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Conference Paper

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53rd Congress of the European Regional Science Association: "Regional Integration: Europe, the Mediterranean and the World Economy", 27-31 August 2013, Palermo, Italy

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Akkemik, K. Ali; Dittrich, Marcus; Göksal, Koray; Leipold, Kristina; Ogaki, Masao (2013) : Worldviews and Intergenerational Altruism: Empirical Evidence for Germany, 53rd Congress of the European Regional Science Association: "Regional Integration: Europe, the Mediterranean and the World Economy", 27-31 August 2013, Palermo, Italy, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

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Worldviews and Intergenerational Altruism: Empirical Evidence for Germany

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September 20, 2012

Abstract

This paper studies the effects of differences in worldviews on parents' attitudes towards their children. We use unique German survey data containing questions on worldviews, religion, parental behavior, and socioeconomic variables. Our empirical evidence suggests that people with stronger confidence in strong disbelief in afterlife are more likely to have a tough love attitude towards their children. On the other hand, people who have strong disbelief in afterlife are less likely to have tough love attitude towards their children. Our results also indicate that people who belong to the Protestant and Catholic churches in Germany are less likely to have spoiling love attitude. On the other hand, people who have strong disbelief in afterlife are less likely to have tough love attitude towards their children.

JEL classification: Z10, Z12, D64

Keywords: Intergenerational altruism, worldview, religion, tough love, spoiling love

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1. Introduction

The relationship between different generations is an important social and economic issue. Intergenerational connections not only have implications for individual economic behavior, such as savings, investment in human capital, and bequests, but also affect aggregate savings and growth. Moreover, such connections are important from an economic policy perspective as well since they determine how families respond to public policies aimed at redistributing resources among family members.

Intergenerational connections are commonly examined in standard altruism models (Barro, 1974; Becker, 1974) in which the current generation derives utility from its own consumption and the utility level of its descendants. Recent models modify the standard altruism approach to analyze parents' discipline behavior (Akabayashi, 2006; Bhatt and Ogaki, 2012abc). The tough love model under temptation developed in Bhatt and Ogaki (2012c) is the basic guidance for the empirical examination in Kubota et al. (2012). Using data collected by the Osaka University 21st Century of Excellence program, which contain questions on worldviews, religions, and parental behavior, Kubota et al. (2012b) seek cultural differences on parents' attitudes between Japan and the U.S. Their results suggest that parents' worldviews affect their attitudes toward their children and that U.S. parents are tougher than Japanese parents toward young children.

Our paper builds on the tough love model under temptation by Bhatt and Ogaki (2012c). We present empirical evidence concerning effects of differences in worldviews on parents' attitudes towards their children in Germany. We use unique German survey data which contain questions concerning the worldview of a person, the financial situation, donation behavior, and religious affiliation. Moreover, the data contain questions on parental behavior and socio-demographic information.

Kubota et al. (2012b) find that tough love attitudes are affected by worldviews in Japan and USA. Here we use the word "worldview" as the explicit and implicit beliefs, norms, logic, and emotions that underlie a culture. The word "worldview" was first used by a book published by Kant in 1790 (Kant, 1987) according to Naugle (2002). Since then the word has been used by many philosophers such as Hegel (1961, first published in 1807), Kierkegaard (1966), and Heidegger (1982). These philosophers tended to use the word for the cognitive aspect of how a person views the world. In Anthropology, the word has been used in a broad-

er way to encompass the cognitive, normative, and emotional aspects as reviewed by Hiebert (2008). Hiebert models a culture in three layers. Inspired by Hiebert's model, we model the surface of a culture as the sensory level that includes cultural behavior such as rituals and economic behavior. The next level is explicit belief systems that can include religious belief systems. The deepest level is implicit and contains different ways that people categorize and carry out logic. In the current world with globalization, each person is exposed to different cultures and their underlying worldviews. So each person is thought to attach subjective probabilities to different worldviews.

The paper is organized as follows. Section 2 briefly reviews the related literature. Section 3 describes the data. Section 4 presents the empirical methodology and the estimation results. Section 5 concludes.

2. Related Literature

This paper builds on the literature on economic implications of culture, religion, and worldviews. Empirical evidence suggests that macroeconomic variables, such as aggregate savings and growth rates, differ significantly between countries. These variables are affected by individual economic behavior, e.g., savings and investment in human capital, which also differ between countries.

There is no general consensus between the direction of the causal relation between culture and economic differences across countries. Classical economists had differing views on the relationship between culture and international economic differences. As reviewed in Guiso et al. (2006), while Marx argued that production relations shape the culture and culture is “man-made,” others such as Weber argued that economic relations are not sufficient to change the existing economic order and a modification of the Christian thinking in Europe allowed the pursuit of economic profits and gave rise to capitalism.¹ In a similar line of thought Kuran (2011) found a causal relationship between Islamic traditions and underdevelopment of the Muslim world vis-à-vis the Christian societies. Recent studies argue that the causality works in both ways. Guiso et al. (2006) argue that culture is one possible determinant that might be able to explain at least parts of the economic differences across countries. However, for about a century, and until very recently, economists have been reluctant to con-

¹ Guiso et al. (2006) also argue that Gramsci provided a synthesis of these two opposing views by incorporating the importance of cultural hegemony (i.e., control of the society via cultural means) in political dominance.

sider culture as an explanation of economic differences between countries. This reluctance mainly stems from the broad and vague notion of culture. In particular, Ianaccone (1998) argued that religion was ignored as a factor to explain economic behavior, which is mainly due to divorce of science from religion. In recent years, however, more data and better methods made it possible to identify differences in individual preferences and beliefs and to relate them to measures of culture. Thus, it became possible to bring testable, culturally-based explanations into economics which may enrich our understanding of economic differences (Guiso et al., 2006).

Using the World Values Surveys to identify the relationship between religion and economic attitudes, Guiso et al. (2003) show that people who were raised religiously are more likely to teach their children about thriftiness. Guiso et al. (2006) find that countries where people have this attitude to teach thriftiness have higher national savings. Thus, how different generations are connected and how these connections differ between countries and religions are important questions not only from an individual point of view but from macroeconomic and policy perspectives as well.

Examining the intergenerational linkages, Kubota et al. (2012a) present empirical evidence concerning the relationship between the parents' time discounting and the parental behavior toward their children. They use unique U.S. and Japanese survey data containing hypothetical questions about parental behavior, time discounting, and socioeconomic variables. Kubota et al. (2012a) find that parents' behavior depends on different measures of time discount factors regarding their financial decisions. These empirical results are consistent with modified theoretical models of intergenerational altruism and tough love (Akabayashi, 2006; Bhatt and Ogaki, 2012abc). The standard models of intergenerational altruism by Barro (1974) and Becker (1974) do not predict parents' discipline behavior in situations in which we expect parents in the real world to discipline their children. Bhatt and Ogaki (2012a) modify this standard approach and develop a tough love model of intergenerational altruism. In general, tough love implies that parents might let their children suffer in the short-run for their children to build up virtue such as patience. In Bhatt and Ogaki (2012a), the child has an endogenous discount factor, so that low consumption at young age leads to a higher discount factor later in life. The parents use a constant discount factor that is higher than that of the child's in evaluating the child's life time utility. This model provides a theoretical foundation for our empirical work.

While Kubota et al. (2012a) focus on the question of whether time discounting affects the parental attitudes in Japan and the U.S. they do not study cultural differences between these countries. Such cultural differences as possible factors that might affect parents' behavior are examined in Kubota et al. (2012b), which are most closely related to our paper. Using a unique survey data set, they find individual and cross-country differences in parents' attitudes toward children in Japan and the U.S. Moreover, their results suggest that worldviews and religion affect tough love and spoiling love attitudes. Kubota et al. (2012b) find that people from the U.S. are much more confident in worldview beliefs than Japanese people. In each culture, however, individuals who are more confident about worldviews are more likely to show tough love attitudes toward their children. This cultural difference helps explain a substantial portion of the difference in parental attitudes between U.S. and Japanese parents.

3. Data

The analyses in this paper are based on data from an internet survey conducted in Germany. The survey was conducted in September 2011 with a representative sample of the German population. A total of 1,019 subjects from all 16 federal states of Germany participated in the survey. 49 percent of them were male and 51 percent were female. We clustered all subjects equally in nine age groups: 18-23, 24-29, 30-35, 36-41, 42-47, 48-53, 54-59, 60-69, and >70 years.

The internet survey included a variety of questions concerning the worldview of a person, the financial situation, donation behavior, religious affiliation, and socio-demographic information.² The religious affiliation was quoted as follows: 33.7 percent of the subjects were not affiliated with any religion, 27.3 percent were Catholic, 31.5 percent were Protestant, and 7.5 percent of the subjects were affiliated to another religion.³

In order to analyze the tough love attitudes of parents, the dependent variable is constructed using the following hypothetical question in the questionnaire:

Imagine that you have a 2-year old child that has a high fever and is in pain. The child's doctor whom you trust tells you that both the fever and pain are harmless. He can give you a medicine that cures the sickness but slightly weakens the child's immune system when the child becomes 50 years old. What would you do? (Circle ONE number)

1. I would give the medicine to the child if the sickness is known to last for one day.

² The original questions in the online survey are in German. A translated version is presented in the Appendix.

³ It took approximately 20 minutes to fill in the internet survey. Subjects received €4 for their participation. This sum is standard for filling in internet surveys.

2. I would give the medicine to the child if the sickness is known to last for two days.
3. I would give the medicine to the child if the sickness is known to last for one week.
4. I would give the medicine to the child if the sickness is known to last for one month.
5. I would not give the medicine to the child.

The distribution of the answers given to this question is presented in Figure 1. We interpret answer 1 for this question as parental behavior motivated by spoiling love and answer 5 as parental behavior motivated by tough love. Answers 2, 3, and 4 imply tempted parents. Half of the respondents circled the fifth answer to this question, 18 percent circled the fourth and 13 percent the third answer. It is clear from these results that half of the respondents can be identified as tough love parents.

Following Kubota et al. (2012b), we assume that most parents would like to give the medicine to the child in the situation of the above question even if they think that, in the long run, it would be better not to give it. Parents need to have a strong conviction about their decision not to give the medicine and, thus, to see the child suffer. Consequently, parents who have strong convictions are more likely to choose answer 5. We construct “Confidence” variables in two different forms: “Confidence in spiritual questions” and “Confidence in non-spiritual questions.” The former is related to the degree of confidence of the respondents in spiritual questions and the latter is related to the degree of confidence of the respondents in non-spiritual questions. Spiritual questions include the following six questions: (i) The afterlife exists, (ii) Heaven exists, (iii) Hell exists, (iv) A person may be reincarnated as another person, (v) Spiritual beings such as God, Buddha, gods, or angels exist, and (vi) When you conduct bad behavior and no one else knows about it, you are monitored by God or other spiritual beings. For these questions, we use a scale from 0 to 100, progressing in multiples of 10. “0” means “I totally disagree” and “100” means “I totally agree.”

Non-spiritual questions related to confidence include the following five questions: (i) I will never be robbed, (ii) I always keep my promises, (iii) I know a lot about politics, (iv) I have a good memory, and (v) I believe what is written in science textbooks is true. For these questions, we use a scale from 1 to 5, where “1” means “It doesn’t hold true at all for you”, “3” means “No strong opinion one way or the other”, and “5” means “It is particularly true for you.”

The distributions of the spiritual confidence (minimum 0 and maximum 6) and non-spiritual confidence (minimum 0 and maximum 5) variables are reported in Figure 2 and Figure 3, respectively. The spiritual confidence variable has a peak at 0 (44.8 percent) and 2

(26.9 percent) and the frequency declines steadily for scores 3, 4, 5, and 6. In the case of the non-spiritual confidence variable, the peak is at score 0 (50.1 percent) and the frequency keeps declining for the following scores with 29.9 percent for score 1 and 0.5 percent for score 5. The sum of the spiritual and non-spiritual confidence variable scores provides the confidence variable (minimum 0 and maximum 11).

The distribution of the confidence variable is presented in Figure 4. Interestingly, the highest score for the sample is 9, with zero frequencies for the scores 10 and 11. The frequency declines from score 0 onwards. The frequency of the scores has a declining trend as the score progresses upwards after 3. There are two peaks at scores 0 and 2. Two thirds of the scores are between zero and 2.

The basic guidance of our empirical analysis is the tough love model (Bhatt and Ogaki, 2012c). If we assume that parents who have higher discount factors for their own financial decisions use these discount factors to evaluate their children’s utility function, the tough love model predicts tougher parental behavior toward their children for parents with higher discount factors. To test this hypothesis, we need data for parents’ patience. To measure the impatience of the respondents the survey questionnaire includes two questions regarding the receipt or payment of a certain amount of money. These questions measure impatience (time preference) and debt aversion. In these two questions, the respondent is asked to choose the appropriate range. Based on these answers, we calculate the point estimates of the impatience variable. For technical details see the appendix in Kubota et al. (2012b).

The first question related to patience is about discounting for receiving €100 between today and seven days later. It is specified as follows:

Imagine that you have two options to receive some money. You may choose Option “A”, to receive €100 in today; or Option “B”, to receive a different amount in seven days. Compare the amounts and timing in Option “A” with Option “B” and indicate which amount you would prefer to receive for all 8 choices.

Option “A” Receiving today	or	Option “B” Receiving in 7 days	Includes an annual interest rate of	Which <u>ONE</u> do you prefer? (X ONE Box For EACH Row)	
				Option “A”	Option “B”
€100.00		€99.81	-10%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€100.00		€100.00	0%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€100.00		€100.19	10%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€100.00		€100.38	20%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€100.00		€100.96	50%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€100.00		€101.91	100%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€100.00		€103.83	200%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€100.00		€105.74	300%	1 <input type="checkbox"/>	2 <input type="checkbox"/>

The second question is related to patience is about discounting between one month and 13 months. This question measures debt aversion of the respondent. However, unlike the previous question which was about receiving a certain amount of money, this question is about paying €10,000. It is specified as follows:

Imagine that you have the option to pay €10,000 in one month or pay a different amount in thirteen months. Compare the amounts and timing in Option “A” with Option “B” and indicate which amount you would prefer to pay for all 8 choices.

Option “A” Paying in one month	or	Option “B” Paying in 13 months	Includes an annual interest rate of:	Which ONE do you prefer? (X ONE Box For EACH Row)	
				Option “A”	Option “B”
€10,000		€9,500	-5%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€10,000		€10,000	0%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€10,000		€10,010	0.1%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€10,000		€10,050	0.5%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€10,000		€10,100	1%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€10,000		€10,200	2%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€10,000		€10,600	6%	1 <input type="checkbox"/>	2 <input type="checkbox"/>
€10,000		€11,000	10%	1 <input type="checkbox"/>	2 <input type="checkbox"/>

Table 1 presents descriptive statistics of the data.

4. Empirical Model and Results

4.1. Model

To estimate the impact of the above-mentioned variables on parental behavior, we use a probit model because the dependent variable is defined as a discrete choice variable. The dependent variable is the answer to the hypothetical child fever question. In what follows, we run multinomial probit models. Since we have identified three different parental behavior types based on the dependent variable (tough love, tempted, and spoiling love), we run three separate probit models. Tough love refers to answer 5 in the fever question, tempted refers to answers 2, 3, and 4, and extremely spoiling love is represented by answer 1. The independent variables include worldview variables, spiritual and non-spiritual confidence, religiosity, demographic variables (age, male dummy, ethnic background, level of education, having children dummy), impatience, debt aversion, and natural logarithm of household income.⁴ There are ten

⁴ The ethnic background dummy (“German” dummy) is needed because the survey respondents also include immigrants who possess German nationality. This dummy was constructed according to the main language spoken in the household and the information related to the ethnic background of the family. This information is extracted from the following questions in the questionnaire: (i) Which language did you mainly speak at home

worldview variables: (i) Life after death exists, (ii) God(s) exists, (iii) When you conduct bad behavior and no one else knows about it, you are monitored by God or other spiritual beings, (iv) All human beings evolved from another living organism, (v) I will always keep my promises, (vi) I believe everything written in science textbooks is true, (vii) I want to live a simple life, (viii) I will never be robbed, (ix) I have a good memory, and (x) I know a lot about politics.

Religious affiliations are classified into three, Catholic, Protestant, and others. The “others” category is composed mainly of the immigrants' religious beliefs (such as Islam, Orthodox Christian, Jewish, and others as well as atheists). Religiosity dummy variable is constructed as the product of the dummy variable for being religious and the respective religious affiliation of the respondent. The construction of the confidence variables are explained in the previous section. We include three types of confidence variables: an aggregated confidence variable, confidence in spiritual matters, and confidence in non-spiritual matters. The construction of the impatience and debt aversion variables is complicated and explained in detail in the appendix in Kubota et al. (2012b).

4.2. Empirical Results

The empirical results of the multinomial probit regressions for confidence, religions and socio-demographic variables are presented in Table 2. All reported results from the probit regressions are marginal effects. The results in Table 2 are those obtained from the three different models where “tough love,” “tempted,” and “spoiling love” variables enter the models as the dependent variable. We neglect the significance and magnitude of the coefficients of demographic variables and focus our attention on the variables of utmost interest, those related to worldview and confidence. For this purpose, we ran several different variants of the regression model. In each multinomial probit regression, we included each of the ten worldview dummy variables and the variables for confidence in spiritual and non-spiritual matters. The results for the worldview and confidence variables for which the worldview variables are significant at least at the 10 percent level are summarized in Table 3.

A common feature of the probit regressions is that the impatience and debt aversion variables and the socio-demographic variables seem to be insignificant in the regressions (see Ta-

when you were between 6 and 18 years old? (ii) Which language do you mainly speak at home now? (iii) What is your nationality?

ble 2). At the outset, we focus our attention on the impact of religiosity and religious affiliations which are reported in Table 2. In the case of the regressions where spoiling love is the dependent variable, the coefficients of both Protestant religious and Catholic religious dummy variables are negative and statistically significant at the 5 percent level and 10 percent level, respectively. Therefore, both deeply religious Protestant and Catholic people are less likely to demonstrate spoiling love attitude toward their children. On the other hand, although the marginal effects of the religiosity dummy variables for Protestant and Catholic Christians are positive in the probit regressions where tough love and tempted are the dependent variables, they are not statistically significant.

Second, we discuss the marginal effects of confidence variables.⁵ Only the “confidence in spiritual matters” variable is statistically significant and positive in the regressions where tough love and tempted are the dependent variables but it is insignificant in the model where spoiling love is the dependent variable. Therefore, people who are confident in spiritual matters are more likely to demonstrate extremely tough love attitude or they are tempted to become spoiling love parents toward their children.

Table 3 presents the probit results for worldview and confidence variables. For brevity, instead of presenting the results for all ten worldview questions separately, we report the results for those multinomial probit regressions where the worldview variables are statistically significant at least at the 10 percent level. In the probit regressions where tough love is the dependent variable, three of worldview variables, disbelief in afterlife (i.e., “no” dummy for “Life after death exists” question), “yes” dummy variable for “I will always keep my promises” question, and “yes” dummy for “I believe everything written in science textbooks is true” questions are significant at the 10 percent, 10 percent, and 5 percent levels, respectively. The sign of the coefficient for disbelief in afterlife is negative and the signs of the coefficient for the “yes” dummy variables for “I will always keep my promises” and “I believe everything written in science textbooks is true” questions are positive. The remaining worldview variables (e.g., belief in existence of God, belief that God knows our bad behavior, belief in evolution, etc.) are all insignificant in the regressions. Among the confidence variables, only the “confidence in spiritual matters” variable is significant at the 10 percent level and positive. The “confidence in non-spiritual matters” variable is insignificant in all regressions. Therefore, we conclude that people who have strong disbelief in afterlife are less likely to have

⁵ The results where the total confidence variable is added to the regressions instead of the two confidence variables are not reported in Tables 2 and 3. Total confidence variable turns up statistically insignificant in all regressions.

tough love towards their children. On the other hand, people who have a strong belief that everything written in science textbooks is true and people who strongly believe that they will always keep their promises are more likely to have tough love towards their children.

The results for the probit regressions where tempted is the dependent variable is reported in the middle panel of Table 3. The “yes” dummies for the worldview variables, “I will always keep my promises” and “I believe everything written in science textbooks is true,” are significant at the 10 percent and 1 percent levels, respectively. In the case of confidence variables, the confidence in spiritual matters variable is significant at the 10 percent level for the case of the worldview variable “I believe everything written in science textbooks is true.” Therefore, it can be concluded for the probit regressions where tempted is the dependent variable that people who strongly believe that they will keep their promises and who strongly believe that everything written in science textbooks is true are more likely to be parents who exhibit spoiling love behavior.

The results for the probit regressions where spoiling love is the dependent variable in the lower panel in Table 3 demonstrate a stark difference with the results from the probit regressions where tough love and tempted are the dependent variables. Confidence variables are all insignificant in all regressions. None of the worldview variables other than the “yes” dummy variable for the “I have a good memory” question are significant. Therefore, we conclude that people who believe that they have a good memory are more likely to have a spoiling love attitude. On the other hand, other worldview variables such as belief in the existence of God, in afterlife, and belief that God knows our bad behavior, do not seem to have a significant impact on the spoiling love attitude of parents towards their children.

5. Conclusion

Our empirical evidence suggests that parents in Germany who are confident in their worldview beliefs are more likely to show tough love attitudes. This result is consistent with Kubota et al.’s (2012b) results for Japan and USA. We also find that parents who strongly disbelieve that afterlife exists are less likely to demonstrate a tough love attitude towards their children; and people who strongly believe that everything written in science textbooks is true and people who strongly believe that they will always keep their promises are more likely to demonstrate a tough love attitude, and also they tend to be tempted to exhibit spoiling love behavior towards their children. In addition, people who strongly believe that they have a good

memory are more likely to have spoiling love attitude. An important finding is that deeply religious Catholic and Protestant people in Germany and people who are confident in spiritual matters tend to be tough love parents. For religiosity variable for the Christian groups, the results are similar to the findings for a study for Japan and the U.S. in Kubota et al. (2012b) which found that deeply Christian people are less likely to show spoiling love attitude towards their children. On the other hand, Kubota et al. (2012b) found different results for worldview variables. For instance “no” dummy for the “I always keep my promise” question and “no” dummy for the belief in evolution are found to impact on tough love positively while “no” dummy for belief in God and “yes” dummy for the “I believe everything written in science textbooks is true” question impact on spoiling love negatively.

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Table 1: Descriptive statistics

Variable	Mean	Standard deviation	Minimum	Maximum
Spoiling Love (fever question)	0.108	0.310	0	1
Tough Love (fever question)	0.507	0.500	0	1
Tempted (fever question)			0	1
Spoiling Love (concert question)			0	1
Tough Love (concert question)			0	1
Selfish (concert question)			0	1
Life after death exists – yes	0.201	0.401	0	1
Life after death exists – no	0.317	0.466	0	1
God and other spiritual beings exist – yes	0.213	0.410	0	1
God and other spiritual beings exist – no	0.302	0.459	0	1
God knows our bad behavior – yes	0.234	0.424	0	1
God knows our bad behavior – no	0.166	0.372	0	1
I believe human beings evolved from other living things- yes	0.526	0.500	0	1
I believe human beings evolved from other living things- no	0.044	0.206	0	1
I will always keep my promises - yes	0.870	0.336	0	1
I will always keep my promises - no	0.028	0.166	0	1
I believe everything written in science textbooks is true - yes	0.486	0.500	0	1
I believe everything written in science textbooks is true - no	0.120	0.325	0	1
I want to live a simple life - yes	0.381	0.486	0	1
I want to live a simple life - no	0.419	0.494	0	1
I will never be robbed - yes	0.229	0.420	0	1
I will never be robbed - no	0.250	0.433	0	1
I know a lot about politics - yes	0.484	0.500	0	1
I know a lot about politics - no	0.232	0.422	0	1
I have a good memory - yes	0.747	0.435	0	1
I have a good memory - no	0.065	0.246	0	1
Confidence (spiritual)	1.185	1.381	0	6
Confidence (non-spiritual)	0.788	0.991	0	5
Confidence	1.974	1.743	0	9
Religious (Protestant)	0.060	0.237	0	1
Religious (Catholic)	0.055	0.228	0	1
Religious (Other)	0.011	0.103	0	1
Impatience	1.427	1.576	-0.507	3.754
Debt aversion	1.277	1.523	-1.162	4.134
Male dummy	0.489	0.500	0	1
Age	47.191	16.712	20	70
German dummy	0.969	0.174	0	1
Schooling years	13.829	3.807	8	23
Having children dummy	0.601	0.490	0	1
Income	7.101	4.449	-1.099	12.255

Table 2: Results of multinomial probit regressions for confidence, religion and socio-demographic variables (fever question)

	Dependent variable					
	Tough Love		Tempted		Spoiling Love	
Religiosity by religious affiliations						
Religious (Protestant)	0.030	(0.071)	0.033	(0.070)	-0.063**	(0.031)
Religious (Catholic)	0.070	(0.072)	-0.014	(0.070)	-0.056*	(0.033)
Religious (Other)	0.035	(0.158)	-0.018	(0.153)	-0.017	(0.087)
Socio-demographic variables						
Male dummy	0.033	(0.035)	-0.022	(0.034)	-0.011	(0.021)
Age	0.001	(0.001)	-0.001	(0.001)	0.000	(0.001)
German dummy	0.066	(0.095)	0.010	(0.093)	-0.075	(0.075)
Education	0.004	(0.004)	-0.005	(0.004)	0.000	(0.003)
Having children dummy	0.011	(0.038)	0.000	(0.037)	-0.012	(0.024)
Impatience	-0.012	(0.011)	0.004	(0.011)	0.007	(0.007)
Debt aversion	0.008	(0.012)	-0.003	(0.011)	-0.005	(0.007)
Income	-0.008	(0.009)	0.006	(0.009)	0.002	(0.006)
Confidence variables						
Confidence (spiritual)	0.020*	(0.012)	-0.018*	(0.012)	-0.002	(0.007)
Confidence (non-spiritual)	-0.003	(0.017)	-0.009	(0.017)	0.012	(0.010)
Observations	926		926		926	
Log likelihood	-874.9		-874.9		-874.9	

Note: The reported results are marginal effects. The figures in brackets are standard errors. *** denotes significance at 1 percent level, ** significance at 5 percent level, and * significance at 10 percent level.

Table 3: Results of multinomial probit regressions for worldview and confidence variables (fever question)

	Dependent Variable					
	Tough Love		Tempted		Spoiling Love	
Life after death exists-Yes	-0.034	(0.049)	0.003	(0.048)	0.031	(0.033)
Life after death exists-No	-0.076*	(0.048)	0.055	(0.047)	0.021	(0.031)
Confidence (spiritual)	0.019*	(0.012)	-0.018	(0.012)	-0.001	(0.007)
Confidence (non-spiritual)	-0.004	(0.017)	-0.008	(0.017)	0.012	(0.010)
I will always keep my promise-Yes	0.096*	(0.056)	-0.108*	(0.056)	0.012	(0.034)
I will always keep my promise-No	0.005	(0.114)	-0.055	(0.104)	0.050	(0.083)
Confidence (spiritual)	0.020*	(0.012)	-0.018	(0.012)	-0.002	(0.007)
Confidence (non-spiritual)	-0.003	(0.017)	-0.009	(0.017)	0.012	(0.010)
I believe everything written in science textbooks is true-Yes	0.077**	(0.036)	-0.099***	(0.035)	0.022	(0.023)
I believe everything written in science textbooks is true-No	0.042	(0.054)	-0.069	(0.050)	0.026	(0.037)
Confidence (spiritual)	0.022*	(0.012)	-0.021*	(0.012)	-0.001	(0.007)
Confidence (non-spiritual)	-0.002	(0.017)	-0.010	(0.017)	0.012	(0.010)
I have a good memory-Yes	0.014	(0.044)	-0.056	(0.190)	0.042*	(0.025)
I have a good memory-No	-0.009	(0.077)	-0.098	(0.150)	0.108*	(0.067)
Confidence (spiritual)	0.020*	(0.012)	-0.019	(0.012)	-0.001	(0.007)
Confidence (non-spiritual)	-0.003	(0.017)	-0.010	(0.017)	0.013	(0.010)

Note: The reported results are marginal effects. The figures in brackets are standard errors. *** denotes significance at 1 percent level, ** significance at 5 percent level, and * significance at 10 percent level. The number of observations for each regression is 926.

Table 3: Results of probit regressions for confidence, religion and socio-demographic variables (concert question)

Dependent variable				
	Tough Love		Spoiling Love	
Religiosity by religious affiliations				
Religious (Protestant)	0.068	(0.066)	-0.059	(0.058)
Religious (Catholic)	-0.015	(0.070)	0.012	(0.058)
Religious (Other)	0.316 ^{***}	(0.113)	-0.291 ^{***}	(0.110)
Socio-demographic variables				
Male dummy	-0.078 ^{**}	(0.033)	0.066 ^{**}	(0.028)
Age	-0.004 ^{***}	(0.001)	0.003 ^{***}	(0.001)
German dummy	-0.067	(0.090)	0.058	(0.080)
Education	0.000	(0.004)	0.000	(0.004)
Having children dummy	0.041	(0.037)	-0.034	(0.031)
Impatience	-0.037 ^{**}	(0.011)	0.031 ^{**}	(0.009)
Debt aversion	0.001	(0.011)	-0.001	(0.009)
Income	0.003	(0.009)	-0.002	(0.007)
Confidence variables				
Confidence (spiritual)	0.014	(0.011)	-0.012	(0.010)
Confidence (non-spiritual)	0.011	(0.017)	-0.009	(0.014)
Log likelihood	-711.8		-711.8	

Note: The reported results are marginal effects. The figures in brackets are standard errors. ^{***} denotes significance at 1 percent level, ^{**} significance at 5 percent level, and ^{*} significance at 10 percent level. The number of observations for each regression is 926.

Table 3: Results of probit regressions for worldview and confidence variables (concert question)

	Dependent variable			
	Tough Love		Spoiling Love	
Life after death exists-Yes	-0.013	(0.047)	0.011	(0.040)
Live after death exists-No	-0.071*	(0.045)	0.060*	(0.038)
Impatience	-0.036***	(0.010)	0.031***	(0.009)
Debt aversion	0.001	(0.011)	-0.001	(0.009)
Confidence (spiritual)	0.013	(0.011)	-0.011	(0.010)
Confidence (non-spiritual)	0.010	(0.017)	-0.009	(0.014)
I believe human beings evolved from other living things – Yes	-0.041	(0.043)	0.035	(0.037)
I believe human beings evolved from other living things – No	-0.186***	(0.063)	0.145***	(0.045)
Impatience	-0.037***	(0.010)	0.032***	(0.009)
Debt aversion	-0.00006	(0.011)	0.00005	(0.009)
Confidence (spiritual)	0.013	(0.011)	-0.011	(0.010)
Confidence (non-spiritual)	0.008	(0.017)	-0.007	(0.014)
I will never be robbed – Yes	-0.077**	(0.041)	0.065*	(0.033)
I will never be robbed – No	-0.121***	(0.038)	0.100***	(0.031)
Impatience	-0.038***	(0.010)	0.033***	(0.009)
Debt aversion	0.002	(0.011)	-0.001	(0.009)
Confidence (spiritual)	0.014	(0.011)	-0.012	(0.010)
Confidence (non-spiritual)	0.013	(0.017)	-0.011	(0.014)
I have a good memory – Yes	0.012	(0.042)	-0.011	(0.035)
I have a good memory – No	-0.143**	(0.070)	0.114**	(0.052)
Impatience	-0.037***	(0.010)	0.031***	(0.009)
Debt aversion	0.0003	(0.011)	-0.0002	(0.009)
Confidence (spiritual)	0.015	(0.011)	-0.013	(0.010)
Confidence (non-spiritual)	0.011	(0.017)	-0.010	(0.014)
I know a lot about politics – Yes	0.032	(0.039)	-0.027	(0.033)
I know a lot about politics – No	0.076*	(0.044)	-0.066*	(0.039)
Impatience	-0.037***	(0.010)	0.031***	(0.009)
Debt aversion	0.001	(0.011)	-0.0008	(0.009)
Confidence (spiritual)	0.013	(0.011)	-0.011	(0.010)
Confidence (non-spiritual)	0.011	(0.017)	-0.010	(0.014)

Note: The reported results are marginal effects. The figures in brackets are standard errors. *** denotes significance at 1 percent level, ** significance at 5 percent level, and * significance at 10 percent level. The number of observations for each regression is 926.

Figure 1: Frequency distribution of the tough and spoiling love variable

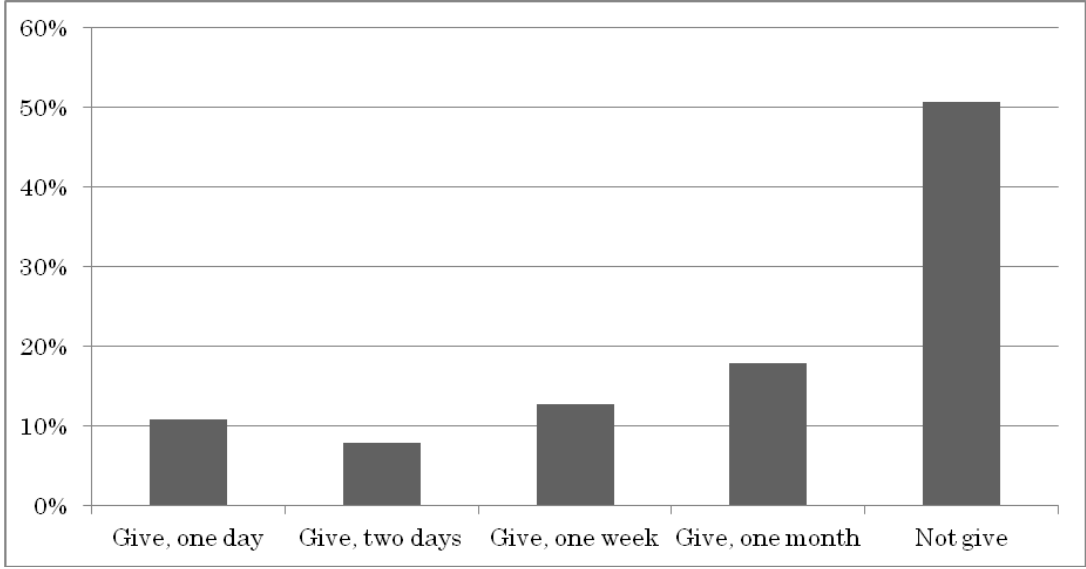


Figure 2: Frequency distribution of the spiritual confidence variable

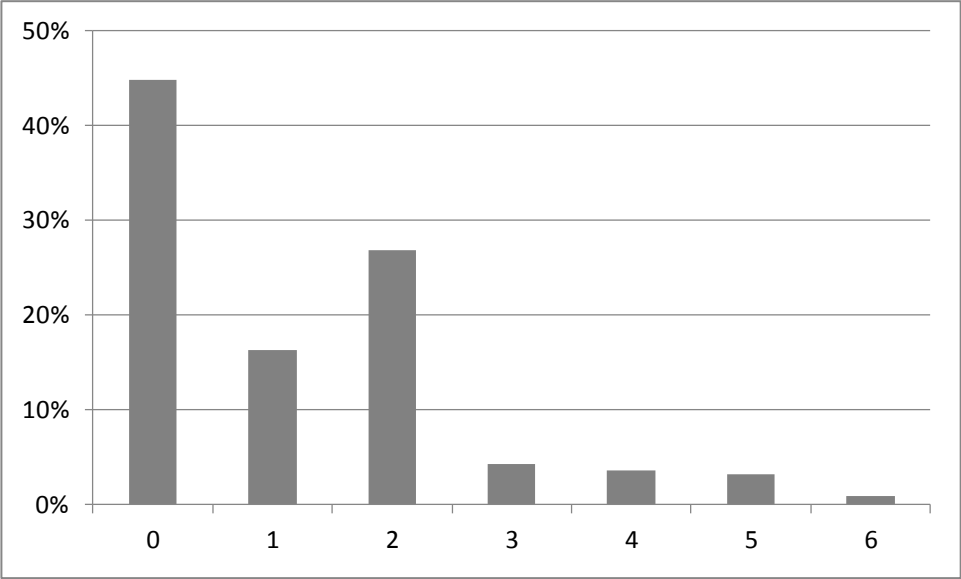


Figure 3: Frequency distribution of the non-spiritual confidence variable

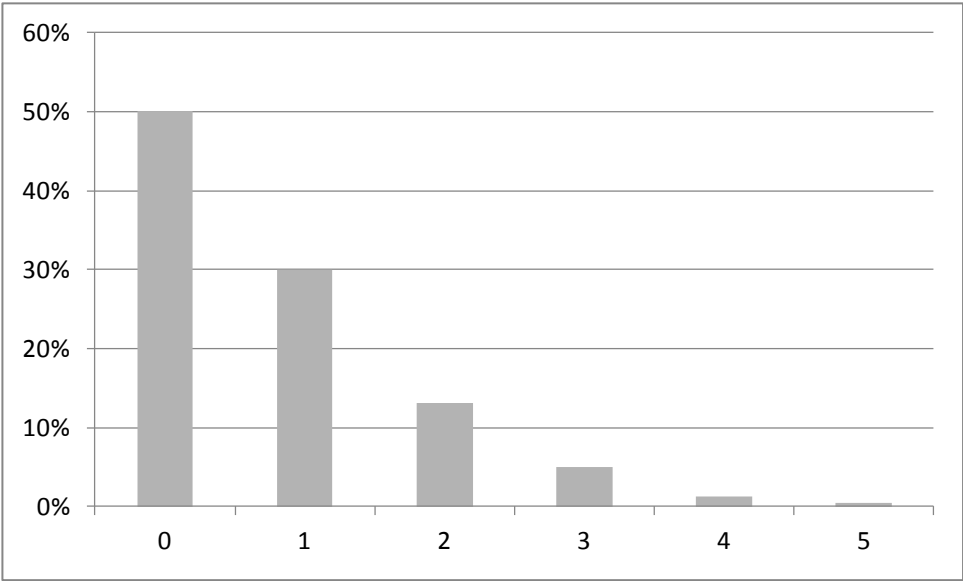


Figure 4: Frequency distribution of the confidence variable

