Consumer Confidence and Psychological Variables

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Abstract

By constructing a multiple regression using the cross sectional data of applicants for a psychological intervention study, we found that higher levels of depressive symptoms are associated with lower levels of the consumer confidence index (CCI), whereas higher levels of optimism, life satisfaction, and general trust are associated with higher levels of the CCI. We also found that negative affect is associated with lower levels of the CCI while positive affect is associated with higher levels. Through analyzing the panel data at three time points with a one-month interval each on the participants of the psychological intervention, the result of abovementioned study was replicated except for depressive symptoms and positive affect. We found that changes in the depressive symptoms do not directly lead to changes in the CCI, however, it is suggested that these may occur indirectly through the changes in other psychological variables.

Introduction

The influence of psychological factors on people's economic attitude and economic

phenomenon is one of the areas of growing interest in economics (Akerlof and Shiller,

2009; Aggarwal, 2014). Developments in some areas of psychology can be a great help

in this new trend in economics. For example, although not limited to the economy,

there is growing interest and research on the influence of feelings on risk appraisal and

decision making (Loewenstein, Weber, Hsee, & Welch, 2001; Lerner, Li, Valdesolo, &

Kassam, 2015). Research in psychology and neuroscience has shown that negative

emotions such as depression and anxiety lead to pessimistic risk estimates (Stöber,

1997; Mitte, 2007; Miu, Heilman, & Houser, 2008; Peng, Xiao, Yang, Wu, & Miao,

2014), while positive emotions such as happiness lead to optimistic risk estimates (Isen

and Patrick, 1983 ; Stanton, Reeck, Huettel & LaBar, 2014). Several studies apply this

approach to the influence of emotion on risk appraisal and decision making in

economy-related risk appraisal and decision making. Kuhnen and Knutson (2011)

showed that people who are induced to feel negative emotions such as anxiety tend to

prefer to buy bonds and avoid buying stocks, suggesting that anxiety causes them to

become more risk averse. Gambetti and Giusberti (2012) found that trait anger leads

to risky economic decisions and trait anxiety leads to conservative economic decisions.

Other than feelings, previous studies suggest that psychological variables affect not

only economic judgment and decision making but also economic phenomenon. For

example, several studies indicate that oscillations between optimism and pessimism

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are one of the causes of business cycles (Beaudry et al., 2011; Chhaochharia, Korniotis, & Kumar, 2011; De Gwauwe, 2012; Milani, 2011). Other scholars show that general trust, which is treated as a crucial part of social capital (Putnam, 2000), promotes economic growth (Bjørnskov, 2012; Horváth, 2013) and macroeconomic stability (Sangnier, 2013). Although not in the short term, De Neve and Oswald (2012) indicated that young adults and adolescents who exhibit high levels of life satisfaction or positive affect tend to earn higher income in their later lives, suggesting that elevating life satisfaction or positive affect may lead to better economic performance of a country as a whole (see also Kenny, 1999).

Based on these previous studies, we further explored the relationship between psychological variables and economic activities and judgments in the present study. We used the consumer confidence index (CCI) as a proxy for the level of economic activities and judgments. Although the results of studies are mixed, several studies concluded that the CCI is a predictor of consumer spending (Dées & Brinca, 2013; Ludvigson, 2004; Eppright, Arguea, & Huth, 1998) and gross domestic product (GDP) (Utaka, 2003; Utaka, 2014). Several studies indicated that the changes in consumer confidence Granger-cause the stock returns (Hsu, Lin, & Wu, 2014; see also Lemmon & Portniaguina, 2006). Mandal and McCollum (2013) indicated a negative causality between consumer sentiment and the unemployment rate both in the short term and long term. In addition to the validity suggested by these studies, data on consumer confidence can be easily obtained by asking several questions to people. Hence,

consumer confidence seems to be an appropriate and practical proxy to measure the level of economic activities and judgments.

By using the opportunity of a psychological invention aimed at enhancing positive affect and reducing depressive symptoms (Sekizawa and Yoshitake, 2015), we examined whether such intervention can enhance consumer confidence. We also examined whether the CCI is associated with psychological variables including depression, optimism, life satisfaction, general trust, positive affect (PA), and negative affect (NA). Our hypothesis in the present study is as follows.

I) NA leads to lower consumer confidence.

II) PA leads to higher consumer confidence.

III) Depression leads to lower consumer confidence.

IV) Optimism leads to higher consumer confidence.

V) Trust leads to higher consumer confidence.

VI) Life satisfaction leads to higher consumer confidence.

METHODS

Design and Participants

The present study is a part of the research examining whether writing three good things per day would improve happiness and alleviate depression. Details of the research are reported elsewhere. Participants were recruited by Nikkei Research Inc. (NRI). The company sent an email to people who registered on the NRI website to be

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monitors for surveys conducted by the company. Those who accessed the website and indicated their intention to participate in the study answered questions concerning their demographic characteristics and the outcome measures mentioned below. Questions on demographic characteristics included gender, age, marital status, educational attainment, work status, and residential area (prefecture in which they resided). This time point was treated as Time 1 in the present study. Time 1 is late May and early June of 2013.

One thousand people were selected out of the total participants at Time 1 and allocated into two groups by using the random number generator function in Microsoft Excel (For details, see Sekizawa and Yoshitake, 2015). Each group had 500 participants. Participants in the TGT (three good things) group were instructed to write down three good things that happened during the day, why they happened, and why they were good. Control group participants were instructed to write down three past events that occurred in their life, why they happened, and how they influenced their present life. This exercise continued for four weeks. Participants were asked to answer the outcome measures immediately following the exercise completion (Time 2), and at one month after the exercise completion (Time 3).

Participants were informed that they would receive remuneration upon completion of the follow-up assessment ranging from 1,000 yen to 5,000 yen depending on how much they participated in the exercise. Participants who did not complete the exercise at least twice in a particular week were disqualified and did not receive remuneration or further emails encouraging exercise completion.

Outcome Measures

The following measures were used to assess study outcomes. The questions to calculate the CCI were the same as those used in the monthly survey by the Cabinet Office of Japan (Cabinet Office, 2014A). The questions address overall livelihood, income growth, employment, and willingness to buy durable goods for the next six months. Each respondent rates the current degree of each question from 1 (improve) to 5 (worsen). The answers of 1 (improve), 2 (improve slightly), 3 (neutral), 4 (worsen slightly), and 5 (worsen) are converted to 100, 75, 50, 25, and 0 respectively. For the CCI as a whole, the average of the converted scores of the four questions is used. For example, if a respondent chooses 3 (neutral) for all four questions, his CCI score is 50.

The Center for Epidemiologic Studies Depression Scale (CES-D) is a 20-item scale that assesses the severity of depressive symptoms experienced during the previous week (Radloff, 1977). The Japanese translation of the CES-D is based on the questionnaire of the Japanese Study of Aging and Retirement (JSTAR), a panel survey conducted by the Research Institute of Economy, Trade and Industry, University of Tokyo, and Hitotsubashi University. Four items in the CES-D are reversed-scored and used for assessing the absence of positive affect. CES-D scores range from 0 to 60, with higher scores indicating a higher level of depression.

The Satisfaction with Life Scale (SWLS) is a five-item scale that assesses general life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985; Japanese version by Uchida,

Kitayama, Mesquita, Reyes, & Morling, 2008). SWLS scores range from 5 to 35, with higher scores indicating a higher level of life satisfaction.

The Life Orientation Test-Revised (LOT-R) is a six-item measure used to assess optimism and pessimism (Scheier, Carver, & Bridges, 1994; Japanese version by Sakamoto & Tanaka, 2001). Although the original version of the LOT-R includes filler items, they were not used in the present study. In the present study, the LOT-R consisted of three items that measured optimism and three items that measured pessimism. The scores of the three pessimism items were reversed and added to the scores of the three optimism items, which yielded the total LOT-R score. LOT-R scores range from 6 to 30, with higher scores indicating greater optimism.

The General Trust Scale (GTS) is a six-item scale that assesses one's belief in the trustworthiness of others (Yamagishi & Yamagishi, 1994; Japanese version by Yamagishi, 1998). GTS scores range from 6 to 42. Although the average of the six items was used in Yamagishi (1998), the sum of the answers was used in the present study. Higher scores indicate a greater level of trustworthiness.

PA and NA were measured using the mood ratings mentioned in Thomas and Diener (1990). The Japanese version is based on Tanaka (2008). The intensity of four positive emotions (happy, joyful, pleased, and enjoyment/fun) and five negative emotions (depressed/blue, unhappy, frustrated, angry/hostile, and worried/anxious) was evaluated. Each respondent rated the current degree of each of these emotions from 1 (not at all) to 7 (extremely so). The scores for the positive emotions were summed to determine an overall PA score, and the scores for the negative emotions

were summed to establish an overall NA score. Overall PA scores range from 4 to 28,

with higher scores indicating a greater level of PA. Total NA scores range from 5 to 35,

with higher scores indicating a higher degree of NA.

Other Controlling Variables

Other controlling variables include age, age squared, marital status (married or not

married), educational attainment (junior high school or others, senior high school, two

year college, or four year college or more), work status [employed, unemployed (not

employed and seeking employment), not in the labor force (not employed and not

seeking employment)], and residential area (metropolitan area or others)[1].

Data Analysis and Statistics

We carried out both cross-sectional analysis and panel data analyses in the present

study. We estimate the determinants of the CCI of individual i at time t as follows:

$$CCI_{it} = \alpha + \beta_1 DEP_{it} + \beta_2 OPT_{it} + \beta_3 SAT_{it} + \beta_4 TRUST_{it} + \beta_5 POSI_{it} + \beta_6 NEGA_{it} + \beta_7 X_i +$$

$$\delta_1 d_2 + \delta_2 d_3 + \delta_3 g_i + \delta_4 d_2 * g_i + \delta_5 d_3 * g_i + \mu_i + \varepsilon_{it}$$

where the subscript i indexes each person and t indexes time periods with t=1, 2, 3.

DEP, OPT, SAT, TRUST, POSI, and NEGA represents depression (CES-D), optimism

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[1] The metropolitan area in the present study comprises nine prefectures: Saitama,
Chiba, Tokyo, Kanagawa, Aichi, Kyoto, Osaka, Hyogo, and Fukuoka.

(LOT-R), life satisfaction (SWLS), general trust (GTS), positive affect (PA) and negative affect (NA) respectively. d_2 is a dummy variable which represents the time effect at Time 2. It is 1 when t=2, and 0 when t=1 or 3. Similarly, d_3 is a dummy variable which represents the time effect at Time 3. g is a dummy variable which represents the group difference at Time 2 and Time 3. It is 1 when a participant belongs to the control group, and otherwise 0. $d_2 * g_i$ and $d_3 * g_i$ are cross terms of time and group. X_i is a vector of other control variables including gender, age at baseline, age squared, educational attainment, marital status, work status, and residential area. μ_i is an unobservable person-specific effect. ε_{it} is an idiosyncratic error term that is uncorrelated with μ_i and all other explanatory variables. We estimated the equations by ordinary least squares (OLS) using the cross sectional data at baseline (Time 1). We also performed a fixed effects model for the panel data analysis in order to control for μ_i which is time-invariant unobserved heterogeneity across participants. For panel data analyses, data of participants who answered two or three times out of three time points were used for analyses.

RESULTS

A total of 6,553 people responded to the announcements regarding the study and completed an online assessment of outcome measures and demographic characteristics at Time 1. Out of the 6,553 people, 1,000 participants were selected and assigned to the TGT or the control group based on the design of the present study. 517 participants

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(296 participants in the TGT group and 221 participants in the control group)

completed the post-test assessment at Time 2. 478 people completed the one-month

follow-up assessment at Time 3. Demographic characteristics of participants are

outlined in Table 1.

Table 2 shows the scores of the CCI in those who responded all three times.

Repeated measures multivariate analyses of variance (MANOVAs) revealed that there

are no significant main effects for time, main effects for group, nor group by time

interaction effects (all $ps > .05$).

Table 3 indicates cross-sectional and panel data analyses in which the CCI is

dependent variable. Model 1 shows the result of cross-sectional analysis. Models 2

through 4 are the results of the panel data analyses. Model 1 indicates that the CCI is

positively associated with LOT-R, SWLS, GTS, and PA and negatively associated with

CES-D and NA. In Models 2 and 3, CES-D is negatively associated with CCI, but the

association is no longer significant in Model 4 after controlling for PA and NA. LOT-R,

SWLS, and GTS are positively associated with CCI, and NA is negatively associated

with CCI even after controlling for all other psychological variables (Models 3 and 4).

Table 4 shows the results of the panel data analyses in which each of the

psychological variables is dependent variable and other psychological variables are

independent variables. CCI is also included in independent variable. Model 1 shows

that CES-D is positively associated with NA and negatively associated with SWLS and

PA, but not with LOT-R, GTS and CCI. Model 2 shows that LOT-R is positively

associated with SWLS, PA, and CCI, but not with CES-D, GTS and NA. Model 3 shows

that SWLS is positively associated with LOT-R, GTS, PA, and CCI and negatively associated with CES-D and NA. Model 4 shows that GTS is positively associated with SWLS, PA, and CCI, but not with CES-D, LOT-R and NA. Model 4 also shows that GTS scores at Time 2 and Time 3 are higher than at Time 1. Model 5 shows that PA is positively associated with LOT-R, SWLS, and GTS and negatively associated with CES-D and NA, but not with CCI. Model 6 shows that NA is positively associated with CES-D and negatively associated with SWLS, PA, and CCI, but not with LOT-R and GTS.

DISCUSSION

By constructing a multiple regression using the cross-sectional data of applicants for a psychological intervention study, we found that higher levels of depressive symptoms are associated with lower levels of the CCI, whereas higher levels of optimism, life satisfaction, and general trust are associated with higher levels of the CCI. We also found that NA is associated with lower levels of the CCI while PA is associated with higher levels of the CCI. Through analyzing the panel data at three time points with a one-month interval each on the participants of the psychological intervention, the result of the abovementioned study was replicated except for depressive symptoms and PA. We found that changes in the depressive symptoms do not directly lead to changes in the CCI, however, it was suggested that these may occur indirectly through the changes in the levels of other psychological variables.

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There are several limitations in the present study. First of all, a causal relationship between the CCI and the psychological variables measured in the present study is not clear from the present study. Psychological variables may have affected the CCI, but the real causal direction may be the opposite. Second, the participants in the present study were recruited from people registered on the NRI website to be monitors for surveys conducted by the company; thus, they may not be representative of typical Japanese people. For example, more than half of the participants in the present study attended university, which is higher than the national average in Japan. Another example is the differences in the level of the CCI between the participants in the present study and the Japanese in general. The official CCI announced by the Cabinet Office of Japan was 46.0, 44.6, 44.0, and 43.4 in May, June, July, and August of 2013, respectively (Cabinet Office, 2014B). By contrast, the mean values of the CCI in the present study were 48.10 (Time 1, late May and early June), 48.13 (Time 2, early July), and 48.12 (early August) for the respondents of all three times, suggesting that the CCI level of participants in the present study was higher than the average CCI level of Japanese people at the same period.

Third, the data in the present study are that of those who participated in a psychological intervention trial and are not observations of natural transition. Although the effects of the intervention seem small (Sekizawa & Yoshitake, 2015), different results may be found from a pure observation study. Fourth, the interval of the time points of estimation is approximately one month. This interval may be too

short to observe major changes in both psychological variables and the CCI, and the number of waves of the present study is too small to reach a conclusion.

In spite of these limitations, the present study is meaningful in the following points. First, the present study indicates that psychological variables such as depression, optimism, life satisfaction, general trust, negative affect, and positive affect are associated with consumer confidence, which is an economic indicator predicting GDP, consumer spending, unemployment rate, and stock returns. This result suggests that psychological factors may have some impact on the real economy and warrants further studies.

Second, the present study shows the possibility that some type of psychological interventions might boost the economy. Recent developments in psychiatry, clinical psychology, and positive psychology have made it possible to reduce depressive symptoms and elevate life satisfaction and positive affect without resorting to pharmacotherapy. For example, a number of studies indicated that depression level can be lowered by psychological interventions such as computerized cognitive behavioral therapy (So et al., 2013), mindfulness interventions (Hofmann, Sawyer, Witt, & Oh, 2010), and positive psychology interventions (Sin & Lyubomirsky, 2009). Computerized cognitive behavioral therapy also has been shown to enhance life satisfaction (Høifødt et al., 2013). We hope that with the use of psychological interventions which would affect psychological variables more effectively than the one used in the present study, the effects of psychological intervention on consumer confidence would be further explored.

Third, the present study shows that there is a significant association between consumer confidence and general trust and that general trust may be enhanced by psychological intervention (See also Sekizawa & Yoshitake, 2015). Previous studies have shown that a high level of trust leads to economic growth (Dearmon & Grier, 2009) and a low level of confidence may lead to worsened economic conditions (Utaka, 2014). There may be some mechanisms linking general trust, consumer confidence, and economic conditions. Further exploration in this direction is important in that boosting confidence and trust may be a key factor in overcoming and/or avoiding economic stagnation such as the one from which Japan suffered for almost two decades.

ACKNOWLEDGMENTS

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Table 1. Summary Statistics of Research Participants

	Time 1 (all applicants) (n = 6553)		Time 1 (intervention participants) (n = 1000)		Time 2 (n = 517)		Time 3 (n = 478)	
Females, n (%)	3217	(49.1%)	480	(48.0%)	254	(49.1%)	236	(49.4%)
Age, mean (SD)	40.12	(13.35)	39.75	(13.73)	39.51	(13.11)	39.49	(13.05)
Married, n (%)	3687	(56.3%)	582	(58.2%)	300	(58.0%)	278	(58.2%)
Education, n (%)								
Junior High School or Others	147	(2.2%)	28	(2.8%)	18	(3.5%)	15	(3.1%)
Senior High School	1307	(19.9%)	194	(19.4%)	105	(20.3%)	96	(20.1%)
Two-Year College	1480	(22.6%)	238	(23.8%)	105	(20.3%)	97	(20.3%)
Four-Year College or More	3619	(55.2%)	540	(54.0%)	289	(55.9%)	270	(56.5%)
Work Status, n (%)								
Employed	4424	(67.5%)	641	(64.1%)	339	(65.6%)	311	(65.1%)
Unemployed	617	(9.4%)	106	(10.6%)	55	(10.6%)	50	(10.5%)
Not in labor force	1512	(23.1%)	253	(25.3%)	123	(23.8%)	117	(24.5%)
Living in Metropolitan Area, n (%)	4482	(68.4%)	697	(69.7%)	348	(67.3%)	321	(67.2%)
Three Good Things group, n (%)			500	(50.0%)	296	(57.3%)	270	(56.5%)
Consumer Confidence Index (CCI), mean (SD)	49.83	(18.11)	49.49	(18.65)	48.04	(18.63)	48.12	(19.07)
Psychological Variables, mean (SD)								
Depression (CES-D)	15.69	(9.96)	15.69	(10.21)	15.53	(10.53)	15.29	(10.30)
Optimism (LOT-R)	18.63	(3.81)	18.52	(3.98)	18.44	(4.18)	18.52	(4.28)
Life Satisfaction (SWLS)	19.04	(6.14)	19.02	(6.17)	19.14	(6.62)	19.36	(6.63)
General Trust (GTS)	26.29	(6.70)	26.12	(6.97)	26.71	(7.23)	27.35	(7.10)
Positive Affect (PA)	18.63	(5.12)	18.56	(5.23)	18.83	(5.30)	18.90	(5.25)
Negative Affect (NA)	18.14	(6.62)	18.09	(6.89)	17.55	(7.09)	17.76	(7.07)

Table 2. Mean Scores (Standard Deviations) on the Consumer Confidence Index (CCI)

Group	Time 1	Time 2	Time 3
	Mean (SD)	Mean (SD)	Mean (SD)
TGT(n=270)	47.96 (18.92)	48.47 (19.53)	47.85 (20.21)
Control (n=208)	48.29 (17.89)	47.69 (16.69)	48.47 (17.51)
Total (n=478)	48.10 (18.46)	48.13 (18.34)	48.12 (19.07)

Note. TGT = three good things. Scores and SD are those of participants who responded all three times.

Table 3. The Consumer Confidence Index (CCI) and Psychological Variables

Dependent Variable: CCI	(1)	(2)	(3)	(4)
Depression (CES-D)	-0.082*	-0.369**	-0.201*	-0.096
	(0.033)	(0.088)	(0.085)	(0.090)
Optimism (LOT-R)	0.721**		0.538*	0.444*
	(0.072)		(0.210)	(0.207)
Satisfaction (SWLS)	0.315**		0.422**	0.325*
	(0.053)		(0.158)	(0.155)
General Trust (GTS)	0.214**		0.570**	0.534**
	(0.041)		(0.142)	(0.150)
Positive Affect (PA)	0.613**			0.295
	(0.079)			(0.196)
Negative Affect (NA)	-0.130**			-0.214*
	(0.049)			(0.105)
Gender (ref : men)	-2.267**			
	(0.436)			
Age	-0.575**			
	(0.103)			
Age squared	0.004**			
	(0.001)			
Marriage	-2.073**			
	(0.505)			
Education (ref : four-year college or more)				
Junior High School	1.617			
	(1.360)			
Senior High School	0.185			
	(0.538)			
Two-Year College	-0.486			
	(0.516)			
Work Status (ref : employed)				
Unemployed	0.578			
	(0.770)			
Not in Labor Force	-0.318			
	(0.517)			
Living in Urban Area	0.834$^+$			
	(0.431)			
Time 2		-0.032	-0.629	-0.809
		(0.878)	(0.877)	(0.865)
Time 3		-0.332	-1.409	-1.377
		(1.035)	(1.055)	(1.050)
Time 2 # Control Group		-0.970	-0.530	-0.340
		(1.285)	(1.242)	(1.228)
Time 3 # Control Group		0.033	0.486	0.365
		(1.397)	(1.354)	(1.341)
_cons	34.430**	54.168**	18.730**	19.987**
	(3.034)	(1.454)	(5.865)	(6.360)
Number of obs.	6,553	1,512	1,512	1,512
Number of groups		517	517	517
R^2	0.230	0.035	0.103	0.111

Notes: ** p<0.01, * p<0.05, $^+$ p<0.1. Clustered standard errors are reported in parentheses.
Method of estimation: In Model 1, OLS using all of the data at Time 1 was performed. In Models 2 through 4, fixed effects model was performed using data of all participants responding two or three times.
In Model 2, only CES-D among psychological variables was included in explanatory variables. In Model 3, optimism (LOT-R), life satisfaction (SWLS), and general trust (GTS) were added. In Model 4, positive affect and negative affect were added.

Table 4. Relationship between Psychological Variables

	(1)	(2)	(3)	(4)	(5)	(6)
	Depression	Optimism	Satisfaction	General Trust	Positive Affect	Negative Affect
	(CES-D)	(LOT-R)	(SWLS)	(GTS)	(PA)	(NA)
Depression (CES-D)		-0.020	-0.040*	-0.016	-0.121**	0.243**
		(0.015)	(0.018)	(0.032)	(0.021)	(0.026)
Optimism (LOT-R)	-0.118		0.224**	0.029	0.232**	-0.033
	(0.087)		(0.046)	(0.065)	(0.043)	(0.057)
Satisfaction (SWLS)	-0.150*	0.146**		0.188**	0.134**	-0.190**
	(0.069)	(0.030)		(0.051)	(0.034)	(0.048)
General Trust (GTS)	-0.031	0.010	0.096**		0.108**	0.028
	(0.062)	(0.022)	(0.026)		(0.034)	(0.038)
Positive Affect (PA)	-0.538**	0.178**	0.157**	0.249**		-0.218**
	(0.095)	(0.033)	(0.039)	(0.077)		(0.055)
Negative Affect (NA)	0.482**	-0.011	-0.100**	0.029	-0.097**	
	(0.049)	(0.020)	(0.025)	(0.039)	(0.026)	
Consumer Confidence (CCI)	-0.018	0.015*	0.016*	0.053**	0.013	-0.021*
	(0.017)	(0.007)	(0.008)	(0.016)	(0.009)	(0.010)
Time 2	0.112	-0.138	-0.135	0.979**	0.165	-0.519+
	(0.361)	(0.154)	(0.185)	(0.271)	(0.171)	(0.278)
Time 3	0.115	-0.030	0.089	1.525**	0.005	0.085
	(0.393)	(0.163)	(0.203)	(0.291)	(0.189)	(0.297)
Time 2 # Control Group	0.180	0.112	0.130	-0.542	-0.332	0.275
	(0.565)	(0.240)	(0.284)	(0.404)	(0.262)	(0.393)
Time 3 # Control Group	-0.187	-0.136	-0.115	-0.452	0.034	-0.421
	(0.577)	(0.241)	(0.310)	(0.418)	(0.279)	(0.390)
_cons	23.754**	11.945**	11.134**	14.330**	12.053**	22.779**
	(2.793)	(0.994)	(1.495)	(2.149)	(1.435)	(1.805)
Number of obs.	1,512	1,512	1,512	1,512	1,512	1,512
Number of groups	517	517	517	517	517	517
R^2	0.313	0.169	0.223	0.169	0.330	0.278

Notes: ** $p<0.01$, * $p<0.05$, + $p<0.1$. Clustered standard errors are reported in parentheses.

Method of estimation: In all models, fixed effects model was performed using data of all participants responding two or three times.