Exploring Generalized Trust:
A Multilevel and Cross-Country Analysis

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Abstract

This paper aims to investigate the determinants of general trust by utilizing cross-country data from the World Value Survey waves 6 to 8. The results indicate that a multilevel model is suitable for examining trust in this context. The findings of this study reveal that individuals who participate in voluntary memberships, feel secure in their neighborhoods, and report satisfaction with their life and financial status tend to exhibit higher levels of trust compared to the reference groups. Additionally, the analysis highlights the significant relationship of contextual-level variables, indicating that societies characterized by greater ethnic diversity tend to have lower levels of trust. These findings provide insights for the development of trust-enhancing policies by promoting community security and encouraging social engagement through voluntary membership associations.

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1. Introduction

Generalized trust refers to the mutual reliability between individuals, while institutional trust pertains to the trust placed in institutions or systems. Both forms of trust are important components of a functioning society. However, this study exclusively focuses on generalized trust, which reflects an individual's general tendency to trust others in society and is shaped by life experiences and general beliefs. When people trust one another, the costs associated with transactions are reduced since there is less need for safeguards or formal contracts. Generalized trust plays a significant role as a vital element of social capital, strengthening social networks, and fostering social cohesion (OECD, 2017). Moreover, prior research conducted by Bargain and Aminjonov (2020) has demonstrated that general trust also facilitates more effective policy responses, especially during crises such as the COVID-19 pandemic. Trust plays a crucial role in interpersonal relationships, but its levels vary significantly across countries. The World Values Survey (WVS) sheds light on this disparity, indicating that countries like Denmark and Norway have high levels of trust, with over 70 percent of the population having confidence in others' trustworthiness. In contrast, countries such as the Philippines, Zimbabwe, and Greece report relatively low trust levels, below 10 percent. It is said that a lack of trust can hinder a country's ability to tackle important challenges for sustainable growth and well-being (Algan & Cahuc, 2010; Zak & Knack, 2001; Helliwell & Wang, 2011).

Due to the significance of generalized trust, policymakers need to examine the factors that shape generalized trust and develop targeted policies or strategies to foster trust among individuals. Based on previous literature reviews, generalized trust is influenced by a wide range of factors. Studies conducted by Geys (2012) and Putnam (2000), emphasize the importance of membership and participation in voluntary associations as key drivers for enhancing trust at the individual level. This notion is further supported by Park & Subramanian (2012), who demonstrate that involvement in voluntary associations positively impacts generalized trust, along with other factors like education, income level. Trust is also influenced by individuals' life experiences and their treatment within society. Research conducted by Kwon (2019), Helliwell and Wang (2011), and Wu and Shi (2020) indicates that individuals who achieve success, possess higher social class and education, tend to have more resources, and receive better treatment, leading to a greater willingness to trust others. However, the impact of education on generalized trust may vary depending on the country's context and the types of data analyzed. Trust is also associated with physical factors. Zeng and Yang (2016) found that rural residents in China tend to have higher levels of trust compared to their urban counterparts. However, Jagodzinski et al. (2019) analyzed trust data in Japan over a period of 35 years and found that the impact of urbanization on trust is still unclear.

Previous research has demonstrated that factors influencing generalized trust extend beyond individual-level characteristics to encompass country-level factors as well. Paxton (2007) emphasizes the significance of examining individual and aggregate country-level factors. The research findings show that countries with higher Gross domestic product (GDP) tend to have well-established rule of law and fair competitive regulation, fostering increased trust among individuals. Furthermore, it has been observed that societies with higher levels of ethnic diversity display a lower level of trust compared to societies with lower diversity levels.

Considering the hierarchical nature of trust, where individuals are nested within countries, this paper aims to investigate the influence of individual-level and macro-level factors on generalized trust through the application of a multilevel logistic regression model. The data for this study was obtained from the World Values Survey (WVS), specifically from the 6th to 8th phases of data collection, known as Waves 6 (2005-2009), 7 (2010-2014), and 8 (2017-2020). The WVS is commonly used in cross-country research on trust because it provides standardized measurements, enabling the comparison of generalized trust levels

across countries. Its advantages also include large sample sizes, longitudinal data, global coverage, and data on various domains of trust. The dataset encompasses 236,695 individuals from 89 countries worldwide. In this study, the determinants of generalized trust focus primarily on success and well-being theory, voluntary organization theory, and community theory, as outlined in the study by Delhey & Newton (2005). These theories emphasize the significance of individual and societal factors such as social class, public safety, voluntary membership participation, and ethnic fractionalization in shaping trust.

The paper is structured into three main sections. The first section focuses on the trust model and provides definitions for all the variables utilized in the model. The next section presents the study's results, employing a multilevel approach. Lastly, the final section concludes the study and discusses its limitations.

2. Data and Methodology

2.1 Data

This study utilizes most of the data from the World Value Survey (WVS) (Haerpfer et al., 2022), including Waves 6 (2005-2009), Wave 7 (2010-2014), and Wave 8 (2017-2020). The dataset includes individual-level data collected from 236,695 sample groups across 89 countries. The focus is on the dependent variable "Standard Generalized Trust," measured by asking respondents about their trust in others. A value of 1 indicates that most people can be trusted, while a value of 0 indicates a need for caution in dealing with others. Generalized trust is a broader concept than interpersonal trust, as it refers to one's attitude toward the trustworthiness of people in society in general, while interpersonal trust focuses more on trust within individual relationships.

The analysis incorporates independent variables based on the success and well-being theory, voluntary organization theory, and community theory (Delhey & Newton, 2005), aiming to capture various factors that may influence generalized trust (as shown in Table 1).

Table 1: Individual and Macro determinates of trust

Individual Factors (Within level)				Macro Factors (Between level)
Theories				
Success and Well-Being Theory	Voluntary Organization Theory	Community Theory	Demographic Characteristics	
Variables				
- Income Level - Unemployment - Life Satisfaction - Financial Satisfaction - Social Class	- Voluntary Membership - Voluntary Membership	- Secure in Neighborhood - Town size	- Age - Gender - Education - Divorce - Having Children	- Ethnic Fractionalization - GDP per Capita

Source: Adapted from Delhey & Newton (2005)

The success and well-being theory examines how socio-economic factors impact generalized trust. This study considers social class and income variable to understand how individuals' success and well-being influence their trust in others. Income level is measured on a scale from 1 to 10, which 10 represents the highest income group in the respondent's country. Unemployment is coded as 1 for those who are unemployed and 0 for those who are

employed**.** Life satisfaction and financial satisfaction are rated from 1 to 10, with 10 indicating the highest satisfaction**.** Social class ranges from 1 to 5, with 5 representing the lower class**.** Table 2 provides detailed information on these variables, including descriptive statistics such as mean, standard deviation, and data sources**.**

The voluntary organization theory highlights how voluntary membership plays a crucial role in shaping generalized trust**.** This study examines the variable of voluntary membership to assess its influence on trust levels**.** The participants were asked about their participation in religious, sports, art, political, environmental, professional, and charity organizations, etc**.** Those who indicated membership in at least one organization were assigned a code of 1, while a code of 0 represented non**-**participation in any organization**.**

Community theory examines the impact of community-level factors on generalized trust. In this study, variables such as public safety and town size are considered to investigate how these community characteristics influence individuals' trust in others. Neighborhood safety is measured on a scale ranging from 1 to 4, where 4 indicates feeling very secure in the neighborhood. Town size variable is derived from settlement size and is coded as 1 to indicate a relatively large town size, which may be interpreted as urbanization.

Besides the individual-level factors mentioned earlier, this paper also explores the impact of two macro-level factors on generalized trust. The variables considered are ethnic fractionalization and GDP per capita. Ethnic Fractionalization data is sourced from the Historical Index of Ethnic Fractionalization dataset (HIEF), which measures the level of ethnic diversity within a country (Drazanova, 2020). A value close to 1 indicates significant ethnic diversity. The advantage of utilizing the HIEF for analysis, as highlighted in Boix and Stokes' study **(**2003**)**, lies in the standardization of the index, enabling more precise comparisons of diversity levels among countries**.** GDP per capita **(**constant 2010 US$**)** data, sourced from the World Bank, is used as an indicator of a country's economic development **(**The GDP per capita has been transformed to its logarithmic form**)**. The study examines how factors such as ethnic diversity and economic development relate to generalized trust**.** In this study, the trust model includes demographic characteristics as control variables. These variables include age, gender, education (where those with a bachelor's degree or higher are coded as 1), divorce, and having children.

Table 2: Descriptive statistics

Variable	Obs.	Mean	SD	Min	Max	Source
Standard generalized trust	242,142	0.25	0.43	0	1	WVS
Income Level	238,218	4.74	2.17	1	10	WVS
Unemployment	246,726	0.09	0.29	0	1	WVS
Life Satisfaction	249,831	6.86	2.29	1	10	WVS
Financial Satisfaction	245,332	5.95	2.47	1	10	WVS
Social Class	231,926	3.32	0.99	1	5	WVS
Voluntary Membership	245,809	0.58	0.49	0	1	WVS
Feeling Secure in Neighborhood	164,172	3.05	0.82	1	4	WVS
Town Size	199,094	0.47	0.50	0	1	WVS
Age	250,890	42.17	16.53	15	103	WVS
Male	251,414	0.48	0.50	0	1	WVS
University Level	159,817	0.17	0.38	0	1	WVS
Divorce	250,807	0.04	0.19	0	1	WVS

Variable	Obs.	Mean	SD	Min	Max	Source
Having Children	244,137	0.70	0.46	0	1	WVS
Ethnic Fractionalization	143,723	0.43	0.25	0.02	0.86	HIEF
Log GDP per Capita	226,203	8.98	1.26	5.61	11.42	WB

2.2 Methodology

The method used to analyze the factors influencing generalized trust in this study is the Logistic Multilevel Model, which estimates the probability of a binary response using maximum likelihood methods. The dataset consists of 236,695 individuals, treated as level 1, from 89 countries (K=89), which are treated as level 2. The Multilevel Logistic Modeling approach is employed for two main reasons. Firstly, this technique is suitable for analyzing binary outcome variables, such as the standard generalized trust represented by a binary variable with values of 0 and 1. Secondly, generalized trust is assumed to be influenced by factors at both the individual and country levels (Hox et al., 2018). Individuals from the same country may exhibit more similar views on trust compared to individuals from different countries. As a result, considering the multilevel nature of trust is essential for a comprehensive analysis of its determinants. The trust model is represented as follows:

$$trust_{ij} = \beta_0 + \beta_1 X_{1ij} + \cdots + \beta_k X_{kij} + \alpha_1 Z_{1j} + \alpha_2 Z_{2j} + e_{ij} + \mu_{0j} \qquad (1)$$

In the trust model, the variable $trust_{ij}$ represents the trust dummy variable for individual i in country j. The variables X_{1ij} through X_{kij} denote the vector of individual-level variables. The variables Z_{1j} and Z_{2j} refer to the country-level independent variables, including log GDP per capita and ethnic fractionalization. The terms e_{ij} and μ_{0j} represent the level-1 and level-2 error terms, respectively. It is important to note that the error term e_{ij} captures the difference between the observed value of the outcome variable and its country mean, while μ_{0j} captures the difference between the average value of each cluster and the overall mean (Mehmetoglu & Jakobsen, 2016).

Figure 1 depicts the variation in the proportion of responses indicating trust in most people across different countries. Notably, trust levels differ among countries, with Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden) demonstrating higher levels of trust compared to others. Considering this variation, the hypothesis suggests that employing a multilevel model may be appropriate. Such a model enables the inclusion of random effects to address this variance and provide a more comprehensive analysis.
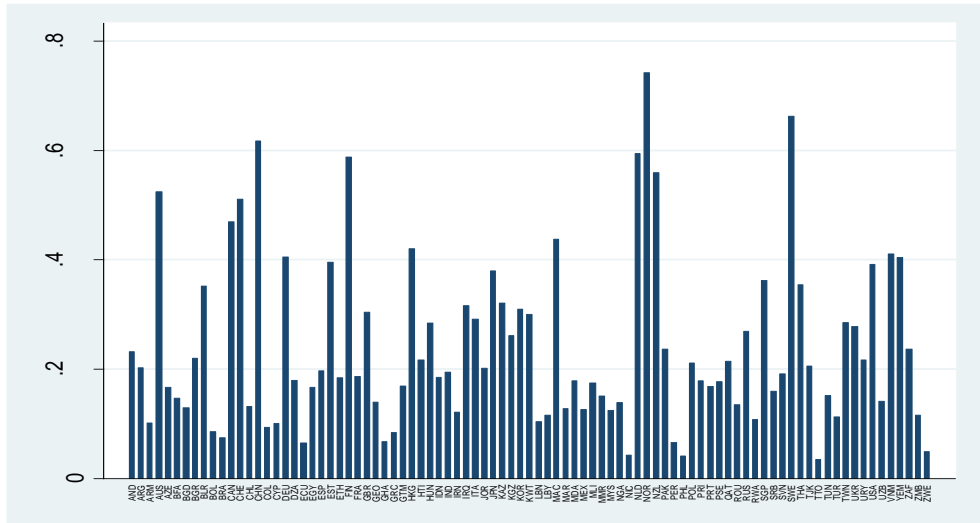
Figure 1: Between-cluster variance in trust

3. Results

In the first step, an empty model or intercept-only model was constructed to assess the suitability of the multilevel approach compared to a basic logistic model (Sommet and Morselli, 2017). The empty model included only the trust variable and the cluster variable in the analysis. The estimated level-2 variance was found to be 1.235. The Likelihood Ratio (LR) test yielded a chi-square value of 5456.05, with a p-value of less than 0.001, indicating that the multilevel model provided a significantly better goodness of fit compared to a single logistic model that did not account for the random intercept. Furthermore, the intra-class correlation coefficient (ICC) of 0.27 exceeded the benchmark value of 0.15 suggested by Hox (2010). This ICC value suggests that 27 percent of the total variance in trust can be attributed to variation between countries, providing further justification for the use of a multilevel approach.

Subsequently, the study aimed to predict the probability of generalized trust by incorporating level 1 and level 2 predictors. In table 3, Model 1 specifically focused on variables relevant to the success and well-being theory, while Model 2 considered variables associated with the voluntary organization theory. Model 3 examined variables related to community theory. Lastly, in model 4, both level 1 and level 2 explanatory variables were included, encompassing variables from all three theories, along with control variables and country-context aggregate variables.

Among the four models analyzed, the coefficients of the individual-level variables showed stability, and the Wald test indicated significant differences from zero for at least one of the regression slopes. The findings aligned with the predictions of the success and well-being theory. Specifically, income level, life satisfaction, and financial satisfaction exhibited positive and statistically significant coefficients. This implies that individuals with higher income, greater life satisfaction, and increased financial satisfaction are more likely to have higher levels of trust. Additionally, unemployment and belonging to a lower social class were associated with lower levels of trust when compared to individuals who were employed and belonged to higher social classes. Please note that self-evaluated measurements are categorized into five groups, with Social Class 5 representing the lower class. In line with the voluntary organization theory, the results indicated that individuals who participate in at

least one voluntary group are more likely to trust others than compared to those who do not engage in any organization or group. These findings align with previous studies conducted by Putnam (2000) and Geys (2012) , which also demonstrated a significant positive relationship between membership and trust levels.

In relation to the community theory, the study found that those who feel very secure in their neighborhood exhibit higher levels of trust compared to those who perceive their neighborhood as insecure. Moreover, trust levels tend to be higher in larger towns size. The results revealed that countries with higher GDP per capita were more likely to exhibit higher levels of trust. Additionally, societies with greater ethnic diversity typically showed lower levels of trust when compared to those that are more homogeneous.

Table 3: Generalized trust model

	Model 1	Model 2	Model 3	Model 4
Individual-level Variables				
Income Level	0.034***			0.021***
	[0.003]			[0.007]
Unemployment	-0.251***			-0.095**
	[0.021]			[0.046]
Life Satisfaction	0.045***			0.063***
	[0.003]			[0.007]
Financial Satisfaction	0.061***			0.044***
	[0.003]			[0.006]
Social Class 2	0.120***			-0.127
	[0.041]			[0.086]
Social Class 3	-0.003			-0.158*
	[0.041]			[0.086]
Social Class 4	-0.105**			-0.319***
	[0.042]			[0.088]
Social Class 5	-0.196***			-0.141
	[0.045]			[0.095]
Voluntary Membership		0.304***		0.184***
		[0.010]		[0.028]
Feeling not very secure in neighborhood			0.228***	-0.023
			[0.043]	[0.074]
Feeling quite secure in neighborhood			0.845***	0.180***
			[0.040]	[0.069]
Feeling very secure in neighborhood			0.982***	0.372***
			[0.041]	[0.070]
Town size			0.339***	0.166***
			[0.014]	[0.028]
Age				0.002**
				[0.001]
Male				0.049**
				[0.024]
University Level				0.172***
				[0.032]
Divorce				-0.197***
				[0.057]

	Model 1	Model 2	Model 3	Model 4
Having Children				0.013
				[0.031]
Country-level Variable				
Ethnic Fractionalization				-1.430***
				[0.092]
Log GDP per Capita				0.074***
				[0.017]
Constant	-1.804***	-1.213***	-1.802***	-1.578***
	[0.048]	[0.008]	[0.040]	[0.205]
N	210,906	236,695	138,381	43,475

Note*: Standard errors are given in parentheses, *, **, and ** denote significance at 10%, 5%, and 1%, respectively.*

4. Conclusion

This paper makes a valuable contribution to the existing literature by examining the determinants of generalized trust using the World Value Survey (2005-2020). The findings support the hypothesis that a multilevel modeling approach is suitable in this context, and the results demonstrate that trust is indeed correlated with both individual and country-level aggregate factors. The findings suggest that individuals who participate in voluntary memberships, feel secure in their neighborhood, and report higher life and financial satisfaction are more likely to trust others compared to the reference groups. On the other hand, being unemployed and belonging to lower social class groups are negatively associated with the probability of trusting others. Furthermore, the study reveals that contextual-level variables play a significant role in explaining trust. Specifically, societies with greater ethnic diversity tend to exhibit lower levels of trust compared to those with less racial and ethnic dispersion, a result consistent with the study of Delhey, J., & Newton, K. (2005).

These findings have implications for trust-building policies, such as promoting community security measures. Piroozfar et al. (2019) found that improving the physical environment in communities, including well-lit streets, sidewalks, and adequate lighting, can improve individuals' perception of security when walking or driving at night. Additionally, fostering associations that encourage voluntary membership, social engagement, and organizing community activities is possible to increase trust levels. This study is limited by its inability to employ a multilevel method with a panel dataset. This means that the results can only suggest correlated relationships rather than causal relationships. Also, it is important to consider that trust could potentially be influenced by personality traits such as introversion or extroversion. However, due to the limited number of observations in the World Value Survey, it has not been possible to include personality traits as control variables in the trust model at this time.

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