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### Authors
Sun, Luping
Zheng, Xiaona
Su, Meng
et al.



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# Intention-Behavior Discrepancy of Foreign versus Domestic Brands in Emerging Markets: The Relevance of Consumer Prior Knowledge

Luping Sun, Xiaona Zheng*, Meng Su, and L. Robin Keller

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*Corresponding author.

**Luping Sun** is Assistant Professor of Marketing, Central University of Finance and Economics (e-mail: sunluping@cufe.edu.cn). **Xiaona Zheng** is Associate Professor, Department of Management Science and Information Systems, Peking University (e-mail: xzheng@gsm.pku.edu.cn). **Meng Su** is Research Professor, Marketing Department, Peking University (e-mail: sumeng@gsm.pku.edu.cn). **L. Robin Keller** is Professor, Operations & Decision Technologies, University of California, Irvine (e-mail: LRKeller@uci.edu). Professor Xiaona Zheng serves as the corresponding author. The authors contribute equally to this research.

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## ABSTRACT

Most research on the performance of foreign versus domestic brands in emerging markets examines dependent measures of product evaluation or purchase intention. However, consumers *intending* to buy a product may switch to competing brands, displaying an intention-behavior discrepancy (IBD). Drawing upon literature on country associations and dual process theory, we examine the performance of foreign versus domestic brands on IBD in emerging markets and the moderating role of prior knowledge. We conducted an intention survey followed by a post-purchase survey in the Chinese automobile and smartphone industries. We found that foreign brands have an advantage on IBD relative to domestic brands, indicating that they have the dual advantage of higher evaluations and lower IBDs. Furthermore, foreign brands' advantage on IBD is smaller for consumers with inaccurate prior knowledge, as they are more likely to systematically reprocess information and discount foreign brands' favorable country associations. For these consumers, overestimating the product reduces foreign brands' advantage to a smaller degree than underestimating it due to confirmation bias. These findings provide implications for brands in emerging markets.


*Keywords*: foreign brands, domestic brands, intention-behavior discrepancy, prior knowledge, emerging market

The globalization of the marketplace has intensified competition between foreign and domestic brands. Some prior research suggests that consumers prefer foreign to domestic brands because they experience favorable feelings or affinity toward some foreign countries (Oberecker and Diamantopoulos 2011). Other research, however, finds that consumers show a home country bias that favors domestic brands, due to economic and socio-psychological motives (Feurer, Baumbach, and Woodside 2016; Verlegh 2007; Zeugner-Roth, Zabkar, and Diamantopoulos 2015). Despite the mixed findings, there is a consensus that consumers in emerging markets such as China, India, and Tunisia generally prefer foreign brands (especially those from more developed countries) over domestic brands (Batra et al. 2000; Essoussi and Merunka 2007). In these markets, foreign brands from developed countries are perceived to have higher quality and higher symbolic value, and signal a western lifestyle that consumers prefer (Guo 2013; Zhou, Yang, and Hui 2010). This may explain why some Chinese brands use foreign-sounding names to attract local consumers (Melnyk, Klein, and Völckner 2012). For example, the leading Chinese appliance brand Galanz uses a Germanic name to be associated with the high durability and quality of German appliances.

There is, however, still a research gap when it comes to the performance of foreign versus domestic brands in emerging markets. In this body of literature, most research examines product evaluation or purchase intention (i.e., what consumers say) and ignores the subsequent purchase behavior (i.e., what consumers do) and the possible discrepancy between intention and behavior. Allman et al. (2016) reviewed research on brands' country of origin and positioning strategy, and found that most research uses brand evaluation and purchase intention as dependent variables. Recent literature on international marketing calls

for research to examine performance measures that capture consumer purchase behavior (Bartsch, Riefler, and Diamantopoulos 2016; Sharma 2011). A few exceptions that use market share or brand ownership as dependent outcomes focus on firm-level performance or consumer animosity toward a specific foreign country (e.g., Gao et al. 2006), which cannot help academics and practitioners fully understand consumer purchase decisions of foreign versus domestic brands.

This research addresses the gap in prior literature by examining the performance of foreign versus domestic brands on converting purchase intentions into purchase behaviors in emerging markets. Consumers intending to buy a brand may end up purchasing a competing alternative, leading to an intention-behavior discrepancy (IBD). The concept of IBD captures a brand's competitiveness, and helps researchers and practitioners understand consumers' purchase behaviors in their final decision stage. For a brand, a low IBD rate indicates consumers' stickiness to the brand and its competitive advantage. When consumers say they would purchase the brand but instead buy a competing one, firm profits suffer (Billington 1998). Hence, IBD is highly relevant for brand managers. To stand out in competitive emerging markets, firms must understand to what extent consumers stick to their intentions to buy the brand. Moreover, in international marketing, "ignoring the discrepancies between intentions and purchase behavior can cause biased results, and thus the use of intention ratings alone could be misleading" (Koschate-Fischer, Diamantopoulos, and Oldenkotte 2012, p. 22). Thus, IBD is also worthy of investigation from a theoretical perspective.

Drawing upon the literature on country associations and dual process theory, this research examines the performance of foreign versus domestic brands on IBD in emerging

markets and the moderating role of inaccurate prior knowledge. We propose that, in emerging markets, foreign brands have favorable rational and emotional country associations, and thus have an advantage of lower IBDs relative to their domestic competitors. However, this advantage may be smaller for consumers with inaccurate prior knowledge because they tend to encounter incongruent information, and thus may systematically reprocess product information and devalue the favorable country associations. The empirical testing is based on two-round surveys of purchase intention and purchase behavior for automobiles and smartphones in a large emerging market. With the influx of foreign brands, emerging markets offer a great context to examine the performance of foreign versus domestic brands. The large market potential of these markets has been attracting brands from many developed markets. Marketing in these markets, however, is a big challenge for foreign brands because of the market environment and institutional factors (Bahadir, Bharadwaj, and Srivastava 2015; Gao et al. 2006). Understanding the foreign brands' IBD relative to their domestic competitors could assist foreign brands in developing effective marketing strategies in these markets.

We chose one of the largest emerging markets, China, as our research context. The rapid development and transition to a market-based economy have boosted the Chinese market's attractiveness to foreign brands (Johnson and Tellis 2008; Walters and Samiee 2003). Its economic resurgence has also attracted extensive international marketing research. Prior research conducted in emerging markets such as China and India suggests that foreign brands are preferred because of their favorable country associations (Batra et al. 2000). In these markets, one expects to observe a similar phenomenon that foreign brands have an advantage on IBD. However, compared to other emerging markets, Chinese consumers are more likely

to display conspicuous consumption and associate foreign brands with higher symbolic value, even for products with lower social signaling value (Zhou and Hui 2003). Thus, it is expected that foreign brands' advantage on IBD is more pronounced in China.

This research contributes to the empirical work that examines the performance of foreign versus domestic brands in emerging markets. First, we extend prior research that only studies consumers' self-reported measures (e.g., purchase intention) for foreign versus domestic brands. We use two-round surveys to examine whether, in an emerging market, brands from developed foreign countries have an advantage over their domestic counterparts in converting purchase intentions into purchase behaviors. Answering this question is especially important in emerging markets where foreign brands have been striving to build up market share and gain a competitive advantage (Walters and Samiee 2003). Second, this research deepens the understanding of the performance of foreign versus domestic brands on IBD in emerging markets by examining the moderating role of consumers' prior knowledge. Though prior knowledge has been found to moderate the country of origin effect on purchase intention (Rao and Monroe 1988), whether and how it affects the performance of foreign versus domestic brands on IBD remains to be explored. Third, we provide insights into when the foreign brands' advantage on IBD in emerging markets is more likely to be sustained and offer implications for firms' segmentation strategies. We divide inaccurate prior knowledge into knowledge overestimating versus underestimating the target (i.e., the product consumers intend to buy). Drawing upon literature on confirmation bias, we propose an explanation for why the moderating effect may differ for these two types of inaccurate knowledge.

## THEORETICAL BACKGROUND AND RESEARCH HYPOTHESES

### Intention-Behavior Discrepancy (IBD)

Substantial prior literature in international marketing has used purchase intention as the surrogate for purchase behavior, possibly because of the convenience and cost savings in collecting intentions data (Sharma 2011). However, there can be considerable inconsistency between purchase intention and purchase behavior (Morrison 1979; Morwitz 1997). Psychology research proposes some fundamental drivers for the discrepancy, including intention uncertainty (Chandrashekaran et al. 2000), behavioral control and willpower (Fitch and Ravlin 2005), state vs. action orientation (Norman, Sheeran, and Orbell 2003), and time perspective (van Ittersum 2012), among others. Thus far, most marketing literature examines consumers' IBD toward a product category, in which consumers state an intention to buy in a product category but do not make any purchase within a specific time period (Morwitz 1997). Prior research finds that a long time separation between intention measurement and the purchase decision, and lack of volitional control can lead consumers to show IBD toward a product category (Morrison 1979; Morwitz, Steckel, and Gupta 2007).

Nonetheless, relatively little research has examined consumers' IBD toward a specific brand, which is more crucial for understanding a brand's competitiveness (Morwitz 1997). For this type of IBD, some studies propose quantitative models to improve the predictiveness of stated purchase intentions for brand sales (e.g., Hsiao, Sun, and Morwitz 2002). Regarding the reasons for this discrepancy, the factors that influence IBD toward a category may also affect IBD toward a brand. Moreover, IBD toward a brand can also vary contingent on brand

features. This study examines whether this type of IBD differs for brands with a foreign versus domestic origin in emerging markets. To the best of our knowledge, this research is the first attempt to examine IBD from an international marketing perspective.

Using IBD as the dependent variable can provide additional insights beyond those generated by product evaluation or purchase intention. It has been well established that in emerging markets, consumers have more positive evaluations of and higher purchase intentions for foreign brands. Yet, with evaluation or purchase intention as the dependent variable, related research ignores the "sacrifice" of buying a foreign versus a domestic brand, which can be an important antecedent of IBD (Carrington, Neville, and Whitwell 2014). For example, in emerging markets foreign brands are often more expensive, and thus consumers intending to buy a foreign brand might switch to a less expensive brand (i.e., showing an IBD). With IBD as the dependent outcome, this research allows study of consumers who have time to seriously consider the "sacrifice" of the purchase and can shed light on whether foreign brands have a stronger ability to convert purchase intentions into actual purchases.

**IBD of Foreign versus Domestic Brands in Emerging Markets**

In emerging markets, most consumers prefer foreign brands because of their favorable country associations (Melnyk, Klein, and Völckner 2012). When a country is considered to have a favorable country image or to possess particular expertise in a product category, brands from that country benefit from the association and have a more favorable brand image (Lee, Lockshin, and Greenacre 2016; Sichtmann and Diamantopoulos 2013). As foreign brands have more favorable country associations in emerging markets, they tend to be associated with higher perceived quality and symbolic value than domestic brands (Batra et al.

2000; Zhou, Yang, and Hui 2010). These findings are consistent with prior research that suggests the existence of both rational and emotional country associations (Herz and Diamantopoulos 2013a; Strizhakova and Coulter 2015).

Based on associative network theory, prior research views country associations as a network of linked nodes that reside in consumer memory, and these associations, either rational or emotional, can be spontaneously activated and affect product evaluation and purchase behavior (Lee, Lockshin, and Greenacre 2016; Magnusson et al. 2014). Rational country associations influence brand preference and purchase behavior through reshaping consumers' brand beliefs in a cognitive manner (Herz and Diamantopoulos 2013a). Hence, for a foreign (relative to a domestic) brand in emerging markets, favorable country associations may enhance its customer-based brand equity by increasing perceived quality (Keller 1993). Customer-based brand equity is in turn positively correlated with customer loyalty (Vogel, Evanschitzky, and Ramaseshan 2008) and the amount that consumers are willing to pay for the brand (Swait et al. 1993). On the other hand, Herz and Diamantopoulos (2013a) propose that country associations also have an emotional component which can affect consumer purchase behavior directly. This influence is usually fast, effortless and out of the consumer's awareness. Thus, favorable country associations may also strengthen consumers' affective attachment and make them stickier to foreign than to domestic brands.

Taken together, we conjecture that the favorable country associations in emerging markets may deter consumers that intend to purchase a foreign (versus a domestic) brand from switching to other brands. In other words, after forming a purchase intention, consumers are stickier to a foreign target brand than to a domestic brand. Thus, it is hypothesized:

**H1**: In emerging markets, the IBD of foreign brands is lower than that of domestic brands.

**Moderating Role of Inaccurate Prior Knowledge**

This study conceptualizes prior knowledge as consumers' inaccurate versus accurate understanding or beliefs regarding the target's performance, relative to a set of comparable products, at the time of revealing purchase intentions. Inaccurate prior knowledge is measured by the divergence between consumers' subjective rating and the objective rating of the target. Previous research has also taken into account the relationship between subjective and objective ratings (Erickson, Johansson, and Chao 1984); however, these studies did not directly measure the divergence between these two. In this research, prior knowledge indicates consumers' beliefs about the product's advantages or disadvantages relative to other products (Alba and Marmorstein 1987). Such prior knowledge may matter more than the product's absolute performance in consumer decision making (Keiningham et al. 2015).

After forming a purchase intention, consumers may encounter additional information and re-evaluate the target product before purchase (Belk 1985). We propose that prior knowledge may influence how consumers value country associations in their information reprocessing. As consumers already have some prior knowledge or beliefs regarding the target product, their information reprocessing may be conducted in a confirmatory way (Fischer, Greitemeyer, and Frey 2008), in which inaccurate prior knowledge may attenuate the impact of country associations on IBD.

According to dual process theory, consumer decision making is monitored by two parallel systems; namely, the affective System 1 and the deliberative or rational System 2

(Sloman 2002). System 1 is rapid and automatic (Kahneman 2003), and includes instinctive processes formed by associative learning (e.g., country stereotypes). In contrast, System 2 is slow, deliberative, and cognitively effortful. Country associations, especially the affective ones, can serve as important input into System 1 and be automatically activated (Devine 1989). The activation of country associations may bias consumer judgment and decision making, unless consumers have the motivation to deliberately process product attribute information (Kahneman 2003; Mishra, Mishra, and Nayakankuppam 2007). When reprocessing information, due to the inaccurate beliefs, consumers with inaccurate knowledge are more likely to discover incongruent information regarding the target's performance. Previous research suggests that incongruent information receives greater attention and evokes systematic processing of product attribute information (Herz and Diamantopoulos 2013b; Jonas, Diehl, and Brömer 1997), which activates the rational System 2 and undermines the impact of country associations or stereotypical beliefs. Therefore, for consumers with inaccurate prior knowledge, we propose that the foreign brands' advantage of lower IBDs brought by country associations would be smaller. Hence, it is hypothesized:

**H2**: In emerging markets, the advantage of foreign brands with respect to lower IBDs is smaller when consumer prior knowledge is inaccurate than when it is accurate.

Inaccurate prior knowledge may either overestimate or underestimate the target's performance. Prior knowledge overestimating the target conveys a different signal from knowledge underestimating it, and thus these two types of inaccurate knowledge may have different moderating effects. To deepen our understanding regarding the role of inaccurate knowledge in the foreign brands' advantage on IBD, we further distinguish these two types of

inaccurate knowledge.

Consumers probably overestimate the target because they have prior beliefs that the product is better. Psychology research suggests that the confirmation bias, or the tendency of individuals to overweigh their prior beliefs or existing hypotheses, is ubiquitous (Narasimhan et al. 2005; Nickerson 1998). Due to the confirmation bias, consumers with knowledge overestimating the target may attend more to information that favors the product and ignore incongruent information (Baack et al. 2015; Russo, Medvec, and Meloy 1996). Thus, for these consumers, incongruent information may not evoke systematical information reprocessing.

In contrast, consumers with knowledge underestimating the target may not have prior beliefs that irrationally favor the product, and therefore are relatively less likely to show a confirmation bias. Thus, compared to consumers overestimating the target, these consumers are more likely to systematically process product information, making the foreign brands' favorable country associations less influential in converting purchase intentions into purchase behaviors. Hence, we conjecture that the moderating role of inaccurate knowledge in the foreign brands' advantage on IBD is mainly driven by knowledge that underestimates rather than overestimates the target.

**H3**: In emerging markets, the moderating effect of inaccurate prior knowledge in the advantage of foreign brands on IBD is mainly driven by prior knowledge that underestimates (rather than overestimates) the target.

This study used a dummy variable in the primary analysis to indicate the brands' foreign origin and examined the difference in IBD of foreign versus domestic brands.

Secondarily, to corroborate our explanation of country associations, we also used country image as a continuous independent variable and examined whether a favorable country image helps reduce brands' IBD. Furthermore, we also explored IBD at the country level, where consumers intended to purchase from one country but ultimately bought a brand from another country. We argue that a favorable country image is associated with lower country-level IBD, and that this effect is moderated by inaccurate prior knowledge. These investigations provide implications for prior literature on country branding. Due to page limits, we defer these explorations to the Discussion and Implications section.

## METHODS

We conducted two-round surveys in the automobile and smartphone industries to test the hypotheses. These industries were chosen because both are important and relevant for regular consumers and are frequently studied in related literature (e.g., Peterson and Jolibert 1995). In addition, automobile and smartphone purchases are relatively high-involvement, which makes forming a purchase intention necessary and research on IBD relevant (Belk 1985). Finally, for automobile and smartphone purchases, especially the former, there are strong country origin effects. Thus, these categories are likely to display the phenomenon that foreign brands have lower IBDs.

### The Automobile Survey

The two-round automobile survey collected Chinese consumers' car purchase intentions and subsequent purchase behaviors. A leading international automobile company

supported the large-scale survey and provided an automobile database, including the attributes of 806 car models in the market. The first survey was an intercept study conducted in the largest automobile shopping mall in Beijing. On seven consecutive days, well-trained research assistants approached consumers in the automobile mall and invited them to participate in the Mandarin-language written survey. Three questions were used to select eligible participants. First, subjects who did not plan to buy a car during the next six months were screened out. Second, subjects working in the automobile industry were excluded. Finally, subjects who were not major decision makers for the planned purchase were also excluded. Research assistants approached 4,867 qualified consumers in total and 3,560 subjects agreed to participate in the study. The response rate was high (i.e., 73.15%), partly because we compensated the subjects with relatively expensive gifts (equivalent to US $20).

Subjects completed the first survey on laptops. They indicated whether the planned purchase was their first car and the importance of different car attributes. We included four attributes (price advantage, fuel economy, safety features, and acceleration) into the analyses, since these were the most important attributes according to descriptive analyses. In addition, when examining the relationship between the subjective and objective ratings of a product, previous research also focuses on similar attributes (Mason et al. 2001).

Subjects were asked to reveal the car that they would most likely purchase during the next six months and indicate their subjective ratings of the car's performance relative to other cars of the same type on the four attributes. Car types were defined to be consistent with one of the most popular automobile websites in China. Inaccurate versus accurate prior knowledge was measured by comparing the subjects' subjective ratings of the target car with

the objective ratings derived from the automobile database. Subjects also rated their perceptions of the automobiles from the country where the target car originates, in terms of popularity, innovation, and prestige. We also asked subjects to rate the perceived quality, social status and uniqueness that the brand signals, and brand loyalty. Finally, the subjects supplied their demographic information and phone numbers.

Six months later, we invited the subjects to participate in the second survey by phone and 1,108 subjects responded to oral questions. Subjects in the two surveys did not differ statistically on most demographic variables, except that there were slightly more males in the second survey (see Table 1). We recorded whether subjects purchased a car after the first survey and if so, the date of the purchase and the car purchased. Overall, 47.02% (521) subjects had made a purchase by the second survey, indicating that consumers' IBD toward the automobile category was relatively high since 52.98% who stated they would buy a car did not buy one. However, this type of IBD is less related to brand characteristics such as country of origin, and is more related to income (Morwitz and Schmittlein 1992) and the time separation between intention measurement and purchase behavior (Morwitz 1997). To test our conjecture, we conducted a logistic regression with IBD toward the category as the dependent variable. The results show that this IBD is not correlated with any brand characteristics (e.g., the foreign origin), but is significantly correlated with time separation and consumer income (see Appendix A). Thus, we did not focus on the category level IBD. Finally, we checked the subjects' target cars, and if a purchase involved an IBD, we asked them to indicate the reasons for the different purchase.

[Insert Table 1 about here]

The subjects' intended targets included 61 U.S., 53 French, 216 Japanese, 113 German, 23 Korean, 1 Swedish, and 54 Chinese cars. We excluded the only subject with a Swedish target and the remaining 520 subjects constituted our final sample. This sample had 66.5% males, an average age of 33.8, and a monthly household income of 8,015 Chinese Yuan (CNY) (US $1,053).

**The Smartphone Survey**

The smartphone survey was conducted by a professional marketing research company, which had a large subject pool with consumers from different regions of China. The company recruited 1,281 subjects via email who were decision makers in the anticipated purchase of a smartphone in the next month and were not working in the electronics industry.

In the first survey, conducted online in Mandarin, the subjects indicated whether this was their first smartphone purchase. Then, they rated the importance of phone attributes, including price, standby time (on the battery), processing speed of the CPU, screen resolution, display size, etc. These attributes are common in the product technical details provided by online retailers. Subsequently, the subjects indicated the specific phone model they intended to purchase. The survey webpage then displayed five to seven phones with prices in the same range with the target phone. The subjects were asked to rate the target's performance on each attribute relative to the provided comparison phones. To derive the objective ratings of the target and prior knowledge, we obtained a database including the attributes of different phone models from one of the largest electronics retailer in China. The subjects also reported the country image for smartphones in a way similar to that of the automobile study. Finally, the subjects provided demographic information and telephone numbers.

One month later, subjects were invited by phone to participate in the second survey. Among the 1,281 subjects, 659 subjects responded and completed the survey (the response rate was 51.44%). In the second survey, we recorded whether subjects purchased a smartphone after the first survey and if so, the date of the purchase and the phone purchased. Only 25.49% (N = 168) subjects had made a purchase by the second survey, possibly because of the short time separation between the two surveys. If the purchase involved an IBD, we asked the subjects to indicate the reasons for the difference. The intended purchase included 42.86% Korean, 33.33% U.S., 4.17% Finnish, and 19.64% Chinese smartphones. In the sample, 48.81% of the subjects were males. On average, the subjects were 30.69 years old with a monthly household income of 13,464 CNY (US $2,192), see Table 1.

**Variable Measures**

The dependent variable *IBD* is a binary variable with a value of one if the subject did not purchase the target and zero otherwise. Note that IBD exists even if a subject's target and final purchase are both foreign but are different brands.

*Attribute importance* was self-reported by the subjects for different attributes. For automobiles, importance was measured on a 5-point scale (1 = *very unimportant*; 5 = *very important*) and the most important attributes were price advantage, fuel economy, safety features, and acceleration. For smartphones, importance was measured on a 10-point scale and the most important attributes were price, standby time (on the battery), processing speed of the CPU, and screen resolution.

The *foreign-brand* dummy indicates the foreign versus domestic origin, with a value of one if the target is foreign and zero otherwise. For *country image*, the subjects were asked

to indicate their agreement with three statements about the automobiles (smartphones) from the target's originating country on a 10-point scale (1 = *totally disagree*; 10 = *totally agree*): (1) "The automobiles (smartphones) from this country are very popular", (2) "The automobiles (smartphones) from this country are innovative in technology advancement", and (3) "The automobiles (smartphones) from this country are prestigious." The dimensions of popularity, innovation, and prestige have been widely adopted in prior literature (Han and Terpstra 1988; Roth and Romeo 1992). In the automobile survey, we also measured the target's brand equity. For perceived quality, we measured the subjects' rating of the overall quality of the target on a 10-point scale (1 = *very low*; 10 = *very high*). For brand associations, we measured the subjects' agreement with the statements that the brand is associated with high social status and uniqueness on 10-point scales (1 = *totally disagree*; 10 = *totally agree*). To measure brand loyalty, we asked the subjects to indicate the extent to which the brand is their first choice in future purchases on a 10-point scale (Pappu, Quester, and Cooksey 2007).

*Inaccurate prior knowledge* for each attribute is a dummy variable with a value of one representing inaccurate knowledge and a value of zero indicating accurate knowledge. In the automobile study, for each attribute, subjects provided a subjective rating of the target's performance compared to other cars of the same type on a 10-point scale (1 = *most inferior*; 10 = *most superior*). The automobile database has attribute values for the cars in the market, which makes it possible to derive the objective rating of the target relative to cars of the same type for each attribute. For the smartphone study, the subjects provided a subjective rating of the target relative to a set of comparison phones for each attribute (1 = *most inferior*; 10 = *most superior*) and using the phone database we then derived the objective rating of the target

relative to the comparison phones (see an example in Appendix B). *Inaccurate prior knowledge* was derived by comparing the subjective and objective ratings.

Suppose a participant's subjective rating for attribute *i* of the target is $e_i$ and the objective rating is $r_i$. If $r_i - 1 \leq e_i \leq r_i + 1$, the subject's knowledge is accurate so the *inaccurate knowledge* for attribute *i* has a value of zero. Otherwise, the value of this variable is one, indicating that prior knowledge is inaccurate. In later analyses, we further decomposed *inaccurate knowledge* for each attribute into *knowledge overestimation* and *knowledge underestimation*. If $e_i > r_i + 1$, the subject overestimates the target and *knowledge overestimation* of attribute *i* equals one. If $e_i < r_i - 1$, the subject underestimates the target and *knowledge underestimation* of attribute *i* equals one. We restricted the absolute difference between $e_i$ and $r_i$ to be within one to define accurate knowledge, denoted as *knowledge ± 1*. To check the robustness, we also employed a more lenient definition for accurate knowledge $r_i - 2 \leq e_i \leq r_i + 2$ (denoted as *knowledge ± 2*).

With regard to control variables, attribute evaluations of the target were reported on 10-point scales (1 = *most inferior*; 10 = *most superior*). We also derived *time separation* between intention measurement and purchase behavior. For automobiles, *time separation* was measured by the number of months elapsed since the first survey, while for smartphones it was measured in days. This variable served as a control for the possibility that unobserved contaminating events intervened before purchase (Bonfield 1974). For automobiles, we also controlled for the target brand's *price* and collected data on the *No. of years in the market* from the Internet and newspapers, which measured the length of time that the brand has been in the Chinese market. Brands in the market for a longer time are more likely to have strong

brand equity (Gronhaug and Graham 1987; Roth 1995), and thus may have lower IBDs. For smartphones, we did not include this variable as the entry of many brands happened at about the same time. Finally, consumers' gender, age, and monthly household income were also included as control variables.

## EMPIRICAL FINDINGS

### Descriptive Statistics

In Table 2, the first (second) column shows the number (percentage) of subjects intending to purchase a car from each country. Most subjects' targets were from Germany and Japan. Overall, 89.62% of the subjects *intended* to purchase a foreign brand while 10.38% intended to purchase a domestic brand. These numbers were similar to those of the 3,560 subjects in the first survey (89.72% versus 10.28%). Furthermore, the third column of Table 2 shows the percentage of IBD for subjects intending to purchase from each country. On average, the percentage of IBD for foreign automobile brands was 59.87%, whereas it was over 70% for domestic brands in China. The competitive landscape of the smartphone industry was different. Most subjects' targets were from South Korea and the U.S. (see Table 2). On average, the percentage of IBD for foreign phone brands was 38.52%, whereas it was 66.67% for domestic brands.

[Insert Table 2 about here]

We used logistic regressions to test the hypotheses. For H1 and H2, the independent variables included the *foreign-brand* dummy and its interactions with inaccurate prior

knowledge on different attributes. For H3, the independent variables were the *foreign-brand* dummy and its interactions with knowledge overestimation and underestimation variables.

**Results: Automobile Study**

For automobiles, the coefficient of the *foreign-brand* dummy is significant and negative ($\beta$ = -2.31, $p$ < .001), indicating that the IBD of foreign brands is significantly lower than that of domestic brands, as hypothesized in H1 (see Model (1) in Table 3). To understand the IBD for brands from each foreign country individually (relative to domestic brands), we replaced the *foreign-brand* dummy with five dummy variables for target brands from the U.S., France, Japan, Germany, and South Korea, respectively (see Model (2)). Again, compared with domestic brands, the IBDs for U.S. ($\beta$ = -2.62, $p$ < .001), French ($\beta$ = -2.36, $p$ < .001), Japanese ($\beta$ = -2.12, $p$ < .001), and German ($\beta$ = -2.20, $p$ < .001) brands are significantly lower. The coefficient for South Korea is negative but insignificant ($\beta$ = -1.05, n.s., $p$ = .21), perhaps due to the small sample size or maybe because South Korea has relatively less favorable country associations among Chinese consumers. Thus, H1 is supported. These findings are robust when using a more lenient definition for accurate knowledge (i.e., *knowledge* ± *2*), see Model (3) and Model (4) in Table 3. We checked the diagnostics of each model and found no multicollinearity.

To rule out the explanation that the difference in IBD of foreign versus domestic brands is simply caused by the distinction between strong versus weak brands, we included three dimensions of brand equity (i.e., perceived quality, brand associations, and brand loyalty) in the model. The results remain similar and are available upon request.

Consistent with H2, most interactions between the *foreign-brand* dummy and

inaccurate prior knowledge on different attributes are significant and positive. This finding indicates that foreign brands' advantage over domestic brands on IBD is smaller when consumers' prior knowledge is inaccurate. In particular, inaccurate knowledge on price advantage ($\beta$ = 1.12, $p$ < .001), fuel economy ($\beta$ = .76, $p$ < .01), and safety features ($\beta$ = .38, $p$ < .10) significantly increases the odds of IBD (i.e., *prob. of IBD*/(1-*prob. of IBD*)) for foreign (versus domestic) brands by 205.8%, 112.9%, and 45.9%, respectively, while inaccurate knowledge on acceleration has no significant moderating impact ($\beta$ = .02, n.s., $p$ = .95).

In regard to control variables, the results show that IBD is higher as *time separation* increases ($\beta$ = .26, $p$ < .001) and *No. of years in the market* decreases ($\beta$ = -.03, $p$ < .05). As *time separation* increases, internal and external factors are more likely to change, creating a greater opportunity for purchase behaviors to diverge from purchase intentions (Belk 1985). Regarding the *No. of years in the market*, the longer the brand has been in China, the higher the brand awareness is, which as a component of brand equity may induce consumers to stick to their purchase intentions. Finally, although attribute evaluations and price may affect purchase intention, their impacts on IBD are not significant. This finding implies that once consumers form a purchase intention, attribute evaluations and price do not further influence whether they deviate from that intention. The insignificant effects may also be caused by the inclusion of better predictors such as the *foreign-brand* dummy and its interactions with inaccurate knowledge. Similarly, we found no significant effect of the demographics. These results are robust across the two definitions of inaccurate knowledge as well as when including five country dummies (see Table 3).

[Insert Table 3 about here]

To test H3, the independent variables were similar except that inaccurate knowledge was replaced by knowledge overestimation and underestimation variables (i.e., accurate knowledge served as the baseline). To check the robustness, we ran the analysis with accurate knowledge defined by *knowledge* ± *1* and *knowledge* ± *2*, respectively. The results are robust across the two definitions (see Model (1) and Model (3) in Table 4). For each definition, the results are also robust when allowing the intercepts for brands from each country to vary (see Model (2) and Model (4)). In what follows, we only discuss the results of Model (1).

[Insert Table 4 about here]

As expected, the *foreign-brand* dummy is negatively correlated with IBD ($\beta$ = -2.29, $p$ < .001). In addition, all significant interactions between the *foreign-brand* dummy and the knowledge overestimation or underestimation variables are positive. More importantly, the interactions between the *foreign-brand* dummy and knowledge underestimation regarding price advantage ($\beta$ = .95, $p$ < .05), fuel economy ($\beta$ = 1.23, $p$ < .001), and safety features ($\beta$ = .64, $p$ < .05) are significant. For knowledge overestimation, however, the only significant interaction is for price advantage ($\beta$ = 1.24, $p$ < .001). We further examined whether the sum of the three significant coefficients regarding the interactions with knowledge underestimation is larger than that of the interaction with knowledge overestimation on price advantage. The Chi-square test suggests a significant difference between the moderating role of knowledge underestimation and overestimation ($\chi^2(1)$ = 8.01, $p$ < .01). This finding implies that knowledge underestimation is more likely than overestimation to reduce the foreign brands' advantage on IBD, supporting H3.

Notably, for price advantage, the interaction effect of the *foreign-brand* dummy with

knowledge underestimation is not significantly different from its interaction with knowledge overestimation ($\chi^2(1)$ = .55, n.s., $p$ = .46). That is, overestimating and underestimating price advantage are equally likely to weaken the foreign brands' advantage on IBD. This finding may be explained by the special characteristic of price as an attribute. Unlike other attributes, price is easy to compare across products. Thus, consumers may not show a strong confirmation bias even if they overestimate the target's price advantage.

**Results: Smartphone Study**

For smartphones, the coefficient of the *foreign-brand* dummy is negative and significant ($\beta$ = -1.82, $p$ < .10) (see Model (1) in Table 5). In Model (2), we included three dummy variables for target brands from South Korea, the U.S., and Finland, respectively. The results show that the IBD of Korean brands is significantly lower than that of domestic brands ($\beta$ = -1.81, $p$ < .10), while the difference between the U.S. and domestic brands approaches significance. Thus, supporting H1, foreign smartphone brands also have an advantage on IBD compared to the Chinese domestic brands. In addition and consistent with H2, this effect is smaller for consumers with inaccurate knowledge on standby time ($\beta$ = 1.42, $p$ < .05). The interactions between the *foreign-brand* dummy and inaccurate knowledge on the other attributes are not significant. Thus, H2 is partially supported for smartphones. We found no significant effect of the control variables. The results are robust when using *knowledge* ± *2* to define accurate knowledge, except that the IBD of U.S. brands becomes significantly lower than that of domestic brands ($\beta$ = -2.15, $p$ < .05) (see Model (3) and Model (4) of Table 5).

[Insert Table 5 about here]

When the interactions of the *foreign-brand* dummy with knowledge overestimation and underestimation on different attributes are included in the model, the *foreign-brand* dummy is still negatively associated with IBD ($\beta$ = -1.90, $p$ < .10), see Model (1) in Table 6. In addition, knowledge underestimation on standby time significantly weakens the foreign brands' advantage on IBD ($\beta$ = 1.43, $p$ < .10), while knowledge overestimation has no significant moderating effect. Thus, H3 is supported. The key results are robust when allowing the intercepts for brands from each country to differ and when using another definition for accurate knowledge (see Model (2)-Model (4) of Table 6).

[Insert Table 6 about here]

**Summary**

The key findings are consistent across the automobile and smartphone studies, and provide evidence for foreign brands' advantage in converting purchase intentions into purchase behaviors. For automobiles, brands from the U.S., France, Japan, and Germany have significantly lower IBDs than domestic brands. For smartphones, brands from South Korea and the U.S. have evident advantages on IBD. These findings are consistent with the common belief that Germany has a high reputation for automobiles while South Korea has expertise in smartphones. Regarding the moderating role of inaccurate prior knowledge, for automobiles inaccurate knowledge on price advantage, fuel economy, and safety features are all significant, while for smartphones only that on standby time has a significant moderating effect. In general, the hypotheses are strongly supported for automobiles, but some of them are only partially supported for smartphones. This may be caused by the relatively small sample size of the smartphone study (N = 168). Nonetheless, it may also be due to the strong

influence of brand name when it comes to phone purchases.

To provide more evidence, we also used country image as the key independent variable, and examined the role of the target's country image in consumers' IBD. We found that a favorable country image significantly reduces consumers' IBD for both automobile and smartphone brands, and this effect is positively moderated by consumers' inaccurate prior knowledge (the detailed results are available upon request). These findings further corroborate the rationale that foreign brands have an advantage on IBD because of their favorable country associations.

## DISCUSSION AND IMPLICATIONS

In emerging markets, foreign brands have higher product evaluations and purchase intentions than domestic brands (Zhou, Yang, and Hui 2010). However, few studies examine whether the purchase intentions for foreign brands can result in actual purchases. As more international companies race to capture a share in emerging markets, a brand that was once revered may see consumers with purchase intentions eventually turn to the competitors, leading to an intention-behavior discrepancy (IBD). In emerging markets, can foreign brands outperform their domestic competitors in converting purchase intentions into purchase behaviors? This question has rarely been investigated in previous research. This study addresses this research gap and examines the difference in IBD of foreign versus domestic brands in emerging markets and the moderating role of consumers' inaccurate prior knowledge. We relied on related literature on country associations and dual process theory to

develop the hypotheses. Similar to other studies in international marketing, we used the automobile and smartphone industries of China as the empirical research context.

**Theoretical Implications**

This research makes contributions to the theoretically-grounded literature in several ways. First, we add to existing literature that focuses mainly on evaluations of or purchase intentions for foreign versus domestic brands in emerging markets. Without studying purchase behavior or the discrepancy between intention and behavior, prior research may come to misleading conclusions (Koschate-Fischer, Diamantopoulos, and Oldenkotte 2012). Using large-scale two-round surveys, this study obtains data on consumers' IBD and deepens the theoretical understanding of foreign brands' competitiveness in emerging markets. Our findings suggest that, in addition to higher evaluations and purchase intentions, foreign brands also have lower IBDs than domestic brands, constituting their dual advantage in emerging markets. Prior literature indicates that consumers in emerging economies have stereotypical beliefs that automobiles originating from developed countries are of higher quality, endowing brands such as Volkswagen and Toyota with higher brand equity. As one of the most expensive purchases, the automobile is also associated with social status or *mianzi* (Batra et al. 2000). One of the main theoretical contributions of this study is to demonstrate the behavioral consequence of foreign brands' favorable associations in emerging markets.

Second, we extend prior research on the relationship between prior knowledge and the country of origin effect. Most existing literature examines the moderating role of knowledge in the country of origin effect on purchase intention (e.g., Rao and Monroe 1988). We extend this body of literature by studying the role of inaccurate prior knowledge in consumers'

information reprocessing after forming a purchase intention. In information reprocessing, as consumers have prior knowledge of the product, they may selectively attend to information that confirms their prior beliefs (Fischer, Greitemeyer, and Frey 2008). Thus, the theoretical rationale for the effect of prior knowledge developed in prior research may not apply to our research setting. We make a contribution by drawing on dual process theory to develop the hypothesis regarding the role of inaccurate prior knowledge in our setting. The results show that foreign brands' advantage on IBD is smaller for consumers with inaccurate knowledge, since they are more likely to devalue the foreign brands' favorable country associations in information reprocessing. This finding complements prior literature and provides a more comprehensive understanding regarding the role of prior knowledge in the performance of brands with a foreign versus a domestic origin in emerging markets.

Moreover, we also deepen the understanding of the moderating role of inaccurate prior knowledge by further decomposing it into prior knowledge overestimating versus underestimating the product. We employed confirmation bias in psychology literature to explain the potentially different moderating effects of these two types of inaccurate knowledge. The results show that consumers overestimating the target are relatively less likely to systematically reprocess information because of confirmation bias, and thus they may weaken the foreign brands' advantage on IBD to a smaller degree than those underestimating the product.

Finally, we make contributions to related literature on country equity and country branding by exploring the impact of country image on country-level IBD. Countries, like brands, have intangible assets or equity, which may endow brands from the country with

value (Robertson et al. 2016; Shimp, Samiee, and Madden 1993). Country equity for a product category is closely related to the country's image or associations (Papadopoulos and Heslop 2002; Zeugner-Roth, Diamantopoulos, and Montesinos 2008). In particular, a favorable country image enhances country equity, making consumers more loyal to brands from the country (Pappu and Quester 2010) and resulting in lower country-level IBDs. We tested these conjectures with country-level IBD as the dependent variable and the independent variables included *country image* and its interactions with *inaccurate knowledge*. The control variables were similar to those in the main models except that we also included *country share*, which was the total market share of brands from a country in the year before the survey. Results of both the automobile and smartphone studies show that a favorable country image deters consumers with purchase intentions from switching to brands from other countries, and this effect differs for consumers with inaccurate versus accurate prior knowledge. These findings suggest that higher country equity is vital in converting intentions into purchases for brands from a country in general.

**Managerial Implications**

From a managerial perspective, this research provides actionable implications for brands in emerging markets. First, brand managers often conduct surveys to understand consumers' purchase intentions and use these data to predict brand sales. However, managers should be cautious in relying on intentions to forecast sales because IBDs are rather high. More importantly, we found that domestic brands have significantly higher IBDs than foreign brands in emerging markets. Thus, sales forecasting will not be equally effective for foreign versus domestic brands. In emerging markets, domestic brands should discount sales

forecasts more than their foreign competitors.

Second, to effectively transform purchase intentions into purchase behaviors, foreign brands may want to highlight their country of origin and favorable country associations in brand communication campaigns. In emerging markets with intense competition among brands from all over the globe, the favorable country associations of foreign brands may not only increase consumers' purchase intentions, but also help lock in consumers who have purchase intentions. The dual advantage enables foreign brands to secure market share and gain competitive advantages in emerging markets.

Third, foreign brands should be careful when exaggerating their performance on some attributes in advertising campaigns. This is because exaggeration may induce consumers to form inaccurate knowledge and weaken the foreign brands' advantage on IBD. In addition, the foreign brands' advantage on IBD is smaller for consumers underestimating the brand than those overestimating the brand. Thus, foreign brands may want to objectively convey product performance in either point-of-purchase displays or advertising campaigns. When consumers do have inaccurate knowledge, foreign brands should especially avoid consumers' underestimation of the brand. These findings also provide implications for foreign brands' segmentation strategies in emerging markets. To secure market share and maintain a competitive advantage relative to domestic brands, foreign brands would do better by targeting customers with inaccurate knowledge, especially those that underestimate the brand.

Finally, examining country-level IBD provides evidence for the effect of country image on the advantage of a country's products in general (Paswan, Kulkarni, and Ganesh 2003; Roth and Romeo 1992). A favorable country image not only increases consumers'

purchase intentions for a country's products (Pappu and Quester 2010) but also deters consumers from switching to products from other countries. For example, German cars are well known for superior engineering and Japanese cars are highly regarded for reliability and fuel efficiency. As our findings show, the favorable image of countries such as Germany and Japan for automobiles makes consumers stickier to brands from these countries. Thus, developing a reputation or favorable image for a product category is critical for a country in maintaining a competitive advantage in international markets.

## LIMITATIONS AND FUTURE RESEARCH

There are some issues for further research to pursue and limitations of this study to address. First, results from the Chinese markets may not apply to all emerging markets. Future research should use other emerging markets to generalize the findings. In addition, in this study foreign brands were from more developed countries and domestic brands had a relatively small share of purchase intentions (10.38% for automobiles and 19.64% for smartphones). Future studies should use other product categories in which foreign brands also come from developing countries and examine the IBD of foreign brands from developing versus developed countries. Moreover, there may be local icons in some categories (e.g., lower-priced products such as food; Strizhakova and Coulter 2015) and future research may examine whether the conclusions change for these categories.

Second, intervening events such as marketing activities between the two rounds of the survey may have affected IBD. Tracking all marketing activities was not feasible. However,

we asked the subjects to indicate the reasons for IBD (if they switched) in the second survey. To control for the intervening events, two research assistants (who were unaware of the research purpose) were recruited to code these reasons. After including the dummy variables indicating different types of reasons, the results remain similar and are available upon request. Future research should employ other ways to better control for intervening events.

Third, this research focuses on IBD toward a brand rather than IBD toward a product category in general. However, the IBDs toward the category are as high as 52.98% for automobiles and 74.51% for smartphones. These numbers indicate that prior research with purchase intention as a single dependent variable may be problematic in many circumstances. Thus, it is interesting to examine the factors that may lead to this type of IBD. We ran an analysis and found that this IBD is higher when *time separation* increases and *consumer income* decreases, while brand features such as the *foreign-brand* dummy and *No. of years in the market* have no significant impact (see Appendix A). As we focus on the foreign versus domestic brands' performance in emerging markets, we only examined the more relevant IBD toward a specific brand. Future research may focus on the IBD toward a product category.

Fourth, we examined the difference in IBD of foreign versus domestic brands in emerging markets, which is a correlational study though we have tried to use country associations to explain the foreign brands' advantage on IBD. According to cue utilization theory, foreignness *per se* may signal higher perceived quality and deter consumers from showing IBDs. Future research may use laboratory studies to rigorously examine this underlying mechanism and the causal impact of foreignness on IBD.

Finally, we used the four most important attributes in each study. In considering the

relationship between subjective and objective attribute ratings, prior research uses similar but slightly different attributes. For automobiles, Erickson, Johansson, and Chao (1984) examined price, gas mileage, reliability, durability, and workmanship, while Mason et al. (2001) investigated price, fuel economy, horsepower, acceleration, and braking performance. Future research should examine a more complete set of attributes.

In conclusion, this study builds on associative network theory and country associations to show the advantage of foreign brands on the intention-behavior discrepancy in emerging markets, and provide both theoretical and managerial implications. This study offers theoretical support for brands in emerging markets to develop and highlight favorable country associations to maintain consumers' brand and country choices in making purchase decisions. With this research, we also hope to attract greater interest in the measure of intention-behavior discrepancy in international marketing, which will open the door for a fruitful and managerially relevant research area.

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**Table 1.** Sample Characteristics

| | Automobile Study | | | Smartphone Study | | |
|---|---|---|---|---|---|---|
| | First survey | Second survey | Final sample | First survey | Second survey | Final sample |
| Sample Size | 3560 | 1108 | 520 | 1281 | 659 | 168 |
| Male | 61.40% | 66.40% | 66.50% | 54.80% | 55.54% | 48.81% |
| Age, Mean (SD) | 33.90 (9.55) | 33.80 (9.73) | 33.80 (10.05) | 30.67 (6.90) | 30.62 (6.81) | 30.69 (6.30) |
| Income in CNY, Mean (SD) | 7976 (5392.31) | 7785 (4989.14) | 8015 (5037.79) | 12890 (5569.16) | 12970 (5550.88) | 13464 (5212.71) |

**Table 2.** Percentage of IBD for Automobile and Smartphone Brands from Different Countries

**Automobile Study**

| Country | N | Percentage | Percentage of IBD |
|---|---|---|---|
| U.S. | 61 | 11.73% | 50.82% |
| France | 53 | 10.19% | 58.49% |
| Japan | 216 | 41.54% | 59.26% |
| Germany | 113 | 21.73% | 61.95% |
| South Korea | 23 | 4.42% | 82.61% |
| China | 54 | 10.38% | 70.37% |
| **Overall** | **520** | **100%** | **60.96%** |

**Smartphone Study**

| Country | N | Percentage | Percentage of IBD |
|---|---|---|---|
| South Korea | 72 | 42.86% | 36.11% |
| U.S. | 56 | 33.33% | 37.50% |
| Finland | 7 | 4.17% | 71.43% |
| China | 33 | 19.64% | 66.67% |
| **Overall** | **168** | **100%** | **44.05%** |

**Table 3.** Automobile Study: The Impact of *Foreign-Brand* Dummy and Inaccurate Prior Knowledge

| **Independent variables** | ***Knowledge±1*** | | ***Knowledge±2*** | |
|---|---|---|---|---|
| | Model (1) | Model (2) | Model (3) | Model (4) |
| Intercept | -.02 | -.64 | -.28 | -.74 |
| ***Foreign-brand* dummy** | -2.31*** | | -1.89*** | |
| U.S. brand | | -2.62*** | | -2.25*** |
| French brand | | -2.36*** | | -2.25*** |
| Japanese brand | | -2.12*** | | -1.88*** |
| German brand | | -2.20*** | | -1.80*** |
| Korean brand | | -1.05 | | -.77 |
| **Moderating Effect of Inaccurate Knowledge** | | | | |
| Inac_ price×*foreign-brand*[a] | 1.12*** | 1.09*** | .99*** | 1.00*** |
| Inac_ fuel×*foreign-brand* | .76** | .71** | .61** | .57* |
| Inac_safety×*foreign-brand* | .38† | .38† | .44† | .45† |
| Inac_acceleration×*foreign-brand* | .02 | -.05 | .30 | .34 |
| **Attribute Evaluations** | | | | |
| Eval_price[b] | .07 | .08 | .05 | .06 |
| Eval_fuel | -.05 | -.07 | -.05 | -.07 |
| Eval_safety | -.07 | -.06 | -.03 | -.05 |
| Eval_acceleration | -.03 | -.03 | -.06 | -.07 |
| **Controls** | | | | |
| Time separation | .26*** | .26*** | .25*** | .25*** |
| Price (in 10,000 CNY) | -.01 | -.01 | -.01 | -.01 |
| No. of years in the market | -.03* | -.03* | -.03* | -.03* |
| Male | -.19 | -.14 | -.18 | -.15 |
| Age | .01 | .01 | .01 | .01 |
| Log (income) | .11 | .16 | .15 | .20 |
| **-2 log-likelihood** | 555.37 | 548.71 | 551.91 | 544.97 |

†$p < .10$.
*$p < .05$.
**$p < .01$.
***$p < .001$.

[a]"Inac_" represents inaccurate knowledge (1 = inaccurate, 0 = accurate).

[b]"Eval_" stands for evaluation.

**Table 4.** Automobile Study: The Impact of *Foreign-Brand* Dummy and Knowledge Overestimation vs. Underestimation

| Independent variables | *Knowledge±1* | | *Knowledge±2* | |
|---|---|---|---|---|
| | Model (1) | Model (2) | Model (3) | Model (4) |
| Intercept | -.80 | -1.55 | -1.51 | -2.09 |
| ***Foreign-brand* dummy** | -2.29*** | | -1.78*** | |
| U.S. brand | | -2.36*** | | -1.90*** |
| French brand | | -2.52*** | | -2.30*** |
| Japanese brand | | -2.32*** | | -1.99*** |
| German brand | | -2.22*** | | -1.65** |
| Korean brand | | -.64 | | -.46 |
| **Moderating Effect of Knowledge Overestimation** | | | | |
| Over_price×*foreign-brand*[a] | 1.24*** | 1.36*** | .93** | 1.08*** |
| Over_fuel×*foreign-brand* | .37 | .19 | .28 | .08 |
| Over_safety×*foreign-brand* | .27 | .20 | .03 | -.05 |
| Over_acceleration×*foreign-brand* | -.02 | -.13 | .21 | .28 |
| **Moderating Effect of Knowledge Underestimation** | | | | |
| Under_price×*foreign-brand*[b] | .95* | .86* | 1.10** | 1.11** |
| Under_fuel×*foreign-brand* | 1.23*** | 1.35*** | .94** | 1.09** |
| Under_safety×*foreign-brand* | .64* | .69* | 1.24** | 1.36** |
| Under_acceleration×*foreign-brand* | -.03 | -.01 | .31 | .30 |
| **Attribute Evaluations** | | | | |
| Eval_price[c] | .07 | .06 | .09 | .09 |
| Eval_fuel | .02 | .05 | -.01 | .02 |
| Eval_safety | -.04 | -.02 | .03 | .05 |
| Eval_acceleration | -.05 | -.04 | -.07 | -.09 |
| **Controls** | | | | |
| Time separation | .27*** | .28*** | .26*** | .26*** |
| Price (in 10,000 CNY) | -.01 | -.01 | -.01 | -.01 |
| No. of years in the market | -.03* | -.03* | -.03* | -.03* |
| Male | -.21 | -.16 | -.20 | -.16 |
| Age | .01 | .01 | .02 | .02 |
| Log (income) | .12 | .15 | .15 | .18 |
| **-2 log-likelihood** | 548.79 | 539.51 | 543.84 | 534.99 |

†$p < .10$.
*$p < .05$.
**$p < .01$.
***$p < .001$.

[a]"Over_" represents knowledge overestimating the target (1 = overestimate, 0 = otherwise).

[b]"Under_" stands for knowledge underestimating the target (1 = underestimate, 0 = otherwise).
[c]"Eval_" stands for evaluation.

**Table 5.** Smartphone Study: The Impact of *Foreign-Brand* Dummy and Inaccurate Prior Knowledge

| **Independent variables** | ***Knowledge±1*** | | ***Knowledge±2*** | |
|---|---|---|---|---|
| | Model (1) | Model (2) | Model (3) | Model (4) |
| Intercept | .87 | -.59 | 1.59 | -.01 |
| ***Foreign-brand* dummy** | -1.82$^{\dagger}$ | | -2.08$^{**}$ | |
| Korean brand | | -1.81$^{\dagger}$ | | -2.33$^{**}$ |
| U.S. brand | | -1.40 | | -2.15$^{*}$ |
| Finish brand | | -.02 | | -.35 |
| **Moderating Effect of Inaccurate Knowledge** | | | | |
| Inac_price×*foreign-brand*[a] | -.15 | -.02 | .42 | .49 |
| Inac_time×*foreign-brand* | 1.42$^{*}$ | 1.31$^{\dagger}$ | .96$^{*}$ | .97$^{*}$ |
| Inac_CPU×*foreign-brand* | -.44 | -.79 | -.49 | -.68 |
| Inac_resolution×*foreign-brand* | -.12 | -.16 | .46 | .58 |
| **Attribute Evaluations** | | | | |
| Eval_price[b] | .05 | .06 | .06 | .06 |
| Eval_time | -.08 | -.09 | -.05 | -.06 |
| Eval_CPU | .05 | .06 | .01 | .05 |
| Eval_resolution | -.00 | .01 | .00 | .03 |
| **Controls** | | | | |
| Time separation | .00 | .00 | -.00 | -.00 |
| Male | .26 | .30 | .17 | .22 |
| Age | .03 | .03 | .02 | .04 |
| Log (income) | -.03 | .11 | -.11 | .01 |
| **-2 log-likelihood** | 214.57 | 210.29 | 213.32 | 208.57 |

$^{\dagger}p < .10$.
$^{*}p < .05$.
$^{**}p < .01$.
$^{***}p < .001$.

[a]"Inac_" represents inaccurate knowledge (1 = inaccurate, 0 = accurate).

[b]"Eval_" stands for evaluation.

**Table 6.** Smartphone Study: The Impact of *Foreign-Brand* Dummy and Knowledge Overestimation vs. Underestimation

| **Independent variables** | ***Knowledge±1*** | | ***Knowledge±2*** | |
|---|---|---|---|---|
| | Model (1) | Model (2) | Model (3) | Model (4) |
| Intercept | .85 | .05 | .05 | -.35 |
| ***Foreign-brand* dummy** | -1.90$^{\dagger}$ | | -2.40$^{**}$ | |
| Korean brand | | -2.06$^{\dagger}$ | | -2.63$^{**}$ |
| U.S. brand | | -2.24 | | -2.83$^{*}$ |
| Finish brand | | -.52 | | -1.10 |
| **Moderating Effect of Knowledge Overestimation** | | | | |
| Over_price×*foreign-brand*[a] | .08 | .23 | .63 | .64 |
| Over_time×*foreign-brand* | .99 | 1.20 | .57 | .84 |
| Over_CPU×*foreign-brand* | -.21 | -.25 | .27 | .23 |
| Over_resolution×*foreign-brand* | .29 | .17 | .38 | .43 |
| **Moderating Effect of Knowledge Underestimation** | | | | |
| Under_price×*foreign-brand*[b] | -.15 | -.10 | .51 | .41 |
| Under_time×*foreign-brand* | 1.43$^{\dagger}$ | 1.28$^{\dagger}$ | 1.32$^{*}$ | 1.21$^{*}$ |
| Under_CPU×*foreign-brand* | -.69 | -.83 | -.71 | -.60 |
| Under_resolution×*foreign-brand* | .34 | .40 | .44 | .59 |
| **Attribute Evaluations** | | | | |
| Eval_price[c] | .02 | .02 | .04 | .03 |
| Eval_time | -.01 | -.05 | .01 | -.03 |
| Eval_CPU | .02 | .05 | -.04 | .01 |
| Eval_resolution | .03 | .07 | .01 | .04 |
| **Controls** | | | | |
| Time separation | .00 | .00 | -.00 | .00 |
| Male | .32 | .29 | .29 | .28 |
| Age | .03 | .04 | .01 | .02 |
| Log (income) | -.07 | -.01 | .07 | .07 |
| **-2 log-likelihood** | 213.80 | 210.65 | 211.67 | 208.78 |

$^{\dagger}p < .10$.
$^{*}p < .05$.
$^{**}p < .01$.
$^{***}p < .001$.

[a]"Over_" represents knowledge overestimating the target (1 = overestimate, 0 = otherwise).

[b]"Under_" represents knowledge underestimating the target (1 = underestimate, 0 = otherwise).

[c]"Eval_" stands for evaluation.

**Appendix A: Estimation Results for IBD Toward the Automobile Category in General**

| Independent variables | Model 1[b] | | Model 2[c] | |
|---|---|---|---|---|
| | Coefficient | SE[a] | Coefficient | SE |
| Intercept | -11.72*** | 2.85 | - 11.93*** | 2.86 |
| ***Foreign-Brand* Dummy** | .69 | .56 | 1.03 | .66 |
| **Moderating Role of Inaccurate Knowledge** | | | | |
| Inac_price×*foreign-brand* | | | - .23 | .36 |
| Inac_fuel×*foreign-brand* | | | - .10 | .35 |
| Inac_safety×*foreign-brand* | | | - .09 | .36 |
| Inac_acceleration×*foreign-brand* | | | - .24 | .36 |
| **Attribute Evaluations** | | | | |
| Eval_price | .71* | .08 | .18* | .08 |
| Eval_fuel | -.05 | .09 | - .05 | .09 |
| Eval_safety | .04 | .12 | .03 | .12 |
| Eval_acceleration | -.22† | .11 | - .20† | .12 |
| **Controls** | | | | |
| Time separation | 1.93*** | .18 | 1.94*** | .19 |
| Price (in 10,000 CNY) | -.00 | .02 | - .00 | .02 |
| No. of years in the market | -.00 | .02 | - .00 | .02 |
| Male | -.29 | .33 | - .27 | .34 |
| Age | -.01 | .02 | - .01 | .02 |
| Log (income) | -.48† | .27 | - .47† | .27 |

† $p < .10$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.
[a] SE represents standard error.
[b] The dependent variable is IBD toward the automobile category in general. Regarding the independent variables, Model 1 only includes the *foreign-brand* dummy and the control variables (e.g., attribute evaluations and demographics).
[c] In Model 2, the dependent variable is also IBD toward the automobile category. In regard to independent variables, this model includes not only the *foreign-brand* dummy variable but also its interactions with inaccurate knowledge on different attributes. The control variables in Model 2 are the same as those in Model 1.

**Appendix B: The Derivation of Objective Ratings**

Inaccurate knowledge is measured by the divergence between a consumer's subjective rating and the objective rating of the target relative to other products. In this study, the objective rating is derived by comparing the target's attribute values with those of the comparison products. The attribute values are provided by the car/phone database. We use the objective rating of standby time for the target phone as an example and those of other attributes are derived similarly. The standby times are shown in the first column of the

following table.

**Appendix B: An Example of the Derivation of Objective Ratings on Standby Time**

| Phones | Standby Time (hours) | Rescaled Objective Ratings ($R_{ob}$) |
|---|---|---|
| *Target phone* | 12.00 | 7.00 |
| iPhone 5 | 8.00 | 1.00 |
| Samsung S4 | 8.50 | 1.75 |
| SONY Xperia | 10.00 | 4.00 |
| NOKIA Lumia 1020 | 13.30 | 8.95 |
| HTC Butterfly | 14.00 | 10.00 |

Remember that the subjective rating is reported on a 10-point scale. To ensure comparability, we rescale the attribute values of the target's standby time to be between 1 and 10 using the linear interpolation method, which is a widely used technique for rescaling. In particular, the rescaled objective rating ($R_{ob}$) of the target phone on standby time has to satisfy:

$$\frac{R_{ob} - scale\_min}{scale\_max - scale\_min} = \frac{time_{target} - \min(time)}{\max(time) - \min(time)}, \quad (1)$$

where $time_{target}$ is the target's standby time and *time* is a vector with standby times of all the phones involved. min(•) and max(•) are functions to return the minimum and maximum of a vector, respectively. *scale_min* and *scale_max* are the minimum and maximum of the scale (i.e., 1 and 10). Thus, solving for the rescaled objective rating $R_{ob}$, we obtain:

$$R_{ob} = \frac{9 \times \left( time_{target} - \min(time) \right)}{\max(time) - \min(time)} + 1. \quad (2)$$

Objective ratings of other phones on standby time are derived similarly (see the second column of the above table).