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# **When the Going Gets Tough: Extraordinary Efforts by Suppliers during Supply Chain Disruptions**

## **Purpose**

Supply chain disruptions from sources such as natural disasters, labor shocks, and geopolitical conflicts create severe coordination challenges and threaten supply chain continuity. During the COVID-19 pandemic—an extreme case of such disruptions—an intriguing phenomenon emerged: While many supplier contracts were canceled or invalidated, some suppliers exerted extraordinary efforts to fill their customers' orders at their own substantial sacrifice (e.g., the loss of millions of dollars). This paper examines the enablers of such efforts and proposes the supply chain citizenship behavior (SCCB) concept to capture these discretionary behaviors that emerged during the crisis.

## **Design/methodology/approach**

This paper uses a multimethod sequential research design, consisting of a multiple-case study of customer–supplier dyads followed by a scenario-based role-playing experiment using managers as respondents.

## **Findings**

This paper revealed how suppliers engaged in unprecedented collaborative efforts during the crisis, transforming citizenship behaviors from operational niceties to strategic imperatives for supply chain resilience. The results demonstrated that affective commitment served as a stronger motivational force than economic dependence in driving these extraordinary behaviors during the crisis.

## **Originality/value**

This paper contributes to the supply chain collaboration literature by conceptualizing SCCB, which extends organizational citizenship behavior theory to supply chain relationships. This study advances our understanding of how established relationship factors function under extreme conditions and provides guidance for building crisis-responsive supply chain partnerships, which is especially valuable in a world facing supply chain uncertainty and volatility.

## **Keywords:**

supply chain disruptions, supply chain collaboration, dependence, affective commitment, citizenship behavior, customer-supplier relationships

## 1. Introduction

Global supply chains face growing uncertainty amid persistent disruptions—natural disasters, regulatory shifts, geopolitical conflicts, and cyber incidents (Golgeci *et al.*, 2025; Free *et al.*, 2026). Recent estimates suggest that companies experience supply chain disruptions (a month or longer) every 3.7 years on average, costing them about 45% of their annual profits (McKinsey, 2022). This new landscape has prompted a paradigm shift in OSCM: from the long-dominant emphasis on efficiency toward a renewed focus on resilience (Roehrich *et al.*, 2025). While emerging attention has focused on structural strategies, such as regionalization, nearshoring, and supply base diversification (Chakkol *et al.*, 2024; Charpin and Cousineau, 2025), resilience equally depends on relational behaviors. For example, Duong *et al.*'s (2025) study on temporary healthcare supply chains found that organizations relied heavily on information sharing and resource coordination to maintain supply during geopolitical disruptions. The COVID-19 pandemic triggered the biggest supply chain disruption in recent memory, exposing the fragility of globally interconnected networks. It revealed that traditional supply chain strategies such as backup suppliers, safety inventory and contractual safeguards were inadequate when disruptions simultaneously impacted manufacturing and logistics worldwide. This crisis thus provides a naturally occurring laboratory for developing new theories for supply chain resilience.

During the pandemic, an extraordinary phenomenon emerged: While many supplier contracts were canceled or invalidated, some suppliers exerted unprecedented Herculean efforts to fill orders for their customers (Grebow, 2020). For example, the price of melt-blown cloth (MBC), a basic material in products such as diapers and facemasks, skyrocketed from about US\$ 2,567 per ton to US\$ 28,093 per ton (Chi, 2020). This meant considerable extra costs for the suppliers. However, some diaper suppliers sacrificed millions of dollars by sourcing MBC at prices that were more than 10 times higher so that they could fill orders for their customers. This leads to an intriguing question: What factors drive a supplier's willingness to make such extraordinary efforts for a customer (RQ1)?

Supply chain collaboration has long been regarded as a key strategy for managing disruptions (Scholten and Schilder, 2015; Duong and Chong, 2020), and recent research reinforces its “nonnegotiable” role in supply chain resilience (Nikookar *et al.*, 2025). Yet research on what drives firms to engage in such extraordinary behaviors for partners remains sparse. These behaviors bear a noticeable resemblance to organizational citizenship behaviors (OCBs)—discretionary actions that go beyond formal role agreement and contribute to organizational effectiveness (Organ, 1988). However, the OCB concept, which was developed for individual-level behaviors within organizations, may not be sufficient to capture the strategic nature and substantial sacrifices observed in the interorganizational responses in the pandemic. In this study, we propose the supply chain citizenship behavior (SCCB) concept to reconceptualize citizenship behaviors in supply chain contexts, revealing their potential transformation from social lubricants (Smith *et al.*, 1983) to strategic imperatives.

Given the nascent nature of this phenomenon, we conducted a multimethod sequential study to investigate the enablers. The COVID-19 pandemic provided us with an unprecedented empirical

context. We began by using an inductive approach (Study 1) to understand the key factors and relationships in a multiple-case study (Eisenhardt, 1989), answering RQ1. However, while exploratory case studies can uncover potential enablers, they are limited in their ability to generalize the findings and have weak internal validity (Boyer and Swink, 2008). To establish causality, test the generalization, and quantify the relative effects of the identified factors, we then applied a deductive approach (Study 2) using a scenario-based role-playing experiment to test the proposed relationships, answering the second research question: To what extent do the identified factors influence suppliers' willingness to engage in extraordinary efforts during crises? (RQ2)

The main contributions of this paper are twofold. First, we advance the literature on supply chain collaboration by identifying and conceptualizing SCCB, which extends management theory on individual-level organizational citizenship behavior to supply chain relationships. While OCBs are traditionally defined as acts that "lubricate" the social machinery between individuals (Smith *et al.*, 1983, p. 654), our study revealed SCCBs of unprecedented magnitudes, including suppliers absorbing millions of dollars in losses to fill a customer's orders. This transforms citizenship behaviors from behavioral niceties to strategic imperatives for supply chain resilience, answering recent calls for OSCM research on how resilience is enacted in today's supply chains (Roehrich *et al.*, 2025).

Second, this study identified the key antecedents of SCCB, revealing how economic dependence and affective commitment operate in crisis conditions, along with required short-term sacrifice as a contingency factor that moderates their effects. While the effects of economic dependence and affective commitment are well-established in the supply chain literature (Zhao *et al.*, 2008; Verghese *et al.*, 2020; Cao *et al.*, 2024), our study is among the first to reveal how they drive substantial citizenship behaviors during unprecedented disruptions. Our findings revealed that affective commitment was a stronger motivational force than economic dependence even at high sacrifice levels, showing superior capacity to enable SCCB. This work thus advances the understanding of how established relationship factors function under extreme conditions and offers supply chain managers directions for building crisis-responsive relationships.

## **2. Theoretical Background**

### **2.1 Supply chain collaboration**

Supply chain collaboration refers to a close partnership in which supply chain members work together to achieve common goals (Cao and Zhang, 2011). It enhances information and resources sharing and joint decision-making, thereby improving supply chain visibility and facilitating problem-solving (Marty and Ruel, 2024; Nikoogar *et al.*, 2025). As such, collaboration has long been regarded as a key strategy for managing supply chain disruptions (Scholten and Schilder, 2015; Duong and Chong, 2020). As evidenced during the COVID-19 pandemic across industries, it is impossible to cope with the disruptions without collaboration between supply chain partners (Forum, 2022).

While collaboration involves sharing resources and joint activities, sustaining such collaboration relies on relational governance mechanisms. The literature reveals that relational governance has a dual

nature—both economic and sociological—which manifests through distinct forms of inter-organizational commitment. The economic nature of relational governance emphasizes rational, calculative expectations (Poppo and Zenger, 2002); parties cooperate in the present based on anticipated future exchanges. This calculative orientation manifests through instrumental commitment (also referred to as calculative or continuance commitment in the literature), which recognizes that maintaining the relationship is necessary for economic benefits (Geyskens *et al.*, 1996; Verghese *et al.*, 2020). This commitment is rooted in resource dependence: When one party depends heavily on another for critical resources, this dependence generates strong motivations to maintain the relationship and meet partner expectations (Heide and John, 1988; Gustafsson *et al.*, 2005). The sociological nature of relational governance, emphasizing social ties emerging from prior exchanges (Poppo and Zenger, 2002), manifests through affective commitment. Also termed “normative commitment” (Brown *et al.*, 1995), this commitment has emotional roots (Allen and Meyer, 1990) that are built on genuine liking (Geyskens *et al.*, 1996), shared values (Brown *et al.*, 2019) or purpose (Pasricha *et al.*, 2023). Partners with affective commitment collaborate because they value the relationship itself, identify with their partner’s success and support each other beyond economic rationale (Gundlach *et al.*, 1995).

To date, most relationship commitment research on business supply chains has examined collaborative behaviors under normal operating conditions (Verghese *et al.*, 2020; Patrucco *et al.*, 2024). While research on humanitarian logistics/disaster relief has examined interorganizational collaboration during disruptions (Roy *et al.*, 2023; Duong *et al.*, 2025), this stream of research typically focuses on coordination among organizations operating in ad hoc networks where response is required to go beyond profitability (Kovács and Spens, 2007). Our study sits in a very different context — established business relationships where profit-seeking suppliers face decisions about extraordinary sacrifice for specific customers. Moreover, humanitarian logistics research generally focuses on how organizations mobilize collective resources, whereas our study adopts a supplier lens and asks what relational mechanisms drive extraordinary sacrifice. How relationship commitments perform when such sacrifice is required remains underexplored. The distinction matters: While partners may readily share information or coordinate planning, profit-seeking suppliers absorbing millions of dollars in losses represents a completely different challenge. This theoretical gap applies across various disruption contexts, from natural disasters to geopolitical tensions. In this paper, we examine this phenomenon in the context of the COVID-19 pandemic, which created unprecedented conditions that pushed suppliers far beyond normal collaborative expectations. Suppliers were faced with tough choices about whether, with whom, and to what extent to collaborate with their customers.

## **2.2 Supply chain citizenship behavior**

This concept is built upon Organ’s (1977; 1988) foundational work on OCB, which is evolved from Barnard’s (1938) concept of “willingness to cooperate.” Organ (1988, p. 4) defined OCB as “individual behavior that is discretionary, not directly or explicitly recognized by formal reward systems, and that in the aggregate promotes the effective functioning of the organization.” Unlike conventional

collaborative behaviors, OCB has two distinct features (Bolino and Turnley, 2003). First, it represents “personal choice” rather than “enforceable requirement” of a job description or employment contract, such that “its omission is not generally understood as punishable”(Organ, 1988, p. 4). Second, the behavior requires “extra effort” (Bolino and Turnley, 2003, p. 60), which may involve an individual sacrificing some of his or her own short-term outcomes. For example, a pharmacist may stay late (sacrificing some non-work time) to fill a prescription for a sick child. OCB includes a variety of forms, such as altruism (e.g., helping a coworker with workload), sportsmanship (e.g., not complaining about trivial matters), loyalty (e.g., representing the organizations to the wider community), compliance (e.g., obeying company regulations), and civic virtue (e.g., engaging in policy debates)(Organ, 1988; Podsakoff *et al.*, 2000). As “prosocial gestures” (Smith *et al.*, 1983, p. 653), OCBs boost both individual and organizational outcomes, thus enhancing job satisfaction, well-being, and performance.

While the bulk of the OCB literature has focused primarily on behaviors within organizations, a few scholars have begun to explore how citizenship behaviors manifest beyond organizational boundaries. Autry *et al.* (2008) extended OCB into an interorganizational phenomenon, converting four OCB forms (altruism, tolerance, loyalty, and compliance) into actions taken by boundary-spanning personnel, and examined their effects on firm performance. Esper *et al.* (2015) examined citizenship behaviors in customer–supplier relationships. While these studies expanded OCB to an interorganizational context, they primarily focused on individual discretionary helping behaviors in routine business contexts, such as adjusting schedule to accommodate the requests from supplier representatives, loaning expertise to advise personnel, and attending functions that are not required but that help the supplier’s company image.

In this study, we extend the concept of individual OCB to supply chains. OCB is important in the context of our research because it promotes flexible helping behavior in the face of unforeseen situations (Smith *et al.*, 1983). For example, Farroukh *et al.* (2023) observed an increase in individual OCBs during workplace challenges encountered during the COVID-19 pandemic. Our study advances the current literature by examining citizenship behaviors in crisis situations where extraordinary efforts may be required. Traditionally, OCBs are largely considered as acts that “lubricate” the social machinery (Smith *et al.*, 1983, p. 654), reducing frictions and improving efficiency. Similarly, research at the interorganizational level also considered the behavior “symbiotic tactics” enacted by boundary spanners (Autry *et al.*, 2008, p. 57) and “facilitative” in nature (Esper *et al.*, 2015, p. 307). However, the unprecedented conditions of the pandemic created extraordinary challenges that transcended normal collaborative expectations, involving strategic decisions (e.g., bearing considerable extra cost) at top management levels that went far beyond individual boundary-spanner behaviors. Therefore, in this study, we adopt a more general definitional approach (rather restrict it to specific roles or behavioral types) and propose the concept of SCCB to accommodate various forms of citizenship behaviors in supply chain relationships. We define it as discretionary behaviors that benefit supply chain partners and promote effective supply chain functioning.

### **3. Study 1: Inductive Approach to Articulate Key Constructs and Relationships**

We conducted a multiple-case study to better understand a supplier's willingness to engage in SCCB during the COVID-19 pandemic. We highlight commonalities and differences among the cases and propose relationships between the key factors identified.

#### **3.1 Case selection**

Our case selection employed theoretical sampling and replication logic, focusing on exemplar and revelatory cases (Yin, 1989). Such cases are theoretically informative as the under-studied phenomena are “transparently observable” (Eisenhardt, 1989, p. 537). We thus focused on customer–supplier dyads in which suppliers successfully filled orders during the pandemic, as these cases would most clearly reveal the factors enabling extraordinary supplier efforts. To this end, we first selected four customer firms from industries that experienced substantial supply shortages during the pandemic: personal healthcare, medicines, power systems (due to remote working), and injection molding equipment (related to face mask production). Because this study adopted an inductive theory-building approach, we had no preconceptions about what we would find (Gehman *et al.*, 2018). Accordingly, we did not provide the customer firms with any criteria for selecting suppliers, other than that the chosen suppliers had filled their orders during the pandemic. This open and exploratory approach ensured that patterns emerged from the participants' lived experiences rather than constrained by predefined categories. We asked each company to choose two suppliers, resulting in eight customer–supplier dyads, which falls within Eisenhardt's (1989) recommended range of four to 10 cases for building theory from case studies. While seven dyads involved suppliers that fully met customer needs with satisfaction, one dyad (Elec-BetaCo) involved delayed fulfillment (one week late) that frustrated the customer, providing comparative variation that enriched our analysis. Table 1 reports the profiles of the 12 companies that participated in this study (all firms are referred to by pseudonyms). The case firms were of different sizes and in different global locations, facilitating generalization to a wider range of organizations (Eisenhardt, 1989).

Insert Table 1 about here

#### **3.2 Data collection**

We sought informants within each case firm who had first-hand experience managing supply chains during the pandemic. Primary data were collected through semi-structured interviews. Each interview followed a three-part structure. First, the informants were asked about problems they had faced during the pandemic. Second, they were asked about how they had worked with their customer or suppliers to solve these problems. Third, we asked them to reflect on factors that affected suppliers' willingness to make an extraordinary effort to fill the customer's orders (for interviews with the supplier firms, we asked about their own willingness to make an extraordinary effort). The interview guideline is provided in the online supplementary information. The interviews with Chinese companies (except BabyCo) were conducted on site; interviews with BabyCo and French and US companies were conducted online via Zoom. Each interview ran 1–2 hours until the saturation point was reached (Eisenhardt, 1989).

Interviews were conducted in either Chinese (with Chinese companies) or English (with French and US companies). In total, we conducted 14 interviews with senior executives (e.g., CEOs, presidents, general managers) who made the critical decisions during the disruptive events. The interviews were recorded and transcribed. Interview notes were used to supplement the transcripts with analytical insights. To enable triangulation, we also collected additional data from company websites and internal documents where available (e.g., organizational missions and values, and supplier evaluation methods).

### **3.3 Data analysis**

We analyzed the data in two main stages (Eisenhardt, 1989). First, we conducted within-case analyses to develop a deep understanding of each case. For each case, we constructed a detailed narrative (see online supplementary information) based primarily on interview transcripts and interview notes, which allowed us to enhance our familiarity with the cases and generate preliminary theoretical insights. Supporting documentation was reviewed to corroborate the interview evidence and enrich contextual understanding. Within each case, we coded the interview data inductively, allowing salient concepts to emerge from the participants' own descriptions (e.g., "about 50%" of sales indicates supplier economic dependence). Table 2 summarizes the key concepts identified in our cases. Representative quotes illustrating each concept are summarized in Table 3, showing that the concepts are grounded in the data rather than derived from any predefined framework. We further explored how these concepts were linked, focusing on patterns that explained suppliers' behaviors toward buyers. Second, we conducted a cross-case analysis, systematically comparing the emergent patterns across cases. Through this comparative process, we refined our understanding of the relationships among the emergent concepts. Finally, we iterated between the case evidence and existing theoretical perspectives to sharpen these relationships and develop our theoretical framework. Through our analyses, reliability was enhanced through iterative discussions among the author team, during which coding decisions, interpretations and emerging patterns were reviewed until a consensus was reached.

In the following sections, we first establish the concept of SCCB as observed in our cases and then develop hypotheses about the enablers of SCCB based on case observation and theoretical reasoning.

Insert Table 2 about here

Insert Table 3 about here

### **3.4 Supply chain citizenship behavior: Manifestations in crisis contexts**

Building on the OCB literature, we propose the SCCB concept as discretionary behaviors that benefit supply chain partners and promote effective supply chain functioning. Unlike traditional OCB which focuses on interpersonal helping, SCCB in crisis contexts involves strategic decisions, even requiring substantial sacrifices.

#### ***Case findings***

SCCBs are consistently demonstrated in our cases. During the pandemic, the price of MBC fabric (material for both face masks and diapers) went "crazy," as BabyCo's founder described it, increasing tenfold, while sales prices for face masks far exceeded diaper prices. BabyCo faced a difficult choice:

produce profitable face masks or continue producing diapers, which had become unprofitable. BabyCo chose the latter, making extraordinary sacrifices to secure materials. When one supplier offered 200 tons of MBC in exchange for RMB 4 million in cash, BabyCo not only declined the tempting offer but paid the supplier RMB 6 million (US\$ 842,891) to hold the fabric in stock. In another instance, when a supplier preferred selling to customers paying five times more, the founder personally drove to the supplier with RMB 5 million in cash, securing the supply by paying RMB 2 million above the original price.

DairyCo exhibited SCCB by implementing strict factory management rules that conflicted with French cultural norms. As the COO explained, “We are a French company and in our French DNA, there is maybe more of this habit to discuss the rules instead of just applying them.” Yet DairyCo implemented temperature controls and other protocols that were “very unusual for French people, which we never think we could do one day.” These required employees to follow rules at work more strictly than “they would apply in their private life,” threatening employee relationships. Despite the COO acknowledging that “I wouldn’t say that it has been quite easy,” DairyCo maintained these strict protocols to continue production and filled Infan’s orders during the crisis.

In Herb’s case, AgriCo had verbally accepted its order just prior to the Chinese New Year. When COVID-19 broke out and sourcing prices soared, the contract remained unsigned—AgriCo had no legal liability if it cancelled. Nevertheless, AgriCo kept its verbal promise, purchasing materials at much higher prices while maintaining the original pricing for Herb, absorbing substantial losses. SugarCo, facing transportation restrictions, paid higher prices to source sugar from different suppliers and shifted inventory to warehouses closer to Herb, carrying all costs.

We also observed SCCB in other cases. Since CompCo was able to produce components used in face mask machines, it was tempted by much more attractive orders (e.g., higher prices, better payment terms) from other buyers. However, CompCo turned down such orders to prioritize Inje’s orders, without asking Inje to pay a higher price. CastingCo filled Inje’s order at lower prices than others and made early payments to its suppliers to gain priority. AlphaCo relentlessly monitored global hotspots and used all possible shipping resolutions (air, road, boat) to source components needed for Elec’s orders.

In all these cases, the suppliers demonstrated the defining characteristics of SCCB: voluntary behaviors, even at their own substantial costs, to help customers get through tough situations.

### **3.5 Hypotheses development**

Having established how SCCB manifested in our cases, we develop hypotheses about the enablers of such extraordinary behaviors. Our approach to hypothesis development integrates insights from both case observations and relevant theoretical perspectives. This approach ensures the hypotheses are grounded in observed phenomena while benefiting from existing theoretical insights (Eisenhardt, 1989).

As outlined in the theoretical background, relational governance operates through two primary commitment mechanisms: instrumental commitment, based on economic calculations and resource

dependencies, and affective commitment, rooted in emotional bonds and shared values (Geyskens *et al.*, 1996; Ganesan *et al.*, 2010). While these mechanisms have been shown to drive routine collaborative behaviors, their effectiveness under conditions requiring substantial self-sacrifice remains unexplored. Crisis-induced sacrifice creates a critical boundary condition for these mechanisms. Partners with instrumental commitment collaborate because of “instrumental realization” that the benefits of maintaining the relationship exceed the costs of termination (Gilliland and Bello, 2002, p. 28). When short-term costs outweigh anticipated benefits, the effect of instrumental commitment may erode. In contrast, affective commitment may offer greater resilience, as partners feel a stronger sense of loyalty when the relationship comes under strain. In the following sections, we first examine the main effects of economic dependence (reflecting instrumental commitment) and affective commitment (H1–H2) and then explore how crisis-induced sacrifice moderates their influence (H3). Figure 1 illustrates the conceptual model.

Insert Figure 1 about here

### ***Effects of supplier’s economic dependence on SCCB***

A common enabler emerging from our cases is a supplier’s economic dependence on the customer—the extent to which the supplier needs the financial resources provided by that customer to achieve its goals (Kim and Zhu, 2018). Across our cases, all the buyer firms accounted for a substantial portion of the suppliers’ business or were even the supplier’s largest customer. This dependence creates strong instrumental commitment, where suppliers engaged in extraordinary behaviors as strategic investments to maintain these important relationships to secure future exchange opportunities.

For example, Herb was a main customer of AgriCo, for which AgriCo absorbed the soaring costs to fill the order, because if it did not deliver this order, it would probably “have no business [from Herb] in the future.” Similarly, CompCo turned down much more attractive orders from other customers—for which they “could earn 5 to 8 million”—to prioritize Inje’s orders because it did not want to “harm” this relationship, as Inje was its biggest customer. Similarly, Elec was AlphaCo’s biggest customer. AlphaCo communicated with its suppliers “every single day, any hour” to discuss problems, using all possible shipping resolutions to be able to fill Elec’s orders. In doing so, AlphaCo wanted Elec to feel that AlphaCo was its “home”—whenever there was a “tricky” or “complicated” situation, Elec would “go to [AlphaCo].” In another case, DairyCo enforced strict factory protocols that went against French cultural norms, threatening employee relationships, illustrating how economic dependence drives suppliers to engage in SCCB even when sacrifice extends beyond financial losses to relational costs. Consistently, our cases suggest that the stronger a supplier is economically dependent on a customer, the more likely it will engage in SCCB.

Based on the above discussions, we hypothesize:

H1: A supplier’s economic dependence on a customer is positively related to the supplier’s SCCB.

### ***Effects of supplier's affective commitment on SCCB***

Another salient enabler emerging from our cases is the affective commitment of the supplier to the customer. Unlike economic dependence, which operates through calculative logic, affective commitment motivates SCCB through emotional attachment and shared values (Brown *et al.*, 2019). Across our cases, all suppliers (except BetaCo) demonstrated strong affective commitment to the customer firms, whereby the relationship has value “for its own sake, apart from its purely instrumental worth” (Buchanan, 1974, p. 533). This motivates the supplier to remain loyal through difficult times rather than behaving opportunistically.

The relationship between Infan and BabyCo is an exemplary case. This relationship was described as “love at the first sight” by BabyCo’s founder. Both firms’ founders genuinely liked each other and were attracted by each other’s personal traits during their first meeting. They shared the same dream of developing a premium national brand of infant care products. Before two hours had elapsed during their first meeting, they decided to build a strategic partnership, a partnership that “matched [with our values and goals].” When we conducted the interview, we could feel the warmth and the passion that BabyCo’s founder demonstrated when he talked about this relationship. Their bond played a vital role in how BabyCo made its difficult choice during the pandemic. By absorbing millions in losses, BabyCo wanted to demonstrate solidarity with Infan: “We share weal and woe, stand together through thick and thin.” This sacrifice deepened “the bond between us and [Infan], making them truly feel the friendship forged in difficult times.”

We also observed the effect of affective commitment in the other cases. For example, AgriCo’s GM described their relationship with Herb as “happy and harmonious.” They felt that they shared “similar values” on keeping promises, which they also did during the pandemic. CastingCo shared the same values as Inje on traditional Chinese culture. CastingCo followed Inje’s lead to make traditional Chinese cultural values the foundation of its own organizational culture. It enjoyed interacting with Inje, even just visiting it. During the pandemic, CastingCo provided earlier payments to its suppliers to secure materials for Inje’s orders. Our cases show that, in an affectively committed relationship, a supplier identifies with the customer and considers the customer’s goals as its own. The stronger the supplier’s emotional bond and identification with the customer, the more willing it will be to engage in SCCB.

Based on the above discussions, we hypothesize:

H2: A supplier’s affective commitment to a customer is positively related to the supplier’s SCCB.

Furthermore, although affective commitment facilitates SCCB, as does economic dependence, our cases suggest that they differ in their motivational strength. Economic dependence operates within cost–benefit analysis (Geyskens *et al.*, 1996): Suppliers sacrifice up to the point where relationship investment justifies the cost. Affective commitment, however, can motivate sacrifice beyond economic logic (Gilliland and Bello, 2002). Research on organizational behavior consistently finds that discretionary, extra-role behaviors are more strongly driven by affective than calculative commitment

(Meyer *et al.*, 2002). This occurs because voluntary actions require motivational force that transcends self-interest calculations. This difference was evident in Elec's contrasting experiences with two suppliers. AlphaCo described its relationship with Elec as like "family" with a feeling of "intimacy." They shared the same values of innovation and quality over price. During the pandemic, AlphaCo had met Elec's demands "at all costs," because "You'll go super far for your family." In contrast, BetaCo maintained economic relationships with Elec but lacked affective commitment due to different values. BetaCo prioritized its internal KPIs such as cash flow and costs, considering "that[transportation] created a cost." As a result, BetaCo was not as responsive to Elec's requests as AlphaCo. It eventually delivered the orders, but one week later than Elec had expected. This contrast suggests that affective commitment generates stronger influence than economic dependence on SCCB, driving suppliers beyond calculative logic. Thus, we hypothesize:

H2a: A supplier's affective commitment exerts stronger influence on the supplier's SCCB than the supplier's economic dependence.

### ***Moderating effect of a supplier's required short-term sacrifice***

A salient supply chain issue during the pandemic was the magnitude of required short-term sacrifice—the costs suppliers perceived they would need to bear, relative to normal operating conditions. These costs included not only financial burdens (e.g., raw material price surges, foregone profitable alternatives) but also operational and relational strains (e.g., disruptions to normal practices, tensions with employees). The level of required sacrifice varied dramatically across situations, from manageable cost increases to extreme scenarios involving millions of dollars in losses, which created a boundary condition for supplier behavior. Specifically, we argue required sacrifice moderates the relationship between affective commitment and SCCB, but not the relationship between economic dependence and SCCB.

Economic dependence represents a structural constraint: An economically dependent supplier is reliant on a customer for substantial revenue, with limited alternatives. Increasing sacrifice does not change this structural constraint. Economic dependence fosters a calculative orientation that manifests as instrumental commitment—a recognition that maintaining the relationship is necessary for economic benefits (Geyskens *et al.*, 1996; Vergheze *et al.*, 2020). Because of this calculative logic, the supplier will minimize costs—for instance, by asking for surcharges—rather than absorbing them. The effect of economic dependence thus remains stable: It provides the motivation to maintain the relationship, but the calculative nature of instrumental commitment would prevent this effect from amplifying with increasing sacrifice. In contrast, because affective commitment is rooted in an emotional bond and shared values beyond economic logic (Gilliland and Bello, 2002), an affectively committed supplier may perceive required sacrifice (e.g., absorbing the additional costs without surcharges) as an opportunity to demonstrate its loyalty and strengthen its bonds with customers. The more substantial the required sacrifice is, the more strongly affective commitment drives the efforts.

The moderating effect of required sacrifice on affective commitment was vividly evident in the case of BabyCo. As the price of MBC became “crazy,” BabyCo also did something “crazy” for Infan as described earlier. Infan and BabyCo shared the same dream of becoming a premium national brand of infant care products. During the crisis, BabyCo saw this dream in action—Infan absorbed material costs rather than raising retail prices, prioritizing the needs of customers. BabyCo’s founder was “very moved” by this action: “I think this is our partner for the long term.” For BabyCo, the situation became a test of its commitment and loyalty to Infan. As the founder pointed out, “This is the time to show we are in the same boat; we endured this difficult time together. A friend in need is a friend indeed. By doing this [sacrificing our profits], we want to build a deeper relationship with Infan.” He also explicitly explained, “When there is no special situation, you can’t feel this importance. But in such a critical situation, I think its importance is highlighted.” In contrast, we did not observe such an amplifying effect of economic dependence in our cases. Thus, we hypothesize:

H3a: A supplier’s required short-term sacrifice does not moderate the relationship between a supplier’s economic dependence and the supplier’s SCCB.

H3b: The relationship between a supplier’s affective commitment and the supplier’s SCCB is moderated by the supplier’s required short-term sacrifice, such that the greater the level of sacrifice required of the supplier, the greater the effect of a supplier’s affective commitment on the supplier’s SCCB.

#### **4. Study 2: Deductive Approach to Test Hypotheses**

Study 2 was designed to extend and validate the insights obtained in Study 1. While our cases revealed the enablers of SCCB, the qualitative approach could not establish causality and was limited in its ability to generalize the findings due to factors such as smaller samples, selection bias, and limited control of potentially confounding variables (Boyer and Swink, 2008). The experimental method is suggested as the golden standard for establishing causality (Lonati *et al.*, 2018). We therefore conducted a scenario-based experiment in Study 2 to enable a more rigorous examination of the proposed relationships identified in Study 1.

The case findings highlighted three factors influencing SCCB: supplier economic dependence, supplier affective commitment, and required short-term sacrifice. This formed the theoretical foundation for the experimental design. The scenario adopted the herbal medicine sourcing context of our Herb case. Economic dependence was operationalized as revenue reliance on the customer and difficulty finding alternatives; affective commitment was operationalized as shared values and positive working relationship; required short-term sacrifice was operationalized as the impact on the supplier’s business plan; and SCCB was measured as the supplier’s willingness to absorb losses to fulfill the customer’s order. The following sections describe these operationalizations in detail.

##### **4.1 Scenario development**

To maintain ecological validity and ensure realism (Chen *et al.*, 2016), the experimental vignette adopted the herbal medicine sourcing context from one of our cases (Herb case) in Study 1. This context

was highly accessible to the participants in the experiment—a straightforward product that they could easily relate to regardless of their industry background. We described a situation in which the demand for an herbal medicine believed to improve people’s immune systems increased during a pandemic. The customer account manager for the supplier needs to decide how to respond to the emergency order placed by HerbCo (the customer). There were three manipulated factors: the supplier’s economic dependence on the customer, the supplier’s affective commitment to the customer, and the supplier’s required self-sacrifice. Each factor was manipulated at two levels—high (H) and low (L)—resulting in eight scenarios. The introductory and conclusion sections were identical for all scenarios, while the manipulation section varied. The scenario and the manipulations of the three factors are reported in the online supplementary information.

The manipulation of the three factors drew on both in the first-hand experiences in Study 1 and the established operationalization in the literature (Rungtusanatham *et al.*, 2011). The supplier’s economic dependence on the customer was operationalized as the amount of revenue provided to the supplier by the customer and the supplier’s expected difficulty in finding alternative customers. This operationalization reflects our case observations, where suppliers referenced sales proportions (e.g., “about 50%”), with literature-based indicators of replaceability (Huo *et al.*, 2019; Shou *et al.*, 2022). The supplier’s affective commitment to the customer was operationalized as whether the relationship was based on shared values and whether the parties generally liked working together. In our cases, affective commitment manifested through language about “values” and expressions of positive affect such as “happy” and “like,” as well as emotional responses such as “moved,” which aligns with its operationalization in the literature (Kumar *et al.*, 1995; Zhao *et al.*, 2008). The supplier’s required short-term sacrifice was operationalized as whether the ingredient’s increased price would impact the supplier’s business plan. While suppliers in our cases primarily described sacrifice in financial terms (e.g., “tens of millions more in additional costs”), absolute amounts were not directly comparable across firms of varying sizes and industries. What emerged as more meaningful was captured by one informant who framed the question as “whether it impacts our ability to execute our business plan.” This insight led us to manipulate sacrifice based on business plan impact rather than absolute cost levels.

#### **4.2 Pilot test**

We conducted a pilot test with 120 respondents (average age 39.5, 55% male) recruited via Prolific. We used Prolific’s filters to pre-screen potential respondents to include only those in managerial positions so they would be suitable for the decision-making scenario in the experiment. To avoid inconsistent English language fluency, the respondents were from the US and the UK. The pilot test assessed whether the manipulations were successful and whether the scenario was realistic to the respondents. We found that the mean response was significantly different between the high and low treatment groups for each factor. Respondents were also asked the extent to which they felt the scenario was believable, with the results showing a high perception of realism (5.78 on a seven-point Likert scale).

### **4.3 Dependent variable**

Scenario-based experiments must operationalize abstract concepts through specific situations. In our scenario, the customer account manager was asked to respond to an emergency order from a customer for which the price of a key ingredient had increased. The operationalization of SCCB was based on our observations in the case studies. While all suppliers in our cases chose to absorb the extra costs themselves, our interviews revealed this was a voluntary choice among the alternatives they had. They could have declined the order without penalty (e.g., “the contract wouldn’t be able to hold us accountable”) or passing costs to the customers (e.g., “to raise prices”). This awareness of the full response spectrum led us to operationalize SCCB as a choice among three levels: 1) decline to fill the order, 2) do not fill the order unless the customer agrees to pay a surcharge to cover the supplier’s cost increase, and 3) pay the extra price to get the ingredient without charging the customer a surcharge to cover the supplier’s cost increase. The first choice demonstrated no SCCB, as the supplier declined to engage in any discretionary behavior and making efforts to fill the order. The second choice demonstrated low-level SCCB, where the supplier engaged in discretionary behavior to fill the order (finding a solution when it could have simply declined) but without short-term sacrifice (asking the customer to pay the surcharge). The third choice demonstrated high SCCB, as the supplier not only engaged in discretionary behavior but also bared short-term sacrifice (absorbing the additional costs).

### **4.4 Respondents and experimental procedure**

The respondents were 369 managers recruited via Prolific. They were from the US and the UK to ensure consistent English language fluency. Our prescreening process required respondents to be in sales and marketing functions, managing customer relationships in their working roles. On average, the respondents were 39 years old and 51% of them were male. We applied a between-subjects design, in which respondents were randomly assigned to one of the eight scenarios (an average of 46.1 respondents per scenario). They were asked to read the scenario and respond to questions related to the dependent variable, manipulation check items, and realism check items.

### **4.5 Manipulation checks**

We conducted manipulation checks to ensure that the perceived level of each factor was manipulated as intended. Items were measured using a seven-point Likert scale ranging from 1 (“strongly disagree”) to 7 (“strongly agree”). We checked the supplier’s economic dependence on the customer with a single item: “Your firm is highly dependent on HerbCo’s business.” The supplier’s affective commitment to the customer was checked using two items (“HerbCo and your firm share similar values about the business”; “There is an affective connection between your firm and HerbCo”). The supplier’s required short-term sacrifice was checked using one item: “The price of the ImuX has increased considerably.” The results indicate that all three factors were manipulated as intended; for each, the average response in the high group was significantly higher than that in the low group (supplier’s economic dependence on the customer:  $\bar{X}_{\text{high}} = 5.77$ ,  $\bar{X}_{\text{low}} = 2.40$ ,  $p < 0.001$ ; supplier’s affective commitment to the customer:  $\bar{X}_{\text{high}} = 5.95$ ,  $\bar{X}_{\text{low}} = 3.27$ ,  $p < 0.001$ ; supplier’s required short-term sacrifice:  $\bar{X}_{\text{high}} = 5.91$ ,  $\bar{X}_{\text{low}} = 3.59$ ,  $p <$

0.001). We used two items developed by Dabholkar (1994) to check whether the scenario was believable and whether the respondents could imagine themselves in that situation. The mean score on the two realism checks was 5.71, indicating that the respondents judged the scenario to be highly realistic.

#### 4.6 Analysis and results

Table 4 reports the means, standard deviations and correlations between variables. We tested the hypotheses using ordinal logistic regression (logit), since the dependent variable was measured on an ordinal scale: 1) do not fill the order, 2) only fill the order with a surcharge, and 3) fill the order with no surcharge. There were three independent variables: the supplier's economic dependence on the customer, the supplier's affective commitment to the customer, and the supplier's required self-sacrifice. We tested all main effects and two-way interactions in the model and included respondent gender and age as control variables.

Insert Table 4 about here

Table 5 reports the number and percentage of responses observed in each category for the dependent variable. It shows that only about 6% of the respondents chose to decline to fill HerbCo's order, while more than half of the respondents (56.9%) chose, "I would not order the ImuX unless HerbCo agrees to accept a surcharge to cover our cost increase," and almost 40% of the respondents chose, "I would pay the extra price to get the ImuX and would not charge HerbCo extra to cover our cost increase."

Insert Table 5 about here

The model fit was significant ( $\chi^2(7)=116.81, p < 0.001$ ), suggesting that the model was effective in differentiating between the three levels of SCCB based on the predictors. Both the deviance [ $\chi^2(553)=441.18, p=1.00$ ] and Pearson chi-square [ $\chi^2(553)=523.62, p=0.81$ ] tests were not significant, supporting the model fit. The pseudo R-square (Nagelkerke=0.33) suggests that the predictors jointly explain approximately one-third of the variation in SCCB.

Table 6 shows the results of the ordinal logit analysis. The supplier's economic dependence on the customer had a significant positive effect on SCCB ( $B=1.23, SE=0.36, p < 0.001, 95\% \text{ CI } [0.53, 1.94]$ ), supporting H1. The odds ratio ( $\text{Exp}(B)=3.44$ ) indicated that high-dependence suppliers were 3.44 times more likely to engage in higher levels of SCCB compared with low-dependence suppliers.

The supplier's affective commitment to the customer also had a significant effect on SCCB ( $B=2.48, SE=0.37, p < 0.001, 95\% \text{ CI } [1.76, 3.20]$ ), supporting H2. The odds ratio ( $\text{Exp}(B)=11.93$ ) indicates that suppliers with high affective commitment were almost 12 times more likely to engage in higher levels of SCCB compared than those with low affective commitment.

The supplier's required short-term sacrifice was not significantly related to SCCB ( $B=-0.61, SE = 0.41, p=0.14, 95\% \text{ CI } [-1.41, 0.20]$ ). It also had no moderating effect on the relationship between economic dependence and SCCB ( $B=-0.13, SE=0.47, p=0.78, 95\% \text{ CI } [-1.05, 0.79]$ ), supporting H3a. There was a significant interaction effect between affective commitment and required self-sacrifice (B

=-1.02, SE=0.48, p=0.03, 95 % CI [-1.95, -0.08]). However, this effect was in the opposite direction of what H3b predicted, suggesting that the positive effect of affective commitment on SCCB was weakened when the required self-sacrifice was higher. To illustrate this interaction effect, we plotted the predicated probability of the highest level of SCCB (fill the order with no surcharge) for ease of interpretation. As shown in Figure 2, affective commitment had a strong positive effect on SCCB when required sacrifice was low. However, when the sacrifice was high, this positive effect became weaker, demonstrating a negative interaction effect.

Insert Table 6 about here

Insert Figure 2 about here

Given that the effect of affective commitment was conditional on required sacrifice, we further examined its strength relative to economic dependence across varying required sacrifice conditions. When required sacrifice was low (the baseline in the model), the odds ratio for affection was 11.93, whereas that for economic dependence was 3.44, indicating that affective commitment exerted a much stronger influence on SCCB than economic dependence. When required sacrifice was high, the conditional odds ratio for affective commitment decreased to approximately 4.3 ( $\text{Exp}(2.48 - 1.02) \approx 4.3$ ), meaning that suppliers with high affective commitment were still 4.3 times more likely to engage in higher levels of SCCB compared with those with low affective commitment. In contrast, since there was no interaction effect between required sacrifice and economic dependence, the effect of dependence remained unchanged, with an odds ratio of 3.44. Therefore, when required sacrifice was high, affective commitment continued to exert a stronger impact on SCCB than economic dependence (4.3 vs.3.4), although the difference between them became smaller. Collectively, regardless of the levels of required sacrifice, affective commitments exerted a stronger effect than economic dependence, supporting H2a.

To assess the robustness of the findings, we estimated two alternative models. First, an ordinary least squares (OLS) model was estimated by treating the three-level SCCB measure as continuous. The pattern of significance and direction of the effects remained unchanged. Second, we re-estimated the ordinal logistic model using 1,000 bootstrapped samples. The bootstrapped confidence intervals and significance levels were consistent with the original estimates, confirming the stability of the results. The results of both models are reported in the online supplementary information.

## **5. Synthesis and Discussion**

### **5.1 Summary**

In this work, we sought to understand the factors that facilitate a supplier's willingness to engage in SCCB, particularly in terms of making an extraordinary effort to collaborate with a customer during a supply chain crisis. We employed a sequential mixed-methods research design, with each phase making distinct but complementary contributions to theory development. The qualitative phase (Study 1) contributed to theory building by identifying the SCCB concept, revealing two key enablers—economic dependence and affective commitment—and uncovering required short-term sacrifice magnitude as a potential boundary condition affecting the effects of the two enablers. The quantitative phase (Study 2)

contributed to theory testing by establishing causal relationships, generalizing the findings across a larger sample, and quantifying the relative strength of the two enablers.

Our mixed-methods approach in particular revealed nuance in how affective commitment operates in crisis conditions. Our case study captured an exceptional instance where extreme sacrifice appeared to amplify affective commitment's effect. The experiment, in contrast, involved a broader and more diverse sample of managers and revealed more typical behavioral patterns—high sacrifice attenuates this effect, suggesting managers' decision-making is tempered by practical considerations like those expressed by informants in Study 1 (e.g., “we face a huge loss in profit”; “this will definitely generate more costs”). Crucially, however, both methods converged on the central finding that affective commitment remained a stronger predictor of SCCB than economic dependence even at high sacrifice levels, reinforcing the qualitative insights. The case study illuminated the emotional depth possible in affectively committed relationships, while the experiment established a more robust, generalizable pattern. Together, they provide more insights than either alone.

## **5.2 Theoretical contributions**

This study makes two key contributions to the literature. First, it advances our understanding of supply chain collaboration by identifying and conceptualizing the behavioral mechanisms (SCCB) underlying extraordinary collaborative efforts during crises. While collaboration is “absolutely essential” for achieving supply chain resilience (Nikookar *et al.*, 2025, p. 55), prior literature indicates that it is difficult to implement (Kampstra *et al.*, 2006; Soosay and Hyland, 2015). We addressed this by examining a supplier's willingness to engage in extraordinary efforts to serve a customer (SCCB), which is a critical yet underexplored element of supply chain collaboration. Without such behavioral foundations, collaboration can deteriorate once it requires risky or substantial investments (Kim and Zhu, 2018). By revealing these citizenship behavior foundations, our study explains how the most challenging forms of supply chain collaboration actually occur. In doing this, the study also advances citizenship behavior literature by reconceptualizing citizenship behaviors from social lubricants (Smith *et al.*, 1983) to strategic imperatives during crises. This contribution is particularly timely as OSCM undergoes a paradigm shift from efficiency toward resilience (Roehrich *et al.*, 2025), and our study offers insight into how resilience is enacted through SCCB.

Second, this study advances the relational governance literature by revealing distinct effects of different types of commitment during supply chain disruptions. Although Esper *et al.* (2015) found a positive effect of firm commitment to SCCB, they did not distinguish between instrumental and affective commitment. Yet our findings demonstrate that distinguishing between them matters considerably under crisis conditions. Our results show that instrumental commitment, manifested as economic dependence, maintained limited influences. It operates as a “cold” factor driven by economic calculation (Geyskens *et al.*, 1996) and is associated with “easy exit” (Shore *et al.*, 2006): When costs become prohibitive, suppliers can preserve the economic balance by requesting price surcharge or can cancel the orders. Instrumental commitment thus may prove insufficient in severer supply chain

disruptions. In contrast, affective commitment emerged as the dominant predictor of SCCB. As a “hotter” factor rooted in emotional bonds (Gustafsson *et al.*, 2005), affective commitment maintained a stronger influence than economic dependence even at high sacrifice levels. While high sacrifice does erode its influence, even weakened emotional bonds motivate greater citizenship than pure economic ties. These findings extend prior commitment research (Gilliland and Bello, 2002; Verghese *et al.*, 2020) from routine contexts to crisis conditions, showing that affective commitment’s superiority not only persists but becomes more critical when extraordinary behaviors are needed. Our research thus advances the theoretical understanding of what drives supply chain collaboration and performance during exceptional circumstances such as in a crisis.

### **5.3 Managerial implications**

This study has important managerial implications for managing supply chain resilience. Firms have applied various strategies to improve resilience, including buffer inventory (Swink *et al.*, 2025), supply chain visibility (Faruquee *et al.*, 2025), supply chain planning (Sengupta *et al.*, 2025), and digital capabilities (Belhadi *et al.*, 2024). Yet our findings reveal a critical blind spot: These strategies assume suppliers will deploy their capabilities when needed. However, a very capable supplier may not come to a customer’s aid when it is critically needed. The distinction between what suppliers can do and what they will do is critical for resilience.

Our findings provide specific guidance for managing supplier portfolios. For purely economically dependent suppliers, managers can expect continued supply during disruptions but should prepare for surge pricing requests. Such relationships may be acceptable for standardized products when alternative sources exist. For critical inputs, or volatile supply markets, however, affective commitment offers more reliable access to extraordinary support. Despite some weakening under high sacrifice, affective commitment is the stronger predictor of citizenship behaviors even in worst-case scenarios. Managers can prioritize genuine relational connections with critical suppliers, yielding crisis response capabilities that transcend economic calculations.

Organizations should also reconsider how they evaluate supplier performance. Buyers commonly evaluate suppliers through cost, quality, delivery, and service (Wei *et al.*, 2026). Such metrics miss the SCCB potential that may matter most during disruptions. Critical suppliers should be both capable and willing. Developing indicators of relationship health—such as suppliers’ voluntary information sharing, participation in joint innovation, and willingness to accommodate unexpected requests—can help identify which relationships possess the capacity for extraordinary collaboration. Our findings that emotional bond and shared values can create extraordinary resilience when confronting supply chain disruptions suggests that rather than treating such connections as incidental, firms should recognize them as measurable strategic assets that require deliberate cultivation.

### **5.4 Societal implications**

Our findings reveal important societal implications beyond firm-level benefits. During supply chain disruptions like the pandemic, suppliers’ citizenship behaviors can help prevent shortages of essential

goods such as food, personal care products, and medical supplies that directly affect public welfare. The two commitment types create different societal outcomes: When purely instrumental committed suppliers demand surcharges to continue operations, smaller buyers or SEMs often cannot afford and lose access to the supplies, while affectively committed suppliers who absorb costs themselves help buyers' survivability and regional resilience. Affective committed relationships also reduce environmental damage during disruptions, as collaborative problem-solving enables more efficient logistics planning rather than emergency expediting that increases emissions and waste. Labor outcomes similarly benefit when partners distribute workload and share resources rather than forcing individual firms to manage challenges alone, reducing employees' burnout and maintaining operations safety. These demonstrate that fostering affective commitment in buyer–supplier relationships extends beyond business strategy to public welfare—the citizenship behaviors that emerge from affective commitment serve as critical resources for communities to navigate disruptions when other governance mechanisms fail.

### **5.5 Limitations and directions for future research**

This study has several limitations that point to important directions for future research. First, our study largely focused on financial sacrifice during supply disruptions—a specific form of SCCB where costs are quantifiable and immediate. However, different SCCB forms (e.g., knowledge-sharing) may involve additional mechanisms not captured in our framework. Future studies should investigate other forms of SCCB to extend our findings. Second, our interviews did not include suppliers that were unable to fill orders during the pandemic. Including such suppliers could enrich comparisons for theoretical development. Third, Study 2 described a very specific context (a dramatic price increase in herbal medicine supply). Future studies could verify our findings in other industry contexts to enhance the generalizability of our findings. Fourth, while our sample consisted of managers in sales and marketing functions with customer relationship responsibilities, we did not capture detailed information about participants' specific industry, supply chain management experience, or prior exposure to supply disruption situations. Future studies could benefit from collecting such details to provide a more comprehensive picture of the sample characteristics. This would enable sensitivity analyses across different managerial backgrounds and strengthen the generalizability of the findings. Fifth, while our mixed-methods design spans Chinese case contexts and US/UK experimental samples, with convergent main findings across both, relationship dynamics may operate differently across cultural contexts. Future research could further examine cultural boundary conditions, which would strengthen generalizability claims. Lastly, we encourage more studies to examine the role of affect in customer–supplier relationships. This is an area with limited OSCM application but with promising research potential (Eckerd *et al.*, 2013).

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**Table 1: Description of case study firms**

<b>Customer</b>	<b>Selected suppliers</b>	<b>Location</b>	<b>Products</b>	<b># of employees</b>	<b>Annual revenue</b>	<b>Informants</b>
Infan		China	Baby and adult nutrition and care products	~3,000	RMB 111B	CEO, SCM Director, Quality Management Director, New Product Development Quality Director, Director of Technology & Business Intelligence.(1)
	BabyCo	China	Baby and adult care products	~800	RMB 39B	President (founder) (1)
	DairyCo	France	Cheese, butter, baby milk powder	<1,000	>€400M	Chief Operating Officer (COO) (1)
Herb		China	Chinese herbal medicine products	>5,000	RMB 200B	President (1)
	AgriCo	China	Chinese herbal medicine products	>4,000	~RMB 2B	General Manager (GM), Deputy GM (1)
	SugarCo	China	Sugar	<20	RMB 8B	GM (1)
Elec		U.S.	Power supply, utilities	>3,000	US\$1B	Sourcing Manager (3)
	AlphaCo	U.S.	Electronics components	~170	~US\$70M	VP of Supply Chain (1)
	BetaCo	U.S.	Electronics components	~1200	US\$300M	Program Manager (1)
Inje		China	Injection molding equipment	>800	RMB 20B	COO (1)
	CastingCo	China	Castings	~120	RMB 1.8B	GM (1)
	CompCo	China	Machinery components	~30	RMB 1M	GM (1)

Note: () number of interviews

Source: Authors own work

**Table 2: Key concepts identified in the cases**

Customer	Suppliers	Concepts			
		Supplier economic dependence on the customer	Supplier affective commitment to the customer	Supplier required short-term sacrifice	Supply chain citizenship behavior
Infan					
	BabyCo	<ul style="list-style-type: none"> <li>• &gt;20 years supplying Infan</li> <li>• 20% owned by Infan</li> </ul>	BabyCo shares Infan’s aspiration to be a premiere national brand	Loss of profit	BabyCo did not pass substantial MBC price increase on to Infan
	DairyCo	<ul style="list-style-type: none"> <li>• &gt;10 years supplying Infan</li> <li>• Infan accounts for 1/2 of DairyCo’s milk powder sales</li> </ul>	DairyCo and Infan both value quality and safety over price	Threats to employee relationship	DairyCo implemented very strict factory management rules that conflicted with French cultural norms
Herb					
	AgriCo	<ul style="list-style-type: none"> <li>• &gt;8 years supplying Herb</li> <li>• Herb is its main customer</li> </ul>	Both AgriCo and Herb value keeping promises	Loss of profit	AgriCo honored Herb’s contract that was not signed prior to the holiday break, despite significant cost increases
	SugarCo	<ul style="list-style-type: none"> <li>• &gt;10 years supplying Herb</li> <li>• Herb is among SugarCo’s top five customers</li> </ul>	Both SugarCo and Herb value keeping promises	Loss of profit	<ul style="list-style-type: none"> <li>• SugarCo bought sugar for Herb from other suppliers, absorbing price increases</li> <li>• SugarCo stockpiled sugar in warehouses near Herb</li> </ul>
Elec					
	AlphaCo	<ul style="list-style-type: none"> <li>• &gt;15 years supplying Elec</li> <li>• Elec is AlphaCo’s largest customer</li> </ul>	<ul style="list-style-type: none"> <li>• AlphaCo and Elec are like a family</li> <li>• AlphaCo and Elec value innovation and quality over price</li> </ul>	Loss of profit	<ul style="list-style-type: none"> <li>• AlphaCo held daily online meetings with suppliers</li> <li>• AlphaCo used multiple shipping methods to transport components needed for Elec’s orders</li> </ul>

Customer	Suppliers	Concepts			
		Supplier economic dependence on the customer	Supplier affective commitment to the customer	Supplier required short-term sacrifice	Supply chain citizenship behavior
	BetaCo	<ul style="list-style-type: none"> <li>• &gt;10 years supplying Elec</li> <li>• BetaCo is a top-five supplier to Elec</li> </ul>	<ul style="list-style-type: none"> <li>• BetaCo has different values than Elec, focusing on cost control</li> </ul>	Loss of profit	<ul style="list-style-type: none"> <li>• BetaCo demonstrated weaker citizenship behaviors</li> </ul>
Inje					
	CastingCo	<ul style="list-style-type: none"> <li>• &gt;7 years supplying Inje</li> <li>• Inje accounts for 1/3 of CastingCo's sales</li> </ul>	<ul style="list-style-type: none"> <li>• CastingCo is strongly influenced by Inje's focus on traditional Chinese values</li> </ul>	Loss of profit	<ul style="list-style-type: none"> <li>• CastingCo filled Inje's orders at a lower price than other customers would have paid</li> <li>• CastingCo provided early payment to its suppliers to gain priority for Inje</li> </ul>
	CompCo	<ul style="list-style-type: none"> <li>• &gt;10 years supplying Inje</li> <li>• Inje is accounts for ½ of CompCo's sales</li> </ul>	<ul style="list-style-type: none"> <li>• CompCo was guided by Inje as it grew</li> <li>• CompCo believes in Inje's direction</li> </ul>	Loss of profit	<ul style="list-style-type: none"> <li>• CompCo prioritized Inje's orders over orders from customers offering higher prices</li> </ul>

Source: Authors own work

**Table 3 Representative quotes illustrating the key concepts**

Concepts	Illustrative quotes
SCCB	<p>"I gave up all my profits... I gave up every penny I should have earned."(BabyCo)</p> <p>"We temporarily sourced white sugar from Guangdong for it... I covered all the costs." (SugarCo)</p> <p>"We sourced a medicinal herb... It incurred tens of millions more in additional costs." (AgriCo, GM)</p> <p>"... get some of our deliveries on boat and some of our deliveries on air, and just try to use the avenues that we have, the different shipping lanes that you can use and shipping methods you can use" (AlphaCo)</p>
Economic dependence	<p>"On infant milk formula, about 50% [sold to Infan]" (DairyCo)</p> <p>"It [Herb] is among the top five in our customer base" (SugarCo)</p> <p>"It [Elec] is the top five customers" (BetaCo)</p>

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Affective commitment	<p>“[Inje is ] No. 1 [customer]” (CompCo)</p> <p>“Our sales to [Inje] account for about one-third of our total sales.” (CastingCo)</p> <p>“In my eyes, their founder was the kind of entrepreneur I was looking for—someone who could sacrifice everything for their values.” (BabyCo)</p> <p>“We share the same goals, that’s we need to provide our consumer the premium product”(Infan. Quality Management Director )</p> <p>“We overcome the difficulties, and we understand each other better...it’s true love” (DairyCo)</p> <p>“Everyone shares similar values”(AgriCo)</p> <p>“We’ve always had a good relationship [with Herb]” (SugarCo)</p> <p>“Our industry is very enthusiastic about learning traditional culture, because many people have benefited greatly. The biggest leader should be [Inje], and we are following in this direction” (CastingCo)</p> <p>“My colleague said our culture is very similar to [Inje], and I said it’s not just similar, it is.” (CastingCo)</p> <p>"Many of our colleagues like to go to [InjeCo] very much... I have many opportunities to visit InjeCo, and I go there whenever I can.” (CastingCo)</p> <p>“They [Inje] found some of their processing techniques and concepts acceptable, so we learned from them” (CompCo)</p> <p>“They [other suppliers] are trying to climb the social ladder [ being suppliers to Inje], and we’re already on this bandwagon.” (CompCo)</p>
Required short-term sacrifice	<p>“The price increase of material...a tenfold increase.” (BabyCo)</p> <p>“At this time, we face a huge loss in profit.” (BabyCo)</p> <p>“ Our profit will be affected.” (AgriCo, Deputy GM)</p> <p>“This will definitely generate more costs”(SugarCo)</p> <p>“They [the distributor] immediately told me to start to order from the independent brokers that have this excess material. You pay a little bit more, and you have to do some extra testing of this material...” (AlphaCo)</p> <p>“Some suppliers went out to make quick money...” (CompCo)</p> <p>“Frankly speaking, other clients’ prices are definitely higher [than Inje’s prices]” (CastingCo)</p>

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SCCB: supply chain citizenship behavior.

Economic dependence, affective commitment, and required short-term sacrifice refer to those of the supplier. Subsequent tables and figures use the abbreviated forms.

Quotes are attributed to the firm identifier; for firms with multiple informants, the informant’s role is also indicated (see Table 2 for details).

Source: Authors own work

**Table 4. Means, standard deviations, and correlations**

	1	2	3	4	5
1. Age	1				
2. Required short-term sacrifice	-0.08	1			
3. Affective commitment	0.01	0.07	1		
4. Economic dependence	-0.01	-0.06	0.01	1	
5. SCCB	0.10	-0.22**	0.38**	0.25**	1
Mean	39.0	0.53	0.48	0.51	2.30
Standard Deviation	12.49	0.50	0.50	0.50	0.58

\*\*p < 0.01; two-tailed.

Source: Authors own work

**Table 5: Case processing summary**

How would you respond to HerbCo's request?		n	Marginal Percentage
SCCB	1. I would not fill HerbCo's order.	24	6.60%
	2. I would not order the ImuX unless HerbCo agrees to accept a surcharge to cover our cost increase.	207	56.90%
	3. I would pay the extra price to get the ImuX and would not charge HerbCo extra to cover our cost increase.	133	36.50%
Valid		364	100.00%
Missing		5	
Total		369	

Source: Authors own work

**Table 6: Results of ordinal logistic regression**

Parameter	B (Estimate)	S.E.	Wald	d.f.	Sig.	95% CI		Odds ratio <sup>1</sup>
						Lower bound	Upper bound	
Required short-term sacrifice	-0.61	0.41	2.19	1	0.139	-1.41	0.20	0.55
Affective commitment	2.48	0.37	45.14	1	<0.001	1.76	3.20	11.93
Economic dependence	1.23	0.36	11.80	1	<0.001	0.53	1.94	3.44
Required short-term sacrifice X Affective commitment	-1.02	0.48	4.51	1	0.034	-1.95	-0.08	0.36
Required short-term sacrifice X Economic dependence	-0.13	0.47	0.08	1	0.781	-1.05	0.99	0.88
Gender	-0.23	0.23	0.98	1	0.323	-0.69	0.23	0.79

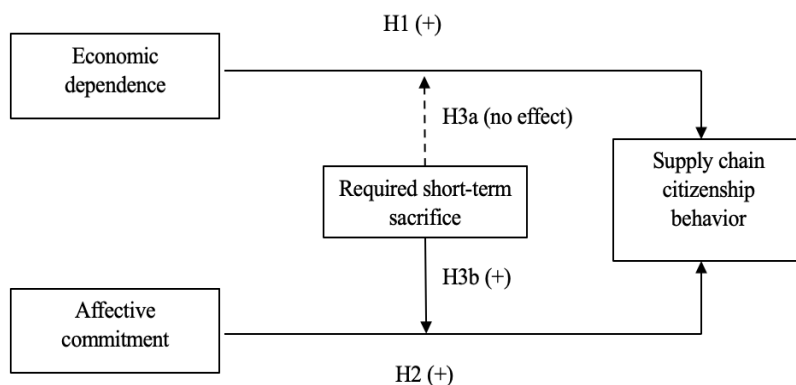
Age	0.02	0.01	3.16	1	0.076	-0.02	0.04	1.02
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Dependent variable: SCCB

<sup>1</sup> Odds ratios are calculated as  $\text{Exp}(B)$

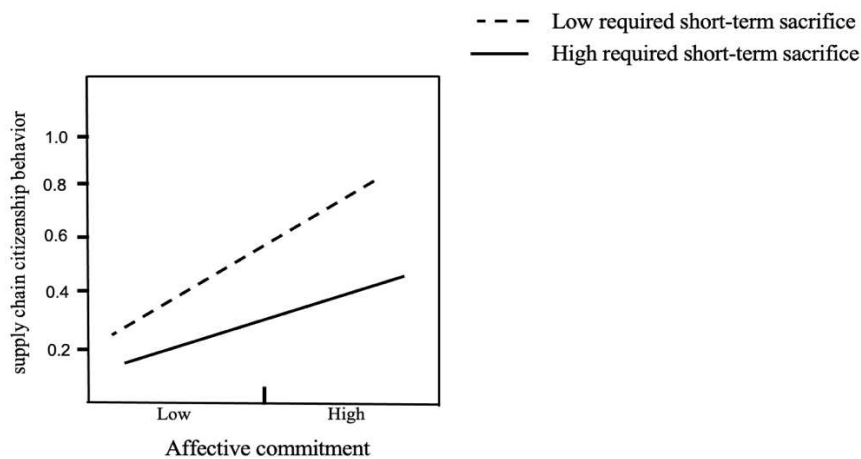
Source: Authors own work

**Figure 1 Conceptual model**



Source: Authors own work

**Figure 2 Interaction effect between affective commitment and required short-term sacrifice**



Source: Authors own work