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Buyer abusive behavior and supplier welfare: An empirical study of truck owner–operators

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Abstract

The increase in stakeholder pressure for responsible business draws closer public scrutiny when buyers use their power advantage illegitimately to exploit weaker suppliers. In this study, we develop the novel concept of *buyer abusive behavior* (BAB) and examine BABs exerted by buyers of trucking services against truck owner–operators as their suppliers. This focus is timely given the recent emergence of online platform businesses where precarious work and associated worker abuse are prevalent. Building on the theory of power imbalance and risk-taking behavior, we elaborate on how BAB can jeopardize supplier welfare that comprises performance and safety. The analysis of the data pertaining to 260 owner–operators in South Korea shows that contract-unrelated BAB (e.g., buyer's request for money and valuables) harms supplier performance and supplier safety while contract-related BAB (e.g., buyer's unfair subcontract price decision) does not. Furthermore, the positive relationship between supplier performance and supplier safety is attenuated by contract-related BAB but reinforced by contract-unrelated BAB. We contribute to the growing body of the literature on decent work by exposing BAB as a major detriment to supplier worker welfare and laying the groundwork for the development of theories on power abuse and working conditions in multi-tiered subcontracting work environments.

KEYWORDS

buyer abusive behavior, multi-tiered subcontracting, owner–operator, prospect theory, supplier welfare, trucking industry

INTRODUCTION

Buyers' power over their suppliers has been a controversial issue for decades. Some earlier studies (e.g., Huang et al., 2012) delineate how the use of buyer power can be beneficial to suppliers. Others (e.g., Bloom & Perry, 2001; Lanier et al., 2010) reveal that buyer power leaves suppliers worse off. With the rise of public interest in responsible business, however, the drawbacks of buyer power have received growing attention (Krause et al., 2009; Pagell et al., 2010). This attention becomes more salient when the use of buyer power places the lives of supplier workers at risk, often exposing them to the danger of injury or death in workplace accidents

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particularly in the gig economy (Weil, 2018). Although the buyers' legal liabilities for these consequences are unclear, buyers are generally subject to accusations that they have little regard for supplier workers' safety and are prioritizing financial strategies over the safe working conditions of their suppliers (Weil, 2014).

In this study, we examine a buyer's illegitimate (i.e., not authorized by the law) actions toward a supplier—which we term *buyer abusive behavior* (BAB)—and its relationship with supplier welfare. Building on prior studies (e.g., Schleper et al., 2017), we define BAB as a buyer's illegitimate use of coercive power to satisfy its interests by exploiting weaker suppliers. From this definition, we emphasize "illegitimate use" to draw a conceptual distinction between BAB and coercive power. The supply chain literature on the sources of power has defined and measured coercive power as the ability to punish a supplier that fails to conform to the buyer's expectations (Chae et al., 2017; Maloni & Benton, 2000; Pulles et al., 2014). This definition and its associated measurements are based on the conditionality of the punishments and do not identify whether the buyer actually engages in coercion and, if so, whether or not the coercion is legitimate. Therefore, we formulate the concept of BAB to understand how a buyer's illegitimate coercion influences supplier welfare. Such coercion can entail abusing specific contract terms or violating more far-reaching commercial and criminal laws (Weil, 2014). Given this, to provide a deeper insight into the nature of BAB, we conceptualize BABs in terms of two dimensions: *contract-related* and *contract-unrelated*.

The trucking industry is characterized by pervasive BABs (Belzer, 2000; Viscelli, 2016), so we have chosen it as the empirical setting of this study. The Teamsters Union, the champion of freight truck drivers in North America, has demanded that service buyers in the industry "stop squeezing our truck drivers like lemons," as this kind of pressure drives down truckers' profit margins and diminishes road safety (Lacroix, 2017). This is also the case in many other countries such as Australia (Mayhew & Quinlan, 2006), South Korea (Liem, 2016; Yun, 2020), and in the EU (Eliassen, 2018), where deregulation has created numerous truck owner–operators. Trucking is also relevant to platform logistics that is now emerging as a new business model in supply chains (Hill, 2020). Such online platforms generate benefits such as cost-efficiency but are also subject to drawbacks potentially associated with BAB. That is, the flexibility of contractual arrangements would give buyers another power source to exploit precarious contractors (Weil, 2018; Wiengarten et al., 2021). These features make the trucking industry an ideal setting for our study on BAB.

The research on power in buyer–supplier relationships has focused on the benefits that accrue to buying firms (e.g., Chae et al., 2017; Villena et al., 2019; Wagner et al., 2011). In contrast, little attention has been given to supplier welfare (Bloom & Perry, 2001; Huang et al., 2012; Pullman et al., 2009; Reinecke & Donaghey, 2021). In their call for research, Soundararajan et al. (2021) argue that this buyer-centric view is one of the main reasons that supply chain research falls short in addressing the causes of indecent work like BAB. By extending the literature on power in buyer–supplier relationships and integrating it with prospect theory (Kahneman & Tversky, 1979), we reveal how BAB worsens supplier (owner–operator) welfare and prepare the ground for promoting decent work.

Prior studies elucidate worker welfare as health and safety in the workplace, as well as performance issues such as benefits (e.g., Pagell & Gobeli, 2009). Following this, we define supplier (owner–operator) welfare as a combination of performance and safety. For owner–operator performance, we focus on operational performance, given that carriers' performance must be evaluated based on how efficiently they meet customer demands (Saldanha et al., 2013; Stank et al., 1999). Further, because subcontracting can involve multiple intermediaries, there could be numerous buyers, generally including large shippers, middlemen, and trucking firms (Mayhew & Quinlan, 2006; Viscelli, 2016). In this study, we consider them all as major buyers for trucking service.

Analyzing the data collected by a face-to-face survey from 260 owner–operators in South Korea, we find that contract-unrelated BABs damage both the performance and the safety of truck owner–operators. We further find that the relationship between owner–operator performance and safety is conditional on the extent and type of BAB. Specifically, we reveal mixed moderating effects of BAB on the relationship between owner–operator performance and safety. While contract-related BAB weakens the positive relationship between performance and safety, contract unrelated-BAB strengthens it. Taken together, our results establish BABs as critical detriments to supplier welfare.

Our study makes several contributions. This is the first empirical study to craft a special case of coercive power use in buyer–supplier relationships. Moving beyond the structure (Molm, 1990) or sources (Chae et al., 2017) of coercive power, we conceptualize BAB as the illegitimate use of coercive power and add new insights to the literature on power in buyer–supplier relationships. In addition, prior studies on power in buyer–supplier relationships have paid little attention to supplier welfare. By taking a supplier-centric view on

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welfare, we suggest ways to improve the lives and working conditions of truck owner–operators as supplier workers, thereby "building a path to decent work" in supply chains (Soundararajan et al., 2021). Furthermore, this study contributes to the use of prospect theory by finding initial evidence for a tipping point where individuals could become risk-averse instead of risk-seeking when the loss passes a certain level.

Finally, buyers' exploitative behaviors that violate social rules have been pointed out by practitioners as a major cause of performance and safety problems for supplier workers (Mayhew & Quinlan, 2006; Viscelli, 2016; Weil, 2014). However, the literature has not examined these issues, partly because of the difficulties in collecting data on buyers' illegitimate behaviors. By administering a face-to-face survey, we expose BAB and provide important implications for trucking (Scott & Nyaga, 2019). This is important given that such abuse of power manifests also in contexts where the subcontracting system can be abused (Weil, 2014) and precarious work is prevalent (Wiengarten et al., 2021).

BACKGROUND OF RESEARCH

Both the positive and negative impacts of buyer power on supplier welfare have been discussed (Table 1). The synthesis of the findings suggests that when buyers have more bargaining power, suppliers are less likely to capture a fair portion of the channel surplus (Bloom & Perry, 2001; Inderst & Wey, 2007; Lanier et al., 2010). However, if suppliers can expand their own bargaining power (e.g., through size or market share) and therefore increase interdependence, buyers' greater market share could prove beneficial for the suppliers (Hofer et al., 2012; Huang et al., 2012). Nevertheless, for weaker suppliers without the bargaining power to build interdependence, buyers can exploit these suppliers for short-term gains (Anderson & Jap, 2005). Such actions can be considered exploitative, particularly if the buyers obtain undeserved benefits at suppliers' expense through unfair practices (Nyaga et al., 2013; Schleper et al., 2017).

These buyers' exploitative behaviors are prevalent in trucking where the bargaining power of suppliers is especially weak due to their dependence on the buyers (Belzer, 2000; Viscelli, 2016). Trucking plays a vital role in both the national and global economy (Douglas & Swartz, 2017). In South Korea, for example, trucks deliver more than 90% of total freight, accounting for roughly 10% of GDP (KOTI, 2017; Yun, 2020). Indeed, trucking is a dominant mode for supply chain material flows, especially downstream toward retailers and end consumers (McKinnon, 2006). However, in countries where deregulation has been enacted, trucking operations are now extremely competitive. This is even more facilitated by the recent emergence of online platform businesses that act as markets that connect various players in supply chains (Hill, 2020; Weil, 2018). The market competition is characterized by easy entry leading to the influx of numerous truck owner–operators and, therefore, intense price-based bidding for road freight services (Mayhew & Quinlan, 2006). This hyper-competition under deregulation has facilitated the creation of multiple tiers of subcontractors (Weil, 2014), making abusive behaviors by buyers more widespread.

Moreover, the commoditization of trucking transportation services, lower switching costs of owner–operators, and the outsourcing of their management to third parties are making truck owner–operators more vulnerable to exploitation by buyers (Belzer, 2000; Mayhew & Quinlan, 2006; Viscelli, 2016). According to Viscelli (2016), buyers in the trucking industry have created a new set of labor supply and management strategies that shift the potential risks and costs onto suppliers. As stated by one interviewee, "[trucking] is a dog-eat-dog world. It is hard. It is harder now than it was years ago, and it gets worse because there are people coming into contracting and working for nothing" (p. 188). Several studies have verified this point. For example, Kemp et al. (2013) found that owner–operators in the US are placed in stressful situations where they must satisfy incompatible demands, forcing them to ignore hours of service rules and other regulations. Consistent with this, Miller et al. (2018) and Scott and Nyaga (2019) report that owner–operators repeatedly break work-hour rules and drive poorly maintained trucks.

Working conditions for truck owner–operator are not much different in South Korea, the empirical setting of this study. In South Korea, where trucking deregulation began in the early 1990s, owner–operators are treated as self-employed or independent contractors (Lee & Kim, 2017; Yun, 2020). Under this structure, truck owner–operators are paid a freight rate set by large shippers (i.e., manufacturers or retailers) on a piecework basis (Coca, 2021; Liem, 2016). There are several benefits for such service buyers, such as reduced costs (Weil, 2014). However, this structure can be problematic for owner–operators in that multi-tiered subcontracting is prevalent (Belzer, 2000; Mayhew & Quinlan, 2006; Viscelli, 2016). In South Korea, although it is against the law, transactions often involve more than three steps of subcontracting to owner–operators, pushing the freight rate even further down (KOTI, 2017; Liem, 2016). The nature of this market forces truck owner–operators to work for less than the minimum wage and to cut corners to make ends meet.

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TABLE 1 Mixed effects of buyer power on supplier welfare

Author (year)	Focus	Sample	Relevant findings
Bloom and Perry (2001)	Retail power and supplier welfare	6,676 firm-year observations (78 suppliers) from 1988 to 1994	Wal-Mart suppliers likely produce lower profit margins than suppliers with other retailers; this is especially the case for smaller suppliers
Battigalli et al. (2007)	Buyer power and supplier improvements	(analytically based approach)	Buyer power is detrimental to suppliers by making the supplier difficult to obtain quality improvements
Inderst and Wey (2007)	Buyer power and supplier incentives	(analytically based approach)	The presence of larger buyers may reduce supplier profits, but this can also induce the supplier to invest in higher capacity or to adopt more flexible technologies, thus raising total welfare
Gosman and Kohlbeck (2009)	Major customers and supplier profitability	2,941 firm-year observations (320 suppliers) during 1993–2004	Supplier profitability is negatively affected by buyer power, as sales to major customers increase, but larger suppliers can mitigate part of the adverse impact
Henke et al. (2009)	Supplier price concessions	1,659 firm-year observations (238 suppliers) for the years of 2001–2007	Buyers obtain price concessions from their suppliers, but it mostly occurs when the supplier perceives greater opportunities for potential future economic gain
Mottner and Smith (2009)	Wal-Mart and supplier performance	992 firm-year observations (97 suppliers) from 1998 to 2005	Wal-Mart's (especially smaller) suppliers tend to have low gross margins, but, after firm characteristics controlled, findings suggest that these suppliers are self-selecting for pricing concessions
Lanier et al. (2010)	Concentrated supply chain and performance	276 chain-year observations from 1980 to 2006	Members in concentrated supply chains collectively achieve superior financial performance, but the surplus is captured largely by the buyers positioned on the downstream side such as retailers
Hofer et al. (2012)	Retail power and supplier performance	78,351 firm-quarter observations (242 suppliers) during 1999–2009.	Supplier welfare increases when they can expand their own market share, but this benefit may decrease when the suppliers depend largely on their buyers (retailers)

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TABLE 1 (Continued)

Author (year)	Focus	Sample	Relevant findings
Huang et al. (2012)	Wal-Mart's impact on supplier profits	Weekly data for 756 Wal-Mart entries from Dec. 1999 to Jan. 2005	Wal-Mart's market entry enhances supplier profits, suggesting that supplier profits are more likely affected by their own market expansion, not by the retailer's wholesale prices
Patatoukas (2012)	Customer concentration and supplier performance	25,389 firm-year observations over the 30-year period, 1977–2006	There are positive associations between customer concentrations and supplier performance, suggesting that buyer power is beneficial to suppliers
Kim (2017)	Customer network and supplier profitability	717 suppliers that had ties with 257 major customers, disclosed in 2011	Customer concentration negatively affects the supplier's profitability, while mutual dependence between customers and suppliers reduces its adverse consequences
Noton and Elberg (2018)	Retail power and supplier profitability	5,175 observations (weekly wholesale price data) that span the period of 2005–2007	Suppliers can obtain 42% of the channel surplus, and even small suppliers can obtain bargaining leverage by maintaining loyal relationships with customers

THEORETICAL FRAMEWORK

Coercive power and BAB

Power imbalance and coercive power

Power is a central element in social exchange relationships (Cook & Emerson, 1978), given that it influences the frequency of the exchange and the distribution of exchange outcomes (Molm, 1990). In buyer–supplier exchanges, power is one party's ability to influence the other (Maloni & Benton, 2000). Further, power is considered a property of the social exchange that entails ties of dependence between the parties (Handley & Benton, 2012). For instance, when social entity A holds resources that social entity B needs, B becomes dependent on A, and A has power over B (Casciaro & Piskorski, 2005). Therefore, power is inseparable from dependence (Emerson, 1962).

It is not unusual for the channel power to be unbalanced. The ability to mete out or withhold punishments gives rise to coercive power: the ability of a power holder to retaliate against a less powerful party (French & Raven, 1959; Molm, 1997). In the supply chain context, coercive power becomes apparent when a weaker party complies with a more powerful exchange partner's requests out of fear of losing the contract (Nyaga et al., 2013). Supply chain researchers have investigated coercive power in connection with other types of social power (e.g., reward, legitimate, referent, and expert) and found mostly negative impacts of buyer coercive power on various aspects of buyer–supplier relationships such as supplier integration, commitment, collaboration, and performance (e.g., Benton & Maloni, 2005; Nyaga et al., 2013; Zhao et al., 2008). These negative consequences could occur because a buyer that frequently relies on coercive power can deter suppliers from continuing their relationships with that buyer (Chae et al., 2017).

BAB in buyer–supplier relationships

A buyer's coercive power can lead to abusive behavior against a supplier if that buyer chooses to illegitimately exploit a less autonomous supplier and appropriate greater value at that supplier's expense (Marshall et al., 2019; Schleper et al., 2017). Such attempts to

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exploit suppliers are likely, given that "in virtually any market situation, businesses face incentives to lower costs" (Weil, 2014, p. 77). Due to its dependence on the buyer, however, the supplier may hesitate to retaliate against the buyer (Nyaga et al., 2013). A buyer's coercive power and BAB are related but separate concepts. As stated earlier, the literature on the sources of power in buyer–supplier relationships defines and measures coercive power as the ability to punish a supplier if it does not meet the buyer's expectations (e.g., Chae et al., 2017; Maloni & Benton, 2000; Pulles et al., 2014; Zhao et al., 2008). Therefore, coercive power is based on the structure of the power relationship (i.e., dependence) (Molm, 1990); BAB falls into the category of the use of the power. At the same time, BAB is distinguished from the customary use of coercive power in that BAB entails illegitimate actions in the form of abusing supplier welfare, whether the supplier conforms to the buyer's expectation or not.

The buyer–supplier relationship literature that investigates buyer coercive power has emphasized the structural aspect of power (i.e., buyer's ability to or possibility of punishing suppliers) but much less on the behavioral aspect (e.g., Maloni & Benton, 2000; Pulles et al., 2014; Zhao et al., 2008). Moreover, with the exception of Schleper et al.'s (2017) conceptual study of supplier exploitation, little research has studied actual BABs toward suppliers. One possible reason is the difficulty of collecting data on buyers' illegitimate actions. Moreover, prior research on buyer coercive power has paid little attention to the welfare of supplier workers. By treating truck owner–operators as individual transportation service suppliers and collecting face-to-face survey data from them while ensuring their anonymity, we identify BABs and their associations with the welfare of supplier workers.

Two dimensions of BAB

In exchange relationships, illegitimate actions by buyers can include the abuse of specific contract terms or the violations of more consequential commercial or criminal law by engaging in practices such as price gouging, unreasonable intervention in management, and fraud (Weil, 2014, p. 104). Therefore, we conceptualize the former as contract-related BAB and the latter as contract-unrelated BAB. As discussed below, each BAB type entails a different buyer behavior but shows similarities in the way buyers exploit their suppliers illegitimately. This leads us to the conceptual separation of BABs, which could provide a deeper insight into the nature of BAB.

Typical cases of contract-related BAB pertain to payment and ordering such as buyer's unfair subcontract price decision or coercive freight service contract. For instance, Viscelli (2016) finds that many owner–operators had been overcharged by buyers, encountered unreasonable delays in payment, arbitrary price reductions, and abusive contract terms. As stated by an interviewee, "You are in accounts receivable risk. Meaning if you haul, who is going to guarantee that you're going to get your money on time?" (p. 135). Furthermore, fearing the loss of their business, subcontractors have no choice but to take work even under financially disadvantageous terms (Carter, 2000; Nyaga et al., 2013; Weil, 2014). In this context, truck owner–operators have sometimes been forced to accept urgent but unprofitable loads (Belzer, 2000; Mayhew & Quinlan, 1997, 2006).

For contract-unrelated BAB, unwarranted interference in management is commonplace. Cascom, a cable installation service provider in the US, treated its installers as independent contractors. Even though it is unlawful, the company controlled all the installers' activities by determining their scheduling and pricing (Weil, 2014). Similarly, in the trucking industry, buyers control truck owner–operators, while expecting the truckers to assume all operational costs and responsibilities (Belzer, 2000; Eliassen, 2018). Numerous studies have also shown that subcontractors are vulnerable to such corrupt acts by buyers. For instance, many subcontractors in the tea industry were forced to make deductions from their wages for electricity that was not actually provided (LeBaron, 2021). Asking suppliers for bribes in exchange for new or continued business (Kim & Wagner, 2021) is another type of contract-unrelated BAB found in supply chain relationships.

Risk-taking behavior

Risk-taking behavior of individuals

For research on individual decision-making under risk and uncertainty, Kahneman and Tversky's (1979) prospect theory has been the prevailing approach (Tom et al., 2007). This concept of risk-taking builds on individuals' behavioral tendency to be loss-averse, not gain-seeking. From this point of view, individuals tend to make decisions that minimize losses in relation to a reference point (Kahneman & Tversky, 1979; Tversky & Kahneman, 1992). The reference point, shaped by aspirations, expectations, norms, and social comparisons, can be defined as "the neutral position used to determine the extent to which outcomes constitute gains (which are above this position) or losses (which are below this

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position)" (Holmes et al., 2011, p. 1072). Individuals above the reference point tend to engage in risk-averse behavior that guarantees certain outcomes. In contrast, individuals below it tend to take risks (i.e., prefer probabilistic outcomes) with a greater expected value.

As a theory of individual risk-taking behavior (Hoskisson et al., 2017), prospect theory predicts people's choices in decision-making that pursue greater value (gain) but at the same time entail risk and uncertainty (loss). Scholars in numerous disciplines have studied gain versus loss decisions for decades (for reviews, see Barberis, 2013; Holmes et al., 2011). In most cases, the findings support prospect theory—people are more sensitive to losses than to equivalent gains. Following this, we presume that the degree of risk-taking behavior depends on the individual's performance (Holmes et al., 2011; Hoskisson et al., 2017). That is, whether individuals are loss-averse or gain-seeking is determined by the expected outcomes of a decision. Consequently, high performers would become risk-averse, whereas low performers may become risk-seeking.

Risk-taking behavior and safety

Though safety is affected by a variety of factors in the sociotechnical system (Brown et al., 2000), individuals' or workers' risk-taking behavior can affect their safety. Workers engaging in more frequent, riskier behavior are more susceptible to accidents (Christian et al., 2009). Workers trade off risky behaviors against benefits such as being able to work faster (Mayhew & Quinlan, 1997) and reducing costs (Weil, 2014). Especially relevant to our study is that operational performance in the trucking industry has been found to have a positive effect on safety (Miller et al., 2017; Miller & Saldanha, 2016). This effect has been attributed to poor operational performance triggered by economic pressure (Agnew, 1992) that makes riskier behaviors more attractive because they can increase gains. However, the literature is also silent on the factors that may moderate the relationship between performance and safety, a topic we address here.

HYPOTHESIS DEVELOPMENT

Our premise is that both contract-related and contract-unrelated BABs are detrimental to supplier welfare that consists of performance and safety. In addition, we argue that BAB has a moderating impact on the relationship between supplier performance and safety. Specifically, we propose contract-related BAB as a negative and contract-unrelated BAB as a positive moderator. Figure 1 depicts our conceptual model and hypotheses.

Our first set of hypotheses is that contract-related and contract-unrelated BABs will both be negatively associated with supplier performance. As discussed, there are economic incentives for stronger buyers to abuse their power over their weaker suppliers (Cox, 2001; Schleper et al., 2017; Weil, 2014), especially when there is a large pool of potential subcontractors with limited bargaining power. This abuse of power may lead suppliers to concede a point in contract terms (Bloom & Perry, 2001; Carter, 2000; Henke et al., 2009) even if they place those suppliers at a financial disadvantage. For instance, Massey Coal, a large buyer in the mining industry, sets subcontract prices based on their own calculations instead of market prices with no consideration of their suppliers' profit margins (Weil, 2014).

In exchange relationships in the trucking industry, we view owner–operators as the weaker party and service buyers as the stronger party. In such relationships, BABs

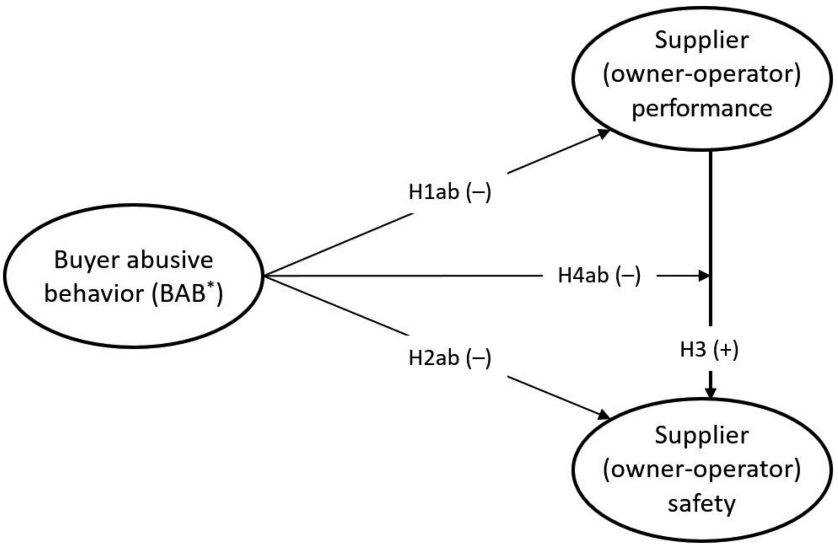

FIGURE 1 Conceptual framework. *Analyzed with contract-related BAB and contract-unrelated BAB

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directly erode owner–operator performance, as buyers are likely to appropriate the benefits of the exchange at the expense of their suppliers. In one example, buyers optimize their schedule by forcing truck owner–operators to accept assigned loads, even if some of those loads are not profitable for the owner–operators (Viscelli, 2016). In this connection, buyers often keep owner–operators waiting for hours to be loaded or unloaded without compensation (Belzer, 2000; Eliassen, 2018). Indeed, in trucking, "there is no way [of] contracting [that] can benefit both drivers and carriers economically" (Viscelli, 2016, p. 5). As buyers could take these illegitimate economic gains either by abusing contracts with the owner–operators or by violating more general commercial and criminal laws, we posit the following hypotheses:

> **H1:** (a) Contract-related and (b) contract-unrelated BABs are negatively associated with supplier performance.

We also expect contract-related and contract-unrelated BABs to be negatively associated with the safety of trucking suppliers. Weil (2014) argues that the likelihood of occupational health and safety risks (e.g., injuries and deaths) increases when the responsibility for those issues is "left in the hands of parties with little incentive to take that responsibility seriously" (p. 117). In a subcontracting supply chain, owner–operators at the bottom would be most vulnerable to safety hazards, given that such independent contractors are difficult for government agencies to monitor, can easily fall through regulatory cracks, and have less access to safety information (Belzer, 2000). Such a complex supply chain leads to the disorganization that creates ambiguity over who is responsible for health and safety risks; this ambiguity can cause workplace safety incidents (Mayhew & Quinlan, 1997, 2006).

In numerous cases, buyers jeopardize truck owner–operators by transferring the responsibility to them. For example, when a large shipper wanted their loads delivered before Hurricane Katrina hit, the primary contractor forced an owner–operator to pick up the load and head for the destination despite the storm (Viscelli, 2016). Buyers engaging in exploitative behavior also give owner–operators loads for which the only possible way to meet delivery windows is to break speed limits, increasing the likelihood of accidents (Kemp et al., 2013; Liem, 2016). Owner–operators are legally self-employed, meaning that they have the right to refuse any load. If they do, however, buyers may take advantage of low switching costs and sever their business relationships (Crook & Combs, 2007). In this sense, owner–operators are owners and operators in name only. They are under pressure to accept every assignment, even if it puts them at risk (Agnew, 1992). This pressure can lead to violations such as exceeding work hour limits (Scott & Nyaga, 2019), failing to maintain trucks (Cantor et al., 2013), or rushing through tasks (Miller & Saldanha, 2016), all of which increase the propensity for accidents. Taken together, we posit the following hypotheses:

> **H2:** (a) Contract-related and (b) contract-unrelated BABs are negatively associated with supplier safety.

Our next hypothesis is that supplier (owner–operator) performance is positively associated with their safety. This relationship has been discussed mainly at the firm level, rarely at the individual level. Two mechanisms undergird this prediction. The first is that strong performance generates the resources that suppliers like owner–operators need to invest in safety (Miller et al., 2017). There is always a trade-off between performance and safety, as the costs of ensuring safety (e.g., maintenance) at work tend to be high (Britto et al., 2010; Miller & Saldanha, 2016; Naveh & Marcus, 2007). In that sense, only well-to-do suppliers have the resources to invest in safety improvements; those who do not are more likely to struggle to balance performance and safety. The other mechanism is that strong performance suggests that suppliers will be under less economic strain (Miller & Saldanha, 2016), which reduces the need for them to cut corners (Agnew, 1992). In trucking, examples include exceeding speed limits and working overtime, both of which are known to increase the risk of a crash (Cantor et al., 2010; 2013; Miller et al., 2018). Given this discussion, we posit the following baseline hypothesis:

> **H3:** Supplier performance is positively associated with supplier safety.

We now turn to the moderation effects of contract-related and contract-unrelated BABs on the relationship between performance and safety. In this study, we expect owner–operator behavior to follow the general prediction of prospect theory, which posits that individuals become more risk-seeking in the face of potential losses (Kahneman & Tversky, 1979). As BABs such as unfair price decisions or price gouging increase owner–operators' expectation of loss, they could become more risk-taking in their driving behavior and maintenance activities to compensate for the expected losses caused by BABs. Casciaro and Piskorski (2005) note that coercion by a stronger party could restrict a weaker party's ability to keep direct control over their own resources. Thus, when faced with a low level of BAB, resources earned through

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performance could become more available to owner–operators, and those with such resources (framed as gains) could behave in a more risk-averse way and allocate enough resources to safety improvement (e.g., regular maintenance) and safe driving. When faced with a high level of BAB, however, owner–operators expect to have very limited resources (framed as losses) and thus are inevitably confronted with the decision on how to allocate them to specific operations. In this situation, the owner–operators could perceive securing safety as a trade-off with greater expected gains and compromise safety to minimize expected losses (Miller et al., 2018). Thus, we posit the following hypothesis:

> **H4:** (a) Contract-related and (b) contract-unrelated BABs weaken the positive relationship between supplier performance and supplier safety.

METHODOLOGY

Data collection and sample

Our unit of analysis is the supplier: an individual truck owner–operator. Our context is South Korea, where most freight and goods are transported by trucks but in a highly competitive environment (Lee & Kim, 2017; Liem, 2016). The latest statistics show that 93.6% of the truck drivers in South Korea are owner–operators (Yun, 2020). This indicates the widespread use of multitiered subcontracting with truck owner–operators at the bottom. Like other independent contractors (Mayhew & Quinlan, 1997; Weil, 2014), truck owner–operators in South Korea are recognized as self-employed drivers with no guarantees of minimum wage, overtime remuneration, and freedom to unionize (Coca, 2021; Liem, 2016). In fact, before deregulation in the early 1990s, trucking companies or middlemen were forbidden to subcontract freight work to independent contractors. After 1997, however, this rule was amended, allowing the use of owner–operators while involving multiple intermediaries in trucking. As a result, although it is unlawful, more than three tiers of subcontracting are not uncommon in the Korean trucking industry, where around one fourth of the subcontractors fall into this category (KOTI, 2017). This feature makes the trucking industry in South Korea an ideal empirical setting for the study of BAB and supplier welfare.

Data on our new construct, BAB, are not available from secondary data sources. Moreover, BAB is an ethics-related construct, which is difficult to measure from the target population. We therefore used a face-to-face survey to collect the data. The original questionnaire was written in Korean and then translated into English. Two bilingual researchers participated in this process, comparing each other's translation to ensure accuracy. In early 2017, we conducted the survey of truck owner–operators at five major truck stops in South Korea—Busan, Changwon, Seoul, Incheon, and Mokpo—which covers the entire country's road freight flow. We approached 350 truck owner–operators. We verified that they were owner–operators before asking them to participate in the survey in exchange for light refreshments. As a result, we obtained 266 survey responses. Among them, six were found to be incomplete, leaving a total of 260 valid cases with a usable response rate of 74.2%.

To ensure the quality of our data, we conducted a χ^2 test to compare the characteristics of the respondents who completed surveys at the different truck stops. As shown in Table 2, except for buyer type, we find no significant difference among the groups in terms of gender, age, education, experience, types of trucks, and multilevel transactions. This result gives a rationale for combining the samples from the five collection sites. For robustness, we will show whether such characteristics influence our analysis results by having each as a control in regression models.

Given that our unit of analysis is an individual truck owner–operator (Kull et al., 2018; Wagner et al., 2010) and that we use single respondents for monadic constructs, potential for respondent bias is not a major concern (Flynn et al., 2018). However, common method bias (CMB) may arise in our sample that relies on self-reported data. We lessened its possibility using Podsakoff et al.'s (2003) two-stage (procedural and statistical) approach. In the procedural stage, we first paid careful attention to the wording in our survey items to minimize ambiguity. We achieved this by conducting semi-structured interviews with buyers and owner–operators, followed by expert review. In addition, the questionnaire for owner–operators had a cover letter informing the respondents that the research would be conducted for academic purposes only and that their responses would be kept confidential and anonymous. Finally, we placed the study variables in different parts of the questionnaire to achieve psychological separation. In the statistical stage, we conducted common latent factor analysis showing a similar model fit ($\chi^2 = 62.76$, df $= 31$, $p = 0.00$, $\chi^2/\text{df} = 1.99$, GFI $= 0.95$, CFI $= 0.96$, TLI $= 0.94$, IFI $= 0.97$, RMSEA $= 0.06$, SRMR $= 0.05$) with significant loadings of all items. Moreover, as Table 3 shows, most of the variables used have a very limited correlation (Hair et al., 2010). It is also noteworthy that CMB is known to deflate only interaction effects

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TABLE 2 Results of a χ^2 test

	BS	CW	SU	IC	MP	Total[a]	
Gender							
Male	84	82	32	34	13	245	$\chi^2(4) = 2.86^{ns.}$
Female	4	2		2		8	
Age							
≤30	2		1	2		5	$\chi^2(8) = 5.85^{ns.}$
31–60	81	78	30	33	12	234	
≥61	5	6	1	1	1	14	
Education							
High school	50	62	25	22	6	155	$\chi^2(12) = 10.86^{ns.}$
College	30	27	7	10	6	80	
University	8	5		4	1	17	
Experience							
0–3 years	8	10	2	6		26	$\chi^2(8) = 11.29^{ns.}$
4–7 years	20	19	2	8	1	50	
≥8 years	60	56	28	22	12	178	
Truck type							
≥5 ton	55	60	19	17	9	160	$\chi^2(8) = 7.01^{ns.}$
1.2 ∼ 4.5 ton	26	17	9	15	3	70	
≤1 ton	7	8	3	3	1	22	
Transaction							
≤2 steps	42	41	13	17	9	122	$\chi^2(8) = 6.45^{ns.}$
≥3 steps	20	17	11	6	2	56	
Do not know	26	27	8	13	2	76	
Buyer type							
Large shippers	19	13	1	5	2	40	$\chi^2(8) = 15.62^{*}$
Middlemen	39	41	18	10	3	111	
Trucking firms	30	31	13	21	8	103	

Abbreviations: BS, Busan; CW, Changwon; IC, Incheon; MP, Mokpo; SU, Seoul.
[a]Missing values range from 6 to 8 due to the listwise deletion of missing cases.
$^{ns.}p > 0.10$.
$^{*}p < 0.05$.

TABLE 3 Descriptive statistics and correlation matrix

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Supplier performance	3.20	0.67	0.78							
2. Supplier safety	−0.41[a]	0.99	0.27	n.a.						
3. Gender	0.97	0.18	0.11	0.29	n.a.					
4. Age	48.19	8.43	0.17	0.02	0.09	n.a.				
5. Education	1.46	0.64	−0.07	−0.16	−0.15	−0.28	n.a.			
6. Experience	2.29	0.73	0.14	0.10	0.12	0.52	−0.23	n.a.		
7. Contract-related BAB	2.79	0.67	−0.19	−0.02	0.02	−0.06	0.04	0.04	0.79	
8. Contract-unrelated BAB	2.49	0.70	−0.29	−0.22	−0.05	−0.02	0.00	0.10	0.49	0.79

Note: $n = 254$; coefficient values greater than 0.12 (or less than −0.12) are significant at $p < 0.05$; diagonal indicates the square root of AVE.
[a]This is reverse-coded, meaning that on average, there are 0.41 accidents (min: 0.00 and max: 7.45) per 10,000 miles.

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(Siemsen et al., 2010). Our study was designed to test such interaction effects, thus alleviating the potential for CMB (Goldsby et al., 2013). Taken together, these approaches suggest that CMB is not a major concern in this study.

As shown in Table 2, most of our respondents are male drivers (96.8%). They range in age from 20 to 73 years old, with an average age of 48.22 (SD = 8.38). More than half of the respondents have earned at most a high school diploma (61.5%); the rest have attended college (31.7%) or university (6.7%). In terms of experience (mean = 12.46, SD = 8.04), most are senior-level truck drivers (≥8 years). Only 26 respondents (10.2%) are entry-level drivers. In addition, most of our respondents have a 5-ton truck (63.5%) as a major asset; 8.7% own trucks with less than 1-ton capacity. The multi-tiered subcontracting ranges from less than 2 (48.0%) to more than 3 (22.0%), with 29.9% of the respondents not knowing how to answer. Finally, truck owner–operators get their freight mainly from middlemen (43.7%) or trucking firms (40.5%). Only 15.7% of respondents secure freight directly from shippers.

Scale development for BAB

In this study, we developed a new measure of BAB by taking three steps. In the first step, we generated a pool of items for BAB. Since our definition of BAB entails illegitimate coercion by buyers against suppliers, we relied on the subcontracting regulation formulated by the Korea Fair Trade Commission. There are 35 articles under the Subcontracting Act (No. 14143, 2016), which mainly applies to the manufacturing sector. We selected 17 of the 35 articles as an initial pool of items that are most closely related to the service sector. To ensure that the pool of items captures our area of interest, we conducted semi-structured interviews with several buyers and owner–operators. This resulted in a final list of eight items of BAB in trucking. We removed other items because they were not relevant to for-hire trucking (e.g., opening local letter of credits, return of goods, and refund of customs duties) or because they were relevant but rare (e.g., payment in substitutes). We also reviewed studies of unethical behaviors in the workplace and consulted the measures (e.g., Carter, 2000; Kaptein, 2008) as guidelines when refining the initial pool of items.

In the second step, the eight items were reviewed by five experts in logistics: three researchers, one policy officer, and one lawyer. These experts were asked to check the items for conceptual clarity. Based on expert interviews and depending on whether the BABs are abusing contract terms or violating general commercial and criminal laws, we categorized five items as contract-related and three as contract-unrelated BABs (see Table A1). An exploratory factor analysis (EFA) corresponded to this separation. Non-tabulated results indicated a two-factor solution (factor loadings from 0.67 to 0.83 for contract-related and from 0.75 to 0.83 for contract-unrelated BAB), with a cumulative explained variance of 66.96%. The KMO test (0.87) and Bartlett's test of sphericity ($\chi^2 = 854.2$, df = 28, $p = 0.00$) also showed acceptable values for the EFA. We used a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*) to measure the extent of BAB that the truck owner–operator has experienced from the major buyer.

Finally, we used confirmatory factor analysis (CFA) to assess the reliability and validity of the measure. In this step, following Calantone et al. (2017), we plotted a histogram for each measurement item and found that the data are symmetric. Thus, we utilized the maximum likelihood (ML) estimation. As shown in Table A1, the loadings are all high and significant. Reliability coefficients, such as Cronbach's alpha (α), construct reliability (CR), and average variance extracted (AVE), are also greater than the minimum required value (i.e., for α and CR, >0.7, and for AVE, >0.5). Moreover, as shown in Table 3, the square root of the AVE is greater than the correlation among all latent constructs. All of the test statistics demonstrate acceptable reliability and validity (Hair et al., 2010).

Supplier performance, safety, and control variables

In this study, we use operational performance as a proxy for supplier (truck owner–operator) performance (Stank et al., 1999). For this, we adapted the three items used by Saldanha et al. (2013) and Miller et al. (2017) and measured the extent to which the truck owner–operator has met their targets in the freight market using a 5-point Likert scale: 1 (*much worse*) to 5 (*much better*). As shown in Table A1, the results of ML-based CFA validate the owner–operator performance measurement (Hair et al., 2010). We note that during CFA, one item (late or changed deliveries) was removed due to the low factor loading (<0.5). Besides the statistics, this deletion is reasonably sound given that the item conceptually overlaps with the BAB item of "arbitrary order/contract cancelation."

Next, to measure supplier (truck owner–operator) safety, we consider accident rate as a proxy. Following common practice (e.g., Loeb & Clarke, 2007; Morrow & Crum, 2004), we define this rate as the number of accidents over average kilometers driven per week for the last

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2 years. We note that owner–operators have a good sense of their mileage as they are paid on a piece rate basis (Belzer, 2000; Viscelli, 2016). To be better in line with prior studies, we convert kilometers to miles and express safety rate on a per 10,000 miles basis. Further, in the literature, the term "safety" is interpreted as the condition of being protected from danger or risk (Madsen, 2013), making it the opposite of "accidents." Hence, we use the reverse-coded accident rate, meaning that a higher score represents greater owner–operator safety.

Finally, we control for the characteristics of truck owner–operators, which might be associated with their performance and safety (Cantor et al., 2010). We first control for the gender of owner–operators, a binary variable that equals 1 if the driver is male and 0 otherwise (female). Then, we control for their age, using a continuous variable (i.e., 20, 21, ..., 73), and educational background, using an ordinal variable with four levels, from "≤high school" to "≥graduate school." Experience could also matter when it comes to the welfare of truck owner–operators (Viscelli, 2016). Thus, we include the natural log of driver experience as a control variable. Finally, to control for types of truck, multi-tiered transactions, and buyer types, we use a set of dummy variables, with "≥5 ton," "≥3 steps," and "middleman" as the referent category (cf. Table 2), respectively.

ANALYSIS AND RESULTS

Analytical Strategy

To test our hypotheses, we first analyze the direct association of BAB (H1a,b–H2a,b) with supplier (truck owner–operator) welfare using ordinary least squares (OLS) regression in hierarchical order: control variables are entered in Model 1, followed by the predictors in Model 2. Then, we estimate the interaction effect of BAB (H3–H4a,b) on the hypothesized link by augmenting the baseline regression specification: Moderators are entered as a block in Model 3, followed by the interaction terms in Model 4. Table 3 presents descriptive statistics and correlation coefficients of the hypothesized variables used in this study.

Multicollinearity can be a major issue in moderated regression analysis, as the interaction term would have high correlations with other variables, leading to inflated standard errors (Aiken & West, 1991). To minimize the potential effects of multicollinearity, we followed common practice and centered the independent variables prior to creating the interaction terms. In addition, we calculated variance inflation factor scores for all the variables in each estimated regression model. As a result, the largest score of the resulting variance inflation factor was 1.998, with almost all scores falling between 1.0 and 1.5. This result suggests that multicollinearity is not a serious problem in our data analysis.

Hypothesis testing

BAB and supplier welfare

Our first two sets of hypotheses, H1a,b and H2a,b, posit the negative relationships between BABs and supplier welfare. As far as H1a and H1b are concerned, the R^2 values and F statistics of the performance model (i.e., Model 2) indicate high explanatory power (16.81%) that is 5.3% higher than the control model. This suggests that BAB does play an important role in predicting supplier performance. However, we find that only contract-unrelated BAB is significantly associated with performance ($\beta = -0.227$, $p < 0.001$). Contract-related BAB seems to have no direct link with performance. Thus, we find only partial support for H1. When considering H2a and H2b, the R^2 and F statistics of the safety model indicate high explanatory power (17.19%) as shown in Model 2. As such, we find the significant association of BAB with supplier safety. However, this is only the case for contract-unrelated BAB ($\beta = -0.367$, $p < 0.001$). As with supplier performance, we find no direct link between contract-related BAB and supplier safety. Overall, the statistical evidence lends only partial support for H2. Table 4 presents the results.

Moderating effects of BAB

Our next hypothesis, H3, posits a positive association between supplier performance and safety. As such, we find that supplier performance is positively associated with safety ($\beta = 0.352$, $p < 0.001$), with high exploratory power of the R^2 values (17.65%) and F statistics. This evidence provides support for H3. H4a and H4b posit that contract-related and contract-unrelated BABs negatively moderate the hypothesized performance-safety relationship. Overall, we find significant but diverging moderating impacts of contract-related and contract-unrelated BABs, with an F value for R^2 change of 6.871 ($p < 0.001$). As expected, we find that contract-related BAB weakens the positive relationship between supplier performance and safety ($\beta = -0.334$, $p < 0.01$). However, contrary to our expectations, we find that contract-unrelated BAB strengthens the relationship between supplier performance and supplier safety ($\beta = 0.462$, $p < 0.001$). This result supports our H4a but not H4b. Table 5 presents the results.

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TABLE 4 Regression results for BAB and supplier welfare

	Performance		Safety	
Variable entered	**Model 1**	**Model 2**	**Model 1**	**Model 2**
Constant	2.691*** (6.617)	3.384*** (7.831)	−1.405* (−2.365)	−0.939 (−1.473)
Controls				
Gender	0.265 (1.102)	0.244 (1.045)	1.497*** (4.261)	1.425*** (4.139)
Age	0.007 (1.121)	0.005 (0.917)	−0.010 (−1.100)	−0.010 (−1.188)
Education	−0.047 (−0.680)	−0.033 (−0.500)	−0.232* (−2.314)	−0.225* (−2.295)
Experience	0.015 (0.209)	0.062 (0.894)	0.092 (0.896)	0.142 (1.399)
Dummy variables[a]	Included	Included	Included	Included
Predictor variables				
Contract-related BAB		−0.050 (−0.736)		0.164 (1.636)
Contract-unrelated BAB		−0.227*** (−3.343)		−0.367*** (−3.666)
R^2 (%)	10.48	16.81	12.57	17.19
F	2.846**	4.058***	3.494***	4.170***

Note: $n = 254$; t statistics are shown in parentheses.
[a]Dummy variables for truck type, transaction, and buyer type are included, with no statistically significant differences.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

TABLE 5 Regression results for moderating effects of BAB

Variable entered	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Constant	−1.405* (−2.365)	−2.354*** (−3.749)	−1.960** (−2.799)	−1.896** (−2.694)
Controls				
Gender	1.497*** (4.261)	1.404*** (4.098)	1.351*** (3.993)	1.197*** (3.593)
Age	−0.010 (−1.100)	−0.012 (−1.406)	−0.012 (−1.400)	−0.010 (−1.165)
Education	−0.232* (−2.314)	−0.215* (−2.208)	−0.215* (−2.235)	−0.205* (−2.171)
Experience	0.092 (0.896)	0.087 (0.869)	0.123 (1.238)	0.095 (0.967)
Dummy variables[a]	Included	Included	Included	Included
Predictor variable				
Supplier performance		0.352*** (3.866)	0.302** (3.238)	0.359*** (3.872)
Moderators				
Contract-related BAB			0.180 (1.820)	0.095 (0.947)
Contract-unrelated BAB			−0.298** (−2.972)	−0.222* (−2.186)
Interaction terms				
Performance × Contract-related BAB				−0.334** (−2.706)
Performance × Contract-unrelated BAB				0.462*** (3.517)
R^2 (%)	12.57	17.65	20.66	24.99
F	3.494***	4.717***	4.807***	5.286***
ΔR^2 (%)		5.08	3.01	4.33
F of ΔR^2		14.942***	4.546*	6.871**

Note: $n = 254$; t statistics are shown in parentheses.
[a]Dummy variables for truck type, transaction, and buyer type are included, with no statistically significant differences.
*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$.

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To better understand the moderation effects, we utilized the Johnson–Neyman technique (Bauer & Curran, 2005) to examine the region of significance for the simple slope of supplier performance on safety. Given there are two significant moderators, when generating the Johnson–Neyman plot, we are forced to fix the value of the secondary moderator and plot the region of significance of the simple slope of supplier performance as a function of the primary moderator (Miller et al., 2013; Tenhiälä et al., 2018). In Figure 2, we generate a plot of the simple slope of supplier performance as a function of contract-related BAB assuming contract-unrelated BAB is at the mean. As Figure 2 shows, the simple slope of supplier performance diminishes as contract-related BAB increases, becoming non-significant when contract-related BAB reaches 2.97, which is the midpoint of our scale. Overall, this indicates that contract-related BAB weakens the positive link between supplier performance and safety. In contrast, in Figure 3, we generate a plot of the simple slope of supplier performance as a function of contract-unrelated BAB assuming contract-related BAB is at the mean. As can be seen in Figure 3, the simple slope of supplier performance increases with contract-unrelated BAB. This indicates that contract-unrelated BAB strengthens the positive link between supplier performance and safety. This is consistent with our main findings.

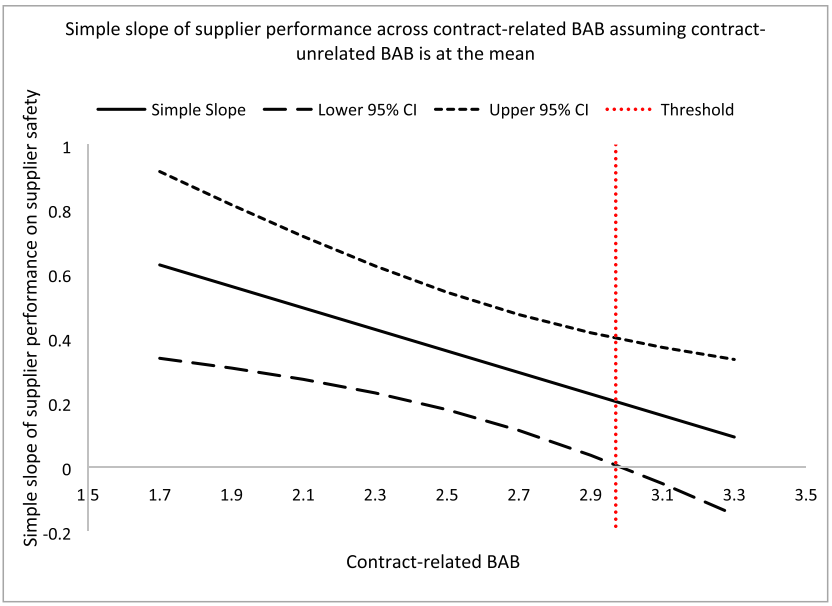

FIGURE 2 Johnson–Neyman plot of supplier performance on supplier safety as a function of contract-related BAB [Color figure can be viewed at wileyonlinelibrary.com]

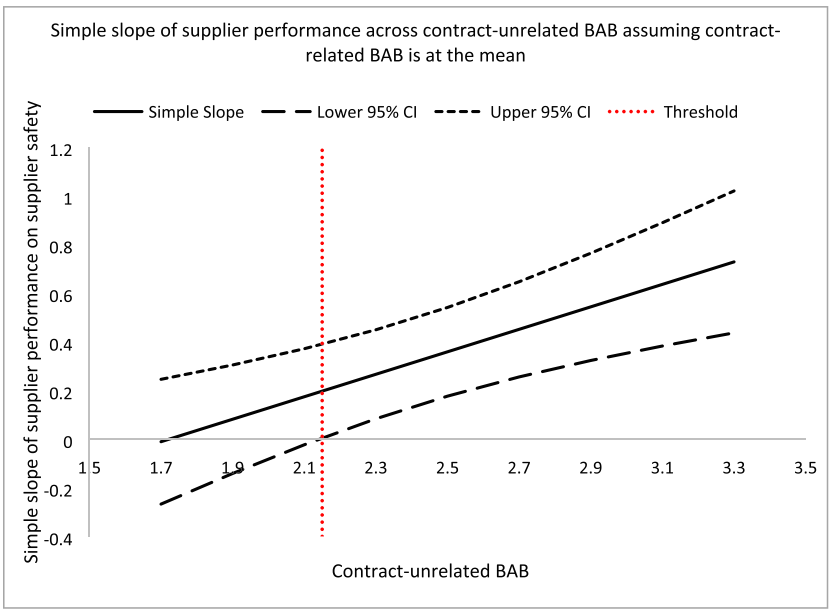

FIGURE 3 Johnson–Neyman plot of supplier performance on supplier safety as a function of contract-unrelated BAB [Color figure can be viewed at wileyonlinelibrary.com]

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Although we do not formally theorize mediation hypotheses, and as our theoretical model implies moderated mediation, we followed the recommendations by Rungtusanatham et al. (2014) and performed a moderated mediation analysis (Calantone et al., 2017; Hayes, 2015). We conduct this analysis using the Monte Carlo simulation with bias correction on confidence intervals (CIs) to correct for the non-normal distribution of the conditional indirect relationships (Calantone et al., 2017; Davis-Sramek et al., 2017). Table 6 reports the conditional indirect links of contract-related BAB with safety through performance. As can be seen, none of the results is significant, which is not surprising given the association of contract-related BAB with supplier performance is nowhere near conventional levels of significance. In Table 7, we report the conditional indirect links of contract-unrelated BAB. In contrast to the prior findings, we see that when contract-unrelated BAB is at the mean or 80th percentile, the conditional indirect link is significant and negative. Furthermore, this link becomes more pronounced as contract-unrelated BAB increases, a finding we will return to later.

Robustness checks

Our focal predictor BAB is likely to be endogenous, particularly due to omitted variables. One common approach for dealing with endogeneity is to use two-stage instrumental variable estimators (Lu et al., 2018). Therefore, we instrumented BAB with ethical climate measures, procedural, and distributive justice, using the items validated from Griffith et al. (2006). Regarding its relevance, prior business ethics research document that an ethical climate mitigates power imbalances in business exchanges. For example, Schleper et al. (2017) elaborate on how fair distribution and ethical procedure in the exchange can moderate power imbalances in buyer–supplier relationships. Ethical climate is outside our unit of analysis, which thus indicates the exogeneity of the instruments (Sande & Ghosh, 2018). Indeed, we found that both instruments are valid in that they are significant in auxiliary regressions and pass the Sargan test for both contract-related ($\chi^2 = 0.29$, $p < 0.58$) and contract-unrelated ($\chi^2 = 0.16$, $p < 0.68$) BAB. These results were virtually identical to those we obtained from the Basmann test. Next, we checked potential endogeneity concerns using the Durbin–Wu–Hausman test (Lu et al., 2018). The statistical results for both contract-related ($F = 3.36$, $p > 0.07$) and contract-unrelated BAB ($F = 0.94$, $p > 0.33$) were insignificant. These results provide some evidence that endogeneity is not a major concern in our main analysis.

We also conducted additional tests to ensure the robustness of our results. One of our control variables is gender; nearly all of the drivers (96.8%) are male. Although this high ratio of male to female drivers is common in truck driver surveys (e.g., Kemp et al., 2013; Mayhew & Quinlan, 2006; Prockl et al., 2017), this lopsided data can arguably influence our results. Hence, we re-estimated the regression models by excluding this variable and arrived at a very similar result to that of our main findings.

In addition, the Korean trucking industry has a practice called "jeeip" in which middlemen or trucking firms entrust part of their business to owner–operators (Lee &

TABLE 6 Conditional indirect link of contract-related BAB

Conditional indirect link	Estimate	SE	95% bias-corrected CI
CR BAB → SP → SS|CR BAB = 20th Percentile	−0.028	0.039	[−0.120, 0.039]
CR BAB → SP → SS|CR BAB = Mean	−0.018	0.025	[−0.077, 0.025]
CR BAB → SP → SS|CR BAB = 80th Percentile	−0.011	0.017	[−0.057, 0.014]

Note: Assumes contract-unrelated BAB is at the mean.
Abbreviations: CR BAB, contract-related BAB; SP, supplier performance; SS, supplier safety.

TABLE 7 Conditional indirect link of contract-unrelated BAB

Conditional indirect link	Estimate	SE	95% bias-corrected CI
CU BAB → SP → SS|CU BAB = 20th Percentile	−0.029	0.026	[−0.029, 0.026]
CU BAB → SP → SS|CU BAB = Mean	−0.080	0.033	[−0.161, −0.034]
CU BAB → SP → SS|CU BAB = 80th Percentile	−0.132	0.050	[−0.247, −0.059]

Note: Assumes contract-related BAB is at the mean.
Abbreviations: CU BAB, contract-unrelated BAB; SP, supplier performance; SS, supplier safety.

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Kim, 2017; Yun, 2020). Our control variables such as truck and buyer types are associated with this practice (KOTI, 2017). However, to make sure that it does not drive our results, we re-estimated the regression models. By including a binary variable with the value 1 if owner–operators are entrusted ($n = 146$), we found an insignificant coefficient of the variable while the support for our hypotheses remained the same.

DISCUSSION

This study examines a buyer's illegitimate use of coercive power (i.e., BAB) and contributes to the debate on supplier welfare and working conditions in the multi-tiered subcontracting chain (e.g., Pullman et al., 2009; Reinecke & Donaghey, 2021). By focusing on trucking operations where excessive power imbalance in exchange and the resulting supplier exploitation are commonplace (Belzer, 2000; Lacroix, 2017; Viscelli, 2016), we offer implications for buyer–supplier relationships and supplier welfare in the service industry. Although recent studies have highlighted the potential danger of buyers' abuse of power (e.g., Marshall et al., 2019; Nyaga et al., 2013; Schleper et al., 2017), little or no scholarly attention has been paid to BAB. In this study, based on a sample of 260 truck owner–operators, we provide evidence that BAB is detrimental to supplier welfare. Particularly, we uncover that contract-unrelated BAB is strongly negatively associated with supplier performance and safety.

The findings from this study also reveal interesting diverging moderating effects of BABs on risk-taking behaviors. We find that when faced with potential losses (i.e., poor performance) caused by contract-related BAB, truck owner–operators are more likely to take risk-seeking actions with a greater expected value but compromised safety. In contrast, if the BAB is contract unrelated, truck owner–operators experiencing lower operational performance seem to become risk averse. We conjecture that this unexpected finding is induced by threat rigidity of owner–operators. Analyzed in multilevel settings including individual, group, and organizational levels, the threat rigidity thesis (Staw et al., 1981) suggests that when faced with threat to survival, individuals experience psychological stress and anxiety and tend to restrict information processing. As a result, individuals under threat reduce their risk-taking even though doing so can decrease the expected economic return (Hoskisson et al., 2017; Shimizu, 2007). In this regard, under contract-unrelated BABs—which are more serious illegitimate actions than contract-related BABs—truck owner–operators may experience extreme economic and psychological losses and have no choice but to "take a survival frame that reduces their overall risk taking" (Hoskisson et al., 2017, p. 145). In other words, truck owner–operators seem to put their assets (e.g., health and truck) first as they realize that even by cutting corners with speeding and overloading, the losses caused by contract-unrelated BABs cannot be compensated. These intriguing diverging moderation effects provide further support for the conceptual and empirical separation of BABs.

However, readers should note that the positive moderating effect does not mean that contract-unrelated BABs like requests for money and valuables are beneficial for supplier safety. This is because, as shown in Table 4, the association of contract-unrelated BAB with supplier safety is strongly significant and negative. Furthermore, our moderated mediation analysis reveals that the conditional indirect link of contract-unrelated BAB with supplier safety through supplier performance becomes more significant and negative as the level of contract-unrelated BAB increases (see Table 7). Overall, these findings provide empirical evidence on how different types of BAB activate the extent of loss framing differently and trigger the diverging individual risk-taking behaviors predicted by prospect theory.

Implications for theory

Buyers' exploitative behaviors in the buyer–supplier exchanges are a major detriment to supplier welfare (Mayhew & Quinlan, 2006; Schleper et al., 2017; Viscelli, 2016). However, the literature has been silent on the conceptualization of BAB and the mechanisms by which it damages supplier welfare. This study responds to this call for attention by developing a scale of BAB and investigating its association with supplier welfare in the context of trucking. By focusing on supplier welfare, our study is distinguished from the dominant buyer-centric view in supply chain studies (Soundararajan et al., 2021) that emphasize the benefits that accrue to buying firms.

Our study's focus on the trucking industry helps develop a useful boundary condition for developing the theory on power abuse and working conditions in multi-tier supply chains. Developing a boundary condition for research findings is a theoretical contribution as the findings can be applied to wider contexts that share similar conditions (Busse et al., 2017; Holmes et al., 2011; Makadok et al., 2018). We expect that the dynamics we observed in this study apply in other supply chain structures where powerful buying firms subcontract core work activities to upstream tiers with severe inter-supplier competition (Weil, 2014). Such scenarios appear to be especially common when labor costs are a large share of

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total costs (Weil, 2014). This includes industries such as mining, agriculture, construction of cell phone towers, janitorial franchising, and garment manufacturing (Mayhew & Quinlan, 1997, 2006; Weil, 2014). The commonality is that large buyers' decisions to shift the work to highly competitive upstream tiers create conditions whereby small upstream suppliers are more likely to prioritize productivity over abiding by labor laws and offering safe working conditions (Miller et al., 2022). This increases the incidence of labor law violations (Ji & Weil, 2015) and safety violations (Miller et al., 2018) compared to when work activities are performed by employees at large firms. Therefore, our study's findings contribute to the development of theory on the working conditions under multi-tiered supply chain structures with power imbalance (Crane, 2013; Soundararajan et al., 2018; Touboulic et al., 2014).

Additionally, while several studies of supply chains have investigated the role of coercive power in buyer–supplier relationships (e.g., Benton & Maloni, 2005; Chae et al., 2017; Pulles et al., 2014), they focus on the structure or sources of such power rather than buyers' actual abusive behaviors toward suppliers. Moreover, buyer power abuses that entail illegitimate or unethical actions against suppliers have rarely been studied in the literature. By analyzing empirical data on BABs under severe power imbalance in buyer–supplier exchanges, our study reveals how detrimental the illegitimate use of coercive power is to supplier welfare. Our study also encourages additional attention to both the structural and behavioral aspects of power (Molm, 1990, 1997) to improve working conditions in supply chains.

Another way this study contributes to theory is by integrating the risk-taking predictions of prospect theory (Kahneman & Tversky, 1979) and threat rigidity (Staw et al., 1981) to shed light on how contract-related and unrelated BABs induce truck owner–operators to engage in risk-taking behaviors differently. Specifically, framing contract-unrelated BAB as more serious abuse than contract-related BAB, we provide initial evidence that there can be a tipping point where individuals become risk-averse instead of risk-seeking when the perceived loss passes a certain level. This finding extends the theoretical arguments made by Miller and Saldanha (2016) and Miller et al. (2018, 2022), who articled a framework as to why subcontractors working in a highly competitive sector may rationally decide to violate safety rules. By interpreting these rationales through the lens of risk-taking under prospect theory and threat rigidity and revealing how the two types of BAB can alter the relationship between owner–operator performance and their safety, our study contributes to developing the theoretical framework of supplier welfare in trucking.

Practical and policy implications

Decent work in the supply chain has recently received a great deal of attention from practitioners (e.g., Crane, 2013; Reinecke & Donaghey, 2021; Soundararajan et al., 2018, 2021) in relation to the U.N. Sustainable Development Goals (SDGs). One SDG is to achieve decent work for all workers, which is to protect basic labor rights such as fair income and safe working conditions. We uncover that BAB is a significant detriment to achieving decent work as both contract-related and contract-unrelated BABs damage worker performance and safety. Especially, the detrimental issue by contract-unrelated BAB is so pronounced that it can threaten truck owner–operators' survival and prompt threat rigidity. Given that BAB worsens owner–operator performance and compels them to take risks on the road, one important practical issue related to BAB is supply chain disruptions. For example, in 2011, U.S. truck drivers were involved in more than 60,000 crashes, causing over 3,750 casualties (Miller & Saldanha, 2016). It is also worth mentioning that these accidents can become life threatening for truck owner–operators, as crash-induced accidents disrupt operations in the supply chain, thereby causing serious socio-economic losses (Cantor et al., 2010; McKinnon, 2006; Wilson, 2007). What is demoralizing is that part of the economic losses transfers to the truck owner–operators, as they are typically blamed for accidents (Weil, 2014).

Consequently, our findings suggest the importance of redressing BAB and ensuring safety on the road. There have already been many efforts in this direction, but most of the attempts rely on the market. One example is to introduce on-demand matching platforms, yet, contrary to expectations, such app-based service is found to make the subcontracting chain even more complex, driving down the freight rates further (Yun, 2020). Another example is to utilize safety mechanisms such as electronic logbooks and other devices that can monitor driver behavior (Cantor et al., 2013; Scott & Nyaga, 2019). However, a recent study reveals that attempts to improve safety at workplace hinder organizational survival; that is, if there are incentives to ignore safety, such market-based measures do not engender workplace safety (Pagell et al., 2020). BAB results from the illegitimate use of coercive power in multi-tiered subcontracting chains. Thus, unless this exploitative nature is changed, the economic survival of truck owner–operators will continue to take priority over their safety.

Therefore, it is time to rethink responsibility and enforcement to fix these "broken windows" (Weil, 2014). In other words, considering BAB as broken windows requires not only rethinking who should take the responsibility but also enforcing workplace laws; the EU and

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the UK are already regulating Uber and other platforms (Murgia et al., 2021). Given that "employment conditions at the bottom of fissured structures reflect the design of lead company strategies" (Weil, 2014, p. 100), one way would be to hold large shippers (i.e., manufacturers or retailers) accountable for fatal results in the multi-tiered subcontracting chain. It will motivate them to ensure safety throughout the chain, if only to avoid reputational damage and economic penalties (Kim et al., 2019). Moreover, due to their low bargaining power, truck owner–operators need to take collective action to meet the challenges. They may have to "band together" (Mayhew & Quinlan, 1997) to reinforce safety standards and ensure decent working conditions with base-level returns (Reinecke & Donaghey, 2021). In short, the industry needs institutional change to complement the limited effect of market-based measures.

Limitations and future research

Despite the contributions discussed earlier, this study is subject to limitations. First, although we adopted an instrumental variable approach for BAB to minimize endogeneity concerns (see Section 6.3), the cross-sectional nature of our data does not lend itself to definitively demonstrating causality of the hypothesized relationships. Additionally, we were unable to identify an instrument for supplier performance, which suggests that additional caution is warranted in interpreting our regression model's conditional correlation between this predictor and supplier safety. This being said, readers should note that there are strong theoretical foundations to expect strains brought on by poor operational performance (Britto et al., 2010; Miller & Saldanha, 2016) or the need to meet financial obligations (Pagell et al., 2019) can negatively affect safety, rather than the relationship flowing the other direction. Future studies could conduct behavioral experiments to identify the causal mechanisms behind the relationships between BABs and supplier worker welfare.

In addition, even though our sample shows a similar percentage in characteristics (e.g., age, experience, and truck type) to those of a larger scale survey conducted in the same year (KOTI, 2017), it may not fully represent the target population of all truck owner–operators in South Korea. Like other survey research with no population information (e.g., Kemp et al., 2013; Mayhew & Quinlan, 2006), we conducted a face-to-face survey at five major truck stops across South Korea. Future studies could define the target population more specifically and take a more randomized sampling approach than ours.

Finally, we examined BAB in the context of trucking operations in South Korea. However, given the nature of power imbalance in multi-tiered exchanges (Mayhew & Quinlan, 1997, 2006; Weil, 2014), BAB can also manifest in buyer–supplier relationships in many other countries and industry contexts such as mining, construction, and garments. Thus, we encourage future studies in more global and multi-industry settings with excessive power imbalances and exploitative buyer–supplier relationships to reveal the broader mechanisms related to BAB and supplier welfare.

CONCLUSION

This study broadens our understanding of BAB in multi-tiered subcontracting chains and their associations with supplier welfare. BAB occurs when a buyer illegitimately uses their power advantage to coerce their weaker suppliers to do what they would not otherwise do. Based on face-to-face survey data collected from truck owner–operators, this study provides empirical evidence on how BAB causes the individual service suppliers to engage in risk-taking behavior that deteriorates their performance and safety. Trucking operations serve as a critical element of both the national and global supply chain functioning, in which qualified owner–operators play a pivotal role. In this sense, our study findings have far-reaching implications for the field and for decent work in supply chains.

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APPENDIX

TABLE A1 Measures and results of confirmatory factor analysis

Constructs and items	Loading[a]	*t* value	R^2
Buyer abusive behavior (BAB)			
Contract-related (α = 0.86, CR = 0.89, AVE = 0.63)			
Buyer's unfair subcontract price decision	0.68	11.61	0.46
Buyer's unprovoked delays in payment	0.78	14.12	0.61
Buyer's unilateral reduction in price	0.75	13.24	0.55
Buyer's arbitrary order/contract cancelation	0.74	13.04	0.54
Buyer's coercive freight service order/ contract	0.75	13.30	0.56
Contract-unrelated (α = 0.77, CR = 0.83, AVE = 0.62)			
Buyer's request for money and valuables	0.64	10.41	0.41
Buyer's unwarranted interference in management	0.74	12.51	0.55
Buyer's non-agreed cost shifting	0.81	13.92	0.66
Supplier welfare			
Supplier performance (α = 0.64, CR = 0.75, AVE = 0.61)			
Reliable delivery of products compared to your objectives	0.78	6.79	0.61
Percentage of late or changed deliveries compared to your objectives[b]	n.a.	n.a.	n.a.
Responsiveness to special delivery requests compared to your objectives	0.59	6.12	0.35
Supplier safety[c]			
Number of accidents while working over the last 2 years	n.a.	n.a.	n.a.
Average kilometers driven per week over the last 2 years	n.a.	n.a.	n.a.

Note: $\chi^2 = 62.76$, df = 32, $p = 0.00$, $\chi^2/df = 1.96$, GFI = 0.95, CFI = 0.97, TLI = 0.95, IFI = 0.97, RMSEA = 0.06 (0.04–0.08), SRMR = 0.05.

[a]Standardized regression weights.

[b]Removed item.

[c]Supplier safety = −([number of accidents/total miles driven]*10,000), where we converted kilometers to miles.

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