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Participation of SME distributors in the gray market: An empirical analysis of Spanish firms

Participación de distribuidores PYME en el mercado paralelo: Un análisis empírico en empresas españolas

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Abstract
Within the distribution channels of fast-moving consumer goods (FMCG), the negotiating of agreements with official suppliers is critical for the performance of small and medium-sized (SME) distributors. These distributors are limited by their size and negotiating power, which is significantly lower than that of their suppliers, leading them to seek alternative supply sources, such as that provided by the gray market. The participation of SME distributors in the gray market is not only conditioned by the negotiations with their official suppliers, but also by the role played by the size of the gray market and by the relationship with their suppliers. The literature shows very few studies into SMEs within this area of the distribution channel, so this article contributes an explanatory model of this phenomenon. Based on a sample of 181 Spanish distribution companies, our results confirm that negotiation is a favorable element, while granting limited importance to the role of the relationship. In addition, we find evidence of the key role of commitment between parties in a situation as peculiar as that of parallel marketing channels.

Keywords: gray market; SME; fast-moving consumer goods; negotiation; commitment
JEL Classification: M10; M20; M30; M31; M39

Resumen
En los canales de distribución de productos de gran consumo, para los distribuidores de pequeño y mediano tamaño (PYME), la negociación de acuerdos con sus proveedores oficiales es un momento crítico del desempeño de sus negocios. Este tipo de distribuidores están condicionados por su tamaño al presentarse su poder de negociación ostensiblemente inferior al de sus proveedores, dando lugar a la búsqueda de fuentes alternativas de aprovisionamiento como las proporcionadas por el mercado paralelo. La participación de las PYME en este tipo de distribución no solo está condicionada por la negociación con su proveedor oficial, sino también por el papel que juega la dimensión del mercado paralelo y su relación con sus proveedores. La literatura ha mostrado escasos estudios de PYME en este ámbito del canal, por lo que este artículo contribuye con un modelo explicativo sobre el fenómeno. Sobre la base de una muestra de 181 empresas distribuidoras españolas, los resultados confirman a la negociación como un elemento favorecedor, aunque otorgando escasa importancia a la relación. Sin embargo, la amplia literatura relacional existente invita a seguir indagando sobre el papel que tiene un elemento tan importante como el compromiso en una situación tan peculiar como es la de los canales paralelos de distribución.

Palabras clave: mercado paralelo; PYME; productos de gran consumo; negociación; compromiso
Clasificación JEL: M10; M20; M30; M31; M39

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1. Introduction

Within the area of marketing channels, the negotiation process between a distributor of fast-moving consumer goods (FMCG) and its supplier is critical for the effective running of the business (Iyer & Villas-Boas, 2003), as the outcome is of utmost importance for the performance of the company. These actions are especially important if the distribution company that participates in the negotiation is a small or medium-sized enterprise (SME), as the size of the organization is the most important factor when determining its negotiating power, i.e., the capacity of one party to influence the other (Keltner et al., 2003). Negotiating power within a marketing channel consists of “the ability of one channel member (A) to get another channel member (B) to do something it otherwise would not have done” (Coughlan et al., 2006, p. 197).

Under these circumstances, the survival of an SME may depend on how it assures better conditions during the negotiation process through the use of a strategic approach (Hong & Jeong, 2006). Although the negotiating power of an SME may be limited by its size, it is true that the official suppliers are not the only ones available within the marketing channels of fast-moving consumer goods, as there often exists, within this type of channel, the so-called gray market, which consists of “the sale of genuine trademarked products through distribution channels unauthorized by the manufacturer or brand owner” (Antia et al., 2006, p. 92). This provides intermediaries with an alternative supply source for a certain product and, therefore, gives the smaller distributors extra negotiating power against the official suppliers of the major brands.

Another important element is the relationship which exists between the distributor and its supplier. In this sense, Morgan and Hunt (1994) highlight commitment as being the most evolved element of the relationships within the distribution channel. Commitment means that the parties involved must make efforts and sacrifices in order to provide that the relationship between the intermediary and the supplier with a long-term orientation (Ganesan et al., 2010). The effort made to strengthen the commitment involved in the relationship acts as a deterrent to making any decisions that may threaten the business relationship (Mpinganjira et al., 2017), such as resorting to gray market suppliers.

The importance of the gray market in the management of the marketing channel is well-known; its size and impact are of such magnitude that, within certain sectors, strategic alliances have been formed in order to combat it, such as AGMA, (Alliance for Gray Market and Counterfeit Abatement). Reports from AGMA estimate the sale of articles on the gray market to be worth over 63 billion USD ($) in the North American market alone (https://agmaglobal.org) (Zhang & Feng, 2017). Other studies which focused on the European gray market estimate that 10% of pharmaceutical products are distributed in this way (Lu et al., 2020).

The literature has studied the gray market phenomenon as a consequence of the price differentials that arise between market segments for the same product, a situation that favors price arbitrage (Antia et al., 2006; Berman & Dong, 2016; Lu et al., 2020; Zhang & Feng, 2017). It has also been studied within the field of international commerce as well as from the differences in value established by multinationals for the same product, known as parallel importing (Berman, 2004; Bicen & Gudigantala, 2014; Li et al., 2016). On the whole, the perspective adopted in this study has been that of the manufacturer and the problems which organizing the distribution channel may cause for its strategic objectives (Antia et al., 2006; Bergen et al., 1998). More recent studies have dealt with the proliferation of the gray market after the e-commerce boom (Gudigantala & Bicen, 2019; Zhao et al., 2016). Nevertheless, there remain unexplored areas of study where the impact of the gray market must be analyzed from other perspectives and approaches, such as 1) the role it may play in a negotiation in the official supplier/distributor dyad if this is prolonged or the negotiating positions differ; 2) the distributor’s perception of the gray market compared to that of the manufacturer; 3) its use as an alternative supply source for an SME with much less negotiating power than the suppliers of the major brands of consumer products; and 4) the role that the relationship plays in the management of the marketing channel compared to elements of a transactional or economic kind.

This research sets out to fill some of these gaps in the study of the gray market, such as the usefulness of this particular distribution channel for an SME distributor when considering negotiating with an official distributor. This study, unlike the previous literature, focuses on the official distributor's perspective of the gray market (see Antia et al., 2006; Bergen et al., 1998). Finally, the study considers the role that the supplier/distributor relationship plays in the decisions regarding the latter’s participation in the gray market, as we know of no studies into this type of distribution which have incorporated the relational profile as an element of the decision.

The study presents a model of how SMEs participate in or decide to resort to the gray market for the supply of fast-moving consumer goods, in a context where there exists a process of open negotiation with the official supplier of the product and the implications which this entails (inequality of power and the need for agreement in order to obtain products necessary for a solid business performance). This model incorporates the state of the gray market for a particular channel by its importance, as well as the profile of the supplier/distributor relationship. In this section, and in accordance with the extensive relational literature (Dwyer et al., 1987; Morgan & Hunt, 1994; Johnston et al., 2018), the more evolved the relationship is, the more unlikely it is that the company will resort to the gray market as an alternative supply source.

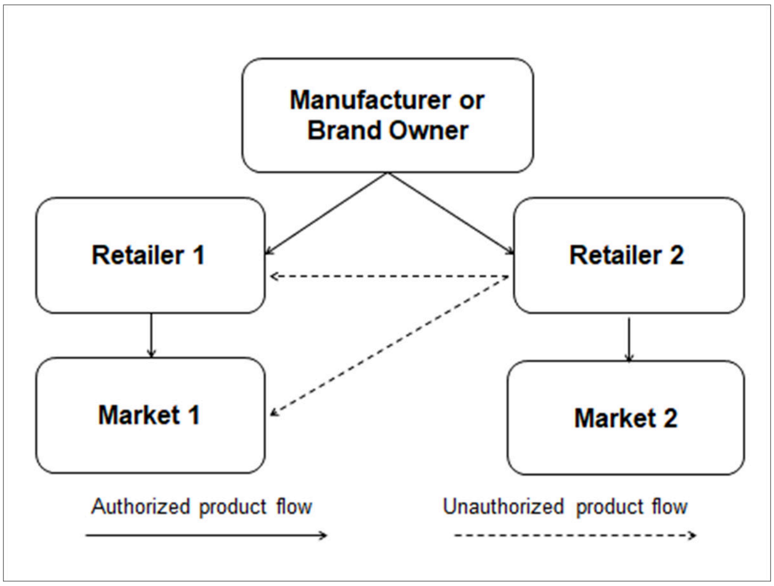
The traditional theoretical framework employed by the literature when studying the gray market is the Transaction Cost Theory (TCT) (see Bergen et al., 1998). Participation in this type of distribution is an opportunistic action as it violates the agreements at the heart of the official channel and is therefore a source of higher transaction costs. Opportunism is one of the basic assumptions of the Transaction Cost Theory, which defines it as "self-interest seeking with guile" (Williamson, 1975, p. 6), and which produces two types of cost: ex-ante, associated with the careful selection of the business partner; and ex-post, tied to the need for monitoring. The analysis model presented in this study includes the costs involved in both the negotiation (selection of distributors) and the relationship (monitoring and marketing channel governance).

In the following section, a literature review is performed to establish the hypotheses of the study. The sample and the scales used are then described, as well as the results obtained. Based on these results, we then presented our conclusions and recommendations for business management are then presented as well as the limitations of the study and the path which future research should follow.

2. Literature review and hypotheses

The gray marketing channel, also known as the gray market, is an alternative supply source to the official distribution channel (Zhang & Feng, 2017). It arises when "official" intermediaries of prestige goods decide to sell outside of their usual distribution channel, whether it be geographical (Bergen et al., 1998) or based on the categorization of the client (B2B, B2C) (Dutta et al., 1999) (Figure 1). With this opportunistic behavior, the gray market distributors or intermediaries seek additional income to that assigned during the process of market segmentation carried out by the manufacturer or brand owner (Cao & Zhang, 2020). This type of business is more often found in the distribution channels of fast-moving consumer goods, where the presence of a prestige good which standardizes the product means that it does not matter if it is supplied through one channel or another (Johnson & Sohi, 2016), with the decision variables being price (Gudigantala & Bicen, 2019) and availability (Antia et al., 2006).

Figure 1. Gray market flow



Source: Cao & Zhang (2020)

Participation in the gray market by an official distributor selected by a supplier, manufacturer or brand owner, is an opportunistic activity in the business relationship (Bergen et al., 1998; Antia et al., 2006), insofar as it violates agreements by carrying out supply transactions with intermediaries outside of the flow established in the official network (Antia et al., 2004). This opportunism is assumed by the Transaction Costs Theory (TCT) to be a basic behavioral assumption of agents (Williamson, 1975), establishing the hypothesis that self-interest guides economic decisions, including those made at the core of the distribution channel. The TCT observes how opportunism generates higher transaction costs, an analysis of which leads companies to make strategic marketing decisions (Williamson & Ghani, 2012).

This research paper is framed within the TCT by employing a model which explains the opportunistic behavior of an official SME distributor (by resorting to a gray market supplier) as a result of the uncertainty generated by its position as a member of the official channel (negotiation), the possibilities that the environment affords its actions (presence of an important gray market) and the existent marketing channel governance through the management of the relationship (commitment). It is worth noting that the TCT initially established opportunistic behavior as an explanatory variable (Williamson, 1975). However, subsequent studies treated opportunism as an explained variable (Antia et al., 2006; Zhao et al., 2016). Therefore, the endogenous variable of the study is **Supply Through Gray Market (SGM)** of an SME distributor.

The key variable of the study, which situates it on a short-term circumstantial dimension, is the contractual situation between an SME distributor and its official product supplier. In this situation, we must consider, in addition to economic, technical and logistical questions (Hong & Jeong, 2006), a vital aspect such as that of establishing whether an SME intermediary will form or will continue to form part of the official distribution channel for a specific product, known as the negotiating conditions template (Doménech, 2000). This negotiation is a key aspect as it implies not only the selection of intermediaries but also the coordination of the channel (Iyer & Villas-Boas, 2003). The negotiation or renegotiation of agreements are moments of tension in business relationships (Hart, 1988).

Within the distribution channels for fast-moving consumer goods, the suppliers of brand products possess a negotiating power which derives from dependency (Coughlan et al., 2006), as it provides the business relationship with something unique and indispensable, or difficult to replace (Morgan & Hunt, 1994), i.e., a brand product and market reputation. This dependency of the intermediary conditions the negotiation with its official supplier, as exclusion from the official network hinders access to a product that may be vital for its performance as a distributor of fast-moving consumer goods (FMCG) (Du & Zhang, 2017). SMEs are especially vulnerable in this situation as their negotiating power is limited by their relative lack of importance compared to that of the large distributors and, therefore, are easily replaceable.

During the negotiation process between an SME distributor and its official supplier, if the positions differ largely, the distributor may have its supply interrupted or become concerned that the official supplier will withdraw the supply in the near future. Antia et al. (2006) point out that resorting to the gray market will be more likely in those situations where there is an unsatisfied demand for a product. In this situation, a flow is generated that originates in the markets where the product is available, such as the gray market (Banerji, 1990). This precedent leads us to expect that a situation of **Negotiation (NEG)** which is excessively open and with widely differing positions will make it more likely for an SME distributor to resort to a gray market supplier, a situation summarized in the following hypothesis:

H1: The supply of an SME distributor in the gray market is positively influenced by the existence of an open negotiation between itself and its official supplier.

Once the gray market has been defined as a distribution flow which exists outside of the official network designed for a brand product (Antia et al., 2006), we must ask why this alternative emerges. There exists a broad consensus in the literature that the main cause is the price differential that is usually found in different segments of the market for the same product (Antia et al., 2004; Antia et al., 2006; Berman & Dong, 2016; Lu et al., 2020; Zhang & Feng, 2017; Zhao et al., 2016). This price differential encourages the appearance of unofficial intermediaries who arbitrage the prices and benefit from obtaining a product on the most economical market and supplying it to the most expensive (Berman, 2004).

If, from the offer viewpoint (gray distributors), the price is a clear incentive to undertake this type of business (Berman & Dong, 2016), the demand has, besides the price advantages, additional reasons for participating in the gray market. Thus, Antia et al. (2006) point out that scarcity in the supply of a product may encourage the use of gray market suppliers, a scarcity which may be provoked by an interruption in supply on the part of the official supplier.

Other incentives which encourage gray market demand are the presence of and easy accessibility to this type of supply (Eagle et al., 2003; Boyd Thomas & Lee Okleshen Peters, 2006), or that such suppliers are so abundant (Antia et al., 2006) that resorting to them would be considered normal. This abundance and accessibility will provide the distributor with the guarantees necessary to consider the gray market to be as reliable as the official market and not as a sporadic or short-term alternative (Bicen & Gudigantala, 2014; Zhang & Feng, 2017). Such a situation is known as **Relevance of Gray Market (RGM)** and is a clear incentive for an SME distributor to resort to it, a situation expressed as:

H2: The supply of an SME distributor on the gray market is positively influenced by the importance of the gray market within the distribution channel.

A third aspect to consider when analyzing what motivates a small or medium-sized distributor to do business on the gray market, beyond the state of its negotiation with the official supplier and the presence and importance of gray market suppliers, is the state of the relationship between said distributor and the official supplier. Accordingly, it should be noted that the literature highlights commitment as being the most evolved state of a relationship within the scope of the distribution channel (Morgan & Hunt, 1994).

The conceptualization of commitment comes from social psychology, a discipline which focuses on the causes and origins of the different types of relationships. Subsequently, this profile of the relationships has been incorporated into the analysis in the business context, as a factor to be considered when explaining ongoing commercial activities and the building of cooperative marketing relationships (Sharma et al., 2015). Within this context, that of business relationships and the distribution channel, we define commitment as “an exchange partner believing that an ongoing relationship with another is so important as to warrant maximum efforts at maintaining it” (Morgan & Hunt, 1994, p. 23). This definition underscores the “belief” and “intention” to continue with the relationship formulated by Dwyer et al. (1987).

These beliefs and intentions are the result of the effort required for the building and consolidation of this relationship over time, and acts as a deterrent towards any decision that threatens, or that may threaten, to harm the relationship (Dwyer et al., 1987). This situation creates a favorable atmosphere for the agents to consider that the relationship contributes towards a collaborative securing of objectives and prevents unexpected behavior on the part of the business associate (Mpinganjira et al., 2017). In addition, it strengthens the willingness of all parties involved to make short-term sacrifices (Johnston et al., 2018), creates greater willingness to invest in the relationship (Dwyer et al., 1987) and establishes a sense of identification and regard towards the business associate (Ganesan et al., 2010).

A twofold dimension in the conceptualization of commitment can be observed in the literature: “loyalty commitment” and “calculative commitment” (Gilliland & Bello, 2002), the latter also called functional or economic commitment by Morgan and Hunt (1994). Loyalty commitment appeals to the desire to maintain the relationship because the parties involved enjoy doing business together and implies an emotional attachment and social type of relationship (Ganesan et al., 2010; Du & Zhang, 2017).

The calculative, economic or functional aspect of commitment is considered to be necessary for maintaining the relationship, motivated by the costs associated with ending it or the lack of alternatives when doing business (Du & Zhang, 2017). Some studies suggest that loyalty commitment plays a leading role in the development and preservation of long-term relationships compared to economic or functional types of commitment (Ganesan et al., 2010). However, there exists empirical evidence that suggests that loyalty commitment cannot substitute for the performance of the organizations that interact and will therefore be contingent upon economic commitment (Sharma et al., 2015).

Within the FMCG distribution channels that include a prestigious brand, the power to include or exclude intermediaries is held by the official supplier who, in the absence of a gray market, is the only provider of the product (Antia et al., 2004). This situation gives rise to the presence of economic or functional type **Commitment (COM)**, regardless of the potential existence of a loyalty type commitment (Morgan & Hunt, 1994). This may lead the intermediary to rule out gray market supply if it does not provide guarantees, reflected in the following hypothesis:

H3: The gray market supply of an SME distributor is negatively influenced by the presence of commitment in the relationship with the official supplier.

The hypotheses advanced propose linear main effects on participation in the gray market. However, there is good reason to believe that, in addition to these, there also exist non-lineal moderating effects.

In exchange relationships, there are always disagreements and conflicts (Dwyer et al., 1987). However, the presence of commitment in the relationship is an incentive to resolve any differences either collaboratively or functionally (Gelfand et al., 2011). This incentive to seek a cooperative solution (Morgan & Hunt, 1994) is due to the fact that, in order to arrive at this status in the relationship, a process of consolidation over time is necessary, and the difficulties involved in achieving this act as a deterrent towards any decisions that may cause a breach of the relationship (Mpinganjira et al., 2017).

Thus, in tense situations provoked by differing positions in a negotiation between an SME intermediary and its official supplier (Dwyer et al., 1987), if the relationship is built upon commitment, there exists a high likelihood that the conflict may be channeled functionally, even if there is no guarantee of an absence of conflict, reducing the distributor's incentive to continue to put the relationship under further strain by resorting to the gray market (Morgan & Hunt, 1994), as reflected in the following hypothesis:

H4: The positive effect that open negotiation has on the gray market supply of an SME distributor decreases for higher levels of commitment with the official supplier.

On the other hand, the official supplier finds itself in an advantageous position in the negotiation, since it is in a monopoly situation as the supplier of a certain product (Gundlach, 2013) and especially because an SME intermediary may be easily replaced. The presence of a gray market distribution of brand products breaks with this monopolistic situation as it provides an alternative source of supply (Antia et al., 2004). Despite this, in practice the exclusive supply through gray market suppliers may not be the most suitable option, as this form of supply ultimately depends on current availability (Bicen & Gudigantala, 2014; Zhang & Feng, 2017).

The lack of an agreement with the official supplier may give rise to the worst of situations - that where the official supplier permanently excludes the intermediary (breach of negotiations), obliging the latter to resort exclusively to gray market supply (Antia et al., 2006). This is an undesirable situation for the SME intermediary who, despite performing supply operations on the gray market, hopes for an arrangement which allows it to continue as a member of the official distribution channel, as this is the only uninterrupted channel (Zhao et al., 2016). In this regard, a saturation effect is proposed, found when the negotiation is excessively open and with highly differing positions, and in which there is a genuine threat to end the relationship by the official supplier (Dwyer et al., 1987), reflected in the following hypothesis:

H5: The positive effect that open negotiation has on the gray market supply of an SME distributor decreases with higher levels of open negotiation.

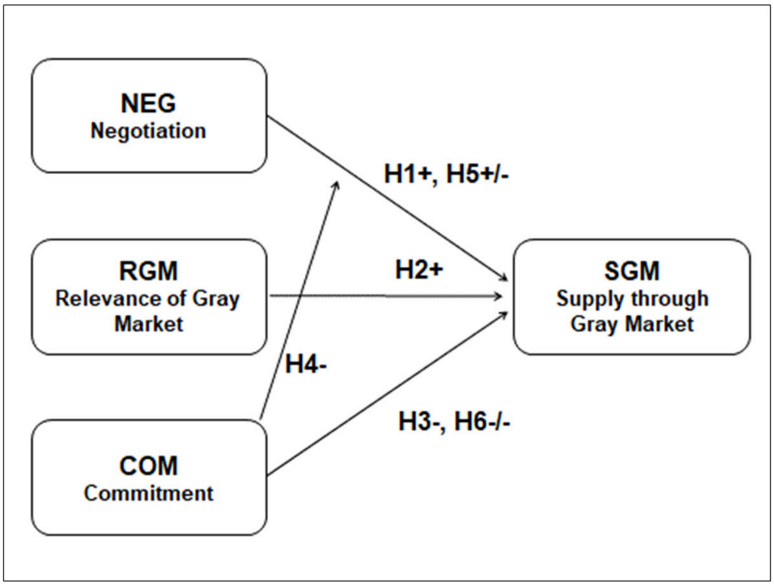
Finally, a quadratic effect of commitment is proposed for the active participation of an intermediary in the gray market without the official supplier.

A high level of commitment in the intermediary/supplier relationship is not an easy process, passing through different stages such as locating a suitable business associate, the negotiation of the conditions for a successful relationship, and the strengthening of the relationship based on the satisfaction of the parties involved (Dwyer et al., 1987). As a result, commitment is achieved through a slow, laborious and progressive process (Morgan & Hunt, 1994). It would previously have been necessary to make efforts and sacrifices to stabilize the relationship while aiming to maintain it over the long term and avoiding those short-term actions which may harm it, regardless of how beneficial they may be (Ganesan et al., 2010). This laborious temporary consolidation supposes that the parties involved in the relationship exclude any decisions that may threaten their cooperation and make them have to build a new business relationship (Mpinganjira et al., 2017). This rationale leads us to expect that, the more consolidated the commitment with the official supplier is, the stronger will be its effect on the intermediary, reflected in the following hypothesis:

H6: The negative effect that commitment with an official supplier has on an SME distributor regarding its gray market supply increases with higher levels of commitment.

Figure 2 displays the presented hypotheses:

Figure 2. Hypotheses



Source: Own elaboration

3. Methodology

3.1 Description of the sample

The aim of this research is to discover what motivates an SME distributor to resort to a gray market supplier. To this end, we gathered data for a sample of Spanish intermediary distributors that operate within the distribution channels of fast-moving consumer products such as drinks, perishable packaged foodstuffs, drugstore products and toiletries. The data were obtained from the “Distributors Guide” database of the INDISA (Industry and Distribution) publication, edited by Spanish manufacturers and distributors of consumer products. This database provides information regarding the distribution activity, geographical location and contact email address of each distributor. We sent self-administered questionnaires to these email addresses using the "Encuestas" web application of the University of Murcia.

Among the quantitative data requested in the questionnaire was the size of the distribution company, which then allowed us to select the small and medium-sized (SME) businesses. 181 valid responses were obtained from a mass mailing of over 4000 emails. To check for the absence of non-response bias, the sample was divided into two sub-samples, employing the response phase criterion, and an equality of means t-test showed that there were no significant differences, which suggests a low probability of the non-response bias (Armstrong & Overton, 1977).

Summary:

- Population: SME Spanish distribution companies.
- Sampling: Stratified random (size and sector).
- Instrument: Structured online questionnaire
- Sample: 181 companies.
- Scale: Likert (1-7).
- Blocks: I) state of the negotiation with the official supplier; II) importance of the gray market in the channel where it operates; III) state of the relationship with the official supplier; IV) supply through the gray market; V) control variables.

3.2 Measurement of concepts

The explanatory variable defined in the formulation of the hypotheses is **Supply through Gray Market (SGM)** of SME distributors of FMCG. We propose an explanation based on three precedents with direct effects on the dependent variable:

1. the existence of an ongoing negotiation to renew agreements as an intermediary in the distribution of consumer products supplied by the official supplier (**NEG**),
2. the existence within the distribution channel of a gray market with enough importance (volume and stability) to operate as an alternative supply source to the official supplier (**RGM**) and,
3. a relationship established on the commitment between the distributor that negotiates business agreements and the official supplier (**COM**).

In addition to these direct effects, the following non-lineal effects on the motivation of the SME distributor to resort to the gray market are to be expected:

1. the commitment between the distributor and its official supplier will reduce the motivating effect of the negotiation (**NEG x COM**),
2. the negotiation will find a saturation point to be motivating because of the risk of a breach in the negotiations (**NEG x NEG**), and finally,
3. the more consolidated the commitment is, the more effective it will be as a deterrent and, therefore, the level of commitment reached in the relationship between the distributor and the official supplier will be higher (**COM x COM**).

In order to measure the concepts described, we used measurements obtained from the literature, detailed in Table 1.

Table 1. Measerument scales

Measerument scales
SGM (Antia et al., 2006; Dwyer & Oh, 1987) - Most of the time, obtaining supplies on the gray market is the best option. - I often purchase goods of this brand on the gray market to benefit my clients. - It is never a mistake to obtain supplies on the gray market. - I supply a product on the gray market because it is a profitable alternative for my company.
NEG (own elaboration from Dwyer et al. (1987)) - Currently, you have a negotiation contract open with a manufacturer/brand owner.
RGM (Antia et al., 2006) - There exists a strong presence of "unofficial" distributors of this brand. - There exist distributors considered to be "official" who buy from the "unofficial" distributors. - There exist "official" distributors that sell this brand through "unofficial" channels. - The manufacturer intentionally releases a product through the "unofficial" channel.
COMP (E. Anderson & Weitz, 1992) - Under no circumstances would I replace the official supplier, even if a viable alternative were to be offered. - I am committed to maintaining the relationship with this supplier. - The relationship with the supplier is very important to me. - It is worth making an effort to maintain the relationship with this supplier.

Source: Own elaboration
Likert Scale (1-7)

The concept of negotiation has been measured by using a unique item, following the line of argument of Rossiter (2002), who advocates using single-item scales when, in the mind of the respondent, the element is singular and concrete, uniform and easy to imagine. In these situations, a good single item provides more information than the use of multi-item scales of an inferior quality. This is because they are often based on synonyms of the main item which, although they contribute towards an increase in the alpha coefficient, provide hardly any information and incur high correlation errors (Bergkvist & Rossiter, 2007).

Additionally, according to relevant literature, we consider several control variables that can influence in the analyzed relationships: product category, size of the official supplier, geographical area of distribution, distribution type, and size of the distribution company.

3.3 Reliability and validity of the scales

In order to assess the unidimensionality of the multi-item concepts, a Confirmatory Factor Analysis (CFA) was performed (Gerbing & Anderson, 1988) (Table 2).

Table 2. Confirmatory Factor Analysis (CFA)

Scale	Standardized value	t-value	Reliability
SGM			
SGM 1	0.74	10.47	SCR=0.76
SGM 2	0.72	10.15	AVE=0.46
SGM 3	0.60	8.04	Alpha=0.75
SGM 4	0.60	8.07	
RGM			
RGM 1	0.76	11.34	SCR=0.85
RGM 2	0.74	10.98	AVE=0.58
RGM 3	0.74	11.00	Alpha=0.85
RGM 4	0.79	12.02	
COM			
COM 1	0.60	8.33	SCR=0.82
COM 2	0.64	8.97	AVE=0.54
COM 3	0.81	12.10	Alpha=0.80
COM 4	0.86	13.11	

Source: Own elaboration
Measurement model: Chi-Square=113.72 (df=51); GFI=0.90; SRMR=0.063; CFI=0.96; NFI=0.93; IFI=0.96

The scale composite reliability (SCR) was established by testing the values above the acceptance threshold of 0.60 (J. C. Anderson & Gerbing, 1988). As for the average variance extracted (AVE), the construct Supply through Gray Market (SGM) does not reach the minimum established value of 0.50 (with a value of 0.462). Despite this, Fornell and Larcker (1981) point out that the AVE indicators are more discreet, and establish, for the confirmation of composite reliability, that the fact that the SCR indicators are above 0.60 to be adequate. Likewise, it can be seen that Cronbach's alpha for the SGM concept greatly exceeds the critical value of 0.70 (Hair et al., 2007), reaching a value of 0.75 (Table 2).

The convergent validity is corroborated by checking that the concepts possess a high significance (the lowest t-value reaches a value of 8.04) (Bagozzi & Yi, 1988; 2012) (Table 2). The discriminant validity of the scales is confirmed by using confidence intervals with ±2 standard errors over the correlation of constructs (phi), while making sure that the interval does not include the value 1 (J. C. Anderson & Gerbing, 1988). The intervals were calculated using the Fisher transformation. Table 3 shows the upper limits (above the main diagonal) and lower limits (below the main diagonal) of these confidence intervals.

Table 3. Confidence intervals of the correlations (±2 standard errors; $p<0.01$)

VARIABLE	SGM	NEG	RGM	COM
SGM		0.38	0.87	-0.02
NEG	-0.01		0.25	0.33
RGM	0.47	-0.14		-0.00
COM	-0.41	-0.07	-0.40	

Source: Own elaboration

4. Results

The descriptive data (Table 4) show, in general, low levels of participation in the gray market, intermediate levels of negotiation and importance of the gray market in the channel where they operate, and a large presence of commitment in the relationship with the official supplier.

Table 4. Descriptive statistics and correlation matrix

VARIABLE	MEAN	S.D.	SGM	NEG	RGM	COM
SGM	2.26	1.32	1			
NEG	3.07	2.10	0.18	1		
RGM	3.05	1.72	0.59	0.06	1	
COM	5.20	1.22	-0.21	0.13	-0.20	1

Source: Own elaboration

The hypothesis testing is performed by estimating the following linear regression, using ordinary least squares (OLS):

$$PAC = b_0+b_1NEG+b_2RMP+b_3COMP+b_4NEGXCOMP+b_5NEG^2+b_6COMP^2 \ (1)$$

To prevent the expected multicollinearity in the introduction of interaction and quadratic terms, we previously performed a mean centering of the independent variables (Aiken & West, 1991; Mason & Perreault, 1991). The **Variance Inflation Factor (VIF)** shows that the values are below the critical figure of 10 (Hair et al., 2007) (Table 5).

Table 5 shows the results of the regression where the Theoretical Model (II) is compared with that of Principal Effects (without interaction or quadratic variables) (I). The Theoretical Model shows a change in adjusted R^2 of 0.02 and a change in the value F=2.20 (p<0.10), which confirms that it is the best combination for explaining the dependent variable:

Table 5. Regression Analysis Theoretical Model (II) vs. Main Effects Model (I)

Variable	coeff.	Model I Main Effects Model Standard (t-value)	Model II Theoretical Model Standard (t-value)	VIF
Constant	b0			
NEG	b1	0.19 (3.10)	0.29 (3.83)	1.64
RGM	b2	0.56 (8.94)	0.54 (8.70)	1.06
COM	b3	-0.13 (-2.08)	-0.12 (-1.66)	1.50
NEG X COM	b4		-0.01 (-0.18)	1.26
NEG X NEG	b5		-0.18 (-2.19)	1.87
COM X COM	b6		-0.02 (-0.34)	1.37
R^2 (Adjusted R^2)		0.39 (0.38)	0.41 (0.39)	
F Value (Probability)		35.05 (0.00)	19.01 (0.00)	
R^2 Change (R^2 adjusted)		0.39 (0.38)	0.02 (0.01)	
F-value R^2 Change		35.05	2.20	
F Probability R^2 Change		0.00	0.09	

Source: Own elaboration

To assess the effect that negotiation has on the gray market supply of an SME distributor, it is necessary to assess, in addition to the direct effect, the interaction and quadratic effects. To illustrate the analysis, we present a graphic display of the effect that negotiation (NEG) has on gray market supply (SGM) for different levels of commitment (COM) (Figure 3). The graph shows that the effect that negotiation has on gray market supply is positive and decreases as the level of negotiation increases until it reaches a saturation point where the effect becomes negative.

The marginal analysis (Jaccard et al., 1990; Aiken & West, 1991) shows how the participation of a distributor in the gray market evolves when faced with changes in the state of negotiation with its official supplier, through the following function:

$$\partial SGM/\partial NEG = b_1 + b_4COM + 2b_5NEG \ (2)$$

By keeping the level of COM low (-1 standard deviation=-1.22), the following results are obtained:

1. For low values of NEG (-1 standard deviation=-2.10), the observed effect of NEG on SGM is 0.43; with a standard error =0.17; and a t-value=2.51 ($p<0.05$).
2. For high values of NEG (+1 standard deviation=2.10), the effect of NEG on SGM is -0.04; with a standard error =0.11; and a t-value=-0.35 ($p>0.10$).

By keeping the level of COM high (+1 standard deviation=1.22), the following results are obtained:

1. For low values of NEG (-1 standard deviation=-2.10), the effect of NEG on SGM is 0.42; with a standard error =0.17; and a t-value=2.42 ($p<0.05$).
2. For high values of NEG (+1 standard deviation=2.10), the effect of NEG on SGM is -0.05; with a standard error =0.11; and a t-value=-0.48 ($p>0.10$).

On the other hand, the change in the influencing value (from low values to high values) of NEG, is significant ($t=-1.77$; $p<0.10$), regardless of the values that COM takes.

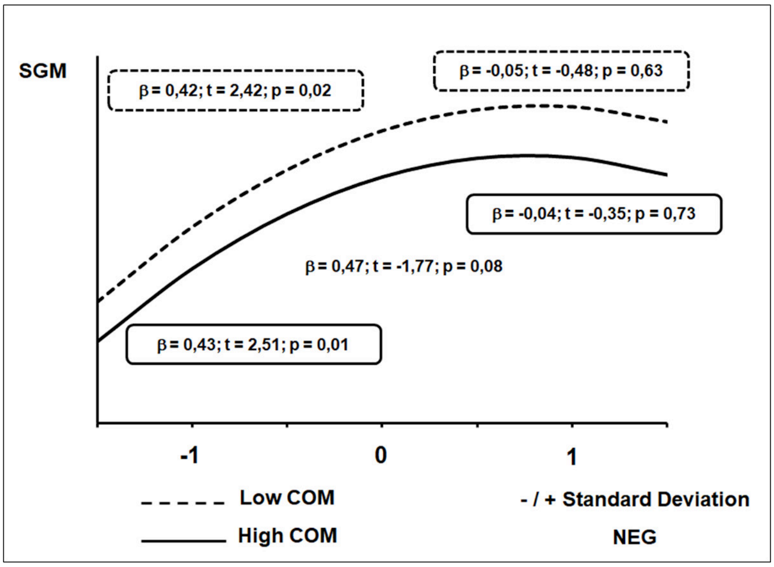
These data confirm hypothesis H1, which suggested a positive effect of NEG for SGM, but only for low levels of NEG.

On the other hand, the saturation effect suggested by H5 is produced, which confirms the hypothesis.

With respect to hypothesis H2, which establishes a positive effect for the importance of the gray market on the participation of the distributor, the standardized coefficient b_2 obtained is positive (0.54) and with a high significance ($t=8.70$; $p<0.01$), which confirms the hypothesis.

Hypothesis H4 proposed that the effect of negotiation on resorting to a gray market supplier is lower when the relationship with the official supplier possesses high levels of commitment. Setting low values of negotiation shows that both low (ß=0.43) and high (ß=0.42) levels of commitment are significant. However, the change from low to high values of commitment (ß=-0.01) are non-significant ($p>0.10$), which prevents us from accepting H4, as we only find signs of commitment along the line established by the hypothesis.

Figure 3. Effects of NEG on SGM for different levels of COM



Source: Own elaboration

Using the same methodology, the effect of commitment on the use of a gray market supplier is assessed. A graphical representation of the effect (Figure 4) clearly shows its negative impact.

The marginal analysis (Jaccard et al., 1990; Aiken & West, 1991) follows the function:

$$\partial SGM/\partial COM = b_3 + b_4 NEG + 2b_6 COM \ (3)$$

By fixing low levels of NEG (-1 standard deviation=-2,10), the following results are observed:

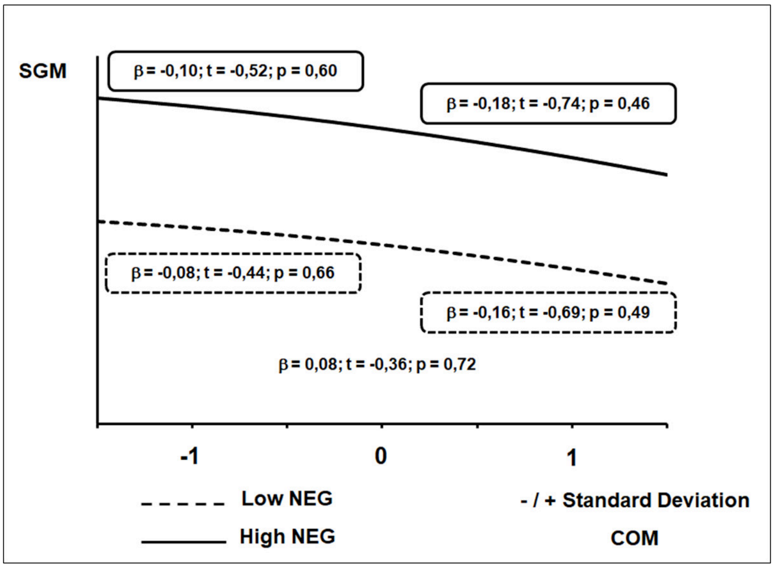
1. For low levels of COM (-1 standard deviation=-1,22), the effect of COM on SGM is -0.08; with a standard error =0.18; and a t-value =-0.44 ($p>0.10$).
2. For high levels of COM (+1 standard deviation=1.22), the effect of COM on SGM is -0.16; with a standard error =0.23; and a t-value =-0.69 ($p>0.10$).

By fixing high levels of NEG (+1 standard deviation=2.10), the following results are observed:

1. For low levels of COM (-1 standard deviation=-1.22), the effect of COM on SGM is -0.10; with a standard error =0.20; and a t-value =-0.52 (p>0.10).
2. For high levels of COM (+1 standard deviation=1.22), the effect of COM on SGM is -0.18; with a standard error =0.24; and a t-value =-0.74 (p>0.10).

On the other hand, the change from low to high values of commitment (COM) is the same for all levels of NEG and produces a non-significant result (t=-0.358; p>0.10). This result leads us to reject hypotheses H3 and H6, as we find a lack of effects for commitment, both direct and quadratic.

Figure 4. Effects of COM on SGM for different levels of NEG



Source: Own elaboration

5. Conclusions and discussion

This paper offers key findings regarding the gray market supply of a SME distributor -companies not specifically investigated to date in this stream of research. Specifically this research contributes to the knowledge on the role of negotiation process between the distributor and the supplier, on the importance of the gray market in the distribution channel, and on the role that the relationship plays in the dyad.

Regarding negotiation, the results confirm that a negotiation process encourages participation in the gray market as an alternative source of supply, supported by studies such as that of Antia et al. (2006), which points out that product scarcity is an incentive to resort to this type of action when the product is available on the gray market. A negotiation process in which the positions of the parties involved differs greatly has the potential to make the SME distributor expect this scarcity and to seek solutions without the participation of the official supplier.

However, when the positions are so distant that there is a threat to the continuation of the relationship, the distributor shows less willingness to resort to a gray market supplier, a situation which is identified with a saturation point of the effect of negotiation. This result is also consistent with the literature, as resorting to the gray market is limited to the extent that the official supplier is the only reliable and stable source of supply (Antia et al., 2004). If a distributor resorts to the gray market, the official supplier may break off the negotiation (Antia et al., 2006) and leave the distributor at the mercy of the gray market without any guarantee of continuing the supply of a product which the SME distributor may consider to be fundamental for the success of the company, due to the good reputation that the product brand has on the market.

The presence of an important gray market in the channel where the SME distributor operates is seen as another of the elements which encourage its participation in such a market. This importance is understood to be a catalyst for large product volumes and for continuity as an alternative source of supply. As the literature shows, this is because accessibility and a strong presence offer guarantees to the distributors (Antia et al., 2006; Eagle et al., 2003; Boyd Thomas & Lee Okleshen Peters, 2006) and prevent the gray market from being considered as a speculative or short-term operation (Bicen & Gudigantala, 2014; Zhang & Feng, 2017), and which would make the distributors less willing to resort to the gray market due to the risk associated with the retaliatory actions imposed by the official supplier, as this is the only guaranteed supply source.

Finally, we verified that the relationship between the SME distributor and the official supplier has no impact on the motivation of the distributor to participate in the gray market, The relationship does not directly affect the decision to resort to a gray market supplier, but it does show signs that it serves as a mediator when making the decision during an open negotiating process, despite the fact that the relationship is a key element for managing marketing channels (Dwyer et al., 1987; Morgan & Hunt, 1994; Gilliland & Bello, 2002; Johnston et al., 2018). However, Frazier (1999) points out that, within fast-moving consumer goods (FMCG) distribution channels, the role of the relationship is secondary and contingent upon the organization and the agreements of the official distribution channel. In the same way, Sharma et al. (2015) point out that the relationship is contingent upon the performance of the parties involved, and that this is a critical element in the decision-making process. Therefore, the discreet role of the relationship has a theoretical foundation in a sector such as that of FMCG.

A gray market originates from the sale of a product by a distributor that belongs to the official network to segments of the market not covered within its area of activity (geographical or functional). The distributors who resort to gray market suppliers collaborate in its development as they do not make use of the official supply chain. However, there exists a broad consensus in the literature that the manufacturer or brand owner is ultimately responsible for maintaining order and discipline within the distribution channel (Antia et al., 2004; Antia et al., 2006; Berman, 2004; Lu et al., 2020). Therefore, the business recommendations must be aimed at this agent of the channel.

In view of the results obtained, the decrease in the impact of the gray market within the official channel necessarily involves the management and adoption of the official supplier’s measures. Accordingly, prolonging the negotiation process between the official supplier and its distributor has a detrimental effect on the participation of these intermediaries in the gray market. Moreover, low-level gray market transactions must be maintained in order to minimize its importance. These decisions include excluding those intermediaries who initiate this type of action from the official distribution network, thereby making access to and the subsequent sale of the product more difficult for them.

As for the relationships at the core of the channel, although there is no evidence of their role, the extensive existing literature in this section coincides in that, beyond their degree of impact, the proper management of these relationships favors optimal business progress and, therefore, it is recommended that efforts are made to strengthen the business relationships between the official supplier and the distributors.

The development of research work is incomplete if it does not show its limitations, which in turn serve as a basis for the recommendations for future analyses. In this case, the research lacks a more complex study into the business relationships, which have, perhaps for this reason, shown a discreet role. For future studies, it is recommended that a multidimensional analysis of the relationship be carried out since, although commitment is the most advanced state of the relationship, it must possess elements similar to commitment, such as satisfaction, trust and dependence.

Furthermore, the sector chosen for conducting the study may have influenced or even limited the role played by the relationship. The study of other sectors will contribute towards clearing up the doubts concerning this influence and the role played by the relationships in the official supplier-SME distributor dyad.

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References

Aiken, L. S., & West, S. G. (1991). *Multiple Regression: Testing and Interpreting Interactions*. Sage Publications, Inc.

Anderson, E., & Weitz, B. (1992). The use of pledges to build and sustain commitment in distribution channels. *Journal of Marketing Research, 29*(1), 18–34. https://doi.org/10.1177/002224379202900103

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411–423. https://doi.org/10.1037/0033-2909.103.3.411

Antia, K. D., Bergen, M. E., Dutta, S., & Fisher, R. J. (2006). How does enforcement deter gray market incidence? *Journal of Marketing, 70*(1), 92–106. https://doi.org/10.1509/jmkg.70.1.092.qxd

Antia, K. D., Bergen, M., & Dutta, S. (2004). Competing with gray markets. *MIT Sloan Management Review*. https://sloanreview.mit.edu/article/competing-with-gray-markets/

Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research, 14*(3), 396–402. https://doi.org/10.1177/002224377701400320

Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science, 40*(1), 8–34. https://doi.org/10.1007/s11747-011-0278-x

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*(1), 74–94. https://doi.org/10.1007/BF02723327

Banerji, S. (1990). *A theory of gray markets: The case of the personal computer industry*. (Doctoral dissertation).. Northwestern University

Bergen, M., Heide, J. B., & Dutta, S. (1998). Managing gray markets through tolerance of violations: a transaction cost perspective. *Managerial and Decision Economics, 19*(3), 157–165. https://doi.org/10.1002/(SICI)1099-1468(199805)19:3<157::AID-MDE880>3.0.CO;2-E

Bergkvist, L., & Rossiter, J. R. (2007). The predictive validity of multiple-item versus single-item measures of the same constructs. *Journal of Marketing Research, 44*(2), 175–184. https://doi.org/10.1509/jmkr.44.2.175

Berman, B. (2004). Strategies to combat the sale of gray market goods. *Business Horizons, 47*(4), 51–60. https://doi.org/10.1016/S0007-6813(04)00048-5

Berman, B., & Dong, M. (2016). Gray markets: past, present, and future. *The International Review of Retail, Distribution and Consumer Research, 26*(1), 95–111. https://doi.org/10.1080/09593969.2015.1058837

Bicen, P., & Gudigantala, N. (2014). Parallel imports debate: resource advantage theory perspective. *Journal of Marketing Development and Competitiveness, 8*(3), 25–43. https://pilotscholars.up.edu/bus_facpubs/19/

Boyd Thomas, J., & Lee Okleshen Peters, C. (2006). The underground mall. *International Journal of Retail & Distribution Management, 34*(2), 106–120. https://doi.org/10.1108/09590550610649777

Cao, Q., & Zhang, J. (2020). Gray market's product quality in the circular economy era. *International Journal of Production Research, 58*(1), 308–331. https://doi.org/10.1080/00207543.2019.1638980

Coughlan, A. T., Anderson, E., Stern, L. W., & El-Ansary, A. I. (2006). *Marketing channels* (Seventh ed). Prentice Hall

Doménech, C. J. (2000). *Trade Marketing*. ESIC, Madrid

Du, M., & Zhang, J. (2017). Encouraging customer participation by leveraging interdependence structure and relationship commitments: Empirical evidence from Chinese industrial firms. *International Journal of Business & Information, 12*(4). https://doi.org/10.6702/ijbi.2017.12.4.4

Dutta, S., Heide, J. B., & Bergen, M. (1999). Vertical territory restrictions and public policy: Theories and industry evidence. *Journal of Marketing, 63*(4), 121–134. https://doi.org/10.1177/002224299906300410

Dwyer, F. R., & Oh, S. (1987). Output sector munificence on the internal political economy of marketing channels. *Journal of Marketing Research, 24*(4), 347–358. https://doi.org/10.1177/002224378702400402

Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer-seller relationships. *Journal of Marketing, 51*(2), 11–27. https://doi.org/10.1177/002224298705100202

Eagle, L., Kitchen, P. J., Rose, L., & Moyle, B. (2003). Brand equity and brand vulnerability. *European Journal of Marketing, 37*(10), 1332–1349. https://doi.org/10.1108/03090560310487130

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50. https://doi.org/10.1177/002224378101800104

Frazier, G. L. (1999). Organizing and managing channels of distribution. *Journal of the Academy of Marketing Science, 27*(2), 226–240. https://doi.org/10.1177/0092070399272007

Ganesan, S., Brown, S. P., Mariadoss, B. J., & Ho, H. (. (2010). Buffering and amplifying effects of relationship commitment in business-to-business relationships. *Journal of Marketing Research, 47*(2), 361–373. https://doi.org/10.1509/jmkr.47.2.361

Gelfand, M. J., Fulmer, C. A., & Severance, L. (2011). . In *APA handbook of industrial and organizational psychology, Vol 3: Maintaining, expanding, and contracting the organization.*. American Psychological Association. https://doi.org/10.1037/12171-014

Gerbing, D. W., & Anderson, J. C. (1988). An updated paradigm for scale development incorporating unidimensionality and its assessment. *Journal of Marketing Research, 25*(2), 186–192. https://doi.org/10.1177/002224378802500207

Gilliland, D. I., & Bello, D. C. (2002). Two sides to attitudinal commitment: The effect of calculative and loyalty commitment on enforcement mechanisms in distribution channels. *Journal of the Academy of Marketing Science, 30*(1), 24–43. https://doi.org/10.1177/03079450094306

Gudigantala, N., & Bicen, P. (2019). Do consumers' ethical judgments matter for purchase intentions in online gray markets? *Journal of Marketing Development and Competitiveness, 13*(4). https://doi.org/10.33423/jmdc.v13i4.2350

Gundlach, G. T. (2013). Evolving changes in consumer shopping, marketing distribution and competitive interaction. *The Antitrust Bulletin, 58*(1), 1–18. https://doi.org/10.1177/0003603X1305800101

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (2007). *Análisis multivariante* (5th ed). Prentice Hall

Hart, O. D. (1988). Incomplete contracts and the Theory of the Firm. *The Journal of Law, Economics, and Organization, 4*(1), 119–139. https://doi.org/10.1093/oxfordjournals.jleo.a036940

Hong, P., & Jeong, J. (2006). Supply chain management practices of SMEs: from a business growth perspective. *Journal of Enterprise Information Management, 19*(3), 292–302. https://doi.org/10.1108/17410390610658478

Iyer, G., & Villas-Boas, J. M. (2003). A bargaining theory of distribution channels. *Journal of Marketing Research, 40*(1), 80–100. https://doi.org/10.1509/jmkr.40.1.80.19134

Jaccard, J., Turrisi, R., & Wan, C. K. (1990). *Interaction effects in multiple regression*. SAGE Publications, Inc.. https://doi.org/10.4135/9781412984522

Johnson, J. S., & Sohi, R. S. (2016). Understanding and resolving major contractual breaches in buyer–seller relationships: a grounded theory approach. *Journal of the Academy of Marketing Science, 44*(2), 185–205. https://doi.org/10.1007/s11747-015-0427-8

Johnston, W. J., Le, A. N. H., & Cheng, J. M. (2018). A meta-analytic review of influence strategies in marketing channel relationships. *Journal of the Academy of Marketing Science, 46*(4), 674–702. https://doi.org/10.1007/s11747-017-0564-3

Keltner, D., Gruenfeld, D. H., & Anderson, C. (2003). Power, approach, and inhibition. *Psychological Review, 110*(2), 265–284. https://doi.org/10.1037/0033-295X.110.2.265

Li, H., Zhu, S. X., Cui, N., & Li, J. (2016). Analysis of gray markets in differentiated duopoly. *International Journal of Production Research, 54*(13), 4008–4027. https://doi.org/10.1080/00207543.2016.1170906

Lu, Y., Foropon, C. R. H., Wang, D., & Xu, S. (2020). Arbitrage in gray markets and its impact on supply chain decisions. *Journal of Enterprise Information Management, 34*(1), 382–398. https://doi.org/10.1108/JEIM-02-2020-0069

Mason, C. H., & Perreault, W. D. (1991). Collinearity, power, and Interpretation of multiple regression analysis. *Journal of Marketing Research, 28*(3), 268–280. https://doi.org/10.1177/002224379102800302

Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing, 58*(3), 20–38. https://doi.org/10.1177/002224299405800302

Mpinganjira, M., Roberts-Lombard, M., & Svensson, G. (2017). Validating the relationship between trust, commitment, economic and non-economic satisfaction in South African buyer-supplier relationships. *Journal of Business & Industrial Marketing, 32*(3), 421–431. https://doi.org/10.1108/JBIM-04-2015-0073

Rossiter, J. R. (2002). The C-OAR-SE procedure for scale development in marketing. *International Journal of Research in Marketing, 19*(4), 305–335. https://doi.org/10.1016/S0167-8116(02)00097-6

Sharma, N., Young, L. C., & Wilkinson, I. (2015). The nature and role of different types of commitment in inter-firm relationship cooperation. *Journal of Business & Industrial Marketing, 30*(1), 45–59. https://doi.org/10.1108/JBIM-11-2012-0202

Williamson, O. (1975). *Markets and hierarchies: Analysis and antitrust implications*. The Free Press

Williamson, O., & Ghani, T. (2012). Transaction cost economics and its uses in marketing. *Journal of the Academy of Marketing Science, 40*(1), 74–85. https://doi.org/10.1007/s11747-011-0268-z

Zhang, Z., & Feng, J. (2017). Price of identical product with gray market sales: an analytical model and empirical analysis. *Information Systems Research, 28*(2), 397–412. https://doi.org/10.1287/isre.2017.0692

Zhao, K., Zhao, X., & Deng, J. (2016). An empirical investigation of online gray markets. *Journal of Retailing, 92*(4), 397–410. https://doi.org/10.1016/j.jretai.2016.05.002