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## The effects of balanced and asymmetric dependence on supplier satisfaction: Identifying positive effects of dependency

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## ABSTRACT

Studies argue that balance in dependence is critical to supplier satisfaction in buyer-supplier relationships. We examine whether asymmetric relationships can also lead to supplier satisfaction, arguing that traditional analysis methods are unsuitable for thoroughly analyzing this issue. With polynomial regression and response surface analysis combined with dyadic data, we test the relationship between (1) balanced dependence (i.e., the buyer and supplier are equally dependent on each other) and supplier satisfaction and (2) asymmetric dependence (i.e., either the supplier or buyer is the dominant party) on supplier satisfaction. The results indicate that mutual dependence is positively related to supplier satisfaction, but surprisingly, asymmetric dependence can be related to higher levels of supplier satisfaction.

## 1. Introduction

In recent business practice, firms experience that supplier satisfaction has strategic value for buying firms (Baxter, 2012; Essig and Amann, 2009). Satisfied suppliers invest in buyer-supplier relationships, which creates benefits for buyers, such as gaining access to innovations and new technologies (Bemelmans et al., 2015; Pulles et al., 2016; Schiele et al., 2015; Vos et al., 2016). For buying firms, it is relevant to know what drives supplier satisfaction and what situations are conducive to supplier satisfaction in buyer-supplier relationships.

It is commonly accepted that buyer-supplier dependence is crucial for understanding buyer-supplier relationships (Blois, 2010; Caniëls and Gelderman, 2007). The dependence literature suggests that buyer-supplier relationships characterized by a balanced mutual dependence are superior to other buyer-supplier relationships (Da Villa and Panizzolo, 1996; Hausman and Johnston, 2010; Leonidou et al., 2008; Kumar, 1996). Asymmetric relationships, in which one partner dominates the exchange, are generally believed to be less effective because the dominant partner may be tempted to exploit its position (Blois, 2010; Casciaro and Piskorski, 2005; Gulati and Sytch, 2007; Ireland and Webb, 2007; Wang et al., 2016). However, in situations where a buyer dominates, suppliers may still be satisfied with the overall relationship. For instance, although large retailers may sometimes squeeze their suppliers, these suppliers can still be satisfied with the relationship due to the growth opportunities offered by a large buyer (Bloom and Perry,

2001). In addition, highly dependent partners may have a strong relational orientation, which leads to an improved relationship. This idea is supported by studies that highlight the importance of total dependence in the relationship and that show that asymmetric relationships can be as satisfactory (Caniëls and Gelderman, 2007; Caniëls and Roeleveld, 2009) and even more effective than relationships governed by ownership or formal management controls (Muthusamy and White, 2006; Steensma et al., 2000). Hence, although contemporary research suggests that dependence asymmetry leads to inefficient relationships, dependence asymmetry may actually foster relationships and supplier satisfaction and thus improve relationship outcomes.

The present study aims to increase insights into how configurations of relative dependence relate to supplier satisfaction. We distinguish between *balanced dependence*, in which the buyer and supplier have either a high mutual dependence or a low mutual dependence, and *asymmetric dependence*, in which either the buyer or the supplier is the dominant party in the relationship. We use supplier satisfaction as a dependent variable, as supplier satisfaction has been found to be crucial to understanding many aspects of buyer-supplier relationships that are relevant from a managerial perspective, such as collaborative innovation, supply allocation and supplier pricing behavior (Pulles et al., 2016).

The current study is based on data gathered from 109 buyer-supplier dyads in the manufacturing industry. We use polynomial regressions with response surface analysis – a technique that is new to the

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purchasing and supply management field – to investigate a three-dimensional view of relative dependence and supplier satisfaction. Our analyses yield three contributions. First, whereas current literature mainly argues that asymmetric relationships are less effective, we argue that dependence asymmetry can also foster supplier satisfaction. Based on the notion of relative and absolute values, we show that relationships that are characterized by mutual dependence and those characterized by buyer/supplier dominance show higher levels of supplier satisfaction. It is not so much about the direction of dependency but about the absolute size of the dependency. Second, our findings add new insights to the supplier satisfaction literature. Specifically, we advance current knowledge about the role of relative dependence in buyer-supplier relationships and its effects on supplier satisfaction. High dependency is associated with satisfied suppliers, regardless of whether it is symmetric or asymmetric. Third, we use polynomial regression analysis to analyze our data. Current methodologies on relative dependence combine buyer's and supplier's dependence into one score of relative dependence, in which the effect of each component on the outcome is lost (Kim and Hsieh, 2003; Shanock et al., 2010). Alternatively, studies use spline scores (Gulati and Sych, 2007; Kumar et al., 1995), but these scores do not capture curvilinear effects. To the best of our knowledge, polynomial regression analysis has not yet been widely applied in buyer-supplier dependence research, yet it is specifically suitable in this context.

This paper continues with a review of the literature and then the hypotheses. Then, we discuss our methodology and results. We conclude with a discussion of our findings.

## 2. Literature background: supplier satisfaction and dependence in buyer-supplier relations

Supplier satisfaction is related to the supplier's perceived value of a relationship in terms of meeting or exceeding expectations (Pulles et al., 2016). If a supplier perceives a relationship to be satisfactory, the supplier will feel socially indebted to make relational investments (Blau, 1964; Emerson, 1962; Nyaga et al., 2013). Satisfied suppliers make a greater effort to gratify their customers and provide resources that go beyond what has been contracted (Bemelmans, Voordijk et al., 2015; Vos et al., 2016). It has been argued that supplier satisfaction is an important factor in obtaining preferred customer status, which notably includes benefits for buyers, such as better access to innovations and technologies, higher flexibility and access to resources in times of scarcity (Pulles et al., 2016; Schiele et al., 2015; Sieweke et al., 2012; Vos et al., 2016). In this way, supplier satisfaction is positively related to the relational performance of buyers and suppliers alike (Baxter, 2012; Essig and Amann, 2009; Ghijzen et al., 2010; Vos et al., 2016). Conversely, suppliers that become dissatisfied with their relationship with the buyer may eventually search for alternative buyers and commit to other relationships (Ellegaard and Koch, 2012). Having dissatisfied suppliers could therefore result in both decreased performance within a certain buyer-supplier relationship and decreased performance of a buying firm relative to its competitors that source from similar suppliers, thereby negatively impacting long-term competitive advantages of the buying firm. Hence, supplier satisfaction is an important construct that has strategic value for buying firms.

The present study focusses on buyer-supplier dependence as a determinant of supplier satisfaction. The theoretical foundations of dependence research lie in the power-dependence view of Emerson (1962) and the resource-dependence view of Pfeffer and Salancik (1978). The basic idea behind these theories is that organizations are interconnected systems that need resources for survival. The need for these resources generates dependence and power-dynamics in inter-organizational relationships. Even though definitions vary considerably, a general definition of dependence is “an actor's need to continue its relationship with an exchange partner in order to achieve its desired goals” (Scheer et al., 2015, p. 700).

To study interorganizational dependence, researchers advocate adopting a two-sided view, taking both buyer and supplier dependence into account. For instance, Terpend and Krause (2015) studied mutual dependence and found that the effectiveness of cooperative relational incentives in supplier performance depends on the degree of buyer and supplier dependence. They showed that mutual dependence – with a slight emphasis on the supplier's dependence – is the key driver in the effectiveness of cooperative incentives with regard to increasing supplier performance. They acknowledged that without taking a two-sided view on dependence, they would have rejected the idea that cooperative incentives have an impact on supplier performance. Hence, a dyadic view on buyer-supplier dependence is crucial for understanding buyer-supplier relationship dynamics. Moreover, the literature has shown that different degrees of mutual and asymmetric dependence can exist. Casciaro and Piskorski (2005) distinguished between dependence asymmetry and joint dependence in analyzing the effects on the power restructuring activities of firms. They found that mutual dependence allowed weaker firms to address resistance from stronger partner firms. However, a shortcoming of their study was that they did not include the underlying causes of mutual and asymmetric dependence in their hypothesizing. Recent studies have begun to address this issue by including asymmetric and mutual dependence as interaction effects in their hypothesis building. For example, Griffith et al. (2017) analyzed the resource sharing of suppliers and found that positive and negative inequity differentially influence perceived relationship performance depending on the degree of mutual dependence. To summarize, the above studies demonstrate the importance of taking a dyadic view on buyer-supplier dependence, while explicitly considering the different effects of mutual and asymmetric buyer-supplier dependence.

Despite the growing body of research on supplier satisfaction, there is still a lack of a thorough understanding of how different (asymmetric) dependence constellations of buyer versus supplier dependence have different effects on supplier satisfaction. Below, we take a dyadic view of buyer-supplier dependence, and we hypothesize on the effects of mutual and asymmetric dependence.

## 3. Hypotheses

### 3.1. Mutual dependence and supplier satisfaction

As noted, firms always depend, to varying extents, on their trading partners (Caniëls and Gelderman, 2007; Schiele and Vos, 2015). Studies about buyer-supplier dependence usually conceptualize dyadic relationships, taking into account the dependence from the buyer's as well as the supplier's perspective (Buchanan, 1992; Geyskens et al., 1996; Kumar et al., 1995). The possession and control of critical assets by one party creates dependence in the other party: A has a dominant position over B if B depends on A more than A depends on B (Caniëls and Gelderman, 2007; Emerson, 1962).

Scholars have emphasized that balanced levels of dependence between partners enhance relationship stability (Muthusamy and White, 2006). Social exchange theory suggests that exchanges between partners occur when they are rewarding for both parties (Emerson, 1962). In this way, buyer-supplier relationships characterized by mutual dependence facilitate interactions between firms that both seek value. The dependence literature describes notions such as ‘total interdependence’, ‘total mutual dependence’ and ‘joint dependence’ (Bacharach and Lawler, 1981; Casciaro and Piskorski, 2005; Gulati and Sych, 2007) to delineate the sum of the parties' dependence on one another. Higher levels of mutual dependence increase the depth of economic interaction between exchange partners and in this way are related to a stronger relational orientation (Gulati and Sych, 2007). These relationships are therefore expected to be stable and beneficial for both parties. Hence, symmetry in the dependence of two trading partners is expected to facilitate the relationship (Andaleeb, 1996).

Fig. 1 shows the relation between buyer dependence and supplier

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