

Individualist–Collectivist Culture and Trust Radius: A Multilevel Approach

Journal of Cross-Cultural Psychology
2015, Vol. 46(2) 269–276
© The Author(s) 2014
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/0022022114551053
jccp.sagepub.com



André van Hoorn¹

Abstract

We apply a multilevel approach to examine empirically the nexus between individualist and collectivist culture on the one hand and people's radius of trust on the other. People's trust level (i.e., the intensity with which people trust other people) has been extensively studied. Increasingly, however, researchers are seeing a need to move beyond trust *level* and study trust *radius* (i.e., the width of the circle of people among whom a certain trust level exists) as the second quintessential component of trust. Results for up to 44,845 individuals from 36 countries show, first, that we can validly apply multilevel modeling to the study of trust radius. Second, consistent with prior theoretical expectations, individualism is associated with a broader trust radius, whereas collectivism is associated with a narrower trust radius. Considering the strength of the associations found, trust radius might be best understood as an inherent part of the individualism–collectivism cultural syndrome. The key contribution of this note is to reveal how exactly individualism–collectivism relates to trust, specifically its radius. In addition, the note demonstrates the feasibility of a multilevel approach to studying trust radius with much potential for follow-up research on this most vital trust construct.

Keywords

radius of trust, individualism, collectivism, ingroup, outgroup, hierarchical linear modeling, generalized trust

Recognized for its importance as a lubricant that fosters productive social exchange in society, over the last few decades, trust has become the focal subject of much research across the social sciences, for example, in sociology, political science, and (cross-cultural) psychology (Allik & Realo, 2004; Coleman, 1990; Delhey & Newton, 2005; Putnam, 1993; Welzel, 2010). Recently, attention has expanded from considering trust as a *level* phenomenon, where some people trust more intensely than others do, to considering trust also as a *radius* phenomenon, where a given level of trust has a scope that can be broad (trust is mostly outgroup connoted) or narrow (trust is mostly ingroup connoted; Delhey, Newton, & Welzel, 2011; Fukuyama, 1995; Realo, Allik, & Greenfield, 2008). Individuals' trust level determines their willingness to cooperate with others.

¹University of Groningen, The Netherlands

Corresponding Author:

André van Hoorn, University of Groningen, P.O. Box 800, 9700 AV, Groningen, The Netherlands.
Email: A.A.J.van.Hoorn@rug.nl

Whether a given trust level is primarily ingroup connoted or primarily outgroup connoted, on the contrary, determines with whom individuals are willing to cooperate (Van Hoorn, in press).

This note seeks to examine empirically the nexus between individualism–collectivism and people’s radius of trust, defined as the width of the circle of people among whom a certain trust level exists. A large literature exists already that links individualism–collectivism to trust, particularly the level of trust that prevails in a society (Allik & Realo, 2004; Hofstede, 2001). Seminal work by Delhey et al. (2011), pioneering the quantification of trust radius, affords us the opportunity to extend this literature and consider how individualism–collectivism relates to the ingroup and outgroup connotation of a given trust level and thereby to people’s trust radius. Key contribution of this note is to show how exactly individualist–collectivist culture is linked to trust radius. In addition, the note demonstrates the feasibility of using multilevel modeling (e.g., Snijders & Bosker, 2012) to study trust radius, which opens up numerous interesting avenues for future research of trust radius as a most vital trust construct.

Individualism, Collectivism, and Trust Radius

Both individualism and collectivism concern human beings living together, making individualism–collectivism one of the most fundamental cultural syndromes. The distinction between individualist culture and collectivist culture lies in the relationship that the individual or the self has to the collective, particularly the ingroup. In individualistic societies, individuals are supposed to take care only of themselves and their immediate family (Hofstede, 2001). In collectivistic societies, in contrast, individuals remain tightly integrated into groups and are supposed to let the interests of the group prevail over their own interests (Hofstede, 2001). Individualism, more than collectivism, is about personal rights and goals and not about the individual’s obligations toward the collective. Collectivism, on the contrary, emphasizes group membership and individuals’ loyalty to their groups, accompanied by ingroup favoritism.

Several scholars have previously drawn on the above ideas to suggest that individualism–collectivism relates to how widely people are willing to trust or the extent to which interpersonal trust is affected by group boundaries (e.g., Fukuyama, 1995; Realo et al., 2008; Yamagishi, Cook, & Watabe, 1998). Generally, people find that collectivism is more discriminatory and thereby limits the intensity of the trust that individuals from one group have in individuals from another group, notably in outgroup members (and vice versa for individualism). In collectivistic societies, people would therefore seem more prone to reserve a given trust level for ingroup members and less willing to extend the same level of trust to outgroup members, whereas people in individualistic societies would seem more willing to extend a given trust level also to outgroup members rather than reserve it for ingroup members. Accordingly, in terms of ingroup/outgroup connotation, we expect that a given trust level is more ingroup connoted in collectivistic societies than in individualistic societies and more outgroup connoted in individualistic societies than in collectivistic societies. Hence, we formulate the following set of twin hypotheses:

Hypothesis 1a (H1a): The more individualistic the culture of a society is, the broader the radius of trust within this society will be.

Hypothesis 1b (H1b): The more collectivistic the culture of a society is, the narrower the radius of trust within this society will be.¹

Empirical Analysis

Method and Data

We adapt the approach to measuring trust radius utilized by Delhey et al. (2011) and Van Hoorn (in press), converting it to allow for a multilevel analysis of the relationship between individualism and

collectivism on one hand and trust radius on the other. The theoretical idea underlying the original method developed by Delhey et al. (2011) is that a particular trust level can have different degrees of ingroup and outgroup connotation and that the strength of these two connotations jointly determine the radius of trust. Practically, the method takes the canonical trust item that asks respondents whether “most people can be trusted” or “you need to be very careful in dealing with people” and uses measures of ingroup trust and outgroup trust to assess the degree of ingroup/outgroup connotation of the term *most people*. If the term *most people* is more ingroup connoted, trust radius is narrow, and if the term *most people* is more outgroup connoted, trust radius is broad. Quantification of trust radius occurs by estimating linear regression models, separately for all countries in the sample, employing level of trust in most people as the dependent variable and scaled measures of ingroup trust level and outgroup trust level as the independent variables. The actual trust radius measure is calculated by subtracting the estimated coefficient for ingroup trust from the estimated coefficient for outgroup trust (and rescaling the resulting number to fit a 0-1 scale).

The key difference between our empirical approach and the approach used by Delhey et al. (2011) and Van Hoorn (in press) is that we do not estimate the regression models separately for all countries, but instead integrate them in a multilevel analysis of individuals that are hierarchically nested in countries. The simplest multilevel model that we estimate has random slopes (in addition to random intercepts, which are included in all models). Adding random slopes to the model means that the estimated coefficients for ingroup trust and outgroup trust as predictors of trust in most people (i.e., the ingroup and outgroup connotation of trust in most people) can vary between countries. After estimating this multilevel model, country scores for the ingroup and outgroup connotation of trust in most people can be obtained as posterior estimates (see, for example, Snijders & Bosker, 2012). To assess the set of twin hypotheses, we estimate a more elaborate model with cross-level interactions involving individualism and collectivism. The idea is to allow individualism and collectivism to moderate the relationship of ingroup trust and outgroup trust with trust in most people. By moderating the relationship of ingroup trust and outgroup trust with trust in most people, individualism and collectivism can strengthen or weaken the ingroup/outgroup connotation of the term *most people*, which, in turn, implies a broadening or narrowing of the radius of trust.

We use the same data and measures of trust in most people, ingroup trust, and outgroup trust as used by Delhey et al. (2011) and Van Hoorn (in press). These data have all been collected between 2005 and 2008 as part of the fifth wave of the World Values Survey (WVS; WVS Association, 2009). Individual-level data, codebooks, as well as other additional information are available from the website of the WVS, <http://www.worldvaluessurvey.org>. We use Hofstede's (2001) measure of individualism, whereas the Global Leadership and Organizational Behavior Effectiveness (GLOBE) project (House, Hanges, Javidan, Dorfman, & Gupta, 2004) provides us with a measure of (ingroup) collectivism.² Table 1 presents descriptions and summary statistics for all measures, including the cross-level interactions that we use in our main empirical models. Table S.1 in the supplementary file presents detailed country scores.

Is Multilevel Analysis of Trust Radius Valid?

To assess the validity of multilevel analysis of trust radius, we compare the multilevel country results for the calculated trust radius and the estimated ingroup and outgroup connotation of trust in most people with the results obtained from applying the exact same method as in Delhey et al. (2011). We find that results are highly similar, which validates the approach. Specifically, the estimates for ingroup trust connotation correlate .964, the estimates for outgroup trust connotation correlate .997 between the two methods ($n = 51$). Measured trust radii similarly correlate .970 between the two methods. Table S.2 in the supplementary file presents detailed results, specifically country-specific findings for trust radius and the ingroup/outgroup connotation of level of trust in most people obtained using the two approaches.

Table 1. Variable Description and Summary Statistics.

Variable	Unit/description	M	SD	No. of individuals	No. of countries
Individual-level variables					
Trust in most people level	Variable that codes respondents' answer to the WVVS item asking whether most people can be trusted (1) or that you can't be too careful (0).	0.254	0.435	63,352	51
Outgroup trust level	Index that additively combines respondents' scores on three 4-point WVVS items asking how much respondents trust (a) people they meet for the first time, (b) people from another religion, and (c) people from another nationality, rescaled to a 0-1 scale.	0.403	0.228	63,352	51
Ingroup trust level	Index that additively combines respondents' scores on three 4-point WVVS items asking how much respondents trust (a) their neighborhood, (b) people they know personally, and (c) their family, rescaled to a 0-1 scale.	0.746	0.171	63,352	51
Country-level variables					
Individualism	Hofstede's (2001) measure of individualism, originally intended to have a 0-100 scale.	45.2	25.0	44,845	36
Collectivism	The GLOBE project's (House, Hanges, Javidan, Dorfman, & Gupta, 2004) practices measure of ingroup collectivism.	5.29	0.695	36,454	29
Moderators/cross-level interactions					
Individualism × Outgroup trust	Interaction term between standardized individualism measure and standardized outgroup trust measure.	0.341	0.917	44,845	36
Collectivism × Outgroup trust	Interaction term between standardized collectivism measure and standardized outgroup trust measure.	0.339	1.00	36,454	29
Individualism × Ingroup trust	Interaction term between standardized individualism measure and standardized ingroup trust measure.	0.199	0.950	44,845	36
Collectivism × Ingroup trust	Interaction term between standardized collectivism measure and standardized ingroup trust measure.	0.088	0.941	36,454	29

Note. Standardized variables have mean 0 and standard deviation 1. All continuous independent variables are standardized in the empirical analysis. In contrast to Delhey, Newton, and Welzel (2011) and Van Hoorn (in press), we consider Germany in its entirety, rather than dividing it into an Eastern and a Western part. Outgroup trust level and ingroup trust level have been calculated employing the syntax available from Van Hoorn (in press). WVVS = World Values Survey.

The Relationship Between Individualism–Collectivism and Trust Radius

Do individualism and collectivism moderate the relationship of ingroup trust and outgroup trust with trust in most people and thereby affect the width of people's trust radius? Table 2 presents the results of the multilevel assessment of our set of twin hypotheses. In general, model fit improved statistically highly significantly when the cross-level interactions involving individualism and collectivism were added to the baseline model (Model 2 vs. Model 1 and Model 5 vs.

Table 2. Multilevel Analysis of the Relationship Between Individualism and Collectivism and Trust Radius.

Dependent = Trust in most people level (0-1)	Individualism cross-level interactions			Collectivism cross-level interactions		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Outgroup trust	.0883*** (.0023)	.0896*** (.0023)	.0990*** (.0081)	.0889*** (.0025)	.0944*** (.0026)	.0981*** (.0067)
Individualism × Outgroup trust	—	.0357*** (.0025)	.0433*** (.0082)	—	—	—
Collectivism × Outgroup trust	—	—	—	—	-.0486*** (.0028)	-.0466*** (.0063)
Ingroup trust	.0503*** (.0023)	.0512*** (.0023)	.0547*** (.0057)	.0510*** (.0025)	.0496*** (.0025)	.0508*** (.0060)
Individualism × Ingroup trust	—	.0054** (.0024)	.0062 (.0058)	—	—	—
Collectivism × Ingroup trust	—	—	—	—	-.0075*** (.0027)	-.0083 (.0056)
Individualism	.0378 (.0242)	.0299 (.0238)	.0223 (.0223)	—	—	—
Collectivism	—	—	—	-.0674*** (.0200)	-.0448** (.0197)	-.0459** (.0195)
Intercept	.2916*** (.0241)	.2787*** (.0236)	.2663*** (.0221)	.2721*** (.0220)	.2549*** (.0217)	.2521*** (.0213)
Random slopes added?	No	No	Yes	No	No	Yes
No. of individuals	44,845	44,845	44,845	36,454	36,454	36,454
No. of countries	36	36	36	29	29	29
-2 log likelihood	46,563.6	46,278.3	45,435.5	37,169.9	36,752.9	36,459.5

Note. See Table 1. Standard errors are given in parentheses. Coefficients are for standardized independent variables. All models include random intercepts. Following Delhey, Newton, and Welzel (2011) and Van Hoorn (in press), we have treated the dependent variable as a continuous variable.

*Statistical significance at the 10% level (two-tailed). **Statistical significance at the 5% level (two-tailed). ***Statistical significance at the 1% level (two-tailed).

Model 4).³ More in particular, results show that individualism and collectivism moderate both the ingroup and the outgroup connotation of trust in most people statistically significantly. However, the moderating effect of individualism and collectivism on the *outgroup* connotation of trust in most people unambiguously dominates the moderating effect of individualism and collectivism on the *ingroup* connotation of trust in most people. Hence, we ascertain a clear net effect of individualism and collectivism on trust radius, which, in line with our hypotheses, is positive when individualism is the moderating factor (Model 2) and negative when collectivism is the moderating factor (Model 5).⁴ The relationships found not only support our hypotheses but are also strong. A one standard deviation increase in individualism implies an increase in the outgroup connotation of trust of almost 40% (.0357/.0896) and a one standard deviation increase in collectivism implies a decrease in the outgroup connotation of trust exceeding 50% (-.0486/.0944), *ceteris paribus*.

To obtain a better sense of the strength of the relationship between individualism–collectivism and trust radius, we have additionally estimated simple country-level correlations between individualism and collectivism on one hand and trust radius on the other with the latter measure calculated from posterior estimates (see Table S.2 in the supplementary file). In accordance with the above results, correlations found are high, equaling $+.657$ for individualism ($n = 36$) and $-.644$ for collectivism ($n = 29$; see Figures S.1 and S.2 in the supplementary file). In fact, these correlations are so strong that trust radius is perhaps best understood as an inherent part of the individualism–collectivism cultural syndrome, which is to say that insights gathered in the study of individualism–collectivism could prove very illuminating also for understanding trust radius, specifically its causes and consequences.

The models incorporating cross-level interactions involving individualism and collectivism (Models 2 and 5) are our preferred models. However, to check the robustness of our primary results, we have also estimated models that additionally include random slopes as well as these cross-level interactions. Results are largely the same, although, as expected, model fit improves even further compared with before (Models 3 and 6). As a further robustness check, we have also considered comparable samples comprising only the 25 countries for which we have data on both individualism and collectivism. Results are again generally unaffected (Table S.3 in the supplementary file). Results are also robust to changing our statistical technique and analyzing trust in most people as a dichotomous (0/1) variable rather than as a continuous variable, which is the approach applied by Delhey et al. (2011) and Van Hoorn (in press; Table S.4 in the supplementary file).

Finally, we have sought to extend our analysis by considering other country-level moderators of the relationship of ingroup trust and outgroup trust with trust in most people in addition to individualism–collectivism (cf. Models 3 and 6 in Table 2). Individualism–collectivism has been linked to a variety of phenomena that, in turn, may also be linked to people's trust radius. Following Delhey et al. (2011), we have considered four such factors, namely rule of law, democracy, income per capita, and income inequality (see Table S.5 in the supplementary file for details). The results indicate that rule of law, democracy, income per capita, and income inequality indeed moderate the ingroup/outgroup connotation of trust in most people statistically significantly (Table S.6 in the supplementary file). Moreover, the associations with trust radius derived from the found moderating effects tend to be in the expected direction (predominantly) positive for rule of law, democracy and per-capita income, and negative for income inequality. Importantly, adding additional moderators does not render the moderating effects of individualism and collectivism statistically insignificant, although we do find smaller net effects of individualism and collectivism on trust radius than previously (cf. Models 2 and 5 in Table 2). This latter finding is as expected, however, given the linkages between individualism–collectivism and the additional country-level moderators considered.⁵

Overall, we conclude that there is robust evidence that individualism and collectivism moderate the relationship of ingroup trust and outgroup trust with trust in most people and, as such, are associated with people having broader (individualism; H1a) or narrower (collectivism; H1b) trust radii.

Concluding Remarks

Trust has a level and a radius component, which are both critical in fostering productive social exchange in society (Fukuyama, 1995). Although trust *level*—its causes and consequences—has been studied extensively, social scientists, hampered by a lack of data, have not yet had the opportunity to make much progress in understanding trust *radius*. However, building on Delhey et al.'s (2011) groundbreaking quantification of trust radius, we can now move ahead on this issue.

We have analyzed the nexus between individualism–collectivism and trust radius, which is much discussed in the literature. The results are consistent with the theoretical predictions: Individualism is associated with a broad radius of trust, whereas collectivism is associated with a narrow radius of trust. Moreover, based on the strength of the associations found, trust radius might be best understood as an inherent part of the individualism–collectivism cultural syndrome.

Our broader contribution lies in the development and validation of a multilevel approach to the study of trust radius, which has wider applicability than just the present study of the nexus between individualist–collectivist culture and trust radius. Multilevel analysis provides the unique opportunity to study potential correlates of trust radius at different levels of analysis, for instance, considering personal features such as religiosity, socio-economic status, or, in fact, differences in self-construal (independent vs. interdependent), and simultaneously considering societal factors as considered in this note (e.g., democracy and rule of law). Hence, multilevel analysis presents us with solid statistical means to begin exploring the numerous unanswered questions concerning trust radius as the second quintessential component of trust, in addition to its level.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Notes

1. We opt for this set of twin hypotheses instead of having just one hypothesis to be as comprehensive as possible and to allow for maximum flexibility concerning the dimensionality of the individualism–collectivism construct (Taras et al., 2014). Practically, having this set of twin hypotheses means that we estimate every empirical model twice, once using a measure of individualist culture and once using a measure of collectivist culture.
2. As in Realo, Allik, and Greenfield (2008), among others, we use GLOBE's practices scale. The correlation between Hofstede's individualism indicator and this collectivism indicator equals $-.765$ ($n = 25$). Given the strength of this correlation, it seems that both these indicators measure individualism–collectivism on a single continuum, as a low individualism score implies a high score on collectivism and vice versa (cf. Taras et al., 2014).
3. Models with the same number of individuals and countries are nested, so that we can test the statistical significance of the improvement in overall model fit using a likelihood ratio test.
4. Remember that trust radius is obtained by subtracting the coefficient for ingroup trust from the coefficient for outgroup trust. The net contribution of the moderating effects of individualism and collectivism to people's trust radius are therefore calculated as follows: $+.0357 - +.0054 = +.0303$ for individualism (Model 2) and $-.0486 - -.0075 = -.0411$ for collectivism (Model 5).
5. Notably, analyses using instrumental variable techniques have demonstrated that individualism–collectivism has a causal effect on institutional quality, democracy, and income per capita, among others (e.g., Gorodnichenko & Roland, 2011; Licht, Goldschmidt, & Schwartz, 2007). Hence, a significant moderating effect of, for instance, per-capita income partly reflects a moderating effect that is ultimately associated with individualism–collectivism.

References

- Allik, J., & Realo, A. (2004). Individualism–collectivism and social capital. *Journal of Cross-Cultural Psychology, 35*, 29–49. doi:10.1177/0022022103260381
- Coleman, J. (1990). *Foundations of social theory*. Cambridge, UK: Harvard University Press.

- Delhey, J., & Newton, K. (2005). Predicting cross-national levels of social trust: Global pattern or nordic exceptionalism? *European Sociological Review*, *21*, 311-327. doi:10.1093/esr/jci022
- 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. doi:10.1177/0003122411420817
- Fukuyama, F. (1995). *Trust: The social virtues and the creation of prosperity*. London, England: Hamish Hamilton.
- Gorodnichenko, Y., & Roland, G. (2011). Which dimensions of culture matter for long run growth? *American Economic Review*, *101*, 492-498. doi:10.1257/aer.101.3.492
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd ed.). Thousand Oaks, CA: Sage.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE study of 62 societies*. Thousand Oaks, CA: Sage.
- Licht, A. N., Goldschmidt, C., & Schwartz, S. H. (2007). Culture rules: The foundations of the rules of law and other norms of governance. *Journal of Comparative Economics*, *35*, 659-688. doi:10.1016/j.jce.2007.09.001
- Putnam, R. D. (1993). *Making democracy work*. 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. doi:10.1177/0022022108318096
- Snijders, T. A. B., & Bosker, R. J. (2012). *Multilevel analysis: An introduction to basic and advanced multilevel modeling* (2nd ed.). London, England: Sage.
- Taras, V., Sarala, R., Muchinsky, P., Kimmelmeier, M., Singelis, T. M., Avsec, A., . . . Sinclair, H. C. (2014). Opposite ends of the same stick? Multi-method test of the dimensionality of individualism and collectivism. *Journal of Cross-Cultural Psychology*, *45*, 213-245. doi:10.1177/0022022113509132
- Van Hoorn, A. (in press). Trust radius versus trust level: Radius of trust as a distinct trust construct. *American Sociological Review*, *79*, 1256-1259. doi: 10.1177/0003122414555398
- Welzel, C. (2010). How selfish are self-expression values: A civiness test. *Journal of Cross Cultural Psychology*, *41*, 152-174. doi:10.1177/0022022109354378
- World Values Survey Association. (2009). *World Values Survey 1981-2008 official aggregate v.20090901 Aggregate File Producer: ASEP/JDS, Madrid* [Data file]. Available from <http://www.worldvalues-survey.org>
- 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.