

Does Gender Matter for eWOM Evaluation? A Cross-Cultural Analysis

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Abstract

We used online customer reviews of smartphones from eight countries to explore the gender effects on the evaluation of electronic word of mouths (eWOMs). We found that male eWOMs valence had a more significant impact on the market shares of smartphones than female and anonymous eWOM valence, but the impact of female eWOM valence increased with the level of gender equality. To minimize gender stereotypes in eWOM evaluation, we recommend online review platforms remove the option of anonymity and replace it with gender-neutral user IDs.

Keywords: eWOMs, culture, gender equality, smartphones

1. Introduction

The rise of e-commerce has created massive amounts of free, voluntary, consumer-generated evaluations of products on the internet. These electronic word-of-mouths (eWOMs) not only allow continuous, inexpensive, and real time analysis of consumer preferences and market dynamics, but also make online shopping more informative for consumers (Babić Rosario, et al., 2020). One way these reviews might convey greater information to consumers than traditional word-of-mouth interactions is that they are written in an environment where the gender of the reviewer is less easily observed. In theory, eWOMs and the internet provide a gender-neutral space for consumers to express their opinions through the option of anonymity, with significantly less gender stereotyping than in a face-to-face setting. However, there are increasing concerns that the internet is not gender neutral and modern artificial algorithm technology may have propagated rather than reduced gender inequality (Vlasceanu & Amodio, 2022) in hiring decision (Dastin, 2018) and advertisements (Ali, et al., 2019) by encoding pre-existing gender stereotypes in data collection, model development, and model deployment in business.

The purpose of this study is to empirically explore how the expectation of gender roles in a country can affect consumer evaluation of eWOMs and the impact they have on the sales of a product. Given the importance of gender in marketing and consumer research (Åkestam, et al. 2021; Dobscha & Osterberg, 2021; Arsel, et al. 2015; Meyers-Levy & Loken, 2015), the variance of gender equality across cultures (Hofstede, 1980, 2001; House, et al., 2004), and the debate on the impact that this variance has on marketing strategy (Dennis, et al., 2018), our study is of interest to international researchers and managers. A careful literature review reveals that there exist at least two notable gaps in existing eWOM research. First, most international marketing research has focused on the impact of non-gender related cultural values such as collectivism, power distance, or uncertainty avoidance on eWOMs. Examples include Banerjee and Chai (2019), Lin and Kalwani (2018), Wen, Hu, and Kim (2018), and Tang (2017). Second, the gender segmented marketing literature on e-commerce and eWOMs has mostly ignored cultural differences by using single-country analysis (Garbarino & Strahilevitz, 2004; Richard, et al., 2010; Bae & Lee, 2011; Maceli, Baack & Wachter, 2015), which makes the application of the findings in different countries challenging.

To accomplish the goals of this study, we used online reviews for iPhone 4 and Galaxy S3 phones provided by

consumers in eight countries between 2010 and 2014. The reason we focused on eWOMs between 2010 and 2014 is because the global sales of smartphones experienced the highest year-over-year growth rates during the time period according to Laricchia (2022). Focusing on a period of high growth within the industry offers two advantages. First, it allows us to find a sufficient number of online customer reviews of the same version of smartphones in different countries. This makes it possible to conduct meaningful cross-cultural analysis of gender roles by accurately identifying their effect with a sufficiently large sample and controlling for a source of cross-country variation by ensuring the products are identical in all markets. Second, during this period of high growth, many consumers were buying cell phones for the first time. From the perspective of these new consumers, these phones were a product that they weren't personally familiar with, and many likely didn't have people in their usual social groups who had direct experience with cell phones either. This lack of direct experience should increase their reliance on the reviews of strangers posted in eWOMs before making purchasing decisions, which in turn should make the impact of eWOMs in our data more pronounced and easier to identify than more recent eWOMs on the latest version of smartphones. Furthermore, we do not view the use of data from this time period as limiting the relevance of our conclusions moving forward. We are ultimately interested in measuring the impact of societal norms regarding gender and gender inequality on consumer behavior. Because the culture and norms of a society tend to change "...very slowly--- on the order of centuries and millennia..." (Williamson, 2000: p. 596), our findings on gender effects from the eWOM data collected between 2010 and 2014 remain relevant today and into the foreseeable future.

The paper attempts to address the following research questions:

1. Do eWOM users and consumers give more weight to online reviews written by men than those written by women when making purchase decision?
2. If gender bias is present in eWOM evaluation, does its impact on sales decrease as the level of gender equality in a country increases?

2. Literature Review and Theoretical Background

Research on gender differences in anthropology, psychology, and sociology has shown that gender norm expectations are formed and learned in a society in accordance with the biological natures of men and women and they tend to be stable for a long time period (Eagly & Crowley, 1986; 1999; 2013). The traditional role of women was expected to be domestic and communal due to their abilities to bear and nurse children. In contrast, male physical strength and its use to obtain resources align the gender role of men towards heroism and leadership in a society. Despite changes in laws and government regulations, gender stereotypes and the cognitive structure that guide people to assess the abilities of women and men continue to prevail in modern societies. Examples of recent research such as the one by Bordalo, et al. (2019) showed that gender stereotypes were an important source of belief distortions in judging male and female abilities in categories such as math, cars, sports, and video games.

In this study, we argue that there are several reasons why gender stereotypes can affect eWOM evaluation and adoption. First, according to Ma and Agarwal (2007), technology mediated communications suffer from social cue deficiencies because users of eWOMs cannot rely on contextual cues such as body language, facial expression, or physical surroundings that are available in an offline setting to make inferences. Second, due to the large volume of eWOMs, Forman et al. (2008) found that users tend to adopt a heuristic process and rely on cues such as a reviewer's name, location, nickname, or hobbies to assess the quality and usefulness of online reviews and make purchase decision. Third, the correspondent inference theory proposed by Jones and Davis (1965) provides the theoretical foundation for how gender stereotypes can affect eWOM evaluation and adoption. The theory suggests that an observer makes inferences of an actor's behavior based on his/her intention while attribution of an actor's intention depends on a perceiver's expectations related to situational constraints such as societal norms or role requirements. In their experimental study, Jones and Davis (1965) found observers reported higher levels of confidence in inferring dispositions from out-of-role behavior than from in-role behavior. Fourth, the heuristic prototype model in Kahneman (2003) explained why people tend to make judgements of a sufficiently homogenous group or category based on the automatically accessible average value or "prototype" of the group.

Therefore, we posit that societal expectation of gender norms serve as the highly accessible prototype for eWOM users to judge the trustworthiness of male and female eWOMs. More specifically, eWOM users tend to "discount" the trustworthiness of positive female eWOMs, while "markup" the trustworthiness of positive reviews from men. In other words, negative female eWOMs are perceived as more trustworthy than negative male eWOMs. This is because the expected female norm or prototype is to minimize their negative emotions in public and conform to the "feminine" or community builder role in a society. In contrast, the societal expectation of the intention of men to participate in online reviews is to share their true experience, especially negative experience to help others. As

such, positive reviews or a high eWOM valence from the male group are viewed as out-of-role behavior and deemed more credible and trustworthy by the users of eWOMs, which leads to more positive purchasing outcomes.

Several meta-analysis studies (Floyd, et al., 2014; You et al., 2015; Babić Rosario et al., 2016; Ismagilova, et al., 2020) have found a positive relationship between the valence of eWOMs and sales. Given our assumption that positive male eWOMs are perceived as more credible and trustworthy than the positive eWOMs from females, we expect the users of eWOMs are more likely to make purchasing decisions by following positive male online recommendations. In contrast, because only negative reviews from women are deemed trustworthy, we expect no significant correlation between female eWOM valence and purchasing decisions. That is,

Hypothesis 1: Everything else being the same, male eWOMs valence is positively related to the market share of a product while female eWOMs valence has no correlation with the market share of a product.

Furthermore, we assume gender equality can moderate the relationship between eWOM valence and the purchasing decision of eWOM users. This is because lower expectation of gender role differences will result in less bias in the perceived trustworthiness and credibility of male and female eWOM valence. In this study, we define gender equality as the degree of beliefs or acceptance of traditional gender norms in a society. A high gender-equal culture has lower expectations of gender differences and people are less likely to act or make judgements based on traditional gender norms. Therefore, we have the second hypothesis of the paper:

Hypothesis 2: The impact of female eWOM valence on the market share of a product increases with a society's gender equality level.

An important difference between eWOMs and offline word-of-mouths is that reviewers can hide their gender identities on the internet through anonymity. Meanwhile, gender differences in risk taking in e-Commerce research by Bartel-Sheehan (1999), Fogel and Nehmad (2009), and Youn and Hall (2008) found that females perceived greater privacy risks online and reported higher levels of privacy concern than males. In an experimental study, Nosko et. al (2013) showed that males disclosed more personal information online while females employed more privacy settings than males. Therefore, we expect women who are more conscious about gender roles are more likely to post their reviews online using anonymous or gender-neutral status to avoid potential conflicts. In contrast, female reviewers who reveal their real names online are either less conscious or less willing to conform to traditional gender norms. In addition, whether a reviewer is willing to reveal his/her identity with a real name or user id has been found to be directly related to the trustworthiness and credibility of eWOMs (Reichelt, et al., 2014; Pyle, et al. 2021). Therefore, in our empirical analysis, we not only compare the differences between male and female eWOMs, but also compare the differences between male, female, and anonymous online review volume and valence by controlling for country differences in uncertainty avoidance.

3. Methodology and Data

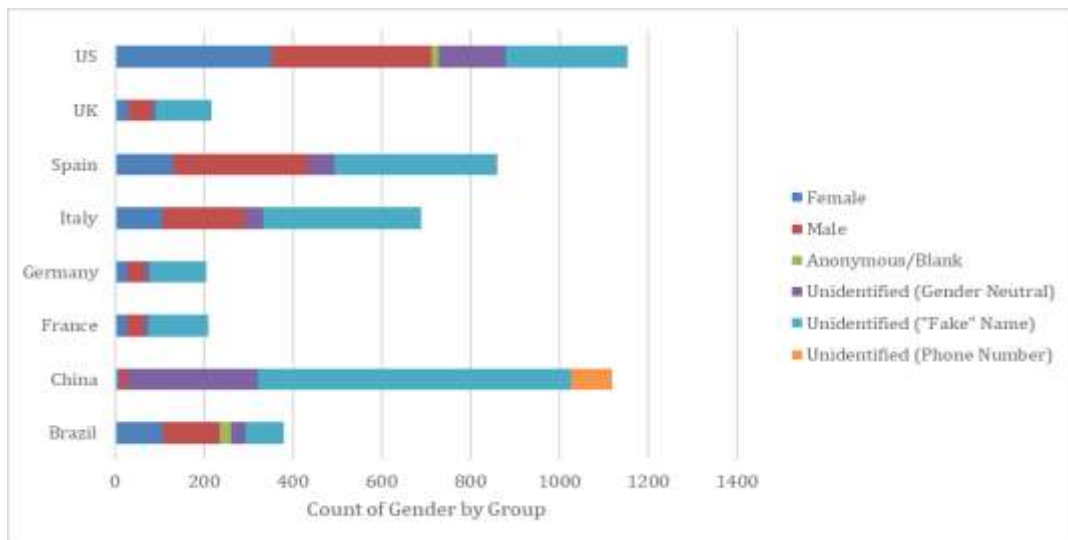
3.1 Data Collection

The original online customer review data were collected for iPhone 4 and Galaxy s3 from Amazon (US and Spain for Galaxy3 only), Gome (China), Ciao (France, Germany, Italy, UK, and Spain for iphone4 only), and Submarino (Brazil) between 2010 and 2014. As mentioned previously, this is the time period when global sales of smartphones had the highest year-over-year growth rates and the largest number of online eWOMs available around the world. Meanwhile, countries in our sample represent the largest economies in the world, and the online platforms that eWOMs collected were major online review platforms for consumers in each country. In other words, the eWOMs in our sample are representatives of the internet users in each country and they also represent the major languages in the world. In total, we have 4,833 customer reviews that include both star ratings (1=lowest, 5=highest) and written comments in seven different languages. In this study, we focus on the average monthly star ratings or eWOM valence in each country and its relationship with smartphone monthly sales.

To test our hypotheses, we first classified the gender of a reviewer using the user ID associated with an online customer review. That is, if a name is commonly used for women such as Serena or Lisa, we coded the reviewer as a female. If a name is commonly used for men such as Todd or Austin, we coded the reviewer as a male. This classification mechanism has limitations because a reviewer may use a fake name or certain names that can be used for both women and men such as Alex or Jordan. In fact, it is almost impossible to identify the gender of Chinese reviewers based on the Pinying of their user IDs unless they used English given names. Figure 1 summarizes the original groups based on the reviewer IDs in our sample. From eWOM evaluator or eWOM user standpoint, we combined the user IDs that cannot be identified as a female or a male into the anonymous group in the empirical analysis. In other words, the anonymous group in our paper includes gender neutral names, anonymity, phone

numbers, and fake names such as “GTAKiller96” or “Cat”.

Figure 1. Summary of Gender Groups Based on Online Review User IDs



Source: Online reviews for iPhone 4 and Galaxy s3 at Amazon, Gome, Ciao, and Submarino between 2010 and 2014

Table 1 presents the summary statistics based on the overall average of star ratings, i.e., eWOM valence, for three gender groups in each country. As shown, there were more male reviews than female reviews in every country. In

Table 1. Summary of Consumer Star Ratings of Smartphones by Country and Gender Groups

	Average Daily Star Rating (Max = 5)			t-stat (t-test with equal variance)		Time Covered	
	Female	Male	Anonymity	Female = Male	Female = Anonymity	iPhone4	Galaxy3
Brazil	4.73 (107)	4.68 (129)	4.70 (143)	0.59	0.39	1/2013-4/2014	3/2013-10/2014
China	5 (11)	4.78 (18)	4.80 (1090)	1.33	0.98	7/2013-1/2014	8/2013-1/2014
France	4.41 (27)	4.45(38)	4.47 (145)	-0.19	-0.36	6/2010-9/2014	7/2012-10/2014
Germany	4.27(30)	4.65(37)	4.54 (138)	-2.44**	-1.98**	7/2010-5/2014	6/2012 -12/2014
Italy	4.51(108)	4.55(184)	4.51 (397)	-0.39	0.01	7/2010-3/2014	6/2012-3/2014
Spain	4.54 (131)	4.51(306)	4.45 (422)	0.32	1.13	6/2010-3/2014	6/2012-2/2014
UK	4.44(32)	4.5(50)	4.54 (136)	-0.36	-0.74	2/2009-7/2014	6/2012-8/2014
US	4.17 (355)	3.50 (357)	4.11 (442)	3.32***	0.60	7/2012-1/2014	6/2012-11/2014
All	4.38 (801)	4.31 (1,119)	4.56 (2,304)	1.27	-4.73***		

*, **, *** significant at 10%, 5%, and 1% level. Numbers in parentheses are the number of eWOMs in each group. Anonymity: Include reviews without names (anonymous or blank), fake names, and phone numbers.

Spain, the male to female review ratio was greater than 2:1. This is consistent with our assumption that more women than men are likely to use anonymous or gender-neutral IDs to post online reviews due to consciousness to gender norms as indicated by a substantial share of anonymous online reviews in each country. China had the largest number of reviews in the anonymous or gender-neutral group, followed by Spain, Italy, and the US. Overall, the anonymous or gender-neutral group accounted for 48% of the total 4,833 reviews in our sample.

Another interesting finding in Table 1 is that there was no statistical difference between female and male eWOM

valence except for Germany and the US. In fact, only the US had male review valence significantly lower than female valence according to the t-test for two-sample means. Meanwhile, the female eWOM valence for the whole sample was significantly lower than the valence of anonymous or gender-neutral group according to the last row of Table 1. This finding is contrary to what was found by Deng, et al. (2021) that anonymous reviews were associated with lower ratings and negative emotions. Instead, it provides more evidence to support our assumption that women who are more conscious about gender norms or who are more willing to comply with gender norms tend to use anonymous or gender-neutral status. They are also more likely to offer higher ratings and express positive emotions on the Internet. In contrast, women who chose to reveal their identities online are less conscious or less willing to comply with their “feminine” role. This explains why the overall female eWOM valence (4.38) was close to the male valence (4.31), but significantly lower than the anonymous eWOM valence (4.56).

To measure the degree of gender equality in a society, we adopted the gender egalitarianism values (*GE*) from the GLOBE study (House, et al., 2004). Using responses to questionnaires of middle managers in financial services, food processing, and telecommunications, the GLOBE study focused on the societal expectation of gender norms in a country. More specifically, *GE* reflects a society’s belief in “...whether members’ biological sex should determine the roles that they play in their homes, business organizations, and communities...” (House, et al., 2004: p.347). Since the purpose of this study is to examine how societal expectations on gender norms can lead to differences in eWOM evaluation, we believe the GLOBE gender egalitarianism societal values are the best cultural index to measure gender equality differences across countries. In fact, the GLOBE societal value measures were found significantly correlated with other findings of gender equality such as those from the World Value Survey. Although what people believe is not always consistent with how they act, the GLOBE value-based and the practice-based gender egalitarianism indices are consistent for the eight countries in our sample, with a correlation coefficient equal to 0.30. Finally, to control country differences in risk avoidance in our empirical analysis, we also used the GLOBE uncertainty avoidance index as an independent variable in the empirical analysis. The GLOBE *GE* and uncertainty avoidance index are reported in Table 2.

3.2 Research Design

In this study, we used the monthly smartphone market shares as the dependent variable to measure the observed outcomes of gender effects in eWOM evaluation. More specifically, we are interested in the differing impact of average male, female, and anonymous eWOM review ratings available at month t on the market shares of smartphones in country i in the same month. The data we used as a proxy of smartphone market shares, $mktshare_{i,t}$, were the monthly Android

Table 2. GLOBE Gender Egalitarianism and Uncertainty Avoidance Index

	GLOBE Gender Egalitarianism Society Values	GLOBE Gender Egalitarianism Society Practices	GLOBE Uncertainty Avoidance Society Values
Brazil	4.99	3.31	4.99
China	3.68	3.05	5.28
France	4.40	3.64	4.26
Germany	4.90	3.08	3.63
Italy	4.88	3.24	4.47
Spain	4.82	3.01	4.76
UK	5.17	3.67	4.11
US	5.06	3.34	4.0

Sources: House, et al. (2004)

and iOS mobile operating system market shares in a country i reported by statcounter.com.¹ Although the data were not the perfect measurement of iPhone 4 and Galaxy S3 market shares in each country between 2010 and 2014, they were the most systematic product-market performance measure we could find at country level. We have verified through various industry reports and confirmed that Apple and Samsung smartphones were the leading

¹ Available at: <https://gs.statcounter.com/> Last accessed January 13, 2021.

brands for iOS and Android smartphones in the sample countries during the period of this study.

To examine the impact of eWOM valence on market shares on monthly basis, we first calculated the monthly average ratings based on all reviewers $all_rating_{i,t}$, female reviewers $f_rating_{i,t}$, male reviewers $m_rating_{i,t}$, and anonymous reviewers $un_rating_{i,t}$, respectively. Then, we used the GLOBE value-based societal gender egalitarianism index, GE_i , and its interaction term with the eWOM valence from each gender group to examine the moderating role of gender equality in eWOM evaluation and adoption. Two control variables, *uncertainty avoidance*_{*i*} (Kailani & Kumar, 2011) and the volume of reviews for all and each gender group in each month, *# of reviews*_{*all*}_{*i,t*}, *# of reviews*_{*f*}_{*i,t*}, *# of reviews*_{*m*}_{*i,t*}, and *# of reviews*_{*un*}_{*i,t*}, were included in the OLS regressions to account for country and time specific effects. The regression results for the unbalanced panel data for all and each gender group are reported in Table 3.

3.3 Empirical Results

In Column (1) of Table 3, $all_rating_{i,t}$ showed a positive but insignificant effect on the market shares of smartphones and the volume of reviews was not significant either. This implies that the overall eWOM valence that includes all genders, did not have a significant impact on the purchasing decision of smartphones in a cross-cultural and multi-country setting. This is contrary to the findings in most eWOM literature based on single-country analysis. Similarly, we could not find a statistically significant effect of female and anonymous eWOM valence, $f_rating_{i,t}$ and $un_rating_{i,t}$ on the market shares of smartphones in Columns (2) and (4), respectively. Neither had the volume of female and anonymous reviews, *# of reviews*_{*f*}_{*i,t*} and *# of reviews*_{*un*}_{*i,t*}, showed a statistically significant impact on market shares. However, in Column (3), the coefficient on the valence of male eWOMs, $m_rating_{i,t}$, and the number of male reviews, *# of review*_{*m*}_{*i,t*}, were both positive and significant. In other words, Hypothesis 1 was confirmed.

In Columns (5) – (8), we added the GLOBE gender egalitarianism (GE_i) index and its interaction terms with the average star ratings from each gender group. There were some notable changes after we controlled gender equality and its moderating role in eWOM evaluation. First, the coefficient on the interaction term of $GE_i \times all_rating_{i,t}$ was positive and marginally significant at 10 percent level in Column (5), which means the overall valence of eWOMs had a positive impact on sales when gender equality was high enough. More importantly, the coefficient on $GE_i \times f_rating_{i,t}$ was positive and statistically significant at 5 percent level in Column (6). This confirms Hypothesis 2 that the impact of female eWOM valence on sales increases with the level of gender equality in a society. Combining with the negative coefficient on $f_rating_{i,t}$, our finding implies that countries with the gender egalitarianism index greater than 4.90 (=83.27/16.99) will observe a positive correlation between female eWOM valence and smartphone market shares. Finally, the estimation coefficients on the interaction term of $GE_i \times m_rating_{i,t}$ and $GE_i \times un_rating_{i,t}$ were not significant in Columns (7) and (8), which means gender equality does not moderate the outcomes of male and anonymous eWOM evaluation.

Table 3. The Gender Effects on eWOM Evaluation and Adoption (Dependent Variable = $mktsh_{i,t}$)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$all_rating_{i,t}$	0.586 (1.149)				-50.27* (26.04)			
<i>uncertainty</i>	-3.313	-2.028	-4.454*	-0.00531	-5.295**	-3.808	-6.671**	-1.972
<i>avoidance_i</i>	(2.026)	(2.732)	(2.525)	(2.084)	(2.159)	(2.714)	(2.687)	(2.193)
<i># of reviews_{all}_{i,t}</i>	0.00409 (0.0542)				-0.0126 (0.0541)			
$f_rating_{i,t}$		-0.489 (1.275)				-83.27** (33.26)		
<i># of reviews_f_{i,t}</i>		-0.0802 (0.211)				0.113 (0.226)		
$m_rating_{i,t}$			1.996*					-18.97

			(1.062)					(34.28)
<i># of reviews_{m_{i,t}}</i>			0.405*					0.494**
			(0.212)					(0.212)
<i>un_{rating_{i,t}}</i>			-0.335					-42.86
			(1.142)					(26.29)
<i># of reviews_{un_{i,t}}</i>			-0.0649					-0.114*
			(0.0620)					(0.0606)
<i>GE_i</i>					-56.97**	-88.71***	-27.08	-50.58**
					(23.17)	(28.93)	(31.50)	(23.46)
<i>GE_i x all_{rating_{i,t}}</i>					10.17*			
					(5.213)			
<i>GE_i x f_{rating_{i,t}}</i>						16.99**		
						(6.825)		
<i>GE_i x m_{rating_{i,t}}</i>							4.275	
							(6.942)	
<i>GE_i x un_{rating_{i,t}}</i>								8.552
								(5.283)
<i>Constant</i>	58.57***	60.17***	56.05***	49.51***	350.6***	499.6***	197.9	308.5***
	(9.365)	(12.55)	(11.96)	(9.607)	(117.1)	(141.7)	(157.8)	(118.3)
Observations	379	206	243	345	379	206	243	345
R-squared	0.011	0.006	0.046	0.010	0.061	0.065	0.068	0.065
Mean VIF	1.11	1.05	1.02	1.13				

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

mktsh_{i,t}: market shares of Android or ios phones for country i in month t (between 2010 to 2014)

all_{rating_{i,t}}: average monthly star ratings by all gender groups for country i in month t

f_{rating_{i,t}}: average monthly star ratings by female reviewers for country i in month t

m_{rating_{i,t}}: average monthly star ratings by male reviewers for country i in month t

un_{rating_{i,t}}: average monthly star ratings by anonymous and gender-neutral reviewers for country i in month t

uncertainty avoidance_i: GLOBE uncertainty avoidance values for country i

of reviews_{all_{i,t}}: number of reviewers from all gender groups for country i in month t

of reviews_{f_{i,t}}: number of reviewers from female reviewers for country i in month t

of reviews_{m_{i,t}}: number of reviewers from male reviewers for country i in month t

of reviews_{un_{i,t}}: number of reviewers from anonymous and gender-neutral reviewers for country i in month t

GE_i: GLOBE gender egalitarianism values for country i

4. Conclusion and Discussion

In this paper, we employed eWOM and sales data for iPhone 4 and Samsung Galaxy S3 smart phones from eight countries collected between 2010 and 2014 to address two research questions:

- 1.) Is gender bias present in consumer evaluation of online reviews?
- 2.) Does this gender bias decrease as a country's level of gender equality increases?

Using OLS regressions, we found that male review valence and the number of male reviews significantly increased the market share of both phones, but this effect was not present for the other two gender groups (female and anonymous), which indicates the presence of gender bias. We also found in our regressions that increasing the level of gender equality in a country has a statistically significant effect on the impact of female review valence, which indicates societal views on gender can moderate the outcomes of eWOMs on sales.

There are at least two important implications for these findings. First, they echo the concerns of Vlasceanu and Amodio (2022), Dastin (2018), Ali, et al. (2019) and others that the digital age might not be fulfilling its potential to reduce gender inequality. In the case of eWOMs, one reason for this is that anonymity on the internet does not mean gender neutrality. Women are more likely to use anonymous status online due to privacy concerns. In addition, the low trust on anonymous reviews means women's opinions are more likely to be ignored by eWOM users and consumers. This is confirmed by our finding that both female and anonymous review valence had no statistically significant impact on the market share of a product. One possible way of addressing this issue would be for online marketers to only offer an option for truly gender-neutral IDs such as family names. Second, our research indicates that it is premature to adopt a universal gender-neutral international marketing strategy because both men and women still consciously and unconsciously engage in gender norm related eWOM creation and evaluation on the internet although the extent of this behavior varies across countries based on societal attitudes towards gender.

There are limitations to our study. First, we only showed correlations between male, female, and anonymous eWOM valence with the market shares of smartphones. We did not directly measure the intention or decision of eWOM users to make a purchase after reading eWOMs. Second, the fact that we manually classified gender based on the names of user IDs and we classified gender in a binary mode imply our results are subject to human errors in data processing and limitations in its application to individuals whose identities fall outside of or between the categories of male and female (Hyde, et al. 2019). Third, the customer reviews in this paper were based on smartphones only, which are likely to show more gender related biases than other consumer products because males are often perceived as more qualified to evaluate technological products (Bordalo, et al. 2019). Therefore, future research could look at customer reviews from a wider range of products, countries, gender categories using more recent online review data, and directly examine the purchasing decision outcomes of eWOM evaluation.

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