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The influence of the institutional context on interfirm relationships: A Comparative study between low- and high-income countries

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Abstract

Today's competitive environment has pushed companies to developed collaborative relationships with other firms on the market to improve their performance and achieve a competitive advantage. Among the existing collaborative strategies, horizontal collaboration has gained much attention recently. However, besides the potential improvement this strategy can bring, very few successful long-term cases are reported in the literature. In this paper, we investigate the role that country context plays in determining the collaboration success, specifically the strength of the institutional context. A model linking collaboration activities to its outcomes is tested in two independent samples representing upper-middle-high-income (UMHI) and lower-middle-low-income countries (LMLI). The results show that firms in UMHI countries are more likely to commit to the relationship once trust is established, whereas firms in LMLI countries are more likely to be satisfied with the relationship as a result of developed trust.

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1. Introduction

In today's extremely competitive environment, firms strive to develop collaborative relationships outside their boundaries to improve their efficiency and deliver the best value to their customers (Hamdi et al., 2020). In this regard, several interfirm collaborative strategies along the supply chain have seen the light, both on the vertical and the horizontal axis. While vertical collaboration experiences are well established, both in the literature and practice, Horizontal endeavors remain relatively new (Basso et al., 2019). Horizontal collaboration is a business strategy where two (or more) companies, operating at the same supply chain level, work together to improve their performance (Martin et al., 2018). Despite its many benefits, long term horizontal collaboration experiences remain limited, which raises the need to investigate the different elements influencing their outcomes.

The literature on horizontal collaboration offers many insights into its enablers and barriers. Factors such as information sharing, dedicated investments, and partners' similarity have been shown to contribute to collaboration success (Badraoui et al., 2020), while elements such as the lack of trust, the aversion to sharing information and the resistance to engage in joint efforts are known to limit collaboration potential (Basso et al., 2019). Despite the rich literature on horizontal collaboration, the role that context plays has not attracted much attention. According to Saenz et al. (2015), a firm's country context influences how horizontal collaboration enablers and barriers contribute to its outcomes. This postulate, which not been verified in the case of horizontal collaboration, has been investigated in vertical collaboration, with authors such as Van der Vaart et al. (2012) and Rossi et al. (2013) showing that context micro and macro characteristics can enable or hinder the development and implementation of collaboration. Nonetheless, most of the studies dealing with interfirm collaboration have been conducted in developed countries (Hudnurkar et al., 2014), making it necessary to conduct cross country studies to determine how country characteristics affect horizontal collaboration.

Country characteristics refer to the institutional structure and attributes as well to the community characteristics. Institutional attributes represent formal and informal rules/regulations governing the ecosystem (Edwards and Steins, 1999). Formal rules include policies and regulations (e.g. environmental norms, merchandize transportation regulations), while informal rules are local norms, accepted actions and cultural specificities defining actions that are permitted or prohibited (Mattor and Cheng, 2015). The institutional context can support firms in developing countries collaborative relationships by means of a legal framework. A strong institutional context favours the development of cooperative behaviour by fostering trust, while a weak one creates fear among firms relative to the absence of institutions overseeing conflict resolution (Fuglsang and Jagd, 2015). Therefore, comparing collaboration dynamics in weak and strong institutional contexts can help elucidate the role context plays in horizontal collaboration success and failure.

Considering the discussion above, the objective of this paper is to study how horizontal collaboration enablers influence the relationship's long-term commitment under weak and strong institutional contexts. We do so by comparing the impact of operational and relational constructs on the organization's commitment to collaborative relationships in two samples representing developed and developing countries. The aim is to understand whether the country context influences the relationship between collaboration operational and relational constructs and its outcome. This contribution contributes to the body of knowledge on inter-firm relationships by elucidating the role played by context in determining horizontal collaboration success.

This paper is organized as follows. Section 2 discusses the theoretical foundations of this study along with hypotheses formulation. Section 3 and 4 present the instrument development, data analysis and results. Section 5 presents the discussion of the results while section 6 outlines the research limitation and future directions.

2. Theoretical foundations

2.1 Hypothesis development

Transaction Cost and Social Exchange are two well-established theories that are used to study interfirm relationships. Transaction cost theory, which focuses on examining governance options between firms considering the presence of uncertainty and moral hazards (Williamson, 1993), has focused on coercive mechanisms to counter moral hazards (e.g relationship-specific investments), leaving out the potential role played by social ties. Social ties, as examined in Social Exchange theory (Blau, 1964), serve non-coercive control mechanisms that promote collaborative behavior. Given that not all moral hazard can be foreseen in advance, contractual agreements remain limited, thus requiring the development of relational control mechanisms such as trust and commitment (Nyaga et al., 2010). We aim to examine how economic oriented constructs associated with transaction cost theory, impact collaboration long term commitment in weak and strong institutional contexts, through the mediation of relational constructs associated with social exchange theory. We rely on Hudnurkar et al. (2014) review of factors influencing supply chain collaboration to select the constructs for this study. Their work shows that *information sharing, resource sharing, dedicated investments, and joint relationship efforts (goal congruence, collaborative planning, incentives alignment)* are the factors most referred to in the literature. Figure 1 shows our conceptual model.

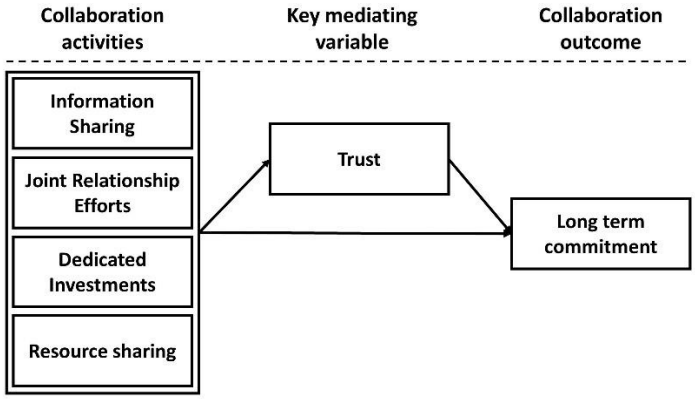

Figure 1: Conceptual model

2.1.1 Collaboration activities

Long term commitment can develop in the relationship when partners engage in collaborative activities, which serve as non-contractual agreements (Nyaga et al., 2010). They represent proof of partners' willingness to participate in the collaboration and contribute to limit opportunism and encourage collaborative behavior (Zhang and Cao, 2018). When potential opportunism represents a risk, firms should give and receive guarantees of their commitment to the relationship, which can take the form of operational collaborative activities (Williamson, 1993). Many collaborative activities have been investigated in research on interfirm relationships, with *information sharing, resource sharing and dedicated investments, and joint efforts (i.e. goal congruence, collaborative planning, and incentives alignment)* being the most cited (Hudnurkar et al., 2014). Recent contributions on collaboration have also considered similar factors, such as Zhang and Cao (2018) (*information sharing, goal congruence, decision synchronization, incentives alignment, resource sharing*), Wu and Chiu (2018) (*information sharing and*

communication as well as collaborative planning and implementing), and Um and Kim (2018) (*information sharing, goal congruence, decision synchronization, incentives alignment, resources sharing, and collaborative communication*). In this research, we consider four categories of collaborative activities, namely information sharing, joint relationship efforts, dedicated investments, and resource sharing.

- *Information Sharing* refers to the fact of exchanging complete and accurate information with the partners in a timely manner (Cao and Zhang, 2011). It plays a fundamental role in reaching the collaboration objectives as it enables the partners to effectively engage in collaborative efforts, such as joint planning and execution of operational activities (Sanders and Premus, 2005). Information sharing also allows partners to better understand each other's processes and helps mitigate risks associated with behavioral uncertainty and moral hazards (Kwon and Suh, 2004). In doing so, it helps develop trust and commitment in the relationship (Nyaga et al., 2010). The more confidential information is shared, the more indication it gives regarding the partners' motives and intentions. Therefore, we hypothesize that:

- H1: Information sharing has a positive impact on trust
- H2: Information sharing has a positive impact on commitment

- *Joint relationship efforts* represent all activities related to planning, executing, and orchestrating decision in the collaboration, such as setting up common goals, joint planning, decision synchronization and finally joint performance measurement (Min et al., 2005; Walker et al., 2013). They are essential for the collaboration to succeed, as they allow partners to coordinate their actions and processes to improve their respective performances (Nyaga et al., 2010), According to (Jap and Genesan, 2000), partners are more likely to trust each other and when they engage in joint relationship efforts, hence enhancing their commitment to the relationship. Therefore, we hypothesize that:

- H3: Joint relationship efforts have a positive impact on trust
- H4: Joint relationship efforts have a positive impact on commitment

- *Dedicated Investments* are investments made by the partners specifically for the needs of the collaboration, enabling the partners to capture higher returns and ensuring the success of the relationship (Badraoui et al., 2020). Dedicated investments are known to help develop trust in the relationship because they provide confirmation of a partner's engagement in the relationship and tangible evidence that they care about the good interest of the group (Whipple and Russell, 2007). Dedicated investments also create a dependence on the relationship (Schotanus et al., 2010), which pushes partners to commit to the relationship to safeguard their investments. Therefore, we hypothesize that:

H5: Dedicated investments have a positive impact on trust
H6: Dedicated investments have a positive impact on commitment

- In addition to dedicated investments, *sharing resources* is also proof of partners engagement and dedication to the collaboration (Walker et al., 2013). The extend resource-based theory (Lavie, 2006) argues that the mutual use of existing complementary resources enables the collaborating partners to achieve a competitive advantage. Typically, partners can share both physical (e.g. transportation capacity, storage facilities (Harland et al., 2004)) and human resources (Walker et al., 2013). Sharing existing complementary physical resources help increase their utilization rate and ultimately reduce costs while exchanging human resource provides the partner with access to complementary skills (Walker et al., 2013). Providing the partner access to one's resources contributes to developing trust in the relationship, which

ultimately leads to greater long-term commitment (Badraoui et al., 2020). Therefore, we hypothesize that:

- H7: Resource sharing has a positive impact on trust
- H8: Resource sharing has a positive impact on commitment

2.1.2 Inter-organizational trust as a key mediating variable

In the literature on interfirm relationships, trust represents the key factor determining the success of collaborative relationships. According to Badraoui et al. (2020), trust represents the degree to which a firm believes its partners process the skills as well as the intention to fulfill their obligations. From a transaction cost theory perspective, trust represents a relational governance mechanism that contributes to reducing behavioral risks relative to opportunism (Chiles and McMackin, 1996). The positive influence of trust on collaboration long term orientation was demonstrated in several empirical studies (Badraoui et al., 2020; Kwon and Suh, 2004; Nollet and Beaulieu, 2005). In fact, in addition to providing ground for partners to engage in collaborative efforts, trust also positively contributes to a long-term commitment to the relationship (Nyaga et al., 2010). Because long-term commitment creates vulnerability, trust is essential to persuade partners to be in a vulnerable position (Morgan and Hunt, 1994). Therefore, we hypothesize that:

- H9: Trust has a positive impact on commitment

2.1.3 Long-term commitment

Long-term commitment occurs when group members believe the relationship is so important that they need to make sure it endures (Morgan and Hunt, 1994). Commitment will generally lead to better performance because of partners being more engaged in collaborative efforts (Shin et al., 2019). Prior studies, such as Prahinski and Benton (2004)**,** Jap and Genesan (2000)**,** and Nyaga et al. (2010) have shown that long-term commitment has a direct positive impact on both collaboration performance and the partner's satisfaction with the relationship. However, performance improvements and satisfaction can only be achieved if all members are committed. A low commitment from one member can negatively impact the commitment of the other members (Schotanus et al., 2010).

2.2 Potential influence of institutional context

According to (Fuglsang and Jagd, 2015), a strong institutional context favours the development of trust in the relationship. Institutions can support the development of collaborative relationships in the form of a legal framework regulating collaborative actions or through a clear supporting governmental agenda (Mattor and Cheng, 2015). In contrast, firms in a weak institutional context fear the absence of conflict resolution mechanisms, which reduces the potential of trust development, and therefore commitment in the relationship. Therefore, given the weak institutional context of low-income countries, we expect that:

- H10: Trust will have a lower positive impact on long-term commitment in low-income countries compared to high-income countries.

3. Data collection and analysis method

3.1. Data collection

A survey was used to collect data for this study. The used items to measure each construct were adopted from existing studies published in renowned journals (Nyaga et al., 2010; Zhang and Cao, 2018, Mayer and Davis, 1999). A 7-point Likert-scale was used to measuring the extent to which respondents agree or disagree with the given statements, with 1=strongly disagree, 4= neutral, and 7=strongly agree. The survey was pretested by 20 people from academia and industry who are familiar with collaboration to identify redundant or ambiguous statements. Based on the pre-test, the list of items was further modified, resulting in a final list of 44 items (Appendix A).

Both face-to-face and self-administered surveys were conducted to collect data. Detailed guidelines were provided on how to answer the survey in case of active collaboration, multiple collaborations, and multiple collaboration partners. The survey was sent to 9889 professionals expected to have knowledge or experience in logistics, resulting in 364 responses (3.6% response rate). After cleaning the dataset (i.e. removing responses with missing data), the final sample consisted of 344 responses. Table 1 shows the distribution of the respondent's title, industry, and country category.

Table I: Respondent's title, industry, and country category

Respondent's title	N	Industry Category	N	Country Category	N
Director/general manager	104	Agri-food	129	Upper middle to high income countries (UMHI)	89
Production manager	36	Manufacturing and assembly	104	Lower middle to low-income countries (LMLI)	255
Logistics manager	42	Wholesale and retail	60		
Marketing and sales managers	136	Transportation and logistics	21		
Other	26	Other	30		

3.2. Data analysis method

Confirmatory factor analysis (CFA) was first performed using LAVAAN (Rosseel, 2012) to check unidimentionality, internal and composite reliability, convergent and discriminant validity, and measurement invariance across subgroups. Iterative models were run separately for each group (UMHI and LMLI), each time dropping items with loadings lower than the acceptable value (above 0.5 is acceptable, above 0.7 is preferred (Hair et al., 2010)). Unidimentionality was tested by assessing items' loadings and their significance, while the internal consistency and reliability were tested based on Cronbach's α and the composite reliability (ρ_c) values (Hair et al., 2010). Construct validity was assessed based on model fit indices, such as the chi-square, RMSEA and CFI, which provide a sufficient basis for model evaluation while avoiding redundancies among fit indices (Hair et al., 2010). Convergent validity was tested by evaluating the statistical significance of the loading and the average variance extracted (AVE). Finally, discriminant validity was examined by comparing each construct's validity and its shared variance with the other constructs in the model.

Additionally, common method bias as tested for in the measurement model. Following Podsakoff et al. (2003), a multifactor model with, in addition to the original constructs, a common factor on which all items are loaded was tested to check whether the common factor

captures parts of the variance. Subsequently, measurement invariance at the measurement level between the UMHI and LMLI groups was conducted following the four steps described by (Van de Schoot et al., 2012), consisting of configural, metric, scalar, and strict invariance. To determine whether invariance is achieved, both the change in chi-square and the fit indices (CFI and RMSEA) are considered.

Finally, structural equations modelling in LAVAAN (Rosseel, 2012) was used to test the hypotheses proposed in the conceptual framework, and to assess the model fit with the collected data. In addition, structural invariance was conducted by fitting the structural model and constraining the structural paths to be equal across groups while keeping all scalar-invariance equality constraints for the measurement part (full structural invariance).

4. Data analysis Results

4.1 Measurement Model

A multi-factor model including all constructs was specified in LAVAAN and tested on the UMHI and LMLI groups. After iteratively dropping items with loadings lower than the recommended values, the final model consisted of 30 items for 10 constructs (Table II). All item loadings meet the recommended values and are significant at $\alpha = 0.01$, indicating unidimensionality. The fitted multi-factor model has a good fit in both samples, meaning construct validity and configural measurement invariance are achieved: CFI (LMLI sample = 0.957, UMHI sample = 0.890), NNFI (LMLI sample = 0.948, UMHI sample = 0.866), RMSEA (LMLI sample = 0.041, UMHI sample = 0.076) and normed chi-square (LMLI sample = 1.42, UMHI sample = 1.51). The constructs' internal consistency reliabilities are sufficient, as both Cronbach's α's, and ρ_c values are above 0.7. Also, all constructs show good convergent validity, with AVE values greater than the critical value of 0.5. Regarding discriminant validity, the AVE of each construct is compared to its shared variance with the other constructs (Fornell and Larcker, 1981). The AVE values (LMLI sample = 52% to 75%, UMHI sample = 61% to 78%) are larger than the squared intercorrelations for each construct in each sample, indicating good discriminant validity (Table III).

Regarding common method bias, a common factor was added to the multifactor CFA model and set to be uncorrelated with the original constructs. A comparison between the models with and without the common factor showed very small differences in items loadings, with a mean value of 0.025 and the 90^{th} percentile at 0.072, indicating the common method bias is not a major issue.

Concerning measurement invariance, consecutive tests were conducted on LMLI and UMHI samples to test for configural, metric, scalar, and strict invariance. Configural invariance is exhibited as the multifactor models presented in Table II show a good fit. The model also shows metric invariance, with negligible change in CFI and RMSEA (ΔCFI and ΔRMSEA < 0.01). The analysis also shows that scalar invariance is achieved as the model fits the data well and the ΔCFI and ΔRMSEA are <0.01. Regarding strict invariance, this model shows a good fit but results in a ΔCFI value greater than 0.01, meaning that some measurement errors differ across the two samples (Table IV).

Table II: Constructs reliability measures and factor loadings for the LMLI and UMHI samples

Survey items	LMLI sample				UMHI sample			
	Loadings	AVE	CR	Cronbach α	Loadings	AVE	CR	Cronbach α
Information Sharing								
Is2	.774				.766			
Is3	.897	.65	.85	.83	.958	.65	.84	.82
Is4	.736				.664			
Joint relationship efforts								
jre1	.684				.783			
jre3	.862	.62	.83	.82	.886	.77	.91	.89
jre4	.814				.952			
Dedicated Investments								
dedinv1	.727				.901			
dedinv2	.754	.52	.76	.76	.792	.67	.86	.80
dedinv3	.676				.759			
Resource sharing								
rs1	.942				.901			
rs2	.916	.75	.90	.89	.843	.64	.84	.85
rs3	.729				.631			
Trust								
tr1	.847				.926			
tr2	.841	.63	.83	.83	.962	.78	.91	.90
tr3	.680				.741			
Long-term Commitment								
com1	.884				.792			
com2	.900	.73	.89	.88	.951	.75	.90	.89
com3	.771				.844			

(AVE: Average variance extracted, CR: Composite reliability)

Table III: Discriminant Validity Analysis (squared correlations for the LMLI and UMHI samples vs AVE)

	LMLI Countries						UMHI Countries					
	IS	**JRE**	**DI**	**RS**	**COM**	**TR**	**IS**	**JRE**	**DI**	**RS**	**COM**	**TR**
IS	1						1					
JRE	0.27	1					0.00	1				
DI	0.10	0.18	1				0.00	0.00	1			
RS	0.02	0.07	0.24	1			0.00	0.01	0.22	1		
COM	0.13	0.09	0.11	0.09	1		0.03	0.01	0.00	0.09	1	
TR	0.15	0.15	0.07	0.03	0.20	1	0.08	0.09	0.02	0.01	0.36	1
AVE	**0.65**	**0.62**	**0.52**	**0.75**	**0.73**	**0.63**	**0.65**	**0.77**	**0.67**	**0.64**	**0.75**	**0.78**

IS: Information sharing; JRE: Joint relationship efforts; DI: Dedicated investments; RE: Resource sharing; PS: Partners similarity; COM: Commitment; TR: Trust; DEP: Dependence; SRL: Satisfaction with the relationship; SRS: Satisfaction with the results

Table IV: Measurement invariance test results

Invariance tests	X^2 (df)	CFI	RMSEA	ΔCFI	ΔRMSEA
Configural invariance	1058.68 (720)	0.936	0.052	n/a	n/a
Metric Invariance	1094.14 (740)	0.933	0.053	0.003	0.001
Scalar Invariance	1127.53 (760)	0.930	0.053	0.003	0.000
Strict invariance	1257.45 (790) *	0.911	0.059	0.019	0.006

(*) significantly different than the previous model at 0.05

4.2 Structural Model and hypotheses testing

After establishing measurement invariance, structural invariance is assessed as well for both samples. Table V shows that the fully constrained structural model (full structural invariance) also shows a good model fit and results in acceptable changes in CFI and RMSEA (<0.01). Although the results suggest that full structural invariance is achieved, we decided to further investigate the existence of differences between the groups through testing each regression path separately. Thus, we compared the unconstrained model with models where each single regression path is constrained to be equal at a time (Table VI). The results show that only one regression path is identified as noninvariant (Trust → Commitment), which indicates that opinions from the two country categories largely concur. Considering this result, we re-ran the SEM multigroup analysis with the invariant paths constrained to be equal and noninvariant path left as free parameters (partial structural invariance). The resulting model also fits the data well, with the path diagrams presented in figures 2 and 3.

Table V: Structural invariance test results

Invariance tests	X^2 (df)	CFI	RMSEA	ΔCFI	ΔRMSEA
Unconstrained structural model (compared to the scalar invariance model)	1245.24 (804)	0.916	0.056	0.014	0.003
Full structural invariance	1257.65 (820)	0.917	0.056	0.001	0.000
Partial structural invariance	1254.63 (819)	0.917	0.056	0.000	0.000

(*) significantly different than the previous model at 0.05

Table VI: Partial invariance analysis results (LMLI vs UMHI samples)

Constrained regression paths	Df	X^2	Δ X^2	ΔDf	Pr(>X^2)	Different?
Unconstrained model	804	1 245.25	n/a	n/a	n/a	n/a
Information sharing → long-term Commitment	805	1 247.32	2.08	1	0.15	Not Different
Joint Relation Efforts → long-term Commitment	805	1 245.56	0.31	1	0.58	Not Different
Resource Sharing → long-term Commitment	805	1 245.42	0.17	1	0.68	Not Different
Dedicated Investment → long-term Commitment	805	1 245.33	0.09	1	0.77	Not Different
Trust → long-term Commitment	805	1 249.70	4.46	1	0.03	Different
Information Sharing → Trust	805	1 245.40	0.16	1	0.69	Not Different
Joint Relation Efforts → Trust	805	1 245.45	0.21	1	0.65	Not Different
Resource Sharing → Trust	805	1 245.94	0.69	1	0.41	Not Different
Dedicated Investment → Trust	805	1 248.04	2.79	1	0.09	Not Different

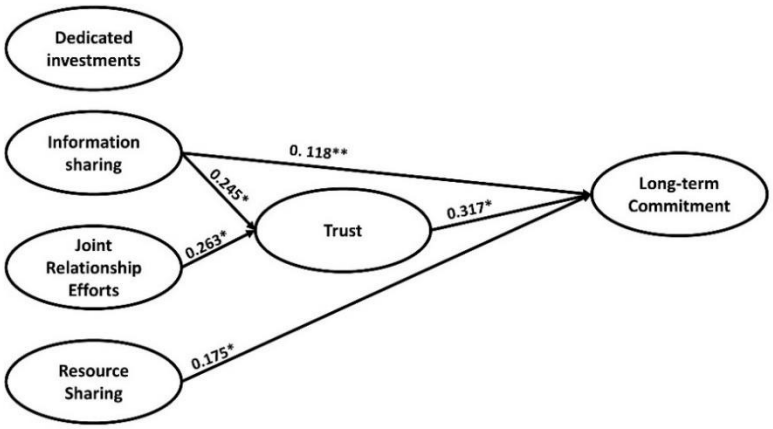

Figure 2: LMLI sample path model. *: significant at 0.01, **: significant at 0.05

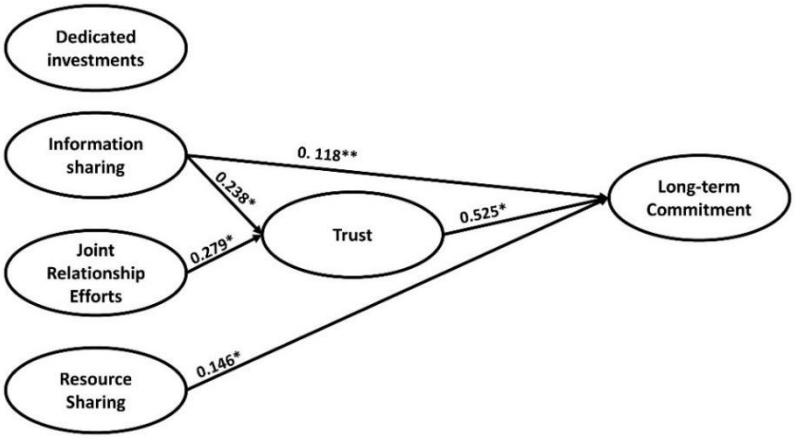

Figure 3: UMHI sample path model. *: significant at 0.01, **: significant at 0.05

5. Discussion of the results

The study compares independent samples illustrating the opinions of professionals from LMLI and UMHI countries. The results show that the size of the effects is similar in both samples, as shown by the good model fit. The statistically significant paths are similar in both groups, meaning that both samples have consistent perceptions regarding the relationships that lead to long-term commitment. Results indicate that, contrary to the general literature on interfirm collaboration, dedicated investments have no significant impact on neither trust nor commitment. This may be related to the fact that firms primarily engage in horizontal collaboration to have access to complementary resources, rather than to invest in new ones, thus explaining the significant impact of resource sharing and the non-significant impact of dedicated investments on commitment.

Structural invariance analysis shows that one structural path is significantly different across the two samples. Indeed, the effect of trust on commitment is stronger in UMHI countries compared to LMLI countries. This difference can be related to the weak institutional context of LMLI countries (Cai et al., 2010). In sub-section 2.2, we explain how firms in weak institutional context fear the absence of conflict resolution mechanisms, which reduces trust development and subsequently commitment (Fuglsang and Jagd, 2015). These results are in line with early studies that have demonstrated the impact of the institutional context on the strategies undertaken by industry professionals (e.g. Aldrich and Fiol, 1994). Hagen and Choe (1998) show that the institutional and societal context is largely responsible for the trust level in a relationship. Wicks and Berman (2004) show that the institutional environment influences trust creation, which eventually impacts long-term commitment. Hemmert et al. (2016) show that the institutional context, characterised by the power of legal protection and government support, is strongly related to the inter-firm trust-building process. Government support, i.e. institutional commitment to developing collaborative activities, has also been put forward by Mattor and Chen (2015) as an element favouring the development of trust and commitment in collaborative relationships. Cai et al. (2010) indicate that weak institutions in developing countries do not contribute to trust development in interfirm relationships.

6. Concluding remarks

The results show that the proposed model has great potential for generalizability as it is supported by samples from different country categories. This result is important as it shows that factors influencing horizontal collaboration, as well as the relationship between them (i.e. effect size), remain largely the same across countries. The main difference resides in the impact of

trust on long-term commitment, which is significantly higher in UMHI countries compared to LMLI ones.

This research has several limitations which represent directions for future research. First, this research represents a work in progress based on two unbalanced groups of observations. We intend to collect more observations from UMHI countries and re-evaluate the results of this work. Second, collaborative relationships develop over a long period and go through different faces where the relationship between the constructs might change. Therefore, a longitudinal study may result in insights that are not captured by the current work. Third, future research can also account for the possible moderating effect of culture on horizontal collaboration. Cultural dimensions such as collectivism, long-term orientation, power symmetry, and uncertainty avoidance can be measured and included in the model have been shown to have an impact on collaborative relationships (Zhang and Cao, 2018), making it important to evaluate their impact.

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