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**Supplier resilience under the COVID-19 crisis in the apparel global value chain (GVC):  
The roles of GVC governance mode and suppliers' upgrading**

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**ABSTRACT**

The pandemic has exposed firms in global value chains (GVCs) to unprecedented disruptions and risks. This has highlighted the importance of resilience as a mechanism for recovery and adaptation that can underpin the survival of GVC firms. As such, researchers and practitioners alike are keen to understand the implications of suppliers' resilience for GVCs and how these suppliers can absorb the tough shocks (e.g., sheer disruptions in supply and demand) caused by global incidents. We examined this issue by analysing data collected from firms in the Pakistani apparel sector that are part of the apparel GVC. Overall, we identified three main types of suppliers: 1) socio-sustainable, 2) adaptive and 3) oblivious. These suppliers implemented different resilience strategies (bridging, buffering and floating, respectively) during two phases of resilience (robustness and response). Importantly, we found that the distinctiveness of resilience strategies across different types of suppliers was influenced mainly by the GVC governance mode and suppliers' upgrading practices before the crisis. We offered a detailed discussion of the implications of these findings for theory and practice.

**Keywords:** GVC, resilience, suppliers, bridging, buffering, floating, Pakistani apparel sector

## 1 INTRODUCTION

Economic globalisation has altered the structure of trade in the last three decades, with economic activity spreading across the globe and resulting in the rise of global value chains (GVCs) (Kano, Tsang, & Yeung, 2020; Pahl & Timmer, 2020). Accordingly, final products do not dominate cross-border trade, but intermediate components (e.g. raw materials, parts and modules shipped to multiple suppliers/manufacturers) do, as they flow across a global value chain until the final output is delivered (Gereffi, 2019). This has enabled multinational enterprises to rationalise their value chains and carry out activities at the most efficient locations (Mudambi, 2008). At the same time, the phenomenal growth of GVCs has created unprecedented opportunities for developing countries, as developing country suppliers can participate and connect with global markets, resulting in industrial upgrading and economic development in such countries (Bair & Gereffi, 2001; Gereffi, 1999; Luo, Zhang, & Bu, 2019). Therefore, research on GVCs has mainly focused on GVC governance and its interactions with supplier upgrading processes, explaining the various ways in which developing country suppliers in GVCs could enhance their positions (Gereffi, Humphrey, & Sturgeon, 2005; Humphrey & Schmitz, 2002; Kano et al., 2020). However, little attention has been given to the disruptions and risks involved in GVCs (Golgeci, Yildiz, & Andersson, 2020). This limitation has become more critical during this time of global crisis, as there is a greater need to identify the appropriate mechanisms for dealing with disruptions in GVCs.

Several studies have reported that the connectivity advantage created by GVCs was extremely challenged during the coronavirus disease 2019 (COVID-19) crisis (Gereffi, 2020; Kano & Oh, 2020; Verbeke, 2020). The pandemic has disrupted most GVC operations, and it is expected that the global gross domestic product will contract by 5% and that international trade will fall by 8% (UN, 2021). This has exposed firms in GVCs to disruptions of an unprecedented level (Espitia, Mattoo, Rocha, Ruta, & Winkler, 2021; Strange, 2020). In turn, it highlights the importance of resilience as a mechanism for the recovery and survival of GVC firms (Golgeci et al., 2020). As such, researchers and practitioners alike are keen to understand the implications of suppliers' resilience for GVCs and how these suppliers can absorb the tough shocks (e.g., sheer disruptions in supply and demand) caused by global incidents (Gereffi, 2020; Kano & Oh, 2020; Miroudot, 2020). Previous research has suggested that such crises are likely to create winners and losers in GVCs (Sturgeon and Kawakami, 2010; Gereffi and Frederick, 2010).

From suppliers' perspectives, the important elements when managing a crisis are properly assessing the sources of disruption risks, addressing these sources and investing in

building strategies and practices to make their organisations and connections with buyers more resilient to disruptions. However, crisis-related GVC research has focused on macro trends rather than the strategies of individual suppliers to deal with crises (e.g., Pla-Barber, Villar and Narula, 2021; Sass and Szalevitz, 2014; Cattaneo, Gereffi, and Staritz, 2010). In general, this is in line with the treatment of supplier agency in GVC analysis, in which the focus has been on inter-firm structures and relationships (Humphrey, 2020). Generally, the broad-brush nature of GVC analysis subsumes concrete actor-specific practices, such as the strategies of developing country suppliers (Sako & Zylberberg, 2019; Yeung & Coe, 2015; Pipkin & Fuentes, 2017). Therefore, we build on existing research that underlines the role of suppliers' agency in maintaining and improving their positions in GVCs (Choksy et al., 2018; De Marchi & Di Maria, 2019; Sinkovics et al., 2019; De Marchi et al., 2018; Giuliani et al., 2005); our goal is to identify and study the strategies and practices of suppliers exposed to large-scale environmental disruptions and provide a bottom-up explanation of GVC resilience. We borrow from the literature on organisational resilience and supply chain risk. Following Rice and Caniato (2003), we define *supplier resilience* as suppliers' abilities to respond to large-scale disruptions and return to normal operations. Our main research question is as follows: How do developing country suppliers in GVCs respond to large-scale disruptions under the COVID-19 crisis?

Taking inspiration from the supplier agency literature in GVCs, we argue that to understand how suppliers respond to disruptions, we need to investigate how organisations participating in GVCs (suppliers in this case) build resilience strategies. Specifically, this highlights the need to *examine the development of firm- and network-level resilience strategies that facilitate suppliers' responses to COVID-19*. We addressed this issue by focusing on the GVC for apparel manufacturing. Through qualitative research methodology, we studied the nature and dynamics of Pakistani apparel GVC suppliers' resilience during the global crisis, focusing on their strategies to navigate the crisis. From the analysis, we identified three main types of suppliers: 1) socio-sustainable, 2) adaptive and 3) oblivious suppliers. These suppliers implemented different resilience strategies (bridging, buffering and floating, respectively) during two phases of resilience (robustness and response). Interestingly, it emerged that the distinctiveness of resilience strategies across the different types of suppliers was mainly influenced by the GVC governance mode and the suppliers' upgrading practices before the crisis.

Reflecting on our findings, our study makes two core contributions to the literature. First, it enriches the emerging literature on suppliers' agency in GVCs by unpacking the

complex and dynamic nature of supplier agency and resilience embedded in GVC governance structures and upgrading patterns. Previous literature on GVCs has explored the link between governance and upgrading without considering the volatility of the environment, especially large-scale disruptions. Our study is one of the first to consider the impact of large-scale disruptions from the perspective of suppliers and investigate the link between resilience, governance and upgrading. In this way, we respond to the calls made by Verma and Gustafsson (2020) on the need to investigate suppliers' roles and resilience under the pandemic crisis. Second, our study investigates the interplay between economic upgrading, social upgrading and resilience. We found that different types of upgrading patterns contribute differently to resilience. For example, product and process upgrading was found to have a positive extended impact on firms' responses to disruptions. Similarly, firms that were more engaged in social upgrading reach resilience more rapidly and demonstrate more resilience.

The rest of the paper is structured as follows. The next section reviews existing literature on GVC governance and upgrading, the link between crises and GVCs, and GVC disruptions and resilience. Then, we introduce and detail our industry context—the Pakistani apparel sector. The fourth section unpacks the methodology of this paper, including sampling, data collection and analysis. We present our findings in the fifth section, and we discuss the contributions of this research in the last section.

## **2 LITERATURE REVIEW**

### **2.1 GVC governance and supplier upgrading**

GVC governance is one of the main conceptual contributions of GVC studies that explain how governance in GVCs shapes supplier upgrading (Humphrey & Schmitz, 2002). GVC governance can broadly be defined as a process through which powerful actors in the chain set, measure and enforce parameters under which others operate (Ponte & Gibbon, 2005, p. 5). These powerful actors, typically labelled as *lead firms* in GVCs, define the terms of entry, select suppliers to enter the chains and define their roles and responsibilities (Gereffi, 1994). Understanding the power of lead firms to govern and organise value chains has been one of the core elements of the GVC framework (Nadvi, 2008).

Gereffi, Humphrey and Sturgeon (2005) developed a seminal meso-level inter-firm governance framework identifying specific transactional characteristics that predispose a lead firm in a GVC to adopt a specific mode of governance at a specific node in the GVC. This framework of value chain governance is based on three transactional characteristics, namely, codifiability of knowledge, complexity of knowledge and supplier capabilities, and two

characteristics of the chain, namely, power asymmetry and explicit coordination. Based on these, Gereffi et al. (2005) developed a typology of governance modes. Between the polar opposites of market and hierarchy, they identified three other types of governance modes: modular linkages (in which transactions are relatively less complex and suppliers have strong capabilities to fulfil buyers' requirements using generic technologies), relational linkages (in which transactions are complex, creating mutual dependence between buyers and sellers and involving high levels of asset specificity), and captive linkages (in which supplier capabilities are low and heavily dependent on buyers with increasing switching costs). However, this seminal framework focuses on the strategic roles of lead firms in shaping the governance of GVCs, in which they can choose the optimal governance form based on the three determinants (Humphrey, 2020). In addition, the framework is limited in terms of explaining the micro-level dynamics of GVC governance, such as the ways in which supplier strategy could shape governance forms. Despite Gereffi et al.'s (2005) assertion of the importance of supplier capabilities for determining value chain governance, the framework considers suppliers as passive actors who respond to the agency of lead firms in a deterministic way (Humphrey, 2020). Accordingly, it has been argued that considering the other side of the equation (i.e., suppliers' perspectives) is vital to better understand the range of governance forms and any of their deviations from norms (Sako & Zylberberg, 2019).

Another fundamental question that GVC scholars ask is how the governance of GVCs may impact the developmental outcomes for small suppliers operating in developing economies (Bair and Gereffi, 2001; Humphrey & Schmitz, 2002). These developmental outcomes in GVCs are called *economic upgrading*. Economic upgrading is generally described as a shift in suppliers' roles in GVCs that increases the value added of their sourcing activities. Humphrey and Schmitz (2002, p. 1021) explained four types of upgrading possibilities for domestic firms in GVCs: *process upgrading* (transforming input into output more efficiently by reorganising the production system or introducing new technology), *product upgrading* (moving into more sophisticated product lines that can increase a product's unit value), *functional upgrading* (acquiring new functional positions to increase the overall skill content of activities) and *inter-chain upgrading* (or shifting from GVCs with low value added to GVCs with high value-added).

Recently, GVC researchers have introduced the concept of *social upgrading* to better understand the impact of economic upgrading (firm-level upgrading) on workers and working conditions (Barrientos, Gereffi, & Rossi, 2011; Milberg & Winkler, 2011). Rossi (2013) defined social upgrading using two broad components: measurable standards and enabling

rights. Measurable standards are quantifiable aspects of worker well-being, such as wages, employment and income security, and working hours. On the other hand, enabling rights are less quantifiable and include freedom of association, the right to collective bargaining, non-discrimination, voice and empowerment (Rossi, 2013).

Recognising both components, research on GVCs has investigated the interplay between economic and social upgrading and identified the conditions under which social upgrading might take place (e.g., Barrientos et al., 2016; Rossi, 2013; Pipkin, 2011, Jindra et al., 2019). For example, while Rossi (2013) identified the mechanisms for improving workers' conditions in GVCs, several researchers rejected a linear relationship between economic and social upgrading. Studies have shown that economic upgrading could lead to a direct positive impact on social upgrading (Rossi, 2013) or could also lead to social downgrading (Anner, 2015; Munir et al., 2018). The various ways in which economic upgrading is linked to social upgrading depend on the interplay of the local context (Pipkin, 2011), the types of actors involved and their strategies, and the governance mechanisms used (Golini et al., 2018; Gereffi & Lee, 2016; Lund-Thomsen, 2013).

Generally, much of the literature on economic and social upgrading in GVCs emphasises the roles of lead firm strategies in providing upgrading opportunities for developing country suppliers (Schmitz and Knorrninga 2000; Humphrey and Schmitz 2002; Humphrey, 2020). It is argued that GVCs are dominated by lead firms that determine the overall structure of the chain and the distribution of economic and social value among various chain participants. The economic power of the lead firm is generated by developing monopolistic advantages, such as factor costs, market access or marketing expertise that generates higher rents (Gereffi, 1994). It is argued that upgrading opportunities for suppliers are thus highly dependent on lead firm strategies. However, several studies on upgrading have shown a much more complex picture of upgrading and have questioned the general theory and prediction of the GVC approach to economic and social upgrading (Pickles et al., 2006; Cammet, 2007; Tokatli 2013; Pipkin and Fuentes 2017). For example, Pickles et al. (2006) argued that economic upgrading in the value chain does not necessarily reflect a company's positive financial position. This was confirmed in a review study by Choksy, Sinkovics and Sinkovics (2018), in which they found that engagement or non-engagement in functional upgrading does not necessarily lead to value capture in GVCs by local suppliers. It is emphasised that one-sided accounts of lead firms' strategizing and its causal effects on moving up the value chains lack analytical power to explain the mixed results of GVC participation in economic upgrading. There are diverse trajectories of upgrading paths



observed, such as downgrading, backsliding, treadmilling and leapfrogging (Tokatli 2013; Pipkin and Fuentes 2017). For example, despite the Torreon region in Mexico being recognised as the capital of the blue jeans industry, no Mexican firm has moved into branding, which is a high-value-added activity (Bair and Gereffi 2001). However, Tokatli (2007) found that many jeans suppliers in Turkey were able to upgrade and move into higher-value-adding activities, such as branding and retailing. Lead-firm-centric accounts simplistically ascribe the differences among suppliers' upgrading to lead firm strategies (Selwyn, 2013). An alternative would be to focus on supplier strategies and systematically analyse why some firms were able to upgrade, whereas others were not (Tokatli 2013).

Therefore, there is a body of recent literature that focuses on the agency and strategies of suppliers in GVCs to better explain economic and social upgrading in GVCs (Lechner et al., 2020; Sako & Zylberberg, 2019; De Marchi & Di Maria, 2019; Choksy et al., 2018; De Marchi et al., 2018; Giuliani et al., 2005). Choksy et al. (2018) explored the managerial agencies of *disadvantaged suppliers* who either operate in a weak institutional context, are embedded in a highly power-asymmetric situation and/or are exposed to high volatility or environmental disruptions. They identified three managerial agencies through which suppliers capture high profit in GVCs: legitimacy, adaptation and survival. They argued that these managerial agencies are particularly useful for disadvantaged suppliers to complement and strengthen the connection between upgrading/downgrading strategies and capturing profit in GVCs. Along the same line, Sinkovics et al. (2019) identified two strategic paths through which Pakistani offshoring service providers manage to initiate and maintain connectivity with Western clients in an adverse political environment: a step-up strategy focusing on long-term trustworthy relationships and a break-out strategy focusing on moving towards more diversified forms of GVC connections. Similarly, De Marchi et al. (2018) reviewed empirical papers on innovation in GVCs to answer the following question: Do local (developing country) firms involved in GVCs innovate? They found that local firms, despite being part of GVCs, underperformed in terms of innovation in more than 50% of the cases. Those firms that were able to innovate had the absorptive capacity to leverage the knowledge they gained through the GVCs because of their firm-level and collective local learning efforts. For example, De Marchi et al. (2018) found that local firms that were rated high in terms of innovation rely considerably on internal research and development (R&D) efforts, imitation of competitors and learning from suppliers (outside the GVCs), universities and consulting firms (p. 393). Drawing from management theory, Sako and Zylberberg (2019) suggested that in GVCs with low barriers to entry, investing in developing capabilities to

upgrade firms' positions in the value chains (in which imitation is restricted) and/or investing in complementary assets (which are critical for buyers) would enable higher value capture from the upgrading process.

Similarly, Barrientos et al. (2016) identified that African suppliers of fresh fruits and vegetables follow a *strategic diversification* strategy, which enhances their bargaining with buyers and improves the prospects for social upgrading. By contrast, Ponte and Ewert (2009) noted that in the South African wine industry, some suppliers choose *strategic downgrading* to withdraw from GVCs with more stringent standards and engage with the domestic market with less stringent requirements.

From the above studies, we can conclude that the GVC literature has taken the lead firm governance perspective and recently embraced the supplier agency perspective on both economic and social upgrading. However, most of the above studies do not consider the dynamism of the external environment, particularly large-scale supply chain disruptions and crises, particularly from the viewpoint of developing country suppliers, *and how this shapes supplier strategies to respond to the external environment.*

## **2.2 GVCs at a time of crisis**

Because of their global connectivity, GVCs are generally prone to any types of crises; the financial crisis of 2008, the severe acute respiratory syndrome (SARS) outbreak in 2002 and the recent COVID-19 outbreak in 2020 are just a few examples. In fact, GVCs are among the first to bear the grunt of economic crises (Organisation for Economic Co-operation and Development, 2020). It is estimated that a production shutdown of a minimum of 100 days (which can occur every five to seven years) could wipe out one year of earnings for companies in the manufacturing industry (Lund et al., 2020). For instance, disruptions caused by COVID-19 have posed significant economic challenges for many countries (Arslan et al., 2021), including China, India, the US and the EU (UN, 2021). In turn, these challenges would have a domino effect on the global network and pose serious challenges for firms participating in GVCs (Javorcik, 2020).

In this context, the resilience of GVCs is becoming increasingly important (Golgeci et al., 2020). Researchers have identified various ways in which led firms could make GVCs resilient, such as reshoring (Pla-Barber et al., 2021), diversifying sourcing (Shih, 2020) and/or relying on social mechanisms (Golgeci and Kuivalainen, 2020). As a result, several prominent scholars have predicted that post-pandemic GVCs would become more fragmented and regional to address the tension between efficiency and resilience (Enderwick & Buckley,

2020; Gereffi, 2020; Pananond et al., 2020). This would create opportunities for firms in certain locations and pose challenges for others.

Earlier research on GVC disruptions, such as financial crises, has explained various ways in which GVCs reconfigured themselves to make them less vulnerable to the effects of these major changes. Cattaneo, Gereffi and Staritz (2010) analysed the responses of firms and industries in various sectors during the financial crisis of 2008 and found that value chains broadly remained resilient, with significant opportunities for firms with rising capabilities. Similarly, Gereffi and Frederick (2010) explained the way in which the apparel value chain was reconfigured in the context of quota elimination in 2005. This shock resulted in consolidation in the apparel value chain, which strengthened the position of certain players while at the same time disadvantaging others. However, it is notable that GVC studies on crisis response have mainly focused on lead firms and macro trends rather than the strategies of individual suppliers to maintain and improve their positions in the GVCs (e.g., Pla-Barber, Villar and Narula, 2021; Sass and Szalevitz, 2014; Cattaneo, Gereffi, & Staritz, 2010). This is in line with the earlier discussion on general trends in GVC studies, which resulted in the under-theorisation of suppliers' strategies in GVCs to maintain and improve their positions (Humphrey, 2020; Sako & Zylberberg, 2019).

Since the emergence of the global pandemic, several studies in management, international business and supply chain management have focused on the impact of this crisis on global supply chains and the responses of firms and supply chains to cope with this challenge. One interesting area of study is whether the global pandemic will change the nature of the responses and strategies of firms in GVCs. We identified two main perspectives in this regard. The first one primarily takes a lead-firm-centric perspective and argues that the pandemic will not shape the long-term strategies of lead firms. Primarily, GVCs will be shaped by governance decisions to ensure the long-term efficiency of these chains (Kano, Narula and Surdu, 2022; Ryan, Buciuni, Giblin and Andersson, 2022; Verbeke, 2020). The second perspective takes a more *interconnected* view of GVCs, considering the strategies of lead firms and suppliers in GVCs. According to this perspective, GVCs will be reconfigured in the long term, as the pandemic may lead to a better consideration of supplier agencies and capabilities, visibility in global supply chains and an understanding of resilience at different levels of analysis (Gereffi, Pananond and Pederson, 2022; Panwar, Pinkse and De Marchi, 2022; Philips, Roehrich, Kapletia and Alexander, 2022). In line with our research question, we deemed it important to take an interconnected perspective of supplier resilience, which is more in line with the second perspective discussed above.

Therefore, identifying and studying the strategies of suppliers exposed to high-level environmental disruptions are important to provide a bottom-up explanation of GVC resilience. In the context of COVID-19 disruptions, there is a greater need to identify how supplier firms respond to better understand the mechanisms for dealing with disruptions in GVCs. To address this important perspective, we borrow from the literature on organisational resilience, supply chain risk and resilience management, which is presented below.

### **2.3 Supply chain risk and organisational resilience**

The expanding importance of global supply networks has been linked to the increased interconnection between suppliers and manufacturers, which has resulted in increased supply chain dependency and complexity. As a result of the negative repercussions of supply chain interruptions, academics and practitioners have underlined the importance of studying resilience strategies against disturbances, disruptions and external shocks from within the supply chain or outside of it (Kamalahmadi and Parast, 2016; Parast, 2020). In the management literature, the concept of organisational resilience has been viewed from multiple perspectives and disciplines; this has led to different ways of theorising and conceptualising it (Kamalahmadi and Parast, 2016; Duchek, 2020). In an extensive review of the literature, Linnenluecke (2017) identified five streams of research on resilience, encompassing resilience as (1) organisational responses to external threats, (2) organisational reliability, (3) employee strengths, (4) adaptability of business models and (5) design principles that reduce supply chain vulnerabilities and disruptions. On the other hand, Iftikhar, Purvis and Giannoccaro (2021) conducted a meta-analysis and identified organisational capability, supply chain flexibility and supply chain integration as critical to the development of resilience, which, in turn, leads to better financial and non-financial performance. Using the dynamic capability perspective, Sabahi and Parast (2020) discussed the relationship between firm innovation and how a firm's investment in innovation enhances organisational resilience. Parast (2020) examined the effect of a firm's investment in R&D and showed that more innovative organisations are more resilient to supply chain disruption.

Lengnick-Hall, Beck and Lengnick-Hall (2011) and Mamouni Limnios, Mazzarol, Ghadouani and Schilizzi (2014) identified two major perspectives on organisational resilience. According to the first perspective, resilience is considered the ability to rebound from adverse conditions (Dutton et al., 2002, Rudolph and Reppenning 2002, Sutcliffe and Vogus 2003; Williams et al., 2017). This perspective is in line with earlier approaches to resilience in the physical sciences, engineering and ecological sciences. In the physical sciences and engineering, a system is resilient if it can retain its original characteristics and

constructively return to the equilibrium after an adverse event. The second perspective on resilience indicates that resilient organisations become stronger after an adverse event. This perspective considers resilience more than survival and focuses on how an organisation can thrive under adverse conditions (Mamouni Limnios, Mazzarol 2014, Somers 2009; Azadegan and Jayaram, 2018). For example, Parker and Ameen (2018) found that a firm's ability to reconfigure its resources enables it to build more resilience in the face of severe power disruptions. Similarly, Ali, Arslan, Chowdhury, Khan and Tarba (2022) used a dynamic capability perspective and found that readiness, response and recovery capabilities work jointly and sequentially to cultivate resilience.

In this study, we understand resilience as the ability to rebound from adverse conditions (Dutton et al., 2002, Rudolph and Repping 2002, Sutcliffe and Vogus 2003). Following Rice and Caniato (2003), we define *supplier resilience* as *a supplier's ability to respond to large-scale disruptions and return to normal operations*. In this way, we frame resilience as a process starting from the time suppliers are exposed to disruptions (emerging from the global pandemic crisis) to the time they go back to normal conditions. This is more in line with our primary research question and gives us more scope to identify variations in organisational responses to disruptions and organisations' return to pre-crisis performance. Framing resilience as a process is increasingly seen as a useful way to understand how firms respond to disruptions. For example, Yuan, Luo, Liu and Yu (2022) studied three stages of organisational resilience of platform-based businesses. Through the process view of resilience, they found that absorptive capacity plays a crucial role in building resilience as an adaptive strategy.

In a GVC context, the disruptions and risks faced by GVC participants in the global pandemic can be explained in the supply chain management literature. According to Kamalahmadi and Parast (2016a), supply chain risk management is concerned with assessing the sources of risks across the supply chain and developing strategies to deal with them. One of the early studies on this topic was conducted by Christopher and Peck (2004), who identified five categories of supply chain risks: process risk, control risk, demand risk, supply risk and environmental risk. This classification has been used widely in supply chain management to understand both small-scale and ongoing disruptions (political strikes or suppliers' inability to meet demand deadlines) as well as large-scale disruptions (global financial crises and political crises) (Christopher et al., 2011; Parast and Subramanian, 2020; Parast, 2020). We use this classification of supply chain risks, which fits well within the GVC

framework and can identify the sources of disruptions. From a GVC perspective, assessing the drivers of disruption risks within the GVC and developing resilience strategies are important for the organisations involved in such networks (Parast, 2020). This requires us to understand how firms participating in GVCs build resilience strategies. More specifically, this highlights the need to *examine the development of firm- and network-level resilience strategies that facilitate suppliers' responses to COVID-19*. We address this issue by focusing on the GVC for apparel manufacturing.

A useful framework for analysing resilience strategies in GVCs is the notion of *buffering and bridging strategies* (Mentzar and Nigh, 1995; Mishra et al., 2016; Manhart et al., 2020). Buffering strategies have an internal focus, whereas bridging activities are externally driven. Buffering strategies entail the development of resources to safeguard against risks that could arise from external relationships, whereas bridging is concerned with the development of *boundary spanning* activities with partners to address uncertainty (Bode et al., 2011). Buffering strategies include practices such as keeping excess inventories, engaging with redundant suppliers, implementing flexible processes (e.g., transportation) and using product designs/portfolios which are not dependent on specific suppliers (Tang, 2006). Bridging activities involve engaging in collaborations, such as alliances with partners, joint initiatives and other forms of inter-organisational networks. These collaborative activities can help organisations obtain support from partners/networks to address and bounce back from disruptions. For example, Wulandhari, Golgeci, Mishra, Sivarajah and Gupta (2022) found that social capital mechanisms help build organisational flexibility and velocity. In a review of the literature on the antecedents of supply chain resilience, Shekarian and Parast (2021) identified flexibility and collaboration as the most important factors that enhance supply chain resilience. This suggests that improving organisational resilience requires investment in both buffering and bridging practices.

In conclusion and based on the above discussion of the organisational resilience literature, most studies have focused on identifying organisational strategies/practices that improve firms' responses to external shocks/disruptions (Azadegan et al., 2020; Cankurtaran and Beverland, 2020; Ahlstrom and Wang, 2021). However, a key area that remained overlooked is the development of suppliers' resilience strategies in a GVC network that is the result of the interactions and interconnectedness among different players. In addition, despite suppliers' relevance at both the organisation and supply chain levels, there is not much understanding of supplier resilience in GVCs under large-scale disruptions in either the organisational resilience, supply chain resilience or GVC literature (Durach et al., 2020). By

addressing these issues in the present study, we provide both firm- and network-level perspectives of suppliers' organisational resilience and discuss resilience strategies that are embedded within a GVC network. As participants of GVCs, suppliers play crucial roles in ensuring the smooth delivery of products and services. Our approach is in line with the emerging literature on organisational resilience, which underscores the importance of a systemic perspective to understanding resilience (Bansal et al., 2021; Wulandhari et al., 2022).

### **3 INDUSTRY BACKGROUND**

Textile and clothing (T&C) are considered to be one of the largest industries in the world, generating \$797 billion in world exports, which account for 4.2% shares in global merchandise trade (WTO, 2020). The clothing sector is the final link in the textile value chain. USA and EU countries share the largest proportion of world clothing imports while the bulk of manufacturing is centered in Asia (WTO, 2020). The clothing manufacturing industry, being a labour-intensive industry, employs millions of workers, and is the largest source of industrial employment in many developing countries. According to World Economic Forum, it is an industry that has strong potential to help developing countries recover from the COVID-19 economic shock<sup>1</sup>. Therefore, we selected this industry for examining the value chain reconfigurations in the COVID-19 context.

The Pakistani garment industry represents the context in which we examine the impact of COVID-19 within a larger global production system. Pakistan is the fourth-largest producer of cotton in the world and depends heavily on its textile industry within which garments comprise the most value-added stage. The sector contributes nearly one-fourth of industrial value-added, 60% of the exports, and employs about 40% of the industrial labor force (SBP, 2020). It is estimated that the garment industry in Pakistan employs approximately 2.2 million workers (Huynh, 2017). The growth of this sector is very important for both employment and export earnings. Therefore, it is the backbone of the economy and remains the primary engine for economic growth in the country.

The garment industry in Pakistan consists of a handful of large firms and a few hundred medium-sized firms that have approximately two-thirds of the export share and the rest is exported by hundreds of small firms that export in smaller volumes (Frederick & Daly, 2019). Table 1 shows that 90 % of the garment exports are shared by 10% of the firms. This is because of the consolidation in the industry over the years which happened due to buyers' sourcing

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<sup>1</sup> <https://www.weforum.org/agenda/2020/08/how-the-textile-industry-can-help-countries-recover-from-covid-19/>

policies as they reduced the supplier base to work with a few large and most capable and reliable suppliers (Gereffi & Frederick, 2010). The ownership is mainly dominated by locals with only 5% of garment manufacturing firms are owned by foreigners (Frederick & Daly, 2019). Production is mainly concentrated in two provinces Punjab and Sindh. In Punjab, the country's most populous province, the cities of Lahore and Faisalabad are the main production centres with some production in Sialkot and Multan as well. In Sindh, production is concentrated in Karachi, which is the largest and main port city in the country.

In terms of market, the main markets for Pakistan's garment exports are the USA and EU which have 30% and 57% shares respectively as per export data for the financial year 2019-2020 (TDAP, 2020). Garment producers in Pakistan are major suppliers to many leading American and European brands. Over the years, the industry grew at a healthy pace and Pakistan's garment exports reached the \$ 5.3 Billion mark in 2020 (PBS, 2020). In terms of products, the woven segment is continuously increasing its share which has increased from 41.8% to 47.7% in the last 10 years, and it is expected to grow further as the denim segment is performing well. Overall, Pakistan's exports are quite concentrated in a few product categories. Three broader categories trousers, knit shirts, and sweaters/sweatshirts account for two-thirds of the garment's exports. The highest growth is in the trouser category in the last 10 years, and this makes Pakistan the sixth largest producer of woven trousers (Frederick & Daly, 2019).

[Insert Table 1 about here]

### **3.1 COVID 19 impact on the industry**

The first case of COVID 19 was reported in Pakistan on 26<sup>th</sup> February 2020. With a gradual increase in the number of cases, various provincial governments announced a lockdown on 23<sup>rd</sup> March and closed all the factories except producing essential items. As a result, economic activity in the industry halted completely. The lockdown continued till the 6<sup>th</sup> of May in the country. However, in mid-April, the Government allowed export-oriented industries to resume operations after following strict safety procedures<sup>2</sup>. During this period, manufacturers faced order cancellations or shipments put on hold by the buyers as Pakistan's export destinations were under lockdown. There were reports of workers' protests terminations and non-payment of wages and benefits<sup>3</sup>. There were reports of wildcat strikes and violence as well which was

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<sup>2</sup> <https://gulfnews.com/world/asia/pakistan/pakistan-reopens-factories-during-covid-19-lockdown-as-exports-drop-1.70941852>

<sup>3</sup> Clean Cloth Campaign: <https://cleanclothes.org/news/2020/may-2020-covid19-blog>



unprecedented<sup>4</sup>. There were cases of retaliation from factory management and some cases were registered against protesting workers in addition to the firing of workers<sup>5</sup>.

However, from June 2020 onwards order situation started improving, and from August onwards most of the firms became fully operational. Pakistan had the fastest export recovery in South Asia<sup>6</sup>. According to UN Comtrade statistics, Pakistan's apparel exports fell by just 2.4% in 2020 as compared to 2019 while regional competitors like India, China, and Bangladesh faced a decline of 24.7%, 9.8%, and 17%<sup>7</sup> respectively. Moreover, there is a consistent increase in Pakistan's apparel export in recent months and the industry experienced a growth of 12.9% between September 2020 to March 2021. This makes it an interesting case to study supplier's resilience in the context of global value chains.

## **4 METHODOLOGY**

### **4.1 Research Methods**

To address our research question, we employed a qualitative research methodology (Denzin & Lincoln, 2011; Strauss & Corbin, 1998). This approach is relevant for explanatory research like this one, where an extensive and "in-depth" description of a phenomenon is required. We are interested in understanding what made suppliers resilient in the apparel global value chain amid the global pandemic crisis, how they negotiated the crisis specifically what strategies they used to meet the challenges. A qualitative approach was more appropriate to answer these questions as it provided contextualized descriptions of supplier resilience in global value chains.

### **4.2 Sampling and Data Collection**

We adopted a data collection approach that allowed us to develop an understanding of supplier resilience. We used multiple data sources, as it ensures the validity and reliability of the data (Denzin & Lincoln, 2011; Lincoln & Guba, 1985).

A useful starting point suggested by GVC researchers is to conduct desk research and read the available secondary material about the industry of interest which enables researchers to develop a schematic representation of value chain structure, and identify key players and issues involved in the structuring of the value chain. (Kaplinsky & Morris, 2001). We followed this advice and started our data collection with secondary sources. We collected published documents from various sources such as World Bank (WB), World Trade Organization (WTO), United Nations Development Programme (UNDP), United Nations Conference on

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<sup>4</sup> Clean Cloth Campaign: <https://cleanclothes.org/news/2020/july-2020-covid19-blog>

<sup>5</sup> Clean Cloth Campaign: <https://cleanclothes.org/news/2020/august-2020-covid19-blog>

<sup>6</sup> <https://www.bloomberg.com/news/articles/2020-10-29/opening-early-helped-pakistan-boost-exports-during-pandemic>

<sup>7</sup> <https://www.mckinsey.com/industries/retail/our-insights/whats-next-for-bangladeshs-garment-industry-after-a-decade-of-growth>

Trade and Development (UNCTAD), McKinsey & Company, Boston Consulting Group (BCG), International Labor Organization (ILO), Clean Clothes Campaign, news reports from national and international newspapers, documentaries and TV coverage, and publications from various departments of Government of Pakistan and industry associations on issues facing apparel value chain amid COVID-19 crisis. These reports allowed developing an overall understanding of global apparel value chain, its governance mechanism, actors involved and points of disruption. The information gathered helped to develop an appropriate interview protocol for semi-structured interviews which was the principal mode of primary data collection (Gephart, 2013; Gioia et al., 2013).

For interviews, we followed the theoretical sampling technique: selected the informants who were most relevant to and most appropriate for answering the questions posed in this research (Glaser & Strauss, 1967; Strauss & Corbin, 1998). These were the informants that could provide rich and insightful information about challenges faced during the global pandemic crisis and how they were able to cope with those challenges. Our sample *included apparel manufacturers and intermediaries/sourcing agents*. We also included leading intermediaries (called buying houses or sourcing agents) in our sample as these are very important players in the governance of apparel GVC in developing countries like Pakistan which face an adverse political environment. In the case of Pakistan's apparel industry, more than 50% of apparel suppliers supply to apparel GVC work through sourcing agents (Hussain et al, 2013). The inclusion of sourcing firms also increased the breadth of our sample as they source for multiple brands from many suppliers. In this way, we were able to capture the crisis experiences of a greater number of suppliers who worked through these intermediaries.

The apparel manufacturers were selected based on the following sampling strategy. A) We selected suppliers who were able to resume their operations quickly and got approval from the labour department to re-open their factories during the lockdown. This information was collected from the labour department. B) Based on a specific industry structure, we ensured the inclusion of suppliers from each category mentioned in Table 1. For example, we selected four suppliers who were among the top 50 apparel exporters where two of them had more than 100 Million USD exports, and rest had exports between 10 and 100 Million USD. C) we selected suppliers who were well established in their own categories and had substantial experience working with global buyers (all selected suppliers had at least a decade-long sustained experience). In total, we selected six suppliers.

For intermediaries, we selected five intermediaries or sourcing firms. Three of them were selected as they were among the leading intermediaries which due to their significance

were made part of the Pakistan Buyers' Forum, an initiative of ILO, IFC, the government of the Netherlands and the government of Pakistan to develop a larger sustainable supplier pool. The other two intermediaries were selected as they were working with smaller suppliers. Overall, these intermediaries were currently working with 125 manufacturing firms in different categories.

Following the above sampling strategy, we conducted 12 semi-structured interviews with respondents from senior management positions of manufacturing firms and sourcing firms. These were General Managers, Directors, and CEOs. Table 2 provides details of the sampled firms, the respondents, and the duration of the interview. These interviews yielded insights into the 'lived experience' of the supplier firms of the COVID-19 crisis including what challenges they faced, how they made sense of what was going, and their actions/strategies. We stopped interviewing when theoretical saturation was achieved and further interviewing was not adding any new insights (Glaser & Strauss, 1967; Strauss & Corbin, 1998). The selection of firms and respondents and gaining access to them was facilitated as one of the authors had considerable experience of working with the industry in various capacities such as researcher, consultant and/or trainer. This also enabled creating rapport during the interviews so that participants can share their views openly.

[Insert Table 2 here]

### **4.3 Data Analysis**

We conducted and structured our data analysis by taking insights from Gioia and colleagues (2013), which builds on open-ended inductive theory building (Glaser & Strauss, 1967; Strauss & Corbin, 1998). Our analysis was iterative starting from insights from the empirical data and then back and forth interaction between data and theory.

During the first step of the analysis, we initiated our analysis based on the keywords of our interview guidelines ranging from "buyer and suppliers' engagement before the crisis" "buyers and suppliers' engagement after the crisis", "the disruptions suppliers face during the crisis and supplier response". Since our data analysis process was iterative, we used the NVivo software to jump between data and coding. We coded and recorded many times to ensure that we have reached the correct understanding of the data (Al-Tabbaa et al., 2020; Suddaby, 2006).

Several first-order codes emerged during this analysis including the different approaches of buyers to govern their suppliers, the monitoring mechanisms – audits, frequent reports, standards and the learning processes related to product, process and innovation. We also noted coding related to suppliers' strategies before and during the crisis and their response to disruptions, including lockdown, temporary shutdowns, order cancellations, and order

holdings. In terms of the supplier's response, we identify several first-order categories including suppliers' financial position, their ability to retain their workers during the crisis and then engage in business continuity.

During the second phase of the analysis, we compared different first-order categories with different theoretical themes ranging from product, process and functional upgrading to different governance mechanisms. At this stage, we started using the "classification" function and "matrix coding" functions of NVivo software to categorize second-order themes that were then compared back to our first-order categories using the axial coding method (Strauss & Corbin, 1998).

In our third stage, we aggregated the overarching dimensions and compared them to the second-order themes and first-order categories. During the third stage of our analysis, we used the "matrix coding query function", "relationship functions" to identify connections between the underlying dimensions including the link between governance, and upgrading the link between upgrading and resilience, and the link between governance and resilience.

We came up with eight overarching dimensions. Appendices 1 and 2 illustrate the data structure that has been an outcome of our data analysis process. This analysis led to the identification of different types of suppliers based on their governance linkages and upgrading strategies. The distinctive nature of suppliers became the starting point for us to understand the impact of the global pandemic crisis on suppliers and their different paths to resilience. These findings are further unpacked in the following section.

## **5 FINDINGS**

In this study, we investigate *how Pakistani suppliers in the apparel GVC responded to large-scale disruptions under the COVID-19 crisis*. As informed by the analysis, we start reporting our findings by showing that the Pakistani suppliers in our study behaved differently and then discuss how this variation was largely attributed to their adopted mode of GVC governance and supplier upgrading. Next, we explain how different types of suppliers adopted different paths to resilience against environmental and demand-side disruptions. Finally, we establish how the resilience path adopted by each type of supplier is underpinned by supplier upgrading and GVC governance, leading to different outcomes.

### **5.1 Types of apparel suppliers**

In our cases, we identified three main types of suppliers based on their GVC linkages and upgrading strategies. These include 1) socio-sustainable, 2) adaptive and 3) oblivious

suppliers (see Table 3 for further definitions and their characteristics). Our analysis shows that socio-sustainable suppliers seek to balance the needs of their GVC buyers (i.e., the lead firms) and their workers. As such, they participate in captive GVCs by establishing and maintaining strong linkages with their GVC buyers. This is reflected in their strategies to invest in product and process upgrading (i.e., one form of economic upgrading). At the same time, socio-sustainable suppliers take responsibility for their workers' needs and ensure that there is an alignment between workers' interests and companies' long-term success. Therefore, they actively focus on improving working conditions and providing active support to their workers (i.e., social upgrading). Their strategy to position themselves as socially responsible suppliers that can meet the production, quality, sustainability and lead time requirements because of investments in product and process upgrading has enabled them to develop strong linkages with GVC buyers by gaining the status of preferred suppliers (Sako and Zylberberg, 2019).

Adaptive suppliers, on the other hand, seek to adapt to changing market conditions by working with a wider scope of buyers, mainly through local intermediaries or by importing buyers in modular GVCs. Autonomy in modular GVCs allows adaptive suppliers to grow independently from existing GVCs and leverage GVC linkages for company growth. This is reflected in their investments in functional upgrading (i.e., one form of economic upgrading), which allows them to expand beyond their existing roles in GVCs. However, contrary to socio-sustainable suppliers, adaptive suppliers lack investments in the social upgrading side. Therefore, they prefer to work with GVC buyers that have less stringent requirements regarding sustainability standards (Pickles et al., 2006). Lastly, oblivious suppliers lack a clear focus regarding their orientation towards clients; they oscillate between sustaining existing linkages and adapting to new market conditions. Furthermore, these suppliers mostly react to situations rather than be guided by a clear strategic intention that directs their behaviour. Despite the autonomy given in modular GVCs (as explained in the next section), oblivious suppliers resist engaging in any type of upgrading (economic or social) and instead react to buyers' requirements through compliance with quality standards.

In the following sub-section, we further unpack the discrepancy across these types using two factors: *a) dominant forms of governance linkages in the GVC* and *b) upgrading strategies*. Table 3 defines each of these factors and provides supporting evidence. These two factors have forged the development of distinctive paths to resilience during the crisis for each type of supplier.

[Table 3 here]

### 5.1.1 Dominant forms of governance linkages in GVCs

As mentioned earlier, we found that socio-sustainable suppliers are primarily linked to captive GVCs, whereas adaptive and oblivious suppliers follow the modular mode.

By analysing the governance of the Pakistani apparel industry, we observed that captive GVCs are represented by lead firms' a) strong control over the implementation of standards, b) strong emphasis on sustainability standards and c) strong support given to suppliers in building capacity to meet sustainability standards (e.g., OEKOTEX, GOTS, the Higg Index, BSCI and SA 8000). Captive GVCs are led by large retail brands (e.g., H&M, Gap and Primark) that control and coordinate value chain activities. Lead firms have high involvement in both coordination and implementation of standards, including quality standards, and have put in place various monitoring mechanisms, including third-party audits, self-audits and frequent reporting from suppliers on the implementation of standards. Our analysis also indicates that captive GVCs are quite strict about the implementation of sustainability standards, including working conditions, working hours, compensation and basic labour rights. One respondent commented as follows:

*When it comes to client ABC, their core focus is sustainability. In terms of sustainability, they have very detailed SOPs and system management, and they have very frequent audits. They are helping us to comply with established sustainability standards. (Firm 1)*

Lead firms support socio-sustainable suppliers through education, training and development, and sustainability audits. A general manager commented as follows:

*Our buyers have introduced different educational programmes, which include investments for staff/employees to take part in such programmes. They're very supportive; in fact, they go out of their way to help us. (Firm 4)*

Modular GVCs (which were adopted by adaptive and oblivious suppliers) include lead firms that a) provide quality standards and b) give strong autonomy to suppliers in the implementation of such standards. Modular GVCs are led by importers who relate to a large variety of buyers. They are generally not visible actors in the apparel GVC, and they 'stay under the radar' and create opacity in the value chain (Serdijn, Kolk, and Fransen, 2021: 623).

Modular GVCs focus only on the provision of standards, not the implementation of such standards. Therefore, both adaptive and oblivious suppliers have higher autonomy in how they implement GVC requirements, and the level of sustainability involved in the process.

*We're only responsible for quality management in our own factories, as well as quality management of our suppliers. (Firm 11)*

### **5.1.2 Upgrading**

Another factor that contributes to the discrepancy across the three types of suppliers is the upgrading adopted in GVCs. Specifically, we observed differences in how the suppliers decide on the extent to which they adopt product upgrading (improvements in product design and/or quality), process upgrading (improvements in production efficiency), functional upgrading (shifts to or addition of high value-added roles in GVCs) and social upgrading (improvements in working conditions and support).

Socio-sustainable suppliers actively invest in product and process upgrading as part of their economic upgrading. For example, one large denim supplier has worked with experts to incorporate Industry 4.0-related tools into their production processes. They have developed automation and robotics capabilities to improve the efficiency and effectiveness of these processes. Their senior executive, who led this initiative, said the following:

*Developing automation capabilities was our own strategic implementation. Anyone can produce garments, but we're talking about bulk garments that consistently meet quality standards. This is where we're focusing. (Firm 1)*

Socio-sustainable suppliers' agency to invest in product and process upgrading is underpinned by their external governance linkages (captive governance) and demonstrates their intention to create strong, long-term relations with their GVC buyers (as explained in sub-sections 5.1. and 5.1.1). Product and process upgrading allows them to consistently meet their GVC demands and to build strong and trustworthy relations with the lead firms. The analysis also showed that socio-sustainable suppliers are active in investing in social upgrading. Their inclination towards social upgrading demonstrates that they proactively look after their workers' needs and take active responsibility for the latter's interests. For example, one of the socio-sustainable suppliers mentioned the following:

*During Ramadan, we have additional funds for our workers' needs beyond their regular salary. We have funds for hospital expenses, dispensaries and education funds. (Firm 3)*

Socio-sustainable suppliers' social upgrading is also underpinned by the demands of captive GVCs, which made it compulsory to meet minimum sustainability standards and which supported socio-sustainable suppliers in this process. One respondent explained as follows:

*Working conditions, labour treatment, labour handling and overtime pay in compliance with international laws are important for our buyers. I think that if you take that part out, the path to growth in this industry will be very slow. (Firm 5)*

One socio-sustainable supplier explained their decision to formalise their social responsibility department to comply with buyers' demands:

*We have formalised our social responsibility department since 2014. This was a critical point for us. We introduced hospital insurance, educated our workers through formal education and developed proper worker rights systems. (Firm 4)*

Adaptive suppliers have concentrated on functional upgrading. This demonstrates their inclination towards widening the scope of GVC buyers. Modular GVCs allow adaptive suppliers the autonomy to invest beyond the existing set of activities to acquire skills in R&D, design and marketing. One supplier commented on shifting to high-value-added activities. They have developed internal practices, including R&D, and have increased the scope of their design activities as original design manufacturers.

*We're expanding our capabilities from being mere replicators to serving as original solution providers. Many times, we develop our own products or our own product ranges and then share these with customers; sometimes, our customers can select from such product ranges (Firm 9).*

*We have innovated, and now we provide full service (from design to production) to our large high-volume buyers (Firm 7).*

Finally, oblivious suppliers mainly react to modular GVC buyers' requirements and invest in compliance with quality standards. Although this leads to short-term successful completion and the delivery of buyer orders, oblivious suppliers do not invest in economic upgrading activities (product, process or functional upgrading).



*Our buyers guide us on the specified amount and quality of raw materials. Our goal is to use these requirements and meet our buyers' demands. (Firm 11)*

Although both adaptive and oblivious suppliers are linked to modular GVCs, the differences in their upgrading strategies demonstrate that while adaptive suppliers actively use the autonomy given in the GVC for functional upgrading, oblivious suppliers lack a clear strategy and mainly react to the ongoing situation.

Next, we detail the resilience process of the three types of suppliers in terms of robustness and responsiveness as well as resilience outcomes.

## **5.2 Divergent paths to resilience for distinctive types of suppliers during the crisis**

In this section, we show the divergent paths to resilience for socio-sustainable, adaptive and rigid suppliers and explain how suppliers' upgrading strategies and GVC governance mode shape these paths.

### **5.2.1 Resilience processes and strategies**

From our empirical analysis, we identified two *temporal* phases of the resilience process during the crisis (robustness and responsiveness) and three resilience strategies (buffering, bridging and floating) (see Table 4).

[Insert Table 4 about here]

Following the COVID-19 crisis, many countries, including Pakistan, went into full lockdown. As a result, all Pakistani apparel factories closed in March 2020. This was the same for all supply logistics and delivery of goods activities. As these disruptions were beyond the control of the supply chain participants, we regarded them as **environmental disruptions**. We termed the initial phase of withstanding the immediate challenge of environment disruption (factory closures, national lockdown and logistics halt) as **robustness**. One supplier explained the impact of the disruption as follows:

*During the lockdown, everything was closed, including our factories. We thought that our company would go bankrupt and shut down. It was the toughest period since we started this company. (Firm 3)*

Another respondent expressed the following:

*As a result of the COVID-19 crisis, the same as everyone else who faced issues, we also had to deal with many problems. During the first three months of the lockdown,*

*there was no work available, and we had no idea what to do without workers. (Firm 3)*

In June 2020, lockdown measures were partially reduced for manufacturing businesses, allowing apparel suppliers to operate in a limited capacity. However, during this time, these suppliers mainly faced **demand-side disruptions**. As the pandemic hit Western countries, the demand from apparel and clothing retail outlets severely dropped<sup>8</sup>. One senior manager of an intermediary responded as follows:

*Countless brands and retailers of all shapes and sizes went bankrupt. Because of the pandemic, they never came back. (Firm 5)*

When Pakistani suppliers re-opened their factories, Western buyers' operations were still on hold because of lockdowns. Accordingly, many of these buyers were unable to place new orders, whereas others cancelled existing ones. At the same time, some buyers continued with their orders but could not fulfil their scheduled financial obligations (to suppliers) because of the closure of the retail sector in Western countries (see Table 3). We term this phase of responding to demand-side disruptions as **responsiveness**.

During each of the resilience phases, the three suppliers have adopted different resilience strategies, namely, **buffering, bridging and floating**, which have facilitated their ability to absorb shocks and bounce back from disruptions. Socio-sustainable suppliers have adopted a bridging strategy, retaining and strengthening their connections with workers and GVC lead firms during the crisis (adaptive suppliers have implemented a buffering strategy that focuses on internal capabilities and resources to identify alternative markets beyond existing GVCs (Mentzar and Nigh, 1995; Bode et al., 2011; Mishra et al., 2016; Manhart et al., 2020). However, oblivious suppliers have mainly followed a floating strategy (focused on keeping the business afloat, ensuring that the companies do not close because of lockdowns and reductions in buyer demands) (Miles and Snow, 1978). Next, we explain and unpack the adoption of these strategies.

### **5.2.2 Resilience strategies during the robustness phase**

The process through which suppliers have withstood the impact of environmental disruption (lockdowns, factory closures and logistics halt) during the initial stage of the COVID-19 crisis is covered in the robustness phase. Interestingly, we found that suppliers' resilience

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<sup>8</sup> <https://unctad.org/news/textile-and-garment-supply-chains-times-covid-19-challenges-developing-countries>

strategies (buffering, bridging and floating) during the robustness phase are underpinned by their upgrading strategies before the crisis. In other words, the differences in the upgrading strategies adopted by the suppliers before the crisis have shaped their abilities to demonstrate robustness during the initial part of the crisis.

In this phase, socio-sustainable suppliers have implemented a *bridging* strategy that focuses on retaining and strengthening their connections with existing workers. Although the traditional literature on bridging capabilities focuses only on inter-organisational relationships, connectivity with workers might not fit with that notion. However, the GVC literature considers workers as active agents with their own choices and agendas rather than passive internal resources (Alford, 2017). In line with this thinking, we argue that socio-sustainable suppliers' practices to strengthen relationships with workers should constitute bridging capabilities. Socio-sustainable suppliers use their financial power to retain their workers and provide them full-time salaries. One general manager commented as follows:

*We gave our employees their salary even during the lockdown. We delayed the increment for a few months, but eventually, we gave them the increment as well. (Firm 1)*

This is necessary to demonstrate a high level of responsibility toward workers—the company's commitment to sustaining positive relationships with their employees. For example, many of the suppliers of this type actively check upon their workers, provide groceries for them and even give bonuses even when they are not coming to work. One supplier explained this as follows:

*We gave our workers bonuses during the month of Ramadan. Thank God that we were also able to give them bonuses during this year while the crisis continued. We provided additional increments. (Firm 2)*

The capacity to support their staff is fundamentally attributed to the strong financial positions of socio-sustainable suppliers, which have invested in product and process upgrading, enabling them to become strong partners of their GVC lead firms. This, in turn, has helped them develop their financial positions. One executive said the following:

*We've learned many things about product quality from our buyers, which we've implemented. In the last one to two years, we've done a lot of things that we were doubtful of because we lacked capabilities in those areas, but we gradually developed those areas successfully, and we increased our production capacity and*

*product quality during that time. This resulted in our company's strong financial performance. (Firm 4)*

In addition, the social upgrading culture of socio-sustainable suppliers has led them to engage with the Pakistani government, as they realised that the longer the factories remained closed, the lesser was their capacity to look after their workers. A respondent commented as follows:

*During COVID-19, our factories shut down. Our workers were sitting at home. We used to deliver groceries and other necessary items to workers' homes, as we knew that they'll play crucial roles when the demand returns. Our workers helped us and returned happily when we re-opened the factories. (Firm 5)*

By contrast, adaptive suppliers' *buffering strategy* is focused on utilising financial resources to bear the losses of environmental disruption. In other words, adaptive suppliers have used their financial stability to compensate for losses incurred during the financial crisis. A general manager commented as follows:

*Our factories are financially stable. If we don't get payment or our orders get cancelled for a few months, we won't be hand to mouth. We're still able to pay our workers. (Firm 7)*

Adaptive suppliers' investment in functional upgrading has enabled them to capture higher gains from GVC participation, which has, in turn, facilitated financial stability. This was explained by one respondent:

*Many times, we develop our own products or our own product ranges and then share these with customers; sometimes, customers can select from these product ranges. This resulted in getting projects with a wider scope and thus earning higher profit from global buyers. (Firm 8)*

Finally, oblivious suppliers have mainly adopted the *floating strategy* because they are financially less stable. In essence, they have relied on downsizing, in which workers are laid off for business survival or the company engages in a significant reduction in production capacity to save costs. Oblivious suppliers have not been able to keep all their employees while the factories are closed, so they have made the difficult decision of laying off thousands of factory workers to survive. One senior manager commented on the issue as follows:

*During the lockdown, we tried our best not to lay off any employees. However, we eventually had to do so to ensure business continuity. (Firm 11)*

As oblivious suppliers have invested only in short-term compliance with quality and standards, they have been able to increase only short-term benefits from GVC participation. However, their long-term financial stability is not as strong as that of the two other types of suppliers. As a result, the only way they have been able to survive through the factory closures is by downsizing.

### **5.2.3 Resilience strategies during the responsiveness phase**

As explained earlier, we labelled the second phase of the resilience process as responsiveness, in which suppliers responded differently to demand-side disruptions based on their GVC governance linkages. Socio-sustainable suppliers participate in captive GVCs, in which lead firms strongly enforce sustainability practices. As a result of lead firms' strong focus on sustainability in captive GVCs, they show cooperative behaviour towards their suppliers, particularly during the crisis period. Therefore, socio-sustainable suppliers have not encountered order cancellations but order and payment delays, as explained below by one respondent:

*Our buyers were very cooperative with us. We did everything with mutual understanding. Some buyers paid us after 60 days and some after 90 days, but all payments came through. None of them were delayed. (Firm 3)*

Adaptive and oblivious suppliers, on the other hand, participate in modular GVCs, in which the emphasis on sustainability is comparatively low. As a result, the struggling lead firms have been more concerned about their own financial positions rather than the well-being of their stakeholders, including suppliers and their workers in Pakistan. Therefore, the lead firms of modular GVCs have cancelled existing orders or, in some cases, delayed the production of orders with adaptive and/or oblivious suppliers. These suppliers have also struggled to get new orders, and several their buyers have engaged in order delays and payment delays. Differences in demand-side disruptions, along with distinctive GVC linkages and upgrading strategies, have led to different resilience strategies in this phase. Suppliers explained their plight as follows:

*The situation was so uncertain, and the buyers with whom we were working stopped everything from their side. Seventy percent of our business was affected. Customers decided on the payment terms. All orders were cancelled. (Firm 10)*

*The demand side was disturbed, no new orders were coming, and no new inquiries were coming.*

Socio-sustainable suppliers' *bridging strategy* is reflected in their full commitment to collaboration practices and to strengthening their relations with GVC buyers during the crisis. This is evident in the following. First, they have agreed on a gradual payment plan from their buyers so that production costs remain manageable. They have absorbed the impact of payment delays and shipment holding from buyers' side and have been able to help their buyers in these tough circumstances. A CEO of one of the leading buying firms described the situation as follows:

*Our suppliers did not complain to buyers, as was the case in other countries. For example, in Bangladesh, there were loud voices against order cancellations, shipment delays, payment delays and so on, which buyers didn't like. In our case, the kinds of relationships they had enabled them to realise that buyers were also in trouble and that we needed to be patient for the long haul. If we were on Titanic and it was sinking, there was no point in putting the blame on anyone.... (Firm 4)*

Second, they have shifted to local sourcing partners instead of international partners. This way, supply-side disruptions have been minimised. Finally, they have gradually increased the capacity of their workers. They have followed SOPs, brought back a small number of factory workers to continue with buyer orders and continued to support their other workers at home. The two latter practices have enabled socio-sustainable suppliers to ensure product delivery on time and thus maintain strong linkages with captive GVCs.

Between July 2020 and September 2020, socio-sustainable suppliers completed their existing orders with major buyers and received full payment. By September 2021, some socio-sustainable suppliers were working at full capacity, others at around 80%–90% capacity. One supplier said the following:

*We had to cut our customers some slack. You know, both buyers and suppliers sort of reached an agreement with mutual respect, understanding and partnership. (Firm 2)*

Our data analysis showed that adaptive suppliers have opted for a *buffering strategy* via diversification, in which the focus is on developing internal capacity to safeguard from demand-side disruptions. The most significant change during the crisis was an increase in the

demand for home textile products and home clothing, such as loungewear and casual wear<sup>9</sup>. There was also a huge demand for personal protective equipment (PPE), such as face masks, patient wear and medical gowns. Adaptive suppliers have invested in home clothing apparel and PPE production to compensate for their losses and to engage in continued production, as explained by one respondent:

*We've shifted our attention to hospital items. We've increased our sales from gowns and home textile products. (Firm 9)*

When the lead firms of modular GVCs cancelled orders during the crisis, adaptive suppliers saw this as an opportunity to fully commit to diversification practices to respond to demand-side disruptions, move to new product lines and expand beyond existing GVC buyers. Adaptive suppliers have been able to move successfully to new product lines, including casual clothing and PPEs. This shift has been made possible because of their upgrading strategy to invest in functional upgrading. There are distinctive capabilities and competencies in design and R&D capabilities that have further enabled them to successfully diversify to new product lines.

Oblivious suppliers have opted for a *floating strategy* and only partially committed to moving to home textiles, PPE or other casual clothing. These practices have helped them get by when most of their buyers have cancelled orders. As they lack the financial capacity to fully commit to new markets and products, unlike adaptive suppliers, oblivious suppliers have borne the losses from order cancellations.

#### **5.2.4 Resilience outcomes**

In September 2020, the lockdowns in major apparel-buying countries, including the US, European countries and the UK, were lifted. As a result, there was a significant spike in the demand for apparel products. Our analysis identified two outcomes indicating that suppliers have partially or fully recovered from disruptions brought about by the COVID-19 crisis. These were the return of demand, including the demand for new orders, the continuation of existing orders that were postponed and opportunities to connect with new buyers in the apparel industry, and financial recovery, which indicated suppliers' abilities to achieve pre-COVID-19 production capacity, or improvements in their overall financial performance. We saw in some ways that suppliers recovered and were able to bounce back to pre-COVID

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<sup>9</sup> <https://fashionunited.uk/news/fashion/uk-demand-for-loungewear-and-casualwear-surges-49-percent-amid-lockdown/2020051448927>

conditions. In other ways, they found new opportunities to tap into, and they came out even stronger than before.

Socio-sustainable suppliers that followed the implementation of an effective bridging strategy received many orders from both existing and new customers, enabling them to return to their pre-crisis condition by November/December 2020. Their relationships with buyers were strengthened, as mentioned by one respondent:

*We've received so much work for Pakistan. I've never witnessed this level of demand since I started working in the industry between 1997 and 2020. In the last 23 years, I've never seen the market demand return so swiftly, especially for Pakistan. (Firm 3)*

During the lockdown, adaptive suppliers' orders were either cancelled or delayed. As the demand for apparel products returned, existing buyers reached out to them to renew their previous orders. One supplier narrated the following:

*When the demand returned in August, our orders were reinstated. Step by step, customers requested to renew their orders and start production. In the meantime, things were gradually opening on the demand side as well. (Firm 2)*

Furthermore, they were able to connect with new buyers and enter new product lines, including home textiles and clothing. The buffering strategy of adaptive suppliers to withstand and diversify during the crisis seemed to work during the crisis.

Together, these showed that socio-sustainable and adaptive suppliers not only recovered from the losses they incurred during the lockdown but were also able to renew and reconfigure their strategies and make their crisis experience more beneficial for their overall success. This was particularly the case for socio-sustainable suppliers that, along with securing their financial positions, were able to improve the conditions of their workers, increase their salary and provide them with additional bonuses.

Oblivious suppliers gradually started recovering their losses. Up until the time of the lockdown, these suppliers were just bearing their financial losses by laying off employees and doing small-scale, small-margin work for a variety of buyers. Once the demand for apparel production returned in September 2020, they were able to employ more workers, retain their key workers and establish some new relationships in the apparel industry. They are now slowly diversifying towards tapping the GVCs of online retail brands, such as Amazon.



In summary, all suppliers were able to demonstrate resilience at different levels. Socio-sustainable suppliers were the most resilient ones because they did not face a significant level of loss throughout the period. In fact, they were able to improve their profit and financial positions by the time of their recovery. This was due to their robustness and strong response strategies. Adaptive suppliers also showed strong resilience. Initially, they struggled because of the cancellation of orders from their existing buyers, and they experienced difficulties during the period when they were investing in diversification and new capabilities; once they were able to tap into new product lines, they were able to recover from their losses. This recovery process was accelerated once the demand for apparel production returned. Finally, oblivious suppliers moved slowly towards reserved recovery. Given the return of demand in apparel production, they were in the process of redeveloping their supplier and buyer relationships and moving towards the minimisation of their losses and the achievement of the break-even point.

## **6 DISCUSSION AND CONTRIBUTIONS**

The overarching aim of this study was to understand how developing country suppliers involved in GVCs responded to large-scale disruptions following the COVID-19 crisis. To this end, we used a qualitative research methodology and investigated how Pakistani apparel manufacturers, which were part of the apparel GVC, navigated through the COVID-19 crisis. From the analysis, we identified three types of suppliers: socio-sustainable, adaptive and oblivious. We observed that these suppliers absorbed shocks and bounced back from environmental and demand-side disruptions differently because of variations in their GVC governance modes and upgrading practices.

Socio-sustainable suppliers adopted a bridging resilience strategy. During the robustness phase, socio-sustainable suppliers strengthened their relationships with workers by looking after their economic and well-being needs during the factory closures. In the responsiveness phase, the bridging strategy was unpacked through strong collaborative behaviour with Western buyers. The resilience strategy of socio-sustainable suppliers was largely underpinned by their upgrading and GVC governance modes. They invested in product and process upgrading, which resulted in their strong financial positions, and they developed a culture of social upgrading within their workforces. These conditions enabled socio-sustainable suppliers to adopt a bridging resilience strategy during the robustness phase. This strategy enabled them to withstand the drastic impacts of factory closures and remain engaged with their workers. Furthermore, because of their captive governance mode,

they were able to obtain the cooperation of lead firms in responding to demand-side disruptions; eventually, they were able to recover their pre-crisis statuses. Our findings are in line with Sako and Zylberberg's (2019) theoretical framework of supplier strategy, which suggests that one important element of supplier strategy is the decision about one's positioning in the value chain. In this case, socio-sustainable suppliers' positioning as socially responsible suppliers enabled them to develop long-term collaborative relationships with buyers and become 'preferred suppliers' (Gereffi and Frederick, 2010, p. 20). Adaptive suppliers initially struggled during the peak of the crisis (at the robustness phase) because many of their major buyers started disconnecting from the relationship, cancelled new orders or requested to put existing orders on hold. During the robustness phase, adopting a buffering strategy, which leveraged financial resources that were built using functional upgrading, was critical in protecting the suppliers from environmental disruptions and maintaining their survival. Furthermore, the connection with the modular GVC mode was key to facilitating engagement in functional upgrading (i.e., because of increased autonomy). Later, in the response phase, the suppliers were able to bounce back using a buffering strategy that drew on strong internal/innovative capabilities (developed by functional upgrading) and autonomy (because of the modular GVC governance mode) to diversify into new product segments and product lines, including face masks and home clothing. These findings complement Barrientos et al.'s (2016) assertion that suppliers' decisions to diversify their buyer portfolios provide them greater leverage, and if they invest in upgrading, it will increase their profit potential (Sako and Zylberberg, 2019). Adaptive suppliers' resilience supports the view of Do, Budwar, Shipton, Nguyen and Nguyen (2022), who considered resilience as complementary to building an innovative organisation. The case of oblivious suppliers also supports this argument. Oblivious suppliers managed the robustness phase by adopting a floating strategy (i.e., downsizing the business, for example, by laying off thousands of workers) to reduce running costs and remain viable. This was mainly due to their weak financial positions and lack of economic upgrading, in which they just complied with quality standards, which led to short-term benefits but lacked financial strength. In the response phase, the floating strategy was adopted to withstand the losses until the demand returned, and oblivious suppliers temporarily derived marginal income from other sources, including home textile manufacturing.

Based on our findings, this study offers several theoretical contributions. First, the emerging literature on supplier agency in GVCs indicates that supplier strategy plays an

important role in explaining value creation and appropriation in GVCs (Sako and Zylberberg, 2019; De Marchi et al., 2018; Choksy et al., 2018). However, we still lack studies that explain the nature and behaviour of supplier agencies when exposed to large-scale environmental disruptions. That is, while previous studies have mostly investigated the link between governance and upgrading (Alford, 2017), there is rarely any study that examines the interplay between governance and suppliers' responses during a crisis. This is important because crises and disruptions require greater adjustments in governance and coordination mechanisms (Pla-Barber et al., 2021). By integrating insights from the GVC and resilience literature, our study extends the interconnected nature and diversity of supplier agencies (Choksy et al., 2018; Sinkovics et al., 2019). Specifically, we unpacked the complex nature of supplier agencies and resilience under a large-scale disruption—a global pandemic crisis. The complexity relates to distinctive types of suppliers whose agencies are embedded in their GVC governance structures and that have adopted upgrading patterns before the crisis. This discrepancy explains how suppliers have navigated through environmental and demand-side disruptions during the crisis using different forms of resilience strategies. While these findings support the extant literature (e.g., Choksy, 2015; Gereffi et al., 2005; Gibbon, 2005; Ponte et al., 2014; Sinkovics et al., 2019), our results go beyond this simple governance–upgrading dichotomy and identify the underpinning contextual dynamics (i.e., considering the robustness and response phases) and actor-centric strategies that shape supplier resilience under the COVID-19 crisis. Therefore, our unique contribution lies in the interlinkages between GVC governance dynamics and supplier upgrading and resilience strategies.

Second, previous literature on GVCs remains rather inconsistent (and emerging) regarding the usefulness of the upgrading concept (Morrison et al., 2008; Ndubuisi and Owusu, 2021). For example, earlier studies have argued that the concept of upgrading captures the benefits that suppliers obtain from participation in GVCs (Gereffi, 1999; Schmitz, 2004). Later studies argue that upgrading does not necessarily lead to suppliers' better performance in GVCs (Choksy et al., 2018; Tokatli, 2013) and that the potential gains can depend on the statuses of suppliers in GVCs (Sinkovics et al., 2019) and supplier agencies (Choksy et al., 2018). We contribute to this literature by looking at supplier agencies (in the form of resilience strategies) that translate supplier upgrading into better performance (resilience as an outcome) when these firms are exposed to large-scale disruptions. Our study found a link between economic upgrading, social upgrading and resilience. That is, economic upgrading, depending on its type, may lead to different benefits during a crisis. For example,

socio-sustainable suppliers' investments in product and process upgrading contributed to their financial stability. This financial stability became the core driver for them to withstand the initial impacts of the pandemic crisis. This shows the strong connection between product and process upgrading and supplier resilience. Therefore, these findings add to emerging research on the relationship between product and process innovation and resilience in the GVC literature (Sabahi and Parast, 2020; Parast, 2020). Considering the strong association between upgrading and innovation, these findings further support how improvements in product and process upgrading impact organisational responses to disruptions. We also contributed to the notion of social upgrading (Golini et al. 2018) by revealing the link between social upgrading and resilience. We showed that social upgrading can facilitate suppliers' development of responses that involve collaboration with existing buyers during the crisis and the creation of collective, rather than individual, responses.

Furthermore, while previous literature has investigated the link between social and economic upgrading (Barrientos et al., 2016; Rossi, 2013; Pipkin, 2011), the priorities of suppliers may change under large-scale disruptions because crises increase tension between efficiency and resilience (Golgeci et al., 2020). Therefore, our study advanced the understanding of the interplay between economic and social upgrading under crises. We explained the conditions under which social upgrading plays a complementary role in economic upgrading (product and process upgrading) for socio-sustainable suppliers. For example, socio-sustainable suppliers made active investments in social upgrading through the formalisation of policies on working conditions and the creation of a culture of social upgrading. The strong alignment between captive GVCs and suppliers' upgrading made it possible for socio-sustainable suppliers to implement a bridging strategy. In turn, this strategy was dependent on a mix of product, process and social upgrading, along with lead firms' responsible behaviours during the crisis.

Social upgrading played a less important role in shaping resilience for suppliers (adaptive and oblivious suppliers) linked to modular GVCs (led by import intermediaries). In the case of adaptive suppliers, functional upgrading proved sufficient for a buffering resilience strategy. Adaptive suppliers actively invested in functional upgrading in design and R&D capabilities that facilitated the connection between modular governance and functional upgrading. Therefore, our study showed that engagement in social and economic upgrading is highly dependent on GVC network linkages, the environmental context (disruption or non-disruption) and suppliers' own strategies.

Finally, the literature on resilience mainly focuses on the internal capabilities of firms or supply chain resilience (Kamalahmadi and Parast, 2016; Parast, 2020), and this is mainly from the lead firm perspective (Christopher and Peck, 2004)). Therefore, it is notable that previous literature has rarely examined the organisational resilience of suppliers embedded in different types of GVCs (Gölgeci and Kuivalainen, 2020; Gereffi and Lee, 2012). In our study, we addressed this limitation by considering network characteristics and organisations' upgrading initiatives (GVC perspective), contextual dynamics (changes in disruptions, the environmental and demand sides) and the organisational resilience strategies of GVC suppliers (in which phases of resilience—robustness and responsiveness—are identified).

While robustness denotes withstanding environmental disruptions, responsiveness requires changes within networks to make things work. We identified that the approaches of different suppliers denote varying resilience strategies. In this manner, we determined that the resilience strategies adopted by different suppliers are linked to their network and firm-level conditions before the crisis. In this regard, our study built upon Gereffi et al.'s (2022) view of resilience, in which they investigated resilience at the level of firms (both lead firms and suppliers), GVCs and the state. Our study also built upon recent research on a multi-level view of resilience (see Howard, Bohm and Eatherly, 2022) and established the connection between supply chain disruptions, GVCs' mode of governance and suppliers' internal strategies and actions. While our focus remained at the firm level (from a supplier perspective), we showed that GVC-level governance dynamics interact with firm-level strategic dynamics to shape supplier resilience. This way, our study emphasised the importance of considering actor-oriented practices (supplier strategies and lead firm governance), network dynamics (GVC governance) and geographical contingencies in the traditional supply chain resilience literature. Furthermore, our research answered Iftikhar et al.'s (2021) call to identify the internal and external drivers of firm resilience and their impacts on firm performance. Finally, our study supported the importance of supplier upgrading as a factor that enhances resilience, thus further underlining the centrality of improving organisational processes and routines and paying attention to capacity building in innovation and its linkage to organisational resilience (Paarst, 2020).

Building upon Panwar et al. (2022), we argued that the global pandemic crisis will change the configurations of GVCs in the long term. Whereas GVC governance previously played a crucial role in shaping GVCs (Kano et al., 2020; Kano et al., 2022),

the efficiency and resilience of GVCs now depend more than ever on the alignment between suppliers' upgrading practices, suppliers' resilience strategies against disruptions and GVC governance (Gereffi et al., 2022). The case of socio-sustainable suppliers is one extreme of the positive alignment that led to the successful recovery of suppliers, whereas the case of oblivious suppliers is also an extreme of the misalignment between suppliers and the GVCs in which they are embedded.

### **6.1 Limitations and future research**

Alongside our contributions, we are mindful of the study's limitations which can yield a number of future research opportunities. *First*, despite we used multiple case studies, which allowed for achieving theoretical generalizability (Saadatyar et al. 2020), our findings might suffer from limited external validity. So, it would be worthwhile, for theory development, to explore the validity of our contributions in other contexts (e.g., different sectors/industries) and by considering other boundary conditions (e.g., comparing countries with different institutional conditions). *Second*, we have integrated the organisational resilience literature with GVC analysis. However, an important aspect of GVC analysis is the institutional context in which suppliers operate and ground their strategies. Our study has not considered the roles of the state, public institutions or informal institutions and culture. Future studies on GVC supplier resilience under crisis will benefit from conducting an institutional analysis, particularly the differences between developed, emerging and developing countries (Shamim et al., 2020). *Third*, our study has mainly explored one node in the GVC analysis. Future studies can examine the whole value chain and unpack the differences between GVC resilience and the organisational resilience of individual participants (Ponte et al., 2019). *Finally*, future studies can utilise a quantitative methodology to identify novel ways of measuring resilience strategies under disruptions, particularly when considering the roles of GVC governance and upgrading in the process (Islam and Polonsky, 2020). Another potential area for future research is exploring the effects of the strategic position of suppliers and GVCs in terms of competitive strategies (Porter, 1980). Evaluating the relationships between suppliers' upgrading in GVCs and their competitive strategies would be interesting. Few studies have explored the relationship between firms' competitive strategies, service disruptions and firm performance (Parast and Golmohammadi, 2021; Parast and Goke, 2022). This provides an interesting outlet to explore the association of firms' competitive strategies with the development of resilience capabilities.

## **6.2 Implications for practice and policy**

In addition to its theoretical contributions, our empirical analysis has several practical implications. Existing practice suggests that businesses need to identify possible disruptions in their supply chain and build disruption management systems, develop their human resources and create routines that facilitate firms to be resilient in the face of actual disruptions. We build on these insights and identify approaches to managing demand-side disruptions for suppliers under a pandemic crisis. First, suppliers need to be strategic in terms of what GVCs they are participating in and the concrete inter-firm linkages they establish with their buyers. Our study found that GVCs committed to sustainability implementation (i.e., support social upgrading) across supply chains are likely to facilitate suppliers' resilience during a crisis. This was especially the case with suppliers that showed a high-level commitment towards sustainability implementation. Second, suppliers need to sense the long-term needs of the industry and their buyers and develop a fine-grained upgrading strategy. Our study found that suppliers balancing both economic and social upgrading are likely to withstand disruptions and develop effective response strategies. In addition, although our analysis mostly focused on suppliers, we identified an important implication for policymakers. We found that both supplier firms and the government actively engaged in negotiations during the early phases of the crisis. This created opportunities and a voice for the industry to present its situation and convince the government to open factories at a limited capacity. Policymakers need to encourage these types of engagements and discussions between businesses and the government and to develop effective platforms for both actors to reach a fair decision for the resilience of the industry during a potential crisis or any other large-scale disruption.

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## TABLES

**Table 1: Structure of Pakistan's Garment Industry**

Category	Threshold of Firm's Export	Number of firms (Share)	Total Export Value (Share)	Top Markets (Share)
A	Over US \$ 100 m	8 (0.2%)	US \$ 1.5 B (31%)	1. United States (31%) 2. Germany (11%) 3. UK (10%)
B	US \$ 10-100m	64 (1.3%)	US \$ 1.6 B (34%)	1. United States (28%) 2. UK (16%) 3. Spain (14%)
C	US \$ 1-10m	401 (8%)	US \$ 1.2 B (25%)	1. United States (33%) 2. UK (14%) 3. Germany (11%)
D	Less than US \$ 1 m	4,481 (90%)	US \$ 0.5 B (10%)	1. United States (26%) 2. UK (18%) 3. Germany (9%)
	<b>Total</b>	4,954	US \$ 4.7 B (---)	1. United States (30%) 2. UK (14%) 3. Germany (10%)

Source: Frederick and Daly (2019)

**Table 2: Details of Sample**

Sample Firms	Nature of Firm	Representative Category as per Industry Structure	Respondents	Duration
Firm 1	Manufacturer	A	1. General Manager 2. Marketing Manger	90 Minutes 60 Minutes
Firm 2	Manufacturer	A	3. Group General Manager	75 Minutes
Firm 3	Manufacturer	B	4. General Manager	60 Minutes
Firm 4	Manufacturer	B	5. General Manager	60 Minutes
Firm 5	Manufacturer	C	6. CEO	60 Minutes
Firm 6	Manufacturer	C	7. Director	70 Minutes
Firm 7	Intermediary	Working with 30 manufacturers in categories A & B	8. Country Head	60 Minutes
Firm 8	Intermediary	Working with 35 manufacturers in categories A & B	9. CEO and Partner	60 Minutes
Firm 9	Intermediary	Working with 30 manufacturers in categories: exports B & C	10. Vice President	50 Minutes
Firm 10	Intermediary	Working with 20 manufacturers in categories B & C	11. Director	50 Minutes
Firm 11	Intermediary	Working with 10 manufacturers in categories C & D	12. Director	60 Minutes



**Table 3: Analysing suppliers in GVCs: three distinct types**

Types of suppliers in GVC	Key differences		
	Definition	Upgrading practices	Dominants forms of governance in GVC
Socio-sustainable	Seek to balance between the needs of their GVC buyers (i.e., the lead firms) and the interest of their workers. Therefore, they typically establish and maintain strong linkages with existing GVC buyers, while take serious responsibility for their worker's needs and ensure that there is alignment between workers' interests and the company's long-term success.	<p><b>Economic upgrading:</b> Mainly product and process upgrading - long-term improvement in product and process capabilities to capture higher profits in GVCs</p> <p><b>Product upgrading:</b> Improvement in product quality: Compliance with product standards; Long-term improvement in product quality; Shift to new product lines within the apparel industry; Shift to new product lines beyond the textile industry (e.g., home furniture fabrics, PPE etc. )</p> <p><b>Process upgrading:</b> Improvement in production methods and efficiency: Compliance with process standards; Long-term improvement in process efficiency; Investment in automation and other industry 4.0 tools.</p> <p><b>Social upgrading:</b> long-term improvement in conditions and support for workers</p> <p><b>Working conditions:</b> Genuine improvement in working conditions Compliance with sustainability standards; Formalization of CSR department; Investment in certification of major sustainability standards</p> <p><b>Worker support:</b> long-term improvement in worker support Hospital expenses covered; Education funds; Grocery support to worker family during the crisis</p>	<p><b>Captive Governance:</b> Characterized by high control over the implementation of quality and sustainability standards with strong institutional support, particularly for sustainability practices. Features of captive governance as observed from empirical data include:</p> <p><b>Control over the implementation of standards</b> Frequent audits by buyers (i.e., the lead firms) of quality and sustainability standards; Demand for regular and systematic reporting on progress of production, delivery and timelines</p> <p><b>Buyer's support to implement sustainability standards</b> Educational programs: Buyer's emphasis on sustainability compliance as creating competitive advantage</p> <p><b>Nature of Lead firms:</b> large retail firms</p>
Adaptive	Focus on adapting to new market conditions by widening scope of GVC buyers	<p><b>Economic upgrading:</b> Mainly functional upgrading - shift to more value-added activities to capture higher profits within and beyond GVCs</p> <p><b>Functional upgrading:</b> Adding/shifting to new functions Adding/shifting to new functions of research and development; Adding/shifting to new functions of apparel design; Adding/shifting to new functions of R&amp;D and design beyond the apparel industry</p>	<p><b>Modular governance:</b> Buyers give highly codified requirements and standards, but suppliers have sufficient autonomy in implementation</p> <p><b>Codified quality standards</b> Written specifications and quality standards; product specifications and product definition including washing, fabric specs amongst others'; process specifications of transforming designs into apparel products</p> <p><b>Supplier's role</b> Supplier's autonomy and orchestration of quality standards in the upstream supply chain; Autonomy over quality compliance of product and process standards; compliance management of upstream suppliers.</p> <p><b>Nature of Lead firms:</b> Importers/Intermediaries</p>
Oblivious	Lack a clear focus thus oscillating between sustaining existing linkages and adapt to new market conditions. Mostly react to situations rather than having a clear strategic intention	These suppliers lack economic upgrading practices that have a long-lasting effect and leads to value capture. Rather, they only comply with buyers' quality standards to successfully meet requirements and deliver the product on time. This involves compliance with product standards and compliance with process standards	<p><b>Modular governance:</b> Buyers give highly codified requirements and standards, but suppliers have sufficient autonomy on implementation</p> <p><b>Codified quality standards</b> Written specifications and quality standards; product specifications and product definition including washing, fabric specs amongst others'; process specifications of transforming designs into apparel products</p> <p><b>Supplier's role</b> Supplier's autonomy and orchestration of quality standards, Autonomy over quality compliance of product and process standards.</p> <p><b>Nature of Lead firms:</b> Importers/Intermediaries</p>

**Table 4: Divergent paths to Resilience process**

Types of suppliers	Resilience Process		
	Robustness (Stage 1: March-April 2020)	Response (Stage 2: June-September 2020)	Resilience outcome (Post September 2020)
External conditions (similar to all types of suppliers)	<p><b>Environmental disruption</b> As a result of the pandemic crisis, national lockdown led to the closure of factories for all apparel suppliers in Pakistan. This has resulted in:</p> <ul style="list-style-type: none"> <li>• Factory closure; Logistics halt; Lockdown</li> </ul>	<p><b>Demand-side disruption</b> The pandemic crisis impacted retail buyers in terms of sales and retail closures.</p> <ul style="list-style-type: none"> <li>• Fall in final customer’s demand; Retail closure in West; Financial losses for buyers; Order cancellations / Order delays; Payment delays and discounts</li> </ul>	<p><b>Return of demand</b> Recovery of demand as lockdown globally opens up and demand from retailers and consumers return:</p> <ul style="list-style-type: none"> <li>• Return of apparel demand</li> <li>• Return of orders</li> </ul>
Socio-sustainable	<p><b>Resilience Strategy: Bridging</b> - through strengthening workers’ responsibility and financial support to workers</p> <ul style="list-style-type: none"> <li>• Looking after worker’s needs (living expenses, etc. ) during lockdown</li> <li>• Supporting workers’ wellbeing</li> <li>• Providing salaries to workers under lockdown</li> </ul> <p><b>Underpinning mechanisms</b></p> <ul style="list-style-type: none"> <li>• <b>Social upgrading and Captive GVC’s influence of sustainability standards:</b> facilitated Socio-sustainable suppliers to engage in bridging strategy and support workers during lockdown</li> <li>• <b>Product and process upgrading</b> facilitated better pre-COVID financial stability that helped in paying off worker salaries. Product and process upgrading improved the quality of products and efficiency. Trust-worthy relations helped getting more volume of orders that led to stronger financial performance</li> </ul>	<p><b>Resilience Strategy: Bridging</b> - demonstrating Strong “collaboration” with buyers</p> <ul style="list-style-type: none"> <li>• Mutual agreement with the buyer</li> <li>• Continuity of orders</li> <li>• Cooperation in delivery</li> </ul> <p><b>Underpinning mechanisms</b></p> <ul style="list-style-type: none"> <li>• <b>Captive GVC governance</b> influence and support of sustainability led lead firms to act responsibly towards their Pakistani apparel suppliers. Lead firms did not cancel orders, instead, they delayed orders for a brief period. Furthermore, they continued their training support to suppliers and encourage not to lay off any workers. Captive governance motivated Socio-sustainable suppliers to adopt a “bridging” strategy.</li> </ul>	<p><b>Financial performance:</b> Order increases with the return of demands, reach pre-COVID performance and production capacity</p>
Adaptive	<p><b>Resilience Strategy: Buffering</b> - Leveraging strong financial stability</p> <ul style="list-style-type: none"> <li>• Compensating for initial losses through financial savings to ensure that they keep their existing resources and capabilities intact.</li> </ul> <p><b>Underpinning mechanisms</b></p> <ul style="list-style-type: none"> <li>• Functional upgrading helped adaptive suppliers to capture higher profits and improve financial performance as a movement to design and R&amp;D improved the margin per item as they were responsible for more knowledge-intensive tasks in comparison to suppliers without functional upgrading.</li> <li>• Modular GVCs allowed suppliers the autonomy to engage in functional upgrading.</li> </ul>	<p><b>Resilient Strategy: Buffering</b> - Diversification to online markets or different product lines where demand was growing</p> <ul style="list-style-type: none"> <li>• Diversification beyond the apparel industry</li> <li>• Changing sourcing strategies</li> </ul> <p><b>Underpinning mechanisms</b></p> <ul style="list-style-type: none"> <li>• <b>Modular GVC</b> lack of support resulted in order cancellations, but it also allowed Adaptive suppliers with autonomy to adjust to new conditions and commit to diversification to new product lines and new markets. <b>Functional upgrading</b> made it possible for adaptive suppliers to leverage through the capabilities required for diversification in R&amp;D, marketing and production.</li> </ul>	<p><b>Financial performance:</b> Order returned and slowly moved towards pre-COVID performance. Furthermore, income from new GVCs linked to different markets and product lines also positively impacted the performance.</p>
Oblivious	<p><b>Resilience Strategy: Floating</b> - Downsizing for business survival</p> <ul style="list-style-type: none"> <li>• Laying off workers for business survival</li> <li>• Reducing production capacity to meet save costs</li> </ul> <p><b>Compliance mechanism</b></p> <ul style="list-style-type: none"> <li>• Compliance to GVC demands but lack of investment in upgrading led to short-term performance improvement but did not provide suppliers with a financial safety net during the lockdown.</li> </ul>	<p><b>Resilient Strategy: Floating</b> - Withstand the losses until the demand returns and temporarily derived income from other sources including home textiles and masks</p> <ul style="list-style-type: none"> <li>• Partially invested in home textiles and masks but keep it at minimum</li> <li>• Temporarily collaborating with local suppliers to fulfil outstanding orders</li> </ul> <p><b>Underpinning mechanism:</b></p>	<p><b>Financial performance:</b> Order returning partially; currently significantly under the pre-COVID performance.</p>

		<ul style="list-style-type: none"> <li>• <b>Modular GVC</b> did allow autonomy, but these suppliers could not leverage due to their weak financial capacity and lack of functional upgrading to invest in other product lines or markets.</li> </ul>	
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## APPENDICES

### Appendix 1: Aggregate dimensions and categories – Governance and Upgrading

First-order categories	Second-order themes	Aggregate dimensions
<ul style="list-style-type: none"> <li>• Definition of apparel product specifications including washing, fabric specs amongst others</li> <li>• Process specifications of transforming designs into apparel products</li> </ul>	Codification of Quality standards	Modular Governance
<ul style="list-style-type: none"> <li>• Quality audits including direct audits, third-party audits and supplier's self-audits</li> <li>• Progress reporting</li> </ul>	Coordination between buyers and suppliers	
<ul style="list-style-type: none"> <li>• Quality compliance of product and process standards.</li> <li>• Compliance management of upstream suppliers</li> </ul>	Supplier's role	
<ul style="list-style-type: none"> <li>• Frequent audits</li> <li>• Demand for frequent reporting</li> </ul>	Control over the implementation of sustainability standards	Captive Governance
<ul style="list-style-type: none"> <li>• Educational programs</li> <li>• Buyer's emphasis on sustainability compliance as creating competitive advantage</li> </ul>	Buyer's support to implement sustainability standards	
<ul style="list-style-type: none"> <li>• Quality compliance of product and process standards.</li> <li>• Compliance management of upstream suppliers</li> <li>• Compliance of sustainability standards.</li> </ul>	Supplier's role	
<ul style="list-style-type: none"> <li>• Long-term improvement in product quality</li> <li>• Shift to new product lines within the apparel industry</li> <li>• Shift to new product lines beyond the textile industry (e.g., home textiles, PPE etc.)</li> </ul>	Product upgrading	Economic upgrading
<ul style="list-style-type: none"> <li>• Adding/shifting to new functions of research and development</li> <li>• Adding/shifting to new functions of apparel design</li> <li>• Adding/shifting to new functions of R&amp;D and design beyond the apparel industry</li> </ul>	Functional upgrading	
<ul style="list-style-type: none"> <li>• Long-term improvement in process efficiency</li> <li>• Investment in automation and other industry 4.0 tools</li> </ul>	Process upgrading	
<ul style="list-style-type: none"> <li>• Compliance with sustainability standards</li> <li>• Formalization of CSR department</li> <li>• Investment in certification of major sustainability standards</li> </ul>	Working conditions	Social upgrading

<ul style="list-style-type: none"> <li>• Hospital expenses covered</li> <li>• Education funds</li> <li>• Grocery support to worker family during the crisis</li> </ul>	Worker support
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## Appendix 2: Supply-chain disruptions and Different stages of Resilience

First-order categories	Second-order themes	Aggregate dimensions
<ul style="list-style-type: none"> <li>• Factory closure</li> <li>• Logistics halt</li> <li>• Lockdown</li> </ul>	Environmental disruptions	Supply-chain disruptions
<ul style="list-style-type: none"> <li>• Fall in final customer's demand</li> <li>• Retail closure in West</li> <li>• Financial losses for buyers</li> <li>• Order cancellations / Order delays</li> <li>• Payment delays and discounts</li> </ul>	Demand-side disruptions	
<ul style="list-style-type: none"> <li>• Financial stability during lockdown</li> <li>• Providing salaries to workers under lockdown</li> </ul>	Financial stability	Robustness (Stage 1)
<ul style="list-style-type: none"> <li>• Looking after worker's needs (living expenses etc. ) during lockdown</li> <li>• Supporting workers' wellbeing</li> </ul>	Worker responsibility	
<ul style="list-style-type: none"> <li>• Laying off workers for business survival</li> <li>• Reducing production capacity to meet save costs</li> </ul>	Downsizing	
<ul style="list-style-type: none"> <li>• Mutual agreement with the buyer</li> <li>• Continuity of orders</li> <li>• Cooperation in delivery</li> </ul>	Collaboration	Response (Stage 2)
<ul style="list-style-type: none"> <li>• Diversification beyond the apparel industry</li> <li>• Changing sourcing strategies</li> </ul>	Diversification	
<ul style="list-style-type: none"> <li>• Return of apparel demand</li> <li>• Return of orders</li> </ul>	Return of demands	Resilience outcome
<ul style="list-style-type: none"> <li>• Pre-Covid production capacity</li> <li>• Recovery of financial performance</li> </ul>	Financial performance	

