from apparel exports, as they combined apparel exporting with other businesses such as domestic apparel retailing or other unrelated businesses such as real estate or financial services.

Table 1. List of top 20 apparel suppliers by revenue

Firm	Ownership	Headquarter	2022 revenue (million USD)
Shenzhou	Public	China	3.881
Youngone	Public	South Korea	2.927
Crystal	Public	Hong Kong	2.491
MAS	Private	Sri Lanka	2.020
SAE-A	Public	South Korea	1.762
Hansae	Public	South Korea	1.650
Eclat	Public	Taiwan	1.264
Brandix	Private	Sri Lanka	1.150*
Hansoll	Public	South Korea	1.134
Makalot	Public	Taiwan	1.020
Regina Miracle	Public	Hong Kong	1.007
Hirdaramani	Private	Sri Lanka	1.000**
Classic Fashion	Private	Jordan	954
Luen Thai	Public	Hong Kong	859
Fountain Set	Public	China	777
TAL	Private	Hong Kong	600
Epic	Private	Hong Kong	500
Hela	Public	Sri Lanka	298
Nien Hsing	Public	Taiwan	276
Anon	Private	Hong Kong	***

Source: Created by the authors.

Notes: *Approximation of revenue, received during interview. **The 1.150 revenue data represent the financial year 2023 of Brandix, as we were unable to obtain data for the 2022 financial year. *** To ensure anonymity, we did not publish the revenue figure of ‘Anon’ firm.

We were able to access 11 of the 20 shortlisted firms for interviews. The 11 firms include MAS, Brandix, Hirdaramani and Hela from Sri Lanka; Crystal, TAL, Epic, Luen Thai and ‘Anon’ from Hong Kong; and Youngone and Hansae from South Korea. The last Hong Kong firm did not want to be named, so we call it Anon. We conducted 32 interviews across the 11 transnational apparel supplier firms between 2021 and 2024. We began collecting data on global industry summits (June 2022), and at the suppliers’ subsidiaries in Ethiopia and Kenya (September-October 2022; February-March 2023). We soon concluded that the major decisions around strategic partnerships with branded firms and product markets were however taken by managers that were located at the supplier’s corporate headquarter. We thus shifted course and focused on conducting a set of interviews with representatives in Sri Lanka (June 2023),

South Korea (August 2024) and Hong Kong (August and September 2024), and further conducted several online interviews with headquarter staff before and after these fieldwork trips. A list of interviews is provided in the supplementary material.

We specifically targeted current or former chief and/or senior executives, and high-level management staff in business development, research and development, fabric engineering and production management. Many of the respondents worked for the company over years or even decades dating back to the 1980s and 1990s, giving us the unique opportunity to understand how and why buyer relationships and the underlying strategies and market environments have changed over time.

The design of the questionnaire was informed by a detailed dossier of each firm containing all available background information based the academic literature, firm websites, industry magazines as well as local newspaper articles. The questions that we asked during the interviews covered the history of the firm, the product markets that it catered; the relationships with branded firms (and differences among these buyers); how they assessed and positioned themselves vis-à-vis competing suppliers; the rationale to invest in different countries, including the function of that location in the firm's overall business strategy; the functions along the apparel value chain they had internalized; strategic initiatives and investments; technology strategy; and the firms' value capture strategy. Finally, we asked for revenues, profits and order unit prices, especially for those firms that were not publicly listed. Some supplier firms would not share long time series of exact data points but provided us with ranges on specific revenues or profit trajectories. Based on the data collected during the interviews, we constructed a unique database on these 11 global apparel suppliers that contains detailed information on all these questions.

The interview data allowed us to identify the branded firms with which the suppliers entered partnerships and why, and how those partnerships changed over time. We noticed that the nature of the branded firm-supplier relationship and the size of orders placed by branded firms changed over time. Particular branded firms became less attractive, changed their strategy, and/or the supplier was actively searching for new branded firms which they regarded as more capable to commercialize new products.

These trends and patterns informed our analysis of the growth of revenue streams among the largest apparel brands. We used the S&P Capital IQ database to identify the top apparel brands and retailers and their revenue trajectories, which allowed us to follow revenue streams dating back to the early 1990s. We then identified the key product segments that accounted for growth of the fastest growing branded firms, and whether they were based on a new product launch using the annual reports and websites of these branded firms; industry magazines, trade journals and apparel retail market publications; and the data science website [statista.com](https://www.statista.com). Section 4 presents the results of the product market dynamics and the product innovation cycles within them.

In a final step, we measure the value capture outcomes of individual supplier firms and trace the factors that accounted for these financial results. We obtained data on gross profit margins from the Capital IQ database for the suppliers that are publicly listed firms. For the firms that are not publicly listed, we obtained qualitative data on value capture through the interviews with the top management. We then explain the supplier firms' value capture trajectories using the qualitative data base that we created by comparing their buyer portfolio, product segments and manufacturing capabilities in relation to the financial results that they achieved. The results are presented in section 5.

4. Apparel GVC product market dynamics and product innovation cycles

Our analysis shows that apparel product offerings were relatively homogenous mass market products until the mid-1980s, and thus product innovation cycles only began to matter in the 1990s when buyers shifted their product strategy substantially. Prior to the 1990s, the global apparel industry was structured around predominately US-based department stores that sold apparel from branded manufacturers. These branded manufacturers either operated their own factories in the US or sourced finished goods directly, or via apparel trading houses, from smaller independent suppliers across Asia. In general, department stores since the mid-twentieth century had developed a relatively homogenous mass market product segment targeting a large middle class, complemented with a smaller high end price segment (Rosen 2002; Bonacich and Waller 1994). US apparel buyers and East Asian apparel manufacturers had relatively equal market power because of the small number of suppliers and US and European import quota policies making buyers dependent on accessing quota (Appelbaum and Gereffi 1994).

Two distinct structural shifts significantly changed the central dynamics of apparel product markets and the supply chains that underpinned them, starting in the mid-1980s. Slowing growth and rising income inequality among consumers generated substantial retail overcapacity and inefficiency, resulting in financial crises for department stores (Rosen 2002). On the back of the crisis-ridden department stores, discount chains and apparel specialty retailers emerged that responded to these shifting socio-economic realities by creating different price segments and with changing product offerings. These new types of retailers established a 'lean retailing' model that reduced inventory costs by creating 'integrated channels' that collected digital data on sales and assortment at the store level through barcodes and linked this data to distribution centers and manufacturers in their supply chain (Abernathy et al. 1999).

Increased trade liberalization through the gradual phase-out of the Multi-Fiber Arrangement between 1995 and 2004, which eliminated import quotas from supplier countries, new multilateral trade agreements, and China's entry into the WTO in 2001 created novel sourcing options in terms of size and flexibility. In response, US branded manufacturers outsourced

their remaining US-based supply chain to Central America and East Asia, from where they began to source ever larger volumes. The branded manufacturers that survived became classic apparel brands themselves, outsourcing almost all of their manufacturing operations by the second half of the 1990s.

As a result, the apparel lead firms and their product market strategies changed considerably, which has shaped lead firm-supplier relationships to the present day. The lead firm segment included mass retail chains, apparel specialty retailers, and apparel brands. These lead firms operated their own global supply chains and structured their sourcing operations to deliver rapid style changes and short lead times (so-called fast fashion) and shifted the demand risks that accompany ever changing styles towards suppliers (see Taplin 2014). Their strategies translated into three major product segments that had distinct growth dynamics, product features and price points, which we summarized in Table 2.

The first product segment is *basics*, such as t-shirts or basic underwear, which are offered in relatively stable volumes throughout the season given their constant (yet undynamic) demand but high price elasticity, in that consumers would shift if retailers lifted prices. They have no additional functionality and thus low retail prices (i.e. below USD 30 per item). The second product segment is *fashion basics*, such as shirts and dresses, which are at the center of fast fashion strategies of low-cost apparel specialty retailers, where brands and retailers seek to generate demand through offering rapidly changing iterations of existing styles. They also have no additional functionality and thus low retail prices that are subject to fierce price mark downs soon after the collection is launched (below USD 50). The third product segment is *functional fashion*, which is the only segment where technical innovations in fabric are applied and thus are where product innovation cycles occur. Producing novel products allows apparel brands to charge high retail prices and few or no markdowns given that demand is relatively price inelastic for a given time.

Table 2. Overview of Apparel Product Segments

	Basics	Basic Fashion	Functional Fashion
Volume	High but undynamic	High, dynamic but rapidly depreciating	Fast growing for a given time (12-36 months)
Quality Feature	None	None (marginal style iteration)	Functional feature related to textile technology
Price	Very low (less than USD 30)	Low (less than USD 50), subject to markdowns	High (USD +50) Few or no markdowns Low price elasticity of demand
Branded firm types marketing these products	Retail chains, Apparel specialty retailers, Brands	Apparel specialty retailers, Brands	Brands

Source: Authors, based on own analysis. The sources included interviews with top suppliers, industry magazines, trade journals and apparel retail market publications.

Within the functional fashion segment, we identified three product innovation cycles: lingerie and casual wear, especially denim, from the mid-1980s through the 1990s; activewear, from the early 2000s to the present day; and athleisure, from the early 2010s to the present day. These product innovation cycles were less by technological change and more by marketing tools, which makes the global apparel industry different from other industries such as electronics, probably because there have been no significant technological developments in the industry since the introduction of synthetic fibers based on petro-chemicals. Thus, apparel brands introduced minor technical changes in the fabric and used novel marketing techniques to embed the products in a new *lifestyle trend*. The technical changes tended to emerge first in a niche market and then diffuse to mass markets through specialized marketing and distribution capabilities that were novel in form and scale, as explained below when we discuss each product innovation cycle. Table 3 summarizes the lifestyle trend, technical innovation, and marketing channel and strategy for each cycle, and Table 4 summarizes the branded firms that pioneered each cycle and their revenue levels and growth.

Table 3. Overview of Apparel Product Innovation Cycles

	Lingerie, casual/denim (mid-1980s to 1990s)	Active (Since 2000s)	Athleisure (Since 2010s)
Lifestyle trend	Hypersexualization (lingerie) Casualization (casual, denim)	Fitness boom	Casualization of workplace; yoga boom
Technical innovation	Push ups, synthetic underwear (lingerie)	Lightweight sportswear; Sweat absorption; Moisture control; Temperature control	Stretchability; Softness of semi-synthetic fabrics (novelty blends, i.e. viscose-spandex)
Marketing channel & strategy	Fashion Shows; TV commercials	Sports starts as 'brand ambassadors'	Social media, network of influencers

Source: Authors, based on own analysis.

Table 4. Branded Firms Pioneering the Product Innovation Cycles

Branded firm	Product innovation cycle	1990s Lingerie, casual/denim cycle		2000s Activewear cycle		2010s Activewear cycle Athleisure cycle	
		Revenue (million USD)	Growth (year on year %)	Revenue (million USD)	Growth (year on year %)	Revenue (million USD)	Growth (year on year %)
L Brands/Victoria's Secret	Lingerie	8,487	6%	9,423	-1%	11,473	5%
Marks and Spencer ¹	Lingerie	9,627	3%	9,871	3%	13,056	-1%
Levi's	Denim	6,244	5.5% ²	4,892	0%	4,851	1%
GAP	Causal/denim	6,271	22%	12,654	2%	15,758	1%
Nike	Active (& athleisure)	7,362	13%	9,242	8%	30,680	8%
Adidas	Active (and athleisure)	3,225	21%	6,009	8%	18,378	5%
Puma	Active (and athleisure)	287	11%	454	21%	3,940	7%
Under Armour ³	Active				17%	2,079	13%
Lululemon ⁴	Athleisure				26%	3,403	20%

Source: Created by the authors using data from Capital IQ (2023).

Notes: 1. The revenue posted by Marks and Spencer encapsulates around 50% clothing and 50% food retail.

2. We excluded the financial years 1997-1999 from this column, because Levi's had a debt problem from 1997 onwards due to financing a leveraged buyout of family members. The resulting cost saving measures led to decreased revenues, that were however not related to the product market environment in which Levi's operated.

3. Under Armour began reporting financials in 2003.

4. Lululemon began reporting financials in 2005.

In the casual/denim and lingerie cycle, the major branded firms generating high revenues were LBrands, Marks and Spencer (M&S), Levi's and GAP, with LBrands and M&S dominating lingerie. LBrands, which acquired Victoria's Secret in 1982, sought to capture the lingerie market through aggressive marketing campaigns, using fashion shows and TV commercials centered around its 'Wonderbra' collections. The material innovations included push-ups made from foam or silicon gel, as well as lingerie products based on synthetic fabrics (Farrell-Beck and Gau 2002). The casualwear segment grew rapidly based on a change in office wear and a trend of larger specialized youth segments in the 1990s, which Levi's and GAP dominated. GAP capitalized on the emerging 'casualization' through offering its private labels on casual basics and marketed them via TV commercials (Groth and Aquino 2011). GAP's revenue soared from USD 1.5 billion to USD 13.6 billion in the 1990s. By the turn of the millennium, product innovation cycles in lingerie began to ebb away given the end of the 'hyper-sexualization' of intimates. Major brands in the casual segment faced intense competition by rising fast fashion retailers. By the early 2000s, LBrands, Levi's and GAP had lost their status as the largest apparel brands because the product segments they dominated had lost their growth pace (Brooke 2022).

The activewear product innovation cycle started to take shape in the 1990s but translated into large sales volumes for a number of branded firms in the 2000s. The central sportswear brands Adidas, Puma and Nike had been around since the 1950 and 1960s, but their major customer base in apparel had been professionals and amateur athletes, which limited their market reach (Knight 2016; Peters 2008). Table 3 shows that growth rates were high in the 1990s and drop in the 2000s, but notably at much higher sales volume. From the 1990s onwards, these branded firms developed functional sportswear for non-athletes in mass markets, including for the soaring hobby sports and gym segment.⁴ Mass market activewear shifted from cotton-based products to lightweight, sweat absorbing and temperature controlling performance products based on synthetic fabrics. Examples of mass market functional sportswear items include Nike Dri-Fit sweat control launched for mass market in early 2000s, and Nike Tech Fleece temperature control launched in 2013. The sales campaigns for these products were centered on signing 'brand ambassador' contracts with superstars across a range of sports product lines such as tennis, basketball, and soccer.

The product innovation cycle for activewear has not faded yet and overlaps with the emergence of the athleisure cycle, which began in the early 2010s by offering clothing that was adaptable to sportswear, leisure and work contexts. Its growth was fueled by lifestyle trends around the further 'casualization' of office wear as well as the yoga boom (Smith et al. 2018). The material innovation in athleisure products combines sportswear's functional performance features with comfort properties such as stretchability and softness of synthetic fabrics via novel fabric blends. The marketing campaigns of athleisure brands target affluent

⁴ Gym culture emerged in the late 1970s, but its size grew dramatically since the turn of the 21st century. Between 2000 and 2022, the number of fitness center subscriptions in the US doubled from 32.8 million to 68.9 million <https://www.statista.com/statistics/236123/us-fitness-center-health-club-memberships/>

customers with the purchasing power to pay three-digit retail prices (Petro 2015). Athleisure was pioneered by established athletics brands Nike, Adidas, Puma but also by specialty athleisure brands that grew rapidly during the 2010s. For example, Lululemon's sales surge from USD 712 million in 2010 to 9.5 billion in 2023, predominantly fueled by its 'align' yoga pants launched in 2015 that sold at price points above USD 100 without significant markdowns. Other smaller, yet fast-growing athleisure brands include Athleta, which GAP bought in 2008, as well as Fabletics and Vuori. Athleta became the major growth engine of GAP, outperforming its other brands that are outside the athleisure innovation cycle (Debter 2020). In 2021, Levi's spent 400 million USD to buy 'Beyond Yoga' in order to enter the athleisure high margin high growth product segment (Levi's 2021). The marketing campaigns are channeled via social media either via celebrities outside sportswear, such as Beyoncé for Adidas and Rihanna for Puma, or through a global network of niche influencers such as yoga teachers for Lululemon and Athleta. By 2025, competitors using the same Taiwanese fabric suppliers began taking market share from Lululemon.

In sum, this section shows why product markets matter for upgrading opportunities. Narratives on buyer-supplier relations and upgrading within the apparel GVC literature tend to analyze the industry as a whole, but as we demonstrate, the global apparel industry has different product segments. By 2023, the apparel sector was one of the largest industries globally, with an estimated size of 1.7 trillion. The size of the activewear and athleisure market segments combined was USD 460 billion, with the rest in basic and basic fashion (Statista 2025). Arguments in the GVC literature that emphasize the supplier squeeze most probably apply to the basic and fashion basic segments where apparel brands and retailers face lower retail prices, lower market growth and lower entry barriers which increases competition and drives down profit margins. But this is not the case in functional fashion segment where product innovation cycles occur and create high growth, high margin products, and this is where there are opportunities for upgrading, as the next section shows.

5. Supplier firm value capture in product innovation cycles

Having identified the product innovation cycles and the branded firms pioneering them, we now turn to the supplier firm side and explain how transnational apparel firms captured value by entering strategic partnerships with the pioneering branded firms in the different product innovation cycles. We show that specific apparel firms were able to develop these strategic partnerships because of the specialized complementary capabilities that they already had or developed together with the branded firm. We do this in two analytical steps.

The first step is to analyze the profit margins of the 12 largest apparel supplier firms in comparison to their buyer and product portfolio. This analysis shows that suppliers producing activewear and athleisure products for the key buyers in these product innovation cycles had higher profit margins than those of suppliers predominantly producing for products for buyers

in the basic fashion segment. The financial data establishes the correlation between higher value capture and product innovation cycles. The next step is to show causation, which we do using the interview data from the sub-set of transnational apparel suppliers discussed in the methodology section as well as secondary sources collected on the two suppliers with the highest profit margins among the top 20 sample: Shenzhou from China and Eclat from Taiwan. We could not directly interview Shenzhou and Eclat, but since they are the top performing supplier firms globally, it is important to understand why. Our analysis identifies the specialized complementary assets that supplier firms needed for strategic partnerships with the key buyers in the activewear and athleisure product innovation cycles.

The findings of our analysis are that the most important asset was capabilities in complex synthetic textile production that allowed the supplier firm to innovate in fabrics in the ways that branded firms required to commercialize their ideas for activewear and athleisure products. Additionally, the supplier firm needed the organizational capabilities and economies of scale to assemble the products using their fabric at large scale and high efficiency. Notably, this combination of assets, complex synthetic textile production and high efficiency mass assembly of garments, was rare among transnational apparel suppliers, giving them high bargaining power with their buyers and the ability to capture more of the wealth that buyers gained through high retail prices in growing product markets.

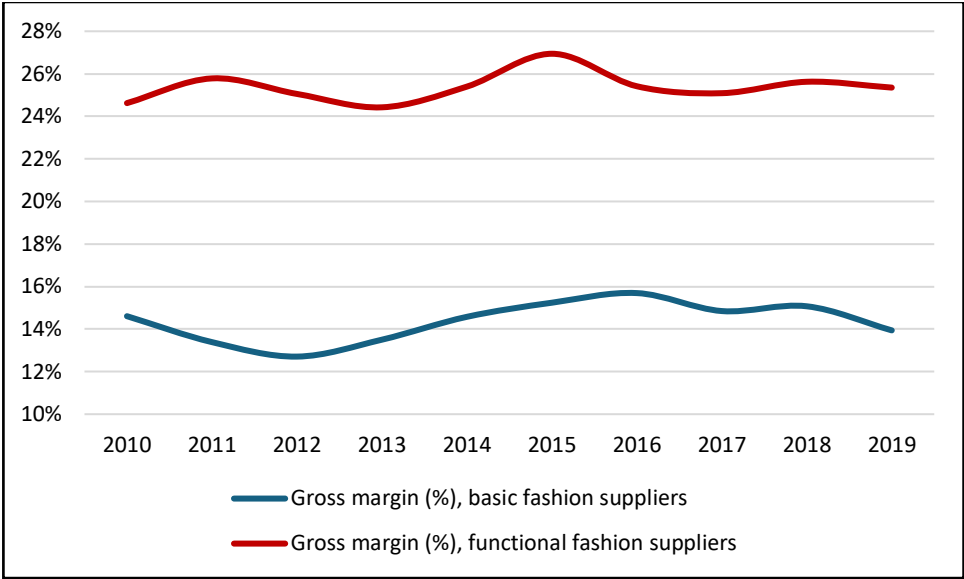
5.1 Comparative supplier financial data across product segments

Available financial data for suppliers and branded firms only starts in the early to mid-2000s, and thus we cannot show quantitative evidence for upgrading by supplier firms that entered the activewear product innovation cycle in the early 2000s and those that did not. What we can do is compare more recent financial indicators for the top firms in the activewear and athleisure product segments and those in basic fashion. Of the top 20 apparel suppliers, we could only access gross profit margin data over a longer time horizon for 12 firms: Crystal, Hanase, SAE-A, Hansoll, Luen Thai, Fountain Set, Nien Hsing, Shenzhou, Youngone, Eclat, Makalot and Regina Miracle.

We then categorized them as functional fashion suppliers (activewear and athleisure) and basic fashion suppliers based on the product segments from which more than 75% of their revenue was derived. Data on these firms' revenue by product segment came from the interviews or from annual reports for the firms which we did not interview. The basic fashion suppliers include Crystal, Hansae, SAE-A, Hansoll, Luen Thai, Fountain Set, and Nien Hsing. The functional fashion suppliers include Shenzhou, Youngone, Eclat, Makalot and Regina Miracle.

Figure 2 presents the results. The blue line is an average among the 7 basic fashion suppliers, and the red line is the average among the 5 functional fashion suppliers. The functional fashion supplier firms had significantly higher gross profit margins than basic fashion supplier firms. Functional fashion suppliers had average gross margins of 25% during 2010s compared to only 14% for basic fashion suppliers. We now turn to explain the reasons for this divergence.

Figure 2. Supplier profitability by product segment



Source: Created by the authors.

5.2 Comparison of supplier firms’ business strategy and complementary assets

The qualitative analysis of supplier firm value capture trajectories draws on interview data from the 11 case study firms discussed in the methodology section. There is significant overlap with the 12 firms used in Figure 2, but we want to highlight that they are not the same. In our analysis, we had to omit one of our case study firms from the analysis in this section (‘Anon’), because it would give the identity of the firm away. Finally, we added Shenzhou and Eclat, the two most profitable firms globally, to provide a benchmark for comparing our case study firms. Table 5 provides the key characteristics on these 12 firms, including their main buyers, key product markets, average gross profit margin between 2010 and 2019, and whether they had strategic partnerships with buyers in any of the product innovation cycles.

Based on the interview data, we first constructed analytical narratives that grouped the supplier firms by headquarter location, which allows us to hold the country context constant and examine firm-level variables. We explain whether the value capture trajectories of supplier firms in the same country diverged or not, and if so, why. We then compared the most successful firms across countries based on profit margins, including the two benchmarking firms, to identify which complementary assets mattered for strategic partnerships in the three product innovation cycles.

Table 5. Key Characteristics of the Top Apparel Suppliers

Firm	Main buyers	Key products markets	Strategic partnerships in product innovation cycles	Average gross profit margin 2010-19
Youngone (KOR)	Engelbert Strauss, Patagonia, North Face, Lululemon	Outdoorwear, Sportswear. Basics	Outdoor (Engelbert, Patagonia, 2000s); Athleisure (Lululemon, late 2000s)	26%
Hansae (KOR)	Walmart, Target, Old Navy, Gap, Kohl's	Knit and woven in tops, bottoms, activewear, sleepwear, suits, dresses.	None	20%
SAE-A (KOR)	Kohl's, JC Penny, Tesco, GAP	Range of basic knit products	None	14%
Hansoll (KOR)	Abercrombie Fitch, Uniqlo, Ross, JCPenny	Range of basic knit products	None	14%
MAS (SL)	VS Nike, Lululemon, Patagonia, Speedo, Adidas	Functional & fashion intimates (circa 40%) Functional sportswear & athleisure (circa 50%)	Lingerie (VS, 1993) Activewear (Nike, 2005) Athleisure (Lululemon, 2009)	**
Brandix (SL)	VS PVH, GAP, Amazon, Uniqlo, Decathlon, Athleta, Puma, Lululemon	Fashion intimates (50%) Basic fashion casual (woven bottoms, 25%) Basic fashion athleisure (25%)	Causal/denim (LBrands, early 1990s) Lingerie (, VS, mid 2000s) Athleisure (Lululemon, Athleta, 2015)	**
Hirdaramani (SL)	M&S, San Mar, PVH, Patagonia, Lacoste	Basic fashion casual wear (knits & denim) Basic intimates	Causal/denim (LT Apparel, M&S, 1980s)	**
Crystal (HK)	Uniqlo, Levi's, GAP, Lululemon	Casual, denim, sportswear, intimates	None	19%
TAL (HK)	Burberry, Brooks Brothers, Peter Milan, Travis Matthew	Dress shirts, casual, high-end active (golf shirts)	None	**

Firm	Main buyers	Key products	Strategic partnerships in product innovation cycles	Average gross profit margin 2010-19
Luen Thai (HK)	Ralph Lauren, Dillard's, L Brands, Fast Retailing	Sweater, casual, sleepwear, sportswear	None	16%
Eclat (TW)	Nike, Adidas, Lululemon, Patagonia	Sportswear & athleisure	Active Athleisure (Lululemon, early 2000s)	27%
Shenzhou (CHI)	Nike, Adidas, Puma, Uniqlo, Lululemon	Sportswear & athleisure	Active (Nike, Adidas, Puma, Uniqlo, mid-2000s) Athleisure (Nike, Adidas, Puma, Lululemon, 2010s)	30%

The top South Korean supplier firms Sae-A, Hansae, Youngone and Hansoll have similar revenue growth, but their profit margins in the late 2010s were quite different. Sae-A had the largest revenue, but its gross profit margin was limited to 15%, similar to Hansoll with 17%. Youngone and Hansae were in the middle in terms of revenue and had very similar revenue, but Youngone had a 25% profit margin and Hansae only 15%. The main reason for differences in profit rate among these firms, and why Youngone was the most successful, was their product portfolio and buyers. Youngone only produced outdoor and activewear for buyers in niche, high-end markets. Hansae had recently moved into activewear, whereas Sae-A and Hansoll produced only basic fashion.

In Hong Kong, none of the firms have been able to move into the activewear and athleisure product innovation cycles and as a result have lower profit margins than the top firms in activewear and athleisure. For example, TAL previously had high growth and profit margins based on specializing in men's formal and casual shirts, but with the decline in market demand for formalwear, it has struggled to revise its business strategy. Its products are in a niche market that did not have the same volume growth as activewear and athleisure.

In Sri Lanka, MAS has grown much larger than the other top firms Brandix and Hirdaramani by moving into activewear and athleisure products for top buyers. All three firms entered the lingerie and casual/denim product innovation cycle in the 1980s through strategic partnerships with branded firms including LBrands and Marks and Spencer and LT Apparel. However, only MAS entered functional lingerie products, developing capabilities that it was able to leverage into the activewear and then athleisure product innovation cycles when they were just beginning. In contrast, Brandix and Hirdaramani had strategic partnerships in the casualwear/denim side of the product innovation cycle in the 1980s and 1990s, and the

capabilities that they developed for these products did not have spillover effects in functional activewear and athleisure as they were based more on capabilities linked to cotton. Brandix tried to emulate the actions of MAS when its casual/denim portfolio peaked and stagnated, but it does not have the vertical integration in synthetic fabric production or specialized apparel assembly capabilities linked sewing innovative fabrics and thus remained in activewear products that are more basic fashion than functional fashion. Hirdaramani remained in knit and denim casualwear. Because the Sri Lankan firms are not publicly listed, we cannot provide financial results on gross profit margins for this set of firms. Our qualitative data suggests that MAS was able to generate higher profit margins when they entered the activewear and athleisure product innovation cycles at an early stage and with the pioneering branded firms Nike and Lululemon, respectively.

Among our case study firms, MAS is the only supplier firm that had strategic partnerships in all three product innovation cycles. This is arguably the case because it was able to leverage its specialized complementary assets from one cycle to the next. MAS was a top supplier of complex lingerie products for Victoria's Secret at an early stage, which the other Sri Lankan supplier firms were not. In the 1990s and early 2000s, MAS co-invested with foreign firms in factories to produce the required fabric and components for bras and lingerie in Sri Lanka. MAS also invested in specialized circular knit machines that produced seamless fabric directly from yarn, becoming one of few firms globally that had this capability. This investment paved the way for MAS to enter the activewear cycle when, in the mid-2000s, Nike was looking for a supplier with capabilities to help it commercialize its flyknit shoes. MAS exited casualwear and dedicated its factories to activewear for Nike, playing a key role in producing Nike's flyknit fabric. MAS grew consistently, doubling its revenue between 2005 and 2011, and again from 2011 to 2018. Its seamless knit capabilities were also central to entering the athleisure cycle, as Lululemon approached MAS, looking for a strategic supplier that could help it produce circular knit fabric for its yoga pants. Over time, flyknit production for Nike declined, so that MAS shifted its seamless capabilities to Lululemon's products and developed other products with Nike. Even with strategic partnerships, the experience of MAS has been that the firm is only able to realize higher profit margins at the beginning of the strategic partnership with a buyer; once the product or the brand goes 'mainstream', the brand puts pressure on MAS to decrease their margin.

TAL is an example of how supplier firms could struggle to move from production innovation cycle to the next, depending on which product and buyers the supplier firm had in the casualwear/lingerie product innovation cycle. TAL produced one out of every eight dress shirts sold in the US. Both TAL and the Taiwanese firm Nien Hsing were studied by Appelbaum (2008) as cases of transnational apparel suppliers that had upgraded through investing in advanced equipment and lean manufacturing production processes and providing inventory management and sales forecasting to their buyers. But notably both TAL and Nien Hsing experienced a decline. Nien Hsing was among the largest apparel suppliers in the 1990s and supplied denim products to GAP and Levi's, but it is likely that Nien Hsing's cotton-based fabric

production capabilities that were central to the denim/casual cycle became obsolete in the active and athleisure product innovation cycles that required synthetic fabric. TAL's data is not publicly available and is based on interview data, but available financial indicators for Nien Hsing show that its gross profit margins eroded from 29% in 2000 to 5% in 2020, and its revenue began to contract in the mid-2000s and then declined by 3% annually on average during the 2010s (Capital IQ 2023).

The two largest apparel supplier firms, Shenzhou and Eclat, entered the activewear and athleisure product innovation cycles early with pioneering branded firms. Shenzhou has a wide range of strategic partnerships with activewear and athleisure branded firms such as Nike, Adidas, Puma, Lululemon and Uniqlo and was crucial for these buyers' important product launches such as Uniqlo's lightweight and sweat control technology 'Airism' (Chou and Ling 2016; Huang 2021). The specialized complementary assets that underpin these strategic partnerships are Shenzhou's vertically integrated synthetic textile capabilities. Since the mid-2000s, Shenzhou continuously expanded its fabric production capacity in its core factories in the Ningo textile cluster, which allowed Shenzhou to match the growing garment assembly capacity demand from key customers (Hong 2016). Shenzhou's key advantage vis-à-vis other suppliers is its customer specific clusters that integrate co-design of fabric, product specific weaving and knitting machines, and garment assembly facilities. Shenzhou can operate these clusters because of the tacit knowledge and experience of textile technicians, to ensure the quality and consistency in the production ramp-up of novel fabric materials.

Eclat is also a vertically integrated firm. It entered a strategic partnership with Lululemon in the early 2000s. Once the athleisure cycle took off, the strategic partnership resulted in Eclat's revenue growing from USD 270 million in 2010 to 1.263 billion in 2022. Central to strategic partnership were Eclat's nylon and spandex fabric production capabilities, which it had developed since the early 1980s, and which grew in tandem with its apparel assembly capabilities (Eclat 2022). Eclat became Lululemon's sole supplier of the Luon fabric used in Lululemon's high priced products. Although Lululemon owned the intellectual property on the fabric, Eclat was the sole supplier that could manufacture that fabric for a long time and thus became the central pillar in Lululemon's growth strategy (Yang 2017). Eclat's bargaining power is reflected in the consistently high gross profit margins that it posted during, reaching more than 25% for each year during the 2010s.

Our second analytical angle is to look at the value capture trajectories across countries as well as across product innovation cycles. The lingerie and casual/denim product innovation cycle emerged in the mid-1980s while the US and European quota system was still in place. Therefore, even though the capabilities needed to participate in this cycle were not that unique, especially for casual/denim, the quota system created a kind of uniqueness of capabilities. They required circular knit cotton and denim fabric production for the casual side, and a basic synthetic fabric production and a local supply chain in trims and accessories for the lingerie side. Our interview data shows that the largest apparel suppliers in Sri Lanka grew

to become top global suppliers by entering this product innovation cycle, especially lingerie for Victoria's Secret and M&S based on the creation of a local supply chain for lingerie that was unique globally. Hong Kong, Taiwanese and South Korean firms produced a wide range of casualwear based on a local supply chain of cotton and synthetic fabric production, as women's wear was increasingly turning to polyester-based fashion products. Taiwan and South Korea had synthetic fabric production on the back of their petro-chemical industries.

We find that a bifurcation occurred among the top apparel suppliers from the mid-2000s. Most large suppliers achieved revenue growth based on large volumes of basic fashion with stagnant or falling profit margin per unit. However, a few suppliers with strategic partnerships in activewear and athleisure products had high volumes of functional fashion products that had high profit margin per product, at least for a period of time.

The high-volume strategy required providing branded firms with the scale, assembly efficiency, speed to market, and tariff options by establishing factories in a variety of countries and handling fabric sourcing and inventory management for buyers. Few of these suppliers possessed large-scale in-house fabric design and production capabilities, and if they did it was limited to cotton fabric. While the high volume-low margin strategy was profitable from the mid-2000s, our interviews indicated that this strategy was reaching its limit in the early 2020s, as buyers put in less orders or reduced prices even further. Some supplier firms we interviewed were seeking to emulate what they saw as the more successful strategy in activewear and athleisure. However, the entry barriers were very high, requiring not only significant investments by the firm but also relevant local supply chains that cannot be built by a single firm.

In contrast, suppliers with strategic partnerships in activewear and athleisure had large-scale production of synthetic functional fabric, the complementary capacity to mass manufacture garments, and tacit knowledge to ensure quality and consistency within the integration of fabric design, fabric production and garment assembly, often in product or buyer-specific factories. The top functional fashion suppliers in China and Taiwan were able to leverage synthetic fabric capabilities with an industrial eco-system and supply chain around petro-chemicals and synthetic yarn and fabrics. Notably, despite having a similar petro-chemical industrial eco-system, the South Korean apparel suppliers were not vertically integrated, as the industry had developed in such a way historically that textile and apparel assembly were carried out by different firms.

In sum, only a few suppliers had the necessary specialized complementary assets to enter strategic partnerships with the relevant branded firms in the activewear and athleisure product innovation cycles. This is likely because there were few or no spillovers between the predominantly cotton-based capabilities required in the lingerie and casual/denim product innovation cycle of the 1990s and the subsequent activewear and athleisure cycles. Additionally, there were relatively high barriers to entering the active and athleisure

functional fashion segment, as it required capabilities in complex synthetic textile production and specialized machinery, tacit knowledge and labor skills for sewing products made from this kind of synthetic fabric.

6. Conclusion

Twenty-five years ago, Gereffi (1999) introduced the influential concept of functional upgrading, and it became the standard for how GVC scholars investigate the ways in which supplier firms develop and capture value in the global apparel industry. Numerous scholars have argued that upgrading has become a mere survival strategy, but they did not offer an alternative way to explain how some apparel supplier firms are able to capture more value than others. This paper sought to address this debate by reconceptualizing upgrading in the apparel GVC. We argue for moving away from understanding upgrading as fulfilling a set of predefined tasks. Instead, we propose to conceptualize upgrading as a distributional outcome - capturing higher profit share per product, and then tracing the capabilities that suppliers developed to achieve this better distributional outcome. Our starting point is that opportunities for higher profit capture only arise if supplier firms cater branded firms that operate in product innovation cycles. It is only in these innovative product segments that apparel suppliers can extract concessions on profit sharing from the branded firms, through providing the specialized complementary assets necessary to bring an innovative product to market. Building on and advancing the work by Yeung (2016), we refer to this mutual dependency that alters the competition dynamics among branded firms and suppliers as strategic partnerships.

In tracing apparel product innovation cycles and the required specialized complementary assets from suppliers over the past four decades, this paper shows why upgrading has been rather the exception than the norm, even for giant transnational apparel suppliers. Entering the activewear cycle that emerged in the early 2000s as well as the subsequent athleisure cycle required a specific capability set. This included combining synthetic functional fabric production, mass manufacture of garments, and tacit knowledge to ensure quality and consistency within the integration of fabric design, fabric production and garment assembly. Only a few suppliers entered product innovation cycles early on, and countries beyond China, Taiwan and South Korea did not have the petro-chemical sector and synthetic fabric ecosystem that supports such a strategy. Thus, despite a large global pool of apparel suppliers, only a few apparel suppliers have the necessary capabilities to cater the product markets where higher profits could be captured.

Our conceptual framework on strategic partnerships in product innovation cycles is derived from iterative-theory building based on the apparel industry, and we do not claim that it applies to other industries. However, we argue that the core competitive dynamics in other globalized industries will be the same: branded firms and suppliers seek to capture value

through escaping competition in commoditized product markets. Therefore, we suggest that product innovation cycles have relevance for supplier firm upgrading in other industries. But it is up to other scholars to investigate which kinds of complementary assets are required to create strategic partnerships with branded firms in other industries' product innovation cycles.

Finally, the paper sought to use a novel methodological approach to examining supplier firm value capture trajectories. It traced the different product markets that emerge based on branded firm competition and the distinct profit capture opportunities these product markets offered at a given point in time and then trying to measure supplier firm profit capture trajectories through financial data. Obtaining coherent financial results over a longer time series is difficult, but as this paper shows, obtaining as much financial results as possible either through publicly available financial data or through interviews with firm managers alters the way in which we can measure and compare supplier firm value capture trajectories. These financial results as well as inter-firm variation across suppliers can be explained through interviews with long-standing representatives of these firms, unpacking the specific capabilities that were necessary to achieve these results. We hope that this methodology provides inspiration for future research that investigates firm-level value capture from GVC participation.

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