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Article

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Country-of-Origin Effects in Industrial Goods Markets. Do Country-of-Origin Image Effects Differ for Different Buying Center Members?

Michael Justus Reichert · Claudia Fantapié Altobelli

Abstract: Most of the past findings regarding COO (country-of-origin) effects refer to consumer decision-making. While their purchase decisions are taken by the consumers themselves individually, industrial purchases are mostly conducted by organizational buying centers. This raises the question if and to what extent the impact of COO effects varies between the different members of a buying center – an issue unaddressed in research so far.

Based on construal level theory we answer this question by applying a multiple mediation analysis to the empirical data, which we collected through interviews at a truck trade show. Main findings confirm the general relevance of COO effects for the purchase decision making for these industrial goods. However, the significance of this COO effect was found to be of lesser importance for product users than for non-users. On the basis of our findings, practitioners can achieve higher marketing impact through the differentiation of their marketing activities.

Keywords: Internationalization · Mediation · Country-of-Origin · Industrial Goods · Business-to-Business · Buying-Behavior

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Introduction

Human decision-making is largely influenced by underlying heuristics and biases (Tversky and Kahneman, 1974). Individuals gain such heuristics over time and thus reduce the need for extensive cognitive evaluation when a purchase decision is due. They acquire a set of choice tactics through earlier experiences which leads to easy-to-use rules of thumb enabling them to take purchase decisions with relatively low cognitive involvement (Hoyer, 1984). Nowadays it is commonly accepted that the image associated with the country-of-origin (COO) of a product influences consumers' perception of this product (e.g. Bilkey and Nes 1982; Peterson and Alain 1995; Verlegh and Steenkamp 1999). This country image works as a heuristic and allows consumers to conduct their purchase decisions easier. With more than 700 articles published in this field (Papadopoulos and Heslop, 2002), COO research can be considered as one of the most widely studied phenomena in marketing. Dinnie (2004) describes this great level of interest as a consequence to the ever-rising globalization and the resulting greater availability of foreign products. However, Barclay and Bunn (2006) still see a lack of understanding for this and other decision-making heuristics in industrial buying. And based upon the call for more research "on decision simplification heuristics and processing patterns" stated by the Marketing Science Institute (MSI) (2016), this lack appears to be still valid.

Usunier (2006) criticized upon contemporary COO research that studies are mostly conducted in the same settings and surroundings and are "abundantly self-referential" (Usunier 2006, p. 70). We take this criticism seriously and aim to establish a new perspective: for the first time we consider the different manifestations of COO effects for the individual BCMs (buying center member) in industrial purchasing. With this research approach, we particularly follow the ideas of LaPlaca (2014): one of his key suggestions for future B2B research is to focus more on the role of the individual in the decision making, rather than considering the behavior of the organizational unit as such. While the general existence and relevance of COO for B2B played a significant role in business research over the past decades and was illustrated in studies such as Håkansson and Wootz (1975), White and Cundiff (1978), Chasin and Jaffe (1987), Kaynak (1989) Ahmed et al. (1994), Thorelli and Glowacka (1995) and Quester et al. (2000), the question of possibly different effect sizes for the individual BCMs has not yet been researched and represents the main contribution of this paper. An analysis of the mentioned B2B studies revealed that so far researchers only coped with the influence of COO on product perception for members of the purchasing departments of organizations. However, as most purchase decisions are taken in buying centers with individuals from various departments of the company taking part in the decision making (Homburg et al. 2010; Moriarty and Spekman 1984; Webster and Wind 1972), these approaches only partially reflect industrial purchasing reality.

Yu and Chen (2014) suggest that both different types of risks perceived and different levels of risk perception amongst the different BCMs might influence the impact of COO information on product perceptions. Referring to this suggestion, the main research question of this paper is whether COO effects vary amongst the different BCMs. Taking the truck industry as an example where products are usually

not purchased by the product users themselves, we investigate the different effect relevance of the country image on the perception of quality and eventually on the intention to purchase. In this context our paper provides managerial implications about the influence strength of country image for both product-using BCMs (abbreviated with BCM-U) and non-product using BCMs (BCM-NU). Following the arguments of the construal level theory (CLT) we reason that the varying psychological distances to the product of these two groups influence the role of COO in purchase decision-making differently. As truck drivers are in permanent contact with the trucks they drive, their decision-making will be less influenced by peripheral cues such as the image of the country-of-origin of the truck.

Within the industrial buying process risk reduction or avoidance can be considered a "key motivating factor" (Brown et al. 2007, p. 216). BCM-NUs such as purchase managers or CEOs of transportation companies may seek to reduce the risk of purchasing a product whose quality they may not be able to assess completely. Accordingly, we hypothesize that country image does have an important explanatory function for these BCM-NUs who are not in permanent contact with the product. We assume that they will rely on peripheral cues such as the country image to reduce the perceived risk associated with the purchase. Our findings implicate support for this hypothesis. We identified a significant different usage of COO as informational cue during purchase decision making: product-using buying center members (BCM-U) do not rely on the country image as decision heuristic in the same way as BCM-NUs do. Answering to the postulations of the ISBM – Institute for the Study of Business Markets (n.d.), which specifically calls for customer analytics to be used "to better understand B2B buying behavior and the implication for better customer targeting, marketing resource allocation, [...]", we thus suggest practitioners to design marketing activities according to this different usage behavior.

Theoretical Background

Construal Level Theory

Construal level theory describes the phenomenon that the level of abstractness a product is reviewed with changes with the psychological distance of the evaluator towards the product. In the early stages of this research Trope and Liberman (2003) found that the evaluation of a situation or object changes with the rising temporal remoteness towards the object or situation of matter. The authors summarize that "thinking about the more distant future (a) actions are construed in more superordinate terms, (b) objects are classified into broader categories, (c) preferences are organized in simpler structures, and (d) valenced experiences are expected to be more prototypical" (Trope and Liberman 2003, p. 407). More recently, CLT findings were expanded beyond temporal distances and now include other psychological distance constructs: temporal, social and spatial distance as well as hypothetically were identified to influence an individual's evaluation of objects and situations (e.g. Liberman et al. 2007; Park and Morton 2015; Williams et al. 2014). The mental

abstraction process behind CLT can be considered alike for the four dimensions of psychological distance (Weisner 2015). The author concludes that the farther the evaluating subject is distanced from the now (temporal distance), the here (spatial distance), oneself (social distance) or from actuality (hypotheticality), the more abstractly the object will be evaluated. A combination of the distances further increases the level of abstractness.

Country-of-Origin Effects

The concept of COO effects bases on the early work of Schooler (1965) who first investigated to what extent the image of a given country influences the evaluation of goods produced in this country. Researching Central American countries and products, his findings suggest that for basically identical products – with exception of the country label – product evaluations significantly differ depending on the country the product is manufactured in. Since this first fundamental work, a large variety of academic contributions has been made. In the understanding of Johansson and Thorelli (1985), COO effects manifest in stereotypes of people of a country towards products of another country. Lin and Chen (2006) see the image of a country developing as consequence of the perception of economic development, political situation, industrialization, level of technology next to history and tradition of the country. Dinnie (2004) clusters the COO research in three main periods:

The first research period covers the time span from 1965 to 1982. During this time, Dinnie (2004) sees the research approaches shifting from a rather singular strategy, with the COO as the only product cue affecting the product evaluation, towards more complex investigations aiming on the generalizability of the COO concepts. During the second research period (1983 to 1992), findings of the first period were questioned. Thanks to the conjoint analysis established by Luce and Tukey (1964), which only in this period of time slowly diffused from the field of psychology to marketing research and was first applied to a marketing problem by Green and Rao (1971), COO effects could be researched in the context of other product cues, such as price or quality. Research efforts of this period mainly lead to the conclusion that such other product cues are more important for product evaluation than the COO. The third period of research (1993 to 2004) manifests in the establishment of different research streams aiming to conceptualize COO effects, particularly taking services industries into consideration as well.

Today a large research body exists about the conceptualization of COO effects. However, despite this extensive research, Verlegh and Steenkamp (1999) still argue that the concept is relative poorly understood. Aiello et al. (2009) see the investigation of COO effects in the focus of the marketing research community nowadays; In consequence it appears that the concept still is not sufficiently explained. While many of the earlier papers focus on the influence of the COO of an product on product evaluation (e.g. Bilkey and Nes 1982; Chao 1993; Erickson et al. 1984; Hong and Wyer 1989; Johansson et al. 1985; Li and Wyer Jr 1994; Maheswaran 1994), today's research on COO effects does not limit itself to the question how the country image

affects a product's perception anymore, but rather focuses on practical implications for marketers. Studies such as the investigation of Koschate-Fischer et al. (2012), who examine the relationship between COO and willingness to pay, or Norjaya Mohd et al. (2007) who research COO's influence on brand equity stand for this latest research era in COO research.

Country-of-Origin Effects for Industrial Goods

While the research body on COO is quite extensive for consumer markets, only little attention has been paid to researching its relevance in industrial markets (Yu and Chen 2014). Veloutsou and Taylor (2012, p. 901) remark that a great part of B2B research upon the existence and relevance of COO effects is "somewhat dated"; and truly, it has become noticeably quiet in this stream of research over the past decade.

The early work of Håkansson and Wootz (1975) shows that in an industrial setting, supplier location is the most important supplier characteristic. While not yet specifically addressing the country image construct as such, this study already underlines the importance of the COO for industrial purchasing decisions. White and Cundiff (1978) first investigate the systematic influence of the image of a country-of-origin on product evaluation in industrial markets. In the course of their research, the authors describe how the quality perception for lift trucks, metal working machine tools and dictation systems from West Germany, the U.S., Japan and Brazil depends on the image of the respective country the products originate from. They illustrate that the Brazilian products were consistently lower evaluated than the products originating from the more industrialized countries.

Cattin et al. (1982) contributed to the research body with the finding that the country-of-origin effect differs according to the nationality of the purchasers interviewed: their findings include that French purchasing managers were found to have less favorable stereotypes of Japanese products than U.S. purchasing managers. Before the collapse of USSR, Chasin and Jaffe (1987) investigated amongst U.S. purchasing managers whether they would buy Soviet products. Findings generated in a hypothetical surrounding included that the negative country image of the Soviet states was so strong that about one third of the respondents would not buy Soviet products regardless of how much better their quality was in comparison to U.S. products. A further finding implies that the negative country images influencing the product evaluations were not based on past purchases – most of the respondents had not conducted actual purchases – but rather results of a general impression of the country and its industrial capabilities.

While most of the B2B COO studies illustrate that purchasing managers from industrialized countries are influenced by negative country stereotypes about products from less-developed countries, Kaynak (1989) investigated the reverse, interviewing Chinese industrial buyers about their product preferences. He describes that even though China had a close political relation to Romania at that time, industrial products from Western Germany, the U.S. and even Japanese products (despite the fact that

former armed conflicts between the two nations still negatively impact trade relationships (Che et al. 2011)) were preferred over Romanian ones. While the general relevance of the country image on product perception was shown by the discussed studies, Kaynak and Kucukemiroglu (1992) first addressed differences in country image preferences resulting of different sociodemographic characteristics of the Chinese purchase managers interviewed. Their results suggest that sex, age, work experience, level of education, income levels all lead to different preferences of product origins. By way of example: purchase managers with lower income perceived Asian products more favorable than the other income groups.

Adding to the factors, which influence country stereotyping, Ahmed et al. (1994) detected that the influence of country image on the perception of industrial products depends on the presence of other informational cues besides the country-of-origin of the product: in such purchasing situations with multiple informational cues available, the prejudice against products originating from less-developed countries is significantly lower than in single-cue situations where the only attribute available is the "made in..." cue. Bradley (2001) confirms these results by indicating that he identified a general existence of the COO effect for industrial goods as well; however, its relative importance compared to other informational cues is low in multi-cue settings.

Thorelli and Glowacka (1995) suggest that the effect of the COO of an industrial product on its perception may work through two subsequent steps: the countries-of-origin of the products to be chosen from are first grouped into categories (e.g. technologically advanced vs. less advanced), which determines the basic perception level. Subsequently the perception is then differentiated within the corresponding group on a more detailed level. Moreover, international purchasing experience and buyers' compliance with the perceived interest of the company's management influences the evaluation of foreign products as well.

Quester et al. (2000) illustrate that country preference differs strongly over the two products they investigated: components and machine tools. The authors argue that for purchases, which are associated with higher levels of risk and complexity, purchasing agents would rather rely on established producers. Accordingly, the different levels of risk associated with the purchases influence the country preferences of industrial purchase managers. Furthermore, Quester et al. (2000) contributed to the research body on industrial goods' COO effects through introducing the conceptualization of COO through the two constructs country-of-design (COD) and country-of-assembly (COA). They found that countries not necessarily rank high in both dimensions but rather seem to be perceived as specialist for either one or the other. Insch (2003) decomposes COO in three subconstructs, adding the country-of-parts (COP) to the two dimensions introduced by Quester et al. (2000). The findings of Insch (2003) are fragmented. Results strongly vary over the COO subdimensions, product category and nationality of the purchase agent. So far, none of the researchers of COO effects in B2B addressed anybody but members of the organizational purchasing department – a fact criticized by Yu and Chen (2014) to only form a rather incomplete picture of its influence on purchase decision-making. Regarding the explanation of the COO effect

in industrial settings, the authors present a framework, which differs from the consumer perspective. Taking into consideration both, the decision-making unit's members' characteristics and organizational attributes such as decentralization level or size of the company, this framework also integrates attributes of the marketing strategy and product-specific attributes as antecedents of the COO as informational cue affecting the evaluation of industrial products.

Industrial Purchasing

In contrast to consumer markets, industrial purchase decisions are often taken by groups consisting of members of the organization (e.g. Johnston and Bonoma 1981; Kohli 1989; Lynch and De Chernatony 2004; Mattson 1988). One of the common concepts to describe this organizational decision making unit is the buying center approach of Webster and Wind (1972) (Lau et al. 1999; Moriarty and Spekman 1984; Morry and David 1998; Sheth 1996). While industrial buying has long been considered more rational than consumers' purchasing (Smith and Taylor 1985), recent research leans towards the dilution of the classical distinction between industrial buyers and consumers. Inch (2003) even argues that it is au fond the same cognitive processes which underlie organizational and private purchase decision-making. Wilson (2000) describes that the general impression of organizational purchasing is misguided as most research only considers unusual purchasing events where strategic foresight and decision making is appropriate – while the day-to-day purchases are conducted differently and in a less strategic way. Bunn (1994) outlines that managers aim to reduce the complexity of the purchasing situations by applying "rules-of-thumb" to come to their decisions. In this context, Anderson et al. (1987) specifically call for further research to investigate whether such heuristics, which are used to simplify complex situations, also apply to buying centers.

Bonoma (2006) illustrates that while the concept of buying centers can be considered useful in general, its application in business remains tough – often enough it is not apparent from outside of the buying organization who really has the ability to hinder or abandon the purchase altogether. Accordingly, it remains crucial to identify what Bonoma (2006, no page numbers) calls the "powerful buyers". Brown et al. (2007, p. 215) conclude that in particular the different functional backgrounds and demands of the different buying center members call for "a wide range of meanings" in marketing communications to address each buying center member appropriately.

Research Hypotheses

It is widely accepted that familiarity increases the purchase intention for a given product. That is true both for brand familiarity (Johansson et al. 1994; Laroche et al. 1996) and product familiarity (Hanzaee and Khosrozadeh 2011; Harlam et al. 1995; Lin and Chen 2006). In line with these findings, our first hypotheses can be formulated as follows:

H1a: A BCM-Us familiarity with a given product has a positive impact on his/her intention to purchase this product.

H1b: A BCM-NUs familiarity with a given product has a positive impact on his/her intention to purchase this product.

Our research addresses both COO and CLT. Following the studies introduced in the previous section, we imply that country image positively affects the purchase intention for products produced in that country. Laroche et al. (2005) hypothesized that the country-of-origin effect differs in magnitude according to different levels of product knowledge, but could not find support for this effect. However, research is disjointed regarding the relation between product knowledge and country-of-origin. Findings of Josiassen et al. (2008) suggest a negative relation between product familiarity and COO effects: for customers with high product knowledge, country image's influence on product evaluation is much lower than for customers with low product knowledge. In contrast, Heimbach et al. (1989) found that COO labels "made in" are more important cues for people with higher product familiarity. Hence, the research community could not generate a real united understanding of a possible moderating role of product familiarity on COO effects.

In response, we base our modeling approach of product familiarity in the COO context on the mere exposure effect. This phenomenon describes individuals tending to change their attitude to a given stimulus positively simply as a result of repeated exposure to that stimulus (Zajonc 1968). Taking this effect into close consideration we argue that repeated exposure to a product of a given country will enhance all three model factors positively: the image associated with the country (situational), the quality perception and the purchase intention for the product of interest. Accordingly, we hypothesize:

H2a: Country image has a positive mediating effect on the relation between product familiarity and purchase intention for the product for BCM-Us.

H2b: Country image has a positive mediating effect on the relation between product familiarity and purchase intention for the product for BCM-NUs.

This means that increased customer knowledge of a product leads to a better image of the producing country, which in turn leads to higher purchase intention. Our understanding of the positive influence of product knowledge on country image bases on the findings of Kleppe et al. (2002) who illustrated a change in country image perception over time as customers learn more about the products of the country. Furthermore this hypothesis rests on the work of Gotsi et al. (2011) who outline the transfer of the image of a corporation onto a country.

Chi et al. (2009) speak of perceived quality as a subjective judgment of consumers about product quality, which bases on previous experiences and feelings. Considering this conceptualization, we further argue that the perceived product quality is another mediator for the relationship between product familiarity and purchase intention. As a consequence of the mere exposure effect, an increasing product familiarity will thus

result in higher quality perception, which eventually leads to an increase in purchase intention.

H3a: Perceived quality positively mediates the relation between product familiarity and purchase intention for BCM-Us.

H3b: Perceived quality positively mediates the relation between product familiarity and purchase intention for BCM-NUs.

In line with White and Cundiff (1978) and Quester et al. (2000) who both investigated the effects of country image on quality perception of industrial goods and illustrated a positive relation between the two constructs, we further hypothesize:

H4a: There is a positive relation between country image and perceived quality for BCM-Us.

H4b: There is a positive relation between country image and perceived quality for BCM-NUs.

According to the initially introduced CLT, individuals with a greater distance to a given product will come to a decision on a more abstract level, while decisions of individuals with a closer distance are taken based on more concrete terms. Product users have a more direct relation to the product. Correspondingly, we expect product users to be more sensitive to the perceived quality of a product while non-users could be pre-influenced by the image of the COO of that product. Following this argumentation, we formulate our last hypotheses as:

H5a: The COO image is more relevant for BCM-NUs than for BCM-Us.

H5b: Perceived quality is more important for BCM-Us than for BCM-NUs.

Different members of an industrial buying center show different decision-making behavior (Yamamoto and Lambert 1994). Töllner et al. (2011, p. 713) summarize this dilemma as: "a better understanding of the different preferences of the buying center members would help sales managers to sell customer solutions more effectively, for example, by adapting communication and/or sales material to the needs of the individual role [...]". Accordingly, a better understanding for these different usage patterns of COO image as heuristic is of great interest to marketers. In this context, our results will be interpreted to generate added value for marketing practitioners.

Methodology

We performed a mediation analysis using data collected during a commercial vehicle fair in Germany. The mediation analysis bases on a multiple regression analysis and can be understood as identifying indirect effects between an independent variable X and a dependent variable Y through one or more intervening variables Mn (Preacher and Kelley 2011). In the following paragraph, the sample and the questionnaire are introduced and the features of mediation analysis are discussed.

Sample

The sample was gathered through personal interviews during the IAA Commercial Vehicles exhibition fair in 2014. Fair visitors were interviewed directly in the exhibition hall. These interviewees were asked to share their impressions about a relatively new Chinese-built truck, not yet available on the German market. A total of 133 persons were interviewed. While not necessarily representative overall, the sample proved sufficient for analyzing different effect sizes for two subgroups: 56 interviewees represented the BCM-NUs and 77 were BCM-Us. Age differences are marginal, BCM-Us average 35.4 years, BCM-NUs are slightly younger with an average of 34.6 years.

Item Structure and Questionnaire Design

The results were obtained through the use of multivariate data analysis. We gathered data for four latent constructs: (1) Country image China, (2) Perceived Quality (3) Product Familiarity and (4) Purchase Intention. All Items were rated on seven-point semantic differential scales reaching from -3 to +3. (1) was measured with the use of the widely accepted scale designed by Roth and Romeo (1992). Consisting of four items, this scale operationalizes innovativeness, design, prestige and workmanship to describe the image of a country. (2) was quantified through four items based on the measurement of Yoo et al. (2000), but measured on a seven-point scale to preserve scaling consistency. (3) was measured using a three-item scale basing on the scale developed by Oliver and Bearden (1985), and (4) was gathered through a three-item scale introduced by Putrevu and Lord (1994). Table 1 gives an overview of the items used for the operationalization of the constructs in our study.

Tab. 1: Operationalization of the constructs in the study

Construct	Items (Rated on 7-Point Semantic Differential Scales)
(1) Country image	Please assess the quality of Products of China <ul style="list-style-type: none"> • How would you rate the innovativeness of Chinese products? • How would you rate the design of Chinese products? • How would you rate the prestige of Chinese products? • How would you rate the quality of Chinese workmanship?
(2) Perceived Quality	Please indicate the quality of truck X <ul style="list-style-type: none"> • The likely quality of truck X is extremely high • The likelihood that X would be functional is very high • The likelihood that X is reliable is very high • Truck X must be of very good quality
(3) Product Familiarity	Please rate how well you know truck X <ul style="list-style-type: none"> • Generally spoken, to what extent are you familiar with truck X? • Would you say you are well informed about truck X? • Would you say that you are knowledgeable about truck X?
(4) Purchase Intention	Please indicate the purchase probability for truck X <ul style="list-style-type: none"> • It is very likely that I consider buying truck X • I would purchase truck X next time I needed a truck • I would like to try truck X

Central Assumptions for Performing Regression Analyses

The central regression assumptions of linearity between X_i and Y_i and reliability of measurement (Lewis-Beck 1980) and normality, autocorrelation and homoscedasticity of the error terms (Jarque and Bera 1980) were checked with a series of established tests.

Linearity was inspected visually through scatterplots. Only product familiarity shows features of a non-linear relation, which is mostly due to some outliers for respondents of the BCM-Nus group. However, this data structure is still considered acceptable. In order to examine reliability of the latent constructs, Cronbach's Alpha was calculated for all items. While there is no one true cut-off value for Cronbach's Alpha (Peterson 1994), a commonly accepted rule-of-thumb is 0.7 (Iacobucci and Duhachek 2003). With the lowest value at 0.818, all our latent constructs surpass the mentioned critical levels. To check for autocorrelation of error terms, the Durbin and Watson (1951) was applied. With a test-value of 2.013 for the BCM-Us group and 1.823 for the BCM-NUs group, test statistics do not indicate autocorrelation amongst residuals. The violation of the assumption of normal distribution of residuals can lead to inaccurate inferential statements (Jarque and Bera 1980). There are several approaches to test for normal distribution, above all the still prevalent KS test (Kolmogorov 1933; Smirnov 1937). However, due to its superior statistical power (regardless of sample size and distribution) (Keskin 2006; Mendes and Pala 2003; Razali and Wah 2011), current research suggests the use of the Shapiro and Wilk (1965) test instead. Accordingly, the test of Shapiro and Wilk was applied for the two subgroups. With a test statistic of 0.990 ($p = 0.824$) for BCM-Us and 0.979 ($p = 0.451$), residuals are normally distributed. We conducted both Breusch and Pagan (1979) and Koenker (1981) tests to check for the presence of heteroskedasticity. The test results suggest inconsistent variance of the regression errors for the BCM-U group:

Tab. 2: Tests for Heteroskedasticity

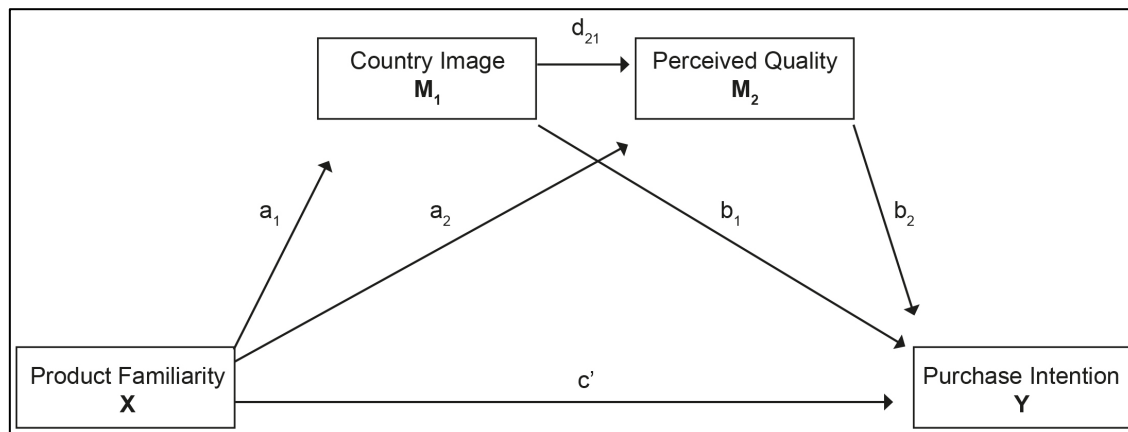
Test	Group	LM	p
Breusch and Pagan (1979)	BCM-Us	1.948	0.583
	BCM-NUs	10.082	0.018
Koenker (1981)	BCM-Us	2.475	0.480
	BCM-NUs	7.509	0.057

Therefore, our data does not fully comply with the central requirement of homoskedasticity for performing regression analyses. In the case of heteroskedastic error terms, Hayes and Cai (2007) recommend the use of heteroskedastic-consistent (HC) standard error estimators. Consequently, the mediation analysis for the BCM-Us group was run with the use of the HC3 standard error estimator, which is especially recommended for small sample size (Hayes and Cai 2007).

Modeling Approach

Figure 1 illustrates the performed mediation model, basing on the model propositions of Hayes (2013). Underlying assumptions are that besides the direct effect c' several indirect effects mediate the relation between product familiarity and purchase intention. For the proposed model this results in three indirect effect paths: a_1b_1 , a_2b_2 and $a_1d_{21}b_2$. These indirect paths represent the product of the individual regression coefficients (Preacher and Kelley 2011).

Fig. 1: Model Architecture



The total effect size of the independent and mediating variables is expressed as

$$(1) Y = b_0 + b_1M_1 + b_2M_2 + c'X + r$$

with the mediating variables accounting for the indirect effect are defined as

$$(2) M_1 = a_{01} + a_1X + r$$

$$(3) M_2 = a_{02} + a_2X + d_{21}M_1 + r$$

where a_{01} , a_{02} and b_0 are intercept terms and r is the error term.

The analysis was performed using the SPSS PROCESS Macro (Preacher and Hayes 2004). For the computation of the standard error, we used the bootstrapping approach (with 10,000 samples). As the bootstrapping method does not rely on normally distributed z-values for the indirect paths, its statistical power is superior to the Sobel (1982) test (Preacher and Hayes 2004). Besides, bootstrapping is described as superior over parametric procedures when it comes to smaller sample size (Hayes and Preacher 2010), which is an important consideration for our relatively small group sizes of 77 (BCM-U) and 56 (BCM-NU).

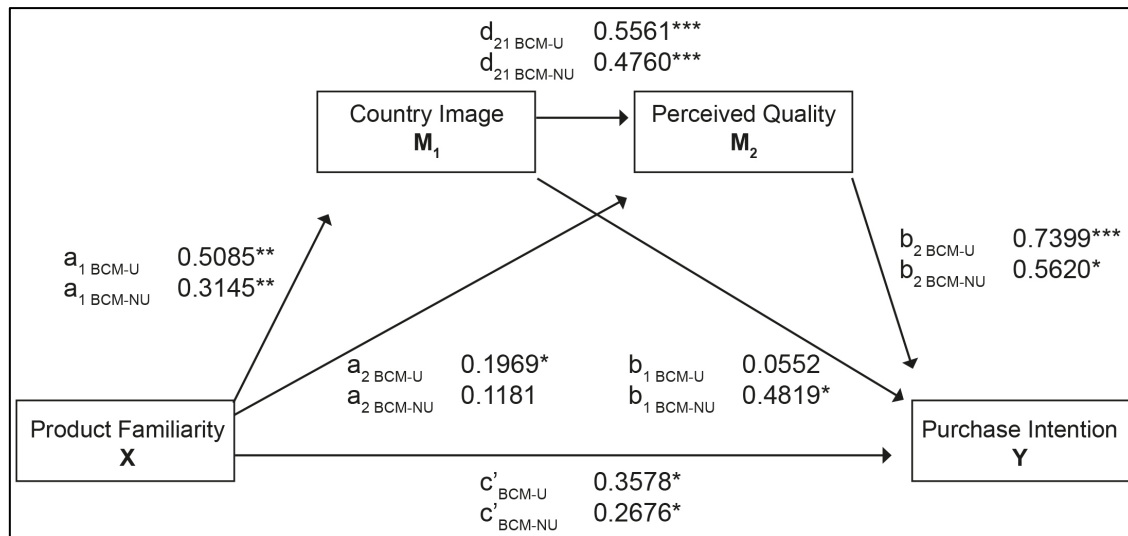
Results

Table 3 shows descriptive statistics for the constructs in the study for the two groups BCM-Us and BCM-NUs. As the truck in question is not available in the German market yet, product familiarity was relatively low for both groups, with BCM-Us even less familiar with the truck than the other interviewees. A lower standard deviation implies that the answer structure is more homogeneous for BCM-Us than for BCM-NUs. The country image of China was regarded slightly negatively, whereby BCM-NUs rated the country image slightly lower than BCM-Us. The same pattern applies for the assessment of the perceived quality of the Chinese truck; the item was judged more negatively by the BCM-NUs than by the BCM-Us group.

Tab. 3: Descriptive Statistics

	Group	n	Mean	Standard Deviation
Product Familiarity	BCM-Us	77	-2.1905	1.0421
	BCM-NUs	56	-1.7679	1.3617
Country image China	BCM-Us	77	-0.4242	1.5129
	BCM-NUs	56	-0.5506	1.2309
Perceived Quality	BCM-Us	77	-0.4935	1.2760
	BCM-NUs	56	-0.5372	1.0658
Purchase Intention	BCM-Us	77	-0.7100	1.6053
	BCM-NUs	56	-0.7083	1.5930

With Figure 2 we introduce the regression coefficients per group as per our modeling approach shown in Figure 1. These results indicate full support of our first hypotheses (H1a and H1b), which state that the degree of familiarity of both, BCM-Us and BCM-NUs with a product has a positive influence on the intention to purchase this product. The influence of product familiarity on purchase intention is modeled as the direct effect c' between X and Y is positive and significant for both group of respondents.

Fig. 2: Regression Model over the Groups

BCM-U Group HC3 estimated, BCM-NU Group OLS estimated. 10,000 Bootstrap Samples, 95% Confidence. * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$.

With Table 4 we provide the confidence intervals and standard errors for each regression relation in the above shown model.

Tab. 4: Regression Coefficients per Group

Path	Group	Value	p	Standard Error	LLCI	UCLI
$X \rightarrow Y$	BCM-Us	0.3578	0.0239	0.1551	0.0486	0.6669
	BCM-NUs	0.2676	0.0170	0.1085	0.0498	0.4854
$X \rightarrow M_1$	BCM-Us	0.5085	0.0002	0.1309	0.2476	0.7694
	BCM-NUs	0.3145	0.0086	0.1153	0.0833	0.5457
$X \rightarrow M_2$	BCM-Us	0.1969	0.0417	0.0950	0.0076	0.3863
	BCM-NUs	0.1181	0.1954	0.0901	-0.0626	0.2988
$M_1 \rightarrow M_2$	BCM-Us	0.5561	0.0000	0.0854	0.3860	0.7263
	BCM-NUs	0.4760	0.0000	0.0997	0.2761	0.6759
$M_1 \rightarrow Y$	BCM-Us	0.0552	0.6980	0.1416	-0.2271	0.3375
	BCM-NUs	0.4819	0.0013	0.1413	0.1983	0.7655
$M_2 \rightarrow Y$	BCM-Us	0.7399	0.0000	0.1549	0.4311	1.0487
	BCM-NUs	0.5620	0.0011	0.1628	0.2352	0.8887

BCM-U Group HC3 estimated, BCM-NU Group OLS estimated. 10,000 Bootstrap Samples, 95% Confidence.

Separate mediation models have been calculated per group (BCM-Us and BCM-NUs). Table 5 shows the results for the two sub-groups per path.

Tab. 5: Mediation Model, Direct and Indirect Effect Sizes

Path	Group	Value	p	Standard Error (Boot SE for Indirect Effects)	LLCI (BootLLCI for Indirect Effects)	UCLI (BootUCLI for Indirect Effects)
<i>Total Effect</i> c	BCM-U _s	0.7408	0.0000	0.1405	0.4608	1.0207
	BCM-NU _s	0.5697	0.0001	0.1390	0.2909	0.8485
<i>Product Familiarity (Direct Effect)</i> c'	BCM-U _s	0.3578	0.0239	0.1551	0.0486	0.6669
	BCM-NU _s	0.2676	0.0170	0.1085	0.0498	0.4854
<i>Product Familiarity and Country image</i> Ind1: a₁b₁	BCM-U _s	0.0281	n / a	0.0698	-0.1168	0.1660
	BCM-NU _s	0.1516	n / a	0.0795	0.0334	0.3455
<i>Product Familiarity and Perceived Quality</i> Ind2: a₂b₂	BCM-U _s	0.1457	n / a	0.0725	0.0189	0.3084
	BCM-NU _s	0.0664	n / a	0.0512	-0.0278	0.1744
<i>Product Familiarity, Country image and Perceived Quality</i> Ind3: a₁d₂b₂	BCM-U _s	0.2092	n / a	0.0731	0.1025	0.4005
	BCM-NU _s	0.0841	n / a	0.0422	0.0273	0.2076

BCM-U Group HC3 estimated, BCM-NU Group OLS estimated. 10,000 Bootstrap Samples, 95% Confidence.

The model for the BCM-U_s group shows a direct effect c'_{BCM-U} of 0.3578. The indirect effects mediated by country image and perceived quality add up to 0.383. The path Ind1 ($a_1b_1_{BCM-U}$) is not significant which results of the non-significant regression b_1_{BCM-U} between country image and purchase intention shown in Figure 2. For the BCM-NU_s the model shows a direct effect c'_{BCM-NU} of 0.2676. The indirect effects add up to a total indirect effect of 0.3021. The path only mediated by perceived quality is not significant for the BCM-NU_s group, resulting of non-significant regression coefficient a_2_{BCM-NU} between X_{BCM-NU} and $M_{2BCM-NU}$ as shown in Figure 2.

In order to determine whether the indirect effects do significantly differ from each other, we chose the indirect effect contrasting method proposed by Preacher and Hayes (2008), e.g. for the BCM-U_s subgroup we compared Ind1 and Ind2 with:

$$(4) f_{BCM-U_s} = a_1b_1_{BCM-U_s} - a_2b_2_{BCM-U_s}$$

and the variance of the single pairwise contrast as

$$(5) s^2 [f_{BCM-U_s}] = b_1^2_{BCM-U_s} s^2_{a_1_{BCM-U_s}} + b_2^2_{BCM-U_s} s^2_{a_2_{BCM-U_s}} + a_1^2_{BCM-U_s} s^2_{b_1_{BCM-U_s}} - 2a_1^2_{BCM-U_s} a_2^2_{BCM-U_s} s^2_{b_1, b_2_{BCM-U_s}} + a_2^2_{BCM-U_s} s^2_{b_2_{BCM-U_s}}$$

Significant results could only be obtained for the comparison of Ind1 and Ind3 for the BCM-U_s group. Thus, the effect of the path mediated by both country image and perceived quality ($a_1d_{21}b_2$) is significantly stronger than the effect of the path mediated only by country image (a_1b_1).

We find partial support for our second set of hypotheses, which states that the relation between product familiarity and purchase intention is positively mediated by the country image. A mediation effect is present when the confidence interval (CI) of the indirect path excludes zero (Cramer et al. 2015; Preacher and Hayes 2008). For the BCM-U_s group (H2a), the CI includes zero, meaning that the indirect effect a_1b_1 _{BCM-U} is not significant, the hypothesis is therefore not supported by the data. This is a consequence of a non-significant regression coefficient b_1 _{BCM-U}. In the model for the BCM-NU_s a significant indirect effect was identified. This mediation effect is positive. Accordingly, hypothesis H2b is supported by the data.

Additionally, we partly confirm the third set of hypotheses proposing a mediating effect of perceived quality on the relation between product familiarity and purchase intention. Again, support could not be found for both groups. While there is a positive and significant mediated effect for the combined model and for the BCM-U_s group (H3a), the CI of the model for the BCM-NU_s (H3b) includes zero, meaning that the indirect path is not significant. This results from the non-significant regression relation a_2 _{BCM-NU} illustrated in Figure 2.

In line with past research we find full support for our fourth pair of hypotheses (H4a and H4b) which postulate a positive relation between country image and quality perception. For both groups the effect of country image on product perception was positive and significant.

Our fifth set of hypotheses (H5a and H5b) stating that the influence of the mediating variables differs amongst the two groups of respondents is partly supported as well. A common approach to compare regression coefficients across models is the z-test proposed by Paternoster et al. (1998) with:

$$(6) Z = \frac{(b_1 - b_2)}{\sqrt{SE b_1^2 + SE b_2^2}}$$

As all z-values implied non-significance of effect size differences over groups, the comparison of direct and indirect effect over groups resulted inconclusive. In regard to Ind1 we report a z-value of 1.1673. Accordingly, we cannot reject the null-hypothesis that the indirect effect Ind1 is equal across groups. For the second indirect effect Ind2, the mediation via perceived quality, a resulting z-value of 0.8934 implies non-significance for the difference of the indirect effect over the groups as well. Accordingly, this indirect effect does not prove to be stronger for the BCM-U_s group than for the BCM-NU_s. For the third indirect effect Ind3 with the path $a_1d_{21}b_2$ the calculations result in a z-test value of 1.482. Thus, neither of the indirect effects can be considered significantly different between the groups.

However, by investigating group differences on regression coefficient level, we found a significant difference over groups with a z-value of 2.1330 (significant at 95% confidence level) for the regression relation between country image (M_1) and purchase intention (Y). The regression coefficient is significantly higher for the BCM-NUs group. In consequence of these results, we can confirm H5a: the mentioned significant difference of regression coefficients between M_1 and Y implies that country image, as an information cue is more important to non-users (BCM-NUs) than to product users (BCM-Us) (where the effect itself could not be proven to be significant different from zero, see Figure 2). Yet, we could not identify significantly different regression coefficients of perceived quality (M_2) on purchase intention (Y) over the two groups. Consequently, hypothesis H5b is not supported by our data.

Discussion and Implications

Consistent with the illustrated earlier COO research in B2B, our analysis suggests an influence of the COO on product perception the truck industry as well. While all of the earlier studies researched this effect through interviewing members of the purchasing department of an organization, our work generates a more holistic picture: in line with CLT we found that individuals more closely associated with the product (BCM-Us) rely on country image as an information cue during their purchase decision making to a lesser extent than the buying center members who do not use the product (BCM-NUs). For the BCM-Us, the intra-group comparison of indirect effects proved that for their purchase decision making perceived quality is a more important factor than the image of the country-of-origin of the product. Results further indicate that while the mediation via country image only was not found significantly different from zero, mediation through both cues, country image and perceived quality, was significantly stronger than via country image alone. As indirect effects result from a multiplication of regression coefficients, this result can be accounted to the high regression coefficient between perceived quality and purchase intention opposed to the very low (and non-significant) regression coefficient between COO image and purchase intention. Conclusively, country image has little impact on purchase intention for product users (BCM-Us) while perceived quality is an important cue in decision making of this subgroup.

However, for BCM-NU respondents, country image had a different influence on the decision to purchase. While the mediation via perceived quality was found non-significant, country image had a significant mediating influence on purchase intention. However, intra-group comparison of indirect effects resulted inconclusive, leaving the question for relative importance of mediating variables open. All the studies conducted on COO in B2B so far covered non-product-using buying center members (purchase managers, directors of the purchase department, etc.). Thus, our finding that COO is a relevant informational cue for this group of individuals is in line with the current state of research on COO in industrial markets. Yet, only considering cue relevance for this group of individuals can just partially explain organizational buying. Already the creators of the buying center approach as such marked out that the individual participant's motivation, cognitive structure, personality, learning process and

perceived roles are key influencing factors on the buying decision process (Webster and Wind 1972). Comparing effects over the groups, we could not identify significant differences of mediated effect sizes. Yet, we identified a significantly higher regression coefficient for the relation between country image and purchase intention for the BCM-NUUs group and interpret this in the way that the country image has a more important role as information cue for non-product-using BCMs than for actual product users. Apparently, the country-of-origin information works as a heuristic cue for the non-product-using BCMs, effectively reducing the risk associated with the purchase. This finding makes perfect sense following the rationale of Yu and Chen (2014) who described that both the type of risk and the level of risk perception varies amongst BCMs. In situations where the different BCMs perceive a different level or type of risk, their risk reduction behaviors can be considered to be different as well.

Conclusively, we see our results adding to the findings of Maheswaran (1994) who sees expert consumers relying rather on concrete product attributes – such as perceived quality – for their purchase decision making, while novices tend to rely on country image stereotypes. Our findings imply that perceived quality is more important to product users, who can be considered to possess a greater expertise through their usage of the product. On a theoretical level, our findings bring support for the hypothesis brought up by Yu and Chen (2014, no page numbers): "the impact of the country-of-origin cue on industrial product evaluation is affected by the attributes of buyers' DMU [decision making unit] members".

For marketing managers our findings have several implications. Firstly, as illustrated by previous studies, country image does have a significant effect on purchase intention for industrial goods products, which we exemplified using the truck industry. Secondly, the role of country image is less prevalent for product using BCMs than for BCM-NUUs. These insights have a direct impact on industrial goods marketing strategies where purchase decisions are taken jointly by several parties and not predominantly by product users: following construal level theory and our results it seems rewarding to focus marketing endeavors aimed at product users on a more concrete, product-based level (represented by perceived quality of the product in our study). Besides improving actual product quality, rewarding strategies can be to focus on relevant cues for quality perception. The price of a product has long been considered the prevalent cue for perceived product quality (Jacobson and Aaker 1987). Further marketing approaches to improve quality perception originate in FMCG retailing, e.g. the use of product samples (Sprott and Shimp 2004) or brand alliances (Rao and Ruekert 1994). Translated to the marketing for industrial goods – namely trucks in our research – this may manifest in the offering of test-drives or product experience days to truck drivers or the use of ingredient branding or co-branding strategies as signaling instruments in order to enhance quality perception (Bengtsson and Servais 2005). Steenkamp (1989) provides a good overview on the concept of perceived quality and relevant cues and influencing factors of the same.

Our research suggests that for non-product-users heuristic cues such as country image tend to have significant influences on the purchase intention for a product. As discussed earlier, country image only changes over time (Kleppe et al. 2002) and is a complex construct resulting of various country-specific dimensions such as political environment, level of technology, etc. (Lin and Chen 2006) which the marketing managers most likely cannot influence. Bilkey (1993) exemplifies this issue with Japan, which needed approximately 20 years to significantly improve its country image.

However, there are still ways to compensate for country image as suggested e.g. by Chao (1998): he illustrated that the design quality perception of a product assembled and designed in Mexico could be improved through the use of parts manufactured in the US. Thus, the use of components with a more positive country image can partly compensate for a negative image of the country-of-origin of the product itself. This approach is supported by Insch and McBride (1999) who suggest that corporate decision makers should include COO effects into their foreign investment planning: savings due to lower capital needs in a given country could be overcompensated by the negative country image effects on sales.

Research Limitations and Further Research

Firstly, our paper is certainly limited due to relatively small sample size for the individual groups, a common issue for B2B research (Webster 1978). While mediation analysis with confidence intervals through bootstrapping can be considered rather unsusceptible to smaller sample sizes (Creedon and Hayes 2015), further studies larger in scale could certainly add to the understanding of different magnitude of country image and perceived quality in industrial goods markets. Especially identifying further, significant effect size differences over the BCMs could help in generating a better understanding of COO effects in the industrial business environment.

Our findings are relevant for industries with high decision making participation and high involvement of the product users. Long haulage truck drivers spend a large part of their private and work life in their trucks; thus, their involvement and motivation to take part in the buying process can be considered rather high, they certainly constitute what Bonoma (2006, no page numbers) calls the "powerful buyers". Processing may therefore be different for other circumstances, e.g. for low-involvement goods and it remains questionable if our findings hold true for such goods as well. Brown et al. (2011) found that different levels of perceived risk result in different usage patterns of decision-making heuristics in industrial buying. While situations with either very low or very high perceived risk lead to the reliance on brand information, medium risk situations were judged more objectively by purchasing managers. Accordingly, the risk situation BCMs face may also lead to different usage patterns of heuristic cues such as the COO information of a product. Past research on the COO effect in consumer behavior already illustrated its different relevance for different product categories (e.g. Hooley et al. 1988) and different levels of involvement of the consumers (Lee et al. 2005). Accordingly, separate research investigations should be carried out in that

direction for B2B as well in order to investigate the different use of COO labels as risk-reducing cues, following the lead of Quester et al. (2000) who researched COO in B2B and found that the usage of COO as informational cue depends on the product category.

On the other hand, our study is also naturally limited, as we only focused on comparing the influence of country image and perceived quality between one specific BCM – the product user – and non-users. For marketing practitioners it would be of great interest to understand the varying influence on each of the individual BCMs. As we relied on data surveyed on a temporary industrial exhibition, such a specific sample set could not be generated. Future research in this direction should also consider the suggestions of Bilkey and Nes (1982) who see a general problem for reliability and validity of COO studies due to their single-cue settings: with COO being the only product related information cue it remains difficult to assess its importance in the presence of other cues. Peterson and Alain (1995) explained that COO effect size differs between single-cue and multi-cue study settings with a smaller effect size for the latter. Thus, future studies should aim to investigate the varying relative relevance of COO on the different BCMs in more complex multi-cue settings. With this suggestion we follow the discussed evolvement of COO studies in literature: while first studies proved the existence of COO as such, latter studies would test its relative importance compared to other informational cues.

Another restriction of our study is the choice of countries and products: while our study illustrates how BCMs of a developed country perceive products originating from an emerging economy, future studies may aim to replicate the findings for the reverse setting. E.g. Kaynak (1989) and Kaynak and Kucukemiroglu (1992) interviewed Chinese purchase managers about their perception of products originating from other countries.

To conclude, we recommend other researchers to extend our approach with a larger set of decision-influencing cues besides perceived quality and COO, with an increased sample size and with a sample composition examining all BCMs in order to generate a more holistic picture of the effects illustrated in this paper. With further research carried out in this direction, a universal framework as proposed by Yu and Chen (2014) basing on empirical investigations can be the ultimate goal for contemporary COO research in B2B.

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