Moral, Trust and Happiness
-Why Does Trust Improves Happiness?-

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This paper explores the relationship between trust and happiness. It specifically looks at more moral investment behavior across five countries. To explore this topic, survey data from five countries analyzed. The results suggest that moral investment behavior differs among countries and societies depending on the trust level, and there possibly exists a vicious cycle in moral investment behavior. However, the return from moral investment might not be restricted to economic aspects. Trust within a society may affects the happiness of individual directly without passing through economic channel. Trust within community may enrich the life, improve the sense of security, relieve anxiety, or remedy the sense of loneliness.

INTRODUCTION

The mechanism of trust formation in a society has not been fully studied in a field of economics. Despite of this, the importance of trust in economic activity is recognized by many researchers such as Zak and Knack (2001). They examine the conditions for the society to generate the trust within members, and derive the relation between trust and growth of the economy.

In this paper, we develop the study of Zak and Knack by considering the relation between trust and happiness. In considering the relation between trust and happiness, the concept of social capital plays important role. As is argued by Petrou and Kupek (2007), social capital has been investigated as a source of the quality of social interaction. The level of social capital is determined by the degree of social and organizational trust. Empirically, Yip et al. (2007) show that better social capital have positive effects on people's happiness, and trust affects health and well-being through pathways of social network and support.

Bjonskoy (2003) and Gundelach and Kreiner (2004) derived the similar results by using cross-national data. The important point for our analysis is that it is empirically shown that the happiness has positive correlation with trust level via the formation of social capital. Social capital has two roles: income growth and stability for low income, and security for high income. However, over-investment to social capital increases transaction cost in community.

In this paper, we conduct the multivariate regression analysis by using the data complied by the research project funded by JSPS (Japan Society for Promoting Science) in 2014. The data contains five countries data (Japan, US, France, UK, and Germany). This data includes information about the state of happiness and trust, in addition to various attribute information and personality.

The results of the analysis show that the degree of trust to the society increases the positive happiness such as feeling of attainment, and decreases the negative happiness such as anxiety or anger. It is shown

that this tendency is similar in five countries, but there is some differences in the degree of effectiveness. For example, it is stronger in Japan than that in the U.S.

These results have various implications to the understanding the importance of trust in a society. Since the trust is formed through the moral behavior, this reseach results suggest that there is some incentives for individuals to invest into moral.

The composition of the paper is as follows. Chapter 2 discusses the theoretical foundation for the behavioral structure of the investment to moral to clarify the theoretical foundation of the empirical analysis. Chapter 3 explains the empirical analysis, and discusses about the implications of the empirical results. Chapter 4 concludes the paper.

Behavioral structure of the investment to moral

Moral is an important factor for generating trust. If every agent behaves opportunistically, it is hard to believe others, and trust cannot be formed. However, the behavior for investing to moral is not simple, and we need some analysis to clarify the behavioral structure of the agent.

Benabou and Tirole (2011) examined this problem by building a mathematical model. In this section, we summarize the discussion of Benabou and Tirole, and examine the behavioral structure of investing to moral. In their model, three-period model is used. Each individual is endowed with the initial moral stock A_0. This initial moral stock is a function of the innate ability of empathy v given to the individual. Thus, it is assumed that each individual expect his/her innate moral level to be high at probability p, and low at probability $1-p$. In period 0, each individual determines whether he/she invest to moral ($a_t = 1$) or not ($a_t = 0$). Thus, the moral stock at period 1 is determined by $A_1 = A_0 + a_0 r_0$, where r_0 is the rate of return of the investment to moral.

At period 1, he/she infers his/her true innate ability of empathy from the actual investment behavior to moral in period 0 at probability $(1-\rho)$. $\hat{\rho}$ denotes by the individual's date-1 belief about "what kind of a person" he is and the post belief on the innate ability is given by $\hat{v} \equiv \hat{\rho} v_H + (1-\hat{\rho}) v_L$.

The optimization problem is formulated as equation (1):

$$\max_{a_0 \in \{0,1\}} \{-c_0^k a_0 + \lambda V(v_k, v_k, A_0 + a_0 r_0) + (1-\lambda) V(v_k, \hat{v}(a_0), A_0 + a_0 r_0)\}, \tag{1}$$

where c_0^k is the investment cost, V is a value function, and λ is the probability of remembering his/her true valuation on v at date 1. $1-\lambda$ is thought of as the malleability of beliefs through actions. By solving this problem, Benabou and Tirelo derives the following results. 1) People invest to moral as one's belief on his/her true ability of empathy is more malleable. 2) People tend to invest to moral more as the cost of investment is lower and return from the investment is higher. 3) People tend to invest to moral more as the initial moral stock is higher (innate ability of empathy is higher).

Trust is formed through the interrelationships among social members, and social capital is accumulated through the trust formation. Since investment to moral of the members of society determines the trust level in a society as a whole, the divergence between the optimal level of investment of an individual and the socially optimal level of investment arises as long as the innate ability of empathy differs among individual.

For an individual who judges that the return from moral investment is small (small value of rA_0), no-investment decision is optimal. Socially, however, this behavior erodes the social capital and decreases the trust level of the society. In other words, there must be some mechanism for the low ability individual to enforce moral investment in a society.

The important point is that opportunistic behavior is not the same with the out-law behavior, and it is not easy to prevent the opportunistic behavior by the law. Contract is a method of avoiding the damage from opportunistic behavior, but it costs much. Especially, making contract is unrealistic in community relation.

In this sense, examining the factors those prevent the members of the society from behaving opportunistically is important. One important factor is the increasing initial endowment of moral ability A_0. The initial endowment is partly determined by the innate ability, but is possibly increased by the moral education within family or community during the childhood. Nishimura et. al. (2015) show that basic types of morality ("do not lie," "be kind to others," "follow the rules," and "study") formed within family during childhood affect individual evaluations in the labor market. Individuals with disciplined morality earns $7,183 more than individuals without disciplined morality. This difference is interpreted as the return from moral formation within family.

Benabou and Tirelo assume that moral investment is voluntarily determined by each individual, but in reality, the initial level of morality is formed within family forcibly and independently from individual's optimal choice. High initial value of morality affects the investment decision positively in later period, and moral stock level increases as time passes.

It should be reminded that the decision made by each individual is affected by the social trust level through the rate of return from moral investment. In other words, the rate of return from moral investment might be higher in a society with high trust from various reasons. It would be possible that each individual does not rely on trust within society if trust level is believed to be quite low. For example, the importance of contract is higher in the U.S. than that of Japan. One interpretation is that people don't rely on trust in transaction in the U.S., and instead use contract as a tool of preventing immoral behavior. Contrary to the U.S., people in Japan rely on trust without using contract, and save transaction cost. In Japan, whether one is judged as a high moral person or not affect the evaluation in a market.

The above discussion suggests that moral investment behavior differs among countries and societies depending on the trust level, and there possibly exists a vicious cycle in moral investment behavior. However, the return from moral investment might not be restricted to economic aspects. Trust within a society may affects the happiness of individual directly without passing through economic channel. Trust within community may enrich the life, improve the sense of security, relieve anxiety, or remedy the sense of loneliness.

In the next section, we examine the relation among morality, trust and happiness empirically, and test the theoretical implications.

EMPIRICAL EXAMINATION ON TRUST AND HAPPINESS

DESCRIPTION OF THE DATA

The surveys we conducted are summarized below and key details are outlined in Table 4.1. We used micro-data collected from a nationwide Internet survey in each country. The surveys were designed and implemented during 2012–2013 for a research project that investigated the socioeconomic determinants of subjective well-being and was sponsored by the Japanese Society for the Promotion of Science. The surveys captured ample information about individuals' subjective assessments of own well-being, personal traits, demographic and socioeconomic status, and perceived neighborhood characteristics, all of which are useful for examining the relationship between working conditions and happiness. In the case of Japan, in order to ensure that the sample was representative of the actual population, we constructed targeted proportions of 15 population groups, which corresponded to a matrix of five age groups (20s, 30s, 40s, 50s, and 60s) and three household income classes (3 million yen or less, 3-6 million yen, and 6 million yen or more) in advance and collected surveys until we obtained the numerical targets. In contrast, for the United States (US), United Kingdom (UK), France, and Germany, we simply collected samples, with 1,000 respondents in each country, and did not modify the sample distribution on the basis of official statistics. Therefore, we need to be careful when interpreting the comparisons between the estimated results for Japan and those for the other four countries. In this analysis, we conduct an empirical analysis of working conditions on two aspects of happiness, controlling for several important variables that seem to affect happiness, which is in line with previous research such as Oshio and Urakawa (2012).

TABLE 4.1
OUTLINE OF THE INTERNATIONAL SURVEYS

		Japan	US	UK (England)	France	Germany
A.	Title of survey	Survey on living environment in the region and sense of happiness.				
B.	Time period of survey	Oct. 1, 2013 - Oct. 31, 2013	Aug. 1, 2012 - Aug. 31, 2012	Oct. 1, 2013 - Oct. 31, 2013	Aug. 1, 2012 - Aug. 31, 2012	Oct. 1, 2013 - Oct. 31, 2013
C.	Survey method	The survey was organized by NTT Com Research by using various internet survey companies in the U.S. and Europe. All samples were collected via Internet panels with multiple sources. Each respondent is verified as being unique via IP address.				
D.	Sample controls	Sampling for the Japanese dataset is controlled so that the age distribution and income distribution of the survey are close to the real distributions.				
E.	Sample size	4,927	1,001	1,077	1,049	1,088
F.	Response rate	It is not easy to calculate the response rate in this kind of survey because the respondents are recruited through banner advertisements, and so non-responses are not registered.				

Table 4.2 allow comparing the data characteristics of the samples for the five countries. Only Japan exhibits an unbalanced distribution, due to the reason we explained earlier, and the percentages of male, middle-aged, and older respondents are larger than for other countries. However, regarding the sample size for Japan, it is much larger that for the other countries, and we can control for gender using a female dummy variable in the later empirical analysis.

Table 4.2 shows that, of all the countries examines, Japan has the highest ratio of married respondents and the lowest ratio of divorced respondents. And, it shows that Japan has the highest ratio of respondents in a household with a spouse and children, and the lowest ratio of respondents who are single parents with children.

TABEL 4.2
DISTRIBUTION OF VARIABLES

Age class						
	20-29	30-39	40-49	50-59	60-	Total
Japan	11.0%	19.3%	18.7%	26.5%	24.5%	100.0%
US	18.7%	20.0%	20.0%	20.7%	20.7%	100.0%
UK	19.6%	19.9%	19.5%	20.2%	20.8%	100.0%
France	18.9%	20.2%	19.7%	20.5%	20.7%	100.0%
Germany	19.5%	19.6%	19.9%	20.1%	21.0%	100.0%

Marital status					
	Single	Married	Divorced	Widowed	Total
Japan	24.9%	68.3%	5.1%	1.7%	100.0%
US	29.6%	53.4%	13.8%	3.2%	100.0%
UK	34.4%	52.1%	10.3%	3.2%	100.0%
France	32.3%	53.1%	13.2%	1.4%	100.0%
Germany	31.9%	52.0%	12.5%	3.6%	100.0%

Family structure of respondent's household					
	With spouse	With spouse and children	Single parent (self) with children	With spouse, children and parents	Single (including other)	Total
Japan	27.5%	40.7%	2.3%	7.4%	22.1%	100.0%
US	29.4%	33.3%	8.4%	1.2%	27.8%	100.0%
UK	26.7%	32.0%	8.3%	1.8%	31.2%	100.0%
France	29.2%	33.0%	10.2%	0.7%	26.8%	100.0%
Germany	31.0%	33.7%	7.6%	2.0%	25.8%	100.0%

EMPIRICAL RESULTS

FIGURE 3-1
PRINCIPAL FACTOR OF PERSONALITY BY COUNTRIES
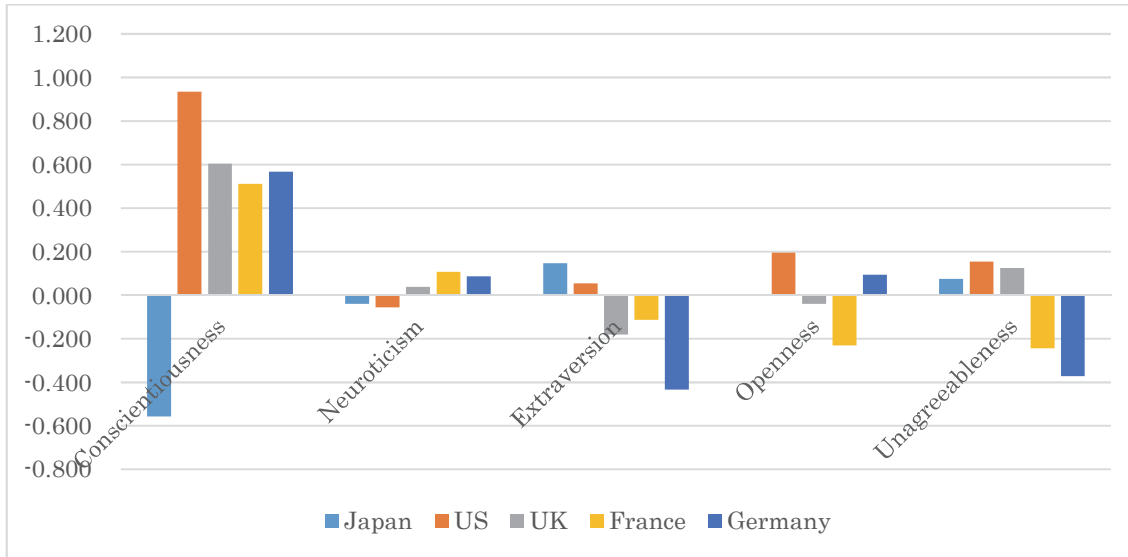
FIGURE 3-2
PRINCIPAL FACTORS OF HAPPINESS BY COUNTRIES
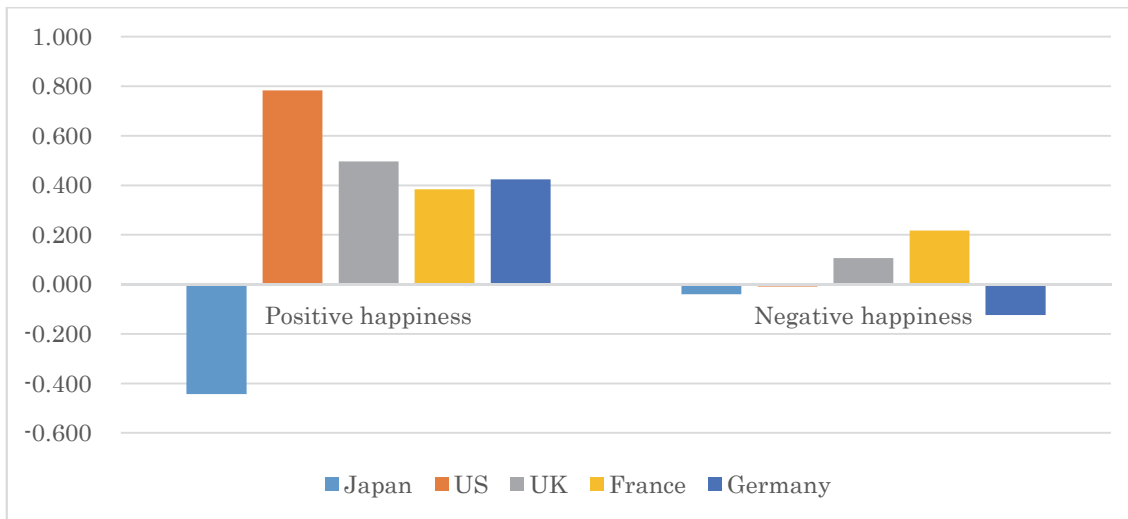
GENERATING TRUST VARIABLE

The survey contains questionnaire about the feeling on trust. Directly, the survey asked the degree of the trust to people directly by the questionnaire "how much do you trust people?" In addition to this question, the survey includes the some questions related with the degree of trust to the society. The object of trust includes family, friend, community, society, and so on. Using principle factor analysis, we subtract three principal factors "community activity," "easiness of consultation," and "community security."

TABLE 4.1
FACTOR ANALYSIS ON DEGREE OF TRUST TO SOCIETY

	Consult-ability	Crime anxiety	Community activity	Meeting neighbore
Frequency of meeting your neighbores	-.258	.004	.288	.654
How many neighbors do you meet?	-.234	.009	.399	.631
Community activities	-.161	.011	.622	.298
Sports activities	-.167	.005	.589	.094
Volunteer activities	-.132	.020	.729	.058
Consult your your neighbors	.488	.035	-.199	-.470
Consult your family	.588	-.090	.020	.019
Consult your relatives	.662	-.049	-.053	-.050
Consult your friends	.633	-.038	-.047	.009
Consult your doctors or consultants	.560	.028	-.096	-.083
Consult your teachers	.479	.092	-.155	-.109
Victim of crime	.045	.537	.029	.029
Noticed graffiti	-.009	.726	-.020	.041
Group of teen age boys make noise	-.021	.781	-.021	.056
Illegally parked cars	-.007	.625	.021	.027
Away from the nearest police station	-.030	.200	.002	-.064

Note: Rotation used Quartemax-method.
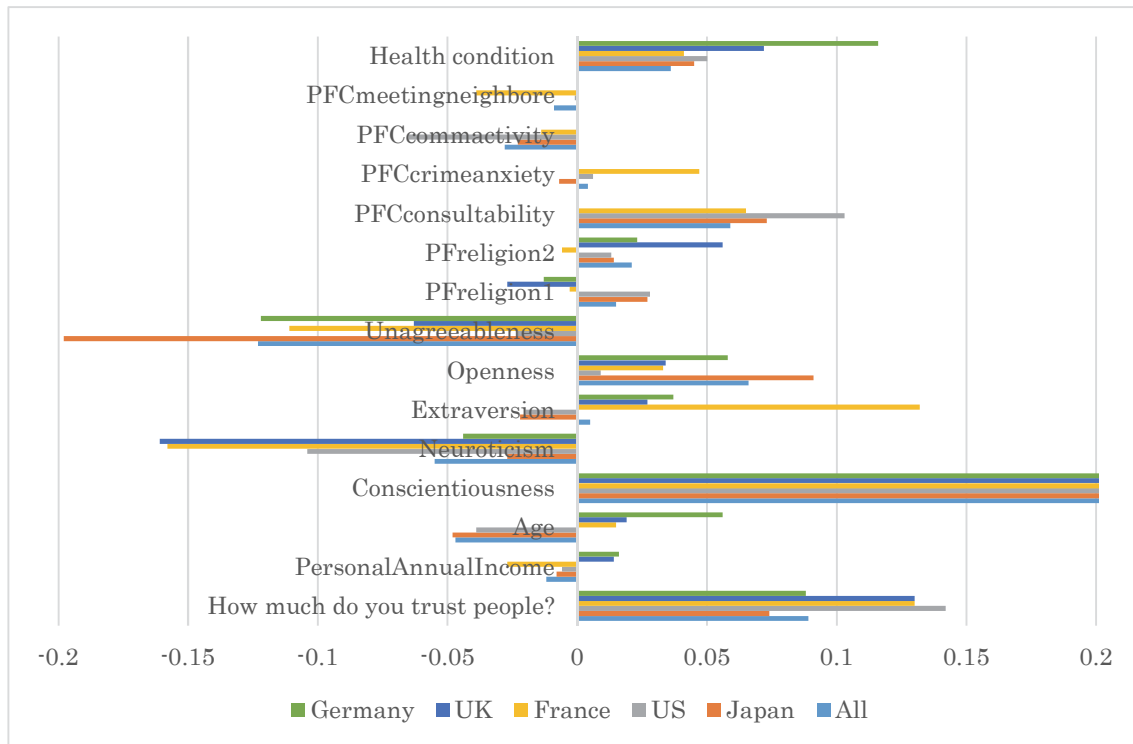
EFFECT OF TRUST ON HAPPINESS

As is discussed in the introduction, there exist some empirical results on the factors those affect the happiness. Helliwell and Putnam (2004) show that spiritual belief and social capital have some effect on the happiness. Social capital includes high social trust, and high levels of institutional or organizational trust (Petrou and Kupek, 2007). Cross country data also indicates a high correlation between social capital and happiness (Bjonskov, 2003; Gundelach and Kreiner, 2004). Basically, the empirical results are consistent with the results given by the previous literature.

TABLE 4.2
EFFECT OF TRUST ON POSITIVE HAPPINESS

Country	All	Japan	US	France	UK	Germany
How much do you trust people?	.089**	.074**	.142**	.130**	.130**	.088**
PersonalAnnualIncome	-.012	-.008	-.006	-.027	.014	.016
Age	-.047**	-.048	-.039	.015	.019	.056*
Conscientiousness	.771**	.719**	.661**	.737**	.679**	.671**
Neuroticism	-.055**	-.027**	-.104**	-.158**	-.161**	-.044
Extraversion	.005	-.022**	-.020	.132**	.027	.037
Openness	.066**	.091**	.009	.033	.034	.058**
Unagreeableness	-.123**	-.198**	-.023	-.111**	-.063**	-.122**
PFreligion1	.015*	.027**	.028	-.003	-.027	-.013
PFreligion2	.021**	.014	.013	-.006	.056**	.023
PFCconsultability	.059**	.073**	.103**	.065**		
PFCcrimeanxiety	.004	-.007	.006	.047**		
PFCcommactivity	-.028**	-.023**	-.065**	-.014		
PFCmeetingneighbore	-.009	.000	-.001	-.039**		
Health condition	.036**	.045**	.050**	.041**	.072**	.116**
Adusted R^2	0.717	0. 620	0. 618	0. 677	0. 602	0. 549

Note: * is 5% significance, and ** is 1% significance.

FIGURE 4.1
EFFECT OF TRUST ON POSITIVE HAPPINESS

As is shown in Table 4.1 and Figure 4.1, the effect of trust on the positive happiness is dominant. It is possible that there would be some correlation between the degree of trust and personality such as Neuroticism or Unagreeableness, the regression analysis includes personality variables to control the effect of personality on positive happiness. Health condition is also included in the model, and shows the strong effect on the happiness as is predicted by Petrou and Kupek (2007).

The result shows that trust represented by the question "how much do you trust people?" has a strong positive effect on the positive happiness. This result is common among five nations. It is interesting that the US has the strongest effect of trust on the positive happiness. Principal factor "PFCconsultability" also has the second strongest positive effect on the positive happiness except for the personality effects.

It is worth noting that trust variable has stronger effect on the positive happiness than the annual income, and this tendency is common among five nations. The question is why trust variable has stronger effect than income. One possibility is the strong correlation between trust variable and income. However, the correlation coefficient between trust variable and income is 0.11, and this value is not so strong. The result tells us the important implications on the meaning of trust. The result shows that one can feel happy if one can trust people, regardless of the income level, and whether one can trust people or not is more important than whether one is rich or not.

Since the positive happiness represents the feeling of attaining something important, the result implies that trust is necessary for attaining something. In order to attain something, cooperation is necessary. That is, the person who is successful in maintaining cooperation can attain his/her object, and feels the positive happiness.

Finally, the effects of religion on the positive happiness is not straight forward, but they are generally weak and the direction of the effect is different among five nations.

TABLE 4.3
EFFECTS OF TRUST ON NEGATIVE HAPPINESS

Country	All	Japan	US	France	UK	Germany
How much do you trust people?	-.090**	-.098**	-.058*	-.046*	-.048	-.008
PersonalAnnualIncome	-.022**	-.001	-.005	-.063*	-.038	-.080**
Age	-.043**	-.059**	.054*	.039	.008	.068*
Conscientiousness	.029**	-.080**	.064**	.085**	.059*	-.011
Neuroticism	.505**	.480**	.515**	.474**	.450**	.506**
Extraversion	.116**	.091**	.214**	.210**	.186**	.202**
Openness	-.005	.022**	-.040	-.028	-.004	.004
Unagreeableness	.100**	.115**	.129**	.104**	.071**	.092**
PFreligion1	-.048**	-.011	-.002	-.029	-.033	.045
PFreligion2	-.001	-.002	-.001	-.035	.028	-.081**
PFCconsultability	-.092**	-.121**	-.050*	-.040		
PFCcrimeanxiety	.056**	.025**	.067**	.095**		
PFCcommactivity	.024**	.020	-.029	.073**		
PFCmeetingneighbore	-.012	.010	-.022	-.010		
Your health	-.153**	-.165**	-.199**	-.147**	-.167**	-.136**
Adusted R^2	0. 437	0. 460	0. 487	0. 424	0. 343	0. 425

FIGURE 4.2
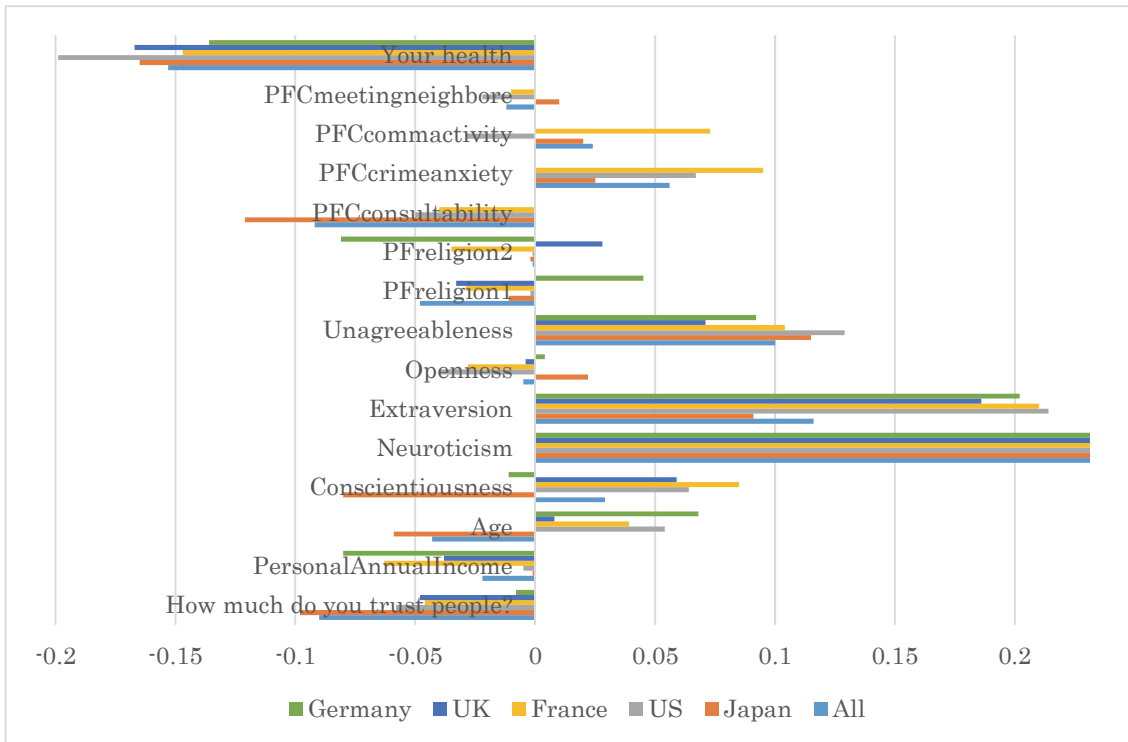**THE EFFECT OF TRUST ON THE NEGATIVE HAPPINESS**

Table 4.2 and Figure 4.2 show the result of multivariate regression analysis on the effect of trust on the negative happiness with controlling the effect of personality. The negative happiness represents the feeling of anxiety, sadness and so on. The results of the analysis shows that the trust represented by "how much do you trust people?" decreases the feeling of the negative happiness. Contrary to the result of the effect of trust on the positive happiness, the strength of effect of trust is similar to the effect of income. That is, income is important to decrease the feeling of anxiety. The principal factor of community activities also decrease the feeling of the negative happiness. It is not easy to interpret the result that the principal factor of consultability increases the feeling of the negative happiness. One interpretation is that the person who feel anxiety or sadness needs the person to consult. Similar to the result of the positive happiness, the religion does not decrease the feeling of the negative happiness significantly.

CONCLUSION

This paper discusses moral formation mechanism that is the source of trust, and investigates the effect of trust on happiness. The discussion suggests that moral investment behavior differs among countries and societies depending on the trust level, and there possibly exists a vicious cycle in moral investment behavior. However, the return from moral investment might not be restricted to economic aspects. Trust within a society may affects the happiness of individual directly without passing through economic channel. Trust within community may enrich the life, improve the sense of security, relieve anxiety, or remedy the sense of loneliness.

Based on the discussion, we analyzed the effect of trust on happiness, and derived the results that trust variable has stronger effect on the positive happiness than the annual income, and this tendency is common among five nations. In addition, it is shown that the trust decreases the feeling of the negative happiness.

In this paper, the effect of moral on trust formation is not examined empirically. This remains as the future task of the study.

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