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Interactions Between Culture, Regulatory Structure, and Information Privacy Across Countries

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ABSTRACT

The authors analyze the relationships between country culture and country regulatory structure pertaining to information privacy concerns (IPC) in the context of social media applications. Drawing on prior research, they develop a framework that integrates country culture and country regulatory structure and use it as the basis for a study that contrasts samples of 1086 professionals drawn from four countries—United States, United Kingdom, India, and Hong Kong—to assess the effects of national culture and a nation's regulatory structure on IPC and attitudinal beliefs about information privacy and professionals' behavioral reactions to IPC. They find that country culture has a strong bearing on explaining differences in individuals' IPC concerns, attitudinal beliefs about privacy, and behavioral reactions to privacy much more than does country regulatory structure. Country culture remains a significant factor in the management of information privacy. The results also show that country regulatory structure remains deficient in allaying individuals' concerns pertaining to information privacy.

KEYWORDS

Country Culture, Culture Dimensions, Information Privacy Concerns, MANCOVA, Regulatory Structure

INTRODUCTION

Information privacy remains a significant issue for most individuals and organizations in the emergent data-economy (Chen, 2013; Dinev, 2014; Edwards, Hofmeyr and Forrest, 2016). Much research exists on individuals' information privacy concerns (IPC), its antecedents, as well as its effects on individual users' beliefs or behavioral reactions towards information technology. For comprehensive reviews of IPC research, see Yun, Lee, & Kim, 2019; Belanger & Crossler, 2011; Pelteret & Ophoff, 2016; & Magi, 2011.). The maturing of always-connected communications devices continues to contribute to the reported increase in privacy concerns (Yeung, Balebako, Gutierrez & Chaykowsky, 2020; Kantarcioglu & Ferrari, 2019; Georgiadou & Kounadi, 2019; Jensen & Wagner, 2018), especially given the expanding ability of such applications to ubiquitously collect disparate types of an individual's data (Brennan & Lovells, 2016; Choi, Jiang, Xiao, & Kim, 2015; Choi, Wu, Yu & Land, 2018). As an example, various mobile and digital apps are, by design, capable of surreptitiously, unobtrusively

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and perpetually accessing, collecting and transmitting vast amounts of individual users' personal information to extant parties (Lin and Armstrong, 2019; Georgiadou et al., 2019; Turgut et al., 2017; Guo et al., 2008; Lowry et al., 2011). Indeed, protection of privacy and the mitigation of bias and future risks to individuals brought about by privacy breaches now extend to more recent and emergent technologies such as facial recognition technologies (Yeung, et al., 2020), the Internet of Things (Turgut et al., 2017) and self-driving vehicles (Mladenović, et al., 2020).

Past studies have found that concerns about information privacy vary according to cultural dimensions (Cao & Everard, 2008; Guo et al., 2008; Gretzel et al., 2008; Posey et al., 2010; Georgiadou et al., 2019). The ubiquity and near-universal adoption of social media technologies may also likely have a bearing on relationships between country regulatory structure and perceptions of individuals' information privacy. We also note that changes have continued to occur in the national regulatory structure domain as well. While Europe continued to move towards even tighter privacy regulation, with, for example, the passage of General Data Protection Regulations (GDPR) (Wolters, 2017) the US and other regions of the world seem to continue on a path towards less government-directed and more market-based regulatory frameworks or consumer-beware self-regulation frameworks (McDermott, 2017; Georgiadou, et al., 2019).

In light of these significant changes in the information and communications technologies landscape, it is both proper and important to revisit the relationships among country culture, regulatory structure and individual's perceptions about their information privacy. Therefore, this study reexamines the effects of country culture and national regulatory structure on (a) attitudinal beliefs about information privacy as measured by an individual's trusting beliefs and risk beliefs; and (b) behavioral reactions to information privacy concerns as measured by future continued use intention. Consequently, this paper contributes to existing research in information privacy by examining the efficacy of country culture and country regulatory structures as foundational pillars for the conceptualization and implementation of effective information privacy. We organize the rest of the paper as follows: The section on theoretical background, conceptual framework and hypotheses is presented as a lead to the section in which the research methods are presented. Subsequent to that is the Results section. We then present a discussion of the results followed by concluding remarks, implications, and possible limitations of the study.

THEORETICAL BACKGROUND, CONCEPTUAL FRAMEWORK AND HYPOTHESES

The dominant model for individuals' IPC originates from Smith et al. (1996) and subsequently modified by Malhotra et al. (2004) and Hong & Thong (2013), among others. Hong & Thong's IPC model (2013) qualifies general information privacy concerns (IPC) as a third-order factor comprising of two second-order factors named "Interaction Management" and "Information Management" respectively. Interaction Management comprises of collection, unauthorized secondary usage, and control, while Information Management includes improper access and errors in data. A sixth factor, awareness, maps directly onto IPC. Prior studies (e.g., Malhotra et al., 2004, Hong & Thong, 2013) have demonstrated that IPC impacts an individual's attitudinal beliefs about privacy. Per Hong & Thong (2013), the two common measures of an individual's attitudinal beliefs about privacy are trusting beliefs and risk beliefs. Conventional IPC literature has also employed behavioral intention or future continued use intention as constructs to capture an individual's behavioral reactions to IPC (e.g., Kumar et al., 2018; Keith et al., 2016; Raschke et al., 2014).

Country Culture, as a construct in information systems studies is conventionally operationalized using Hofstede et al's. (2010) model which identifies six dimensions of national culture. These are power distance, uncertainty avoidance, individualism, masculinity, long-term orientation, and indulgence, the first four emanating from the original Hofstede model and the last two having been

initially proposed by Bond (2004) and Minkov (2009), respectively. Hofstede et al. (2010) employs these dimensions to provide updated culture-index scores for a wide range of countries.

Regulatory frameworks within which individuals consume information technology services have been found to impact people's perceptions about the privacy of their personal information when using information and communications technologies. In most of the European countries, for example, privacy is perceived as a human right and is very heavily regulated (Wolters, 2017). Contrast that to the US where privacy is largely unregulated and it is only in a handful of specific economic sectors that mandatory regulatory guidelines or standards dictate how individual's personal information ought to be managed (Georgiadou et al., 2019).

It is worth noting that there have been only a handful of published studies that empirically examined the association between individual-level preferences for governmental regulation of information privacy and individuals' information privacy concerns, attitudinal beliefs about information privacy and/or behavioral reactions to information privacy concerns. Miltgen & Smith (2015) identified only eight such studies (i.e. Dommeyer & Gross, 2003; Lee, 2000; Lwin, Wirtz, & Williams, 2007; Milberg, Smith, & Burke, 2000; Okazaki, Li, & Hirose, 2009; Turow, Hennessy, & Bleakley, 2008; Wirtz, Lwin, & Williams, 2007; & Xu et al., 2012). We identified only two additional studies since (Dogruel & Jockel, 2019; and Benamati et al., 2016). What is common about all these studies is that they report a positive relationship between perceived IPC and regulatory involvement of governments in information privacy across various countries.

Bellman et al. (2004) found that the level of regulation in different countries reflected the concerns of consumers in those countries, with higher levels of government involvement in the regulation of corporate privacy management being positively and significantly associated with higher levels of privacy concerns. Prior studies have also found that individuals "who perceive that legal regulations in their country are weak are more likely perceive a risk that their information is being used inappropriately" (Dogruel & Jockel, 2019, p. 1767) and hence report higher levels of risk beliefs, lower levels of trusting beliefs and lower levels of future continued use intention (Miltgen & Smith, 2015; Lwin et al., 2007). These observed differences informed Milberg et al.'s (2000) Country Regulatory-Structure classification framework which identifies three bands of regulatory structures: countries with no information privacy regulation, countries with sectoral regulations, and countries with omnibus regulatory regimes. Bellman et al. (2004) refined and employed that framework when assessing impacts of regulatory structure on individuals' information privacy perceptions.

Combining Hofstede's (2010) country-culture model with the country regulatory-structure classification framework (Bellman et al. 2004; Milberg et al. 2000) provides us with a conceptual framework of country culture versus country regulatory structure (Figure 1). We employ this framework to examine country culture and regulatory structure effects on IPC.

Using the study's conceptual framework (Figure 1), we seek to identify if countries that classify differently across the national culture axis within the conceptual framework exhibit different patterns with respect to the study's dependent constructs namely: IPC, attitudinal beliefs (risk beliefs and trusting beliefs), and behavioral reactions to privacy concerns (future continued use intention). Should country culture inform individual's perceptions of information privacy, then we expect individuals from countries with similar culture (i.e., countries that cluster on the same end of the national-culture-scales spectrum) to exhibit similar reactions to IPC, attitudinal beliefs about information privacy and behavioral reactions to privacy concerns.

Likewise, we expect individuals from dissimilar country-cultures to exhibit different reactions to IPC, attitudinal beliefs and behavioral reactions. Hence the first set of hypotheses in this study are:

H1: Country Culture impacts individual's IPC (as measured by the six IPC first order dimensions namely: Collection – H1a; Secondary Use – H1b; Errors in Data – H1c; Unauthorized Access – H1d; Control –H1e, and; Awareness – H1f).

Figure 1. Conceptual Framework

		Country Culture	
		(Low) Power Distance Short Term Orientation (High) Indulgence (High) Individualism	(High) Power Distance Long Term Orientation Restraint (Low Indulgence) Collectivism (Low Individualism)
Country Regulatory Structure	Omnibus Regulation	UK, Australia, Canada, New Zealand, Ireland	Hong Kong
	non-omnibus Regulation	USA	India, Pakistan, Philippines, Singapore

H2: Country Culture impacts individual's attitudinal beliefs towards information Privacy (as measured by the two constructs namely: Trusting beliefs - H2a and Risk Beliefs – H2b).
H3: Country Culture is associated with individual's behavioral reactions to privacy concerns (as measured by the individual's Future Continued Use Intention – H3).

Likewise, the conceptual framework provides the basis for testing effects of national regulatory structure on the study's dependent constructs namely: IPC, attitudinal beliefs (risk beliefs and trusting beliefs) and behavioral reactions to privacy concerns (future continued use intention).

Consequently, we expect to see differences across countries with dissimilar regulatory structures, allowing us to hypothesize that:

H4: Country Regulatory Structure impacts individual's IPC (as measured by the six IPC first order dimensions namely: collection – H4a; Secondary Use – H4b; Errors in Data – H4c; Unauthorized Access – H4d; Control –H4e, and; Awareness – H4f).
H5: Country Regulatory Structure impacts individual's attitudinal beliefs towards information Privacy (as measured by the two constructs namely: Trusting beliefs - H5a and Risk Beliefs – H5b).
H6: Country Regulatory Structure impacts individual's behavioral reactions to privacy concerns (as measured by the individual's Future Continued Use Intention – H6).

RESEARCH METHODS

Country Selection

A five-step process was applied in selecting countries from which to collect data. First, we limited our country consideration to only that set of countries for which privacy regulation classification category existed. Thus we used Milberg (2000) and Bellman et al. (2004) to narrow country selection to a list of 38 countries. Given that culture was a key independent variable in our study, as a second step, we chose to mitigate effects of language on observable culture-differences across countries by selecting only those countries for which English was an official language or language of education thereby reducing our country selection set to 11 countries. Third, we then classified each of the 11 English-speaking countries along the regulatory-structure scale of our conceptual model (Figure 1) and all six current Hofstede (2010) national-culture indices taking care to align the indices so that the same country emerged on the same end (left side or right side) on each scale. Finally, we weighed issues

of data-collection costs and feasibility/accessibility to countries and selected the four representative countries - UK, USA, Hong Kong and India - as viable sources for this study's data.

Therefore, our study contrasts four countries across two independent factors – culture and regulatory structure (Figure 1). In terms of Regulation, USA and India have no overarching information privacy regulations or laws and are thus similar in this regard. The UK operates under the omnibus European Union privacy laws and regulations and is thus different from India and USA. Hong Kong has a similar regulatory structure like the UK. Additionally, all four have relatively large digital and information technology sectors and are considered leading nations in the innovation and export of information technology solutions. All four countries report intensive diffusion of social medial applications and relatively well developed digital economies. Because of this, residents from these countries have sufficient exposure to social media and are aware of, or have some experience with, the concept and issues of information privacy.

Survey Instrument, Survey Items and Data Collection

We used a web-based questionnaire to collect data from respondents in these four specific countries. Each country represented a separate independent sample, hence the four sets of sample data for this study. We focused purely on privacy concerns as articulated in prior validated IPC instruments. Therefore, we adopted all 27 items validated in Malhotra (2004) and Hong and Thong (2013) that are associated with the six first-order constructs of IPC; the two attitudinal beliefs constructs namely trusting beliefs and risk beliefs, and the single behavioral reactions construct named future use intention. A five-point Likert scale (1 = "strongly disagree" to 5 = "strongly agree") was used to elicit respondents' responses to each of the survey instrument's items. The scale included a "not applicable" option to allow respondents to opt-out of responding to items for which they were unable or unwilling to respond to.

A professional data-collection company recruited and collected data from respondents across the four countries. Of the 22,000 individuals requested to participate via email correspondence, 1,232 individuals completed and submitted the questionnaire resulting in a response rate of 5.6%. 1,086 responses, comprising of 342 responses from USA, 295 responses from UK, 260 responses from India and 189 responses from Hong Kong, were deemed complete and useful. Being cognizant of the size of the total populations of the countries sampled, we were careful not to offer sweeping inferences from this exploratory study.

Demographic and Descriptive Characteristics of Respondents

Two demographic characteristics, age and gender, were collected in this study. The U.S sample was made up of 190 (55%) males and 152 (45%) females. 10% of the respondents were between 18 and 24 years in age; 82% between 25 and 64 years old, and; 8% were above 64 years in age. The India sample comprised 133 males (51%) and 127 females (49%). In terms of age, 26.9% of the respondents were between the age of 18 and 24; 72% between 25 and 64 years; and 1% above 64 years in age. As for the Sample from the UK, there were 144 males (49%) and 151 females (51%). In terms of age, 11.5% of the UK respondents were between the age of 18 and 25; 83% were between 25 and 54 years of age, while 5% were above 64 years in age. The Hong Kong sample comprised 94 males (50%) and 95 females (50%). In terms of age, 11% of the respondents were between the age of 18 and 24; 40% between 25 and 34 years; 44% between ages 35-64 and 4% above 64 years in age.

Validation of Instrument and Study-Samples

CFA measurement validation of the constructs of the IPC model, conducted by executing SPSS AMOS (version 26) maximum likelihood factor analysis (Aubuckle, 2004), provided confirmation that each of the factors satisfies measurement validation indices for Discriminant Validity and Construct Reliability. Discriminant Validity was satisfied because there was no evidence of significant cross loadings and none of the factor correlations were greater than 0.7 (Hair et al., 2010). Reliability

analysis of the model indicated that Cronbach Alpha scores were above 0.7 (Bagozzi, 1980; Hair et al., 2010; Nunally, 1978) for all of the conventional first-order IPC constructs.

Given that data collection was conducted using a single survey instrument, we also ran common method bias (CMB) analysis as recommended (Chin, et al, 2012; Conway & Lance, 2010; MacKenzie & Podsakoff, 2012; Shwarz et al., 2017) and found that that our results were reasonably free from impacts of CMB. CMB analysis via Bagozzi et al.'s (1991) partial correlations method confirmed that the correlation between any two constructs in the model was always less than the critical threshold value of 0.9. Harman's (1960) technique indicates that the most impactful construct accounts for only 45% of the total variance in the complete model. Additionally, the EFA and CFA analyses showed that the data collected for this study met the expected construct validity thresholds and that there was no evidence of item cross loading.

Analysis of Hypotheses

Based on the study's conceptual framework (Figure 1) we implemented culture as a categorical construct comprising of two groups: the first being made of respondents from UK and USA (N= 637) and the second being made up of respondents from India and Hong Kong (N=449). Likewise, regulatory structure was implemented as a categorical construct comprising of two groups with respondents from Hong Kong and UK forming the first group (N=484), and those from USA and India forming the second (N=602).

A statistical analysis of the correlations among the study's two independent constructs, Country Culture and Country Regulatory Structure, conducted in SPSS, indicated very low correlation (0.042). Correlation between gender and either independent construct was also very low (-0.018 for regulatory structure and 0.040 for country culture). Age had a low correlation with regulatory structure (-0.037) and a moderate significant correlation with country culture (0.296). There was very little correlation between age and gender (0.093).

Owing to the moderate correlation between country culture and age, a two-way multivariate analysis of variance (MANOVA) was conducted to analyze if the joint impact of country culture and age on the multivariate dependent variables were significant. This analysis reveals that interaction effects of age and country culture are statistically significant only for trusting beliefs and future use intention, but not for any of the other dependent. Consequently, one way analysis of variance (ANOVA) emerged as the preferred approach for assessing the hypotheses relating to regulatory structure (H4 to H6), as well as the first hypothesis relating to country culture (H1). We employ results from both ANOVA and two-way MANOVA to test hypotheses H2 and H3.

RESULTS

An assessment of the effects of country culture on the study's dependent constructs indicate that there are significant differences in the perceptions of IPC across the two culture groups for all the first order IPC dimensions with the exception of collection. Given that sub-hypotheses H1a, H1b, H1c, H1d, H1e and H1f are all fully supported, Hypothesis H1 is supported. These findings indicate that country culture has a bearing on an individual's IPC. The results also indicate that there are significant differences in the perceptions of trusting beliefs across the two culture groups indicating that hypotheses H2a is fully supported. These observations signify that country culture informs an individual's trusting beliefs. With respect to risk beliefs, the results indicate that there is no difference between the two culture groups since H2b is not supported. We also find support for H3. These results indicate that future continued use intention is informed by country culture.

Concerning differential effects of regulatory structure's impacts on the study's dependent constructs, we found no significant differences in the means of the two regulatory structure groups across all of the six first-order dimensions of IPC, namely collection, secondary use, errors in data, unauthorized access to data, control and awareness. Therefore, all of the sub hypotheses pertaining

to regulatory structure and IPC are not supported. Consequently, H4 finds no support. Analysis of country regulatory structure's association with attitudinal beliefs (H5) find support for H5a but not for H5b. The results reveal that regulatory structure informs trusting beliefs but not risk beliefs. Results indicate support for H6 too, indicating that regulatory structure informs future continued use intention.

Multi-Group Analysis of IPC, Attitudinal Beliefs and Future Continued Use Intention Based on Country Culture and Regulatory Structure

That countries with dissimilar regulatory structure do not reflect significant differences in their citizen's perceptions about IPC, while countries with dissimilar cultures do, indicates that individual's IPC may be informed by country culture much more than it is informed by the country regulatory structure. To corroborate this, we conducted a multi-group analysis of the two cultural groups using the established IPC causal model (Hong & Thong, 2013). We also employed the same IPC causal model to conduct a multi-group analysis of the two regulatory structure groups. We achieved this by using Smart PLS version 3 (Ringle et al., 2005) to execute the multi-group analysis and evaluate the IPC causal model (Hong & Thong, 2013) for the entire dataset, first using culture and, later using regulatory structure as the factors to determine group membership for each data point within the sample.

Results for this analysis reveal that country culture has a stronger bearing on individual's perceptions about IPC, trusting beliefs, and future continued use intention than does regulatory structure. Country regulatory structure did not explain or account for differences in the path coefficients of the causal relationships in the IPC model. On the other hand, the results confirm that country culture informs observed differences in the causal relationships between IPC and Trusting beliefs, IPC and future continued use, and trusting beliefs and future continued use across the two country-culture groups. The path coefficients for these three causal relationships are significantly stronger for the USA-UK sample than they are for the Hong Kong-India sample. However, culture appears not to inform the causal relationships involving risk beliefs. There are no observed statistical differences across the two country culture groups on the causal relationships involving risk beliefs.

These findings correspond with the observations reported, thus providing credence to a more dominant influence of country culture over country regulatory structure as a predictor of an individual's information privacy concerns. Hence we conclude that, within the context of individuals' information privacy (at least social media information privacy), country culture is a better predictor, or explanatory construct, of individuals' IPC, Trusting Beliefs and Future Continued Use Intention than is country regulatory structure. We also conclude that individuals' risk beliefs are largely not explained by country culture or country regulatory structure.

Discussion

The results of this study confirm the country culture continues to have a significant impact in shaping professionals' perceptions about information privacy. Country culture is found to explain professionals' concerns about secondary use of data, errors in data, unauthorized secondary use of data, control over data collection and awareness about data privacy. The exception is collection of data, where country culture is found to have no impact. That countries with different cultures reflect differences in how professionals perceive information privacy is indicative of the significance of culture in the management of information privacy within professional settings. This has bearings at two levels of analysis. First, it suggests that information privacy governance mechanisms may be more effective if congruent with country culture than if designed to be global or universal in nature. Second, it implies that within individual corporations or organizations, country culture ought to be considered when developing and implementing corporate-wide professional guidelines, policies, procedures and practices pertaining to information privacy and the management of individuals' personal information.

We infer from the results that professionals do not perceive current regulatory structure as providing sufficient protections against personal information based on the perceptions these professionals hold about information privacy concerns. We find that while regulation may not allay

individuals' perceptions about information privacy (as these appear to be shaped by the individuals' country culture), it provides individuals with some level of needed beneficial assurances as to enable them try out, adopt and use emergent ICTs. Our results indicate that professionals from countries with omnibus regulation register higher future-use-intention mean scores than professionals from countries from the non-omnibus regulation group. We can infer from the results that protective regulatory structures seem to allay the doubts that individuals may have about an ICT thereby emboldening the individuals to take the step to adopt, try out, and use the ICT. Hence in the context of individual-level information privacy, there is some benefit that derives from regulation. However, our results suggest that country-regulation needs to be congruent with prevailing country culture for it to generate optimal benefits.

While we acknowledge that there have been several recent studies examining various relationships between country culture and information privacy, almost all exclude country regulatory structure as a core construct. Further, most of these studies have focused on countries within the same region (e.g. Miltgen & Peyrat-Guillard, 2014; Jensen & Wagner, 2018); or used data from a single country to generalize about culture's impacts on privacy within a given geographic region (e.g. Samsuri & Ismail (2013); and, Mohammed & Tejay (2017)); or limited themselves to comparing countries across two different geographic or cultural regions (e.g., Thomson et al., 2015 and Lowry et al., 2011, among others). That collection of studies provides us with, at best, a fragmented global perspective of the influence of culture on privacy and provide little evidence of the role of regulatory structure within that global perspective of privacy. This study contributes, in part, to remedy that shortfall. By establishing a framework that pitches regulatory structure to national culture, this study provides a foundational framework upon which we can begin to establish a more global perspective of the interplay between country culture and country regulatory structure on individuals' information privacy. The framework that we have developed and employed could serve as a basis for the scholarly analysis of countries; different technological innovations; different permutations of culture-indices combinations to identify those that most potently inform country distinctions regarding information privacy; and, potentially as the basis for studying and assessing the country-level interaction effects of culture and regulatory structure on various aspects of country-level information privacy considerations.

Furthermore, the framework lends itself to other units of analysis (beyond the individual level of analysis as exemplified by professionals) such as corporations, industry or industrial sectors. This allows for cross-industry, cross-sector, cross-technology information privacy assessments across different regions of the world; and also for sector-specific contrasts of different countries across the world. Realizing that the need for information privacy may vary across industry-type or business domain, this will allow for much deeper evaluations of how country-culture and country regulatory structure (be it generic or sector specific) impact privacy within select sectors across countries with different cultures. Consequently, we see this framework being extended to examining organization level concerns about information privacy and managerial aspects of information privacy, especially within multinational enterprises whose operations span globally across multiple country cultures.

This study extends the findings reported in prior studies. In this study, we find that country culture informs professionals' concerns about information privacy. This finding is in congruence with other earlier studies, such as Milberg et al. (2000), Bellman et al. (2004), Xu et al. (2012), Dogruel & Jockel (2019), and Benamati et al. (2016). As in Bellman et al. (2004), our study finds that the influence of culture on IPC is evident in the first-order dimensions of IPC termed "errors in data" and "unauthorized access to data", and that culture does not influence "collection". Unlike in Bellman (2004) we also find that culture influences the "secondary use" dimension as well. Further, we tested two other dimensions to IPC – control and awareness – that were not initially tested in Bellman et al. (2004) and find that culture influences both dimensions. Given that selection of UK, USA, Hong Kong and India as countries from which to collect data for this study was by design – with UK and USA selected as the first group of countries with similar culture; India and Hong Kong as the second group of similar-culture countries, and; India and Hong Kong as countries whose culture is diametrically

dissimilar to UK's and USA's culture – we can conclude that, with the exception of collection of data, culture informs respondent's perceptions about IPC. Nevertheless, we offer this finding with the caveat that further studies are needed. Specifically, studies to assess why the IPC dimensions of collection appears to be culture agnostic and somewhat informed by regulatory-structure would contribute to understanding why this dimension of IPC behaves somewhat differently from the other five first-order IPC domains. We would also hope that this study is validated in future studies that select to use other combinations of countries besides the four selected for this study.

The finding that regulatory structure continues to have no predictive impact on individual's perceptions about IPC as captured by all first order dimensions of IPC with the exception of collection, is indicative of either (a) the rapid rate of evolution of the information-privacy landscape owing to equally rapid innovations in information technology - implying that regulations in place are not keeping pace with needed information privacy protections, at least in the minds of individuals, or (b) the inadequacy of regulation as a mechanism for providing needed protections pertaining to individual's personal information. Both of these are concerning and point to the need for more research on the efficacy of regulation as a mechanism for leveraging information privacy. The subdued predictive impacts of regulatory structure on individual's perceptions about information privacy indicates that firms cannot rely merely on the laws within the countries that they operate in to inform their organizational practices pertaining to their management of information privacy. However, research on what other factors the firms can leverage to foster effective information privacy management remains scant.

Given that we find country culture to be such a significant predictor of individuals IPC; their attitudinal beliefs about information privacy within the context of information technology applications, and; their intentions to use information technology applications, it may be that universal regulations designed to regulate information privacy across multiple different countries, such as the recently implemented GDPR, may have limitations in their efficacy to provide intended or sought after protections, especially where member-countries exhibit significant country-culture differences. Therefore, a natural extension of this research would be to investigate the efficacy of such multi-nation regulations across member countries with a view to understanding the nature of disparities across countries that have markedly different country cultures.

For practitioners, at the country-administration and national policy formulation levels, the conceptual framework developed and employed in this study establishes a basis upon which country-appropriate or country-specific laws, policies and regulations pertaining to information privacy can be developed, assessed or benchmarked. For one, this study has demonstrated that country culture is an important consideration when establishing national regulations and policies concerning information privacy because (a) culture informs how individuals perceive IPC and (b) disparities among how individuals perceive information privacy are significantly sharp across countries with different country-culture profiles. Because of this, national policies and regulations seeking to leverage individuals' information privacy or foster the respect of individual's information privacy need to be sensitive to, and also aligned with, the country's culture profile. In this regard, the findings also provide a basis by which policies developed in another region of the world, such as the recent GDPR regime, can be evaluated for efficacy and relevance prior to being transferred (especially when no modifications have been made to the regulations or regulatory structures) for implementation in other parts of the word. In the same vein, International agencies seeking to foster information privacy and information privacy rights may need to consider country culture as a significant factor, among others, when designing and implementing global or multinational regulations pertaining to information privacy.

This study has shown that country culture is an important consideration when establishing organizational policies concerning information privacy for firms that operate across multiple countries. By identifying the five first-order dimensions of IPC that are directly impacted by culture, namely unauthorized secondary use of data, control over data, errors in data, awareness and unauthorized access to data. This study also provides corporate privacy managers with requisite information or

tools that could be targeted in the efforts to promote information privacy, leverage information privacy protections, or develop effective mechanisms for the protection or promotion of information privacy.

CONCLUDING REMARKS AND IMPLICATIONS

This study examined if national culture and a country's regulatory structure are associated with individual's information privacy concerns pertaining to social media technology use. It borrowed from and extended Bellman et al.'s 2004 study by examining country-culture's impacts on individuals' attitudinal beliefs about privacy and behavioral reactions to information privacy; impacts of country regulatory structure on individuals' attitudinal beliefs about privacy and behavioral reactions to information privacy; and the patterns of moderation associated with country culture's, and regulatory structure's, effects on IPC.

The overall picture presented by our findings is that individuals reactions to personal information privacy is closer aligned to country culture than to a country's regulatory structure. Specifically, a country's culture appears to be more tightly associated with individuals' (i) individual's behavioral reactions to information privacy concerns (as measured by future continued use intention), (ii) individuals' trusting beliefs, and (iii) individuals' perceptions about five of the six first-order dimensions of IPC, namely: secondary use of data, errors in data, unauthorized access to data, control over collection, and awareness. Regulatory Structure, on the other hand appears to have a stronger association with only one IPC dimension, namely (i) individuals' perceptions about collection of personal data; as well as with (ii) risk beliefs (iii) trusting beliefs and (iii) future continued use intention.

Nevertheless, we acknowledge that the study is not without limitations. For example, the Dual-dimensionality structure of the framework can be perceived as a limitation of this study and its design because it compelled us to include all six culture-indices into a single axis – the culture axis. Hence opportunity exists for further refinement and/or improvement of the framework that we have developed in the study. Another limitation relates to the country representation within the framework. It would be beneficial to include multiple countries within each quadrant of the framework as that may provide for a richer analysis to see whether or not countries that cluster together in terms of culture and regulatory structure are purely homogeneous or if nuanced differences exist even among such countries. Including countries from south America and Africa – which are major global regions whose characteristic cultures, though somewhat similar to India, may be sufficiently different as to provide new perspectives to the hypotheses tested in this study – would also add to the value of research in this area. However, this will require that countries from these regions be classified in terms of the information privacy regulatory structures framework established by Milberg et al. (2000) and Bellman et al. (2004). Hence an opportunity exists to classify those countries with respect to their information privacy laws and regulatory structures. This study employed a quantitative survey based research design. We recognize that other research designs are applicable and could produce deeper or richer insights regarding the research questions we sought to answer even if we had increased the sample sizes in this study. The use of different research methods, e.g., qualitative design employing focus-groups or interviews or field-studies would be another viable way of corroborating, re-assessing, or extending the findings of this study. Finally, while finding that regulatory structure may have some beneficial impacts on information privacy at the individual level, this study does not propose that a given regulatory structure is better than the other. It also does not address what types of regulatory structure or regulations are effective, or ought to be in place in specific countries given the cultures of those countries. In other words, the scope and design of this study do not provide for such analyses. We acknowledge that the study is limited in this regard.

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