

Predicting social trust with binary logistic regression

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ABSTRACT

This study used binary logistic regression to predict social trust with five demographic variables from a national sample of adult individuals who participated in The General Social Survey (GSS) in 2012. The five predictor variables were respondents' highest degree earned, race, sex, general happiness and the importance of personally assisting people in trouble. The objective of the data analysis was to assess the impact of the predictors on the likelihood that respondents would report that they have low social trust. The results of binary logistic regression analysis of the data showed that the full logistic regression model containing all the five predictors was statistically significant. The strongest predictor of low social trust was education or degree earned. It recorded an odds ratio of 12.7 indicating that when holding all the other predictors constant, a person who left or dropped out of high school is 12.7 times more likely to have low social trust than a person with a graduate degree. In summary, females are less trustful than males, African Americans are less trustful than Whites, less educated individuals are less trustful than educated individuals and less happy people are less trustful than happy people.

Keywords: Social trust, binary logistic regression, predictors

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INTRODUCTION

Social trust has many definitions in professional literature however they are close approximations of each other. Gambetta (1988) maintained that “trust involves the belief that others will perform in a way that is beneficial to us, or at least not detrimental” p.217. Social trust according to Pew Research Center’s Report (2006) on social trends “is a belief in the honesty, integrity and reliability of others.” p.2. Warren, (1999) reported that “trust involves shared interest or lack of malice”. p.311. Newton (2013) defined trust operationally as “the belief that others will not, at worst, knowingly or willingly do you harm, and will, at best, act in your interests.” (chapter1). The similarities of the above definitions of trust seem apparent. The importance of social trust to individuals and society can hardly be overemphasized. People rely on relationships of trust with other people or institutions in their everyday life. It is considered an important synthetic force within a society. (Simmel, 1950). Among the positive effects of social trust to a nation and the individual are social integration, co-operation, harmony, personal well-being, life satisfaction, happiness, health and optimism (Delhey & Newton 2003). Newton, (2003) divided theories on social trust into two broad categories: 1) trust as an individual property and 2) social trust as a property of social systems or systemic properties of societies. Theories that focus on Social trust as an individual property are known as individual theories. These theories identify two different sources for social trust. Social psychologists (Allport, 1961, Cattell, 1965, Uslaner, 2000) maintain that social trust is a core personality trait, “part of a broader syndrome of personality characteristics.” (Newton chapter 2) It is learned in childhood from parents and persists in adult life without changing dramatically with normal life experiences. The general belief of personality theorists is that trust and optimism are essential parts of an individual’s disposition toward the world such as belief in cooperation. (Delhey & Newton 2003), (Uslaner, 2000). Delhey and Newton (2003) refer to social psychological explanation of social trust as Erikson-Allport-Cattell-Uslaner Personality Theory. This theory emphasizes childhood socialization and personality characteristics. It posits strong relationships between social trust and personality variables such as personal optimism and a sense of control over one’s life. An alternative explanation of the source of social trust from the individual theories is social success and well-being theory (Newton 2013). This theory emphasizes later experiences in life as the source of social trust. Delhey & Newton quote Putnam (2000 :138) to highlight what the theory implies: ‘In virtually all societies “have-nots” are less trusting than “haves” probably because haves are treated by others with more honesty and respect. In contrast, distrust is more common among the losers – those with a poor education, low income, and low status, and who express dissatisfaction with their life.’ (Delhey & Newton p.95).

Inglehart (1995) and Putnam (2000) see social trust as a product of adult experiences. “Those who have been treated kindly and generously by life are more likely to trust than those who suffer from poverty, unemployment, discrimination, exploitation and social exclusion”. Newton (2003, chapter 2). Unlike Personality Theory, Putman (2000) identified social success and well-being as sources of social trust. He posits strong relationships between trust and adult life experiences or personal demographic variables such as income, education, social status, satisfaction with life, job satisfaction, happiness, anxiety and insecurity.

Unlike the personal theories of trust, societal theories attribute the source of social trust to the properties of a system such as the culture and political intuitions of a country that encourage or nurture the development of trusting attitudes and behavior (Delhey & Newton 2003).

This paper takes a view from a careful reading of the results of empirical studies that social trust is associated with individual social and demographic characteristics and explores the relationships between features such as gender, education, race, age and social trust. The major objective of this paper however, is to predict social trust with selected demographic variables from a national sample of adult individuals.

DATA

This study used data from The General Social Survey (GSS) 2012 conducted by The National Opinion Research Center (NORC). The data was downloaded from the Association of Religion Data Archives (ARDA), www.TheARDA.com. The sample size consisted of a National probability sample of 4,820 individuals. The GSS 2012 contained three popular items designed to measure social trust. European Social Survey (ESS) also employs the same three items to measure social trust. The items are:

1. Would you say that most of the time people try to be helpful or that they are mostly just looking out for themselves?
2. Do you think most people would try to take advantage of you if they got a chance or would they try to be fair?
3. Generally speaking, would you say that most people can be trusted or that you can't be too careful in life?

DATA ANALYSIS

IBM SPSS was used to perform the data analysis. First, frequency distributions of the three measures of social trust were computed and second, selected demographic variables (sex, education, race and age), were cross-tabulated with each of the social trust items. This part of the study was descriptive. It sought to explore the relationship between selected independent variables and social trust. The outcome variable of the study is the response to question 3, "Generally speaking, would you say that most people can be trusted or that you can't be too careful in life?" The response to question 3 is a categorical variable coded 0 for "Most people can be trusted" (social trust) and 1 for "You can't be too careful in life" (low social trust). To achieve the main objective of the study, binary logistic regression was performed on selected five independent variables to assess their impact on the likelihood that subjects would fall into low social trust category, the predicted outcome variable. Selection of the independent variables was guided by current literature on Social trust. They were (1) respondents' highest degree earned (degree), (2) race, (3) sex, (4) general happiness (happy) and (5) the importance of personally assisting people in trouble (peoptrbIR). The specific model estimated from the data was: $\text{logit}(\text{low social trust}) = \alpha + b_1(\text{degree}) + b_2(\text{race}) + b_3(\text{sex}) + b_4(\text{happy}) + b_5(\text{peoptrbIR})$, where the dependent variable is logit low social trust, α is the estimate for the intercept and b_1, b_2, \dots, b_5 are estimates for the coefficients of the five predictors. All the five independent variables were represented by dummy variables. Degree was represented by five dummy variables: left high school = degree (1), high school diploma = degree (2), junior college = degree (3), bachelor = degree (4), and graduate. The last category, graduate was designated as

the reference group. The other variables were represented by two or three dummy variables to reflect the number of responses and reference categories. They were: race = Black (1), Other = (2), White = reference group; sex, female = sex (1), male = reference group; happiness, pretty happy = happy (1), not too happy = happy (2) and very happy = reference group; personally assisting people in trouble, neither agree nor disagree = peoprtrbIR (1), disagree, peoprtrbIR (2), agree is the reference category.

RESULTS

Frequency distributions of the three social trust items above showed 54% of the respondents were trustful. They indicated that 'most of the time people try to be helpful' (Q1) and 58% indicated that 'most people would try to be fair if they got a chance' (Q2). However, majority of respondents did not feel that most people can be trusted. For example, 63% of the sample responded 'You can't be too careful in life' indicating low social trust. The relationships between four demographic variables, sex, race, education, age and low social trust were explored. The results indicated significant relationships between sex and trust ($p < .00$), race and trust ($p < .00$), Education/College degree and trust ($p < .00$), age and trust ($p < .00$). The data indicated that females, African Americans, individuals with less education (i.e. those who left high school education), and adults between 18 and 29 years were less trusting than males, whites, graduates and seniors (65 years and over) respectively. These findings collaborate with the results of Pew national survey (2006) of a representative sample of adult Americans on social trust. To answer the question, who is more trusting, Pew survey results showed that whites were more trusting than Blacks or Hispanics, seniors were more trusting than young people and college graduates were more trusting than high school and non high school graduates. The observed strong correlations between the demographic variables and social trust according to Pew Research Center (2006) have remained relatively stable for a long time.

The results of binary logistic regression analysis of the data showed that the full logistic regression model containing all the five predictors was statistically significant, $\chi^2 = 110.81$, $df = 11$, $N = 626$, $p < .001$ indicating that the independent variables significantly predicted the outcome variable, low social trust. The results of the data analysis presented in Table 1. (Appendix) show the logistic regression coefficients, Wald test, and odds ratios for each of the predictor variables. The results of Cox & Snell, and Nagelkerke R squared estimates indicated that the whole model explained between 16% and 22% of the variance that can be predicted from the independent variables. The model classified correctly 43.4% of the respondents who were trustful and 84.9% of those who were less trustful, for an overall classification success rate of 69.3%. As shown in Table 1 (Appendix), all the predictor variables with exception of personally assisting people in trouble were very important to me, (peoprtrbIR) were statistically significant. The remaining four predictors made unique significant contributions to the prediction of low social trust. Degree showed strong relationship to social trust. The strongest predictor of low social trust was degree. It recorded an odds ratio of 12.7 indicating that when holding all the other predictors constant, a person who left or dropped out of high school is 12.7 times more likely to have low social trust than a person with a graduate degree. The odds ratios presented in column 7 of Table 1 (Appendix) predict the likelihood of low social trust for example, the odds ratio for sex indicates that a female is about 2.0 times more likely to have low social trust than a male. For race, an African American is about twice as likely to have low social trust than White controlling for the other predictors in the model. Happiness showed strong relationship with

social trust. Unhappy or not too happy individuals tend to have low social trust. As indicated by the odds ratio of 2.6 for happiness, the not too happy person is 2.6 times more likely to have low social trust than a very happy person all other things being equal.

SUMMARY

This study focused on adult life experiences or personal demographic variables such as education, sex, race, personal happiness and personally assisting people in trouble to predict low social trust in a national probability sample. The results of the data analysis using binary logistic regression are consistent with social success and well-being theory. This theory locates the source of social trust in adult life experiences and posits statistical relationship between social trust and a set of individual variables. The results of the study showed that the personal or demographic independent variables employed in the prediction of low social trust were statistically significant: females are less trustful than males, African Americans are less trustful than Whites, less educated individuals are less trustful than educated individuals and less happy people are less trustful than happy people. The results of this study and others like the social trust surveys conducted by Pew Research Center have important national implications given 1) the relatively large percentage of the national sample that have low social trust and 2) the significance of social trust for social integration, co-operation and harmony.

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APPENDIX

Table 1 - Logistic Regression Predicting Likelihood of low Social Trust

Variable	B	S.E.	Wald	df	P	Odds Ratio	95% CI for Odds Ratio	
							Lower	Upper
HappyR(1)	.36	.20	3.26	1	.07	1.44	.97	2.14
HappyR(2)	.94	.30	9.90	1	.00	2.55	1.42	4.58
PeoptrbIR(1)	.35	.26	1.72	1	.19	1.41	.84	2.37
PeoptrbIR(2)	.39	.45	.77	1	.38	1.48	.62	3.55
Sex(1)	.67	.18	13.36	1	.00	1.96	1.37	2.81
Race(1)	.73	.29	6.39	1	.01	2.07	1.18	3.64
Race(2)	.65	.31	4.29	1	.04	1.91	1.04	3.64
Degree(1)	2.54	.40	40.44	1	.00	12.67	5.79	27.69
Degree(2)	1.63	.31	28.38	1	.00	2.12	2.81	9.33
Degree(3)	1.50	.41	13.59	1	.00	4.48	2.02	9.95
Degree(4)	.79	.34	5.56	1	.02	2.20	1.14	4.25
Constant	-1.80	.33	29.02	1	.00	.17		

