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A gene-dependent climatoeconomic model of generalized trust

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ABSTRACT

Given the benefits of generalized trust, its determinants receive growing attention in international/cross-cultural management/psychology. This research proposed a gene-dependent climatoeconomic model, integrating multiple types of determinants parsimoniously. Across 53 societies, generalized trust is a multiplicative function not only of climatic demands and wealth (climatoeconomic contextualization), but also of climatic demands, wealth, and the 5-HTTLPR S-allele prevalence (gene-dependent climatoeconomic contextualization), mediated by uncertainty avoidance. The climatoeconomic contextualization is present only in societies possessing a low level of the 5-HTTLPR S-allele prevalence. These findings shed light on trust and international management research as well as interventions and policy making for societal effectiveness.

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1. Introduction

The effectiveness of a group, an organization, a community, or a society requires its members' coordinated actions. Yet people's interests and goals oftentimes are misaligned, causing social conflict (Deutsch, 1949). In order to coordinate their actions with others, individuals use certain heuristics known as organizing principles, such as market, hierarchy, and clan (Ouchi, 1980), to process information and enact appropriate behaviors. Trust, as another important organizing principle (McEvily, Perrone, & Zaheer, 2003), refers to one's willingness to accept vulnerability based on positive expectations regarding others' intentions or behaviors (Mayer, Davis, & Schoorman, 1995; Rousseau, Sitkin, Burt, & Camerer, 1998). It economizes on one's cognitive resources (Uzzi, 1997), structures one's mental representations of the environment, and mobilizes one's cooperation with others (McEvily et al., 2003).

Trust has been conceptualized as a form of social capital (Putnam, 1993) that can be utilized and transformed into other forms of capital such as economic (Granovetter, 2005) and intellectual capital (Nahapiet & Ghoshal, 1998), and has received growing attention in various disciplines.¹ Trust can be classified

into particularized (thick or specific) trust and generalized (thin or diffuse) trust; the former refers to one's trust in specific people based on one's familiarity and similarity with those people, whereas the latter refers to trust in most strangers based on their morality, reputation, and characteristics (Freitag & Traunmüller, 2009; Glanville & Paxton, 2007; Kong, 2013a). Although particularized trust can facilitate cooperative behaviors and task performance and reduce deviant behaviors within specific relationships (see Colquitt, Scott, & LePine, 2007; Dirks & Ferrin, 2002; Kong, Dirks, & Ferrin, 2014 for meta-analytic results), "[i]n modern society, which involves daily interaction with strangers, general[ized] trust is thought to be more important than particular[ized] trust" (Delhey, Newton, & Welzel, 2011, p. 786). Realo, Allik, and Greenfield (2008) also noted that "[d]evelopment and modernization require that the network of trust is extended to others outside of the traditional circle of family, neighborhood, and village" (p. 450). Yet management research has largely focused on particularized trust, neglecting generalized trust. The current research focuses on generalized trust, thus advancing this line of inquiry.

Generalized trust bestows a range of benefits at the macro level; it contributes to better quality of government, economic growth, enhanced subjective well-being, social cohesion, civic engagement, and so forth (see Dinesen, 2012; Kong, 2013a). At the micro level, generalized trust, also known as trust propensity or "the general willingness to trust others" (Mayer et al., 1995, p. 715), fosters fairness perception (Bianchi & Brockner, 2012), relationship-specific trust (Colquitt et al., 2007; Mayer & Davis, 1999), trust in outgroup members (Muethel & Bond, 2013), high-quality social relationships (Bernerth & Walker, 2009), and positive work

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¹ Trust has been examined as a major topic in economics (e.g., Berg et al., 1995; Croson & Buchan, 1999; Johnson & Mislin, 2011), human biology (e.g., Kosfeld et al., 2005; Riedl & Javor, 2012; Zak et al., 2005), organizational behavior (e.g., Dirks & Ferrin, 2001; McAllister, 1995), political science (Bjørnskov, 2006; Miller & Whitford, 2002), psychology (e.g., Acar-Burkay et al., 2014; Johnson-George & Swap, 1982; Kramer, 1999; Rotter, 1971), and sociology (e.g., Delhey & Newton, 2005; Lewis & Weigert, 1985; Molm et al., 2000; Yamagishi et al., 1998).

attitudes and behaviors (Bianchi & Brockner, 2012; Colquitt, LePine, Zapata, & Wild, 2011). These benefits generate increasing scholarly interest in identifying the determinants of generalized trust, particularly across cultures (Ferrin & Gillespie, 2010).

Just like any other dispositional factor, there exists a debate on the relative importance of genetic versus environment influences on generalized trust.² Some researchers view that generalized trust can be meaningfully predicted by genetic factors. For instance, Oskarsson, Dawes, Johannesson, and Magnusson (2012) found that extraversion, personal control, and intelligence shared approximately 1/3 of the genetic influence on generalized trust both for males and females. Carl (2014) also found that intelligence had a strong correlation with generalized trust in 15 Spanish regions, 20 Italian regions, 50 U.S. states, and 107 countries, showing a significant genetic influence on generalized trust. Other researchers focus on the importance of the environmental predictors of generalized trust. For example, Bjørnskov (2006) and Kong (2013a), taken together, found that environmental factors such as wealth, political regimes, ethnic diversity, and even thermal climates could determine generalized trust (see Nannestad, 2008 for detailed discussion). However, following the view of gene–environment interaction (i.e., genes can alter people's reactions to specific environmental features and influence their sociopsychological functioning; see Han et al., 2013; Manuck & McCaffery, 2014), Hatemi and McDermott (2012) noted that “there is a recent shift in perspective by both life and social scientists that emphasizes the interplay between genes and the environment...which was proven more accurate than any position favoring either nature or nurture” (p. 525).

Following Hatemi and McDermott's (2012) view as well as the recent trend that population-genetic³ factors have received growing research attention (Chiao & Blizinsky, 2010; Kitayama & Uskul, 2011; Minkov, Blagoev, & Bond, 2015), I seek to extend Kong's (2013a) climatoeconomic model and propose a gene-dependent climatoeconomic model by adopting the framework of gene–environment interaction. Following Kim and Sasaki's (2014) model, I conceptualize the serotonin transporter gene polymorphism (5-HTTLPR) S-allele prevalence as a population-genetic predictor moderating the relationship between the climatoeconomic environment (as a multiplicative function of climatic demands and wealth) and generalized trust. In addition, following Kong (2013a), I argue that uncertainty avoidance mediates the interaction relationship of the 5-HTTLPR S-allele prevalence and climatoeconomic environment to generalized trust. While examining the mediating role of uncertainty avoidance, I rule out the alternative mediating mechanisms including the three cultural dimensions examined by Kong (2013a)—individualism–collectivism, power distance, and masculinity–femininity—as well as the two more recently proposed cultural dimensions—long-term orientation and indulgence. Long-term orientation refers to cultural orientation toward the future and long-term fulfillment rather than the present and immediate gratification, whereas indulgence refers to free versus restrained gratification of basic and natural human drives pertaining to enjoyment and fun (Hofstede, Hofstede, & Minkov, 2010).

In so doing, the present research contributes to the literatures on trust and international/cross-cultural management/psychology. First, the present research provides a novel, comprehensive, and yet parsimonious view on the determinants of generalized

trust. This view integrates environmental (economic and thermal-climatic), sociocultural, and population-genetic predictors and considers the interplay between environmental and population-genetic predictors in explaining the evolution of generalized trust. Yet it does not engender an overly complex model. Second, international/cross-cultural management/psychology research has predominantly focused on the relationship between individualism–collectivism or power distance and trust (Taras, Kirkman, & Steel, 2010) and neglected other cultural dimensions (e.g., uncertainty avoidance) pertaining to trust (Kong, 2013a). The present research, along with Kong (2013a), bridges this gap and sheds novel light on the linkage between cultural dimensions and trust.

2. Kong's (2013a) climatoeconomic model of generalized trust

Climates create cultures (Van de Vliert, 2007). Van de Vliert (2009) proposed climatic demands–resources theory, claiming that both sociocultural values and sociopsychological functioning can be predicted by the interaction of climatic demands and wealth. Climatic demands serve as a stressor to societal effectiveness. According to coping theory, the first step for coping with stress is stressor appraisals (Lazarus & Folkman, 1984). Stressors can be appraised as threats or challenges (e.g., Tomaka, Blascovich, Kelsey, & Leitten, 1993; Tomaka, Blascovich, Kibler, & Ernst, 1997), depending on people's evaluations of the stressors' significance to them and their own coping options; threat appraisals are associated with appraisals that existing resources do not meet environmental demands, thus triggering fear/anxiety and avoidance responses, whereas challenge appraisals are associated with appraisals that existing resources meet or exceed environmental demands, thus triggering excitement/eagerness and approach responses (Lazarus & Folkman, 1984).

If climatic demands are not matched by wealth, they can pose threats to human survival and societal effectiveness (Van de Vliert, 2007, 2009, 2013). In response to the uncontrollable and threatening situation, people experience fear/anxiety (Fugate, Kinicki, & Prussia, 2008; Lazarus & Folkman, 1984) and avoid uncertainty and potential losses (Frijda, Kuipers, & ter Schure, 1989). However, if climatic demands are matched by wealth, they can pose challenges to a society (Van de Vliert, 2007, 2009, 2013). In response to the controllable and challenging situation, people experience excitement/eagerness (Fugate et al., 2008; Lazarus & Folkman, 1984), direct their attention to the promotion of potential gains and opportunities (Fredrickson, 2001; Fredrickson & Branigan, 2005), and take effort and risk (Ohly & Fritz, 2010).

Following Van de Vliert's theory, Kong (2013a) proposed a climatoeconomic model of generalized trust, which was replicated by Robbins (2015). As noted earlier, trust is an organizing principle that structures people's mental representations of their environment and coordinates collective actions (McEvily et al., 2003). Trust is associated with people's orientation toward rewards and senses of certainty and predictability rather than fear of losses (Colquitt, LePine, Piccolo, Zapata, & Rich, 2012; Dimoka, 2010; McKnight & Chervany, 2001). Thus, people are more likely to trust others when appraising environmental stressors as challenges versus threats. Kong (2013a) argued that climatic demands activate the need for psychological comfort and social connectedness, and thus, may foster generalized trust under certain circumstances. In comparison to threat appraisals, challenge appraisals of environmental stressors are more conducive to collective security, social equality, self-expression, and personal growth (Van de Vliert, 2013), which are strongly associated with generalized trust (Ferrin & Gillespie, 2010; Kong, 2013b; Rothstein & Uslander, 2005). Wealth provides resources for people's buffering against thermal threats, influences people's perceptions of climatic

² I wish to thank an anonymous reviewer for his/her suggestion of including this debate in the introduction.

³ Population genetics is “the study of the gene frequency distribution in populations and its change under the influence of the four evolutionary forces: natural selection, genetic drift, mutation, and gene flow” (Kim et al., 2012, p. 917; see Hartl, 2000).

demands as challenge versus threat stressors, and guides their responses. Therefore, wealth alters the linkage between climatic demands and generalized trust. Indeed, Kong (2013a) found that climatic demands are positively related to generalized trust in high-wealth societies but not significantly related to generalized trust in low-wealth societies.

Collective security, social equality, self-expression, and personal growth are also indicators of uncertainty tolerance (versus avoidance). Kong (2013a) found that the cultural dimension of uncertainty avoidance mediated the interaction relationship of climatic demands and wealth to generalized trust, whereas other cultural dimensions including individualism–collectivism (Allik & Realo, 2004), power distance (Delhey & Newton, 2005), and masculinity–femininity did not. Uncertainty avoidance refers to the degree to which people in a specific society are uncomfortable about uncertain or uncontrollable situations and about personal risk taking, thus representing people's collective aversion to uncertainty (Hofstede, 1980; House, Javidan, Hanges, & Dorfman, 2002; Javidan, Dorfman, de Luque, & House, 2006). Hofstede (1991) noted that the feeling of being threatened by uncertainty or uncontrollability is "expressed through nervous stress and in a need for predictability: a need for written and unwritten rules" (p. 113).

Hofstede's notion of uncertainty avoidance (versus tolerance) is closely associated with cultural tightness (versus looseness) (Hofstede, 1980; Triandis, 2004), which has been systematically examined by Gelfand and colleagues (Gelfand, Nishii, & Raver, 2006; Gelfand et al., 2011). High uncertainty avoidance societies emphasize social conformity, employ rules and laws extensively and strictly to regulate people's behaviors, and have little tolerance for people's deviant behaviors, whereas low uncertainty avoidance societies emphasize personal freedom, encourage personal discretion for behavioral regulation, and have little sanction for deviant behaviors (Earley, 1997; Gelfand et al., 2006, 2011; House et al., 2002; Javidan et al., 2006; Triandis, 2004). Therefore, in comparison to people in low uncertainty avoidance societies, those in high uncertainty avoidance societies tend to have more rigid reasoning, lower innovation, and stronger compliance with ethical principles (Taras et al., 2010; Venaik & Brewer, 2010).

Uncertainty is a necessary condition for the existence of trust; that is, trust is unnecessary or meaningless without the presence of uncertainty (Rousseau et al., 1998). Without uncertainty tolerance, generalized trust is unlikely to exist. Thus, people in high uncertainty avoidance societies have no need to use generalized trust as the organizing principle for action coordination (i.e., strict social institutions crowding out trust; e.g., Bohnet & Baytelman, 2007), whereas those in low uncertainty avoidance societies are likely to use generalized trust as the organizing principle to coordinate actions guided by self-defined rules (Doney, Cannon, & Mullen, 1998; Kong, 2013a). Accordingly, following Kong (2013a), I propose the following hypotheses.

Hypothesis 1. At the societal level, climatic demands and wealth have a two-way interaction relationship with generalized trust, such that the relationship between climatic demands and generalized trust is positive when wealth is high but non-significant (modest, negative) when wealth is low.

Hypothesis 2. The above two-way interaction relationship is mediated by uncertainty avoidance at the societal level.

3. A gene-dependent climatoeconomic model of generalized trust

Building upon Kong's (2013a) climatoeconomic model and adopting the framework of gene–environment interaction, I propose a gene-dependent climatoeconomic model of generalized trust.

3.1. Gene–environment interaction

How genes directly or indirectly influence sociopsychological functioning has intrigued behavioral and social scientists. The view of gene–environment interaction maintains that genes have no direct influence on sociopsychological functioning but rather an indirect influence by interacting with certain environmental predictors. As Kim and Sasaki (2014) noted, "[s]ome people may be genetically predisposed to react to a given environment influence more strongly than others, and likewise, people with the same genetic predisposition may at times react quite differently depending on differences in the environment" (p. 491). However, researchers are still searching for mechanisms that explain why genes moderate the environmental influence on sociopsychological functioning.

Taylor and Stanton (2007) offered a view, claiming that coping is a function of gene–environment interaction. As noted earlier, in coping with stress, people appraise stressors as threats or challenges and accordingly experience fear/anxiety or excitement/eagerness (Lazarus & Folkman, 1984). Genes can influence people's stressor appraisals. In societies possessing a high level of the 5-HTTLPR S-allele prevalence, people are likely to have threat appraisals of environmental stressors, whereas in societies possessing a low level of the 5-HTTLPR S-allele prevalence, people are likely to have challenge appraisals of environmental stressors. Differential stressor appraisals (threat versus challenge), as a result of genetic influence, guide people's perceptions of and orientations toward uncertainty and risk (e.g., Lee & Andrade, 2015) and determine their subsequent sociopsychological functioning.

3.2. The 5-HTTLPR S-allele prevalence as a moderator

Chiao (2009) noted that due to its "robust allelic variation across cultures," the 5-HTTLPR is one of the two genes that can play an important role in cross-cultural research, along with dopamine D4 receptor (DRD4) exon III polymorphism (p. 293). Serotonin (5-HT), as a critical neurotransmitter regulating emotional, cognitive, and other neural processes (Savitz & Ramesar, 2004), pertains to perceptions of and attitudes toward risk and uncertainty. The serotonin transporter (5-HTT) contains a polymorphic region (5-HTTLPR) involving a short (S) allele and a long (L) allele, which control different expressions and functions of this gene (Lesch et al., 1996). At the micro level, individuals who possess the 5-HTTLPR S-allele tend to have attentional bias to negative information (Beevers, Gibb, McGeary, & Miller, 2007; Fox, Ridgewell, & Ashwin, 2009; Pergamin-Hight, Bakermans-Kranenburg, van IJzendoorn, & Bar-Haim, 2012), fear conditioning (Lonsdorf et al., 2009), and neuroticism, but not necessarily harm avoidance (Sen, Burmeister, & Ghosh, 2004). Neurotic individuals tend to appraise stressors as threats rather than challenges and thus experience fear/anxiety and avoidance motivation rather than excitement/eagerness and approach motivation (Lazarus & Folkman, 1984; Tong, 2010). According to Fredrickson and Branigan's (2005) narrowing hypothesis, negative emotions (e.g., fear/anxiety) narrow people's scope of attention and cognition–action repertoires. In comparison to people lacking the 5-HTTLPR S-allele, those possessing the 5-HTTLPR S-allele are more likely to have a narrow scope of attention, focusing on negative information and neglecting positive information. Thus, those possessing the 5-HTTLPR S-allele are likely to appraise their environment as risky, uncertain, and threatening, and are inclined to avoid uncertainty.

The narrowing effect of the 5-HTTLPR S-allele also exists at the societal level. Chiao and Blizinsky (2010) found the cultural variation of the 5-HTTLPR S-allele prevalence, that is, the 5-HTTLPR S-allele is more prevalent in certain cultures than in other cultures. They also noted that "S allele carriers may be more likely to demonstrate

negative cognitive biases, such as engage in narrow thinking and cognitive focus...whereas L allele carriers may exhibit positive cognitive biases, such as open, creative thinking and greater willingness to take risks” (p. 535). I argue that the function of the 5-HTTLPR S-allele prevalence is isomorphic to that of the 5-HTTLPR S-allele. That is, the function of the 5-HTTLPR S-allele at the individual level can be replicated at the societal level (see Klein, Tosi, & Cannella, 1999). This claim is consistent with Staw, Sandelands, and Dutton's (1981) argument that both individuals and collectives respond similarly to threats and Morgeson and Hofmann's (1999) argument that “isomorphic constructs that span levels of analysis have a similar function or causal output but differ in their structure” (Klein et al., 1999, p. 246). Therefore, how the 5-HTTLPR S-allele moderates an environmental effect on individual responses (i.e., the function of the 5-HTTLPR S-allele) is likely to be isomorphic to how the 5-HTTLPR S-allele prevalence moderates an environmental effect on collective responses (i.e., the function of the 5-HTTLPR S-allele prevalence). Isomorphic to the positive correlation between the 5-HTTLPR S-allele and neuroticism at the individual level, the 5-HTTLPR S-allele prevalence is positively correlated with collective neuroticism at the societal level (Minkov et al., 2015). Due to its narrowing effect, the 5-HTTLPR S-allele prevalence, for example, attenuates the relationship between wealth (an environmental factor) and corruption (social functioning) at the societal level, which is mediated by cultural endorsement of self-protective leadership (a sociocultural factor) (Kong, 2014).

According to gene–environment interaction, the linkage of the climatoeconomic environment, represented by the interaction of climatic demands and wealth, to uncertainty avoidance and in turn generalized trust may depend upon the 5-HTTLPR S-allele prevalence. I expect the 5-HTTLPR S-allele prevalence to moderate the interaction relationship of climatic demands and wealth to generalized trust and expect uncertainty avoidance to mediate this three-way interaction relationship. Kong (2013a) found that the climatoeconomic environment was conducive to uncertainty tolerance (versus avoidance) and generalized trust, indicating that the climatoeconomic environment was likely to be appraised as a challenge stressor. Yet the 5-HTTLPR S-allele prevalence, which renders people a narrow, negatively biased lens for their collective perceptions of the climatoeconomic environment, can reduce people's tendency to appraise the climatoeconomic environment as a challenge stressor. Accordingly, the 5-HTTLPR S-allele prevalence is likely to attenuate the positive relationship of the climatoeconomic environment to uncertainty tolerance (versus avoidance) and subsequent generalized trust.

In sum, the relationship between the climatoeconomic environment (represented by the interaction of climatic demands and wealth) and generalized trust, which is likely to be mediated by uncertainty avoidance, may be weakened by an increment in the 5-HTTLPR S-allele prevalence.

Hypothesis 3. At the societal level, climatic demands, wealth, and the 5-HTTLPR S-allele prevalence have a three-way interaction relationship with generalized trust, such that the interaction relationship of climatic demands and wealth to generalized trust is weakened by an increment in the 5-HTTLPR S-allele prevalence.

Hypothesis 4. The above three-way interaction relationship is mediated by uncertainty avoidance at the societal level.

4. Methods

4.1. Sample

Fifty-eight societies (countries) were considered, given that data of the four key variables—generalized trust, climatic demands, wealth,

and the 5-HTTLPR S-allele prevalence—were available for these societies. These societies included: Argentina, Australia, Austria, Azerbaijan, Belgium, Botswana, Brazil, Burkina Faso, Canada, Chile, China, Colombia, Czech Republic, Denmark, El Salvador, Estonia, Ethiopia, Finland, France, Germany, Ghana, Guatemala, Hungary, India, Iran, Ireland, Israel, Italy, Japan, Korea (South), Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Peru, Poland, Russia, Rwanda, Singapore, Slovenia, South Africa, Spain, Sweden, Switzerland, Tanzania, Thailand, Turkey, Uganda, UK, Ukraine, Uruguay, USA, Venezuela, Vietnam, Zambia, and Zimbabwe. However, data of uncertainty avoidance were unavailable for five societies (Azerbaijan, Botswana, Rwanda, Uganda, and Zimbabwe), and thus, these societies were excluded, leaving 53 societies in the final sample.

4.2. Measures

Generalized trust. I collected data of generalized trust from the ASEP/JDS website (<http://www.jdsurvey.net/jds/jdsurveyMaps.jsp?Idioma=I&SeccionTexto=0404&NOID=104>), which provides the trust index calculated based on respondents' dichotomous answers to the World Values Survey question “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” A score above 100 indicates that most of the people in a society trust others in general, and a score below 100 indicates that most of the people in a society do not trust others in general.

Climatic demands. Following Kong (2013a), I collected data of the societies' average high and low temperatures from the website of Weatherbase (www.weatherbase.com) and used the sum of the absolute difference between the average high temperature and 72 °F and the absolute difference between the average low temperature and 72 °F as an indicator of climatic demands (average harshness of thermal climate), given that 72 °F is the most comfortable temperature (Van de Vliert, 2007, 2009).

Wealth. I used the log-transformed mean of GDP per capita (current US\$) from 1995 to 1999, provided by the World Bank (<http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>), as an indicator of each society's wealth (Kong, 2013a). The data of generalized trust included for the current analyses were all collected between 1999 and 2008 (see the ASEP/JDS website). Thus, using the data of wealth between 1995 and 1999 could help establish the claimed temporal order (i.e., wealth preceding generalized trust).

5-HTTLPR S-allele prevalence. I collected data of the 5-HTTLPR S-allele prevalence from Minkov et al.'s (2015) article.

Uncertainty avoidance. I collected data of uncertainty avoidance from Hofstede's website (<http://geert-hofstede.com/countries.html>).

Other variables. Considering the significant relationships that land area and ethnic diversity have with generalized trust (Kong, 2013a), I also included them as control variables. Like Kong (2013a), I also included individualism–collectivism, power distance, and masculinity–femininity to rule out the possibility that these cultural dimensions might mediate the three-way interaction relationship of climatic demands, wealth, and the 5-HTTLPR S-allele prevalence to generalized trust. Finally, I included long-term orientation and indulgence, two cultural dimensions proposed more recently (Hofstede et al., 2010), to rule out the possibility of their mediation roles. Yet data of these two cultural dimensions were missing for several societies.

Land area. I collected data of land area (in square kilometers) from CIA World Factbook (<https://www.cia.gov/library/publications/the-world-factbook/rankorder/2147rank.html>) and log-transformed the data (Kong, 2013a).

Ethnic diversity. I used Alesina, Devleeschauwer, Easterly, Kurlat, and Wacziarg (2003) ethnic fractionalization index as an indicator of ethnic diversity (Kong, 2013a).

Other cultural dimensions. I collected data of individualism–collectivism, power distance, masculinity–femininity, long-term orientation, and indulgence from Hofstede’s website (<http://geert-hofstede.com/countries.html>).

5. Results

5.1. Preliminary analyses

Table 1 presents the descriptive statistics and correlations among the variables of interest. Generalized trust was significantly correlated with all the other variables, except masculinity–femininity ($r = -.22, p = .12$), indulgence ($r = .14, p = .34$), land area ($r = -.09, p = .51$), and ethnic diversity ($r = .08, p = .59$). Consistent with Minkov et al.’s (2015) findings, the 5-HTTLPR S-allele prevalence was positively correlated with long-term orientation ($r = .42, p < .01$).

5.2. Hypothesis testing

Table 2 presents the results of the hierarchical regression analyses predicting generalized trust. Climatic demands, wealth, and the 5-HTTLPR S-allele prevalence were centered to their respective means (Aiken & West, 1991). Model 1 examined the direct relationships that climatic demands, wealth, the 5-HTTLPR S-allele prevalence, and the control variables had with generalized trust. The two-way interaction terms and the three-way interaction term were added in Models 2 and 3b, respectively. Uncertainty avoidance was added in Models 3a and 4 to test its mediation on the two-way interaction relationship of climatic demands and wealth to generalized trust and the three-way interaction relationship of climatic demands, wealth, and 5-HTTLPR S-allele prevalence to generalized trust, respectively.

Climatoeconomic model of generalized trust. The interaction of climatic demands and wealth was positively related to generalized trust (Model 2: $\beta = .45, p < .001$). Fig. 1a shows the interaction relationship. A simple slope test (Hayes, 2013), with all the variables included in Model 2, indicated that the relationship between climatic demands and generalized trust was non-significant in low (–1 SD) wealth societies (simple slope = $-.55, SE = .36, t = -1.53, p = .13$) but positive in high (+1 SD) wealth societies (simple slope = $1.45, SE = .31, t = 4.62, p < .001$). These results replicated Kong’s (2013a) findings and rendered support to Hypothesis 1.

Fig. 1b shows the significant interaction relationship of climatic demands and wealth to uncertainty avoidance ($\beta = -.40, p = .01$), with the same predictors of Model 2 taken into account.

Uncertainty avoidance was negatively related to generalized trust (Model 3a: $\beta = -.37, p < .001$), and its addition in Model 3a reduced the magnitude of the interaction relationship of climatic demands and wealth ($\beta = .30, p < .01$), indicating a partial mediation of uncertainty avoidance (Muller, Judd, & Yzerbyt, 2005). A bootstrapping method with 1000 replications (cf. Efron, 1988; Shrout & Bolger, 2002; e.g., Heim, Hunter, & Jones, 2011; Vacharkulksemsuk & Fredrickson, 2012) corroborated that uncertainty avoidance mediated the two-way interaction relationship (indirect effect = $.20$, bootstrap $SE = .14$, bootstrap 90% bias-corrected confidence interval (CI_{90%}) [$.03, .45$] excluding zero). Therefore, Hypothesis 2 was supported.

Gene-dependent climatoeconomic model of generalized trust. The three-way interaction of climatic demands, wealth, and the 5-HTTLPR S-allele prevalence was negatively related to generalized trust (Model 3b: $\beta = -.54, p < .05$). Fig. 2a displays the three-way interaction relationship. A simple slope test (Hayes, 2013) indicated that the interaction of climatic demands and wealth was not significantly related to generalized trust in societies possessing a high (+1 SD) level of the 5-HTTLPR S-allele prevalence (simple slope = $.04, SE = .28, t = .15, p = .88$) but positively related to generalized trust in societies possessing a low (–1 SD) level of the 5-HTTLPR S-allele prevalence (simple slope = $1.23, SE = .29, t = 4.19, p < .001$). Therefore, Hypothesis 3 was supported. More specifically, climatic demands were significantly related to generalized trust in societies possessing either low (–1 SD) (simple slope = $-1.19, SE = .58, t = -2.07, p < .05$) or high (+1 SD) wealth (simple slope = $3.02, SE = .81, t = 3.73, p < .001$) and a low (–1 SD) level of the 5-HTTLPR S-allele prevalence, but not significantly related to generalized trust in societies possessing either low (–1 SD) (simple slope = $-.35, SE = .56, t = -.62, p = .54$) or high (+1 SD) wealth (simple slope = $-.21, SE = .82, t = -.25, p = .80$) and a high (+1 SD) level of the 5-HTTLPR S-allele prevalence.

Fig. 2b shows the three-way interaction relationship of climatic demands, wealth, and the 5-HTTLPR S-allele prevalence to uncertainty avoidance ($\beta = .96, p < .01$), with the same predictors of Model 3b taken into account. Uncertainty avoidance was negatively related to generalized trust (Model 4: $\beta = -.33, p < .01$), and its addition in Model 4 made the three-way relationship become non-significant ($\beta = -.22, p = .34$), indicating a full mediation of uncertainty avoidance (Muller et al., 2005). A bootstrapping method with 1000 replications rendered further support to this mediation (indirect effect = $-.02$, bootstrap $SE = .02$, CI_{90%} [$-.07, -.001$] excluding zero). Therefore, Hypothesis 4 was supported.

Table 1
 Descriptive statistics and correlations.

Variable	N	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Generalized trust	53	60.63	32.34												
2. Climatic demands	53	34.87	17.75	.48											
3. Wealth	53	8.50	1.65	.48	.50										
4. 5-HTTLPR S-allele prevalence	53	46.18	13.71	.27	-.12	.22									
5. Uncertainty avoidance	53	65.76	22.44	-.48	-.05	-.04	.06								
6. Individualism–collectivism	53	46.83	24.72	.42	.52	.68	-.21	-.26							
7. Power distance	53	56.59	20.75	-.51	-.37	-.66	.10	.34	-.73						
8. Masculinity–femininity	53	49.08	19.24	-.22	-.23	.00	.12	.08	.12	-.02					
9. Long-term orientation	51	44.77	23.76	.28	.48	.35	.42	.02	.18	-.05	.07				
10. Indulgence	50	52.36	21.49	.14	-.16	.28	-.10	-.09	.10	-.25	.06	-.50			
11. Land area	53	12.84	1.93	-.09	-.05	-.32	-.03	.04	-.00	.24	.16	-.26	.01		
12. Ethnic diversity	53	.45	.24	.08	-.01	-.05	-.20	-.32	.17	-.08	.16	.24	-.03	.08	

Notes. For correlations involving neither long-term orientation nor indulgence ($N = 53$), .271 or above are significant at the level of .05, .351 or above are significant at the level of .01, and .440 or above are significant at the level of .001 (two-tailed). For correlations of long-term orientation with the other variables except for indulgence ($n = 51$), .276 or above are significant at the level of .05, .358 or above are significant at the level of .01, and .448 or above are significant at the level of .001 (two-tailed). For correlations of indulgence with the other variables ($n = 50$), .279 or above are significant at the level of .05, .362 or above are significant at the level of .01, and .452 or above are significant at the level of .001 (two-tailed).

Table 2
 Hierarchical regression analyses predicting generalized trust.

Predictor	Model 1		Model 2		Model 3a		Model 3b		Model 4	
	β	95% CI (b)	β	95% CI (b)	β	95% CI (b)	β	95% CI (b)	β	95% CI (b)
Land area	.02	-3.75, 4.56	.05	-3.25, 4.84	.05	-3.02, 3.16	.12	-2.04, 5.92	.08	-2.34, 4.93
Ethnic diversity	-.15	-62.74, 23.37	-.17	-59.82, 16.10	-.19	-70.48, 31.61	-.21	-63.74, 9.20	-.20	-60.20, 5.99
Climatic demands	.36*	.12, 1.19	.25	-.04, .93	.26*	-.17, .86	.18	-.15, .80	.23	-.02, .85
Wealth	.18	-2.70, 9.56	.27	-.01, 10.65	.22	-1.52, 14.77	.24	-.47, 9.75	.21	-.50, 8.79
5-HTTLPR S-allele prevalence (S-allele)	.21	-.14, 1.15	.25	-.17, 1.33	.24	-.40, 1.21	.21	-.22, 1.23	.23	-.12, 1.19
Climatic demands \times wealth			.45***	.31, .89	.30**	.01, .89	.42***	.29, .84	.31**	.14, .68
Climatic demands \times S-allele			-.02	-.06, .06	-.002	-.10, .04	-.27	-.12, .02	-.11	-.08, .05
Wealth \times S-allele			-.13	-.48, .17	-.12	-.69, .66	-.45*	-.95, -.07	-.25	-.70, .14
Climatic demands \times wealth \times S-allele							-.54*	-.08, -.01	-.22	-.06, .02
Uncertainty avoidance					-.37***	-.96, -.17			-.33**	-.76, -.17
R ²		.39		.58		.70		.63		.70
F (df1, df2)		5.91 (5, 47)***		7.66 (8, 44)***		10.93 (9, 43)***		8.12 (9, 43)***		9.92 (10, 42)***
ΔR^2				.19		.12		.05		.07
ΔF (df1, df2)				6.89 (3, 44)***		16.07 (1, 43)***		5.52 (1, 43)*		10.30 (1, 42)**

Notes. N = 53. β represents a standardized regression coefficient. 95% CI (b) represents the bias-corrected accelerated 95% confidence interval of an unstandardized regression coefficient.

* $p < .05$.
 ** $p < .01$.
 *** $p < .001$ (two-tailed).

5.3. Supplementary analyses

Finally, 1000-replication bootstrapping mediation tests indicated that none of the other five cultural dimensions—individualism–collectivism (indirect effect = .004, bootstrap SE = .01, CI_{90%} [-0.004, .02]), power distance (indirect effect = .002, bootstrap SE = .01, CI_{90%} [-0.01, .02]), masculinity–femininity (indirect effect = -.001, bootstrap SE = .01, CI_{90%} [-0.02, .005]), long-term orientation (indirect effect = .002, bootstrap SE = .01, CI_{90%} [-0.01, .03]), or indulgence (indirect effect = -.0002, bootstrap SE = .01, CI_{90%} [-0.01, .01])—mediated the three-way interaction relationship

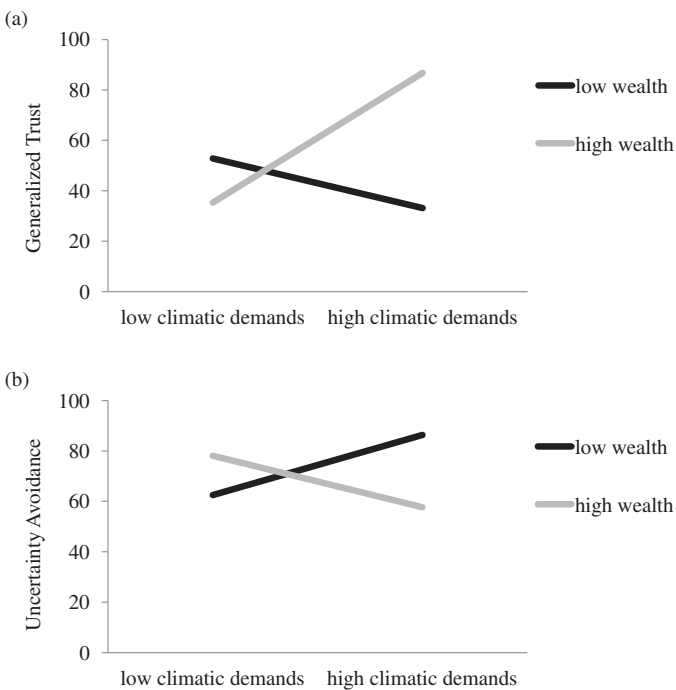


Fig. 1. The two-way interaction relationships of climatic demands and wealth to (a) generalized trust and (b) uncertainty avoidance. Notes. “S-allele” represents the 5-HTTLPR S-allele prevalence.

of climatic demands, wealth, and the 5-HTTLPR S-allele prevalence to generalized trust.

6. Discussion

Climatic demands and wealth are two important factors that jointly predict uncertainty avoidance and subsequent generalized trust (Kong, 2013a). Climatic demands are a stressor to human survival and societal effectiveness. Insufficient wealth leads people to appraise climatic demands as threat stressors whereas sufficient wealth leads people to appraise climatic demands as challenge stressors (Kong, 2013a; Van de Vliert, 2009). Following the framework of gene–environment interaction and building upon Kong’s (2013a) climatoeconomic model, the current research

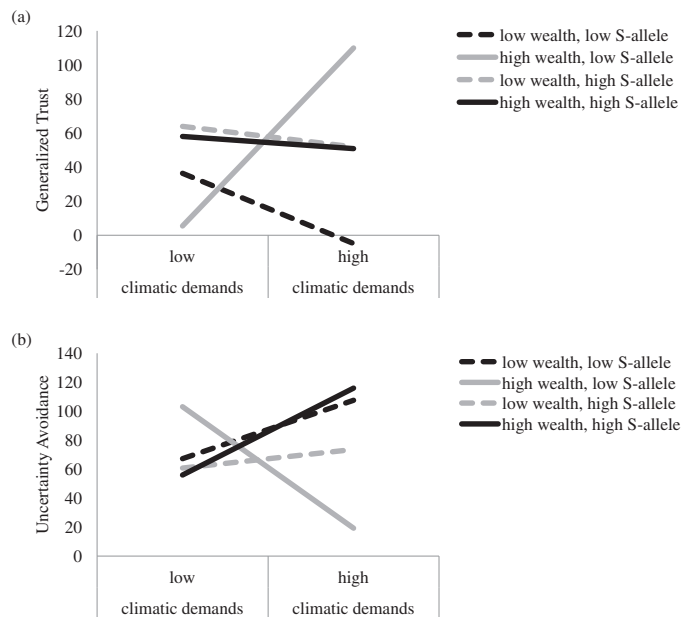


Fig. 2. The three-way interaction relationships of climatic demands, wealth, and the 5-HTTLPR S-allele prevalence to (a) generalized trust and (b) uncertainty avoidance. Notes. “S-allele” represents the 5-HTTLPR S-allele prevalence.

proposed a gene-dependent climatoeconomic model of generalized trust, identifying the 5-HTTLPR S-allele prevalence as a critical moderator for the relationship of the climatoeconomic environment (represented by the interaction of climatic demands and wealth) to uncertainty avoidance and in turn generalized trust. By doing so, I integrated a population-genetic factor (the 5-HTTLPR S-allele prevalence) with thermal-climatic (climatic demands), economic (wealth), and sociocultural (uncertainty avoidance) factors in predicting generalized trust. The interaction relationship of climatic demands and wealth to generalized trust, mediated by uncertainty avoidance, was present in societies possessing a low level of the 5-HTTLPR S-allele prevalence, and yet absent in societies possessing a high level of the 5-HTTLPR S-allele prevalence. These findings advance trust and international/cross-cultural management/psychology research and guide interventions and policy making for societal effectiveness, as detailed below.

6.1. Theoretical Implications

Determinants of generalized trust. First, the present research proffers a novel, comprehensive, and yet parsimonious view on the determinants of generalized trust. It adopts the view of gene-environment interaction and considers environmental and sociocultural predictors as well as a population-genetic predictor. Nannestad (2008) argued that “[b]ecause there is no general theory of trust yet...the list of variables proposed as potential determinants of levels of generalized trust is long” (p. 422). In face of such a long list of predictors of generalized trust, a parsimonious model that nonetheless incorporates various types of predictors is desirable. International management and cross-cultural psychology researchers have largely focused on the environmental predictors of generalized trust at the societal level and generated a long list of such predictors (see Ferrin & Gillespie, 2010; Nannestad, 2008). Recently, Minkov et al. (2015) provided data of the 5-HTTLPR S-allele prevalence in various societies, which enabled researchers to add this factor as a novel predictor. The inclusion of the 5-HTTLPR S-allele prevalence allowed me to explain how its interaction with the climatoeconomic environment shapes generalized trust, based on the logic of gene-environment interaction.

Worth stressing, different from most of the extant work on the determinants of generalized trust, which was not guided by a strong or general theory (Nannestad, 2008), the gene-dependent climatoeconomic model proposed and tested in the current research was theoretically grounded. Specifically, it was guided by Hofstede's (1980) hypothesis that societal cultures are the first-stage consequences of climatic composites and the second-stage intermediaries between climatic composites and their indirect consequences related to the sociopsychological functioning of markets, organizations, groups, and individuals (see Kong, 2013a). His hypothesis provided the logic for a parsimonious model integrating climatic and sociocultural predictors of generalized trust. The gene-dependent climatoeconomic model extends Hofstede's original hypothesis as well as Kong's (2013a) climatoeconomic model; the cultural dimension of uncertainty avoidance appears the first-stage consequence of the interplay of thermal-climatic, economic, and population-genetic factors and the second-stage intermediary between the interplay of these factors and its indirect consequence, that is, generalized trust, a critical factor for the effective sociopsychological functioning of markets, organizations, groups, and individuals (Kong, 2013a).

Limitations of Kong's (2013a) climatoeconomic model. The present research has revealed the limitations of Kong's (2013a) climatoeconomic model by identifying the 5-HTTLPR S-allele

prevalence as a boundary condition. Kong's (2013a) climatoeconomic model well explains how the climatoeconomic environment shapes generalized trust via uncertainty avoidance in societies possessing a low level of the 5-HTTLPR S-allele prevalence. Nevertheless, in societies possessing a high level of the 5-HTTLPR S-allele prevalence, generalized trust is not shaped by either wealth or climatic demands. Stated otherwise, the climatoeconomic contextualization of generalized trust proposed by Kong (2013a) only exists in societies with a low level of the 5-HTTLPR S-allele prevalence, and is absent in societies with a high level of the 5-HTTLPR S-allele prevalence. This begs two questions: (1) what environmental factors predict generalized trust in societies with a high level of the 5-HTTLPR S-allele prevalence? And (2) what theory can we use or propose for such empirical investigations, while avoiding the problem of a long list of predictors as Nannestad (2008) mentioned?

Cultural dimensions and trust. Like Kong's (2013a) study, the current research has ruled out other cultural dimensions proposed by Hofstede and colleagues, including individualism–collectivism, power distance, masculinity–femininity, long-term orientation, and indulgence, as alternative mechanisms that mediate the three-way interaction relationship of climatic demands, wealth, and the 5-HTTLPR S-allele prevalence to generalized trust. In other words, uncertainty avoidance appears to be the only cultural dimension that translates the interplay of thermal-climatic (climatic demands), economic (wealth), and population-genetic (the 5-HTTLPR S-allele prevalence) factors to generalized trust. This is a significant finding to the trust literature. Schoorman, Mayer, and Davis (2007) noted that an “area seeing rapid growth in interest is the role that international and cross-cultural dimensions play in the model of trust” (p. 352), and yet the issue has not been well addressed (see Ferrin & Gillespie, 2010). Researchers have theorized the linkages between trust and several cultural dimensions (Doney et al., 1998), mainly individualism–collectivism and power distance (Taras et al., 2010). Meta-analytic evidence has shown that individualism (vs. collectivism) is negatively associated with trust whereas power distance is positively associated with trust (Taras et al., 2010). Although uncertainty avoidance is proven to be the cultural dimension that explains the evolution of generalized trust in the current research, paradoxically, Taras et al.'s (2010) meta-analysis provided no correlation between uncertainty avoidance and trust, presumably due to the insufficient number of studies for their estimation. Thus, I urge future research to deem uncertainty avoidance as a critical cultural dimension pertaining to trust.

6.2. Limitations

There are some study limitations worth noting. First, although the sample size (53 societies) of the current study is comparable to those of previous international management and cross-cultural psychology studies that focused on societal-level phenomena (e.g., Fischer & Van de Vliert, 2011; Kong, 2013a; O'Connor & Fischer, 2012), it is relatively small. Future research can replicate and extend the current findings when more societal data are available.

Second, despite the prevalent use of the standard question “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” in international management and cross-cultural psychology research (e.g., Freitag, 2003), this single-item measure has its limitations. For example, Reeskens and Hooghe (2008) argued that this measure might be unreliable, imprecise, and narrow in scope. Delhey et al. (2011) found that although in most societies, “most people” in the standard question connotes outgroups, thus showing its validity as a measure of generalized trust, the radius of “most people” varies significantly across societies (narrower in

Confucian societies and wider in wealthy societies). Due to these concerns regarding the single-item measure of generalized trust, interpretation of the current findings requires caution.

Third, my theorizing of the role of the 5-HTTLPR S-allele prevalence rests upon the assumed isomorphism of the 5-HTTLPR S-allele (an individual-genetic factor) and the 5-HTTLPR S-allele prevalence (a population-genetic factor). The assumption of isomorphism is important to research on population genetics and the emerging field of sociogenetics (Kong, 2014; Minkov et al., 2015), because strong theory that explains the functions of population-genetic factors such as the 5-HTTLPR S-allele prevalence is lacking. This assumption is valid in the current research given the focus on the function of the 5-HTTLPR S-allele prevalence rather than its structure (see Morgeson & Hofmann, 1999). That said, I deem this issue as a study limitation and urge future research to develop a strong theory explaining both the function and structure of the 5-HTTLPR S-allele prevalence.

Fourth, like Van de Vliert and colleagues, who proposed and tested climatic demands-resources theory, I propose coping, which is a function of gene-environment interaction (Taylor & Stanton, 2007), as the underlying mechanism translating the climatoeconomic environment to uncertainty avoidance and in turn generalized trust. Yet the (challenge versus threat) stressor appraisal mechanism is not explicitly tested in the current research, due to the lack of available data. When the data of collective stressor appraisals are available, future research should explicitly test this claimed mechanism.

6.3. Directions for future research

Despite the above limitations, the current study provides several promising directions for future research. First, as noted earlier, the climatoeconomic contextualization of generalized trust does not exist in societies with a high level of the 5-HTTLPR S-allele prevalence. Future research can investigate what environmental factors determine generalized trust in these societies. Such investigations would provide a new lens for understanding the evolution of generalized trust.

Second, as Table 1 shows, generalized trust was significantly correlated with all cultural dimensions except for masculinity-femininity. Yet only uncertainty avoidance served as the mechanism explaining the gene-dependent climatoeconomic contextualization of generalized trust. Future research can examine under what circumstances individualism-collectivism and power distance, two most extensively studied cultural dimensions pertaining to trust (Taras et al., 2010), serve as a mediating mechanism that links generalized trust with its determinants.

Finally, the 5-HTTLPR S-allele prevalence does not moderate the relationship between climatic demands and generalized trust or between wealth and generalized trust, suggesting that this population-genetic factor does not necessarily moderate the relationship between any environmental factor and generalized trust. Future cross-cultural research should continue examining the circumstances under which the 5-HTTLPR S-allele prevalence moderates or does not moderate the relationship between an environmental factor and sociopsychological functioning. Such efforts would advance more nuanced knowledge of gene-environment interaction.

6.4. Practical implications

The current research also provides implications for interventions and policy making for societal effectiveness. Among the determinants of generalized trust identified in the current research, the climatic and population-genetic factors are stable

whereas economic and sociocultural factors are relatively changeable. For societies facing high climatic demands and possessing a low level of the 5-HTTLPR S-allele prevalence (e.g., Canada and Norway), their effort to accumulate wealth is likely to pay off in cultivating generalized trust, whereas for those facing low climatic demands (e.g., Colombia and Guatemala) or possessing a high level of the 5-HTTLPR S-allele prevalence (e.g., Japan and South Korea), their such effort may not pay off. In contrast, reducing uncertainty avoidance is likely to be effective for cultivating generalized trust in all societies (also see Kong, 2013a). Compared to high uncertainty avoidance societies, those with low uncertainty avoidance have higher openness to change and innovation, higher tolerance of diversity, fewer and more general laws and regulations, and fewer gender roles; and encourage open-ended (versus structured) learning and benevolent (versus hostile) worldviews (Hofstede, 1980, 1991; House et al., 2002; Javidan et al., 2006). Interventions that alter any of these factors may be effective for decreasing uncertainty avoidance and in turn fostering generalized trust.

Second, the current findings, together with those of Minkov et al. (2015), present a paradoxical role that the 5-HTTLPR S-allele prevalence plays in determining societal effectiveness. On one hand, the 5-HTTLPR S-allele prevalence attenuates the linkage between the climatoeconomic environment and generalized trust (as the current research has shown), making it difficult for societies to use environmental interventions for societal changes. Kong (2014) also showed that the 5-HTTLPR S-allele prevalence had an indirect, negative relationship with societal effectiveness, due to its positive associations with cultural endorsement of self-protective leadership and corporate corruption. On the other hand, the 5-HTTLPR S-allele prevalence is a facilitatory factor for generalized trust (as the current research has shown) as well as cognitive intelligence, academic performance, and long-term orientation at the societal level (Minkov et al., 2015). All these factors can facilitate societal effectiveness. Therefore, the 5-HTTLPR S-allele prevalence is not always a facilitatory or inhibitory factor for societal effectiveness; its role depends on the criterion of interest. Policy makers should recognize the paradoxical nature of the 5-HTTLPR S-allele prevalence, consider its significance to public policy (e.g., the Genetics and Public Policy Fellowship sponsored by the American Society of Human Genetics, the National Human Genome Research Institute, and National Institutes of Health), and systematically evaluate policies designed to foster societal effectiveness given the level of this population-genetic factor in their societies.

6.5. Conclusion

Drawing upon the framework of gene-environment interaction, the current research proposed a gene-dependent climatoeconomic model of generalized trust, which extended Kong's (2013a) climatoeconomic model of generalized trust. Across 53 societies, climatic demands had a positive relationship with generalized trust in high-wealth societies and yet a non-significant (modest, negative) relationship with generalized trust in low-wealth societies, replicating Kong's (2013a) findings. Also consistent with Kong (2013a), the two-way interaction relationship of climatic demands and wealth to generalized trust was mediated by uncertainty avoidance. Supporting the proposed gene-dependent climatoeconomic model, the interaction of climatic demands and wealth was not significantly related to generalized trust in societies possessing a high level of the 5-HTTLPR S-allele prevalence, but positively related to generalized trust in societies possessing a low level of the 5-HTTLPR S-allele prevalence. Uncertainty avoidance mediated the three-way interaction relationship of climatic demands, wealth, and the 5-HTTLPR S-allele

prevalence to generalized trust. No other cultural dimension (i.e., individualism–collectivism, power distance, masculinity–femininity, long-term orientation, or indulgence) mediated this three-way interaction relationship. These novel findings shed light on trust and international/cross-cultural management/psychology research, as well as interventions and policy making for societal effectiveness.

References

- Acar-Burkay, S., Fennis, B. M., & Warlop, L. (2014). Trusting others: The polarization effect of need for closure. *Journal of Personality and Social Psychology, 107*, 719–735. <http://dx.doi.org/10.1037/a0037022>
- Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. London, UK: Sage.
- Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., & Wacziarg, R. (2003). Fractionalization. *Journal of Economic Growth, 8*, 155–194. <http://dx.doi.org/10.1023/A:1024471506938>
- Allik, J., & Realo, A. (2004). Individualism–collectivism and social capital. *Journal of Cross-Cultural Psychology, 35*, 29–49. <http://dx.doi.org/10.1177/0022022103260381>
- Beavers, C. G., Gibb, B. E., McGeary, J. E., & Miller, I. W. (2007). Serotonin transporter genetic variation and biased attention for emotional word stimuli among psychiatric inpatients. *Journal of Abnormal Psychology, 111*, 208–212. <http://dx.doi.org/10.1037/0021-843X.116.1.208>
- Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, reciprocity, and social history. *Games and Economic Behavior, 10*, 122–142. <http://dx.doi.org/10.1006/game.1995.1027>
- Bernerth, J. B., & Walker, H. J. (2009). Propensity to trust and the impact on social exchange: An empirical investigation. *Journal of Leadership & Organizational Studies, 15*, 217–226. <http://dx.doi.org/10.1177/1548051808326594>
- Bianchi, E. C., & Brockner, J. (2012). In the eyes of the beholder? The role of dispositional trust in judgments of procedural and interactional fairness. *Organizational Behavior and Human Decision Processes, 118*, 46–59. <http://dx.doi.org/10.1016/j.obhdp.2011.12.005>
- Bjørnskov, C. (2006). Determinants of generalized trust: A cross-country comparison. *Public Choice, 130*, 1–21. <http://dx.doi.org/10.1007/s11127-006-9069-1>
- Bohnet, I., & Baytelman, Y. (2007). Institutions and trust: Implications for preferences, beliefs and behavior. *Rationality and Society, 19*, 99–135. <http://dx.doi.org/10.1177/1043463107075110>
- Carl, N. (2014). Does intelligence explain the association between generalized trust and economic development? *Intelligence, 47*, 83–92. <http://dx.doi.org/10.1016/j.intell.2014.08.008>
- Chiao, J. Y. (2009). Cultural neuroscience: A once and future discipline. *Progress in Brain Research, 178*, 287–304. [http://dx.doi.org/10.1016/S0079-6123\(09\)17821-4](http://dx.doi.org/10.1016/S0079-6123(09)17821-4)
- Chiao, J. Y., & Blizinsky, K. D. (2010). Culture-gene coevolution of individualism–collectivism and the serotonin transporter gene. *Proceedings of the Royal Society B, 277*, 529–537. <http://dx.doi.org/10.1098/rspb.2009.1650>
- Colquitt, J. A., LePine, J. A., Piccolo, R. F., Zapata, C. P., & Rich, B. L. (2012). Explaining the justice–performance relationship: Trust as exchange deepener or trust as uncertainty reducer? *Journal of Applied Psychology, 97*, 1–15. <http://dx.doi.org/10.1037/a0025208>
- Colquitt, J. A., LePine, J. A., Zapata, C. P., & Wild, R. E. (2011). Trust in typical and high-reliability contexts: Building and reacting to trust among firefighters. *Academy of Management Journal, 54*, 999–1015. <http://dx.doi.org/10.5465/amj.2006.0241>
- Colquitt, J. A., Scott, B. A., & LePine, J. A. (2007). Trust, trustworthiness, and trust propensity: A meta-analytic test of their unique relationships with risk taking and job performance. *Journal of Applied Psychology, 92*, 909–927. <http://dx.doi.org/10.1037/0021-9010.92.4.909>
- Crosan, R., & Buchan, N. (1999). Gender and culture: International experimental evidence from trust games. *American Economic Review, 89*, 386–391. <http://dx.doi.org/10.1257/aer.89.2.386>
- Delhey, J., & Newton, K. (2005). Predicting cross-national levels of social trust: Global pattern or Nordic exceptionalism? *European Sociological Review, 21*, 311–327. <http://dx.doi.org/10.1093/esr/jci022s>
- Delhey, J., Newton, K., & Welzel, C. (2011). How general is trust in “most people”? Solving the radius of trust problem. *American Sociological Review, 76*, 786–807. <http://dx.doi.org/10.1177/0003122411420817>
- Deutsch, M. (1949). A theory of cooperation and competition. *Human Relations, 2*, 129–152. <http://dx.doi.org/10.1177/001872674900200204>
- Dimoka, A. (2010). What does the brain tell us about trust and distrust? Evidence from a functional neuroimaging study. *MIS Quarterly, 34*, 373–396.
- Dinesen, P. T. (2012). Does generalized (dis)trust travel? Examining the impact of cultural heritage and destination-country environment on trust of immigrants. *Political Psychology, 33*, 495–511. <http://dx.doi.org/10.1111/j.1467-9221.2012.00886.x>
- Dirks, K. T., & Ferrin, D. L. (2001). The role of trust in organizational settings. *Organization Science, 12*, 450–467. <http://dx.doi.org/10.1287/orsc.12.4.450.10640>
- Dirks, K. T., & Ferrin, D. L. (2002). Trust in leadership: Meta-analytic findings and implications for research and practice. *Journal of Applied Psychology, 87*, 611–628. <http://dx.doi.org/10.1037/0021-9010.87.4.611>
- Doney, P. M., Cannon, J. P., & Mullen, M. R. (1998). Understanding the influence of national culture on the development of trust. *Academy of Management Review, 23*, 601–620. <http://dx.doi.org/10.5465/AMR.1998.926629>
- Earley, P. C. (1997). *Face, harmony and social structure*. New York, NY: Oxford University Press.
- Efron, B. (1988). Bootstrap confidence intervals: Good or bad? *Psychological Bulletin, 104*, 293–296. <http://dx.doi.org/10.1037/0033-2909.104.2.293>
- Ferrin, D. L., & Gillespie, N. (2010). Trust differences across national–societal cultures: Much to do, or much ado about nothing? In M. Saunders, D. Skinner, G. Dietz, N. Gillespie, & R. J. Lewicki (Eds.), *Trust across cultures: Theory and practice* (pp. 42–86). Cambridge, UK: Cambridge University Press.
- Fischer, R., & Van de Vliert, E. (2011). Does climate undermine subjective well-being? A 58–nation study. *Personality and Social Psychology Bulletin, 37*, 1031–1041. <http://dx.doi.org/10.1177/0146167211407075>
- Fox, E., Ridgewell, A., & Ashwin, C. (2009). Looking on the bright side: Biased attention and the human serotonin transporter gene. *Proceedings of the Royal Society: B, 276*, 1747–1751. <http://dx.doi.org/10.1098/rspb.2008.1788>
- Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218–226. <http://dx.doi.org/10.1037/0003-066X.56.3.218>
- Fredrickson, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and Emotion, 19*, 313–332. <http://dx.doi.org/10.1080/02699300441000238>
- Freitag, M. (2003). Social capital in (dis)similar democracies: The development of generalized trust in Japan and Switzerland. *Comparative Political Studies, 36*, 936–966. <http://dx.doi.org/10.1177/0010414003256116>
- Freitag, M., & Trauttmüller, R. (2009). Spheres of trust: An empirical analysis of the foundations of particularised and generalised trust. *European Journal of Political Research, 48*, 782–803. <http://dx.doi.org/10.1111/j.1475-6765.2009.00849.x>
- Frijda, N. H., Kuipers, P., & ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology, 57*, 212–228. <http://dx.doi.org/10.1037/0022-3514.57.2.212>
- Fugate, M., Kinicki, A. J., & Prussia, G. E. (2008). Employee coping with organizational change: An examination of alternative theoretical perspectives and models. *Personnel Psychology, 61*, 1–36. <http://dx.doi.org/10.1111/j.1744-6570.2008.00104.x>
- Gelfand, M. J., Nishii, L. H., & Raver, J. L. (2006). On the nature and importance of cultural tightness–looseness. *Journal of Applied Psychology, 91*, 1225–1244. <http://dx.doi.org/10.1037/0021-9010.91.6.1225>
- Gelfand, M. J., Raver, J. L., Nishii, L., Leslie, L. M., Lun, J., Lim, B. C., et al. (2011). Differences between tight and loose cultures: A 33–nation study. *Science, 332*, 1100–1104. <http://dx.doi.org/10.1126/science.1197754>
- Glanville, J. L., & Paxton, P. (2007). How do we learn to trust? A confirmatory tetrad analysis of the sources of generalized trust. *Social Psychology Quarterly, 70*, 230–242. <http://dx.doi.org/10.1177/019027250707000303>
- Granovetter, M. (2005). The impact of social structure on economic outcomes. *Journal of Economic Perspectives, 19*, 33–50. <http://dx.doi.org/10.1257/0895330053147958>
- Han, S., Northoff, G., Vogeley, K., Wexler, B. E., Kitayama, S., & Vernum, M. E. W. (2013). A cultural neuroscience approach to the biosocial nature of the human brain. *Annual Review of Psychology, 64*, 335–359. <http://dx.doi.org/10.1146/annurev-psych-071112-054629>
- Hartl, D. L. (2000). *A primer of population genetics* (3rd ed.). Sunderland, MA: Sinauer Associates.
- Hatemi, P. K., & McDermott, R. (2012). The genetics of politics: Discovery, challenges, and progress. *Trends in Genetics, 28*, 525–533. <http://dx.doi.org/10.1016/j.tig.2012.07.004>
- Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis*. New York, NY: Guilford.
- Heim, D., Hunter, S. C., & Jones, R. (2011). Perceived discrimination, identification, social capital, and well-being: Relationships with physical health and psychological distress in a U.K. minority ethnic community sample. *Journal of Cross-Cultural Psychology, 42*, 1145–1164. <http://dx.doi.org/10.1177/0022022110383310>
- Hofstede, G. (1980). *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage.
- Hofstede, G. (1991). *Cultures and organizations—software of the mind*. London, UK: McGraw-Hill.
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: Software of the mind* (3rd ed.). New York, NY: McGraw Hill.
- House, R., Javidan, M., Hanges, P., & Dorfman, P. (2002). Understanding cultures and implicit leadership theories across the globe: An introduction to project GLOBE. *Journal of World Business, 37*, 3–10. [http://dx.doi.org/10.1016/S1090-9516\(01\)00069-4](http://dx.doi.org/10.1016/S1090-9516(01)00069-4)
- Javidan, M., Dorfman, P. W., de Luque, M. S., & House, R. J. (2006). In the eye of the beholder: Cross-cultural lessons in leadership from project GLOBE. *Academy of Management Perspectives, 20*, 67–90. <http://dx.doi.org/10.5465/AMP.2006.19873410>
- Johnson, N. D., & Mislin, A. A. (2011). Trust games: A meta-analysis. *Journal of Economic Psychology, 32*, 865–889. <http://dx.doi.org/10.1016/j.joep.2011.05.007>

- Johnson-George, C., & Swap, W. C. (1982). Measurement of specific interpersonal trust: Construction and validation of a scale to assess trust in a specific other. *Journal of Personality and Social Psychology*, 43, 1306–1317. <http://dx.doi.org/10.1037/0022-3514.43.6.1306>
- Kim, H. S., & Sasaki, J. Y. (2014). Cultural neuroscience: Biology of the mind in cultural contexts. *Annual Review of Psychology*, 65, 487–514. <http://dx.doi.org/10.1146/annurev-psych-010213-115040>
- Kim, J., Anthony, N. M., & Larget, B. R. (2012). A Bayesian method for estimating evolutionary history. *Bayesian Analysis*, 7, 917–974.
- Kitayama, S., & Uskul, A. K. (2011). Culture, mind, and the brain: Current evidence and future directions. *Annual Review of Psychology*, 62, 419–449. <http://dx.doi.org/10.1146/annurev-psych-120709-145357>
- Klein, K. J., Tosi, H., & Cannella, A. A., Jr. (1999). Multilevel theory building: Benefits, barriers, and new developments. *Academy of Management Review*, 24, 243–248. <http://dx.doi.org/10.5465/AMR.1999.1893934>
- Kong, D. T. (2013). Examining a climateoconomic contextualization of generalized social trust mediated by uncertainty avoidance. *Journal of Cross-Cultural Psychology*, 44, 574–588. <http://dx.doi.org/10.1177/0022022112466700>
- Kong, D. T. (2013). Intercultural experience as an impediment of trust: Examining the impact of intercultural experience and social trust culture on institutional trust in government. *Social Indicators Research*, 113, 847–858. <http://dx.doi.org/10.1007/s11205-012-0117-6>
- Kong, D. T. (2014). An economic-genetic theory of corporate corruption across cultures: An interactive effect of wealth and the 5HTTLPR-SS/SL frequency on corporate corruption mediated by cultural endorsement of self-protective leadership. *Personality and Individual Differences*, 63, 106–111. <http://dx.doi.org/10.1016/j.paid.2014.01.061>
- Kong, D. T., Dirks, K. T., & Ferrin, D. L. (2014). Interpersonal trust within negotiations: Meta-analytic evidence, critical contingencies, and directions for future research. *Academy of Management Journal*, 57, 1235–1255. <http://dx.doi.org/10.5465/amj.2012.0461>
- Kosfeld, M., Heinrichs, M., Zak, P. J., Fischbacher, U., & Fehr, E. (2005). Oxytocin increases trust in humans. *Nature*, 435, 673–676. <http://dx.doi.org/10.1038/nature03701>
- Kramer, R. M. (1999). Trust and distrust in organizations: Emerging perspectives, enduring questions. *Annual Review of Psychology*, 50, 569–598. <http://dx.doi.org/10.1146/annurev.psych.50.1.569>
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping*. New York, NY: Springer.
- Lee, C. J., & Andrade, E. B. (2015). Fear, excitement, and financial risk-taking. *Cognition & Emotion*, 29, 178–187. <http://dx.doi.org/10.1080/02699931.2014.898611>
- Lesch, K. P., Bengel, D., Heils, A., Sabol, S. Z., Greenberg, B. D., Petri, S., et al. (1996). Association of anxiety-related traits with a polymorphism in the serotonin transporter gene regulatory region. *Science*, 274, 1527–1531. <http://dx.doi.org/10.1126/science.274.5292.1527>
- Lewis, J. D., & Weigert, A. (1985). Trust as a social reality. *Social Forces*, 63, 967–985. <http://dx.doi.org/10.1093/sf/63.4.967>
- Lonsdorf, T. B., Weike, A. I., Nikamo, P., Schalling, M., Hamm, A. O., & Ohman, A. (2009). Genetic gating of human fear learning and extinction: Possible implications for gene-environment interaction in anxiety disorder. *Psychological Science*, 20, 198–206. <http://dx.doi.org/10.1111/j.1467-9280.2009.02280.x>
- Manuck, S. B., & McCaffery, J. M. (2014). Gene-environment interaction. *Annual Review of Psychology*, 65, 41–70. <http://dx.doi.org/10.1146/annurev-psych-010213-115100>
- Mayer, R. C., & Davis, J. H. (1999). The effect of the performance appraisal system on trust for management: A field quasi-experiment. *Journal of Applied Psychology*, 84, 123–136. <http://dx.doi.org/10.1037/0021-9010.84.1.123>
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20, 709–734. <http://dx.doi.org/10.5465/AMR.1995.9508080335>
- McAllister, D. J. (1995). Affect- and cognition-based trust as foundations for interpersonal cooperation in organizations. *Academy of Management Journal*, 38, 24–59. <http://dx.doi.org/10.2307/256727>
- McEvily, B., Perrone, V., & Zaheer, A. (2003). Trust as an organizing principle. *Organization Science*, 14, 91–103. <http://dx.doi.org/10.1287/orsc.14.1.91.12814>
- McKnight, D. H., & Chervany, N. L. (2001). *While trust is cool and collected, distrust is fiery and frenzied: A model of distrust concepts*. AMCIS 2001 Proceedings, Paper 171.
- Miller, G. J., & Whitford, A. B. (2002). Trust and incentives in principal-agent negotiations: The “insurance/incentive trade-off”. *Journal of Theoretical Politics*, 14, 231–267. <http://dx.doi.org/10.1177/095169280201400204>
- Minkov, M., Blagoev, V., & Bond, M. H. (2015). Improving research in the emerging field of cross-cultural sociogenetics: The case of serotonin. *Journal of Cross-Cultural Psychology*, 46, 336–354. <http://dx.doi.org/10.1177/0022022114563612>
- Molm, L. D., Takahashi, N., & Peterson, G. (2000). Risk and trust in social exchange: An experimental test of a classical proposition. *American Journal of Sociology*, 105, 1396–1427. <http://dx.doi.org/10.1086/210434>
- Morgeson, F. P., & Hofmann, D. A. (1999). The structure and function of collective constructs: Implications for multilevel research and theory development. *Academy of Management Review*, 24, 249–265. <http://dx.doi.org/10.5465/AMR.1999.1893935>
- Muethel, M., & Bond, M. H. (2013). National context and individual employees’ trust of the out-group: The role of societal trust. *Journal of International Business Studies*, 44, 312–333. <http://dx.doi.org/10.1057/jibs.2013.9>
- Muller, D., Judd, C. M., & Yzerbyt, V. Y. (2005). When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, 89, 852–863. <http://dx.doi.org/10.1037/0022-3514.89.6.852>
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23, 242–266. <http://dx.doi.org/10.5465/AMR.1998.533225>
- Nannestad, P. (2008). What have we learned about generalized trust, if anything? *Annual Review of Political Science*, 11, 413–436. <http://dx.doi.org/10.1146/annurev.polisci.11.060606.135412>
- O’Connor, S., & Fischer, R. (2012). Predicting societal corruption across time: Values, wealth, or institutions? *Journal of Cross-Cultural Psychology*, 43, 644–659. <http://dx.doi.org/10.1177/0022022111402344>
- Ohly, S., & Fritz, C. (2010). Work characteristics, challenge appraisal, creativity, and proactive behavior: A multi-level study. *Journal of Organizational Behavior*, 31, 543–565. <http://dx.doi.org/10.1002/job.633>
- Oskarsson, S., Dawes, C., Johannesson, M., & Magnusson, P. K. E. (2012). The genetic origins of the relationship between psychological traits and social trust. *Twin Research and Human Genetics*, 15, 21–33. <http://dx.doi.org/10.1375/twin.15.1.21>
- Ouchi, W. G. (1980). Markets, bureaucracies and clans. *Administrative Science Quarterly*, 25, 129–141. <http://dx.doi.org/10.2307/2392231>
- Pergamin-Hight, L., Bakermans-Kranenburg, M. J., van IJzendoorn, M. H., & Bar-Haim, Y. (2012). Variations in the promoter region of the serotonin transporter gene and biased attention for emotional information: A meta-analysis. *Biological Psychiatry*, 71, 373–379. <http://dx.doi.org/10.1016/j.biopsych.2011.10.030>
- Putnam, R. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton University Press.
- Realo, A., Allik, J., & Greenfield, B. (2008). Radius of trust: Social capital in relation to familism and institutional collectivism. *Journal of Cross-Cultural Psychology*, 39, 447–462. <http://dx.doi.org/10.1177/0022022108318096>
- Reeskens, T., & Hooghe, M. (2008). Cross-cultural measurement equivalence of generalized trust: Evidence from the European Social Survey (2002 and 2004). *Social Indicators Research*, 85, 515–532. <http://dx.doi.org/10.1007/s11205-007-9100-z>
- Riedl, R., & Javor, A. (2012). The biology of trust: Integrating evidence from genetics, endocrinology, and functional brain imaging. *Journal of Neuroscience, Psychology, and Economics*, 5, 63–91. <http://dx.doi.org/10.1037/a0026318>
- Robbins, B. G. (2015). Climate, affluence, and trust: Revisiting climateoconomic models of generalized trust with cross-national longitudinal data, 1981–2009. *Journal of Cross-Cultural Psychology*, 46, 277–289. <http://dx.doi.org/10.1177/0022022114562496>
- Rothstein, B., & Uslaner, E. M. (2005). All for all: Equality, corruption, and social trust. *World Politics*, 58, 41–72. <http://dx.doi.org/10.1353/wp.2006.0022>
- Rotter, J. B. (1971). Generalized expectancies for interpersonal trust. *American Psychologist*, 26, 443–452. <http://dx.doi.org/10.1037/h0031464>
- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. (1998). Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23, 393–404. <http://dx.doi.org/10.5465/AMR.1998.926617>
- Savitz, J. B., & Ramesar, R. S. (2004). Genetic variants implicated in personality: A review of the more promising candidates. *American Journal of Medical Genetics: Neuropsychiatric Genetics*, 131, 20–32. <http://dx.doi.org/10.1002/ajmg.b.20155>
- Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organizational trust: Past, present, and future. *Academy of Management Review*, 32, 344–354. <http://dx.doi.org/10.5465/AMR.2007.24348410>
- Sen, S., Burmeister, M., & Ghosh, D. (2004). Meta-analysis of the association between a serotonin transporter promoter polymorphism (5-HTTLPR) and anxiety-related personality traits. *American Journal of Medical Genetics Part B (Neuropsychiatric Genetics)*, 127B, 85–89. <http://dx.doi.org/10.1002/ajmg.b.20158>
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7, 422–445. <http://dx.doi.org/10.1037/1082-989X.7.4.422>
- Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat-rigidity effects in organizational behavior: A multilevel analysis. *Administrative Science Quarterly*, 26, 501–524. <http://dx.doi.org/10.2307/2392337>
- Taras, V., Kirkman, B. L., & Steel, P. (2010). Examining the impact of culture’s consequences: A three-decade, multilevel, meta-analytic review of Hofstede’s cultural value dimensions. *Journal of Applied Psychology*, 95, 405–439. <http://dx.doi.org/10.1037/a0018938>
- Taylor, S. E., & Stanton, A. L. (2007). Coping resources, coping processes, and mental health. *Annual Review of Clinical Psychology*, 3, 377–401. <http://dx.doi.org/10.1146/annurev.clinpsy.3.022806.091520>
- Tomaka, J., Blascovich, J., Kelsey, R. M., & Leitten, C. L. (1993). Subjective, physiological, and behavioral effects of threat and challenge appraisal. *Journal of Personality and Social Psychology*, 65, 248–260. <http://dx.doi.org/10.1037/0022-3514.65.2.248>
- Tomaka, J., Blascovich, J., Kibler, J., & Ernst, J. M. (1997). Cognitive and physiological antecedents of threat and challenge appraisal. *Journal of Personality and Social Psychology*, 73, 63–72. <http://dx.doi.org/10.1037/0022-3514.73.1.63>
- Tong, E. M. W. (2010). Personality influences in appraisal-emotion relationships: The role of neuroticism. *Journal of Personality*, 78, 393–417. <http://dx.doi.org/10.1111/j.1467-6494.2010.00620.x>
- Triandis, H. C. (2004). The many dimensions of culture. *Academy of Management Executive*, 18, 88–93. <http://dx.doi.org/10.5465/AME.2004.12689599>
- Uzzi, B. (1997). Socials structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42, 35–67. <http://dx.doi.org/10.2307/2393808>

- Vacharkulksemsuk, T., & Fredrickson, B. L. (2012). Strangers in sync: Achieving embodied rapport through shared movements. *Journal of Experimental Social Psychology, 48*, 399–402. <http://dx.doi.org/10.1016/j.jesp.2011.07.015>
- Van de Vliert, E. (2007). Climates create cultures. *Social and Personality Psychology Compass, 1*, 53–67. <http://dx.doi.org/10.1111/j.1751-9004.2007.00003.x>
- Van de Vliert, E. (2009). *Climate, affluence, and culture*. New York, NY: Cambridge University Press.
- Van de Vliert, E. (2013). Climato-economic habitats support patterns of human needs, stresses, and freedoms. *Behavioral and Brain Science, 36*, 465–480. <http://dx.doi.org/10.1017/S0140525X12002828>
- Venaik, S., & Brewer, P. (2010). Avoiding uncertainty in Hofstede and GLOBE. *Journal of International Business Studies, 41*, 1294–1315. <http://dx.doi.org/10.1057/jibs.2009.96>
- Yamagishi, T., Cook, K. S., & Watabe, M. (1998). Uncertainty, trust, and commitment formation in the United States and Japan. *American Journal of Sociology, 104*, 165–194. <http://dx.doi.org/10.1086/210005>
- Zak, P. J., Kurzban, R., & Matzner, W. T. (2005). Oxytocin is associated with human trustworthiness. *Hormones and Behavior, 48*, 522–527. <http://dx.doi.org/10.1016/j.yhbeh.2005.07.009>