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Informing Citizens about Development Aid:  
A Single-blinded Randomized Controlled Trial to Estimate  
the Impact of Information to Change Japanese Attitudes  
towards ODA

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**Informing Citizens about Development Aid:  
A Single-blinded Randomized Controlled Trial to Estimate the Impact of  
Information to Change Japanese Attitudes towards ODA**

Satoru Mikami<sup>\*</sup>

**Abstract**

Using a survey-embedded experiment, this paper tests whether the active provision of information can generate support, albeit tentatively, for ODA and/or the intention to participate in development aid among Japanese citizens. Results reveal that the treatment can increase the level of support for ODA on average, especially in terms of the efficient use of money irrespective of citizens' attributes and pre-intervention opinions on development cooperation. Based on these results, development education featuring Aid-effectiveness is strongly recommended as the most efficient communication strategy.

**Keywords:** awareness campaign, support for ODA, RCT, aid-effectiveness, Japan

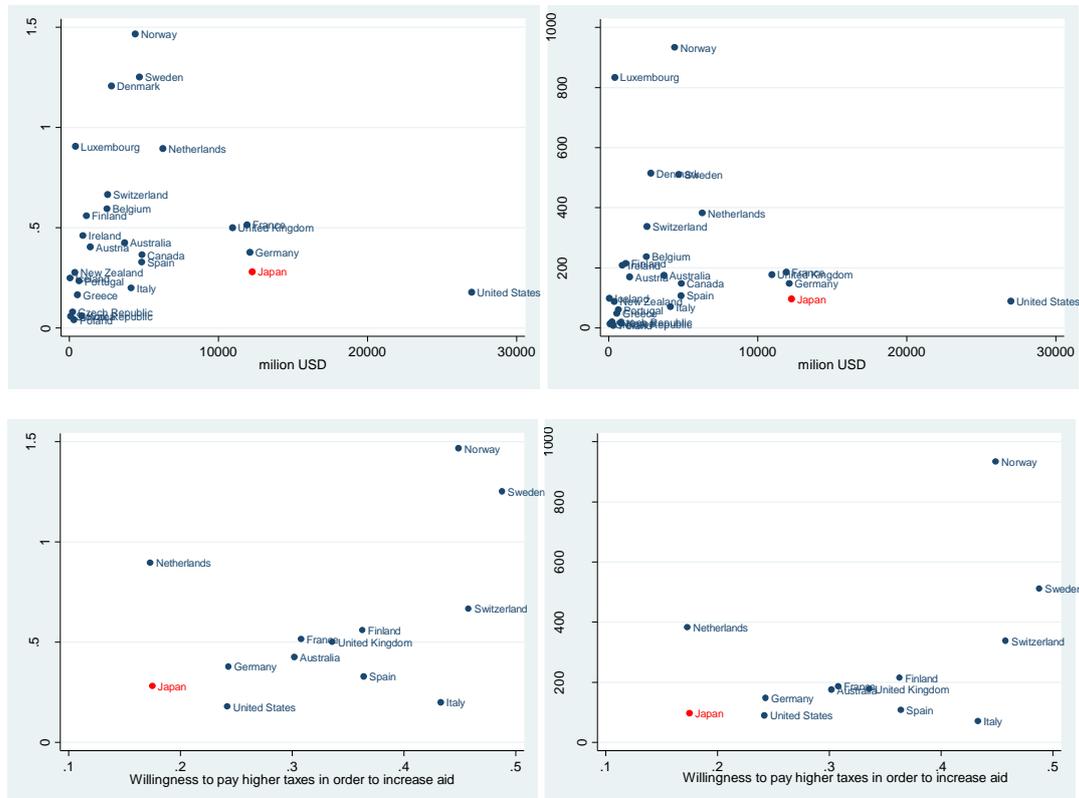
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## **1. Introduction**

The proportion of money devoted to development aid differs from donor to donor. U.S. and Japan, the top two countries in terms of the average amount of aid from 2003 to 2011, only devote less than 0.3% of their GDP to development aid, while Nordic countries, while providing a lower average amount of aid, share a far greater burden considering their relatively smaller populations and economies (Upper panels of Figure 1). Although some scholars are skeptical about the role played by public opinion in foreign policy making (Olsen 2000; Otter 2003; Page and Barabas 2000), the variance in contributions should be, at least partially, attributable to the popular attitudes towards development aid in these respective countries, given the fact that all DAC donors possess democratic decision-making rule. Limited data also seems to support this speculation: both aid as a percentage of GDP and aid per capita are positively correlated to the proportion of people who are willing to pay additional taxes to increase development aid (lower panels of Figure 1). Therefore, the question of how to increase the level of support for foreign aid among ordinary people has been a matter of concern for those who seek to advance this type of international redistribution, especially in less generous countries like the U.S. and Japan. In addition to the more straight-forward arguments for giving like humanitarianism and charity, numerous non-orthodox ideas such as anti-communism, the war on terror, and trade opportunities have been utilized to sway public opinion.



**Figure 1. Average ODA from 2003–2011 as a percentage of GDP and ODA per capita (upper panel); their correlations with popular attitudes to foreign aid (lower panel)**

Sources: OECD Statistics <http://www.oecd.org/statistics/> accessed May 10, 2014; World Development Indicators

<http://data.worldbank.org/products/wdi> accessed May 10, 2014; World Values Survey Wave 5: 2005–2009<sup>1</sup>

<http://www.worldvaluessurvey.org> accessed May 10, 2014.

Against this background, attention is currently focused on one hypothesis, which states that “[s]upport for development cooperation and awareness are indeed correlated” (McDonnell, et al. 2003). As the phrase “a mile wide and inch deep” (Smillie 1999) indicates, extremely low levels of public awareness of ODA is frequently reported (McDonnell et al. 2003; Glennie, et al. 2012; Kull 2011). People often grossly overestimate the burden shared by one’s own government for development aid and reflexively demand cuts in aid budget when interviewed. Based on a pre-post comparison test which showed that U.S. citizens, who had required cuts in

<sup>1</sup> Results from Canada are excluded because “not applicable” exceeds 67.6%.

foreign aid, changed their attitudes and started supporting the increase after knowing how small the portion of federal budget was actually devoted to aid, the Advisory Committee on Voluntary Foreign Aid, an organization established by U.S. Presidential directive after World War II, came to the conclusion that “[t]he accuracy of public information about the costs and impact of U.S. overseas foreign assistance strongly influences whether or not Americans want to increase or decrease aid” (Advisory Committee on Voluntary Foreign Aid 2008). There is also a report that Nordic countries, where public are far more generous to development aid, the level of awareness among citizens are also relatively high thanks to the long-term investment by the governments in development education (McDonnell et al. 2003, 17).

Thus, public awareness campaigns are urgently needed in donor countries where public awareness, public support, and the government’s generosity are all lacking. The Japanese government, which started development aid as a war-time reparation after WWII, is currently hovering between “human security” and “investment in the future” to legitimize its development aid to taxpayers (Ministry of Foreign Affairs of Japan. 2013). The former is a traditional and orthodox approach while the latter is adapted from the U.S. aid agency, which has long tried to augment support for foreign aid by appealing to patriotism in addition to the more orthodox altruism. The attempt, however, seems to be unsuccessful in resonating with people so far, according to an evaluation report by a UK independent consultant (Glennie et al. 2012): Citizens, if supportive of foreign aid, care less about potential commercial benefits their country might receive from cooperation and more about the welfare of people in developing countries. Although the argument is not based on any systematic evidence, uncertainty looms large as to what the appropriate content is for a communication campaign. Before planning any comprehensive campaign to raise public awareness about development issues, governments need to know which message works and for whom. As shown later, previous studies have already identified some attributes of people which correlate with supportive attitudes towards development aid. However, no one has ever tested rigorously whether and how information

given to citizens can really move their mind sets, no matter how tentatively, in a more generous direction. Unless we can reject the null hypothesis that there is no causality, the possibility remains that the discourse is isolated from ordinary taxpayers, involving only those who eagerly want to defend or eagerly want to attack the aid budget. To know the real relevancy, this paper, using a survey-embedded experiment, tries to estimate the possible impact of communicating aid information on popular attitudes toward development aid in Japan.

The structure of this paper is as follows: the next section reviews preexisting studies on the origins of support for development aid and points out the reason why we need to conduct RCT. After discussing the current status of knowledge, the third section explains the design of RCT built in the survey and how both the average and local impacts of the treatment are estimated. The fourth section presents the results, which reveal that, by and large, information is more adept at inducing support for ODA than active participation in development aid. Specifically, after learning more about ODA given by one's own country, people are convinced of the use of their taxes and become more supportive in that sense. However, closer examination reveals that there are segments of people who become more supportive of ODA because of the expectation of potential benefits, from an altruistic standpoint, and motivated to start development aid activities by themselves, although they are limited minorities and hence we do not observe impacts in these regard on average. The concluding section summarizes the findings and discusses policy implications.

## 2. What is known and not known about public opinion on development aid

	Milner and Tingley 2010	Paxton and Knack 2011	Chong and Gradstein 2008	Henson and Lindstrom 2013	Bauhr and Charron, 2013	Noël et al. 2004	Haas 2013
sample	US (district)	WVS, Gallup	WVS	UK	Eurobarometer, 27 EU	Canada	Eurobarometer
female		+	N.S.	N.S.	+	+	+
age		-	-	-	+	N.S.	N.S.
income		+	+	N.S.	+	-	+
education		+	+	N.S.	+	+	+
urban					-		
having children		N.S.		N.S.			
religiosity		+		N.S.		+	
interpersonal trust		+					
racial paternalism							
political right	-	-	-		-	-	-
attention to foreign and international affairs		+		N.S.	+		
certain occupations (teachers, lawyers and armed forces)		+					
individual level							
friends in a foreign country					-		
level of interest in development issues				N.S.	+		
trust in government		+	+		+	+	
perceived corruption in developing countries				N.S.	-		
wasted				-			
internal priority				-			
altruism				+	+		
feel good				+			
pragmatism					+		
self interest				+	+		
leadership				+			
interaction term (corruption*altruism)					+		
interaction term (corruption*pragmatism)					+		
interaction term (corruption*self interest)					+		
interaction term (inequality*income)							N.S.
inequality							+
country's existing level of foreign aid (as a share of GNP)		N.S.					N.S.
country's existing level of military expenditure		-					
country level							
population size		-					
number of former colonies		+			N.S.		
average tax revenue			+				
donor's GDP per capita					-		N.S.
district level							
human capital	+						
unemployment	N.S.						

**Table1. Findings of preexisting studies**

*Note.* +: significantly positive, -: significantly negative, N.S.: not significant

Table 1 lists the factors which have been examined in previous observation studies. Factors can be classified into individual- and country-level variables except for those investigated by Milner and Tingley (2010). Their work is unique in that they analyzed the votes in the House of Representatives that would determine foreign aid rather than public opinion polls. Therefore, their explanatory variables were on the district level, in which economic and ideological characteristics were considered to be associated with legislators' choices in deciding development aid because lawmakers must reflect the preferences of districts in order to be re-elected. Milner and Tingley (2010) found that lawmakers from districts with high human

capital, or districts with leftist orientations were more likely to cast “aye” vote for bills on foreign economic aid. In contrast to expectations, the level of unemployment in a district did not have statistically significant relationship to votes on economic aid. All other studies employed single or multi-national opinion polls, and hence the unit of analysis is individual interviews. Methods and samples differ from study to study, but a certain picture of relationships has emerged as evidence has accumulated.

Beginning with factors on the individual level, four out of six studies have detected a statistically significant difference between genders, with female rather than male respondents tending to answer questions on development aid positively. This gender gap might be due to biological differences such as volume of oxytocin secreted, or differences in vulnerability to societal pressure like “desirability effect.” By contrast, maturity, which is supposed to increase as people get older, has not consistently been proven to go hand in hand with support for foreign aid: three studies have identified rather negative correlation between age and development aid support; positive correlation was found by only one study (Bauhr and Charron 2013) and the another study (Henson and Lindstrom 2013) could not reject the null hypothesis of irrelevance. Wealth is also expected to have a positive correlation with the support for development aid because richer persons normally can afford to help others, including foreigners. This expectation has been confirmed in most studies but two, which indicate insignificance (Henson and Lindstrom 2013) and the opposite sign (Noël et al. 2004), respectively.

More consistent results have been obtained regarding education: The more educated respondents tend to support development aid, as expected. The influence of living environment, whether urban or rural, has been examined by only one study (Bauhr and Charron 2013) so far, which detected negative correlation with living in an urban environment as opposed to the expectation. Having children is also expected to be positively related to foreign aid because it seems to nurture generosity. However, two studies (Paxton and Knack 2011; Henson and Lindstrom, 2013) that have examined the effect so far have failed to reject the null hypothesis of

its irrelevance to aid. Meanwhile, two (Paxton and Knack 2011; Noël et al. 2004) out of three studies have shown that religiosity is positively correlated with supportive attitudes toward development aid, which is in line with intuition because most religions teach adherents to help others. A correlation with interpersonal trust has been examined by only one study (Paxton and Knack 2011), which detected a positive relationship.

The most consistent result has been obtained regarding political ideology: those who identify with the political left are more likely to show positive attitudes toward development aid. A positive correlation with the level of attention to foreign and international affairs also has been detected by Paxton and Knack (2011) and Bauhr and Charron (2013). Related to this is the supportive attitudes among teachers and lawyers, who are supposed to have a greater-than-average knowledge of international affairs. Service personnel in the armed forces, however, did not differ from ordinary people in their attitudes toward development aid. Counter-intuitively, people who have friends in foreign countries, according to Bauhr and Charron (2013), tend to be against development aid, while the same study found that the level of interest in development issues is correlated positively with the support for aid. A positive correlation with trust in one's own government seems to be robust: so far all studies that have tested the relationship have confirmed statistically significant positive correlation. The negative correlation between perceived corruption in recipient countries and the support for development aid has also been detected by Bauhr and Charron (2013).

The remaining factors at the individual are all about understanding of development aid, and hence naturally correlate with the dependent variable. Henson and Lindstrom (2013) report that the belief that most aid is wasted and the opinion that poverty at home should be tackled first are negatively correlated with the support for development aid while the moral duty to help reduce poverty in developing countries, the pleasure of helping other countries, the belief that aid benefits one's own country, and the belief that one's own country should play a leading role in helping developing countries positively correlate with the support for development aid. Bauhr

and Charron (2013) confirmed the positive correlations with altruism and with self-interest, while they newly pointed out that what they call “pragmatism”—the view that corruption is a natural part of development that can be fought through international assistance—is also positively correlated. They also showed that the negative correlation with perceived corruption of recipient countries is mitigated by these three factors (altruism, self-interest, and pragmatism).

Moving now to factors on the country level, so far positive correlations have been found with the country’s degree of inequality (Haas 2013), level of tax revenue (Chong and Gradstein 2008), and the number of former colonies (Paxton and Knack 2011), while negative correlations have been found with the country’s military spending (Paxton and Knack 2011), population size (Paxton and Knack 2011), and GDP per capita (Bauhr and Charron 2013). On the other hand, the current level of ODA as a percentage of GDP does not seem to be correlated with the individual support for development aid (Paxton and Knack 2011; Haas 2013). Inequality does not mediate the relationship between income and the support for development aid (Haas 2013).

Among factors examined so far, education is most closely related to the question of this paper. However, “the highest level of education achieved” is too general to spot the impact of information regarding development aid. Also, the detected positive relationship, although consistent with the hypothesis, is not a causation but a correlation. It might be the case that the more supportive respondents are to foreign aid, the more likely they are to achieve higher education to be able to contribute to development cooperation as aid professionals. Or, the relationship might be the result of influence from other unobserved factors that correlate with both education and support for development aid. To verify causality we need to conduct randomized controlled trials.

The pre-post comparison, on which the Advisory Committee on Voluntary Foreign Aid rests their argument, is noteworthy at this point because in this study the information which

respondents have on the aid budget was explicitly under the control of researcher. However, it was not an appropriate design for impact estimation because a control group as a proxy for counter-factuals was not prepared. On the other hand, Gilens (2001) uses orthodox RCT to test how the provision of precise information regarding the actual amount of federal government spending on foreign aid influences U.S. citizens' preferences on the cuts to foreign aid. He found that knowing the fact reduces the support for cuts to foreign aid by 16.6%. (=42.0 – 58.6). He also examined relative responsiveness to new information by comparing the impact of information on lower and higher strata in terms of general political knowledge and found that the more familiar respondents are with other political topics, the more likely they are to react to new information, which he interpreted as evidence that a preexisting higher level of knowledge prompts motivation to understand rather than resist unfamiliar knowledge. Another study that employed the framework of RCT is Baker and Fitzgerald (2011), which showed through a comparison of attitudes towards aid to Cameroonians and to Moldovans that racial paternalism increases U.S. Whites' support for foreign aid.<sup>2</sup>

Although these two studies based on RCT have clearly established causality surrounding support for development aid,<sup>3</sup> the results are not persuasive enough to impact policies surrounding a communication campaign. First, no one would attempt to use racial paternalism to enhance the level of support for development aid even if it actually has a positive impact. Second, budget share is only one aspect of development aid, and while it is certainly important, there are many other aspects to share with citizens, such as the concrete activities of

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<sup>2</sup> Yet another study that applied RCT in this field is Milner and Tingley (2013), which tested whether U.S. citizens are less likely to prefer multilateralism to bilateralism with regard to foreign aid, if they believe that the next U.S. presidency will be held by the party with which respondents identify and vice versa. The rationale behind this hypothesis is that Americans are expected to support bilateralism if the chief decision-maker, the President, shares similar preferences with respondents because multilateralism, as the opposite of bilateralism, jeopardizes the control of their preferred U.S. aid policy, while they do not care about the control of US policy if the presidency is held by the opponent. The result of their survey experiment embedded in a real presidential election supported their expectations. Despite the ingenuity of its analysis, I ignored this study because the dependent variable is not support for ODA itself but preference for different mechanism through which provided ODA is distributed.

<sup>3</sup> Of course, there is room for improvement by, say, introducing the trade-off nature of budget into the wording of the question.

aid, progress of activities, effect of activities, and internal evaluation reports of project results, to name but a few. Against these backdrops, this paper tries to assess the extent to which ordinary citizens in a society where a downward spiral of lower awareness, lower support and lower generosity in development cooperation dominates would change their attitudes towards ODA if they were well informed about the activities of aid agency.

### **3. Research Design**

The method taken in this research resembles the one used by Gilens (2001), who tested whether the provision of specific political information, including the amount of money spent by the federal government on foreign aid, changes political preferences in general. I first asked all respondents whether they agree or disagree to the widely circulated unground rumors regarding ODA, and then provided to a random selection of half of respondents counter-arguments that corrected misunderstandings on these statements. After that, I asked several questions which would tap the level of support for ODA as well as the degree of intention to actively participate in development aid. Before this core part of experiment, relevant control variables were captured.

#### **3.1 Sample**

Participants are 1,453 Japanese aged from 21 to 70, who belong to approximately 140,000 internet monitors of Nikkei Research Inc. The composition of gender and age categories is largely in line with the census distribution although the discrepancy is significant. Given the widely known nature of web-monitor samples, however, this study neither places too much confidence in self-reported information on variables such as income level, nor pretends to estimate something like an absolute national average opinion. Rather, assuming some degree of homogeneity among members of the internet monitor as well as their minimum commonality as

human beings with ordinary Japanese, this study tries to differentiate their opinions through responses they give to the multiple indicators whose measurement purposes are carefully veiled, focusing on relative shifts in opinion as a reaction to certain stimuli which I command.

	Sample		Census			Sample		Census	
male	without spouse	with spouse	without spouse	with spouse	female	without spouse	with spouse	without spouse	with spouse
20's	7.2%	0.9%	6.8%	1.4%	20's	5.0%	2.4%	6.1%	2.0%
30's	5.6%	5.5%	4.8%	6.1%	30's	3.7%	7.9%	3.7%	7.1%
40's	3.2%	6.0%	3.2%	6.9%	40's	3.9%	7.1%	2.5%	7.5%
50's	1.7%	8.2%	2.3%	7.4%	50's	2.0%	7.2%	2.1%	7.9%
60's +	0.9%	10.1%	1.9%	8.8%	60's +	1.7%	9.8%	2.9%	8.5%

**Table 2. Compositions of sample compared with the census result in 2010**

*Note:* Chi-square = 24.113, p= 0.004; *Source.* Statistics Bureau, Ministry of Internal Affairs and Communications.

<http://www.stat.go.jp/data/nihon/02.htm>

### 3.2 Treatment

As noted, following questions about basic demographic attributes as well as factors related to development cooperation (discussed later), respondents were asked whether they believe eight vulgar theories that are widely circulated, for example, on the internet about ODA. After each response, a simple but well-grounded counter-argument to the statement was provided only to roughly half of randomly selected respondents (758) before moving on the next question.<sup>4</sup> The remaining respondents (695), on the other hand, continued the questionnaire to the end, being informed about these counterarguments only after they answered all questions. Respondents were unaware throughout the survey whether they were in treatment group or control group. Neither did they know that a randomized controlled trial was built in this survey. Thus, the single-blindness of the experiment was strictly secured.

<sup>4</sup> Information given to respondents is described in Appendix 1.

### 3.3 Operationalization

#### Control variables

To check whether random assignment created two equivalent groups and to explore possible varying effect of treatment depending on attributes of targets, information was collected on respondents' gender (1=female), age (calculated based on the year of birth), whether they currently have a spouse (1=yes), whether they currently have children under age 15 (1=yes), whether they are currently in school (1=yes), and whether they have received at least university-level education (1=yes). Also, respondents' attributes related to development cooperation were quantified as an index constructed from multiple indicators as well as a first principal component score.<sup>5</sup> These are (1) experience in international communication, (2) interest in developing countries, (3) general knowledge on development cooperation, (4) specific knowledge on the activities of Japanese Aid Agency, (5) prejudice against Japanese ODA, and (6) past experiences participating in development aid.<sup>6</sup> Detailed procedures of operationalization are described in Appendix 2.

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<sup>5</sup> Indices constructed from multiple indicators were used for later multivariate analyses.

<sup>6</sup> Preoccupation regarding ODA was captured simultaneously with treatment and past experience was measured after the treatment. Although at least the latter is about the "fact", which should be unaffected by the treatment, these two controls are not pre-treatment variables in that sense. Still, a comparison between treated and control groups shows no evidence that suggests that these two were systematically affected by the treatment (See, Table4b), which means that there is no possibility of post-treatment bias in the impact estimation even if these variables were included in the right hand side of the equation. Given the necessity to examine possible variation in the intensity of treatment impact depending on these variables, I included these "post-treatment" variables in multivariate regressions. To examine post-treatment bias, however, I also conducted regressions without these variables.

	n	Mean	SD	Median	Min.	Max.
Female	1453	0.505			0	1
Age	1453	46.040	13.645	46.000	21	70
Spouse	1453	0.628			0	1
Child under 15	1453	0.222			0	1
In school	1453	0.089			0	1
University-level education	1453	0.574			0	1
International communication (Index)	1453	0.000	1.000	-0.320	-0.982	4.276
International communication (FPC)	1453	0.000	0.812	-0.265	-0.812	3.557
Interest in developing countries (Index)	1453	0.000	1.000	-0.176	-1.796	4.066
Interest in developing countries (FPC)	1453	-0.013	0.913	-0.040	-1.858	2.824
Control variables						
General Knowledge on Development Aid (Index)	1453	0.000	1.000	0.007	-2.121	1.662
General Knowledge on Development Aid (FPC)	1453	0.006	0.885	0.066	-2.203	1.467
Specific Knowledge on Development Aid (Index)	1453	0.000	1.000	0.221	-3.804	2.822
Specific Knowledge on Development Aid (FPC)	1453	0.014	0.499	0.131	-2.519	1.071
Preoccupation against ODA (Index)	1453	0.000	1.000	-0.262	-1.402	3.046
Preoccupation against ODA (FPC)	1453	-0.006	0.752	-0.058	-1.343	2.360
Experience in the participation in development aid (Index)	1453	0.000	1.000	-0.277	-0.821	5.128
Experience in the participation in development aid (FPC)	1453	0.001	0.738	-0.167	-0.586	4.179

**Table 3a. Descriptive statistics of control variables**

Table 3b is the correlation (lower triangle) and partial correlation (upper triangle) matrix of control variables, which reveals that demographic attributes and factors related to development cooperation are moderately but deeply intertwined with each other. For example, women tend to have more experience in international communication, which in turn is positively correlated to the level of interest in developing countries. People who are interested in this issue also tend to have higher levels of general knowledge on development aid, which in turn tends to lead to lower levels of prejudice about ODA, and so on.

	Female	Age	Spouse	Child under 15	In school	University-level Education	International communication (Index)	Interest in developing countries (Index)	General Knowledge on Development Aid (Index)	Specific Knowledge on Development Aid (Index)	Preoccupation against ODA (Index)	Experience in the participation in development aid (Index)
Female	1	-.078 ***	.082 ***	-.046 *	-.025	-.259 ***	.078 ***	.015	-.008	-.072 ***	-.078 ***	.058 **
Age	-.003	1	.521 ***	-.399 ***	-.237 ***	-.175 ***	.028	.048 *	.058 **	.108 ***	.052 **	.010
Spouse	.055 **	.430 ***	1	.501 ***	.017	.057 **	.039	-.017	-.006	.008	-.002	.020
Child under 15	-.002	-.171 ***	.373 ***	1	-.074 ***	-.036	.047 *	-.007	-.014	.021	.015	-.036
In school	-.018	-.268 ***	-.138 ***	-.028	1	-.007	-.015	.040	-.038	.000	-.020	.041
University-level Education	-.235 ***	-.151 ***	-.024	.031	.041	1	.186 ***	.059 **	.026	.048 *	-.073 ***	.012
International communication (Index)	.053 **	.057 **	.107 ***	.057 **	-.023	.196 ***	1	.059 **	.137 ***	.021	.006	.345 ***
Interest in developing countries (Index)	.012	.046 *	.009	-.027	.026	.079 ***	.132 ***	1	.128 ***	-.042	-.025	.084 ***
General Knowledge on Development Aid (Index)	-.005	.096 ***	.043 *	-.025	-.054 *	.073 ***	.187 ***	.157 ***	1	.108 ***	-.150 ***	.011
Specific Knowledge on Development Aid (Index)	-.080 ***	.144 ***	.084 ***	.004	-.041	.063 **	.091 ***	-.001	.131 ***	1	.014	.092 ***
Preoccupation against ODA (Index)	-.057 **	.070 ***	.032	.007	-.031	-.073 ***	-.008	-.043	-.146 ***	.016	1	.074 ***
Experience in the participation in development aid (Index)	.062 **	.058 **	.060 **	-.015	.021	.073 ***	.379 ***	.128 ***	.092 ***	.120 ***	.059 **	1

**Table 3b. Correlation (lower triangle) and partial correlation (upper triangle) matrix of control variables**

Note: \* p < .10, \*\* p < .05, \*\*\* p < .01.

Thanks to the random assignment of the treatment, however, our main predictor, the provision of information, is isolated from the web of correlations. As shown in Table 4a and 4b, there was no statistically significant difference in terms of these aspects between treated and control groups, which indicates that the random assignment successfully created counter-factuals with which intervened groups could be compared. Results of the structured mean comparison between treated and control groups with regard to factors constructed as latent variables are reported in Appendix 2, which also shows a perfect balance between treated and control groups.

	Treated	Control	Difference	Lower limit	Upper limit	p-value
Female	50.26%	50.79%	-0.53%	-5.81%	4.76%	0.882
Spouse	60.69%	65.04%	-4.35%	-9.45%	0.75%	0.097
Child under 15	22.30%	22.01%	0.28%	-4.13%	4.69%	0.948
In school	8.18%	9.78%	-1.60%	-4.69%	1.48%	0.328
University-level education	57.78%	56.98%	0.81%	-4.42%	6.03%	0.797

**Table 4a. Balance between treated and control groups (categorical variables)**

	Treated	Control	Difference	Lower Limit	Upper Limit	t-test p-value	Mann-Whitney U p-value	Equal Variance test p-value	Normality test (Treated) p-value	Normality test (Control) p-value
Age	46.315	45.748	0.567	-0.840	1.975	.429	.433	.494	.000	.000
International communication (Index)	-0.003	0.004	-0.007	-0.110	0.096	.897	.957	.854	.000	.000
International communication (FPC)	-0.004	0.004	-0.008	-0.092	0.076	.851	.854	.767	.000	.000
Interest in developing countries (Index)	0.001	-0.001	0.002	-0.100	0.105	.964	.851	.204	.000	.000
Interest in developing countries (FPC)	-0.018	-0.007	-0.011	-0.104	0.083	.826	.836	.305	.000	.000
Interest in developing countries (travel)	0.131	0.128	0.003	-0.006	0.013	.464	.298	.013	.000	.000
Interest in developing countries (cuisine)	0.156	0.148	0.008	-0.002	0.018	.128	.109	.005	.000	.000
General Knowledge on Development Aid (Index)	-0.028	0.030	-0.058	-0.161	0.045	.269	.386	.076	.000	.000
General Knowledge on Development Aid (FPC)	-0.021	0.034	-0.055	-0.146	0.036	.234	.398	.040	.000	.000
Specific Knowledge on Development Aid (Index)	0.024	-0.026	0.050	-0.053	0.152	.345	.382	.357	.000	.000
Specific Knowledge on Development Aid (FPC)	0.024	0.004	0.019	-0.032	0.071	.461	.589	.832	.000	.000
Preoccupation against ODA (Index)	0.004	-0.005	0.009	-0.094	0.112	.860	.598	.439	.000	.000
Preoccupation against ODA (FPC)	0.002	-0.014	0.016	-0.061	0.094	.678	.414	.296	.000	.000
Experience in the participation in development aid (Index)	-0.022	0.024	-0.046	-0.149	0.058	.386	.483	.204	.000	.000
Experience in the participation in development aid (FPC)	-0.014	0.018	-0.032	-0.108	0.044	.412	.658	.150	.000	.000

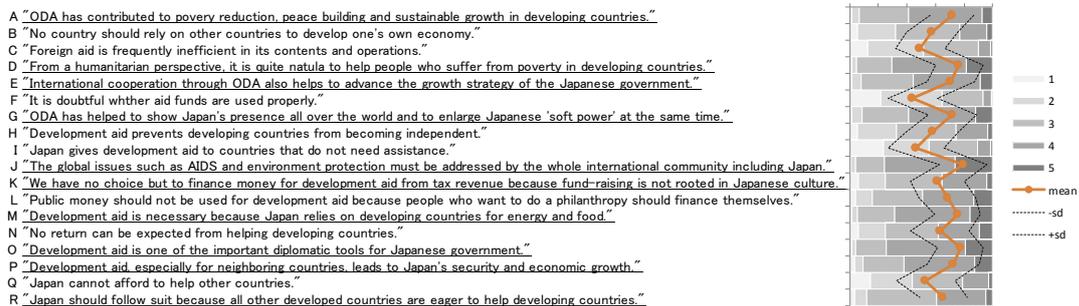
**Table 4b. Balance between treated and control groups (continuous variables)**

## Dependent variables

The expected factors that would be influenced by the provision of information are support for ODA and the intention to newly participate or continue to participate in development aid, both of which were constructed using multiple indicator variables, rather than relying solely on a single response, as described below.

## Support for ODA

To measure the level of support for ODA, 18 items with a 5-point ordinal scale were used. Higher scores indicate stronger support for ODA. The order of items was randomized when they appeared on the screen to tap respondents' attitudes. Scores for 10 items were reversed so that all items have the same direction.



**Figure 2. 18 indicator variables measuring the support for ODA**

*Note:* Higher value means support for ODA. Responses to underlined statements were reversed.

McDonald's Omega of reliability was 0.89. An index of ODA support for each respondent was created by summing all scores after standardizing each item. After the summation the index was rescaled to have zero mean and one standard deviation. The correlation coefficient of this index with the first principal component score was 0.968. The latter explained only 27% of total variance and had factor loadings from a low of 0.02 to a high of 0.74. Items which showed notably lower factor loadings were C, F, and I. Therefore, based on

what each statement emphasizes, the 18 items were classified into three groups and measured through confirmative factor analysis as three separate latent variables:<sup>7</sup> (1) Support for ODA in terms of expected benefits based on responses to items A, E, G, J, M, O, P, and R;<sup>8</sup> (2) Support for ODA in terms of the efficient use of money based on responses to items C, F, and I; (3) Support for ODA resulting from altruism based on responses to items B, D, H, K, L, N, and Q. Both congeneric structure and measurement invariance was satisfied across treated and control groups.

It should be noted here that this approach is different from those of previous studies, especially Henson and Lindstrom (2013) and Bauhr and Charron (2013). They used, like this study, a number of questions which tap respondents' understanding of development aid. However, they included them on the right hand side of the regression equation, using only one question regarding a cut in the aid budget as the dependent variable. As I have already discussed in the review of preexisting studies, however, it is a tautology to explain an opinion on ODA through another set of opinions on ODA. Little insight can be gained from these analysis. The question is what can cause changes in respondent's general attitudes toward ODA. Of course, attitudes toward ODA can have a range of aspects, which are difficult to integrate into one dimension. That is why this study not only measured the support for ODA as one factor but also decomposed it into three sub-factors in a way roughly similar to the conceptualization by Henson and Lindstrom (2013) and Bauhr and Charron (2013). But these different dimensions are not for the "explanation" of other dimensions, but for the detection of the limit of impact of information provision.

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<sup>7</sup> Item *K* was dropped due to poor fit. Results did not differ if the item was included in the construction of the third latent variable.

<sup>8</sup> Item *J* refers to global issues whose solution would greatly improve utility of Japan's people. Item *R* implies the potential diplomatic cost for the Japanese government in the case of deviation from the norm of developed countries. Item *A* refers to the expected benefit of development aid. However, the beneficiaries are recipient countries. Therefore, I re-analyzed excluding Item *A*. Factor loadings estimates changed only slightly and the result did not change in any significant sense (CFI=.990; RMSEA=.054). Interested readers can obtain the detailed results from the author.

Latent factor	Item	Estimate	S.E.	P-Value
Support for ODA in terms of expected benefit	A: "ODA has contributed to poverty reduction, peace building and sustainable growth in developing countries."	1.000	NA	NA
	E: "International cooperation through ODA also helps to advance the growth strategy of the Japanese government."	1.120	(0.051)	.000
	G: "ODA has helped to show Japan's presence all over the world and to enlarge Japanese 'soft power' at the same time."	0.989	(0.045)	.000
	J: "The global issues such as AIDS and environment protection must be addressed by the whole international community including Japan."	0.771	(0.041)	.000
	M: "Development aid is necessary because Japan relies on developing countries for energy and food."	0.936	(0.048)	.000
	O: "Development aid is one of the important diplomatic tools for Japanese government."	1.163	(0.057)	.000
	P: "Development aid, especially for neighboring countries, leads to Japan's security and economic growth."	0.979	(0.041)	.000
	R: "Japan should follow suit because all other developed countries are eager to help developing countries."	0.656	(0.034)	.000

**Table 5a. Support for ODA in terms of expected benefit**

Note: Latent factor of control group  $\sim N(0, 1)$ ; treated group  $\sim N(\mu, 1)$ . CFI=.989, RMSEA=.059.

Latent factor	Item	Estimate	S.E.	P-Value
Support for ODA in terms of efficient use of money	C: "Foreign aid is frequently inefficient in its contents and operations."	1.000	NA	NA
	F: "It is doubtful whether aid funds are used properly."	1.455	(0.125)	.000
	I: "Japan gives development aid to countries that do not need assistance."	0.759	(0.043)	.000

**Table 5b. Support for ODA in terms of the efficient use of money**

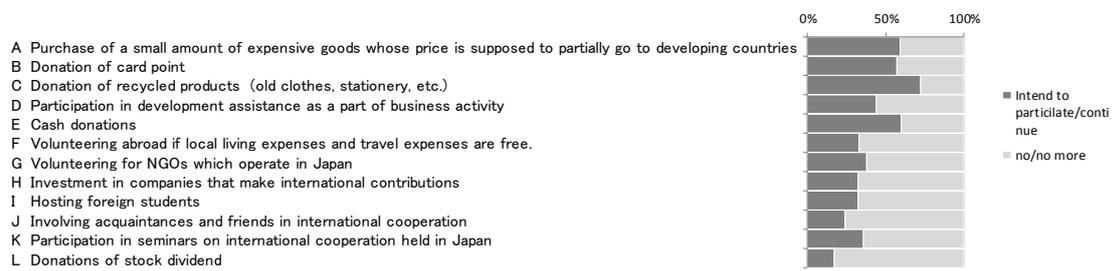
Note: Latent factor of control group  $\sim N(0, 1)$ ; treated group  $\sim N(\mu, 1)$ . CFI=.999, RMSEA=.015.

Latent factor	Item	Estimate	S.E.	P-Value
Support for ODA from altruism	B: "No country should rely on other countries to develop"	1.000	NA	NA
	D: "From a humanitarian perspective, it is quite natural to help people who suffer from poverty in developing countries."	0.393	(0.033)	.000
	H: "Development aid prevents developing countries from becoming independent."	0.775	(0.039)	.000
	L: "Public money should not be used for development aid because people who want to do a philanthropy should finance themselves."	1.331	(0.083)	.000
	N: "No return can be expected from helping developing countries."	0.742	(0.040)	.000
	Q: "Japan cannot afford to help other countries."	0.751	(0.040)	.000

**Table 5c. Support for ODA resulting from altruism**

Note: Latent factor of control group  $\sim N(0, 1)$ ; treated group  $\sim N(\mu, 1)$ . CFI=.983, RMSEA=.058.

## **Intention to participate/continue to participate in development aid**



**Figure 3. 12 indicator variables measuring the intention to participate in development aid**

Another factor which the provision information is expected to influence is respondents' intentions to newly participate or continue to participate in development aid by themselves. To measure this factor, respondents were asked whether they have an intention to either newly participate in (if they have never done so before) or continue to participate in (if they have already done so) each of 12 items of aid activities.<sup>9</sup> McDonald's Omega of reliability was 0.99. From these binary indicators an index of intention to participate in aid activities for each respondent was constructed by summing all scores with weights, which were calculated as 1 minus the proportion of respondents who have already participated in the particular form of aid activities. After summation the index was standardized. The correlation coefficient of this index with the first principal component score extracted from the tetrachoric correlation matrix of responses to the 12 questions was 0.992. The proportion of variance explained by the first principal component was 64% and factor loadings ranged from 0.76 to 0.89. One latent variable based on confirmatory factor analysis was also constructed, which satisfied congeneric structure as well as measurement invariance across treated and control groups.

<sup>9</sup> A two-step contingent question was used to measure this factor: First, respondents were asked whether they have done a certain development aid activity. Then, depending on the answer, different questions followed: To those who had experience, we asked whether they intended to continue the activity; to those who had not, we asked whether they intended to try.

Latent factor	Item	Estimate	S.E.	P-Value
Intention to newly participate or continue to participate in development aid	A Purchase of a small amount of expensive goods whose price is supposed to partially go to developing countries	1.000	NA	NA
	B Donation of card point	1.277	(0.119)	.000
	C Donation of recycled products (old clothes, stationery, etc.)	1.297	(0.144)	.000
	D Participation in development assistance as a part of business activity	1.283	(0.111)	.000
	E Cash donations	1.080	(0.098)	.000
	F Volunteering abroad if local living expenses and travel expenses are free.	1.302	(0.113)	.000
	G Volunteering for NGOs which operate in Japan	2.270	(0.238)	.000
	H Investment in companies that make international contributions	1.041	(0.094)	.000
	I Hosting foreign students	0.971	(0.085)	.000
	J Involving acquaintances and friends in international cooperation	1.423	(0.132)	.000
	K Participation in seminars on international cooperation held in Japan	1.855	(0.175)	.000
	L Donations of stock dividend	1.121	(0.125)	.000

**Table 6. Intention to newly participate or continue to participate in development aid**

Note: Latent factor of control group  $\sim N(0, 1)$ ; treated group  $\sim N(\mu, 1)$ . CFI=.948, RMSEA=.089.

To distinguish the meaning of new entry from continuation, I also tried to create separate indexes: the index for new entry was the number of items respondents intended to try divided by the number of items respondents have never tried; the index for continued participation was the number of items respondents intended to continue divided by the number of items respondents have already done. Both indexes were rescaled to have a mean of zero and a variance of one.

However, by definition, the index of new entry was not applicable for eight respondents (0.55%) who have already tried all items listed while the index of continued participation was not applicable for 453 respondents (31.18%) who have never tried any items listed. The latter also showed poor variation: 809 out of 1000 had exactly the same value. This is because once citizens started development aid activities, they almost always intended to continue these activities. Therefore, I decided to use only the index of new entry and to construct another overall index for the participation intention by summing the index of new entry and the index of continued participation (index<sup>2</sup>).

		n	Mean	SD	Median	Min.	Max.
Dependent variables	Support for ODA (Index)	1453	0.000	1.000	-0.033	-4.701	3.055
	Support for ODA (FPC)	1453	0.002	0.852	-0.007	-3.942	2.578
	Support for ODA from the expectation of potential benefit (FPC)	1453	0.000	0.993	0.157	-4.603	2.333
	Support for ODA in terms of the efficient use of money (FPC)	1453	-0.001	0.968	0.004	-1.803	3.598
	Support for ODA from Altruism (FPC)	1453	0.003	0.976	-0.046	-3.349	2.884
	Intention to continue/participate in development aid (Index)	1453	0.000	1.000	-0.113	-1.266	3.214
	Intention to continue/participate in development aid (FPC)	1453	0.000	0.823	-0.040	-1.115	1.585
	Intention to newly participate in development aid (Index)	1445	0.000	1.000	-0.245	-1.118	2.084
	Intention to continue/participate in development aid (Index')	1453	0.000	1.000	-0.009	-1.356	1.876

**Table 7. Descriptive statistics of dependent variables**

### 3.4 Estimation Strategy

RCT assures an unbiased estimate of the impact of the provided information by physically dissecting the treatment from any potential causal chain and creating a control group equivalent-in-expectation to the treated group, which we checked in Tables 4a and 4b. Therefore, first I simply conduct bivariate analysis to examine the overall effect of the treatment. To find reliable results, however, I use multiple dependent variables which were operationalized in three different ways: the first is an index constructed following a certain procedure explicitly described above which I think appropriate; the second is the first principal component score, whose procedure is widely known; and the third is the latent variable approach via confirmative factor analysis, whose procedure is also a public knowledge. The measurement of factors and the estimation of the impact are conducted separately in the first two approaches and simultaneously in the third approach. I will note only the results that are verified through multiple approaches.

Then I introduce control variables chiefly for the detection of any possible heterogeneity in the impact depending on different attributes of respondents including personal experience and knowledge. For that purpose, I insert a series of interaction terms between the treatment and each

of the control variables. Only two-way interactions are assumed. First I include all interaction terms and then refine the models step-wisely based on AIC. Finally, I plot heterogeneous impacts, if any, based on the refined models along with their 95% confidence intervals, so that we can see under what conditions the impact is statistically significant.<sup>10</sup>

## 4. Results

### 4.1 Average impact

		Treated	Control	Difference	Lower Limit	Upper Limit	t-test p-value	Mann- Whitney U p-value	Equal Variance test p-value	Normality test (Treated) p-value	Normality test (Control) p-value
1	Support for ODA (Index)	0.055	-0.060	0.115	0.013	0.218	.028	.019	.574	.000	.000
2	Support for ODA (FPC)	0.038	-0.037	0.075	-0.013	0.163	.093	.082	.305	.000	.000
3	Support for ODA: Expected Benefit (FPC)	0.031	-0.034	0.066	-0.036	0.167	.207	.056	.021	.000	.000
4	Support for ODA: Efficiency (FPC)	0.052	-0.058	0.110	0.011	0.209	.030	.028	.169	.000	.000
5	Support for ODA: Altruism (FPC)	0.041	-0.038	0.080	-0.021	0.180	.120	.238	.435	.002	.000
6	Intention to continue/participate in development aid (Index)	0.013	-0.014	0.027	-0.076	0.130	.607	.647	.709	.000	.000
7	Intention to continue/participate in development aid (FPC)	0.016	-0.017	0.033	-0.052	0.118	.447	.582	.325	.000	.000
8	Intention to newly participate in development aid (Index)	0.013	-0.014	0.028	-0.076	0.131	.599	.781	.388	.000	.000
9	Intention to continue/participate in development aid (Index)	0.038	-0.037	0.075	-0.013	0.163	.093	.082	.305	.000	.000

**Table 8a. Average impact of information provision on the support for and intention to participate in ODA: T-test and Mann-Whitney U test**

Table 8a reports the results of the classical t-test as well as the Mann-Whitney U test which examined the average impacts of the treatment (information provision) upon respondents' support for and intention to newly participate or continue to participate in development aid. The first and second rows show the impacts on the support for ODA constructed as one factor while

<sup>10</sup> Whether the partial coefficient of the interaction term is statistically significant or not and under what conditions the impact is statistically significant are two distinct questions. Unless we calculate standard errors at each value of moderating variables based on the variances and co-variances of partial coefficients, we would never know whether the treatment has a statistically significant impact under particular conditions just from the regression table. See, Brambor et al. 2006.

the third, fourth, and fifth rows list the results when the support was decomposed into three factors. Likewise, the sixth, seventh, and the last rows show the results when the intention to newly participate or continue to participate in development aid was conceptualized as one factor while the eighth row corresponds to the results when new entry was separately conceptualized from continued participation. Given the random assignment of the treatment as well as the fact that the balance between the treated and control groups in terms of observed variables is secured (See, Tables 4a and 4b), these estimations are free from bias at least regarding the average impact.

As the column named “Difference” indicates, all average impacts were positive, that is, the provision of precise information increases the support for and intention to participate in ODA. However, statistically significant impacts were confirmed only in support, not in participation. Furthermore, among various aspects of support, only support for ODA in terms of the efficient use of money yielded a robust result. P-values of both the t-test and Mann-Whitney test were less than 5%. The impact on the support for ODA based on altruism was not significant at all and the impact on the support based on the expected benefit was marginally significant. Only the p-value of Mann-Whitney test was less than 5%.

The above results were also reassured by the structured mean comparison via confirmative factor analytic approach (Table 8b), where means and variances of the control group were always fixed to zero and one, respectively. The third column from the left lists the mean of the treated group. The third and fourth rows for each dependent variable show the result when the treated group’s means were freely estimated while the first and second rows correspond to the settings where the treated group’s means were fixed to zero (that is, no difference model) for reference. We can compare goodness-of-fit through CFI (the larger the better) and RMSEA (the smaller the better).

Only regarding the support for ODA in terms of the efficient use of money, were the freely estimated averages of the treated group’s latent factor statistically significantly greater

than zero (0.148 when variance was fixed to one and 0.141 when not, respectively). Meanwhile, neither the support for ODA in terms of the expected benefits nor the support from altruism increased on average in a statistically significant sense even when respondents were informed about the counter-arguments against ungrounded “theories.” Also, no-difference models fit better.<sup>11</sup> The same applied to the intention to newly start or continue to participate in development aid.

	Treated group Model	Treated group mean	SE	p-value	Treated group variance	SE	p-value	Chi2	df	p-value	CFI	RMSEA
Support for ODA in terms of the expected benefit	$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	60.830	19	.000	.991	.055
	$N(0, \sigma^2)$	0.000	NA	NA	1.179	(0.120)	.000	102.779	31	.000	.984	.056
	$N(\mu, 1)$	0.058	(0.059)	.332	1.000	NA	NA	73.265	21	.000	.989	.059
	$N(\mu, \sigma^2)$	0.096	(0.060)	.111	1.217	(0.122)	.000	147.032	43	.000	.977	.058
Support for ODA in terms of efficient use of money	$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	17.594	8	.025	.994	.041
	$N(0, \sigma^2)$	0.000	NA	NA	1.177	(0.131)	.000	15.544	7	.030	.994	.041
	$N(\mu, 1)$	0.148	(0.062)	.018	1.000	NA	NA	9.362	8	.313	.999	.015
	$N(\mu, \sigma^2)$	0.141	(0.064)	.028	1.125	(0.126)	.000	11.941	10	.289	.999	.016
Support for ODA from altruism	$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	123.715	25	.000	.965	.074
	$N(0, \sigma^2)$	0.000	NA	NA	1.131	(0.116)	.000	150.068	28	.000	.956	.077
	$N(\mu, 1)$	0.094	(0.059)	.110	1.000	NA	NA	135.194	26	.000	.961	.076
	$N(\mu, \sigma^2)$	0.101	(0.061)	.098	1.138	(0.117)	.000	192.731	34	.000	.943	.080
Intention to continue or newly participate in development aid	$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	401.913	63	.000	.960	.086
	$N(0, \sigma^2)$	0.000	NA	NA	1.238	(0.184)	.000	444.235	68	.000	.956	.087
	$N(\mu, 1)$	0.049	(0.059)	.402	1.000	NA	NA	522.054	77	.000	.948	.089
	$N(\mu, \sigma^2)$	0.029	(0.061)	.631	1.185	(0.160)	.000	539.013	78	.000	.946	.090

**Table 8b. Average impact of information provision on the support for and intention to participate in development aid: Confirmative factor analysis**

Note: Models of control group’s latent variable are fixed to  $N(0,1)$ .

## 4.2 Heterogeneity in impact

The foregoing analysis revealed that, on average, the treatment had a statistically significant impact only on the support for ODA, especially in terms of the efficient use of money. However, the dependent variable not influenced by the treatment might be influenced among certain sub groups, and vice versa. Table 9a and 9b present the results of a series of multivariate regressions

<sup>11</sup> The estimation result of the impact on the support for ODA in terms of the expected benefit did not change even if Item A was excluded from the analysis. The treated group’s mean was 0.053 with a standard error of 0.060 ( $p=.377$ ) when the variance of the latent factor for the treated group is fixed to one ( $\text{Chi}2 = 56.170$ ;  $\text{df}=18$ ;  $p=.000$ ;  $\text{CFI}=990$ ;  $\text{RMSEA}=.054$ ). When the variance was estimated freely, the treated group’s mean was 0.086 with a standard error of 0.061 ( $p=.158$ ) and variance was 1.188 with standard error of 0.121 ( $p=.000$ ). Goodness of fit measures were as follows:  $\text{Chi}2 = 114.423$ ;  $\text{df}=43$ ;  $p=.000$ ;  $\text{CFI}=980$ ;  $\text{RMSEA}=.055$ .

with interaction terms between the treatment and each of the control variables, so that we can calculate 95% confidence intervals of the treatment impact under various conditions. The first panel (Table 9a) shows the initial specifications and the second (Table 9b) shows the final models, to which the stepwise method based on AIC led. Initially, both prejudice against ODA and past experience participating in development aid were also included in the models as components of interaction effects since both can plausibly condition the impact of treatment and were proved to be unaffected systematically by the treatment (See, Table 4b) despite the fact that they were not a pre-treatment variable in a strict sense. However, because prejudice against ODA did not condition the impact of treatment in any models, while past experience participating in development aid did have an impact on the intention to participate, I kept past experience participating in development aid only. Results regarding the impact on the support for ODA did not change in any substantial sense even if the past experience in development cooperation was dropped, while results regarding the impact on the intention to participation did, of course. However, the detected contingent effects of the treatment depending on the “in school” variable were mostly insignificant according to the 95% confidence intervals, while the treatment showed a statistically significant impact on the intention to start new aid activity depending on the past experience. Hence, I report here chiefly the result of models which included the interaction effect of the treatment with the past experience in aid at least initially.<sup>12</sup>

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<sup>12</sup> In short, I conducted three versions of multivariate regressions: (A) including both prejudice against ODA and past experience in aid, (B) including only past experience in aid, and (C) dropping both. Interested readers can obtain other versions of the results from the author.

	ODA support (Index)	ODA support (FPC)	ODA support Benefit (FPC)	ODA support Efficiency (FPC)	ODA support Altruism (FPC)
Initial models	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Intercept	-0.317 *** (0.094)	-0.250 *** (0.080)	-0.217 ** (0.093)	-0.175 * (0.094)	-0.262 *** (0.092)
Treatment	0.167 (0.126)	0.109 (0.108)	0.101 (0.125)	0.058 (0.127)	0.154 (0.124)
Female	0.171 ** (0.076)	0.143 ** (0.065)	0.151 ** (0.076)	0.086 (0.077)	0.105 (0.075)
Age	0.008 ** (0.003)	0.007 ** (0.003)	0.010 *** (0.003)	-0.007 ** (0.003)	0.006 * (0.003)
Spouse	0.068 (0.099)	0.058 (0.085)	-0.034 (0.098)	0.064 (0.099)	0.190 ** (0.097)
Child	0.009 (0.104)	0.028 (0.089)	0.077 (0.103)	0.029 (0.105)	-0.170 * (0.102)
In school	0.083 (0.129)	0.098 (0.111)	-0.074 (0.128)	0.096 (0.130)	0.222 * (0.127)
University	0.211 ** (0.079)	0.160 ** (0.067)	0.216 *** (0.078)	0.032 (0.079)	0.116 (0.077)
EIC: Experience in international communication	0.026 (0.041)	0.025 (0.035)	0.027 (0.040)	0.001 (0.041)	0.024 (0.040)
IDC: Interest in developing countries	0.060 (0.038)	0.049 (0.033)	0.034 (0.038)	0.016 (0.039)	0.092 ** (0.038)
GKD: General knowledge of development aid	0.025 (0.039)	0.017 (0.034)	0.017 (0.039)	-0.078 ** (0.039)	0.081 ** (0.038)
SKJ: Specific knowledge of Japanese ODA	0.191 *** (0.038)	0.146 *** (0.032)	0.165 *** (0.038)	0.046 (0.038)	0.164 *** (0.037)
EIP: Experience in participation in development aid	0.087 ** (0.039)	0.062 * (0.033)	0.125 *** (0.038)	-0.013 (0.039)	-0.003 (0.038)
Interaction term between "Treatment" and "Female"	-0.073 (0.105)	-0.048 (0.090)	-0.155 (0.104)	0.106 (0.106)	0.030 (0.103)
Interaction term between "Treatment" and "Age"	0.002 (0.005)	0.003 (0.004)	-0.004 (0.005)	0.004 (0.005)	0.008 * (0.005)
Interaction term between "Treatment" and "Spouse"	0.031 (0.135)	0.007 (0.115)	0.216 (0.133)	-0.051 (0.135)	-0.243 * (0.132)
Interaction term between "Treatment" and "Child"	-0.043 (0.143)	-0.038 (0.123)	-0.096 (0.142)	0.000 (0.144)	0.117 (0.141)
Interaction term between "Treatment" and "In school"	-0.089 (0.185)	-0.088 (0.158)	0.101 (0.183)	-0.151 (0.186)	-0.175 (0.181)
Interaction term between "Treatment" and "University"	-0.029 (0.110)	0.005 (0.094)	-0.138 (0.108)	0.079 (0.110)	0.091 (0.107)
Interaction term between "Treatment" and "EIC"	-0.058 (0.057)	-0.044 (0.048)	-0.027 (0.056)	-0.036 (0.057)	-0.055 (0.056)
Interaction term between "Treatment" and "IDC"	-0.049 (0.052)	-0.030 (0.044)	-0.064 (0.051)	-0.004 (0.052)	-0.043 (0.051)
Interaction term between "Treatment" and "GKD"	0.097 * (0.053)	0.086 * (0.045)	0.112 ** (0.052)	0.022 (0.053)	0.045 (0.052)
Interaction term between "Treatment" and "SKJ"	-0.113 ** (0.052)	-0.092 ** (0.044)	-0.066 (0.051)	-0.122 ** (0.052)	-0.100 * (0.051)
Interaction term between "Treatment" and "EIP"	0.054 (0.055)	0.061 (0.047)	0.060 (0.055)	-0.012 (0.055)	0.052 (0.054)
Adjusted R-squared:	0.085	0.079	0.090	0.013	0.078
F-statistic	6.878 ***	6.396 ***	7.255 ***	1.811 **	6.373 ***
DF	23, 1429	23, 1429	23, 1429	23, 1429	23, 1429

**Table 9a. Multivariate regression with interaction terms between the treatment and each of the control variables: Initial models**

Note: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are in parentheses.

	Intention to continue/participate in development aid (Index)	Intention to continue/participate in development aid (FPC)	Intention to newly start development aid (Index)	Intention to continue/participate in development aid (Index')
Initial models	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Intercept	-0.119 (0.074)	-0.129 * (0.070)	-0.074 (0.092)	-0.155 * (0.085)
Treatment	0.132 (0.100)	0.138 (0.095)	0.100 (0.124)	0.162 (0.115)
Female	0.014 (0.060)	0.029 (0.057)	-0.058 (0.075)	0.039 (0.069)
Age	0.000 (0.003)	0.000 (0.003)	-0.002 (0.003)	0.000 (0.003)
Spouse	0.016 (0.078)	0.027 (0.074)	-0.032 (0.097)	0.031 (0.090)
Child	-0.064 (0.082)	-0.053 (0.078)	0.000 (0.102)	-0.061 (0.095)
In school	0.201 ** (0.102)	0.198 ** (0.097)	0.262 ** (0.127)	0.236 ** (0.117)
University	0.124 ** (0.062)	0.115 ** (0.059)	0.151 ** (0.077)	0.138 * (0.071)
EIC: Experience in international communication	0.148 *** (0.032)	0.119 *** (0.031)	0.128 *** (0.040)	0.146 *** (0.037)
IDC: Interest in developing countries	0.036 (0.030)	0.039 (0.029)	0.046 (0.038)	0.050 (0.035)
GKD: General knowledge of development aid	0.042 (0.031)	0.035 (0.029)	-0.003 (0.038)	0.044 (0.036)
SKJ: Specific knowledge of Japanese ODA	0.112 *** (0.030)	0.104 *** (0.028)	0.078 ** (0.037)	0.126 *** (0.035)
EIP: Experience in participation in development aid	0.527 *** (0.031)	0.290 *** (0.029)	0.281 *** (0.040)	0.351 *** (0.035)
Interaction term between "Treatment" and "Female"	-0.056 (0.084)	-0.059 (0.079)	-0.014 (0.103)	-0.073 (0.096)
Interaction term between "Treatment" and "Age"	0.000 (0.004)	0.001 (0.004)	0.000 (0.005)	0.001 (0.004)
Interaction term between "Treatment" and "Spouse"	0.031 (0.107)	0.011 (0.101)	0.089 (0.132)	0.018 (0.122)
Interaction term between "Treatment" and "Child"	0.068 (0.114)	0.062 (0.107)	0.024 (0.140)	0.073 (0.130)
Interaction term between "Treatment" and "In school"	-0.138 (0.146)	-0.114 (0.138)	-0.135 (0.181)	-0.140 (0.168)
Interaction term between "Treatment" and "University"	-0.127 (0.087)	-0.123 (0.082)	-0.179 * (0.107)	-0.146 (0.100)
Interaction term between "Treatment" and "EIC"	0.001 (0.045)	0.023 (0.042)	0.070 (0.056)	0.027 (0.051)
Interaction term between "Treatment" and "IDC"	0.031 (0.041)	0.021 (0.039)	0.038 (0.051)	0.025 (0.047)
Interaction term between "Treatment" and "GKD"	-0.004 (0.042)	0.002 (0.039)	0.021 (0.052)	0.002 (0.048)
Interaction term between "Treatment" and "SKJ"	-0.024 (0.041)	-0.012 (0.039)	0.028 (0.051)	-0.013 (0.047)
Interaction term between "Treatment" and "EIP"	0.034 (0.044)	0.006 (0.041)	-0.094 (0.059)	0.008 (0.050)
Adjusted R-squared:	0.426	0.244	0.129	0.244
F-statistic	47.770 ***	21.350 ***	10.330 ***	21.400 ***
DF	23, 1429	23, 1429	23, 1421	23, 1429

**Table 9a (cont.). Multivariate regression with interaction terms between the treatment and each of the control variables: Initial models**

Note: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are in parentheses.

	ODA support (Index)	ODA support (FPC)	ODA support Benefit (FPC)	ODA support Efficiency (FPC)	ODA support Altruism (FPC)
Final model	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Intercept	-0.241 *** (0.057)	-0.189 *** (0.049)	-0.221 *** (0.066)	-0.117 *** (0.044)	-0.286 *** (0.077)
Treatment	0.112 ** (0.050)	0.072 * (0.043)	0.070 (0.050)	0.111 ** (0.050)	0.194 ** (0.087)
Female	0.137 *** (0.052)	0.121 *** (0.044)	0.074 (0.052)	0.119 ** (0.050)	0.122 ** (0.051)
Age	0.011 *** (0.002)	0.009 *** (0.002)	0.008 *** (0.002)	-0.005 *** (0.002)	0.007 ** (0.003)
Spouse			0.101 * (0.057)		0.163 * (0.090)
Child					-0.110 (0.070)
In school					0.136 (0.090)
University	0.201 *** (0.053)	0.165 *** (0.046)	0.149 *** (0.053)		0.165 *** (0.052)
EIC: Experience in international communication					
IDC: Interest in developing countries		0.031 (0.022)			0.069 *** (0.025)
GKD: General knowledge of development aid	0.038 (0.038)	0.022 (0.033)	0.034 (0.037)	-0.063 ** (0.025)	0.109 *** (0.025)
SKJ: Specific knowledge of Japanese ODA	0.184 *** (0.037)	0.140 *** (0.032)	0.128 *** (0.026)	0.045 (0.037)	0.160 *** (0.037)
EIP: Experience in participation in development aid	0.119 *** (0.026)	0.096 *** (0.022)	0.156 *** (0.025)		
Interaction term between "Treatment" and "Female"					
Interaction term between "Treatment" and "Age"					0.007 * (0.004)
Interaction term between "Treatment" and "Spouse"					-0.183 (0.113)
Interaction term between "Treatment" and "Child"					
Interaction term between "Treatment" and "In school"					
Interaction term between "Treatment" and "University"					
Interaction term between "Treatment" and "EIC"					
Interaction term between "Treatment" and "IDC"					
Interaction term between "Treatment" and "GKD"	0.084 (0.051)	0.082 * (0.044)	0.086 * (0.050)		
Interaction term between "Treatment" and "SKJ"	-0.102 ** (0.051)	-0.080 * (0.043)		-0.120 ** (0.050)	-0.088 * (0.050)
Interaction term between "Treatment" and "EIP"					
Adjusted R-squared:	0.089	0.083	0.093	0.020	0.081
F-statistic	16.790 ***	14.100 ***	17.460 ***	5.821 ***	10.870 ***
DF	9, 1443	10, 1442	9, 1443	6, 1446	13, 1439

**Table 9b. Multivariate regression with interaction terms between the treatment and each of the control variables: Final models**

Note: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are in parentheses.

	Intention to continue/participate in development aid (Index)	Intention to continue/participate in development aid (FPC)	Intention to newly start development aid (Index)	Intention to continue/participate in development aid (Index')
Final model	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Intercept	-0.047 (0.031)	-0.012 (0.020)	-0.131 ** (0.055)	-0.014 (0.024)
Treatment			0.136 * (0.076)	
Female				
Age				
Spouse				
Child				
In school	0.124 * (0.070)	0.133 ** (0.066)	0.219 ** (0.086)	0.155 * (0.080)
University	0.063 (0.041)		0.172 ** (0.073)	
EIC: Experience in international communication	0.145 *** (0.022)	0.135 *** (0.021)	0.120 *** (0.039)	0.165 *** (0.025)
IDC: Interest in developing countries	0.052 ** (0.020)	0.052 *** (0.019)	0.065 *** (0.025)	0.065 *** (0.023)
GKD: General knowledge of development aid	0.040 * (0.021)	0.037 * (0.019)		0.046 * (0.024)
SKJ: Specific knowledge of Japanese ODA	0.102 *** (0.020)	0.102 *** (0.019)	0.094 *** (0.025)	0.124 *** (0.023)
EIP: Experience in participation in development aid	0.543 *** (0.022)	0.293 *** (0.020)	0.278 *** (0.040)	0.355 *** (0.025)
Interaction term between "Treatment" and "Female"				
Interaction term between "Treatment" and "Age"				
Interaction term between "Treatment" and "Spouse"				
Interaction term between "Treatment" and "Child"				
Interaction term between "Treatment" and "In school"				
Interaction term between "Treatment" and "University"			-0.170 * (0.101)	
Interaction term between "Treatment" and "EIC"			0.081 (0.054)	
Interaction term between "Treatment" and "IDC"				
Interaction term between "Treatment" and "GKD"				
Interaction term between "Treatment" and "SKJ"				
Interaction term between "Treatment" and "EIP"			-0.090 (0.057)	
Adjusted R-squared:	0.429	0.248	0.134	0.249
F-statistic	156.700 ***	80.850 ***	23.310 ***	81.140 ***
DF	7, 1445	6, 1446	10, 1434	6, 1446

**Table 9b (cont.). Multivariate regression with interaction terms between the treatment and each of the control variables: Final models**

Note: \*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ . Standard errors are in parentheses.

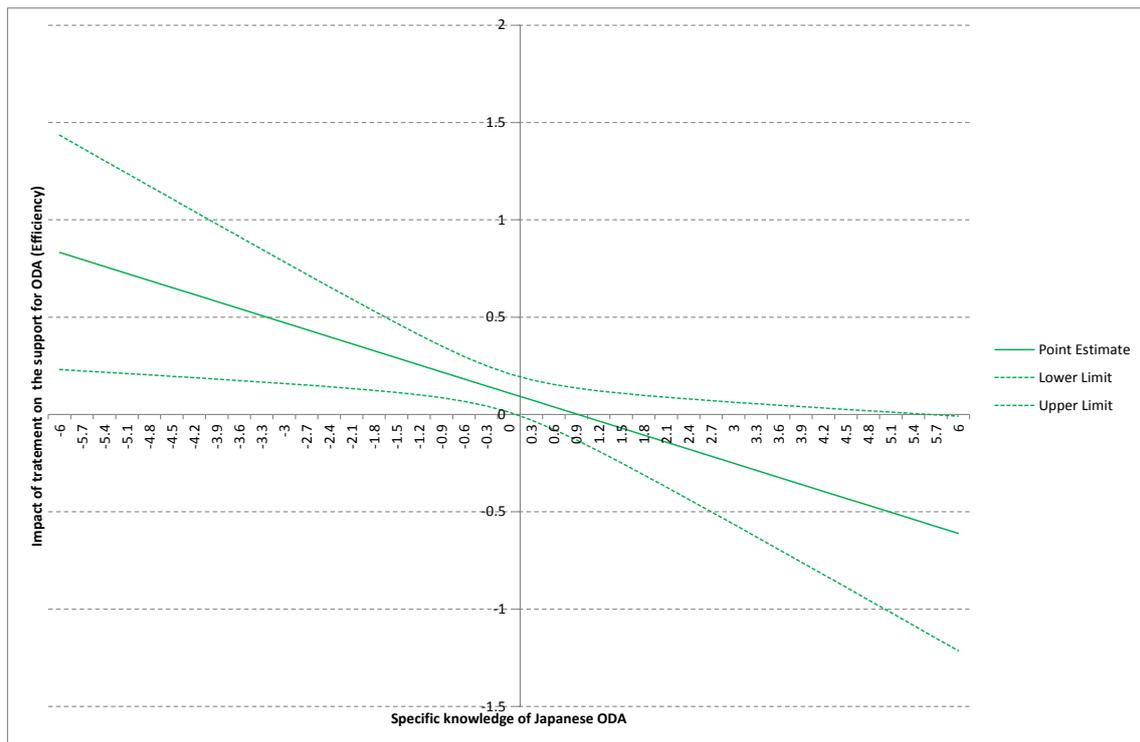
In examining the heterogeneous impact of treatment depending on the attributes of respondents, we need to bear in mind that the partial regression coefficients for the treatment in the final models where interaction terms remained significant refer to the impact of treatment under the specific condition: all values of the variables which have an interaction term with the treatment are zero, which refers to the mean for continuous control variables and to the reference category for dichotomous control variables.<sup>13</sup> For ease of understanding, therefore, Figures 4a to 4e depict, based on the regression tables as well as variance and covariance matrixes (not reported), conditions under which the treatment impacts are statistically significant at the 5% level.

Varying impacts of the treatment were detected in the most robust manner regarding the support for ODA in terms of efficient use of money and the support for ODA based on the expected benefit. Moderately robust evidence of varying impacts was found regarding the general support for ODA, specific support for ODA from altruism, and the intention to newly participate in development aid. In other words, results with respect to the treatment's impact on the intention to newly start or continue to participate in aid, which proved to be nothing on average, did not emerge even locally. In the remainder of this section we will review the results in turn.

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<sup>13</sup> Age was mean centered in interaction models for the ease of interpretation.

**Impact on the support for ODA in terms of the efficient use of money**



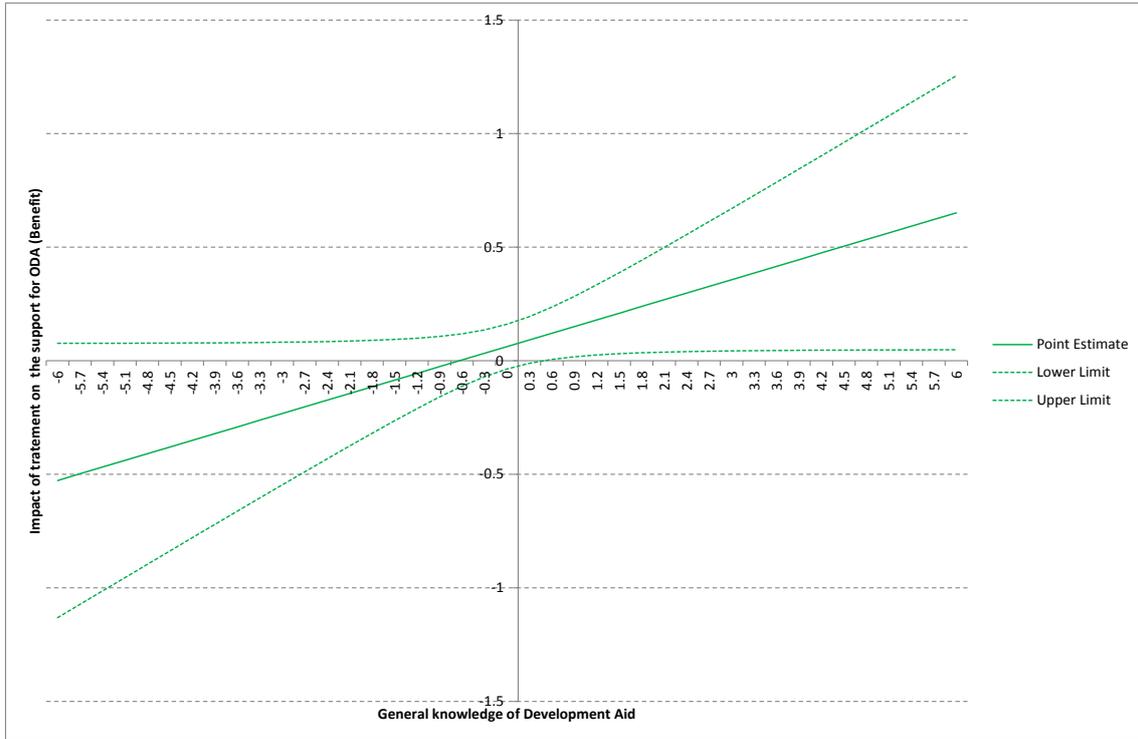
**Figure 4a. Heterogeneous impact of treatment on the support for ODA in terms of efficient use of money**

First of all, regardless of the inclusion or exclusion of prejudice against ODA and the past experience in aid activities in the regression model, support for ODA in terms of the efficient use of money, which was significantly influenced on average by the treatment, turned out to be susceptible to the treatment chiefly among those with lower level of knowledge on Japanese ODA: the fewer respondents know about Japanese ODA, the more likely they are to become supportive of ODA, at least in terms of efficient use of the money, by just being exposed to the corrective information. In other words, if respondents already possess enough knowledge of Japanese ODA, the margin of impact of treatment is not statistically significant as shown in Figure 4a.

The impact depended neither on gender nor on the level of education. However, there were some variables related significantly with support for ODA in terms of the efficient use of

money, which include: female dummy (positive), age (negative), general knowledge of development aid (negative), and prejudice against ODA (negative).

**Impact on the support for ODA based on the expected benefit**



**Figure 4b. Heterogeneous impact of treatment on the support for ODA based on the expectation of potential benefit**

By contrast, although the average impact of the treatment on the support of ODA based on the expectation of potential benefit was *not* statistically significant, the treatment turned out to be effective among those with a greater-than-average level of general knowledge of development aid. This was also largely consistent regardless of the inclusion or exclusion of prejudice against ODA and the past experience in development aid activities.<sup>14</sup> Since the partial coefficient of the interaction term between the treatment and level of general knowledge of development aid is

<sup>14</sup> However, when prejudice against ODA was included in the model, the pattern applied only to female respondents without university-level education or male respondents (with or without university-level education). Support for ODA in terms of the expected benefit was not augmented by the treatment among female respondents with university-level education regardless of the level of general knowledge of development aid.

positive, the impact gets larger as the level of general knowledge of development aid increases, which is depicted in Figure 4b. However, the fact that the coefficient of the interaction term is positive means that the impact approaches zero and then becomes negative as the level of general knowledge on development aid decreases. Therefore, the impact loses its statistical significance if respondents have lower levels of knowledge of development aid. In short, it is true that people with higher levels of general knowledge of development aid become supportive for ODA, expecting the potential benefit Japan could receive from helping developing countries. However, since they are not the majority, the average impact of information does not reach statistical significance.

The attributes that naturally correlated with the support for ODA from the expectation of potential benefit in the absence of the treatment were female dummy (positive), age (positive), having spouse (positive), university-level education (positive), and specific knowledge of Japanese ODA (positive). Prejudice toward ODA and experience participating in development aid, when included as control variables, showed statistically significant negative and positive correlations with the outcome variable, respectively.

### **Impact on the general support for ODA**

Less robust but still notable heterogeneous effects were detected regarding the impact of the treatment on the general support for ODA, which was statistically positive on average.<sup>15</sup> Since two continuous variables moderate the effect, I show the varying effect and its 95% confidence interval using a contour plot. The x-axis is the level of general knowledge of development aid and the y-axis is the level of specific knowledge of Japanese ODA. The estimated impact as well as its lower and upper limit of confidence intervals at each coordinate is expressed as height in contours. A region higher than zero in the lower limit of confidence interval means that the

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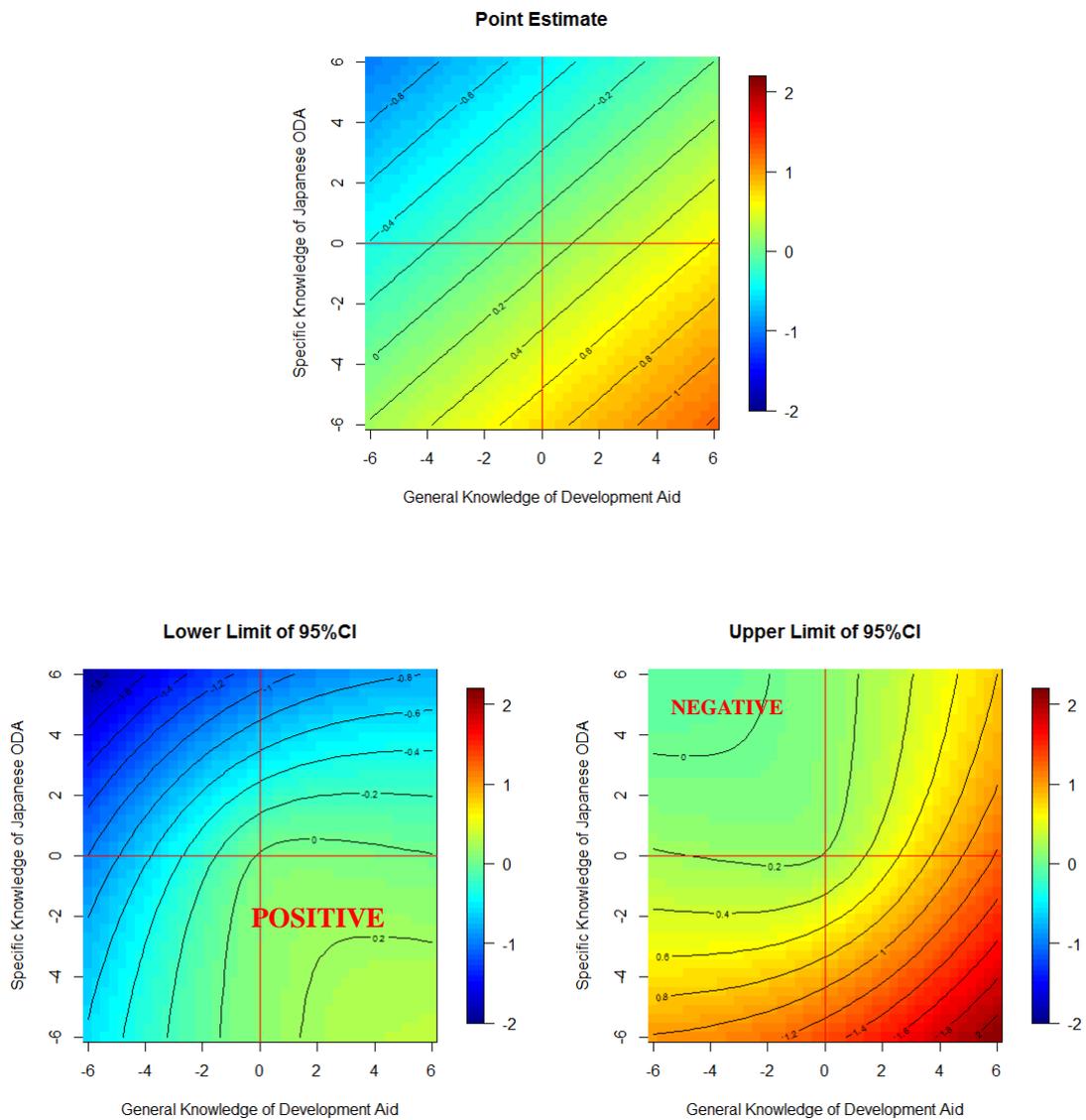
<sup>15</sup> This variation of the intensity of the impact was not found when prejudice against ODA was controlled for in the regression.

treatment has a significantly positive impact while a region lower than zero in the upper limit of a confidence interval refers to the conditions under which treatment has a significantly negative impact.

As shown in Figure 4c, if respondents' levels of general knowledge of development aid and of specific knowledge of Japanese ODA are both at the mean level (intersection of red lines), then learning more about ODA leads them to be more supportive to ODA by approximately one-tenth of standard deviation. The impact is significantly positive as long as the level of general knowledge of development aid is higher and that of specific knowledge of Japanese ODA is lower. However, outside of the higher-than-zero area in the lower limit contour, the impact is not significant or even significantly negative. Since negative impact region is very limited to the upper left, the average impact is positive and statistically significant.<sup>16</sup>

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<sup>16</sup> When prejudice against ODA was included in the model, this variation in the impact depending on the general level of knowledge and specific knowledge of Japanese ODA evaporates.



**Figure 4c. Heterogeneous impact of treatment on the general support for ODA**

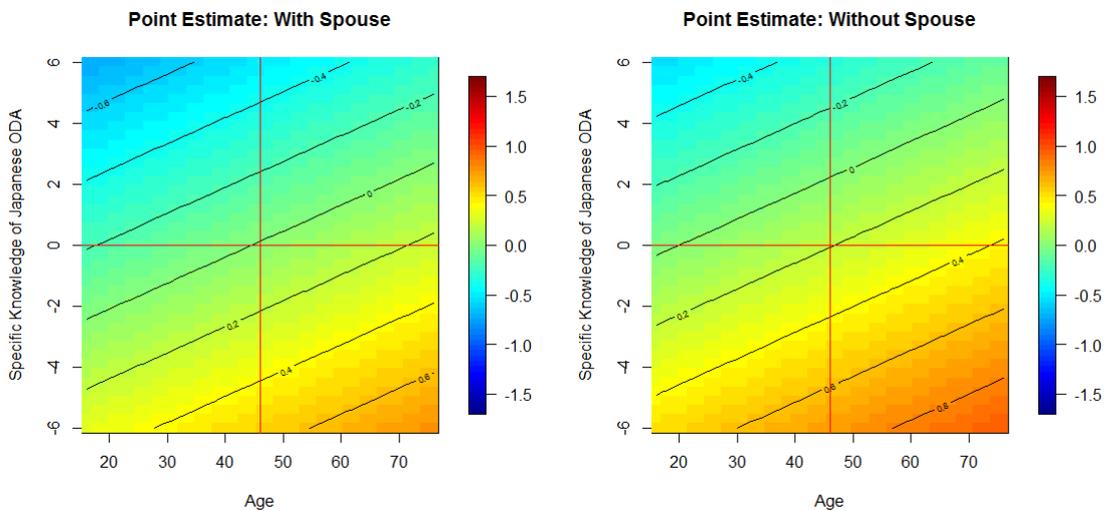
Attributes naturally related to the dependent variable were dummy for female respondents (positive), age (positive), university-level education (positive), and specific knowledge on Japanese ODA (positive). Prejudice against ODA, when controlled for, was negatively correlated with the general support for ODA while the past experience in participation in development aid showed a positive correlation. Family composition was not

correlated with the outcome variable. These results are largely consistent with intuitions as well as the findings of previous studies as shown above.

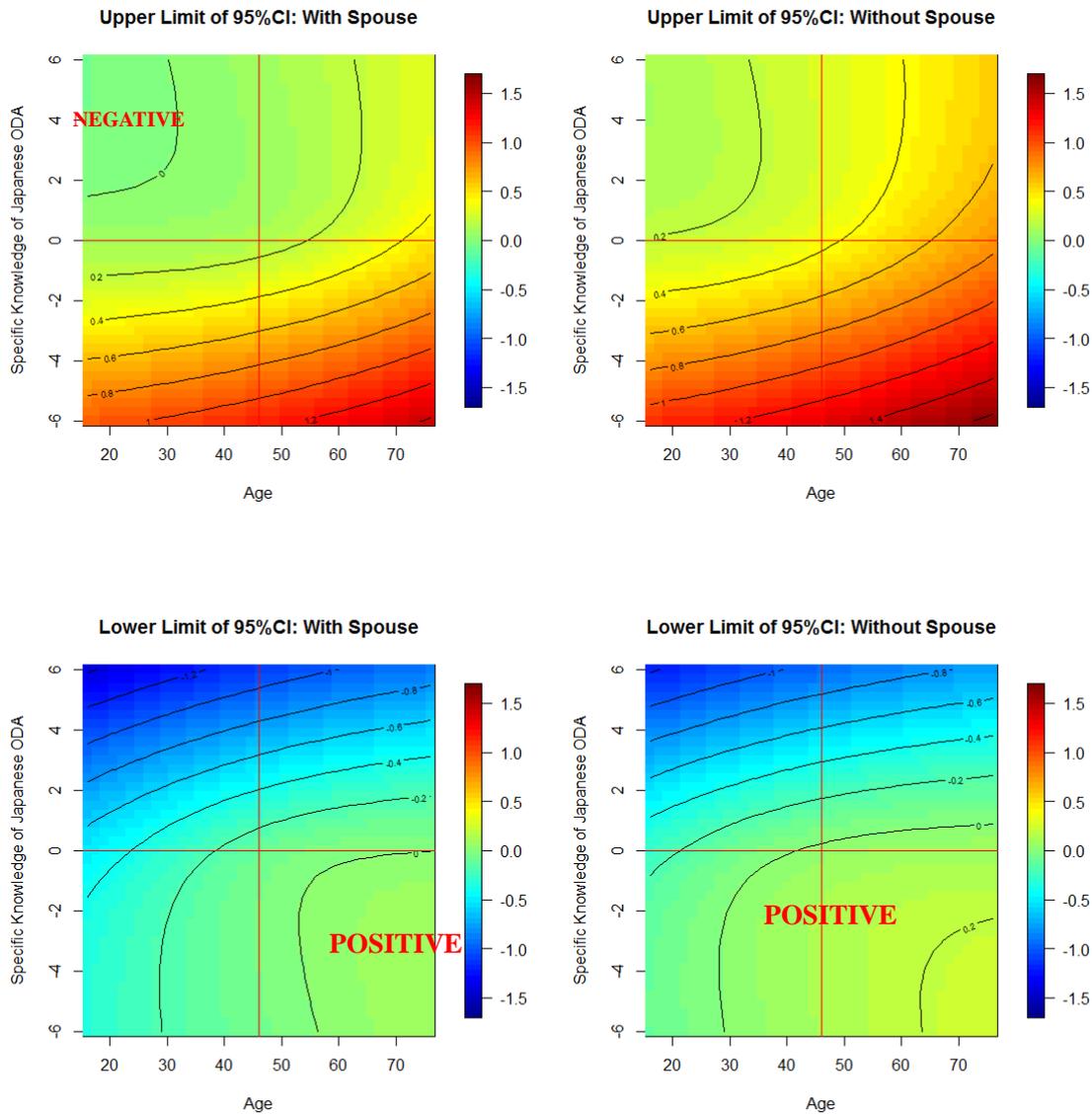
### **Impact on the support for ODA from altruism**

The impact of treatment on altruistic aspects of support for ODA, which was *not* found on average, was also detected locally among certain segment of respondents albeit less robustly.<sup>17</sup>

The moderating variables are age, level of specific knowledge of Japanese ODA, and whether or not the respondent currently has a spouse. Since two moderating variables are continuous and the remaining one is dichotomous, I use parallel contour plots of point estimate and lower and upper limits of a 95% confidence interval to show the varying influence of the treatment. Left-hand-side panels of Figure 4d are influences for respondents with spouses while right-hand-side panels are for respondents without spouses.



<sup>17</sup> This was the case only if prejudice against ODA was not controlled for.



**Figure 4d. Heterogeneous impact of treatment on the support for ODA from altruism**

*Note.* Left: respondents with spouse, Right: respondents without spouse

Generally, older respondents with lower levels of specific knowledge of Japanese ODA were more responsive to the treatment in terms of altruism. This tendency was especially strong among respondents without spouses: the area higher than zero in the lower limit of the 95% confidence interval was larger and all areas in the upper limit contour was higher than zero

among single respondents. However, respondents without spouses were a minority (37%) in the sample and hence the local impact was cancelled out on average.

Attributes that were consistently correlated with the support for ODA from altruism were age (positive), university-level education (positive), interest in developing countries (positive), general and specific knowledge of ODA (positive). Prejudice against ODA (negative) and experience participating in development aid (positive) were also correlated. Having a spouse showed a significant positive correlation to support of ODA for altruistic reasons only in the model without prejudice against ODA as control variable. Again, having children under 15 years old was irrelevant.

#### **Impact on the intention to newly start development aid activities**

The intention to newly participate or continue to participate in development aid when conceptualized as one factor, which was *not* significant on average, was also not influenced by the treatment regardless of the different values of respondent's attributes.<sup>18</sup> The variables that chiefly determine the intention to newly participate or continue to participate in development aid were whether respondents are currently going to school (positive), their degree of experience in international communication (positive), interest in developing countries (positive), specific knowledge of Japanese ODA (positive), and experience participating in development aid (positive). It is interesting to note that when it comes to participating in development aid, not only family composition but also gender and age were no longer relevant. Rather, what matters is whether the respondents are currently in school or not, which might be related to opportunity costs for respondents who are working or taking care of their households.

On the other hand, the treatment's impact on the intention to *newly start* development aid, which was also insignificant on average, turned out to be conditioned by whether

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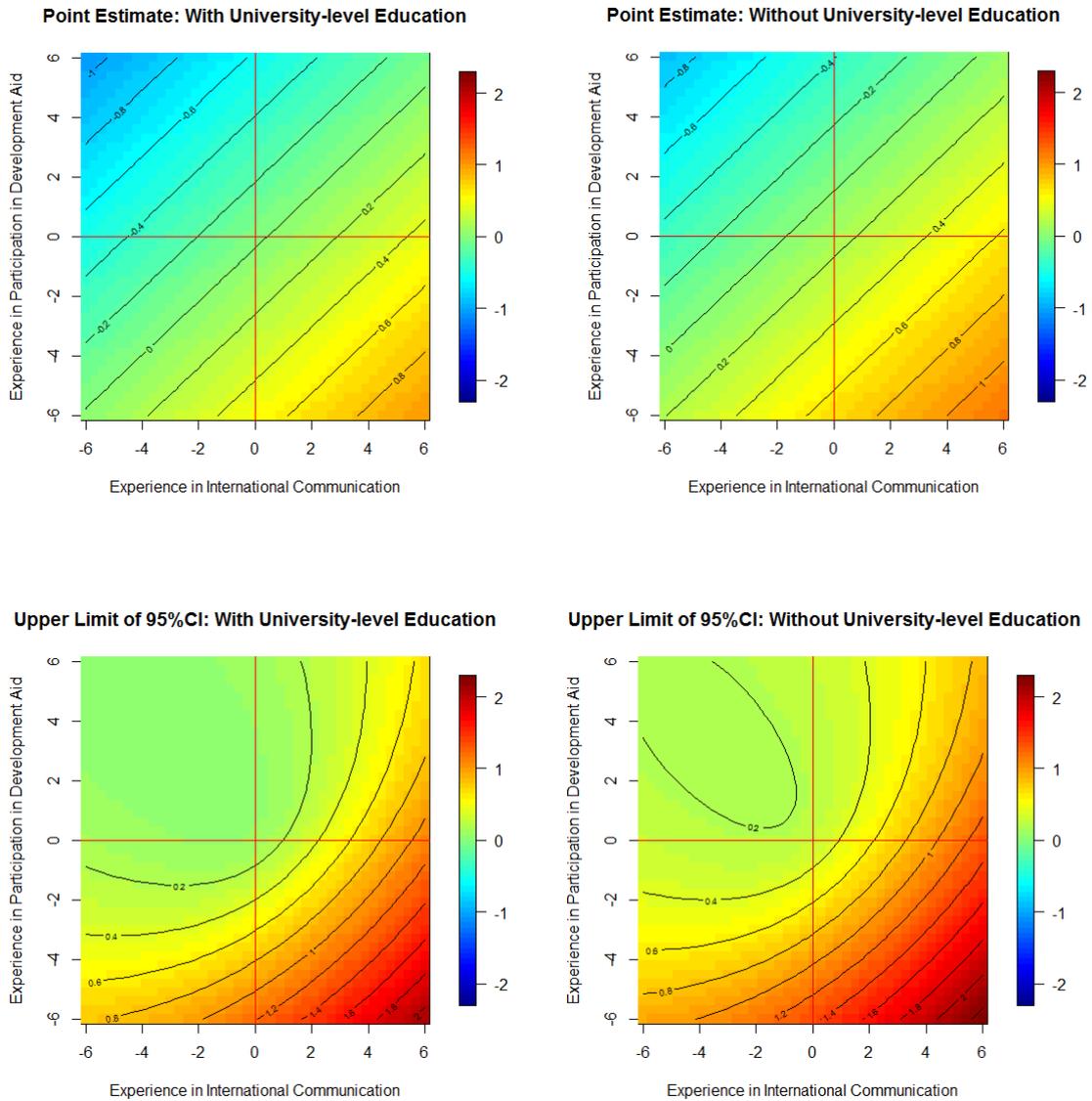
<sup>18</sup> When the past experience in development aid is dropped from the regression, the impact differs depending on whether the respondent is in school or not. However, the detected contingent effects of treatment were mostly (seven out of eight) insignificant according to the 95% confidence intervals.

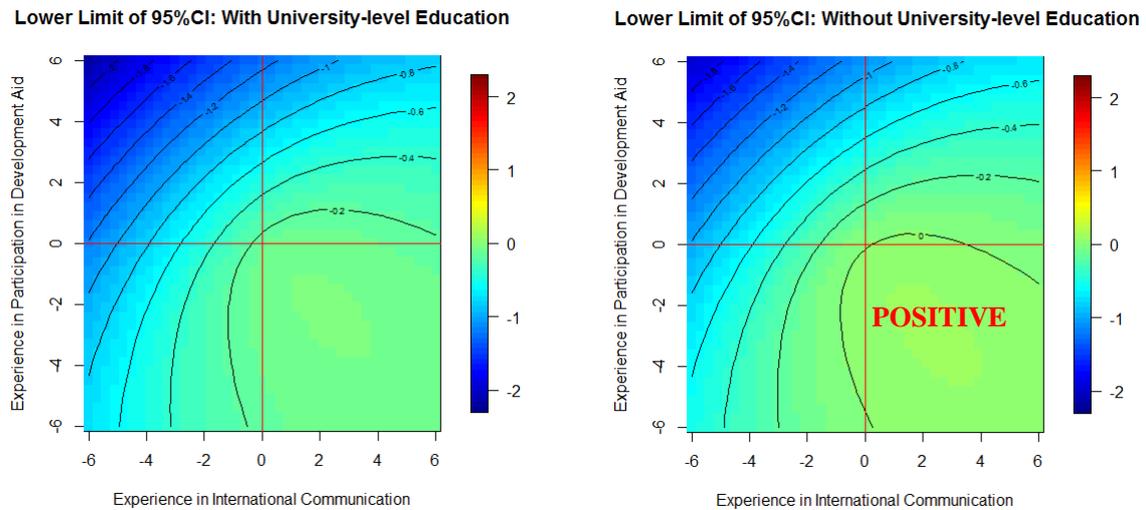
respondents have received university-level education, to what extent they have experience in international communication, and to what extent they have experience practicing development aid. Again, I use parallel contour plots to express the varying impact conditioned by two continuous variables and one dichotomous variable. The left-hand-side panels of Figure 4e are influences for respondents with university-level education while the right-hand-side panels are for respondents without university-level education.

Regardless of whether respondents have received university-level education or not, the point estimate of the impact is positive in the lower right triangle area and negative in the upper left triangle area. The only difference is the location of the contour line of zero: for respondents with university-level education the zero point estimate line is closer to the bottom right corner, resulting in negative point estimate when both experience in international communication and participation in development aid in other areas are at average; for respondents without university-level education the zero point estimate line is closer to upper left corner, resulting in positive point estimate when both attributes are at average. Now, when we look at the contour plot of lower limit of 95% confidence interval for respondents with university-level education, we find all areas are covered with negative contour lines. All areas of the contour plot of the upper limit, on the other hand, are covered with positive contour lines. This means that, although the point estimate varies from negative to positive as the coordinate approaches bottom right corner, its 95% confidence interval always includes zero. Therefore, the treatment does not have any significant impact upon the intention to newly start development aid for respondents with university-level education.

By contrast, the contour plot of the lower limit of the 95% confidence interval for respondents without university-level education does have a positive line area in the fourth quadrant, which means that if respondents without university-level education have more experience in international communication than average and at the same time less experience in

practicing development aid, then the treatment (the provision of information) is more likely to provoke the intention to newly start development aid activities.





**Figure 4e. Heterogeneous impact of treatment on the intention to newly start development aid**

*Note.* Left: respondents with university-level education, Right: respondents without university-level education

Variables naturally related to the intention to newly start development aid were whether respondents are currently in school (positive), whether they have received university-level education (positive), the degree of experience in international communication (positive), their interest in developing countries (positive), their specific knowledge of Japanese ODA (positive), and their experience participating in development aid in other areas (positive).

## 5. Conclusion

This paper has examined the impact of information on the attitudes of people regarding development aid. RCT established the following points: On average, providing information can increase the support for ODA, yet the impact is not strong enough to involve the audience in development aid activities. Among various aspects of “the support for ODA”, on average only support in terms of the efficient use of money is amenable to augmentation through the provision

of information. Other aspects of support, such as support from the expectation of potential benefits and support from pure altruism, are on average not susceptible to new information.

A closer look at heterogeneity in the impact depending on the attributes of people revealed that this impact on the support for ODA in terms of the efficient use of money is especially effective among people who possess either an average or lower level of specific knowledge of activities conducted by one's own aid agency. Meanwhile, aid information also turned out to have a local limited impact among citizens who have higher level of general knowledge on development aid on the support for ODA from the expectation of potential benefits. Likewise, older people with lower levels of knowledge of Japanese ODA become supportive of ODA if proper information is provided. This tendency is strong especially among people without spouse. Lastly, although participation in development aid activities in general can neither on average nor locally be increased through the provision of information, certain segments of citizens are responsive at least in terms of *newly* start aid activities if they are provided aid information: citizens without university-level education who have more than the average level of experience in international communication and yet have less than the average level of experience in development aid tend to be motivated to newly start these activities when provided information.

Of course, these findings are not above methodological criticism despite the fact that RCT was used in this study. First, the responses of interviewees might reflect instantaneous reactions rather than lasting changes in their opinion. There is no way to examine this point other than by conducting a tracking survey of the participants after certain period of time. This is, however, beyond the scope of this paper. Still, no matter how instantaneous these reactions were, they were the natural reactions of human beings caused by the treatment and not something like pretended behavior based on pre-established harmony. I know this because the blindness of this experiment excludes the possibility of intentional adaptation of response by respondents. Second, the framework of the experiment itself might have caused some systematic difference we

observed between the treated and control groups. Specifically, additional time inevitably imposed on the treated group before they answered questions regarding the support for ODA and their intention to participate in development aid could have caused some stress. However, even if this was the case, it should have adversely affected support for ODA. Therefore, the framework effect could lead to an underestimation but not to overestimation of the impact of treatment. Moreover, the comparison between treated and control groups in terms of their prejudice against ODA and past experience in foreign aid activities (Table 4b), both of which were measured either simultaneously with the treatment or after treatment, serves as a placebo test which guarantees that only the intended effects, if any, were brought about by the treatment. Lastly, the conclusion we obtained from the results, strictly speaking, can be applicable only to a Japanese audience. The possibility remains that corrective information is powerless in other donor countries. The only way to overcome this limit of external validity is to replicate this test in other contexts.

With all these limitations in mind we can still derive some policy implications from the results. First, a communication campaign deserves an active policy commitment since its impact on the support for ODA is significantly positive and will bring about net increases. At the same time, however, we should properly recognize the limits of information campaigns. The only general impact they can have is augmenting passive support. It cannot generate active participation on average except for among a certain segment of respondents. In other words, we would need more intense intervention, something more than just an information campaign, if we are to induce the audience to participate. Third, although they would be difficult to locate, people with lower levels of knowledge of Japanese ODA are the most efficient group to target with such a communication strategy. Lastly, among the three dimensions of support for ODA, the most promising effect is support for ODA in terms of the efficient use of public resources. The effect on the support for ODA based on altruism was locally limited and insignificant on average. The same is true for the effect on the support for ODA because of the expected benefit for

self-interests. By contrast, the effect on the support for ODA in terms of efficient use of money was the most robust finding of this study and discerned also on average. Therefore, it might be better to focus on earning trust from citizens about the efficient use of the aid budget, targeting especially people with an average or lower level of knowledge of Japanese ODA, with whom this message chiefly resonates. In that sense, informing citizens about *Aid-effectiveness* would be worth exploring.

*Aid-effectiveness*, one of the most popular current slogans among the aid community, is a reaction both to the budgetary limit imposed by the end of Cold War upon foreign aid and the everlasting unmet needs in the field of developing countries. Currently, aid practitioners are required more than ever to deliver the results without consuming additional resources. Inevitably, effectiveness must be pursued. Yet, if efficacy achieved one year only serves to induce further budget reduction in the subsequent year, a paradox would result in which the most efficient donor donates the least.

The effort for aid-effectiveness, however, if executed successfully, may become a new property for aid agencies, in that it might generate renewed support for development aid and open up potential human resources for subsequent aid, if and only if the achievement were publicized properly. So far *aid-effectiveness* has been chiefly used as a yardstick for the internal review process to improve operations within aid organizations. But this kind of information is also exactly what ordinary people want to know. Past studies has shown that people usually have a poor understanding of development aid. As Scheunpflug and McDonnell (2008) point out, awareness-raising activities about development can be categorized into three types: (1) development information/communication, (2) advocacy and campaign, and (3) development education. Given the volume of information people must digest, development education featuring *aid-effectiveness* would be appropriate and promising.

There is no doubt that public support is necessary to secure monetary and human resources for development aid in democracies like DAC donor countries. We cannot and should

not manipulate citizen's political ideology even if we know that leftism is associated with positive attitudes toward foreign aid. Neither can we change the gender of respondents even though we know that female citizens are more supportive to development aid. But we now know that citizens rationally modify their attitudes if provided with more accurate information. Future study should take other steps to rigorously test whether we can use information on *aid-effectiveness* as leverage for escaping the downward spiral of lower awareness, lower support, and lower generosity in development cooperation.

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## Appendix 1. Information given to treated group<sup>19</sup>

*“Most Japanese ODA projects can be called ‘failures’ in terms of effectiveness.”*

- ⇒ Local media like newspapers in developing countries report approximately 200,000 times per year on ODA projects conducted by JICA, most of which showed positive appreciation.

*“Japan, as a member of the international society, shares a burden of development aid in proportion to its economic size.”*

- ⇒ ODA as a percentage of gross national income (GNI) is an indicator of donor’s degree of contribution in proportion to its economic size. In 2010 Japan (0.2%) ranks 20th in terms of this indicator among 23 DAC member countries. Donors are required to increase their ODA at least up to 0.7% of GNI in order to address global issues such as poverty reduction and environmental protection.

*“Japan has never received aid from foreign countries when reconstructing its economy after WWII.”*

- ⇒ In a struggle for the reconstruction after the devastation of WWII, Japan received GARIOA (Government Appropriation for Relief in Occupied Area) and EROA Funds (Economic Rehabilitation in Occupied Area Fund), which amounted to 1.8 billion USD (approximately 12 trillion yen) over six years from 1946 to 1951. If it had not been for this assistance, Japan might not have accomplished reconstruction. Moreover, from 1953 on, Japan received a loan of 860 million USD (approximately six trillion yen) from the World Bank to construct infrastructure for economic development such as Kurobe Dam, Tōkaidō Shinkansen, and Tōmei Expressway. It was not until July 1990 that Japan had completed the payment.

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<sup>19</sup> Images presented with text are not shown due to the copyright.

*“Governments of developing countries cannot tell who donated what because they receive assistance from various countries and organizations.”*

⇒ After the Great East Japan Earthquake in 2011, Japan received a great deal of assistance from developing countries as a return for the aid Japan has given to these countries. Of 163 countries which offered support to Japan, more than two thirds were the developing countries in which Japan is conducting development aid.

*“Japanese ODA is similar to the internal public projects in that the contents are centered on construction of hardware like infrastructure and the bidding processes are dominated by Japanese companies.”*

⇒ Japanese ODA is used not only for infrastructural development but human resource development. In fiscal year 2011, for example, about 9,000 Japanese specialists in various areas were dispatched to developing countries to coach local staff and about 27,000 public sector workers in developing countries visited Japan to receive training based on Japan’s experience. Also, there is no evidence that the bidding process of Yen-loan-financed projects is dominated by Japanese companies. In 2011 the proportion of contracts received by Japanese companies was just 33.1%.

*“Small- and medium-sized companies have no role to play in Japanese ODA.”*

⇒ The current Japanese government, as a part of policies of “Abenomics”, is officially seeking to utilize technologies owned by small- and medium-sized companies as a tool of ODA, targeting emerging as well as developing countries. In accordance with this policy, the Ministry of Foreign Affairs and JICA, with their related organizations, try to coordinate and oversee the business plans of small- and medium-sized companies and economic aid to address problems in developing countries.

*“Japanese Aid Agency has hostile relations with NGOs.”*

- ⇒ Japanese ODA has a component called Citizen’s Participatory Cooperation activities, which is a framework for cooperation between JICA and Japan-based NGOs, through which initiatives by NGOs to conduct aid activities in developing countries are funded by ODA. NGOs funded through this framework have operated in 70 developing countries so far.

*“Yen-loan-financed projects tend to pay less attention to environmental and societal influences due to the outsized emphasis on project economics.”*

- ⇒ Before implementing Yen-loan-financed projects JICA conducts assessments regarding possible environmental and societal influences the project might have on the developing countries and publishes the results. Also, during the period of project implementation, the monitoring of environmental and societal situations is kept on going and these results are publicly available, preventing possible side effects from occurring.

## **Appendix 2. Operationalization of control variables based on multiple indicators**

### **Experience in international communication**

The level of international communication was measured using six questions regarding past and present experience with international communication: If they have lived abroad more than one year; if they have close friends/relatives/family members who live abroad; if they have close foreign friends/relatives/family members who now live in Japan; if they have worked abroad; if they have studied abroad; if they have traveled abroad. The first three questions were measured as a dichotomy while the latter three were measured in 3-point ordinal measure: never, once, or more than once.

I constructed an Index of international communication by summing these scores. In summing the first three dummies I gave weights which were calculated as the proportions of respondents who said no to respective questions. The last three indicators were standardized before amalgamation. I standardized both sums again before integration and then re-standardized again after integration, so that the index had a zero mean and one standard deviation.

This index had a correlation coefficient of 0.998 with the first principal component score extracted from the six responses, which explains 53% of total variation. The factor loadings ranged from 0.62 to 0.82. McDonald's Omega of reliability was 0.92.

One latent factor solution of confirmatory factor analysis based on these six indicators satisfied a congeneric structure as well as measurement invariance between treated and control groups. The model fit best when I constrained mean equals zero and variance equals one for both treated and control groups (CFI = 0.974, RMSEA=0.043). When the mean of the latent variables of the treated group was freely estimated, the difference between with the mean of control group (0) was not statistically significant ( $p=0.497$  if variance of treated group was fixed to one and  $p= 0.36$  if not.). This result is compatible with the results obtained from differences in mean tests based on

the Index and first principal component score (Table 4b).

Treated group Model	mean	SE	p-value	variance	SE	p-value	Chi2	df	p-value	CFI	RMSEA
$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	43.955	19.000	.001	.974	.043
$N(0, \sigma^2)$	0.000	NA	NA	1.025	(0.142)	.000	57.669	22.000	.000	.963	.047
$N(\mu, 1)$	0.066	(0.097)	.497	1.000	NA	NA	53.132	21.000	.000	.967	.046
$N(\mu, \sigma^2)$	0.099	(0.109)	.360	0.933	(0.153)	.000	61.215	22.000	.000	.960	.050

Latent factor	Item	Estimate	S.E.	P-Value
	Having lived abroad more than one year	1.000	NA	NA
	Having friends/relatives/family members who are living abroad	1.245	(0.176)	.000
Experience in International Communication	Having friends/relatives/family members from abroad	0.902	(0.110)	.000
	Having worked abroad	0.773	(0.091)	.000
	Having studied abroad	0.884	(0.107)	.000
	Having traveled abroad	0.625	(0.077)	.000

**Table A-1. Experience in International Communication: Results of confirmatory factor analysis (upper) and Factor loadings of congeneric common mean and variance model (bottom)**

### Interest in developing countries

Interest in developing countries was more difficult to summarize into one construct. I assessed respondents' levels of interest in developing countries from three angles: as destination of travel, as food culture, and as news topics. I asked respondents to choose one country where they want to travel without regard to cost from the list of countries nested in regions that mimicked a travel agency's website. Likewise, I asked them to select one country whose local cuisine they want to try if cost were not a factor. I gave the value 1 minus Human Development Index in 2011 of the chosen country so that the higher value indicates a lower level of development of the country. To tap the level of interest in terms of news topics, I asked each respondent to choose one from two headlines regarding similar topics which they want to read in more detail. The sole difference between the two headlines lay in the place of event: one in a developing country and the other in a developed country. Five pairs of headlines were used and randomly ordered on respondents' screens. I gave a score of one if respondents chose news in developing countries and 0 otherwise.

In creating an index from these seven variables, I first summed five binary measures with weights calculated as the proportion of respondents who chose the headline from developed countries, and then standardized the sum. I also standardized other two continuous measures and finally summed these three. After that I re-standardized again, so that the index has a zero mean and

one standard deviation.

The correlation coefficient of this index with the first principal components score extracted based on the tetrachoric or biserial correlation matrix of responses to the seven questions was 0.905. The proportion of variance explained by the first principal component was 27% and factor loadings ranged from 0.40 to 0.69. McDonald's Omega of reliability was 0.73.

Confirmatory factor analysis revealed that one factor solution for these seven variables was not appropriate, which lead to the solution based only three binary measures. Congeneric structure and measurement invariance across treated and control groups were satisfied. Again, the best fit model was the one with zero mean and one variance for both treated and control groups (CFI= 0.997, RMSEA= 0.013). The models which freely estimated the mean of the latent variable for the treated group fit poorer and yielded a non-significant difference in means between treated and control groups. Since I excluded two continuous measures from the confirmatory factor analysis, I separately tested whether I could find a statistically significant difference in the travel score and cuisine score. Neither showed any significant difference. The same result could be obtained when I used the index or the first principal component score (Table 4b).

Treated group Model	mean	SE	p-value	variance	SE	p-value	Chi2	df	p-value	CFI	RMSEA
$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	4.480	4.000	.345	.997	.013
$N(0, \sigma^2)$	0.000	NA	NA	1.346	(0.812)	.098	4.599	3.000	.204	.990	.027
$N(\mu, 1)$	-0.056	(0.085)	.511	1.000	NA	NA	4.378	3.000	.224	.991	.025
$N(\mu, \sigma^2)$	-0.072	(0.110)	.511	0.844	(0.758)	.265	4.719	2.000	.095	.982	.043

Latent factor	Item	Estimate	S.E.	P-Value
Interest in Developing Countries	News headline 15	1.000	NA	NA
	News headline 16	0.641	(0.119)	.000
	News headline 18	0.363	(0.070)	.000

**Table A-2. Interest in Developing Countries: Results of confirmatory factor analysis (upper) and factor loadings of congeneric common mean and variance model (bottom)**

### **General knowledge of development aid**

To measure the level of respondents' general knowledge of development aid I asked respondents to choose the correct meaning of buzz words regarding development from among three options. The order of the five questions was randomized for each respondent. I assigned 1 if respondents

selected the right answer and summed the scores after multiplying each weight which corresponds to the proportion of respondents who wrongly answered. The sum was standardized to have zero mean and one variance.

The index had a correlation coefficient of 0.942 with the first principal component score extracted from the tetrachoric correlation matrix of responses to the five questions. The proportion of variance explained by the first principal component was 34%. Factor loadings ranged from 0.30 to 0.71. McDonald's Omega of reliability was 0.56.

Confirmative factor analysis showed that congeneric structure as well as measurement invariance was satisfied across treated and control groups. The freely estimated mean of the latent factors for the treated group was not different from zero, which is the mean of control group.

Treated group Model	mean	SE	p-value	variance	SE	p-value	Chi2	df	p-value	CFI	RMSEA
$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	27.392	15.000	.026	.935	.034
$N(0, \sigma^2)$	0.000	NA	NA	1.921	(0.550)	.000	21.285	14.000	.095	.962	.027
$N(\mu, 1)$	-0.138	(0.091)	.128	1.000	NA	NA	26.746	15.000	.031	.939	.033
$N(\mu, \sigma^2)$	0.018	(0.156)	.907	1.995	(0.799)	.013	23.331	14.000	.055	.951	.030

Latent factor	Item	Estimate	S.E.	P-Value
General Knowledge of Development Aid	Fair Trade	1.000	NA	NA
	MDGs	0.616	(0.103)	.000
	Study Tour	0.198	(0.062)	.002
	BOP Bussiness	0.381	(0.085)	.000
	Name of Japanese Aid Agency	0.180	(0.055)	.001

**Table A-3. General Knowledge on Development Aid: Results of confirmatory factor analysis (upper) and factor loadings of congeneric common mean and variance model (bottom)**

### Specific knowledge of Japanese ODA

In total 12 items were used to tap respondents' level of knowledge about the activities of Japanese ODA. Respondents were asked to decide whether an activity described in the question was true or false. A score of 1 was assigned to true positive or true negative and 0 to false positive or false negative answers. I summed these scores with respective weights equal to the proportion of respondents who gave a wrong answer to that question, and rescaled the summed score to have a zero mean and one variance.

This index had a correlation coefficient of 0.622 with the first principal component score

extracted from the tetrachoric correlation matrix of responses to the 12 questions, which explained 59% of total variance. Factor loadings ranged from -0.71 to 0.92. McDonald's Omega of reliability was 0.98.

Confirmatory factor analysis assured that treated and control groups had congeneric structure as well as invariant factor loadings. The freely estimated mean of the latent variable of the treated group was not statistically different from that of control group. Given the fact that two factor loadings were negative, however, I prefer to use the index which appropriately reflects respondents' ability to answer the two difficult questions.

Treated group Model	mean	SE	p-value	variance	SE	p-value	Chi2	df	p-value	CFI	RMSEA
$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	161.312	55.000	.000	.968	.052
$N(0, \sigma^2)$	0.000	NA	NA	1.066	(0.167)	.000	274.427	86.000	.000	.943	.055
$N(\mu, 1)$	-0.030	(0.078)	.701	1.000	NA	NA	270.909	85.000	.000	.944	.055
$N(\mu, \sigma^2)$	-0.003	(0.091)	.976	1.060	(0.201)	.000	275.527	85.000	.000	.942	.056

Latent factor	Item	Estimate	S.E.	P-Value
Specific Knowledge of Japanese ODA	#Assistance of Japanese immigrants	1.000	NA	NA
	#Loan to developing countries	0.891	(0.086)	.000
	#Assistance to NGOs, Universities, Municipalities that conduct Development Aid	1.194	(0.111)	.000
	#Dispatching specialists to developed countries to transfer Japanese technologies	-0.834	(0.077)	.000
	#Dispatching specialists to developing countries to transfer Japanese technologies	2.659	(0.707)	.000
	#Brokerage of goods from developing countries	-1.015	(0.085)	.000
	#Dispatching young volunteers to developing countries	2.251	(0.428)	.000
	#Grant to developing countries	0.889	(0.079)	.000
	#Assistance of BOP business	1.193	(0.096)	.000
	#Dispatching senior volunteers to developing countries	1.083	(0.091)	.000
	#Emergency aid	1.029	(0.094)	.000
	#Training and dialog program in Japan	1.974	(0.251)	.000

**Table A-4. Specific Knowledge of Japanese ODA: Results of confirmatory factor analysis (upper) and factor loadings of congeneric common mean and variance model (bottom)**

### Prejudice against ODA

To measure the extent to which respondents have a skewed perception of ODA, eight widely circulated anti-ODA theories that were easily found on the internet were used. The order of these statements was randomized and a score of 1 was given to respondent who agreed and 0 to those who did not. The proportion of respondents who disagreed with each statement was used as a weight in summation of these scores to make an index. As always, the index was scaled after summation to have a zero mean and one variance.

The index had a correlation coefficient of 0.953 with the first principal component score extracted from the tetrachoric correlation matrix of responses to the eight questions. The proportion of variance explained by the first principal component was 42% with factor loadings ranging from -0.05 to 0.75. McDonald's Omega of reliability was 0.89.

Confirmatory factor analysis revealed that one of the eight items fit poorly in one factor solution.<sup>20</sup> A revised model without that item satisfied congeneric structure and measurement invariance across treated and control groups. The freely estimated mean of the latent variable for treated group was not statistically different from that of control group.

Latent factor	Item	Estimate	S.E.	P-Value
Prejudice against Japanese ODA	#Most Japanese ODA projects can be called 'failures' in terms of effectiveness.	1.000	NA	NA
	#Japan has never received aid from foreign countries when reconstructing its economy after WWII.	0.716	(0.086)	.000
	#Governments of developing countries cannot tell who donated what because they receive assistance from various countries and organizations.	0.792	(0.093)	.000
	#Japanese ODA is similar to the internal public projects in that the contents are centered on construction of hardware like infrastructure and the bidding processes are dominated by Japanese companies.	0.716	(0.083)	.000
	#Small- and medium-sized companies have no role to play in Japanese ODA.	0.926	(0.110)	.000
	#Japanese Aid Agency has hostile relations with NGOs.	1.022	(0.151)	.000
	#Yen-loan-financed projects tend to pay less attention to environmental and societal influences due to the outsized emphasis on project economics.	0.675	(0.084)	.000

Treated group Model	mean	SE	p-value	variance	SE	p-value	Chi2	df	p-value	CFI	RMSEA
$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	66.052	28.000	.000	.967	.043
$N(0, \sigma^2)$	0.000	NA	NA	0.825	(0.141)	.000	76.087	31.000	.000	.961	.045
$N(\mu, 1)$	-0.030	(0.076)	.695	1.000	NA	NA	76.265	30.000	.000	.960	.046
$N(\mu, \sigma^2)$	0.013	(0.072)	.860	0.814	(0.138)	.000	81.129	31.000	.000	.957	.047

**Table A-5. Prejudice against Japanese ODA: Results of confirmatory factor analysis (upper) and factor loadings of congeneric common mean and variance model (bottom)**

### Experience in ODA participation

To assess respondents' levels of experience in ODA participation, I asked them if they had already done some particular form of ODA. Twelve items were used as binary indicators. An index was constructed by summing the scores multiplied by the weight which is the proportion of respondents who have never done that particular form of ODA activity. As always, the index was scaled after

<sup>20</sup> "Japan, as a member of the international society, shares a burden of development aid in proportion to its economic size."

summation to have a zero mean and one variance.

The index had a correlation coefficient of 0.992 with the first principal component score extracted from the tetrachoric correlation matrix of responses to the 12 questions. The proportion of variance explained by the first principal component was 56% and factor loadings ranged from 0.56 to 0.89. McDonald's Omega of reliability was 0.97.

Confirmative factor analysis showed that a congeneric structure exists between treated and control groups. Measurement invariance was also confirmed. A freely estimated mean of latent variables for the treated group was not statistically different from zero, which is the mean of control group.

Latent factor	Item	Estimate	S.E.	P-Value
Experience in ODA participation	A Purchase of a small amount of expensive goods whose price is supposed to partially go to developing countries	1.000	NA	NA
	B Donation of card point	0.675	(0.074)	.000
	C Donation of recycled products (old clothes, stationery, etc.)	0.672	(0.082)	.000
	D Participation in development assistance as a part of business activity	1.075	(0.120)	.000
	E Cash donations	0.713	(0.091)	.000
	F Volunteering abroad if local living expenses and travel expenses are free.	1.412	(0.272)	.000
	G Volunteering for NGOs which operate in Japan	2.010	(0.322)	.000
	H Investment in companies that make international contributions	1.068	(0.121)	.000
	I Hosting foreign students	0.932	(0.116)	.000
	J Involving acquaintances and friends in international cooperation	1.549	(0.219)	.000
	K Participation in seminars on international cooperation held in Japan	1.442	(0.170)	.000
	L Donations of stock dividend	1.464	(0.272)	.000

Treated group Model	mean	SE	p-value	variance	SE	p-value	Chi2	df	p-value	CFI	RMSEA
$N(0, 1)$	0.000	NA	NA	1.000	NA	NA	141.097	48.000	.000	.953	.052
$N(0, \sigma^2)$	0.000	NA	NA	0.896	(0.132)	.000	204.838	65.000	.000	.930	.054
$N(\mu, 1)$	-0.081	(0.097)	.404	1.000	NA	NA	192.169	62.000	.000	.935	.054
$N(\mu, \sigma^2)$	-0.047	(0.111)	.675	0.950	(0.195)	.000	208.811	65.000	.000	.928	.055

**Table A-6. Experience in ODA participation: Results of confirmatory factor analysis (upper) and factor loadings of congeneric common mean and variance model (bottom)**

## Abstract (in Japanese)

### 要約

国民からの ODA 支持を維持・拡大することは、すべてのドナー諸国にとっての焦眉の課題である。本稿は、ODA に関する積極的な情報提供が ODA に対する態度（支持および参加意思）を変えるか、インターネット調査に埋め込んだ RCT によって、検証する。分析の結果、情報提供により ODA 支持、とくに援助資金の効率的・効果的な利用という観点からの支持は、回答者の属性や開発援助に対するもとの意見にかかわらず、平均的に高まることが判明する。この結果から、最も効率的なコミュニケーション戦略として援助効果に関する情報提供が強く推奨される。

