Journal of International Marketing, Volume 26, Issue 4, 2018, pp. 38-53
DOI:10.1509/jim.17.0096


# A Cross-National Study of Evolutionary Origins of Gender Shopping Styles: She Gatherer, He Hunter?

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**ABSTRACT**
The authors investigate gender shopping styles across countries and explore whether differences between male and female shopping styles are greater than differences in shopping styles between consumers across countries. The study develops a conceptual model to test Eagly and Wood's (1999) convergence hypothesis. Applied to shopping, this predicts that men and women should become more similar in shopping styles as traditional gender-based divisions in wage labor and domestic labor disappear. The results of a survey on shopping behavior across 11 countries indicate that men and women are evolutionarily predisposed to different shopping styles. Counter to the convergence hypothesis, differences in shopping styles between women and men are greater in higher-gender-equality countries than in lower-gender-equality countries. Empathizing—the ability to tune into someone's thoughts and feelings—mediates shopping style more for women, while systemizing—the degree to which an individual possesses spatial skills—mediates shopping style more for men. Results suggest that gender-based retail segmentation is more strategically relevant than country-based segmentation. The authors discuss the implications of their findings for international marketing theory and practice.

***Keywords***: shopping styles, gender, evolutionary psychology, international market segmentation

When it comes to shopping, the "evidence" from popular psychology is indisputable: "women are from Nordstrom's and men are from Sears" (Knowledge@Wharton 2007). In other words, men and women have very different shopping styles. Women tend to browse and enjoy shopping for its own sake. They examine information in shops more comprehensively and focus on both emotional and social–experiential elements of shopping. In contrast, men tend know what they want and leave the store as quickly as possible. While academic consumer research generally supports these characterizations, (Passyn, Diriker, and Settle 2011), research in international consumer behavior has neglected gender shopping styles and gender as a theoretically significant construct (for an exception, see Ashraf, Thongpapanl, and Auh 2014). Our attempt to explain the origins of gender shopping styles and investigate their consistency across countries contributes to the discussion of the validity of two claims frequently made in international marketing studies.

One claim is that the antecedents and theoretical accounts of consumer behavior in different international markets are universally valid (Cleveland, Papadopoulos, and Laroche 2011). Yet, empirical evidence with regard to this claim remains inconclusive (Askegaard, Arnould, and Kjeldgaard 2005; Papadopoulos and Martin 2011). A second claim researchers have made is that international differences in consumer behavior are diminishing with the globalization of markets (e.g., Wilk 1998), but it is unclear whether or not globalization-driven social changes contribute to the convergence of consumption practices in general (Sobh, Belk, and Gressel 2014; Sobol, Cleveland, and Laroche 2018) and gender shopping styles in particular across international markets. Explaining why men and women shop differently and then examining whether the differences in how they shop are stable across international markets will enable us to determine whether an observable antecedent—gender in the context of our study—of a specific consumer behavior—shopping style—affects shopping behavior consistently in different international markets. Moreover, if the societal changes brought about by globalization and other social movements (e.g., feminism) have increased the economic independence of women, perhaps women's and men's shopping styles have converged toward greater similarity in the countries with greater gender equality. We examine this possibility as well.

While there is considerable prior research on gender differences, such research in marketing is fragmented and tends to be descriptive rather than theoretical (Meyers-Levy and Loken 2015). Prior findings on gender shopping styles are compatible with the selectivity hypothesis with respect to agentic male versus communal female gender roles (Meyers-Levy and Loken 2015), but we still do not know *why* women and men shop differently. The current research attempts to close two gaps in our understanding of gender shopping styles. First, we aim to uncover and theoretically explain the origins of gender differences in shopping behavior. Second, we investigate whether these differences converge across international markets, a question that has yet to be addressed in the international marketing literature.

The issue of convergence of gender shopping styles is important in international marketing for both theoretical and practical reasons. Theoretically, we base our research on evolutionary psychology and social structural theory, the two broad theories often used to explain gender differences. A key component of social structural theory is Eagly and Wood's (1999) "convergence hypothesis," which predicts that men's and women's psychologies converge with increasing gender equality. This hypothesis, however, has not been convincingly confirmed or rejected in any literature (Schmitt 2012), let alone international marketing. Whether the convergence hypothesis holds might depend on a specific domain of gendered behavior. Applied to shopping, the convergence hypothesis would predict that men and women will become more similar in their shopping styles as the traditional gendered division between wage labor and domestic labor disappears. The best test way to test this hypothesis is by examining how stable the differences between women's and men's shopping styles are across countries that vary in their level of gender equality.

A practical challenge that global companies face is to understand whether differences in gender shopping styles hold across international markets. Considering that universal (hybrid) segmentation as a global marketing strategy seeks similarities across world markets (Agrawal et al. 2010; Bolton and Myers 2003; Cleveland et al. 2011; Papadopoulos and Martin 2011; Steenkamp and Hofstede 2002), the issue that requires further investigation is if the differences between male and female shopping styles are greater than the differences in shopping styles between consumers across country-specific markets. Resolving this question is relevant for international marketers because they will want to know if a segmentation strategy that focuses on gender shopping styles is more effective than one that focuses on country-level differences. Clearly, a dichotomous approach to international market segmentation based on either gender or country may not always be the most practical. However, the contributions of this paper could provide a stronger segmentation metric (i.e., gender shopping style) that can help international marketers decide how to segment across international markets.

Consumer research in international marketing has overwhelmingly relied on sociocultural explanations of consumer behavior (c.f., e.g., Agarwal, Malhotra and Bolton 2010; Chelminski and Coulter 2007; Tang 2017; Westjohn, Roschk and Magnusson 2017). Typically, such research reveals that specific consumer behaviors tend to be culturally determined, and Hofstede's (2003) cultural dimensions offer explanations as to why such behaviors vary across countries. The one exception is the study by Dawar and Parker (1999) who evaluate if consumers respond consistently to signals of quality—such as brand and price—of consumer electronics products across countries. When the authors do detect consistency in consumers' responses, they explain it in terms of cultural consistency across the said markets and by relying on formal logic in determining the "criteria for universality." Our research advocates a complementary theory that may explain consistency (vs. inconsistency) of a specific consumer behavior across international markets: evolutionary theory. Unlike sociocultural explanations of consumer behavior, evolutionary theory posits that if a specific behavior is stable across societies, it is probably evolutionarily determined and not socioculturally constructed (Tooby and Cosmides 2005). Applied to the current study, if differences between women's and men's shopping styles are stable across international markets, it is more likely that such differences are intrinsic rather than socioculturally constructed.

To test empirically *why* and *how* the shopping styles of men and women differ across markets, we first present arguments about whether their respective shopping styles arise from socialization or are innate. We also review two other dimensions of female and male psychology—empathizing and systemizing (Baron-Cohen et al. 2003)—that may mediate the shopping styles of the two genders. Second, we conduct a cross-country "nature versus nurture" study in which we investigate two competing explanations—evolutionary and sociostructural—of the differences in gender shopping styles across high- versus low-gender-equality countries. To test these two competing explanations, we conduct a survey of adult consumers in 11 countries (with a combined N > 3,000). Finally, we discuss the theoretical contributions and practical implications of our findings.

## GENDER AND SHOPPING STYLES

Previous research on gender differences and shopping, but not on shopping styles specifically, focuses mainly on Western societies (Balabanis and Diamantopoulos 2008; Nelson et al. 2006; for an exception, see Ashraf et al. 2014). To define shopping style, we adapt Sproles and Kendall's (1986) definition of consumer decision-making style to the specific context of shopping—namely, a mental orientation characterizing a consumer's approach to shopping choices. Prior research exploring the various dimensions of shopping styles in a variety of international contexts includes studies from Korea (Hafstrom, Chae, and Chung 1992), China (Hiu et al. 2001), Germany (Mitchell and Walsh 2004), and North America (Wesley, LeHew, and Woodside 2006). These studies indicate that shopping styles may be unstable across countries (Walsh, Mitchell, and Hennig-Thurau 2001), implying a need for further cross-national research. The results from Germany, for example, indicate that the Sproles and Kendall's (1986) scale assessing consumer decision-making style has construct validity for women, but the results are questionable for men (Mitchell and Walsh 2004).

Scant research in international marketing focuses theoretically on gender in general, and it has given little attention to gender differences in shopping styles. Existing research on gender differences in shopping styles has been descriptive, focusing mainly on specific aspects of shopping. For example, compared with men, women tend to be perfectionists, take pleasure in shopping, and exhibit higher fashion consciousness (Wesley, LeHew, and Woodside 2006). Women's shopping experience tends to be more emotional (Lewis, Haviland-Jones, and Barrett 2010), particularly with regard to goods and services related to appearance improvement, image, and self-esteem, such as apparel, cosmetics, and perfumes (Habimana and Massé 2000). These results imply that women tend to have a more hedonic shopping style (Babin, Darden, and Griffin 1994) than men, although it remains to be demonstrated whether men have a more utilitarian shopping style. In addition, previous research suggests that men score higher in materialism than women (Cleveland, Laroche, and Papadopoulos 2017).

The female shopping style is reported to involve more searching, comparing, finding the best value, and taking pride in the activity of shopping. For women, shopping is also leisure and an engaging social activity (Bakewell and Mitchell 2004). Women tend to visit more stores than men (Luceri and Latusi 2012) and make more in-store purchase decisions (Inman, Winer, and Ferraro 2009). When they shop, women are more motivated than men to socialize and seek sensory stimulation (Kotzé et al. 2012). In contrast, men tend to simplify their shopping tasks, shop quickly, and rely on cues such as familiar brands, sales clerk recommendations, and price, and they either visit a familiar store and buy quickly or are indifferent to store selection (Bakewell and Mitchell 2004). There are exceptions, however. When consumers purchase technical products, these stereotypes reverse (Dholakia and Chiang 2003). In addition, some men who have achieved "gender role transcendence" have a more feminine shopping style (Otnes and McGrath 2001).

The shopping styles of men and women also differ in ways consistent with reported differences in their information-processing strategies (Meyers-Levy and Maheswaran 1991). International consumer behavior studies have observed the impact of men's and women's different information-processing strategies on their respective decision making and preferences. Previous research suggests, for example, that international marketing communications targeting women should contain strong emotional country-specific associations (Herz and Diamantopoulos 2013) and that women are more likely than men to identify correctly a brand's country of origin (Balabanis and Diamantopoulos 2008). However, common to all these studies is that the observed gender differences are never hypothesized *a priori* (in other words, gender is used only as a control or a descriptive variable). Indeed, international studies of consumer behavior, including international segmentation studies, often report null effects of gender, likely because gender is seldom the research focus in such studies, so its effects are not accounted for theoretically (see, e.g., Ashraf, Thongpapanl, and Auh 2014; Herz and Diamantopoulos 2017; Hofstede, Steenkamp, and Wedel 1999; Morgeson, Sharma, and Hult 2015). An exception is Cleveland, Laroche, and Papadopoulos (2009), who show that men are less likely than women to hold cosmopolitan consumer values because men care more about agentic goals, such as self-assertion and mastery.

Yet an important theoretical question remains: What causes gender differences in information-processing strategies and, particular to our research, shopping styles. Men and women may have been socialized to perform different shopping roles, or their styles may be driven by innate differences in male and female psychology. Note that research on perception in cognitive psychology and in consumer behavior demonstrates differences in information-processing strategies, but it does not explain them (Meyers-Levy and Loken 2015). Considering that our female ancestors were gatherers and our male ancestors were hunters (Tooby and Cosmides 2005) and that society conditions men and women into different gender-specific roles, we next examine how evolutionary psychology can explain gender shopping styles and then how sociostructural theory might explain how these styles have changed over time.

**Theory and Hypotheses**

A possible explanation for gender differences in shopping styles is that, similar to other observed differences in male and female psychology, these differences are a result of socialization (Gentry, Commuri, and Jun 2003). Social structures and the different roles that men and women have traditionally held in the workplace, in institutional settings, and in families contribute to gendered behavior. How men and women view themselves has been largely determined by cognitions acquired in childhood and defined by then-current socially and culturally constructed prototypical "male" and "female" behaviors (Bem 1974; Wood and Eagly 2012). Consequently, it is possible that different gender shopping styles are examples of "learned" behaviors.

Evolutionary psychology, however, posits that psychological differences between men and women should be relatively stable across societies because human psychology was shaped by the universal need to evolve and adapt to survive (Broom 1933). If differences between male and female shoppers are stable across societies, it may be that such differences are intrinsic rather than socially constructed. On a continuum representing the evolution of the human race, 98% would characterize humans as hunters and gatherers who seek to survive and reproduce in relatively open landscapes (Orians 1980). According to the Savanna Hypothesis (Broom 1933), for males, survival and finding a mate meant becoming good hunters; in contrast, females needed to excel at gathering the best food for the family. Miller (2001) argues that, in consumer societies, gathering translates into comparison shopping and hunting into earning money to support the family. If there is truth in this claim, then women might be "better" shoppers than men because they have evolved that way, and as the gender equality gap narrows, men might perhaps "catch up" on their shopping effectiveness and enjoyment. If this logic holds, we would expect female shoppers to behave more like "gatherers" (i.e., browsers who like the company of fellow shoppers) and male shoppers to behave more like "hunters" (i.e., purpose-driven loners who want to get the job done). However, even if the differences are biological inevitabilities, they may still be moderated by socialization.

Eagly and Wood (1999) question whether gender differences arise from evolution or from societal roles. If women have to spend considerable time at home nursing children and shopping for the family, they can devote little time to developing other specialized skills. "To the extent that traditional sexual division between wage labor and domestic labor disappears and women and men become similarly distributed into paid occupations, men and women should converge in their psychological attributes" (Eagly and Wood 1999, p. 421). In support of Eagly and Wood's (1999) argument, cross-national studies indicate that "gender differences in mate preferences (with presumed evolutionary roots) decline proportionally to increases in nations' gender parity" (Zentner and Mitura 2012, p. 1176). The modern drivers of convergence are illustrated by findings that, in the United States, younger men and men in households in which the woman works full time are more likely to be involved in meal planning and preparation, though not necessarily in shopping, which remains fairly consistent at 27% male participation (Harnack et al. 1998).

Previous research suggests that innate gender-related hardwired behaviors (e.g., the female tendency to be more empathetic) are changeable with changes that are taking place in the socialization process (Phillips 2006). Eagly and Wood (1999) point out that gender differences tend to be reduced in high-gender-equality societies, such as Scandinavian ones. Applying Eagly and Wood's (1999) argument to shopping styles, we argue that the differences between males and females should be less prominent in high-gender-equality societies. However, more gender-equal countries, such as the Scandinavian ones, also tend to be wealthier (there is a positive correlation between gender equality and gross domestic product (GDP) per person; World Economic Forum 2013). In more prosperous societies, individual needs typically take precedence over collective needs (Burgess and Nyajeka 2006), leading to a greater influence of intrinsic, individual gratification on shopping motivations (Evanschitzky et al. 2014). Greater autonomy and egalitarianism, coupled with greater social and economic independence, result in greater autonomy among men and women in wealthy, high-gender-equality countries.

In typical Western families, women gaining power has also changed internal family dynamics (Edgar 1997) and has perhaps driven males and females further apart in their shopping behavior. Women in high-gender-equality countries not only have more money and freedom (than they traditionally have had) to shop; they also care more about it. For example, shopping has a greater social and symbolic value for women than it does for men (Bakewell and Mitchell 2004). Evidence from New Zealand indicates that young adult women are more likely to express—through the products they purchase—their status, uniqueness, and age than young adult men (Renu, Hyde, and Lee 2012).

Diary-based research demonstrates that in developed Western countries, women's share of unpaid work (e.g., housework, cooking, cleaning) has been decreasing since the early 1960s while men's share has been increasing. This decline in the amount of unpaid work performed by women has been offset by a growth in time spent shopping (Gershuny, Sullivan, and Robinson 2014). Sociologists also argue that in modern Western societies, socializing is often expressed through shopping (Ritzer 2009). Shopping-related socializing rituals still tend to be gender-specific, despite the increasing presence of women in the workforce and the impact of second-wave feminism on contemporary social conditions (Coskuner-Balli and Thompson 2013). Such research draws its data from Western sources, yet contemporary non-Western individuals are more likely to embrace Western values and brands than the other way around, creating further momentum in the globalization trend (Alden, Steenkamp, and Batra 2006; Guo 2013; Zhou and Hui 2003). However, women in societies with less gender equality likely have less economic power and less time to shop.

Therefore, we argue that men's and women's shopping styles reflect their respective, evolutionary determined societal roles—that is, hunters and gatherers. However, gender equality and economic development magnify the differences between gendered shopping styles because greater economic power enables women to enjoy and appreciate shopping more than in less gender-equal countries. We summarize the preceding arguments in the following hypothesis:

$H_1$: Differences in shopping styles between women and men are greater in gender-equal societies than in gender-unequal societies.

This hypothesis is, in effect, the reverse of Eagly and Wood's (1999) convergence argument.

**Empathizing and Systemizing Traits**

We argue that men and women cannot easily escape their evolution-based nature, and how they shop reflects their hardwired tendencies to be hunters and gatherers. Specifically, we theorize that "empathizing" and "systemizing," reported to be typical hardwired female and male traits, respectively (Baron-Cohen et al. 2003), affect how men and women shop. The *Oxford English Dictionary* (2015) defines empathy as "the ability to understand and share the feelings of another." Empathizing represents a person's skill in "spontaneously and naturally tuning in to [another] person's thoughts and feelings" (Baron-Cohen 2004, p. 23). Systemizing refers to an individual's spatial and mechanical skills (Baron-Cohen 2004). According to Eagly and Wood's (1999) argument (a sociocultural explanation of differences between male and female psychology), societies have charged women with caring for infants. Thus, the socialization of

girls emphasizes nurturing, or the acute ability to empathize. Extending Eagly and Wood's (1999) argument, societies tend to expect men to do those tasks that women have not been socialized to do, namely, those that require systemizing skills.

Therefore, women may be more inclined to rely on empathy when interpreting various social situations. These situations once included collective food gathering trips and share similarities with, for example, shopping trips in our modern world. Note that women care more about the social aspects of shopping than men (Bakewell and Mitchell 2004; Kotzé et al. 2012), and women, more so than men, view shopping as an opportunity to socialize, irrespective of the societal context (Noble, Griffith, and Adjei 2006). The ability to systemize, however, is important for hunters, who tend to have a specific, well-defined goal that may translate into the typical behavior of male shoppers.

Female empathizers are likely to exhibit a more feminine shopping style, which is characterized by enjoying the shopping activity for its own sake (Noble et al. 2006) and by socializing with other shoppers and sales personnel, which likely includes "reading" and interpreting others' feelings. Thus, empathizing mediates the relationship between gender and shopping style.

$H_{2a}$: Empathizing mediates gender shopping styles such that women who are high empathizers are more likely to be rated more feminine on shopping style; conversely, men who are low empathizers are more likely to be rated more masculine (i.e. less feminine) on shopping style.

Similarly, male systemizers are likely to exhibit a more masculine shopping style because in a retailing context, they are needs-driven (Noble et al. 2006) and focus on reaching their goals efficiently, navigating the retail space ably, and minimizing the amount of time required to make a purchase. Thus, systemizing mediates the relationship between gender and shopping style. Formally:

$H_{2b}$: Systemizing mediates gender shopping styles such that women who are low systemizers are more likely to be rated more feminine on shopping style; conversely, men who are high systemizers are more likely to be rated more masculine (i.e. less feminine) on shopping style.

We expect that men and women will be closer in their abilities to empathize and to systemize in low-gender-equality societies than in high-gender-equality societies. To support this claim, we offer two arguments. First, in lower-gender-equality societies, which are also relatively poorer according to the World Economic Forum (2013), men and women, in general, depend more on each other. Second, individuals in poorer societies tend to have little "me" time. Their days revolve around satisfying the needs of the entire (often larger) family (Gershuny, Sullivan, and Robinson 2014; Harnack et al. 1998). They search for deals and seek greater value for their money. Women in such societies are reported to have less leisure time than women in more gender-equal societies (Manrai and Manrai 1995). Thus, we expect that women in lower-gender-equality societies are more acute systemizers than women in higher-gender-equality societies.

We argue that compared with lower-gender-equality societies, consumers in higher-gender-equality societies—both empathizers and systemizers—have fewer constraints on expressing their evolutionarily determined characters through shopping. This greater gender gap with respect to empathizing in wealthier, higher-gender-equality societies will lead to a stronger influence of empathizing on shopping style.

$H_{3a}$: Social context moderates the mediating effect of empathizing, such that the effect of empathizing—that is, the degree of mediation—on shopping style is greater in higher-gender-equality societies than in lower-gender-equality societies.

We have noted the increased tendency of females in poorer, less-gender-equal societies to systemize relative to females in wealthier, more-gender-equal societies; males and females are therefore more similar with respect to systemizing in less-gender-equal societies. In other words, systemizing is more of a differentiator and the gender gap related to systemizing is more influential in wealthier, high gender equality societies.

$H_{3b}$: Social context moderates the mediating effect of systemizing, such that the effect of systemizing—that is, the degree of mediation—on shopping style is greater in higher-gender-equality societies than in lower-gender-equality societies.

## METHOD

A literature search identified measurement items that describe male and female shoppers reported in prior research (Babin, Darden, and Griffin 1994; Bakewell and Mitchell 2004; Sproles and Kendall 1986; Wesley, LeHew, and Woodside 2006). We subjected those items to two stages of purification, first based on Cronbach's alphas and second based on exploratory factor analysis (EFA), using respondents from several countries (see Web Appendix A for further information on scale purification). We confirmed the dimensions using EFA followed by confirmatory factor analysis (CFA) on a holdout

sample that, again, included respondents from several countries. To demonstrate the degree to which gender shopping style is distinct from empathizing and systemizing, we evaluated construct reliability and discriminant validity. Finally, we evaluated model fit and metric equivalence across four groups: Spanish, U.K.–Caucasian, U.K.–South Asian, and Chinese respondents. We also applied the purification procedures to the empathizing and systemizing scales.

In the U.K.-based sample, we assigned the respondents to Caucasian and South Asian origin groups to account for sociocultural idiosyncrasies of the two groups and any possible impact on the socialization—and therefore on the shopping styles—of members of the respective ethnic groups. According to U.K. census data, Caucasians account for 87.1% of the U.K. population (Office for National Statistics 2013), with the second-largest ethnic group being people of a South Asian origin (i.e., those from of an Indian, Pakistani, or Bangladeshi origin). This group accounts for 4.9% of the U.K. population. Of all the U.K. inhabitants with an Asian origin, South Asians account for 70.4%. Considering these percentages, it is unlikely that the ethnic origin of our U.K.-based respondents will affect the results. Nevertheless, we control for this possibility by splitting the U.K. sample as described. We do not have a similar control in the samples from the other countries. Compared with the United Kingdom, other countries in our sample are either more ethnically homogeneous or do not have a dominant ethnic minority, and the United States is a "melting pot," a nation of immigrants fully assimilated into a common culture (Fearon 2003).

**Questionnaire Design**

The questionnaire used five-point Likert scales. We used a set of 14 questions for female shopping style, 3 of which were "reverse coded" (for further information, see Web Appendix A). To reduce response bias, we added an additional 7 "reversed" (i.e., more masculine) shopping-style questions to alternate with the female shopping-style questions (we omit these additional 7 questions from Web Appendix A in the interest of brevity), yielding 21 items in total. The items thus indicate gender shopping style, with more *feminine* shopping styles having *higher* values and more *masculine* shopping styles having *lower* values. Henceforth, then, we refer to this variable simply as "shopping style."

To measure empathizing and systemizing, we included scales based on simplified versions of Baron-Cohen's (2004) "Empathy Quotient" and "Systemizing Quotient" (for further information, see Web Appendix A). We avoided global scales of femininity and masculinity—such as the Bem Sex-Role Inventory (Bem 1974), the Personal Attributes Questionnaire (Spence and Helmreich 1978), and the Femininity scale of the California Psychological Inventory (Torki 1988)—because these measure constructs that are not innate but result mainly from social conditions. We aimed to apply scales that are reasonably stable across societies.

The systemizing scale includes the items that not only tap into spatial navigation and orientation (e.g., map reading skills), which we argue are positively related to the male shopping style, but also tap into other conceptually related, typical male "hardwired" skills such as grasp of machinery and do-it-yourself (DIY) skills. Although these skills may not be directly related to gender shopping styles in general, we include them in our measurement of systemizing for two reasons. First, they are a part of the original SQ scale (Baron-Cohen 2004). Second, and more important theoretically, men are evolutionary predisposed to acquire these conceptually interrelated skills. Analogous to any priming procedure whereby a prime triggers conceptually related knowledge structures or skills (Barsalou 2008), men's spatial and mechanical skills "prime" how they shop—that is, purposefully and efficiently. To reduce hypothesis guessing and common method variance, we alternated the "empathizing" and "systemizing" questions. We report the final set of items in Table 1.

To obtain a useful sample subject to cost constraints and the absence of a sampling frame, we employed a snowball sampling procedure. We recruited new respondents by e-mailing an electronic version of the questionnaire to a convenience sample of marketing and retailing academics across multiple countries. We asked them to either complete the questionnaire or invite their students and colleagues to do so. Overall, 51% of the respondents were female. As the country breakdown suggests (see Web Appendix B), the respondents tended to be younger than the general population across the countries sampled and household income (reported in British pounds equivalent) was distributed relative evenly across income levels. Most respondents were either students (50%) or employed (44%), with the majority having administrative, managerial, or supervisory positions. Broadly speaking, therefore, the respondents can be described as opinion leaders, which is useful for this study because they influence other consumers and, as such, hold particular interest for international marketers. In short, the sample is adequate and relevant to the study's objectives (Cleveland, Papadopoulos, and Laroche 2011).

The resulting sample facilitated evaluation by EFA and CFA across the following ethnic groups: Spanish (n = 981), U.K.–Caucasian (n = 528), U.K.–South Asian (n = 328), and Chinese (n = 147). As we anticipated, splitting the U.K. sample into two segments did not affect our results. We used EFA and CFA to assess the discriminant validities of the shopping, empathizing, and systemizing constructs. We first subjected the data to the EFA, confirming a stable three-factor structure—shopping style, empathizing, and systemizing—for each group. A three-factor solution explains 42%–

53% of the variance in the data depending on the country (12%–17% is captured by the shopping-style factor, 16%–19% by the empathizing factor, and 12%–15% by the systemizing factor, depending on the country). Importantly, the dimensions hold consistently in a holdout sample (n = 2578), consisting only of respondents not included in the earlier calibration stages (see Table 1).

**Insert Table 1 about here**

**Confirmatory Factor Analysis (CFA)**

Next, we carried out a CFA on the holdout sample, which yielded a good fit ($\chi^2$ = 753, d.f. = 116; comparative fit index [CFI] = .921; root mean square error of approximation [RMSEA] = .046), with all items loading greater than .5. We also established discriminant validity, as the average variance extracted (AVE) for each of the three constructs was greater than the squared correlation between them. A multigroup CFA investigated whether the item loadings were invariant between the four largest respondent-assigned ethnic groups. We dropped items with loadings less than .5 (compare Table 1 with Figure 1). The resulting measurement model, with four items remaining per construct, yielded a good fit for the holdout sample ($\chi^2$ = 220, d.f. = 51; CFI = .966; RMSEA = .036). Discriminant validity was again demonstrated on the final purified scales.

**Cross-Cultural Measure Equivalence**

In a repeated multigroup analysis ($\chi^2$ = 547, d.f. = 255; CFI = .941; RMSEA = .023), the item loadings for shopping and empathizing were invariant between the four groups (Spanish, U.K.–Caucasian, U.K.–South Asian, and Chinese) ($p$ > .05). We achieved partial metric invariance ($\Delta\chi^2$ = 39, $\Delta$d.f. = 4, $p$ = .073) for systemizing by releasing the constraints of equality on the items "I usually find it easy to understand instruction manuals" and "If there was a problem with my home electrical wiring, I'd be able to fix it myself." These results indicate that (for groups with sufficient observations) the measures are configurally and metrically equivalent across the ethnic groups (except that for systemizing, metric invariance is partial) (Krautz and Hoffmann 2017).

**Common Methods Variance (CMV)**

To address the possibility of CMV, we used a marker variable (Podsakoff et al. 2003), respondents' sexual orientation (i.e., heterosexual/homosexual). No significant relationship emerged between the marker variable and the latent variables, indicating that common method bias does not adversely affect the results (for additional details, see Web Appendix D).

**Overall Means of the Scales**

The overall mean of the shopping-style scale was 3.35 for females versus 2.70 for males (F(1, 3129) = 469, $p$ < .001, with a Cohen's $d$ effect size of .712). The means for females for each of the four ethnic groups, as well as for Taiwan (n = 96), Greece (n = 85), and the United States (n = 65), were significantly higher than means for males (all $p$s < .001, except for Taiwan: $p$ < .05). Overall, 69.4% of the male respondents scored at or below the median (3.00) for shopping style, whereas 60.9% of the female respondents scored at or above the median.

The overall mean of the empathizing scale was 3.74 for females versus 3.49 for males (F(1, 3129) = 228, $p$ < .001, with a Cohen's $d$ effect size of .413). The means for females for each of the four ethnic groups, as well as for Taiwan (n = 96), Greece (n = 85), and the United States (n = 65), were higher than means for males. Overall, 68.8% of the male respondents scored at or below the median (3.75) for empathizing, whereas 63.6% of the female respondents scored at or above the median.

The overall mean of the systemizing scale was 2.67 for females versus 3.39 for males (F(1, 3129) = 760, $p$ < .001, with a Cohen's $d$ effect size of .863). The means for females for each of the four ethnic groups, as well as for Taiwan (n = 96), Greece (n = 85), and the United States (n = 65), were significantly lower than means for males (all $p$s < .001, except for the United States: $p$ < .1). Overall, 77.4% of the male respondents scored at or above the median (3.00) for systemizing, whereas 73.6% of the female respondents scored at or below the median. The mean values of the three constructs—shopping style, empathizing, and systemizing—for men and women within each country (or ethnic group) appear in Web Appendix C.

These results demonstrate criterion validity of the shopping-style, empathizing, and systemizing scales in that the differences between the means for women and men are consistently in the expected directions (albeit two of the differences for empathizing and one for systemizing do not reach the threshold for significance).

**HYPOTHESIS TESTING**

Although we do not express our hypotheses in terms of cultural dimensions, we note that the 11 countries in our sample vary substantially on Hofstede's (2003) cultural constructs that might be related to shopping styles—specifically,

masculinity, indulgence, and individualism. Indulgent societies allow relatively unimpeded gratification of human desires related to enjoying life and having fun. Thus, individuals from countries that are more masculine (vs. feminine) and restrained (vs. indulgent) may have a more generally utilitarian, masculine shopping style. Also, men and women in collectivist societies may be more similar in their shopping styles than their counterparts in individualistic societies.

According to the data available at www.hofstede-insights.com, our sample contains countries that score very high on masculinity (e.g., the United States scores 91, the United Kingdom scores 89), in the middle third (e.g., Germany scores 67, Spain scores 51, and Japan scores 46), and at the bottom (e.g., China and Thailand each score 20, Taiwan scores 17). Similarly, the countries in our sample vary on indulgence and individualism, as well as on the remaining three cultural dimensions (Hofstede 2003). Therefore, it is beneficial to use these countries to test our hypotheses for two reasons. First, they provide a stringent setting for testing our hypotheses. Second, if gender shopping styles vary across these countries as we predict, our findings are more likely to hold globally.

In our hypotheses development, we also made an implicit assumption that gender equality and GDP are positively related (as reported by the World Economic Forum 2013). Although the relationship between gender equality and GDP is not essential for our hypothesis testing, we note that they are positively correlated in our sample ($r = .48$ at $p = .06$), notwithstanding a small sample and two outliers: Japan (a wealthy, but gender-unequal country) and Thailand (a relatively poor, but gender-equal country) (World Economic Forum 2013).

**Data Analysis**

First, we divided the data into two groups of high and low gender equality. There is no simple definition of gender equality or inequality, but we use the quantitative measure based on four broad dimensions from the World Economic Forum (2013): health, economy, education, and politics. More details of the components of these dimensions appear in Web Appendix D. We split the sample at the median (.7266 on the World Economic Forum [2013] scale). We examined a gender-balanced (low-gender-equality sample: 50.1% female; high-gender-equality sample: 50.0% female) quota sample, drawn by random sampling from the total data set (n = 2,162) (van Herk, Poortinga, and Verhallen 2005). The means comparisons for the hypotheses tests are based on the quota sample, and consequently the values differ slightly from those of the overall sample reported in the "Overall Means of the Shopping, Empathizing, and Systemizing Scales" subsection and in Web Appendix C.

To test $H_1$, we analyzed the data with a 2 (males vs. females) × 2 (low vs. high gender equality) between-subjects analysis of covariance (ANCOVA), with shopping style, empathizing, and systemizing as dependent variables and including the control variables income and age as covariates as well as marital status (single vs. not single). We controlled for these covariates because higher-income consumers could have a more feminine shopping style (i.e., more hedonic, enjoying shopping for its own sake, and spending more money) as higher income might lead to a stronger influence of intrinsic, individual gratification on a person's shopping motivations (Evanschitzky et al. 2014). Younger shoppers might have a more feminine shopping style because they tend to care more about social and self-expressive elements of shopping than older people (Bakewell and Mitchell 2004; Renu et al. 2012), which is to say that older consumers could have a more masculine shopping style, with purchases that tend to be less exploratory, arousal seeking, and experiential and more utilitarian and cognitively driven (Steenkamp, Hofstede and Wedel 1999). Similarly, married shoppers may exhibit a more utilitarian style than that of single consumers. We ran an ANCOVA to test for differences between group means when an extraneous variable (gender) affects the outcome variable (shopping style) and to control for other known extraneous covariates.

**Results**

*Shopping Style*. Of the control variables, only age was significant. Therefore, we reran the ANCOVA after dropping income and marital status. Note that the results change very little, and not significantly, when we do not control for age, but we report the results of the ANCOVA rather than an analysis of variance (ANOVA). The ANCOVA revealed a significant main effect of gender on shopping style ($M_{women} = 3.37$ vs. $M_{men} = 2.69$ [values adjusted for the control covariate]; $F(1, 2157) = 357$, $p < .001$). The interaction between gender equality and gender was also significant ($F(1, 2157) = 12.3$, $p < .001$) (see Table 2). The difference in shopping styles between women and men was greater when there was high gender equality ($M_{female} = 3.43$ vs. $M_{male} = 2.62$; $t(1079) = 3.3$, $p < .001$; mean difference between the sexes = .81, and Cohen's $d = .92$) than when there was low gender equality ($M_{female} = 3.32$ vs. $M_{male} = 2.76$; $t(1079) = 3.3$, $p < .001$; mean difference between the sexes = .56, and Cohen's $d = .68$). These results support $H_1$.

**Insert Table 2 about here**

*Empathizing*. With regard to empathizing and shopping style, the only control variable that was significant was age, and we reran the ANCOVA after dropping income and marital status. Again, the results change very little and not

significantly when we do not control for age. The ANCOVA revealed a significant main effect of gender on empathizing (see Table 2). As we expected, women are more acute empathizers ($M_{women}$ = 3.74 vs. $M_{men}$ = 3.49 [values adjusted for the control covariate]; F(1, 2157) = 95.3, $p < .001$). Gender equality and gender interacted significantly to influence empathizing (F(1, 2161) = 15.7, $p < .001$). In line with our expectations, the difference in the degree of empathizing between women and men was greater when there was high gender equality ($M_{female}$ = 3.78 vs. $M_{male}$ = 3.41; t(1060) > 3.3, $p < .001$; mean difference between the sexes = .37, and Cohen's $d$ = .58) than when there was low gender equality ($M_{female}$ = 3.71 vs. $M_{male}$= 3.56; t(1071) > 2.6, $p < .01$; mean difference between the sexes = .15, and Cohen's $d$ = .26).

*Systemizing*. None of the control variables was significant, and accordingly we reran the ANOVA without them. Men are more acute systemizers ($M_{men}$ = 3.39 vs. $M_{women}$ = 2.64; F(1, 2158) = 535.0, $p < .001$). Gender equality and gender interacted significantly to influence systemizing (F(1, 2158) = 10.0, $p < .01$). Also in line with our expectations, the difference in the degree of systemizing between women and men was greater when there was high gender equality ($M_{female}$ = 2.56 vs. $M_{male}$= 3.41; t(1079) = 17.3, $p < .001$; mean difference between the sexes = .85, and Cohen's $d$ = 1.05) than when there was low gender equality ($M_{female}$ = 2.72 vs. $M_{male}$ = 3.37; t(1079) = 15.4, $p < .001$; mean difference between the sexes = .64, and Cohen's $d$ = .94).

*Mediation Analysis.* To test $H_2$ and $H_3$, we estimated structural equation models (SEMs) using the data set that contained the low- and high-gender-equality samples (total n = 2,162). First, we found a significant ($p < .001$) positive correlation between gender and shopping style ($R^2$ for shopping style = .208, with a standardized direct path coefficient of gender on shopping style of .456) in the absence of the mediation paths. As we predict in $H_1$, women score higher on the gender-shopping-style scale than men (i.e., women shop more often and are more hedonic shoppers; they also spend more time shopping and visit more stores than men).

Next, we estimated a SEM that included the potential mediators of empathizing and systemizing between gender and shopping style. The SEM facilitated the simultaneous examination of the relationships among the measured and latent constructs. Initially, we included the control variables age, income, and marital status as drivers of shopping style. Income and marital status were nonsignificant, and thus we dropped them from the model. This modified model, including age as a control variable, yielded a good fit ($\chi^2$ = 340, d.f. =72; CFI = .953; RMSEA = .041). Predictably, age was negatively correlated with the shopping style; the older the consumers, the more likely they were to exhibit a male shopping style. In other words, older consumers tended to shop based on necessity and were more utilitarian (vs. hedonic).

More important, the mediation paths were significant ($p < .001$), with an $R^2$ of .241 for shopping style. The direct path from gender to shopping style remained significant, although the path coefficient fell to .319 (the Sobel test statistics were 3.09 for empathizing [$p < .01$] and 4.92 for systemizing [$p < .001$]), indicating a mediating effect, in support of both $H_{2a}$ and $H_{2b}$. The standardized path weights (including the age control variable) appear in the right-hand column in Table 3.

**Insert Table 3 about here. Insert Figure 1 about here**

To investigate the moderation effect of high versus low gender equality, we ran multigroup analyses between the high- and low-gender-equality groups (again, we relaxed the constraints of equality on two indicators of systemizing; i.e., metric invariance was partial for systemizing) (see Table 3).The results demonstrate that all mediation paths are significantly stronger for high gender equality than for low gender equality, indicating that moderation is significant (Sobel test statistics for empathizing: high gender equality = 3.30, $p < .001$; low gender equality = .35, not significant [n.s.]; Sobel test statistics for systemizing: high gender equality = 5.16, $p < .001$; low gender equality = .25, n.s.), such that mediation is insufficient to reach significance for low gender equality. These results support $H_{3a}$ and $H_{3b}$. The direct effect of gender on shopping style is lower for the high-gender-equality sample than for the low-gender-equality sample due to higher mediation in the high-gender-equality sample; the total effect of gender on shopping style is greater under high gender equality (.669) than under low gender equality (.461). In addition, younger people rate more feminine on shopping style than older people, and the effect is significantly greater when there is high versus low gender equality.

In summary, the results indicate consistent patterns: (1) differences between men and women are greater than differences between countries, and (2) for all three variables—shopping, empathizing, and systemizing—differences between men and women under conditions of high gender equality are more pronounced than under low gender equality.

To compare our results more directly with Eagly and Wood's (1999) proposition on the distribution of men and women in paid employment, we also investigate the extent to which the observed differences in shopping style between men and women in each country (i.e., the dependent variable) are predicted by the country-specific "female economic participation and opportunity" dimension of the World Economic Forum (2013) scale. In the ordinary least squares model, we use the values for the countries for which we have at least 30 respondents (i.e., in addition to the United Kingdom, Spain, China, the United States, and Greece, we also use the data for Japan, Italy, France, Thailand, and Germany; note

that for Taiwan, we could not find relevant information on female economic participation, so in this regression model, we have 10 rather than 11 data points). We also add three more country-level controls to the model: individualism, masculinity, and indulgence scores for each country in the sample (data from www.hofstede-insights.com).

These values indicate a significant trend in the opposite direction to that which would be expected from Eagly and Wood's (1999) proposition that gender differences arise not from evolution but from societal roles. Instead, we observe that the greater the female economic participation in a society, the greater is the differences between the men and women in their shopping styles ($\beta = .63$, $R^2 = .40$, $t = 2.3$, $p$ (two-tailed) = .05). The estimated coefficients for individualism, masculinity, and indulgence are not significant (t = 1.29, .29, and 1.13, respectively; each $p > .2$). More importantly, after we replace overall gender equality with female economic participation and opportunity as the predictor, all hypotheses are again supported.

*Robustness of Gender Shopping Styles.* In the data set, we have additional demographic and lifestyle information. While this information is not theoretically critical for our predictions and the estimated model, it may nevertheless help us evaluate the robustness of gender shopping styles. Therefore, we also examine characteristics of "misclassified" shoppers in our sample—that is, men who "shop like women" and women who "shop like men."

We used additional ad hoc single-item self-reported measures, including the extent to which our respondents conform to stereotypes such as "the new man" (sensitive males who engage in housework, childcare, and so forth) or "the tomboy" (females who behave in a more traditionally boyish manner) and the extent to which they are asexual (i.e., not interested in or not wanting sex), androsexual (i.e., their style of personal appearance, minimizing sex and gender differences), and metrosexual (i.e., heterosexual males who pay particular attention to their personal appearance, grooming, and use of fragrance). For additional details pertaining to these measures, refer to Web Appendix D.

First, females with a more masculine shopping style (one standard deviation (SD) or more below the mean, 2.49 or below; i.e., "women who shop like men") are significantly older (61.8% were 25 years of age or more compared with 40.3% who were 25 years of age or more for those with more feminine shopping style, $\chi^2 = 42.1(4)$, $p < .001$) and significantly less likely to be single (57.5% were single vs. 73.1% for those with more feminine shopping style; $\chi^2 = 30.9(4)$, $p < .001$). This result is consistent with our theorizing: Compared with the shopping style of a younger single woman, that of an average older married woman tends to be more utilitarian and less hedonic, which is likely driven more by necessity-related concerns and therefore offers less opportunity for socialization.

In contrast, males with a more feminine shopping style (one SD or more above the mean, 3.55 or above; i.e., "men who shop like women") are significantly greater empathizers (3.65) than the more "typical" male (3.46; $F(1, 1518) = 15.6$, $p < .001$) and lower systemizers (3.23 vs. 3.42; $F(1, 1518) = 12.1$, $p = .001$). They are also significantly more likely to consider that they are "new (sensitive) men" (43.9% new men vs. 32.1% for others; $\chi^2 = 11.8(4)$, $p < .05$). In other words, these men exhibit gender transcendence when it comes to shopping styles (Otnes and McGrath 2001); that is, they consider shopping a pleasurable, social activity in itself, which is facilitated by their considerable empathizing skills.

Although self-reported scores on the gender-shopping-style scale cannot perfectly match the actual gender of our participants—not least because of the myriad possible individual differences we did not account for—it is important to stress that the proposed theory gives a good account of those discrepancies. Age, for example, affects the shopping styles of both genders in a predictable manner. Younger shoppers, both male and female, tend to exhibit a more feminine shopping style—as long as they are (relatively) low systemizers and have the necessary means—insofar as they tend to care more about the social and self-expressive elements of shopping than older people (Bakewell and Mitchell 2004; Renu et al. 2012). Similarly, older single women have a more feminine shopping style than older married women because they are relatively independent of the opposite sex, and as long as they have sufficient income, they can enjoy the hedonic and symbolic aspects of shopping. In general, the influence of age on shopping style is stronger in societies in which the two genders are more independent—that is, more prosperous, gender-equal countries.

## DISCUSSION AND IMPLICATIONS

Our results show that men's and women's shopping styles reflect their respective, evolutionarily determined, and societal roles as hunters and gatherers. Men and women cannot easily escape their evolutionary natures, and this affects how they shop as well, because they are hardwired to shop as hunters and gatherers and possess the relevant hardwired skills (i.e., systemizing and empathizing) that influence their shopping styles. Male shoppers behave like "hunters": they tend to be needs-driven and minimize the amount of time needed to make a purchase. They can do this because they are hardwired to be good systemizers. Analogously, women are hardwired to rely on their ability to empathize to interpret social situations, including shopping trips. Even though shopping is an activity that (as far as we know) has existed for only a couple of millennia or so, the capacity for empathizing and systemizing is likely as old as humans and has been determined largely by evolution; as a result, empathizing and systemizing can help predict how women and men will shop. Gender equality magnifies these differences. Because greater gender equality (and prosperity) make women less dependent on men, in

high-gender-equality countries, men and women are "truer" to their evolutionarily determined characters, at least when it comes to shopping. In such countries, men and women also differ to a greater extent in their respective capacities to empathize and systemize, which makes their shopping styles more divergent. Social conditions in high-gender-equality countries may "condition" both genders to express their innate identities through, among other things, differing shopping styles.

**Theoretical Implications**

Focusing on shopping style as a specific example of consumer behavior, our research demonstrates that men and women shop in a consistently different manner across various international markets. We also show that the differences in how they shop do not converge across international markets with increasing gender equality. While our results are specific to the context we study—namely, gender shopping styles—our study nevertheless contributes to the stream of literature in international marketing that investigates whether globalization contributes to the convergence of consumption practices across countries (Askegaard, Arnould, and Kjeldgaard 2005; Papadopoulos and Martín Martín 2011; Sobh, Belk, and Gressel, 2014; Sobol, Cleveland, and Laroche 2018). Wilk (1998) acknowledges that consumer cultures differ between developing and developed countries, yet our results do not support Wilk's (1998) claim that, when applied to the shopping styles of men and women, international consumer behavior differences are diminishing with increasing globalization. Our results add specific support in respect of gender and shopping styles to Krautz et al. (2017) who support the standardization in general of international marketing across different countries but not different consumer segments, in that we find the differences between males and females to be greater than the differences between countries. Dawar and Parker (1999) have tried to explain the universality—rather than consistency—of specific consumer responses across international markets, but they report null effects of gender. Note that their sample was unbalanced (83.9% male) and their theoretical focus was cultural.

Our research also contributes to the literature on cross-country consumer behavior by offering another theoretical lens that might explain the consistency of specific consumer behaviors across international markets. The vast majority of studies of consumer behavior in international marketing have focused on consumers' behavioral inconsistencies across countries. Inevitably, such research favors cultural explanations for behavioral inconsistencies and idiosyncrasies (cf. Hofstede 2003). Our research proposes evolutionary theory (and evolutionary psychology) as an approach that complements culturally specific accounts of consumer behaviors across countries. We show that the differences between how women and men shop are predictably stable across international markets, and therefore these predilections are likely evolutionarily rather than socioculturally constructed. Importantly, however, social context (i.e., the country-specific level of gender equality) interacts with evolutionarily determined traits in shaping how women and men shop. In other words, the evolutionary explanation complements the sociostructural explanation.

On a more general level, social structural theory is a key theory that aims to explain gendered behavior. Eagly and Wood's (1999) convergence hypothesis expresses the basic tenet of this theory: men's and women's psychologies should converge with increasing gender equality. In our opinion, the validity of the convergence hypothesis depends on a specific domain of gendered behavior. Applied to the context we study, this hypothesis would predict that men and women become more similar in their shopping styles as traditional gendered divisions between wage labor and domestic labor disappears, but our results show that this is not the case.

The evolutionary psychology perspective can benefit and enrich the study of consumer behavior (Pham 2013), and international markets are a natural setting for investigating consumer behavior phenomena that are possibly driven by evolutionary rationale. Research on attitude and behavioral differences between women and men often appears to favour evolutionary psychology or social structural theory. Our research bridges these two theoretical traditions. We agree with Cohen and Bernard (2013), who accept the notion that inherited factors drive many behaviors but also claim that socially mediated information transmission affects how consumers inherit behaviors. When it comes to shopping styles (as well as empathizing and systemizing), our results—especially the gender equality × gender interactions—stress "the importance of [sociocultural] explanations of consumer behavior that operate on an intermediate time scale: a longer timeframe than the typical psychological explanation favored today (e.g., information processing or behavioral decision theory), but a shorter timeframe than that of human evolution" (Pham 2013, p. 350). The issue that we address—gender shopping styles—is not one of nature *versus* nurture, but rather one of nature *and* nurture.

**Managerial Implications**

We have demonstrated shopping style, empathizing, and systemizing to each be one-dimensional latent variables, with scales stable across different countries (albeit the metric invariance of the systemizing scale is only partial). Being reflective, these scales are convenient and easy to administer because they can be represented by a small number of indicators. Thus, brand and retail managers can apply our research to their own customers to create profiles of their

shopping style and their characteristics, which in turn can inform their marketing and sales strategies. The stability of our scales across countries is important, not least as the development of online shopping has facilitated the global presence of most brands.

The results demonstrate that gender differences with respect to all three variables are greater than the differences between country-specific markets. Therefore, market segmentation strategies between women and men are more consequential than country-level segmentation strategies and argue for the potential of gendered global brands (e.g., apparel, cosmetics). Our results in general support country-level standardization but consumer segments-level adaptation (Krautz et al. 2017); specifically gender-based adaptation.

The differences between men and women are greater in high-gender-equality countries (i.e., typically Western) than in low-gender-equality countries. However, contemporary non-Western individuals are also influenced by Western consumer culture. Drawn to the "good life" promised by the dominant hegemony (Ustuner and Holt 2007), non-Western individuals are more likely to embrace Western cultural values than the other way around; they want to be able to afford its symbols (e.g., brands). As long as globalization and economic development keep progressing, there is a strong indication that gendered retail mixes developed in Western countries will be popular in less-developed countries.

Differences in shopping styles between women and men are mediated by the extent to which people empathize and systemize. While in many countries explicit sexism in marketing communications may be culturally undesirable (Orth and Holancova 2004; Sengupta and Dahl 2008), advertising for female-gendered offerings might emphasize empathizing aspects such as feelings and relationships, while male-gendered offerings might focus on systemizing attributes such as functionality and technological innovation.

## LIMITATIONS AND FUTURE RESEARCH

While this study examined general differences across a range of countries and cultural contexts, it is limited in that the country-specific sample sizes are small, except for the United Kingdom, Spain, and China. Nevertheless, the results support our predictions, albeit the predictive power and generalizability is somewhat limited.

For our main study, we recruited participants by e-mailing the questionnaire to colleagues at universities in different countries, who then recruited additional participants by forwarding these e-mails. It is therefore possible that our respondents have a better education, on average, than typical consumers in the countries in our sample, especially considering that 50% of respondents were students. If there is an "upward" education bias in our sample, however, it affects each country-specific group in a similar way, and yet our predictions are supported even under such circumstances.

We also note that the shopping styles of men and women are category specific. Men tend to care more than women about, for example, cars and technology (Dholakia and Chiang 2003). However, our theory can explain this "reversal" of shopping styles in few specific categories. Men possess the relevant hardwired systemizing skills—grasp and mastery of technology, spatial navigation, DIY skills—that enable them to be "better" shoppers than women in technical categories. Still, our results are appropriate for a broad category of shopping that we described in the questionnaire as "household products, clothing, cosmetics, groceries, etc."

While our results confirm how empathizing and systematizing mediate gender shopping style, we acknowledge that the influence of empathizing on men's shopping styles may be more ambiguous than how we theorize it. Our results show that men in relatively poor and lower-gender-equality societies are more strongly inclined to empathize than men in wealthier and higher-gender-equality societies. However, a different side to this argument may be that the former countries are usually characterized by a more traditional culture. In such cultures, men, even when prone to empathize, may not consider it appropriate to engage in activities usually associated with women, such as shopping. As such, the effect might be a more pronounced separation of gender roles, often leading to emotional detachment among men in less-gender-equal countries. However, this is an issue for further research.

Finally, even though culture—as captured with individualism, masculinity, and indulgence scores for each country in our sample—does not affect our results, we cannot completely rule out its possible influence. Research should sample more countries (and more shoppers in them) to explore this issue in greater depth.

## REFERENCES

Agarwal, James, Naresh K. Malhotra, and Ruth N. Bolton (2010), "A Cross-National and Cross-Cultural Approach to Global Market Segmentation: An Application Using Consumers' Perceived Service Quality," *Journal of International Marketing*, 18 (3), 18-40.

Alden, Danna L., Jan-Benedict E.M. Steenkamp, and Rajeev Batra (2006), "Consumer Attitudes Toward Marketplace Globalization: Structure, Antecedents and Consequences," *International Journal of Research in Marketing,* 23 (3), 227-39.

Ashraf, Abdul R., Narongsak (Tek) Thongpapanl, and Seigyoung Auh (2014), "The Application of the Technology Acceptance Model under Different Cultural Contexts: The Case of Online Shopping Adoption," *Journal of International Marketing*, 22 (3), 68-93.

Askegaard, Søren, Eric J. Arnould, and Dannie Kjeldgaard (2005), "Postassimilationist Ethnic Consumer Research: Qualifications and Extensions," *Journal of Consumer Research*, 32 (1), 160-70.

Babin, Barry J., William R. Darden, and Mitch Griffin (1994), "Measuring Hedonic and Utilitarian Shopping Value," *Journal of Consumer Research,* 20 (4), 644-56.

Bakewell, Cathy, and Vincent-Wayne Mitchell (2004), "Male Consumer Decision-Making Styles," *International Review of Retail, Distribution and Consumer Research,* 14 (2), 223-40.

Balabanis, George, and Adamantios Diamantopoulos (2008), "Brand Origin Identification by Consumers: A Classification Perspective," *Journal of International Marketing*, 16 (1), 39-71.

Baron-Cohen, Simon, Jennifer Richler, Dheraj Bisarya, Nhishanth Gurunathan, and Sally Wheelwright (2003), "The Systemizing Quotient (SQ): An Investigation of Adults with Asperger Syndrome or High-Functioning Autism, and Normal Sex Differences," *Philosophical Transactions of the Royal Society, Series B: Biological Sciences*, 358 (1430), 361-74.

Baron-Cohen, Simon (2004), *The Essential Difference: Men, Women and the Extreme Male Brain*. London: Penguin.

Barsalou, Lawrence W. (2008), "Grounded Cognition," *Annual Review of Psychology,* 59 (1), 617-45.

Bem, Sandra L. (1974), "The Measurement of Psychological Androgyny," *Journal of Consulting and Clinical Psychology,* 42 (2), 155-62.

Bolton, Ruth N., and Matthew B. Myers (2003), "Price-Based Global Market Segmentation for Services," *Journal of Marketing*, 67 (3), 108-28.

Broom, Robert (1933), *The Coming of Man: Was It by Accident or Design?* London: Witherby.

Burgess, Steven M., and Pfavai Nyajeka (2006), "Market Orientation and Performance at the Base of the Pyramid: The Case of Zimbabwean Retailers," in *MSI Reports*. Cambridge, MA: Marketing Science Institute, 89-115.

Central Intelligence Agency (2017), "The World Fact Book," (accessed October 10, 2017), https://www.cia.gov/library/publications/resources/the-world-factbook/print/textversion.html.

Chelminski, Piotr, and Robin A. Coulter (2007), "The Effects of Cultural Individualism and Self-Confidence on Propensity to Voice: From Theory to Measurement Practice," *Journal of International Marketing,* 15 (4), 94-118.

Cleveland, Mark, Michael Laroche, and Nicolas Papadopoulos (2009), "Cosmopolitanism, Consumer Ethnocentrism, and Materialism: An Eight-Country Study of Antecedents and Outcomes," *Journal of International Marketing,* 17 (1), 116-46.

Cleveland, Mark, Michael Laroche, and Nicolas Papadopoulos (2017), "You Are What You Speak? Globalization, Multilingualism, Consumer Dispositions and Consumption," *Journal of Business Research,* 68 (3), 542-52.

Cleveland, Mark, Nicolas Papadopoulos, and Michael Laroche (2011), "Identity, Demographics, and Consumer Behaviors: International Market Segmentation across Product Categories," *International Marketing Review*, 28 (3), 244-66.

Cohen, Joel B., and H. Russell Bernard (2013), "Evolutionary Psychology and Consumer Behavior: A Constructive Critique," *Journal of Consumer Psychology*, 23 (3), 387-99.

Coskuner-Balli, Gokcen, and Craig J. Thompson (2013), "The Status Costs of Subordinate Cultural Capital: At-Home Fathers' Collective Pursuit of Cultural Legitimacy Through Capitalizing Consumption Practices," *Journal of Consumer Research*, 40 (1), 19-41.

Dawar, Niraj, and Philip Parker (1994), "Marketing Universals: Consumers' Use of Brand Name, Price, Physical Appearance, and Retailer Reputation as Signals of Product Quality," *Journal of Marketing*, 58 (April), 81-95.

Dholakia, Rubby R., and Kuan-Pin Chiang (2003), "Shoppers in Cyberspace: Are They from Venus or Mars and Does It Matter?" *Journal of Consumer Psychology*, 13 (1/2), 171-76.

Eagly, Alice H., and Wendy Wood (1999), "The Origins of Sex Differences in Human Behaviour: Evolved Dispositions Versus Social Roles," *American Psychologist,* 54 (6), 408-23.

Eagly, Alice H., and Wendy Wood (2013), "The Nature–Nurture Debates 25 Years of Challenges in Understanding the Psychology of Gender," *Perspectives on Psychological Science,* 8 (3), 340-57.

Edgar, Don (1997), *Men, Mateship, Marriage*. Sydney: HarperCollins.

Evanschitzky, Heiner, Oliver Emrich, Vinita Sangtani, Anna-Lena Ackfeldt, Kristy E. Reynolds, and Mark J. Arnold (2014), "Hedonic Shopping Motivations in Collectivistic and Individualistic Consumer Cultures," *International Journal of Research in Marketing,* 31 (3), 335–38.

Fearon, James D. (2003), "Ethnic and Cultural Diversity by Country," *Journal of Economic Growth*, 8 (2), 195-222.

Gentry, James W., Suraj Commuri, and Sunkyu Jun (2003), "Review of Literature on Gender in the Family," *Academy of Marketing Science Review,* 1 (1), 1-18.

Gershuny, Jonathan, Oriel Sullivan, and J. Robinson (2014), "The Continuing 'Gender Revolution' in Housework," paper presented at the Perspectives on Time Use in the U.S. Conference, Maryland, USA (June 23-24).

Guo, Xiaoling (2013), "Living in a Global World: Influence of Consumer Global Orientation on Attitudes Toward Global Brands from Developed Versus Emerging Countries," *Journal of International Marketing*, 21 (1), 1-22.

Habimana, E., and L. Massé (2000), "Envy Manifestations and Personality Disorders," *European Psychiatry*, 15 (1), 15-21.

Hafstrom, Jeanne L., Jung S. Chae, and Young S. Chung (1992), Consumer Decision-Making Styles: Comparison Between United States and Korean young Consumers," *Journal of Consumer Affairs*, 26 (1), 146-58.

Harnack, Lisa, Mary Story, Brian Martinson, Dianne Neumark-Sztainer, and Jamie Stang (1998), "Guess Who's Cooking? The Role of Men in Meal Planning, Shopping, and Preparation in US Families," *Journal of the American Dietetic Association,* 98 (9), 995-1000.

Hassan, Salah S., Stephen Craft, and Wael Kortam (2003), "Understanding the New Bases for Global Market Segmentation," *Journal of Consumer Marketing*, 20 (5), 446-62.

Herz, Marc F., and Adamantios Diamantopoulos (2013), "Country-Specific Associations Made by Consumers: A Dual-Coding Theory Perspective," *Journal of International Marketing*, 21 (3), 95-121.

Herz, Marc F., and Adamantios Diamantopoulos (2017), "I Use It but I Will Tell You That I Don't: Consumers' Country-of-Origin Cue Usage Denial," *Journal of International Marketing*, 25 (2), 52-71.

Hiu, Alice, Noel Y. M. Siu, Charlie C. L. Wang, and Ludwig M. K. Chang (2001), "An Investigation of Decision-Making Styles of Consumers in China," *Journal of Consumer Affairs*, 35 (2), 326-45.

Hofstede, Geert (2003), *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations*, Thousand Oaks, CA: Sage Publications.

Hofstede, Frenkel T., Jan-Benedict E. M. Steenkamp, and Michel Wedel (1999), "International Market Segmentation Based on Consumer-Product Relations," *Journal of Marketing Research*, 36 (1), 1-17.

Inman, J. Jeffrey, Russell S. Winer, and Rosellina Ferraro (2009), "The Interplay Among Category Characteristics, Customer Characteristics, and Customer Activities on In-Store Decision Making," *Journal of Marketing*, 73 (5), 19-29.

Knowledge@Wharton, University of Pennsylvania (2007), "'Men Buy, Women Shop: The Sexes Have Different Priorities When Walking Down the Aisles," (accessed May 15, 2018), [available at http://knowledge.wharton.upenn.edu/article/men-buy-women-shop-the-sexes-have-different-priorities-when-walking-down-the-aisles/].

Krautz, Carolin, and Stefan Hoffmann (2017), "The Tenure-Based Customer Retention Model: A Cross-Cultural Validation," *Journal of International Marketing*, 25 (3), 83-106.

Kotzé, Theuns, Ernest North, Marilize Stols, and Lezanne Venter (2012), "Gender Differences in Sources of Shopping Enjoyment," *International Journal of Consumer Studies,* 36 (4), 416–24.

Lewis, Michael, Jeannette M. Haviland-Jones, and Lisa Fieldman Barrett (Eds.) (2010), *Handbook of Emotions*. New York: Guilford Press.

Luceri, Beatrice, and Sabrina Latusi (2012), "The Importance of Consumer Characteristics and Market Structure: Variables in Driving Multiple Store Patronage", *Journal of Retailing and Consumer Services*, 19 (5), 519-26.

Manrai, Lalita A., and Ajay K. Manrai (1995). "Effects of Cultural-Context, Gender, and Acculturation on Perceptions of Work Versus Social/Leisure Time Usage," *Journal of Business Research*, 32 (2), 115-28.

Meyers-Levy, Joan, and Barbara Loken (2015), "Revisiting Gender Differences: What we Know and What Lies Ahead," *Journal of Consumer Psychology,* 25 (1), 129-49.

Meyers-Levy, Joan, and Durairaj Maheswaran (1991), "Exploring Differences in Males' and Females' Processing Strategies," *Journal of Consumer Research*, 18 (1), 63-70.

Miller, Geoffrey (2001), *The Mating Mind: How Sexual Choice Shaped the Evolution of Human Nature*. London: Vintage.

Mitchell, Vincent-Wayne, and Gianfranco Walsh (2004), "Gender Differences in German Consumer Decision-Making Styles," *Journal of Consumer Behaviour,* 3 (4), 331-46.

Morgeson, Forest V., III, Pratyush N. Sharma, and G. Tomas M. Hult (2015), "Cross-National Differences in Consumer Satisfaction: Mobile Services in Emerging and Developed Markets," *Journal of International Marketing*, 23 (2), 1-24.

Nelson, Michelle R., Frederic F. Brunel, Magne Supphellen, and Rajesh V. Manchanda (2006), "Effects of Culture, Gender, and Moral Obligations on Responses to Charity Advertising Across Masculine and Feminine Cultures," *Journal of Consumer Psychology*, 16 (1), 45-56.

Noble, Stephanie M., David A. Griffith, and Mavis T. Adjei (2006), "Drivers of Local Merchant Loyalty: Understanding the Influence of Gender and Shopping Motives," *Journal of Retailing*, 82 (3), 177-88.

Office for National Statistics (2013), "2011 Census: Key Statistics and Quick Statistics for Local Authorities in the United Kingdom, KS201 UK Ethnic Group," (accessed November 20, 2017), https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/2011censuskeystatisticsandquickstatisticsforlocalauthoritiesintheunitedkingdompart1.

Orians, Gordon H. (1980), "Habitat Selection: General Theory and Applications to Human Behavior," in *The Evolution of Human Social Behavior*, J. S. Lockard, Ed. Chicago: Elsevier, 49-66.

Orth, Ulrich R., and Denisa Holancova (2004), "Men's and Women's Responses to Sex Role Portrayals in Advertisements," *International Journal of Research in Marketing,* 21 (1), 77-88.

Otnes, Cele, and Mary Ann McGrath (2001), "Perceptions and Realities of Male Shopping Behavior," *Journal of Retailing*, 77 (1), 111-37.

*Oxford English Dictionary* (2015), Oxford: Oxford University Press, (accessed June 15, 2017), http://www.oed.com/.

Papadopoulos, Nicolas, and Oscar Martin Martín (2011), "International Market Selection and Segmentation: Perspectives and Challenges," *International Marketing Review*, 28 (2), 132-49.

Passyn, Kirsten A., Memo Diriker, and Robert B. Settle (2011), "Images of Online Versus Store Shopping: Have the Attitudes of Men and Women, Young and Old Really Changed?" *Journal of Business and Economics Research,* 9 (1), 99-110.

Pham, Michel T. (2013), "Introduction to Research Dialogue on Evolutionary Psychology and Consumer Behavior," *Journal of Consumer Psychology*, 23 (3), 349-50.

Phillips, Debby A. (2006), "Masculinity, Male Development, Gender, and Identity: Modern and Postmodern Meanings," *Issues in Mental Health Nursing*, 27, 403–23.

Podsakoff, Philip, Scott MacKenzie, Lee Jeong-Yeon, and Nathan Podsakoff (2003), "Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies," *Journal of Applied Psychology*, 88 (5), 879–903.

Ramey, Valerie A. (2008). "Time Spent in Home Production in the 20th Century: New Estimates from Old Data," NBER Working Paper 13985 (April).

Renu, Emile, Kenneth F. Hyde, and Mike Lee (2012), "The Product Choices of Young Adult Consumers: Does Gender Matter?" *Advances in Consumer Research*, 40, 371-78.

Ritzer, George (2009), *Enchanting a Disenchanted World: Continuity and Change in the Cathedrals of Consumption*, 3rd ed. Thousand Oaks, CA: Sage Publications.

Schmitt, David P. (2012), "When the Difference Is in the Details: A Critique of Zentner and Mitura (2012), "Stepping Out of the Caveman's Shadow: Nations' Gender Gap Predicts Degree of Sex Differentiation in Mate Preferences," *Evolutionary Psychology: An International Journal of Evolutionary Approaches to Psychology and Behavior*, 10 (4), 720-26.

Schwartz, Shalom H. (2004), "Mapping and Interpreting Cultural Differences Around the World. in *Comparing Cultures: Dimensions of Culture in a Comparative Perspective*, H. Vinken, J. Soeters, and P. Ester, Eds. Boston: Brill, 43-73.

Sengupta, Jaideep, and Darren W. Dahl (2008), "Gender-Related Reactions to Gratuitous Sex Appeals in Advertising," *Journal of Consumer Psychology*, 18 (1), 62-78.

Sobh, Rana, Russell Belk and Justin Gressel (2014), "Mimicry and Modernity in the Middle East: Fashion Invisibility and Young Women of the Arab Gulf," *Consumption Markets & Culture*, 17 (4), 392-412.

Sobol, Kamila, Mark Cleveland, and Michel Laroche (2018), "Globalization, National Identity, Biculturalism and Consumer Behavior: A Longitudinal Study of Dutch Consumers," *Journal of Business Research*, 82 (1), 340-53,

Spence, Janet T., and Robert L. Helmreich (1978), *Masculinity and Femininity: Their Psychological Dimensions, Correlates, and Antecedents*. Austin: University of Texas Press.

Sproles, George B., and Elizabeth L. Kendal (1986), "A Methodology for Profiling Consumers' Decision-Making Styles," *Journal of Consumer Affairs*, 2 (2), 267-79.

Steenkamp, Jan-Benedict E. M., and Frenkel ter Hofstede (2002), "International Market Segmentation: Issues and Perspectives," *International Journal of Research in Marketing*, 19 (3), 185-213.

Steenkamp, Jan-Benedict E. M, Frenkel ter Hofstede, and Michel Wedel (1999), "A Cross-National Investigation into the Individual and National Cultural Antecedents of Consumer Innovativeness," *Journal of Marketing*, 63 (2), 55-69.

Tang, Linghui (2017), "Mine Your Customers or Mine Your Business: The Moderating Role of Culture in Online Word-of-Mouth Reviews," *Journal of International Marketing*, 25 (2), 88-110.

Tooby, John, and Leda Cosmides (2005), "Conceptual Foundations of Evolutionary Psychology," in *The Handbook of Evolutionary Psychology,* D. M. Buss, Ed. Hoboken, NJ: John Wiley & Sons, 5-67.

Torki, Mostafa A. (1988), "The CPI Femininity Scale in Kuwait and Egypt," *Journal of Personality Assessment*, 52 (2), 247-53.

United Nations (2015), "United Nations, Department of Economic and Social Affairs, Population Division. World Population Prospects: The 2015 Revision. (Medium variant)," (accessed November 15, 2017), https://www.populationpyramid.net.

Ustuner, Tuba, and Douglas Holt (2007), "Dominated Consumer Acculturation: The Social Construction of Poor Migrant Women's Consumer Identity Projects in a Turkish Squatter," *Journal of Consumer Research*, 34 (1), 41–56.

van Herk, Hester, Ype H. Poortinga, and Theo T. M. Verhallen (2005), "Equivalence of Survey Data: Relevance for International Marketing," *European Journal of Marketing*, 39 (3/4), 351-64.

Walsh, Gianfranco, Vincent W. Mitchell, and Thorsten Hennig-Thurau (2001), "German Consumer Decision-Making Styles," *Journal of Consumer Affairs*, 35 (1), 73-81.

Wesley, Scarlett, Melody LeHew, and Arch Woodside (2006), "Consumer Decision-Making Styles and Mall Shopping Behavior: Building Theory Using Exploratory Data Analysis and the Comparative Method," *Journal of Business Research*, 59 (5), 535-48.

Westjohn, Stanford A., Holger Roschk, and Peter Magnusson (2017), "Eastern Versus Western Culture Pricing Strategy: Superstition, Lucky Numbers, and Localization," *Journal of International Marketing*, 25 (1), 72-90.

Wilk, Richard (1998), "Emulation, Imitation, and Global Consumerism," *Organization & Environment*, 11 (3), 314-33.

Wood, Wendy, and Alice H. Eagly (2012), "Biosocial Construction of Sex Differences and Similarities in Behavior," in *Advances in Experimental Social Psychology*, M. P. Zanna, and J. M. Olso, Eds. San Diego: Academic Press, 55-123.

World Economic Forum (2013), *The Global Gender Gap Report 2013*. Geneva: World Economic Forum.

Zentner, Marcel, and Klaudia Mitura (2012), "Stepping Out of the Caveman's Shadow: Nations' Gender Gap Predicts Degree of Sex Differentiation in Mate Preferences," *Psychological Science*, 23 (10), 1176-85.

Zhou, Lianxi, and Michael K. Hui (2003), "Symbolic Value of Foreign Products in the People's Republic of China," *Journal of International Marketing*, 11 (2), 36-58.

**TABLE 1**
**Standardized Component Loadings for Four Groups and the Holdout Sample**

| | Spanish | U.K.–Caucasian | U.K. – South Asian | Chinese | Holdout |
|---|---|---|---|---|---|
| **Gender Shopping Style (Final Items)** | | | | | |
| Shopping (the whole process, not just buying) is a leisure activity | .643 | .750 | .685 | .699 | .674 |
| When shopping, I probably visit more shops than necessary | .593 | .636 | .671 | .715 | .567 |
| The social aspect of shopping is important for me | .591 | .655 | .654 | .552 | .644 |
| I shop more often than I really need to | .545 | .696 | .532 | .606 | .588 |
| I like to spend longer shopping than I really need to | .522 | .746 | .637 | .737 | .606 |
| *Variance explained* | *12.5* | *17.7* | *16.6* | *15.4* | *14.0* |
| | | | | | |
| **Empathizing** | | | | | |
| I am usually, good at predicting how someone will feel | .689 | .664 | .555 | .662 | .659 |
| I am good at understanding other people's thoughts and feelings | .686 | .719 | .611 | .658 | .685 |
| If someone in a group is feeling awkward or uncomfortable, I can spot it quickly | .624 | .664 | .575 | .579 | .608 |
| It is easy for me to put myself in another person's shoes | .603 | .659 | .581 | .559 | .624 |
| If someone says one thing but means another, I can usually tell quite quickly | .579 | .570 | .571 | .581 | .573 |
| I find it easy to see why some things upset some people so much | .537 | .678 | .628 | .613 | .595 |
| I find it easy to tell if someone else wants to join a conversation | .528 | .543 | .576 | .548 | .548 |
| *Variance explained* | *17.3* | *19.8* | *16.8* | *17.5* | *17.6* |
| | | | | | |
| **Systemizing** | | | | | |
| I am fascinated by how machines work | .624 | .723 | .683 | .625 | .630 |
| I like to read articles or web pages about new technology | .593 | .664 | .597 | .601 | .601 |
| I usually find it easy to understand instruction manuals | .562 | .655 | .601 | .606 | .590 |
| I find maps easy to read and understand | .533 | .573 | .617 | .705 | .582 |
| If there was a problem with my home electrical wiring, I'd be able to fix it myself | .525 | .562 | .573 # | .647 | .549 |
| *Variance explained %* | *12.2* | *15.8* | *14.5* | *15.6* | *13.2* |
| | | | | | |
| *Total variance explained %* | *42.0* | *53.3* | *47.9* | *48.5* | *44.8* |

Notes: Principal component analysis; rotation: varimax. There are no cross-loadings above .3 except # (cross-loads on empathizing .354).

**TABLE 2**
**Shopping Style, Empathizing, and Systemizing: Average Values for Women and Men by High and Low Gender Equality (Adjusted for Age Covariate)**

| | Low Gender Equality (n =1,081) | High Gender Equality (n = 1,081) | |
|---|---|---|---|
| **Shopping Style** | | | Average (for each sex) |
| Women | 3.32 | 3.43 | 3.37 |
| Men | 2.76 | 2.62 | 2.69 |
| Effect size Cohen's *d* (within each gender equality group) | .68 | .92 | |
| **Empathizing** | | | |
| Women | 3.71 | 3.78 | 3.74 |
| Men | 3.56 | 3.41 | 3.49 |
| Effect size Cohen's *d* (within each gender equality group) | .26 | .58 | |
| **Systemizing** | | | |
| Women | 2.72 | 2.56 | 2.64 |
| Men | 3.37 | 3.41 | 3.39 |
| Effect size Cohen's *d* (within each gender equality group) | .94 | 1.05 | |

Notes: All pair-wise comparisons between men and women within each gender equality group as well as the main effect of gender are significant at $p < .001$.

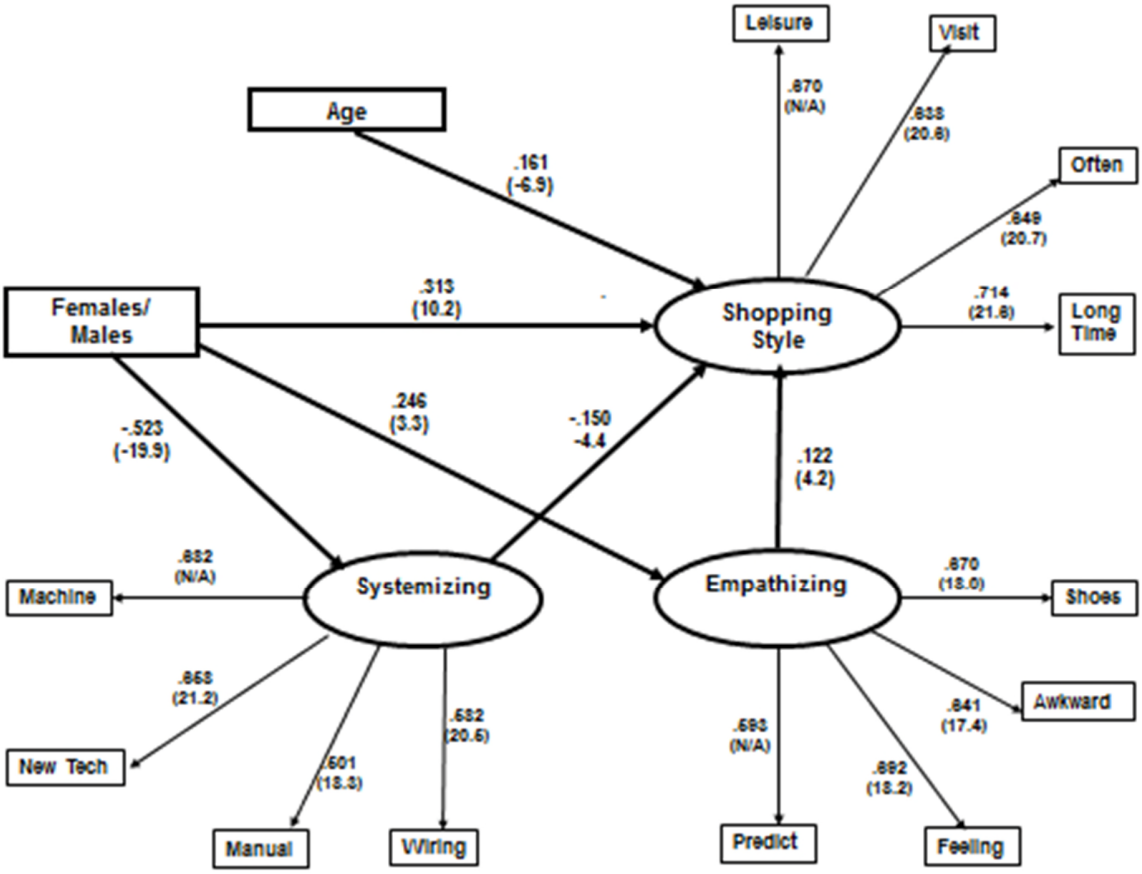
**TABLE 3**
**Moderation Tests: Invariance Analyses of Structural Paths Between High-Gender-Equality and Low-Gender-Equality Cultures**

| | $\Delta\chi^2$ | High-Gender-Equality Path (t) | Low-Gender-Equality Path (t) | Overall model Standardized path (t) |
|---|---|---|---|---|
| Sex → empathizing | 44.3 | .358 (8.9) | .158 (4.3) | .246 (9.3) |
| Empathizing → shopping | 47.2 | .235 (4.7) | .021 (.4) ns | .122 (4.2) |
| Sex → systemizing | 64.7 | –.995 (–15.7) | –.666 (–13.1) | –.523 (–19.9) |
| Systemizing → shopping | 40.8 | –.165 (–5.0) | –.013 (–.2) ns | –.150 (–4.4) |
| Sex → shopping | 38.1 | .421 (7.2) | .449 (8.0) | .319 (10.2) |
| Age → shopping | 47.4 | –.012 (–6.4) | –.007 (–3.4) | –.161 (–6.9) |

Notes: All $\Delta$d.f. = 13. All structural paths are significant at $p < .001$, except where stated otherwise. All structural paths are significantly different between high-gender-equality and low-gender-equality groups at $p < .001$.

**FIGURE 1**

**Shopping Style, Empathizing, and Systemizing: Relationships with Gender (Overall Model)**




Notes: Standardized coefficients (t-values); all *p*-values < .001. Method: ML; $\chi^2$ = 340, d.f. = 72, CFI = .953, RMSEA = .041. Male = 0, and female = 1.

# WEB APPENDIX

## WEB APPENDIX A

## ITEM PURIFICATION: SHOPPING STYLE, EMPATHIZING AND SYSTEMIZING SCALES

### Initial Item Generation

As reported in the 'Method' section of the main manuscript, a literature search identified an item bank of characteristics of male and female shoppers reported in prior research (see the item banks in this Web Appendix A below). The resulting items were subject to two stages of purification. The initial stage of scale purification was carried out with 185 UK masters students — Batch 1. Reliability was then tested on a second multi-cultural sample of 385 masters students mainly of non-UK origin at three UK universities, plus university staff — Batch 2.

### Items Banks for Scales

*Items bank for the Gender Shopping Style scale:*

1. I take a pride in my ability as a shopper
2. Shopping – the whole process, not just buying) is a leisure activity
3. Before buying, I like to envisage using the products or service
4. I seek out and compare different products and shops before buying
5. The social aspect of shopping is important for me
6. For me, shopping isn't just about buying things; doing it well is a way of expressing love for my family or other people who are important to me
7. When shopping, I probably visit more shops than necessary
8. I like to spend longer shopping than I really need to
9. I shop more often than I really need to
10. Shopping for technical products like computers is different: I would do that as quickly as possible
11. I try to complete my shopping in the shortest possible time *
12. Because I shop as quickly as possible, I probably often miss the best buy *
13. Shopping for technical products like computers is different: I take a pride in doing that well*

* Item reversed

The following item was deleted after the first stage (based on Cronbach alpha):

1. Before buying, I like to tally up the pros and cons.

That is, 14 initial items, plus seven more "reversed" items (not shown in the interests of brevity) included so as to alternate forward and reverse items.

*Items bank for the Empathizing scale:*

1. I can tell easily if someone else wants to enter a conversation
2. I really enjoy caring for others
3. I usually find it easy to know what to do in most social situations
4. It upsets me if I am late to a meeting with a friend
5. In a conversation, I focus on what my listener might be thinking, not just my own thoughts
6. I am usually good at predicting how someone will feel
7. If someone says one thing but means another, I can usually tell quite quickly
8. I find it easy to see why some things upset some people so much
9. It is easy for me to put myself in another person's shoes
10. If someone in a group is feeling awkward or uncomfortable, I can spot it quickly
11. I feel bad if I realize that I've said something that offended someone
12. I find it easy to understand why some people sometimes get offended by remarks
13. It upsets me to see people cry
14. I prefer to talk about other people's experiences rather than my own

15. I am good at understanding other people's thoughts and feelings
16. When I watch a film I tend to get emotionally involved

The following items were deleted from the empathizing scale (based on Cronbach alpha):
At Batch 1 (initial sample, *n* = 185):

1. If someone asked me if I liked their haircut, I'd lie if I didn't like it
2. I am unable to make decisions without being influenced by other people
3. I don't consciously work out the rules of social situations

At Batch 2 (second sample, *n* = 385):

1. It upsets me if I am late for a meeting with a friend
2. I prefer to talk about other people's experiences rather than my own
3. When I watch a good film I tend to get emotionally involved.

That is, 22 initial items.

*Items Bank for the Systemizing Scale:*

1. If there was a problem with my home electrical wiring, I'd be able to fix it myself
2. I like to read articles or web pages about new technology
3. I enjoy games that involve a lot of strategy
4. I am fascinated by how machines work
5. I usually find it easy to understand instruction manuals
6. I find maps easy to read and understand
7. When I learn about historical events, the exact dates are important to me
8. Reading a newspaper, if there are tables of information, my eyes are drawn to the numbers
9. When I learn a new language, I find the grammatical rules fascinating
10. When I'm in a new city, I find it easy to find my way around
11. I like watching documentaries on TV
12. I find it easy to understand how betting odds work
13. When I do DIY, I am meticulous about my work
14. I find it easy to understand information from the bank on investment and saving systems
15. I read the instruction manuals for new appliances thoroughly
16. I usually read legal documents very carefully

The following items were deleted from the systemizing scale (based on Cronbach alpha):
At Batch 1 (initial sample, *n* = 185):

1. I prefer reading non-fiction to fiction
2. If I cook, I think about exactly how different methods and ingredients contribute to the final product
3. If I had a collection of DVDs, CDs, stamps or coins, it would be very neatly organized
4. I usually notice whether something that I read is grammatically correct

At Batch 2 (second sample, *n* = 385):

1. When I learn a new language, I find the grammatical rules fascinating
2. I read the instruction manuals for new appliances very thoroughly

That is, 22 initial items.

**Scale Purification**

In the first stage of scale purification with Batch 1, the three scales had good reliability with Cronbach alphas above .7.We then replicated alphas on the second sample of 385 respondents (that included a wider variety of countries of origin). The reliability of the shopping-style scale was assessed to ensure that the scale was reliable for segments such as students vs. non-students; females vs. males; and younger vs. older. Alpha values were consistently greater than .7. Nevertheless, a small number of items from the empathizing and systemizing scales had low item-to-total correlations (below 0.3) and were deleted (see the item banks in this Web Appendix A above). In Batch 2, alphas were again consistently greater than .7 (see Table A1). The details are in Table A1 below.

In the next stage of scale purification, an exploratory factor analysis (EFA) was carried out separately on Batch 1 and Batch 2. We dropped a number of items because they had standardized component loadings less than 0.5 or low item-to-total correlations (compare the item banks above in this Web Appendix A to Table 1 in the main manuscript).

**TABLE A1**
**Shopping-style Scale Cronbach Alpha for Various Calibration Samples (number of respondents in respective samples)**

| | | | | | |
|---|---|---|---|---|---|
| Batch 1 | .86 | (185) | Batch 2 | .77 | (385) |
| Students | .81 | (355) | Non-students | .81 | (203) |
| Females | .76 | (281) | Males | .76 | (282) |
| Age <25 (younger) | .83 | (317) | Age 25+ (older) | .78 | (246) |

**WEB APPENDIX B**

**TABLE B1**
**Population and Sample Characteristics**

| Country | | Age | | | | Gender | |
|---|---|---|---|---|---|---|---|
| | | 0-24 | 25-54 | 45-59 | 60+ | Male | Female |
| **UK** | Country | 29.8 | 26.2 | 20.5 | 23.5 | 49.8 | 50.2 |
| | Sample | 60.9 | 24 | 12.6 | 2.6 | 50.8 | 49.2 |
| **Spanish** | Country | 24.1 | 27.6 | 23.2 | 25.1 | 49.5 | 50.5 |
| | Sample | 45.8 | 43 | 8.2 | 3.0 | 47.7 | 52.3 |
| **China** | Country | 29.4 | 31.5 | 23 | 16.1 | 51.5 | 48.5 |
| | Sample | 68.7 | 25.9 | 4.8 | 0.7 | 48.3 | 51.7 |
| **Greece** | Country | 24.4 | 26.7 | 21.3 | 27.6 | 48.7 | 51.3 |
| | Sample | 35.3 | 55.3 | 5.9 | 3.5 | 36.5 | 63.5 |
| **USA** | Country | 31.8 | 26.4 | 20 | 21.8 | 49.2 | 50.8 |
| | Sample | 61.5 | 23.1 | 13.8 | 1.5 | 49.2 | 50.8 |
| **France** | Country | 30 | 24.4 | 19.7 | 25.9 | 49 | 51 |
| | Sample | 62.9 | 34.3 | 2.9 | 0 | 31.4 | 68.6 |
| **Thailand** | Country | 30.1 | 30 | 23.1 | 16.8 | 49.2 | 50.8 |
| | Sample | 55.9 | 44.1 | 0 | 0 | 50 | 50 |
| **Germany** | Country | 22.9 | 24.3 | 24.1 | 28.7 | 49.2 | 50.7 |
| | Sample | 56.3 | 37.5 | 3.1 | 3.1 | 62.5 | 37.5 |
| **Japan** | Country | 22.1 | 24.6 | 19.6 | 33.7 | 48.5 | 51.5 |
| | Sample | 69.7 | 30.3 | 0 | 0 | 51.5 | 48.5 |
| **Italy** | Country | 23 | 24.2 | 23.4 | 29.4 | 48.2 | 51.8 |
| | Sample | 61.3 | 25.8 | 12.9 | 0 | 51.6 | 48.4 |

*Sources:* Central Intelligence Agency (2017), https://www.cia.gov/library/publications/resources/the-world-factbook/print/textversion.html
United Nations (2015), https://www.populationpyramid.net
*Note:* Taiwan is omitted from the table as we lack the appropriate statistics.

**WEB APPENDIX C**

**Other Measures**

*Gender equality*
The World Economic Forum (2013) index is based upon the four dimensions of health & survival, economic participation & opportunity, educational attainment, and political empowerment:

1. Health and Survival
    a. Sex ratio at birth (converted to female-over-male ratio)
    b. Ratio: female healthy life expectancy over male value
2. Economic Participation and Opportunity:
    a. Ratio: female labor force participation over male value
    b. Wage equality between women and men for similar work (converted to female-over-male ratio)
    c. Ratio: female estimated earned income over male value
    d. Ratio: female legislators, senior officials and managers over male value
    e. Ratio: female professional and technical workers over male value
3. Educational Attainment
    a. Ratio: female literacy rate over male value
    b. Ratio: female net primary enrolment rate over male value
    c. Ratio: female net secondary enrolment rate over male value
    d. Ratio: female gross tertiary enrolment ratio over male value
4. Political Empowerment
    a. Ratio: females with seats in parliament over male value
    b. Ratio: females at ministerial level over male value
    c. Ratio: number of years of a female head of state (last 50 years) over male value.

The four dimensions are weighted equally and the components of each dimension are normalized by equalizing their standard deviations.

*Income*
Income bracket of your household:
Under £15,000
£15,000 – £24,000
£25,000 – £34,000
£35,000 – 44,000
£45,000 +
Refused

*Type of occupation:*
Waged
Unwaged
Student
Retired

*Household socio-economic classification*
Occupation of the main income earner in the home [free text response, coded by the authors:
Semi-skilled & unskilled manual occupations or unemployed
Skilled manual occupations
Supervisory, clerical & junior managerial
Administrative, professional occupations
Higher & intermediate managerial, administrative, professional occupations].

*Age:*
Under 18
18 - 24

25 - 44
45 - 59
60 + .

*Marital status*
Single
Living together
Married
Divorced/separated.

*New man / tomboy stereotypes*
I would describe myself as a:
[Males)] New man (sensitive male who likes housework/childcare)
[Females] Tomboy (female who behaves in a boyish manner).

*Sexual descriptions*
Please tick as many as apply:
That's cheeky – mind your own business
Transvestite
Transsexual
Asexual (not interested in or wanting sex)
Androsexual (style of personal appearance minimizing sex and gender differences)
Metrosexual (heterosexual male paying attention to personal appearance, grooming and use of fragrance).

Finally, we also include a marker variable not predicted to be related to the latent variables:
*Sexual orientation (heterosexuality/homosexuality)*
I would describe my sexuality as:
Strongly homosexual
Mainly homosexual
Bisexual
Mainly heterosexual
Strongly heterosexual
Coded 1 (Strongly heterosexual) to 5 (Strongly homosexual)

Correlations of the marker variable with the latent variables (*p* value):
Shopping style: -.032 (.164)
Empathizing: -.016 (.466)
Systemizing: -.006 (.808).
*Note:* as these correlations are non-significant, there are no significant values to partial-out.

*Source:* The authors.

**WEB APPENDIX D**

**TABLE D1**
**The Mean Values of the Three Constructs — Shopping Style, Empathizing, and Systemizing — for Men and Women Within Each Country (or Ethnic Group)**

**Shopping Styles**

| Ethnic Group | Female (Mean) | Male (Mean) | T-Test | Significance | Effect Size (Cohen *d*) |
|---|---|---|---|---|---|
| **Overall sample** | 3.35 | 2.70 | 21.7 | p < .001 | .712 |
| **Spanish** | 3.26 | 2.71 | 10.6 | p < .001 | .661 |
| **UK-Caucasian** | 3.35 | 2.49 | 10.8 | p < .001 | .945 |
| **UK-South Asian** | 3.64 | 2.69 | 10.8 | p < .001 | 1.19 |
| **China** | 3.62 | 2.75 | 6.7 | p < .001 | 1.12 |
| **Taiwan** | 3.33 | 3.01 | 2.3 | p < .05 | .473 |
| **Greece** | 3.35 | 2.72 | 4.0 | p < .001 | .879 |
| **USA** | 3.41 | 2.50 | 5.0 | p < .001 | 1.26 |

**Empathizing**

| Ethnic Group | Female (Mean) | Male (Mean) | T-Test | Significance | Effect Size (Cohen *d*) |
|---|---|---|---|---|---|
| **Overall sample** | 3.74 | 3.49 | 11.5 | p < .001 | .413 |
| **Spanish** | 3.79 | 3.57 | 5.8 | p < .001 | .374 |
| **UK-Caucasian** | 3.77 | 3.32 | 7.7 | p < .001 | .673 |
| **UK-South Asian** | 3.79 | 3.43 | 5.5 | p < .001 | .610 |
| **China** | 3.66 | 3.44 | 2.2 | p < .05 | .356 |
| **Taiwan** | 3.51 | 3.46 | .4 | p > .1ns | .081 |
| **Greece** | 3.81 | 3.51 | 2.5 | p < .05 | .578 |
| **USA** | 3.80 | 3.69 | .8 | p > .1ns | .193 |

**Systemizing**

| Ethnic Group | Female (Mean) | Male (Mean) | T-Test | Significance | Effect Size (Cohen d) |
|---|---|---|---|---|---|
| **Overall sample** | 2.67 | 3.39 | 27.6 | p < .001 | .863 |
| **Spanish** | 2.69 | 3.38 | 16.1 | p < .001 | 1.04 |
| **UK-Caucasian** | 2.42 | 3.38 | 13.1 | p < .001 | 1.15 |
| **UK-South Asian** | 2.68 | 3.48 | 10.0 | p < .001 | 1.11 |
| **China** | 2.76 | 3.44 | 5.8 | p < .001 | .960 |
| **Taiwan** | 2.69 | 3.49 | 6.4 | p < .001 | 1.31 |
| **Greece** | 2.81 | 3.67 | 4.5 | p < .001 | 1.05 |
| **USA** | 2.94 | 3.30 | 1.9 | p < .1 | .462 |

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# A cross-national study of evolutionary origins of gender shopping styles: she gatherer, he hunter?

Dennis, Charles

2018-10-19

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Charles Dennis, J. Joško Brakus, Gemma García Ferrer, et al., (2018) A cross-national study of evolutionary origins of gender shopping styles: she gatherer, he hunter? Journal of International Marketing, Volume 26, Issue 4, 2018, pp. 38-53

https://doi.org/10.1177/1069031X18805505

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