# ANTECEDENTS OF RELATIONAL EXCHANGE COSTS: RESOURCE DEPENDENCE AND INFORMATION SHARING

## ANTECEDENTES DOS CUSTOS DE TROCA RELACIONAL: DEPENDÊNCIA DE RECURSOS E COMPARTILHAMENTO DE INFORMAÇÕES

## ANTECEDENTES DE LOS COSTOS DE CAMBIO RELACIONALES: DEPENDENCIA DE RECURSOS E INTERCAMBIO DE INFORMACIÓN

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**ABSTRACT**

**Objective:** To verify the influence of resource dependence and information sharing on relational exchange costs between buyers and suppliers of transport services.
**Method:** Research with a quantitative approach, using data obtained through a survey to evaluate the perceptions of professionals working in companies in the Food and Beverage sector that outsource transport activities, and with the participation of 120 professionals from the transport and logistics sectors of these organizations. For the structural model analysis, the technique of Structural Equation Modeling by Partial Least Squares was used.
**Results:** The results show that Food and Beverage companies' dependence on transport service providers may lead these organizations to share information. They also suggest that information sharing in the relationships studied may lead to the development of psychological and emotional bonds between business partners, constituting relational exchange costs.
**Contributions:** These results have theoretical and practical contributions, suggesting that buyers' resource dependence on their suppliers may instigate information exchange between partners. Moreover, information sharing may encourage the continuity of relationships due to relational barriers to exchange. This study also contributes to the literature by analyzing dependence and information sharing jointly, since previous studies have analyzed such constructs in a dissociated manner, and in different contexts from the one investigated here.
**Originality:** The study is justified by evidencing elements that can stimulate partners to share information relevant to their operations, and can help prevent customers from switching suppliers due to personal and brand barriers.

**Keywords:** Resource Dependence. Information Sharing. Relational Exchange Costs.

**RESUMO**

**Objetivo:** Verificar a influência da dependência de recursos e do compartilhamento de informações nos custos de troca relacional entre compradores e fornecedores de serviços de transporte.
**Método:** Pesquisa de abordagem quantitativa, com dados obtidos por meio de survey, avaliou a percepção de profissionais de empresas do setor de alimentos e bebidas que terceirizam atividades de transporte, e contou com a participação de 120 profissionais de setores de transporte e logística dessas organizações. Para análise do modelo estrutural, utilizou-se a técnica de Modelagem de Equações Estruturais por Mínimos Quadrados Parciais.
**Resultados:** Os resultados revelam que a dependência das empresas de alimentos e bebidas em relação aos fornecedores serviços de transporte pode levar essas organizações a compartilharem informações. Sugerem também que o compartilhamento de informações nos relacionamentos investigados pode instigar o desenvolvimento de vínculos psicológicos e emocionais entre os parceiros comerciais, constituindo custos de troca relacional.
**Contribuições:** Tais resultados têm contribuições teóricas e práticas, ao sugerir que a dependência de recursos dos compradores em relação aos seus fornecedores pode instigar a troca de informações entre os parceiros. Além disso, o compartilhamento de informações pode incentivar a continuidade dos relacionamentos devido às barreiras relacionais para a troca. Além disso, o estudo acrescenta à literatura ao analisar a dependência e o compartilhamento de informações de maneira conjunta, uma vez que estudos anteriores analisaram tais construtos de maneira dissociada e em contextos distintos do aqui investigado.
**Originalidade:** O estudo justifica-se ao evidenciar elementos capazes de estimular os parceiros a compartilhar informações relevantes para suas operações, e de coibir os clientes a realizar a troca de fornecedor em virtude das barreiras pessoais e com a marca.

**Palavras-chave:** Dependência de Recursos. Compartilhamento de Informações. Custos de Troca Relacional.

**RESUMEN**

**Objetivo:** Verificar la influencia de la dependencia de recursos y el intercambio de información sobre los costos del intercambio relacional entre compradores y proveedores de servicios de transporte.
**Método:** Investigación con enfoque cuantitativo, con datos obtenidos a través de una encuesta, evaluó la percepción de profesionales de empresas del sector de alimentos y bebidas que subcontratan actividades de transporte, y contó con la participación de 120 profesionales de los sectores de transporte y logística de estas organizaciones. Para el análisis del modelo estructural se utilizó la técnica de Modelado de Ecuaciones Estructurales por Mínimos Cuadrados Parciales.
**Resultados:** Los resultados revelan que la dependencia de las empresas de alimentos y bebidas de los proveedores de servicios de transporte puede llevar a estas organizaciones a compartir información. También sugieren que el intercambio

de información en las relaciones investigadas puede instigar el desarrollo de vínculos psicológicos y emocionales entre los socios comerciales, constituyendo costos de intercambio relacional.
**Contribuciones:** Tales resultados tienen contribuciones teóricas y prácticas, sugiriendo que la dependencia de los recursos de los compradores de sus proveedores puede instigar el intercambio de información entre los socios. Además, el intercambio de información puede fomentar la continuidad de las relaciones debido a las barreras relacionales al intercambio. Además, el estudio se suma a la literatura al analizar la dependencia y el intercambio de información juntos, ya que estudios anteriores analizaron dichos constructos de manera disociada y en contextos diferentes al investigado aquí.
**Originalidad:** El estudio se justifica al destacar elementos capaces de alentar a los socios a compartir información relevante para sus operaciones y de evitar que los clientes cambien de proveedor debido a barreras personales y de marca.
**Palabras clave:** Dependencia de recursos. Intercambio de información. Costos de cambio relacionales.

## 1. INTRODUCTION

Transactions between organizations lead to the development of interorganizational relationships (IORs) that can take the form of buyer-supplier agreements, joint ventures, franchises, cross-sector partnerships, networks, consortia, trade associations (Parmigiani & Santos, 2011), alliances or other arrangements that involve some level of proximity between organizations. Interorganizational relationships have attracted considerable attention fromresearchers, due to their relevance for the performance of the companies involved (Zhang et al.,2021).

Such relationships may be guided by exchange agreements in which its members can control the transfer of resources considered critical, from one partner to another. This type of relationship mayrepresent a form of dependence between the companies involved (Gerdin, 2005). Dependency is defined by Frazier (1983) as the need of a focal organization to maintain a relationship with a trading partner so that it is possible to achieve its objectives. To manage the resource dependence on the partner organization, they begin to share information about the established relationship, which represents a type of investment in the relationship (Huo et al., 2013).

Lee et al. (2021) mention that the quality of the information that is shared impacts on the performance of companies that form part of the supply chains. In relational conditions where there are a high levels of information sharing, organizations may establish cooperative behaviors (Anderson & Narus, 1990), as obtaining information about the partner can help reduce uncertainties in the relationship and improve operations and decision-making (Anderson and Narus, 1990; Mohr and Spekman, 1994).

Investments in the relationship may develop switching costs (Heide & John, 1988). The costs of switching will depend on how far organizations have created or modified assets for specific purposes, and the value of those assets, in any exchange of suppliers, may be reduced due to a distinct relational context (Mentzer et al., 2001). For Anderson and Narus (1991), some organizations choose to increase the exchange costs of IORs through specific investments in people, processes or products, leading the partner organization to become dependent on the specific resources involved in the relationship.

In relationships between companies in the Food and Beverage sector, and their transportation service providers, which are the object of investigation of this study, exclusive resources are required. This perspective is confirmed by Samel et al. (2019), when they state that the transportation of food products requires special care, such as correct temperatures, monitoring of travel time and deliveries, and high levels of vehicle hygiene. Due to the specificities of this relationship, partners should manage it through adequate levels of dependence and information sharing, to obtain the desired relational performance.

Given the relevance of resource dependence (Huo et al., 2017; Ozturk, 2021) and information sharing (Fu et al., 2017; da Silva & Beuren, 2020) for the management of relational exchange costs and, in turn, for the performance of IORs, this study poses the following research question: what is the influence of resource dependenceand information sharing on relational exchange costs between buyers and suppliers of transport services? The objective of this study is to verify the influence of resource dependence and information sharing on the costs of relational exchange between buyers and suppliers of transport services.

Research in the area of management accounting have mainly focused on issues associated with the use of accounting and controls from the internal perspective of companies. However, in the last two decades, there has been growing interest among researchers in investigating the role of accounting and controls in inter-organizational management (external perspective) (Dekker, 2016). Therefore, this study adds to the literature on IORs by presenting evidence of the relationship between the constructs proposed in the theoretical model, namely, the resource dependence, information sharing, and relational exchange costs that exist in buyer-supplier relationships.

## 2. THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

### 2.1 Resource dependence and relational exchange costs

Dissatisfaction with products and services provided by an organization has the potential to reduce its customer base and reputation (Levesque & McDougall, 1996). This perspective is even more evident in service companies, where customer dissatisfaction is considered a significant problem (Fornell, 1992; Singh, 1990). Faced with dissatisfaction with the products or services provided, some customers do not take any action, while others complain directly or even break the current relationship and look for a new supplier (Richins, 1987).

In the outsourcing of logistics services, problems related to resource dependence are recurrent (McCarter & Northcraft, 2007) and can encourage opportunistic behaviors (Pfeffer &Salancik, 1978) leading to unsatisfactory levels of performance (Huo et al., 2015). To manage resource dependence, organizations can establish closer interorganizational relationships with their suppliers (Pfeffer & Salancik, 1978; Xiao et al., 2019).

In the provision of transport services, which comprise the logistics, such links increase customer satisfaction, because the collaboration required to maintain the relationship promotes more appropriate and integrated transport activities (Burnham et al., 2003; Martins et al., 2011). Therefore, when managing the dependence on relational resources effectively, organizations begin to mitigate uncertainty and maximize the performance achieved by outsourcing of such services (Pfeffer and Salancik, 1978; Lai et al., 2013).

Organizations that develop buyer-supplier relationships with high levels of collaboration can benefit from the experiences of the interorganizational partner and start to promote a relationship of trust. Therefore, partners can increase their commitment to the relationship through investments in people, processes or products and, from such investments in the relationship, relational exchange costs are developed (Heide and John, 1988). In view of the theoretical assumptions and empirical findings of this research, the first hypothesis is presented:

H1: There is a positive influence of resource dependence on relational exchange costs.

### 2.2 Resource dependence and information sharing

Given the increasing complexity of customer demands, outsourcing logistics services can help companies improve their services (Fugate et al., 2010; Zacharia et al., 2011).When outsourcing such activities, contractors become dependent on the resources offered by suppliers through physical assets, qualified employees, and efficiency of processes, among other resources (Mentzer et al., 1999). To manage this dependence, organizations can establish cooperative interorganizational relationships as a way of ensuring the necessary resources for their activities (Pfeffer & Salancik, 1978).

Information sharing is considered one of the main aspects present in relationshipsof interorganizational cooperation (Heide & Miner, 1992). The information exchange may include data related to purchase orders, delivery notices, technical databases, integrated cash management systems (Holland, 1995) product design, costs, future plans (Mahama, 2006) or inventory and demand (Liu et al., 2015). For Sahin and Robinson (2002) information sharing at appropriate levels can help resolve problems associated with supply chain management. On the other hand, inadequate information sharing can be a critical problem for partners, as inaccurate information about the offers and demands can result in great uncertainties in the relationship (Li et al., 2006).

In interorganizational relationships with unilateral resource dependence, information sharing is configured as an efficient mechanism to mitigate risks (Lavastre et al., 2014), given that the shared information represents the partner's commitment to the relationship. Thus, the dependent party in the relationship is more willing to share information, so that it can maintain access to the resources it needs (Buchanan, 1992; Xiao et al., 2019). This perspective is corroborated by the empirical findings of Pu et al. (2020) who identified positive relationship between unilateral dependence and enhanced information sharing between relational partners. Based on these findings and assumptions, the second hypothesis is presented:

H2: There is a positive influence of resource dependence on information sharing.

### 2.3 Information sharing and relational exchange costs

Information sharing is the level at which each party to the relationship discloses information that can contribute to the other partner's activities (Heide & Miner, 1992). Information sharing promotes greater levels of supplier knowledge about the contractor's development strategies and expectations (Joshi, 2009). This will enable the partners in the relationship to understand each other's business better, promoting long-term partnerships (Huo et al., 2014; Pu et al., 2020).

The quality of information shared in interorganizational relationships can influence theperformance of those relationships (Lee et al., 2021, Bescorovaine & Beuren, 2020). In relationships with high levels of information sharing, partner firms begin to establish cooperative behaviours (Anderson & Narus, 1990). Therefore, the information exchange encourages fluidity in the relationship, as they gain a better understanding of the buyer's needs and the supplier's capabilities (Redondo & Fierro, 2007).

Information exchange between partners can be the key to the collaboration betweenbuyers and suppliers. Thus, the supplier can gain a better understanding of the customer's business, which will allow it to deliver value to the customer (Claycomb & Frankwick, 2004). Organizations seeking to establish long-term relationships with their suppliers should increase the perceived value of the relationship for their customers, which in turn, increases the switching costs (Redondo & Fierro, 2007).

Information sharing is an essential and common element in any collaborative effort between partner firms (Yigitbasioglu, 2010; Herz et al., 2016) and is capable of increasing the information provider's switching costs (Buchanan, 1992; Dyer & Hatch, 2006; Heide, 1994) constituting a barrier to switching suppliers. Among the most prominent switching costs are relational switching costs, which include personal relationship ties (costs of losing personal relationships) and brand relationship ties (costs of losing brand relationships) of relational partners (Burnhamet al., 2003). Based on the assumptions and findings presented, the third hypothesis is formulated:

H3: There is a positive influence of information sharing on relational exchange costs.

### 2.4 Mediating the effect of information sharing on the relationship between resourcedependence and relational exchange costs

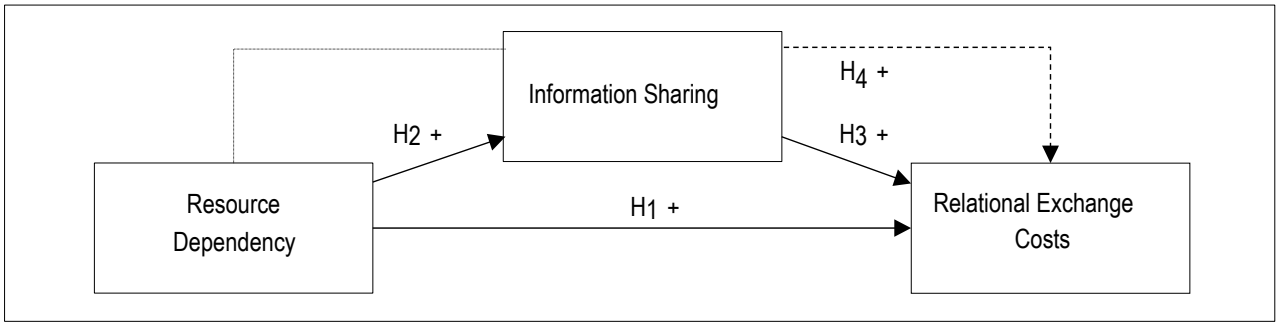
To manage resource dependence, organizations start to establish closer relationships with suppliers (Pfeffer & Salancik, 1978; Schmitz et al., 2016) through cooperative activities such as information sharing (Katila et al., 2008, Stock, 2006). Thus, resource dependence is able to link buyers and suppliers and increase the intention to share information (Shou et al.,2013). Moreover, the specific investments made by the partners in the relationship can promotejoint efforts in information sharing (Campbell, 1985).

The study conducted by Claycomb and Frankwick (2010) tested a model that examines interaction mechanisms and relational characteristics between buyers and suppliers. The authors observed that the quality of communication may instigate specific investments in the relationship. Such investments may constitute exchange costs (Heide & John, 1988) which among other dimensions, includes the relational exchange costs that constitute psychological barriers to supplier switching (Burnham et al., 2003). Relational exchange barriers are represented by social ties that promote a comfortable and friendly relationship, capable of retaining the individual in the relationship (Vasudevan et al. 2006). Therefore, the fourth research hypothesis is presented:

H4: There is a positive mediating effect of information sharing on the relationship between resource dependence and relational exchange costs.

Based on the theoretical assumptions and the empirical support presented, the conceptual model that guides this research is proposed, as illustrated in Figure 1.

**Figure 1.**
Theoretical research design




Note: The dotted line (Hypothesis 4) indicates the mediating effect of the information sharing variable on therelationship between resource dependence and relational exchange costs.
Source: Own elaboration.

The theoretical model of this research (Figure 1) proposes a positive relationship between resource dependence and relational exchange costs (H1), between resource dependence and information sharing (H2), and between information sharing and relational exchange costs (H3). It also proposes a positive mediating effect of information sharing on the relationship between resource dependence and relational exchange costs (H4).

## 3. SURVEY METHODOLOGY

This study is developed thorough a survey conducted via the LinkedIn network, with professionals from the logistics and transport sectors of companies in the Food and Beverage sector listed by the Brazilian Food Industry Association (ABIA), Online Food Guide, Econodata, the Brazilian Beverages Association (ABRABE), the Brazilian Association of SoftDrinks and Non-Alcoholic Beverages Industries (ABIR) and the Brazilian Association of Cold-Storage and Meat Packing Companies (ABRAFRIGO), which outsource their transport activities in the distribution of products.

Companies in the Food and Beverage sector were selected for this research due to the requirements of Ordinance No. 326/1997 of the Secretariat of Health Surveillance for the transportation of food products. The ordinance establishes the parameters for handling and hygiene of food products during transportation, such as the use of vehicles specially adapted for these services, requiring specific investments which may involve logo-printing, vehicles with specific characteristics for the products, human resources, sanitation, among others.

From the lists of companies, 985 companies were identified, of which 454 were excluded because they were listed more than once, or because their activities were not the focus of this investigation. This left 531organizations. During November and December 2020, invitations were sent out via LinkedIn, inviting professionals in the companies' logistics and transportation sectors to take part research. The reason why they had been selected explained, as well as the purpose of the investigation.

The 481 professionals who accepted the invitation to connect were sent guidelines on how to access the questionnaire, developed with the help of the Google Forms tool. A total of 120 valid responses were returned, meeting the minimum requirement (68 valid responses) for hypothesesanalysis, as estimated by the software G*Power 3.1.9.2 (Ringle et al., 2014), based on the following criteria used to estimate the sample size: i) number of arrows arising from the independent variables directed to the dependent variable; ii) effect size (average effect of 0.15); iii) significance of $\alpha = 5\%$; and iv) sample power of $1 - \beta = 0.8$ (Cohen, 1988).

Of the 120 professionals participating in the research, 29.2% (highest percentage) occupied managerial positions in the areas of logistics, transportation and supply chain. As regards the respondents' gender, it was observed that there was a high predominance of male employees (81.7%). Concerning the respondents' age bracket, most (45%) were between 30 and 39 years old. When asked about their level of education, 84.2% said they had completed undergraduate studies, while only 0.8% had a doctorate.

When analyzing the profile of the companies investigated, it was observed that 84.2% of companies are large sized, whilst only 0.8% are small sized. Road freight is the main modal (99.2%), however, 12.5% use more than one modal. Regarding the type of cargo involvedin the provision of services, 69.2% of the respondents use general dry and packaged

food cargo. As to the continuity of the relationship between transport suppliers and food companies, 96.7% stated that they intend to continue with the current supplier.

With regard to the data collection instrument, it was composed of three constructs validated by the literature, in which the respondents were encouraged to answer statements referring to the constructs (resource dependence, information sharing, and relational exchangecosts), and were instructed to consider the main transportation service provider. The research constructs and their respective assertions are presented in Table 1.

**Table 1**
Research constructs and assertions

| Constructs | Variables | Assertions |
|---|---|---|
| | | **Indicate to what extent the assertions describe the relationship established between your company and the main provider of transport services, considering a scale of 1 to 7, where 1 = Never and 7 = Always.** |
| **Resource dependency** Extracted and adapted from Lee and Scott (2015). | | **DRE1.** To what extent the services offered by the main transport service provider are important to your organization.<br>**DRE2.** Overall, to what extent can your organization negotiate prices with the maintransport service provider.<br>**DRE3.** Overall, to what extent is it difficult for your organization to negotiate with themain transport service provider (R)<br>**DRE4.** At contract renewal, the effort involved in finding alternative suppliers for theservices offered by the main transport service provider is high.<br>**DRE5.** The extent to which the main transport service provider influences yourorganization's decisions regarding new and/or existing services. |
| **Information sharing** Extracted and adapted from Heide and Miner (1992). | | **Indicate to what extent the assertions describe the relationship establishedbetween your company and the main provider of transport services, considering a scale of 1 to 7, where 1 = I strongly disagree and 7 = I strongly agree.**<br>**CI1**. In this relationship, it is expected that any information that can help the partner is provided.<br>**CI2.** The exchange of information in this relationship occurs frequently, eveninformally, and not only according to some pre-established agreement.<br>**CI3.** Parties are expected to provide private information if they can help each other.<br>**CI4.** We are expected to keep ourselves informed about events or changes that may affect the partner. |
| **Relational exchangecosts** Extracted and adapted from Burnham et al., (2003). | | **Indicate to what extent the assertions describe the relationship established between your company and the main provider of transport services, consideringa scale of 1 to 7, where 1 = I strongly disagree and 7 = I strongly agree.** |
| | Loss of personal relationship costs | **CPRP1.** I would miss working with the people from my main transport service provider if I were to switch providers.<br>**CPRP2.** I feel more comfortable interacting with the people who work for the main transport service provider than I would be if I switched providers.<br>**CPRP3.** The people linked to the current main transport service provider are important to me.<br>**CPRP4.** I enjoy talking to the people from whom I receive my transport services. |
| | Loss of brand relationship costs | **CPRM1.** I like the public image that the main transportservice provider has.<br>**CPRM2.** I support the main transport service provider as acompany.<br>**CPRM3.** I don't care about the brand/company name of themain transport service provider. (*) |

***Note:*** (*) Reverse assertion**.**
Source: Own elaboration.

The data collection instrument contained 16 assertions measured by a 7-point Likert typescale. The assertions were prepared by the authors indicated in the constructs column of Table1, and subsequently adapted for the interorganizational context investigated. To ensure that the assertions were correctly translated, the back-translation procedure was used, whereby assertions were translated into English, and then back into the original language.

For data analysis, the techniques of Exploratory Factor Analysis (EFA) and Structural Equation Modeling (SEM) estimated through Partial Least Squares (PLS*)* were used. In the first stage of the analysis, AFE was performed, using the software program SPSS Statistics, through Varimax rotation and Kaiser normalization, as recommended by Fávero et al.

(2009). The SEM was performed using the software SmartPLS version 3. To evaluate the measurement model, three tools were used: i) PLS algorithm; ii) bootstrapping for the mediation analysis; and iii) blindfolding.

## 4. RESULTS AND DISCUSSIONS

### 4.1 Measurement model

EFA was operationalized to observe the latent variables of the proposed structural model. The constructs were validated according to the criteria proposed in the literature (Fávero et al., 2009): i) principal component analysis through Varimax rotation and Kaiser normalization (> 0.4); ii) Kaiser-Meyer-Olkin test (> 0.5); and iii) Bartlett's test of sphericity (<0.05). These procedures required the exclusion of some assertions of the constructs resource dependence (DRE1, DRE2 and DRE3) and relational exchange costs (CPMR3) that did not meet the criteria stipulated by the literature. Table 2 presents the EFA of the research constructs.

**Table 2**
Exploratory factor analysis of the constructs

| Construct | Assertive | Factor | KMO | Bartlett's test |
|---|---|---|---|---|
| Resource Dependence | DRE4 | 0.831 | 0.5 | *p-value* < 0.05 |
| | DRE5 | 0.831 | | |
| Information Sharing | CI1 | 762 | 0.7 | *p-value* < 0.05 |
| | CI2 | 0.757 | | |
| | CI3 | 0.560 | | |
| | CI4 | 0.693 | | |
| Relational ExchangeCosts | CPRP1 | 0.901 | 0,8 | *p-value* < *0.05* |
| | CPRP1 | 0.888 | | |
| | CPRP1 | 0.693 | | |
| | CPRP1 | 0.684 | | |
| | CPRP1 | 0.883 | | |
| | CPRP1 | 0.842 | | |

Source: Research data.

Through the EFA, it was verified that the constructs were adequate in terms of the robustness of the indicators. After excluding the assertions, the indicators proved to be adequate for the subsequent statistical procedures. The measurement model was used to attest the constructs validity and reliability, according to the criteria established by Hair Jr. et al. (2017), presented in Table 3.

**Table 3**
Measurement model

| **Panel A: Discriminant validity by Fornell and Larcker criteria** | | | |
|---|---|---|---|
| **Latent variables** | **1** | **2** | **3** |
| **1.** Resource dependency | **0,820** | | |
| **2.** Information sharing | 0.247 | **0.692** | |
| **3.** Relational exchange costs | 0.225 | 0.275 | **0.729** |
| **Panel B: Indicators of quality and convergent validity** | | | |
| AVE (>0.5) | 0.672 | **0.479** | 0.531 |
| CR (>0.7) | 0.800 | 0.785 | 0.869 |
| **Panel C: Descriptive statistics** | | | |
| Average | 5.023 | 5.375 | 4.340 |
| Standard Deviation | 1.444 | 1.524 | 1.786 |

Key: AVE = Average Variance Extracted; CR = Composite Reliability.
*Note:* n=120. On the diagonal are presented the square roots of the AVE, outside the diagonal are the correlations between the variables (Hair Jr. et al., 2017).
Source: Research data.

Through the AVE, the convergent validity of the constructs is attested. The AVE verifies how far, on average, the statements are positively correlated with their respective variables. Their coefficients should be greater than 0.5 (Hair Jr. et al., 2017). The AVE of the constructs resource dependence and relational exchange costs met the assumptions of the literature by presenting values above 0.5. The same did not occur with information sharing, which presented values slightly below those stipulated, constituting a limitation of the model. However, AVE values slightly below 0.5 are also acceptable if the results of the composite reliability (CR) are higher than 0.7 (Bido & Da Silva, 2019; Little et al., 1999).

From the CR of the constructs, it was possible to confirm the internal consistency of the measures due to their coefficients presenting values higher than the threshold of 0.7 (CR > 0.7),according to Hair Jr. et al. (2017, thus the construct indicators were maintained as a way to ensure the nomological validity of the construct (Little et al., 1999).

The discriminant validity of the constructs was analyzed by the Fornell and Larcker criterion. Through this criterion, the square roots of the variables' AVE are compared with the correlations of the other variables of the study, which should be lower than the roots of the AVE(Hair Jr. et al., 2017). In Table 3 it is observed that the values of the roots of the AVE of the variables are higher than the correlations of the other variables, which confers discriminant validity to the constructs.

Given the validity and reliability of the constructs and considering the limitations and restrictions evidenced during the statistical tests, it is believed that the proposed measurement model adequately met the assumptions of the literature. Thus, the research data are considered suitable to proceed with the analysis of the structural model, in order to accept or reject the hypotheses proposed in the theoretical model.

### 4.2 Structural model

To analyze the relationships of the structural model, bootstrapping and blindfolding techniques were used with 5,000 subsamples, 300 interactions, bias-corrected and accelerated confidence interval and at 5% significance level (Hair Jr. et al., 2017). Table 4 presents the results of the structural model.

**Table 4**
Results of the structural model

| Relationships | Hypotheses | Coef. | T Statistics | P Value | Decision |
|---|---|---|---|---|---|
| Resource dependency → Relational exchange costs | $H_1$ | 0.67 | 1.572 | 0.116 | Reject |
| Resource dependency → Information sharing | $H_2$ | 0.247 | 2.817 | 0.005 | Do not reject |
| Information sharing → Relational exchange costs | $H_3$ | 0.234 | 2.060 | 0.039 | Do not reject |
| Resource dependency → Information sharing → Relational exchange costs | $H_4$ | 0.058 | 1.555 | 0.120 | Reject |

Predictive Relevance ($Q^2$): Information sharing = 0.021; Relational exchange costs = 0.027. Internal VIF = max. 1.065 and external VIF = max. 2.842.Source: Research data.

The multicollinearity of the model is was through the Variance Inflation Factor *(*VIF), which identifies the presence of highly correlated constructs (Hair Jr. et al., 2017). The VIF should present coefficients less than 3 (VIF < 3), according to assumptions in the literature(Hair Jr. et al., 2017). Thus, it was attested that the model is free of multicollinearity, since the VIF presented a coefficient of 2.842.

The $Q^2$ attests to the predictive relevance of the model, capable of assessing the level at which the model is close to what was expected. To meet the adequacy criteria, $Q^2$ values shouldbe greater than zero ($Q^2 > 0$), as stipulated by the literature (Hair Jr. et al., 2017; Ringle et al., 2014). The constructs information sharing and relational exchange costs presented values of 0.021 and 0.027 respectively, indicating the accuracy of the model.

As for the proposed relationships, hypothesis H1 presumed positive influence of resource dependence on relational exchange costs. The results lead to the rejection of the hypothesis ($\beta = 0.167$; $p > 0.05$), indicating that resource dependence has no influence on relational exchange costs between buyers and suppliers of transport services.

Hypothesis H2 predicted that resource dependence positively influences information sharing. The results led to the non-rejection of H2 ($\beta = 0.247$; $p < 0.05$). The result suggests that resource dependence of Food and Beverage companies on their transport service providers leads to information sharing among partner companies.

Hypothesis H3 proposed a positive influence of information sharing on relational exchange costs. The results allow the non-rejection of the hypothesis ($\beta = 0.234$; $p < 0.05$), which suggests that information sharing between companies in the Food and Beverage sector and their transport service providers positively influences relational exchange costs.

The theoretical model of this research also assumes a positive mediating effect of information sharing on the relationship between resource dependence and relational exchange costs (Hypothesis H4). The results reject the hypothesis ($\beta = 0.058$; $p > 0.05$), indicating that information sharing between relationship partners does not mediate the relationship between resource dependence and relational exchange costs.

### 4.3 Discussion of results

The association between resource dependence and relational exchange costs, proposed by hypothesis H1, was rejected. This result diverges from the theoretical assumptions presented by the literature, that in resource dependence scenarios organizations should establish interorganizational relationships as a way to mitigate the scarcity of resources (Pfeffer & Salancik,1978). Through these partnerships, organizations start to make specific investments through people, processes or products (Dwyer et al., 1987). Such investments lose value in different relational contexts, constituting exchange costs in the relationship (Heide & John, 1988). On the other hand, this result can be explained by the fact that most of the effects of exchange costs in interorganizational relationships may be specific to the investigated interorganizational context (Pick & Eisend, 2014).

The relationship between resource dependence and information sharing, proposed in H2, was not rejected, which suggests that companies in the Food and Beverage sector that are dependent on their main transportation service providers share information with their partners. These results corroborate the findings of Pu et al. (2020), who found a positive relationship between unilateral dependence and information sharing established by 212 firms based in Mainland China.

Hypothesis H3, which predicted the influence of information sharing on relational exchange costs, was not rejected, suggesting that information sharing between partners constitutes personal and brand bonds. These results corroborate the theoretical assumptions presented by the literature, which advocate that in the Food and Beverage sector, information sharing is able to retain the relationship with the current transport service provider, as it increases the exchange costs of the information-providing partner (Buchanan, 1992; Dyer & Hatch, 2006; Heide, 1994).

Hypothesis H4, that presumed mediation of the information sharing construct in the relationship between resource dependence and relational exchange costs, was rejected. These findings are not supported by the literature, which reports that organizations that have resourcedependence start to establish cooperative attitudes, such as information sharing to ensure critical resources to their activities (Pfeffer & Salancik, 1978; Schmitz et al., 2016). For Claycomb andFrankwick (2010), the quality of communication established between organizations leads to specific investments in the relationship. These investments strength the relationships between organizations and are able to promote relationship exchange costs (Burnham et al., 2003; Heide & John, 1988).

## 5. CONCLUSIONS

This study analyzed the influence of resource dependence and information sharing on relational switching costs between buyers and transportation service providers. By proposing resource dependence and information sharing as antecedents of relational switching costs, it postulates that such constructs are capable of keeping organizations in the Food and Beverage sector with the current transportation service provider, since personal and brand ties are constituted between the partnering companies. This is in line with the assumptions of Burnhamet al. (2003), who suggest that relational switching costs are made up of the costs of losing personal and brand relationships.

However, the hypothesis test revealed that only information sharing proved to be influential in the relational exchange costs (H3), which suggests that information shared between partners of the relationship hinders the breaking of personal relationships and with the brand of the transportation service provider. The hypothesis test also did not reject the association between resource dependence and information sharing (H2), which presumes that organizations in these partnerships guided by resource dependence tend to share information in the context of the relationships investigated. It

is noteworthy that the other relationships proposed in the theoretical model were not supported.

Investigations that address interorganizational relationships are still little explored by accounting researchers. This aspect is even more evident when considering specific approaches to the area of costs. Further research is required in this area, to investigate aspects that go beyond the calculation of costs of goods and services. Understanding the antecedents of relational exchange costs helps improve invisible aspects of the figures verified in accounting reports.

The results of this research may offer practical implications. The dependence of Food and beverage companies on transport services may lead to cooperative behaviors such as information sharing. Appropriate levels of information sharing between relational partners may constitute psychological and emotional bonds between them and, as a result, relational barriers that would deter them from switching transport service providers. In the theoretical field, the study adds to the literature by demonstrating that information sharing is an antecedent of relational switching costs, advancing knowledge about the management of interorganizational relationships.

However, caution is required when interpreting the results of this investigation, as the responses to the survey are based on the perception of professionals from the logistics and transportation sectors of the companies investigated. As a result, aspects inherent to the functions of these professionals may have influenced responses. Furthermore, the results should not be extrapolated to interorganizational contexts other than the one investigated here, as that the sample is restricted solely to companies in the Food and Beverage sector, and their relationship with their main transportation service provider. Further studies might apply the constructs of this research in interorganizational contexts with different levels of proximity, in other sectors where companies operate, or where there are specific power structures in the relationship.

## REFERENCES


Anderson, J. C., & Narus, J. A. (1990). A model of distributor firm and manufacturer firm working partnerships. *Journal of marketing*, *54*(1), 42-58. Doi: 10.1177/002224299005400103.

Anderson, J.C., & Narus, J. A (1991). Partnering as a Focused Market Strategy. *California Management Review, 33*(3), 95–113. Doi:10.2307/41166663.

Bescorovaine, R., & Beuren, I. M. (2020). Reflexos da cooperação no desempenho de franquias: mediação do compartilhamento de informações da confiança interorganizacional. *Ciencias da Administraçao, 22*(57), 37-56. Doi: 10.5007/2175-8077.2020.e70960.

Bido, D, S., & Da Silva, D. (2019). Smartpls 3: specification, estimation, evaluation and reporting. *Administração: ensino e pesquisa, 20*(2), 465-513. Doi: 10.13058/raep.2019.v20n2.1545.

Buchanan, L. (1992). Vertical trade relationships: the role of dependence and symmetry in attaining organizational goals. *Journal of Marketing Research, 29*(1), 65-75. Doi: 10.1177/002224379202900106.

Burnham, T. A., Frels, J. K., & Mahajan, V. (2003). Consumer switching costs: a typology, antecedents, and consequences. *Journal of the Academy of marketing Science*, *31*(2), 109-126. Doi:10.1177/0092070302250897.

Campbell, N. C. (1985). An interaction approach to organizational buying behavior. *Journal of Business Research*, *13*(1), 35-48. Doi: 10.1016/0148-2963(85)90012-8.

Claycomb, C., & Frankwick, G. L. (2004). A contingency perspective of communication, conflict resolution and buyer search effort in buyer-supplier relationships. *Journal of Supply Chain Management*, *40*(4), 18-34. Doi: 10.1111/j.1745-493X.2004.tb00253.x.

Claycomb, C., & Frankwick, G. L. (2010). Buyers' perspectives of buyer–seller relationship development. *Industrial Marketing Management*, *39*(2), 252-263. Doi: 10.1016/j.indmarman.2008.08.004.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Psychology Press.

da Silva, A., & Beuren, I. (2020). Efeitos dos sistemas de controle gerencial e do compartilhamento de informações no risco interorganizacional de uma rede de franquia. *Advances in Scientific & Applied Accounting*, *13*(1), 003-022. Doi: 10.14392/asaa.2020130101,

Dekker, H. C. (2016). *On the boundaries between intrafirm and interfirm management accounting research. Management Accounting Research, 31*, 86-99. Doi: 10.1016/j.mar.2016.01.001.

Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer-seller relationships. *Journal of marketing*, *51*(2), 11-27. Doi: 10.2307/1251126.

Dyer, J. H., & Hatch, N. W. (2006). Relation-specific capabilities and barriers to knowledge transfers: creating advantage through network relationships. *Strategic Management Journal*, *27*(8), 701-719. Doi: 10.1002/smj.543.

Fávero, L. P., Belfiore, P., Silva, F. D., & Chan, B. L. (2009). *Análise de dados: modelagem multivariada para tomada de decisões*. Campus.

Fornell, C. (1992). A national customer satisfaction barometer: The Swedish experience. *Journal of marketing*, *56*(1), 6-21.

Frazier, G. L. (1983). On the measurement of interfirm power in channels of distribution. *Journal of Marketing Research, 20* (2), 158-166. Doi: 10.1177/002224378302000206.

Fu, S., Han, Z., & Huo, B. (2017). Relational enablers of information sharing: evidence from Chinese food supply chains. *Industrial Management & Data Systems, 117* (5), 838-852. Doi: 10.1108/IMDS-04-2016-0144.

Fugate, B. S., Mentzer, J. T., & Stank, T. P. (2010). Logistics performance: efficiency, effectiveness, and differentiation. *Journal of business logistics, 31*(1), 43-62. Doi:10.1002/j.2158-1592.2010.tb00127.x.

Gerdin, J. (2005). The Impact of departmental interdependencies and management accounting system use on subunit performance. *European Accounting Review, 14* (2), 297-327. Doi:10.1080/09638180500043485.

Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2017). A primer on partial least squares structural equation modeling (PLSSEM): second edition. Sage.

Heide, J. B. (1994). Interorganizational governance in marketing channels. *Journal of marketing*, *58*(1), 71-85. Doi: 10.1177/002224299405800106.

Heide, J. B., & John, G. (1988). The role of dependence balancing in safeguarding transaction-specific assets in conventional channels. *Journal of marketing*, *52*(1), 20-35. Doi:10.1177/002224298805200103.

Heide, J. B., & Miner, A. S. (1992). The shadow of the future: effects of anticipated interaction and frequency of contact on buyer-seller cooperation. Academy of Management Journal, 35(2), 265-291. Doi:10.5465/256374.

Herz, M., Hutzinger, C., Seferagic, H., & Windsperger, J. (2016). Trust, decision rights delegation, and performance — The case of franchising. *Journal of Small Business Management*, *54*(3), 973-991. Doi: 10.1111/jsbm.12227.

Holland, C. P. (1995). Cooperative supply chain management: the impact of interorganizational information systems. *The Journal of Strategic Information Systems*, *4*(2), 117-133. Doi: 10.1016/0963-8687(95)80020-Q.

Huo, B., Han, Z., Zhao, X., Zhou, H., Wood, C. H., & Zhai, X. (2013). The impact of institutional pressures on supplier integration and financial performance: Evidence from China. *International Journal of Production Economics, 146*(1), 82-94. Doi: 10.1016/j.ijpe.2013.01.013.

Huo, B., Liu, C., Kang, M., & Zhao, X. (2015). The impact of dependence and relationship commitment on logistics outsourcing: Empirical evidence from greater China. *International Journal of Physical Distribution & Logistics Management*.

Huo, B., Liu, C., Chen, H., & Zhao, X. (2017). Dependence, trust, and 3PL integration: an empirical study in China. *International Journal of Physical Distribution & Logistics Management, 47* (9), 927-948. Doi: 10.1108/IJPDLM-09-2016-0284.

Huo, B., Zhao, X. and Zhou, H. (2014). The effects of competitive environment on supply chain information sharing and performance: an empirical study in China. *Production and Operations Management, 23*(4), 552-569. Doi: 10.1111/poms.12044.

Joshi, A. W. (2009). Continuous supplier performance improvement: Effects of collaborative communication and control. *Journal of marketing*, *73*(1), 133-150. Doi: 10.1509/jmkg.73.1.133.

Katila, R., Rosenberger, J. D., & Eisenhardt, K. M. (2008). Swimming with sharks: Technology ventures, defense mechanisms and corporate relationships. *Administrative science quarterly*, *53*(2), 295-332. Doi: 10.2189/asqu.53.2.295.

Lai, F., Chu, Z., Wang, Q., & Fan, C. (2013). Managing dependence in logistics outsourcing relationships: evidence from China. *International Journal of Production Research*, *51*(10), 3037-3054.

Lavastre, O., Gunasekaran, A., & Spalanzani, A. (2014). Effect of firm characteristics, supplier relationships and techniques used on supply chain risk management (SCRM): an empirical investigation on French industrial firms. *International Journal of Production Research*, *52*(11), 3381-3403. Doi: 10.1080/00207543.2013.878057.

Lee, J. Y. H., Saunders, C., Panteli, N., & Wang, T. (2021). Managing information sharing: Interorganizational communication in collaborations with competitors. *Information and Organization*, 100354. Doi: 10.1016/j.infoandorg.2021.100354.

Lee, M. T., & Scott, K. (2015). Leveraging IT resources, embeddedness, and dependence: A supplier's perspective on appropriating benefits with powerful buyers. *Information & Management*, *52*(8), 909-924. Doi: 10.1016/j.im.2015.06.008.

Levesque, T. J., & McDougall, G. H. (1996). Customer dissatisfaction: the relationship between types of problems and customer response. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, *13*(3), 264-276.

Li, J., Sikora, R., Shaw, M. J., & Tan, G. W. (2006). A strategic analysis of inter organizational information sharing. *Decision support systems*, *42*(1), 251-266. Doi: 10.1016/j.dss.2004.12.003.

Little, T. D.; Lindenberger, U.; Nesselroade, J. R. (1999). On selecting indicators for multivariate measurement and modeling with latent variables: When "good" indicators are bad and "bad" indicators are good. *Psychological Methods, 4*(2), 192-211. Doi: 10.1037/1082-989X.4.2.192.

Liu, H., Ke, W., Wei, K. K., & Hua, Z. (2015). Influence of power and trust on the intention to adopt electronic supply chain management in China. *International Journal of Production Research*, *53*(1), 70-87. Doi: 10.1080/00207543.2014.922711.

Mahama, H. (2006). Management control systems, cooperation and performance in strategic supply relationships: A survey in the mines. *Management Accounting Research, 17*(3), 315-339. Doi: 10.1016/j.mar.2006.03.002.

Martins, R. S., Xavier, W. S., de Souza Filho, O. V., & Martins, G. S. (2011). Gestão do transporte orientada para os clientes: nível de serviço desejado e percebido. *Revista de Administração Contemporânea*, *15*(6), 1100-1119. Doi: 10.1590/S1415-65552011000600008.

McCarter, M. W., & Northcraft, G. B. (2007). Happy together?: Insights and implications of viewing managed supply chains as a social dilemma. *Journal of operations management*, *25*(2), 498-511.

Mentzer, J. T., Flint, D. J., & Hult, G. T. M. (2001). Logistics service quality as a segment-customized process. *Journal of marketing, 65*(4), 82-104. Doi: 10.1509/jmkg.65.4.82.18390.

Mentzer, J. T., Flint, D. J., & Kent, J. L. (1999). Developing a logistics service quality scale. *Journal of Business logistics*, *20*(1).

Mohr, J., & Spekman, R. (1994). Characteristics of partnership success: Partnership attributes, communication behavior, and conflict resolution techniques. *Strategic Management Journal, 15* (2), 135-152. Doi: 10.1002/smj.4250150205.

Parmigiani, A., & Santos, M. (2011). Clearing a path through the forest: A meta-review of interorganizational relationships. *Journal of Management, 37*(4), 1108-1136. Doi: 10.1177/0149206311407507.

Patnayakuni, R., Rai, A., & Seth, N. (2006). Relational antecedents of information flow integration for supply chain coordination. *Journal of management information systems*, *23*(1), 13-49. Doi: 10.2753/MIS0742-1222230101.

Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations*. Harper & Row , Nova York.

Pu, X., Wang, Z., & Chan, F. T. (2020). Adoption of electronic supply chain management systems: the mediation role of information sharing. *Industrial Management & Data Systems, 120*(11), 1977-1999. Doi: 10.1108/IMDS-06-2019-0346.

Redondo, Y. P., & Fierro, J. J. C. (2007). Importance of company size in long-term orientation of supply function: an empirical research. *Journal of Business & Industrial Marketing*, *22*(4), 236-248. Doi: 10.1108/08858620710754504.

Richins, M. L. (1987). A multivariate analysis of responses to dissatisfaction. *Journal of the Academy of Marketing Science*, *15*(3), 24-31.

Ringle, C. M., Da Silva, D., & Bido, D. D. S. (2014). Modelagem de equações estruturais com utilização do SmartPLS. *Revista Brasileira de Marketing, 13*(2), 56-73. Doi: 10.5585/remark.v13i2.2717.

Sahin, F., & Robinson, E. P. (2002). Flow coordination and information sharing in supply chains: review, implications, and directions for future research. *Decision sciences*, *33*(4), 505-536. Doi: 10.1111/j.1540-5915.2002.tb01654.x.

Samel, A. N., Bandeira, R. A. D. M. B., Campos, V. B. G., & Mello, L. C. B. (2019). Análise da logística urbana para distribuição de alimentos perecíveis. *Revista Gestão & Sustentabilidade Ambiental*, *8*(2), 79-103. Doi: 10.19177/rgsa.v8e2201979-103.

Schmitz, T., Schweiger, B., & Daft, J. (2016). The emergence of dependence and lock-in effects in buyer–supplier relationships - A buyer perspective. *Industrial Marketing Management*, *55*, 22-34. Doi: 10.1016/j.indmarman.2016.02.010.

Shou, Z., Yang, L., Zhang, Q., & Su, C. (2013). Market munificence and inter-firm information sharing: The moderating effect of specific assets. *Journal of Business Research*, *66*(10), 2130-2138. Doi: 10.1016/j.jbusres.2013.02.039.

Singh, J. (1990). Voice, exit, and negative word-of-mouth behaviors: An investigation across three service categories. *Journal of the academy of Marketing Science*, *18*(1), 1-15.

Stock, R. M. (2006). Interorganizational teams as boundary spanners between supplier and customer companies. *Journal of the Academy of Marketing Science*, *34*(4), 588-599. Doi: 10.1177/0092070306288765.

Vasudevan, H., Gaur, S., Shinde, R. (2006). Relational switching costs, satisfaction and commitment. *Asia Pacific Journal of Marketing and Logistics, 18*(4), 342–353. Doi:10.1108/13555850610703281.

Vijayasarathy, L. R. (2010). Supply integration: an investigation of its multi-dimensionality and relational antecedents. *International Journal of Production Economics*, *124*(2), 489-505. Doi: 10.1016/j.ijpe.2010.01.010.

Xiao, C., Petkova, B., Molleman, E., & van der Vaart, T. (2019). *Technology uncertainty in supply chains and supplier involvement: the role of resource dependence. Supply Chain Management: An International Journal, 24(6), 697–709.* Doi:10.1108/scm-10-2017-0334.

Yigitbasioglu, O. M. (2010). Information sharing with key suppliers: a transaction cost theory perspective. *International Journal of Physical Distribution & Logistics Management, 40*(7), 550-578. Doi: 10.1108/09600031011072000.

Zacharia, Z. G., Sanders, N. R., & Nix, N. W. (2011). The emerging role of the third-party logistics provider (3PL) as an orchestrator. *Journal of Business Logistics, 32*(1), 40-54. Doi: 10.1111/j.2158-1592.2011.01004.x.

Zhang, C., Du, N., & Zhang, X. (2021). When an interfirm relationship is ending: The dark side of managerial ties and relationship intimacy. *Journal of Business Research*, *125*, 227-238. Doi: 10.1016/j.jbusres.2020.12.011.