Doctoral Dissertation

Decision-Making toward the Achievement of the Sustainable Development Goals: Survey Experiments on Stakeholders' Preferences

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Abstract

Sustainable development has been an important social topic since its emergence in the early 1980s. However, despite the joint international efforts to achieve a sustainable society, the world faces numerous challenges, including poverty, climate change, and inequality. To tackle these challenges, in September 2015, all United Nations' member states agreed on the Sustainable Development Goals (SDGs), a collection of 17 global goals and 169 targets requiring governments, businesses, and citizens from both developed and developing countries to work together for a sustainable world by 2030. The SDGs are not legally binding but are viewed as responsibilities that everyone must fulfill. To ensure SDG implementation, societal systems have to make complex and fundamental transformations. Further, to achieve these transformations, global citizens have to change their daily behavior by shifting to more sustainable lifestyles. This takes a long time and is influenced by the political, market, and individual factors.

The SDGs can play a vital role in encouraging a norm change toward sustainable development. However, some authors are concerned that the SDGs might be used for "SDG-washing," which can be using the SDGs without actually contributing toward sustainable development, but just to promote a cleaner image. Moreover, some argue that the SDGs lack the precision and clarity needed to meet sustainability challenges. Despite these critical views, we argue that the SDGs can act as norms to promote sustainability. Evidence-based policy-making is required to influence all the stakeholders to implement the SDGs in the right direction. Furthermore, the public needs to be educated and develop an ability to penetrate businesses facade sustainability practices and choose the right course of actions to promote a sustainable future. Therefore, this dissertation aims to explore individuals' decision-making toward the achievement of the SDGs. Furthermore, raising stakeholder awareness of the SDGs may enhance pro-sustainable behavior. Thus, this study also investigates to what extent raising awareness affects individuals' pro-sustainable preferences.

Because tackling sustainability challenges requires an interdisciplinary approach, we did not develop this dissertation based on a single discipline, but based it on different disciplines, including sustainability science, management and economics. To offer novel insights into the challenges requiring urgent attention, we combined different methodologies. We collected individuals' survey responses and analyzed them. There are some critical views on using survey data to analyze real-world decision-making because self-reporting data can be biased; for example, respondents' self-reporting attitudes and actual behavior may differ. To overcome the limitation of the survey, we utilized a conjoint survey which was originally designed to study multidimensional voting choice behavior (Hainmueller, Hopkins, & Yamamoto, 2014) and is rigorously being applied to policy analyses in different fields. When a study is drawn from a small sample size dataset, there can be a gap between actual behavior and conjoint survey results. However, when the survey was conducted in large-scale national population distribution, the real-life and the survey

outcomes were consistent (Hainmueller, Hangartner, & Yamamoto, 2015).

Most of analyses presented in this dissertation drawn from the dataset of the Japan Household Panel Survey on Sustainable Development Goals (JHPSDGs). JHPSDGs were collected through online surveys conducted in March 2019 and March 2020. We used quota sampling to construct a representative dataset in terms of demographics. In these online surveys, respondents were requested to participate in 1) a survey experiment and 2) a household survey. In the survey experiment, we combined conjoint analysis with information treatment experiments, in which respondents were randomly assigned to different information treatment groups to measure the impact of sustainable development education on their preferences. The dataset consists of 12,098 observations with rich induvial characteristics. For empirical strategy, in addition to traditional estimation methodologies, we used machine learning techniques initially developed in the field of statistical sciences, which is increasingly being applied to other fields, including economics and epidemiology, to study causal inferences. Specially, we analyzed:

- The stated preferences of stakeholders on SDG-minded companies (Chapter 3);
- The stated preferences of three different stakeholders (consumers, job-seekers, and investors) on SDG-minded companies (Chapter 4);
- Effects of raising awareness and its heterogeneity of individual characteristics (Chapter 5);
- Generational effects of young generation on sustainable behavior (Chapter 6).

The dissertation consists of seven chapters. Chapter 1 introduces the background of the research and briefly discusses objectives and an outline of the dissertation. In Chapter 2, the survey design and methodology are discussed. Chapters 3, 4, 5, and 6 present four original analyses. In Chapter 7, we offer the main findings of the studies and practical implications.

Under the SDGs, businesses are expected to assume increasingly active roles. However, little is known about the relationship between stakeholders' preferences and businesses' contributions to the SDGs. Chapter 3, therefore, investigates whether the SDGs can function as business norms by examining stakeholder support for sustainable practices. Specifically, the study examines preferences for companies that contribute to the SDGs and the effects of raising awareness regarding the inherent nature of the SDGs on stakeholders' preferences using the 2019 conjoint survey dataset. The results showed that implementing the SDGs increased stakeholders' preferences for companies. Businesses benefit from implementing SDGs initiatives. However, a gap existed between the stakeholders' preferred SDGs and companies' priorities concerning SDG implementations. The findings suggest that increasing stakeholders' awareness effectively closed the gap.

Businesses are facing consistent pressures from stakeholders to be socially responsible, including contributing to the SDGs, although the economic benefits of corporate social responsibility (CSR) have been found to be mixed. Chapter 4 aims to reveal stakeholders' motivations for demanding CSR by studying stakeholders' stated preferences on companies' contribution to the SDGs in three different contexts, purchasing, investing, and job-seeking using the 2019 and 2020 conjoint survey dataset. The results showed that stakeholders demanded

corporations to contribute to international-related issues rather than domestic-related issues. Stakeholders' support was low when the companies profited from contributing to the SDGs. These results suggest that social contexts reflect stakeholders' preferences on corporates' SDG activities. Overall, raising awareness affected stakeholders' support and to what extent the information affected the decisions of stakeholders was varied by stakeholders.

In Chapter 5, we further examine the extent to which SDG-related information affects stakeholder preferences in supporting the realization of the SDGs. The aim of Chapter 5 is to determine whether raising awareness of the SDGs affects stakeholder support for companies that contribute to SDG realization. We examined the heterogeneous effects of personal characteristics, including demographics, personality traits, and pro-sustainable attitudes, on (1) stakeholder preferences and (2) raising awareness using the 2019 conjoint survey dataset. We investigated how these preferences shift with the provision of SDG-related knowledge, and determined how personal characteristics affect such shifts. Our results showed that when the respondents in the treatment groups were provided with sustainable development-related information, they were more likely to support SDG-minded companies compared with the control group. However, the results also indicated that stakeholder preferences and effects of the information provision were heterogeneous, and consequently, the impact of raising awareness can be complex.

Furthermore, the younger generation is often described as more socially conscious and promotors of the SDGs than the older generation; however, little scientific evidence supports these assumptions and expectations. Is the younger generation, including millennials and Generation Z, a driving force toward achieving the SDGs? To seek answers to the question, Chapter 6 draws from two studies. The chapter aims to investigate (1) whether the younger cohorts are the pro-SDG generation who drive societies with their sustainable lifestyles to achieve SDGs more actively than the older generations; further, this work elucidates (2) the job-seeking behavior of the younger generations. Study 1 estimated marginal generational differences in sustainable lifestyles using a nationally representative adult sample from JHPSDGs 2019-2020. In Study 2, we elicited the job preferences of university students based on the SDG contributions of companies and expected income using conjoint survey experiment data. Together, the current findings suggest that the younger generation is likely to be pro-SDGs.

Generally, our results showed that the respondents preferred companies contributing to the SDGs. Raising awareness about the SDGs positively affects the support of companies contributing to the SDGs. We showed heterogeneous effects of information treatment on the support of SDG-minded companies. These findings suggest that while raising awareness is effective in promoting pro-SDG behavior, the impacts of raising awareness can be complex. We conducted the conjoint survey twice, 2019 and 2020, and obtained similar results, which showed the robustness of the estimators. Furthermore, we showed that the younger generation is likely to be a pro-SDG generation. Studies presented in this dissertation set the framework for future research on understanding individuals' behavior of SDG realization.

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Acknowledgement

This dissertation is written based on four published research articles and a data article currently being submitted to a journal. All of the five articles are co-authored by Prof.Shinji Kaneko. I would like to thank Prof.Kaneko for allowing me to use these articles to develop this dissertation and serving as a committee chair. I also would like to thank four committee members, Masaru Ichihashi, Yuichiro Yoshida, Daisaku Goto, and Keisuke Kawata, for valuable feedback.

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1 Introduction

This chapter introduces the study by first discussing the background and contexts, followed by the research aims, objectives and research questions.

1.1 Background

1.1.1 The emergence of the Sustainable Development Goals

It has been three decades since the well-known concept of sustainable development that aims to "meet the needs and aspirations of the present without compromising the ability to meet those of the future" (The World Commission on Environment and Development, 1987) has emerged. Since then, the world has been working toward achieving a sustainable society; however, challenges such as inequality, climate change, and poverty still exist. To address such challenges, all United Nations (UN) member nations agreed on the Sustainable Development Goals (SDGs), a set of global goals appealing to everyone to ensure responsible consumption and production patterns (United Nations, 2015). The SDGs is a collection of 17 global goals and 169 targets requiring governments, companies, and citizens from both developed and developing nations to work together for a sustainable world by 2030. The SDGs can promote a normative shift toward sustainable and inclusive development (Fukuda-Parr & McNeill, 2019). To ensure SDG implementation, societal systems have to make complex and fundamental transformations (The Bertelsmann Stiftung and Sustainable Development Solutions Network, 2018). Further, to achieve these transformations, global citizens have to change their daily behavior by shifting to more sustainable lifestyles (Rauschmayer, Bauler, & Schäpke, 2015). This takes a long time and is influenced by the political, market, and individual factors (Lubowiecki-Vikuk, Dąbrowska, & Machnik, 2021). Many countries have not yet taken critical steps toward implementing the SDGs (Sachs, Schmidt-Traub, Kroll, Lafortune, & Fuller, 2019).

1.1.2 Development of Sustainable Development Concept and Studies on Individuals' Prosocial Behavior

Two main streams traditionally addressed sustainability challenges. One of the streams focused on the environment and was the primary concern of developed countries. United Nations conferences on sustainable development took place in Rio de Janeiro in 1992, Johannesburg in 2002, and Rio + 20 in 2012 and aimed to discuss global environmental challenges. Environmental economics handle issues of sustainable development with regards to individual behavior (for example, Foxon, Köhler, Michie, & Oughton, 2013). Studies on pro-environmental behaviors (PEB) provide insights into changing behavior toward a more environmentally friendly society (for example, Gsottbauer & van den Bergh, 2011). The other stream focuses on international development and mainly concerns developing countries. At the Millennium summit in 2000, the Millennium Development Goals (MDGs), a predecessor of the SDGs, were agreed by all the UN

member states to address social, economic and environmental challenges of developing countries (Caballero, 2019). Development economics is one of the fields contributing to international development issues in economics. Furthermore, understanding self-regarding behaviors in supporting international development studies on an individual's prosocial behavior, such as contributing to charities and volunteering, deepens our knowledge. Under the SDG framework, these two streams were brought into one broad scope (Caballero, 2019). The SDGs are comprehensive global goals that urge different levels of stakeholders in both developed and developing countries to work together to achieve a sustainable world by 2030 (United Nations, 2015). However, SDG implementation may face trade-offs (Barbier & Burgess, 2019). The economics discipline has provided a large body of contributions to these broad sustainable development challenges; however, the sustainable development-related field in economics has not yet become mainstream. Economic activities play a large role in harming the ecological system; there is an urgent need to mainstream sustainable development studies into core discussions of economics (Polasky et al., 2019).

1.1.3 Challenges of SDG implementations

Fukuda-Parr & McNeill (2019) discusses that the SDGs can play a vital role in encouraging a norm change toward sustainable development. This approach is supported by the recent developments in introducing the SDGs in a society. However, Vandemoortele (2018) argues that the SDGs lack the precision and clarity needed to meet sustainability challenges. Moreover, some authors are concerned that the SDGs might be used for "SDG-washing," that is meeting societal expectations without actually contributing toward SD (Buhmann, 2018; Ethical Corporation, 2019b; Kim, 2018). Thus, we argue that evidence-based policy-making is required to influence all the stakeholders to implement the SDGs in the right direction. Furthermore, the public needs to be educated and develop an ability to penetrate businesses facade sustainability practices and choose the right course of actions to promote a sustainable future.

1.2 Objectives of the Research and Research Design

This dissertation aims to explore individuals' decision-making toward the achievement of the SDGs. Furthermore, raising stakeholder awareness of the SDGs may enhance pro-sustainable behavior. Thus, this study also investigates to what extent raising awareness affects individuals' pro-sustainable preferences.

Because tackling sustainability challenges requires an interdisciplinary approach, we did not develop this dissertation based on a single discipline, but different disciplines, including sustainability science, management and economics. To offer novel insights into the challenges requiring urgent attention, we combined different methodologies. We collected individuals' survey responses and analyzed them. Most of analyses presented in this dissertation drawn from the

dataset of the Japan Household Panel Survey on Sustainable Development Goals (JHPSDGs). JHPSDGs were collected through online surveys conducted in March 2019 and March 2020. We used quota sampling to construct a representative dataset in terms of demographics. In these online surveys, respondents were requested to participate in 1) a survey experiment and 2) a household survey. In the survey experiment, we combined conjoint analysis with information treatment experiments, in which respondents were randomly assigned to different information treatment groups to measure the impact of sustainable development education on their preferences. The dataset consists of 12,098 observations with rich induvial characteristic information. We also conducted a survey experiment targeting university studies. For estimation strategy, in addition to traditional estimation methodologies, we used machine learning techniques initially developed in the field of statistical sciences, which is increasingly being applied to other fields, including economics and epidemiology, to study causal inferences.

1.3 Structure of the Dissertation

Figure 1-1 presents the overall structure of the dissertation. This dissertation is based on four published articles (Yamane & Kaneko, 2021d, 2021c, 2021b, 2022) and one working paper (Yamane & Kaneko, 2021a). I confirmed with a publisher that I have a right as one of the authors of these articles to reuse these published works for this dissertation, regarding the articles that the publisher has copyrights of (Yamane & Kaneko, 2021b, 2021c, 2022). In Chapter 2, the survey design and methodology are discussed partly based on Yamane & Kaneko (2021a). Chapters 3,4 ,5 ,and 6 present four original analyses. Chapter 3 estimates the stated preferences of stakeholders on SDG-oriented companies and discusses if the SDGs function as a new business norm partly based on Yamane & Kaneko (2022). Chapter 4 estimates the stated preferences of three different stakeholders (consumers, job-seekers, and investors) on SDG-oriented companies and reveals stakeholders' motivations for demanding Cooperation Social Responsibility (CSR) based on Yamane & Kaneko (2021d). In Chapter 5, effects of raising awareness and its heterogeneity of individual characteristics on pro-sustainable behavior based on Yamane & Kaneko (2021b). In Chapter 6, generational differences of young generations on sustainable behavior are estimated, and we explore whether the younger generation is a pro-SDG generation based on Yamane & Kaneko (2021c).

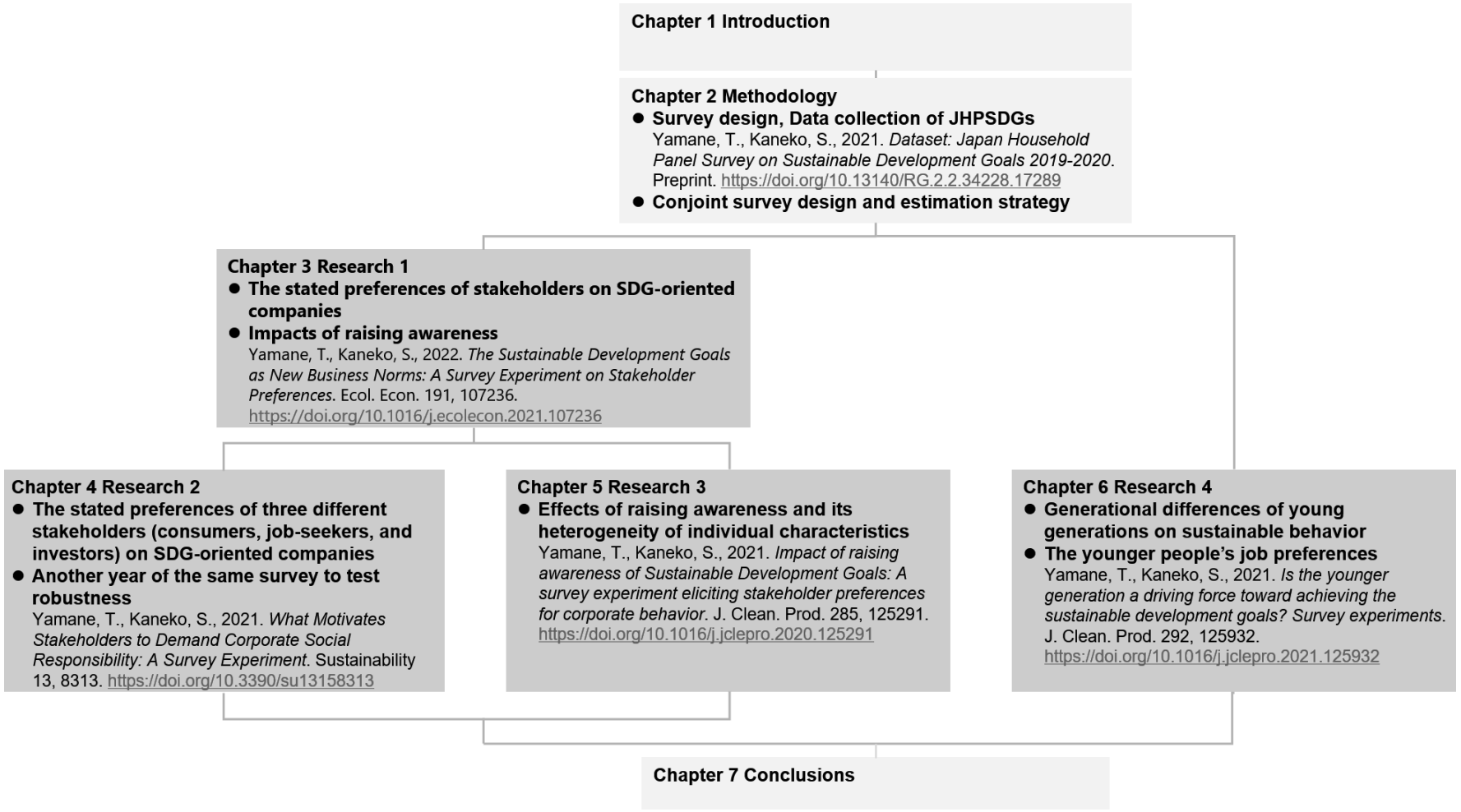


Figure 1-1: Structure of the dissertation

2 Methodology

There are some critical views on using survey data to analyze real-world decision-making because self-reporting data can be biased; for example, respondents' self-reporting attitudes and actual behavior may differ. To overcome the limitation of the survey, we utilized a conjoint survey experiment which was originally designed to study multidimensional voting choice behavior (Hainmueller et al., 2014) and is rigorously being applied to policy analyses in different fields. When a study is drawn from a small sample size dataset, there can be a gap between actual behavior and conjoint survey results. However, when the survey is conducted in large-scale national population distribution, the real-life situation and the survey outcomes were consistent (Hainmueller et al., 2015). The analyses are drawn from nationwide conjoint survey experiments conducted in Japan in two consecutive years. In all the chapters, we used a dataset from conjoint surveys, and utilized different estimation strategies. This section introduces survey experiment design, data collection procedures and estimation strategies of conjoint surveys.

2.1 Japan Household Panel Survey on Sustainable Development Goals (JHPSDGs)

The dataset of the Japan Household Panel Survey on Sustainable Development Goals (JHPSDGs) was collected through online surveys conducted in March 2019 and March 2020. The research protocol was approved by the Ethics Committee of Graduate School for International Development and Cooperation at Hiroshima University. In these online surveys, respondents were requested to participate in 1) a conjoint survey and 2) a household survey. The dataset consists of 12,098 observations, including two-period panel datasets of 3,227 individuals.

2.1.1 Sampling Strategy

Table 2-1 presents the sample size based on the demographic quotas used in the survey.

Table 2-1: Distribution of respondents based on the quota

Regional bloc	Hokkaido Tohoku	Kanto	Chubu	Kinki	Chugoku	Shikoku	Kyushu Okinawa
Age group	2019 Male						
18-19	9	28	17	14	5	2	10
20-24	21	82	37	36	12	5	23
25-29	21	83	40	34	12	5	22
30-34	25	93	44	37	13	6	26
35-39	28	100	48	41	14	7	28
40-44	33	117	59	52	18	9	32
45-49	32	120	58	51	17	8	30
50-54	29	102	51	44	14	7	27
55-59	31	86	46	39	14	8	29
60-64	33	82	48	38	15	8	32
65-69	41	102	61	51	20	11	38
70-74	27	82	46	42	15	8	26
	2019 Female						
18-19	8	25	15	13	5	2	9
20-24	19	76	35	36	11	5	22
25-29	20	77	36	34	11	5	22
30-34	24	86	40	39	13	6	27
35-39	27	94	45	43	14	7	30
40-44	32	110	55	54	17	9	34
45-49	32	113	56	54	17	9	32
50-54	30	96	48	48	14	9	29
55-59	32	84	47	41	15	8	32
60-64	35	81	48	41	17	11	34
65-69	43	106	63	57	21	12	41
70-74	33	90	50	48	17	9	31
	2020 Male						
18-19	10	29	16	14	5	2	10
20-24	22	83	37	36	12	5	22
25-29	21	84	40	34	12	5	24
30-34	24	93	44	37	13	6	26
35-39	28	101	48	41	14	7	28
40-44	33	117	61	50	18	9	32
45-49	32	121	59	52	17	8	30
50-54	29	102	50	44	14	7	27
55-59	31	87	46	39	14	8	29
60-64	34	82	47	39	15	8	32
65-69	40	101	59	51	21	12	39
70-74	27	81	45	41	15	8	27
	2020 Female						
18-19	8	25	15	13	5	2	9
20-24	20	77	35	36	11	6	22
25-29	21	77	37	35	11	5	22
30-34	24	89	40	39	14	6	27
35-39	27	94	45	43	14	7	30
40-44	33	111	56	52	17	9	33
45-49	32	115	56	54	17	9	32
50-54	30	95	49	46	14	8	29
55-59	32	82	47	41	15	8	32
60-64	35	81	49	41	16	9	34
65-69	44	106	63	58	21	12	43
70-74	33	90	50	47	17	9	29

Figure 2-1 presents the distribution of the total household income of the respondents, along with the data from Japan's National Livelihood Survey (NHS). In the JHPSDGs, respondents selected the most suitable choice from the categorical variables, as presented in Table 2-1. In the NHS, respondents reported their actual income. We recategorized the NHS responses using the disclosed report (Ministry of Health Labour and Welfare, 2020) so as to be compatible with JHPSDGs. Data collection for the NHS was canceled, and no data were available for 2020. Although respondents from the JHPSDGs tended to have higher income, the income distributions of the sample and population appear to be similar.

	JHPSDGs2019	JHPSDGs2020	NLS 2019
less than 1 million yen	3.39	3.54	6.40
1-2 million yen	5.61	5.96	12.60
2-4 million yen	21.72	21.15	26.40
4-6 million yen	23.95	23.63	19.20
6-8 million yen	18.26	18.23	14.30
8-10 million yen	11.30	11.92	8.90
10-12 million yen	6.60	6.86	5.00
12-14 million yen	3.30	3.27	2.90
14-16 million yen	2.37	2.04	1.60
16-18 million yen	0.77	0.71	0.90
18-20 million yen	0.77	0.67	0.50
20 million yen or more	1.97	2.02	1.20
Total	100.01	100.00	99.9

Figure 2-1: Distribution of income from JHPSDGs and NLS.

Values indicate shares of respondents in each category (%). In the JHPSDGs, respondents who did not respond to the question were excluded from the calculation.

2.1.2 Data Collection

An online survey was conducted in March 2019 and March 2020. We used quota sampling to construct a representative dataset in terms of demographics. Figure 2-2 shows the overall data collection flow. In 2019, we first set convenient sample size of 6,000 adults aged 18-74. Then, based on Japan's demographics, we set 168 quota groups (5-year age groups × gender × regional blocs = 12 × 2 × 7). Rakuten Insight Inc. (Rakuten) provided respondents from its panelists' pool, in which 2.2 million Japanese residents registered (Rakuten Insight, 2018). Rakuten sent its panelists an invitation email and guided them to the Rakuten survey website to access the Qualtrics survey link. After each quota was filled, the link was closed off so that additional invitees could not access the survey, and the data collection was completed from the filled quota. In total, 6,043 respondents out of 8,957 participants completed surveys. In 2020, invitations were first sent to the 6,043 respondents involved in 2019. Among these, 4,270 participated, and 3,227 surveys were

completed. Different panelists were invited to fulfill the quota allocations. Among them, 4,206 participated, and 2,828 were completed. The same method that was used in 2019 was again used to fill the planned quota in 2020.

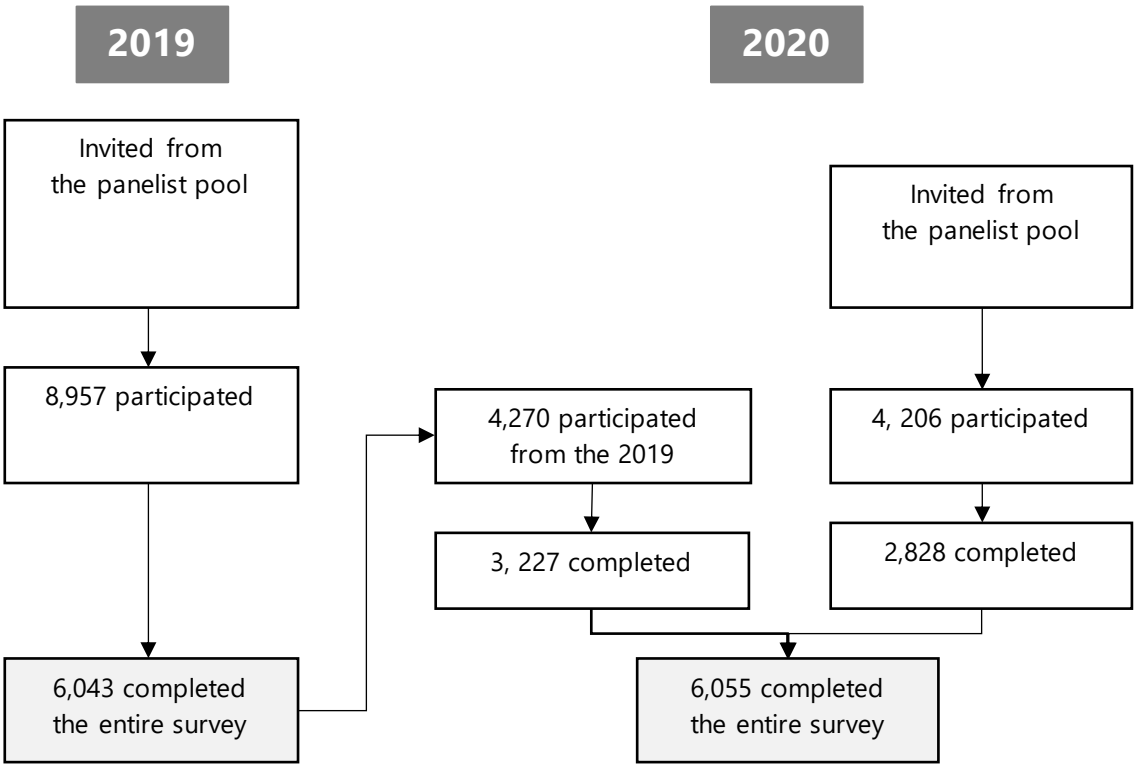


Figure 2-2: Data collection flow

2.2 Survey Experiment Design

We designed an exploratory survey experiment. Specifically, we employed the conjoint survey, a fully randomized design developed by Hainmueller et al. (2014) and embedded an information treatment experiment in which respondents were randomly exposed to different pieces of information. Several studies have used a similar approach to investigate international climate change agreements (Beiser-McGrath & Bernauer, 2019) and waste management (Setiawan, Kaneko, & Kawata, 2019). We developed our exploratory experiment design based on those studies. Figure 2-3 presents the overall survey flow.

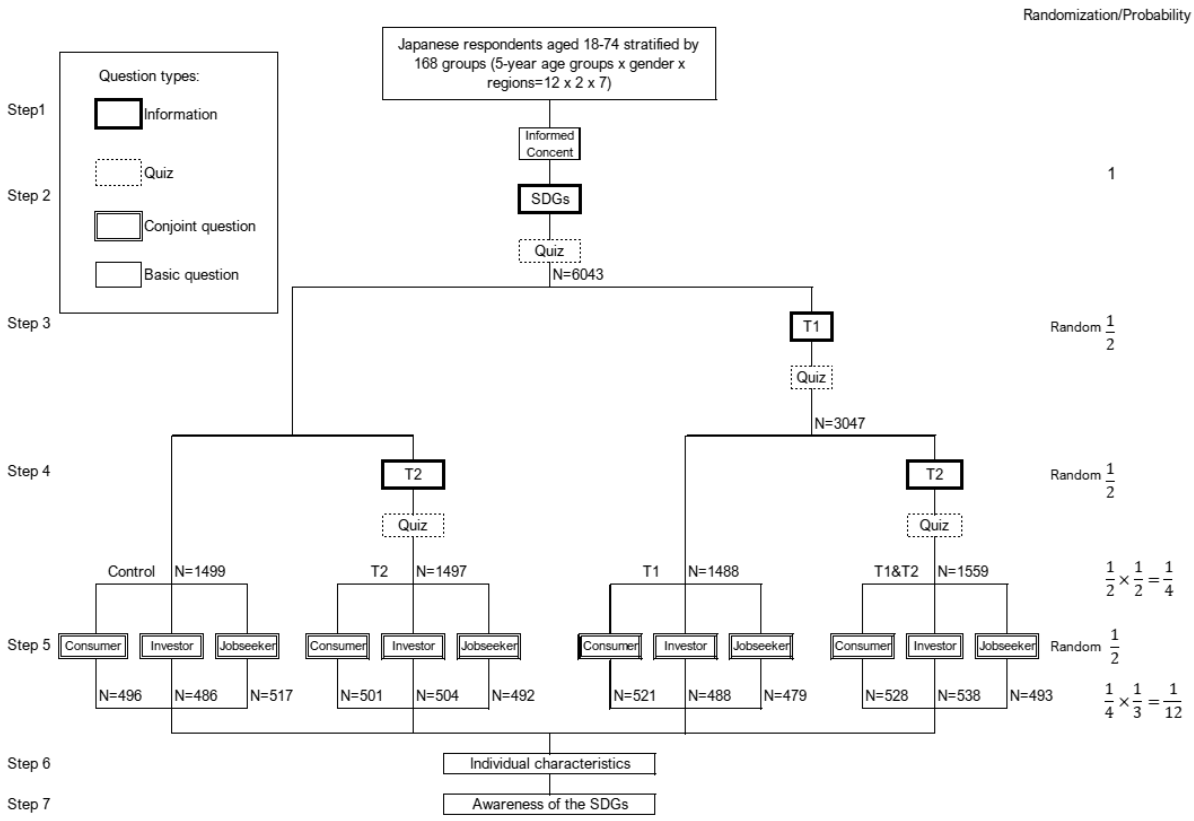


Figure 2-3: Survey flow and sample sizes in each group in 2019

The survey experiment was conducted as following steps.

Step 1 Informed consent was obtained from all respondents.

After obtaining informed consent, we disclosed three pieces of information before conjoint questions (Steps 2-4). After the information was provided, respondents were given one or two quizzes to confirm their understating of the content. If they answered that they had not understood some information, the same information was shown again. There were no quizzes after the information was shown for the second time. Then, to test the impact of raising awareness on the SDGs for stakeholders' preferences, we included information treatment in our experimental design. Participants were provided with two pieces of information (Steps 3-4). Section 2.2.2 discusses information treatments.

Step 2 All respondents were exposed the information regarding the SDGs.

We defined the SDGs to familiarize the participants with the concept. We selected the information defining the SDGs, considering the respondents with a minimum level of SDG awareness.

Step 3 Half of the respondents were exposed to Information treatment 1 (T1).

Half of the respondents were randomly assigned to T1, which states that businesses are expected to incorporate sustainability in their usual practice, that they must make those activities profitable, and that these actions must extend beyond charitable aid. We expected T1 to influence the attributes of the direct economic returns from SDG-related activities.

Step 4 Half of the respondents were exposed to Information treatment 2 (T2).

Half of the respondents were randomly assigned to T2, stating that there are significant gaps in the achievement of the SDGs between developed and developing countries. The respondents were shown a graph indicating the levels of achievement for each goal, adopted from SDSN (2018). We expected T2 to influence the attributes of Goals 5 and 13, as Japan lags behind in achieving these goals. Overall, the participants were divided into four treatment groups: 1) control, 2) T1, 3) T2 and 4) T1&T2.

Step 5 All respondents were assigned to one of three stakeholder groups and answered conjoint questions.

After these informative statements were given, all respondents were randomly divided into three stakeholder groups and assigned to one of the three conjoint questions: 1) purchasing a product, 2) investing in a company, and 3) seeking a company to work for. First, respondents were instructed to imagine two hypothetical companies with the same profile and offering the same product, stock, or job, but whose contributions to the SDGs are different. Respondents were then asked to rank three choices displayed on their screens in order of their preference, imagining that they were actually purchasing a product, investing in a stock, or seeking a job. Participants requested to perform this task six times.[1] Attribute design is discussed in Section 2.2.1

Step 6 All respondents answered individual characteristic questions.

Step 7 All respondents answered the SDG awareness questions.

2.2.1 Attribute Design

The experiment included seven sets of attributes: six SDGs and a direct economic return from SDG-related activities (Table 2-2). For the SDGs, we carefully selected six out of the 17 goals, as using all of them would have increased the fatigue effect. The factors discussed in Section 3.2.3 were considered when selecting the six SDGs. All attributes had two levels: hypothetical companies contributing or not contributing to the SDGs and hypothetical companies profiting or not profiting from SDG-related activities. SDG-related activities' direct economic returns refer only

[1] In the beginning of the survey in 2019, the first conjoint question for the consumer group was accidentally set as non-required question. This caused 298 out of 2,048 respondents in the consumer group to complete the task only five times.

to profits directly attributable to these activities, not to total company profits. To ensure external validity, the order in which the six SDGs' attributes appeared in the first six rows was also randomized for each respondent. Direct economic returns were placed in the last rows, and attribute levels were displayed randomly.

According to Tilman, Dixit, & Levin (2019)'s localized prosocial assumption, individuals care about local or domestic issues rather than global ones. Therefore, we classified them into three categories of issues: domestic, international, and both.

Table 2-2 : Attribute design of the conjoint survey

	Attribute	Type of issue	Features of the SDGs					Level *6		SDG-minded companies	
			Japanese companies' priority		Highly implemented goals *3	Challenges in achieving *4	Japanese public *5				
	Official Translation		Top *1	Low *2				1	2 (baseline)	a	b
1	[Goal 2] Zero Hunger	International		■			■	Yes	No	Yes	No
2	[Goal 5] Gender Equality	Domestic			■	■		Yes	No	Yes	No
3	[Goal 6] Clean Water and Sanitation	International					■	Yes	No	Yes	No
4	[Goal 8] Decent Work and Economic Growth	Domestic	■		■			Yes	No	Yes	No
5	[Goal13] Climate Action	Both	■			■		Yes	No	Yes	No
6	[Goal16] Peace, Justice and Strong Institutions	Both						Yes	No	Yes	No
7	Direct Economic Returns from SDG related activities/operations							Profiting	No Profit	Profiting	No Profit

Note
Shaded area indicates:
1: top priority SDGs among Japanese companies (Keidanren, 2018)
2: low priority SDGs among Japanese companies (Keidanren, 2018)
3: highly implemented SDGs among Japanese companies (Keidanren, 2018)
4: the SDGs that Japan is facing challenges in achieving (Sachs et al., 2019)
5: highly preferred SDGs among the Japanese public (Keizai Koho Center, 2019)
6: Level indicates
Yes: Contributing to the SDGs; No: Not contributing to the SDGs

For 17 goals, the United Nations provides official names for both English and Japanese. We used official Japanese names throughout the survey. In the dissertation, we use official English names. Some of the official SDG translations are not consistent across the two languages. Respondents have only shown Japanese SDG names, so their judgments were made based on these SDG names. The following are the three goals used in the survey, which have different Japanese translations from English.
Goal 6 literally means “clean water and toilet to the world” in Japanese.
Goal 13 literally means “carry out comprehensive countermeasures to climate change” in Japanese.
Goal 16 literally means “peace and justice for all” in Japanese.

Respondents were instructed to imagine two hypothetical SDG-minded companies with the same characteristics and offering the same product, stock, or job, but whose contributions to the SDGs are different. Then, each respondent was given two randomly assigned hypothetical SDG-minded companies of differing characteristics and was asked to rank three choices: Company A, Company B and Choose neither. This task was repeated six times per respondent. Figure 2-4 shows an English translation scenario given to respondents for the purchasing context group.

Please read the following sentences before proceeding.

Please imagine: we have two companies which have the same profile and are producing the same products; both contribute differently to SDGs. If you were to purchase a product, please rank in order of your preference each of the three choices which will be displayed on your screen. Choices A and B are the two hypothetical companies, and Choice C means preferring not to purchase either product. You are shown hypothetical companies 6 times with different combinations of attributes, and you are requested to choose as if you were to purchase a product each time.

Contributions to each SDG are indicated as below:
◎: contributing to the SDGs
× : not contributing to the SDGs

Direct economic returns from SDG-related activities refer only to profits directly attributable to SDG-related activities, not to the whole company's profits.
Yes: Profitable
No: Not profitable or deficit including activities such as charity which do not seek profit

【Example】

	Company A	**Company B**
[GOAL 2] Zero Hunger	◎	◎
[GOAL 5] Gender Equality	×	◎
[GOAL 6] Clean Water and Sanitation	◎	×
[GOAL 8] Decent Work and Economic Growth	×	×
[GOAL13] Climate Action	×	×
[GOAL16] Peace, Justice and Strong Institutions	◎	◎
Direct Economic Returns from SDGs related activities/operations	No	No

Please rank among the three in order of your preference. Click on the following choices to rearrange them.

Company A
Company B
Choose neither

Figure 2-4 Example of conjoint survey experiment scenarios.

This shows the scenario given to the purchasing group. The other two groups were given a similar scenario; the minor difference is that respondents were asked to respond as if they were investing in a company or seeking a company to work for rather than purchasing a product. Note that to ensure diversity in participation, we developed a device-friendly experiment website, and the website was optimized to a respondent's device, which applies to the entire survey.

2.2.2 Information Treatment (IT) Experiment

Up to three pieces of information were given to respondents before they took part in the conjoint survey. First, all the respondents were requested to read the information regarding the SDGs (Figure 2-5).

English Translation

[Information]

Please read the following sentences again before proceeding.

The sustainable development goals (SDGs) is an international target adopted by the United Nations in 2015. It comprises 17 goals that comprehensively deal with environmental, social, and economic issues. Everyone from developed to developing countries, governments, companies, and individuals work together to archive a sustainable world without leaving anyone behind by 2030.

[Quiz]

By reading document above, did you conform the following? Please choose from the pulldown

- SDGs consist of 17 goals

  {Yes/No}

Figure 2-5: The Information given to all the respondents at the beginning

We used two pieces of information to be tested (Figure 2-6, Figure 2-7). The criteria for selecting these pieces of information are discussed in the following paragraph. The SDGs bring opportunities for businesses (Business & Sustainable Development Commission, 2017) along with

the expectation that these businesses will embed sustainable development into their core corporate strategies (Ohno, Konya, Shiga, Murillo, & Charvet, 2019; SDG Compass, 2015; United Nations, 2015). Therefore, we argued that SDG-related practices must be profitable and should extend beyond charitable aid. Ensuring economic value creation can motivate businesses to promote the realization of the SDGs. However, the Japanese are reluctant to support companies that obtain profits from social causes (Kim, 2018). Considering this local context, we provided the respondents in the T1 treatment group with information that economic value creation through SDG implementation is important, and we included the attribute, direct economic return from SDG-related activities in the experiment. In addition, considering that individual goals and targets may be conflicting (Barbier & Burgess, 2019; International Council for Science, 2017; Mainali, Luukkanen, Silveira, & Kaivo-oja, 2018), understanding the tradeoff system among the SDGs is essential in advancing their implementation (Pradhan, 2019). Therefore, we provided the respondents in the T2 treatment group with information illustrating that different goals are achieved differently.

English Translation

[Information]

Please read the following sentences carefully again before proceeding.

To achieve the SDGs, private companies are expected to contribute to solving social issues through their core business rather than through their corporate social responsibility such as philanthropy and charity. By doing so, we create a society where private companies remain profitable while prosperity continues.

[Quiz]

By reading document above, did you conform the following? Please choose from the pulldown.

- Private companies are expected to contribute to solving social issues through their core business rather than through their corporate social responsibility such as philanthropy and charity.

{Yes/No}

- Under the SDGs, we create a society where private companies remain profitable while prosperity continues.

{Yes/No}

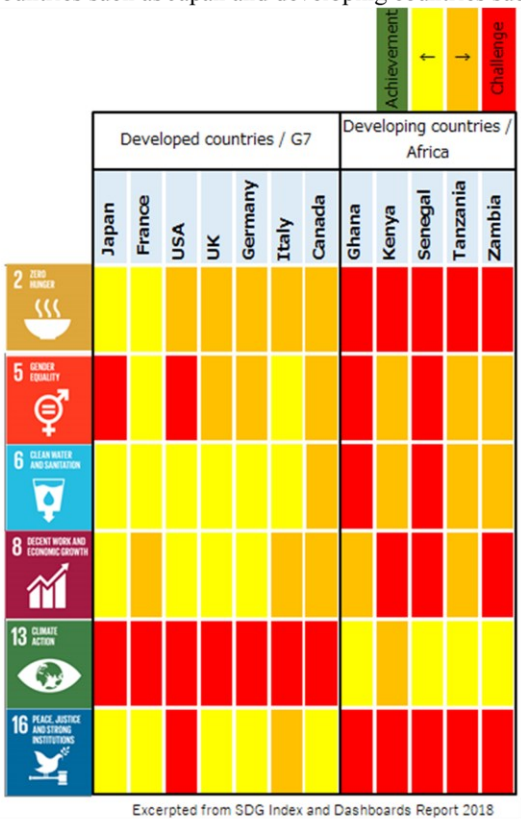
Figure 2-6: Information treatment 1

English Translation

[Information]

Please read the following sentences carefully before proceeding.

As shown in the figure below, there are large SDG achievement gaps between developed countries such as Japan and developing countries such as the African countries.



Excerpted from SDG Index and Dashboards Report 2018

[Quiz]

By reading document above, did you conform the following? Please choose from the pulldown.

- **Japan is not achieving Goal 5 (gender) and Goal 13 (climate change).**

{Yes/No}

- **There large SDG achievement gaps in developed countries and developing countries.**

{Yes/No}

Figure 2-7: Information treatment 2

Although the survey design remained unchanged in 2020, we made one primary change to the design, a form of the quiz for T1 and T2. In 2019, respondents were asked to confirm their understanding by choosing yes or no on provided statements. Information was provided again if the respondent failed the quizzes, but quizzes were not repeated. However, in 2020, respondents were

requested to write a short reflection passage on information content. This allows us to understand how respondents perceived information. Quizzes for the general information were kept unchanged to measure changes over the periods, which means that the survey design for the control groups was the same across two survey years. Both information treatment and context groups were randomly assigned to respondents in 2019, and in 2020 assignment did not consider the previous year's group allocations.

2.2.3 Summary of Estimation Strategies

Table 2-3 summarizes the datasets and estimation strategies used in each analysis. In a conjoint survey experiment, respondents are asked to evaluate proposed profiles in which levels of each attribute are randomly shown on their screen and to repeat this task multiple times. This survey design allows researchers to estimate causal effects of a given attribute, average marginal component effects (AMCE), using simple ordinary least square (OLS) dummy variable regression without any control variables (Hainmueller et al., 2014). In addition to the AMCEs, we used several strategies to estimate heterogeneous effects and overall support of proposed hypothetical companies.

The AMCE is known as an effective and robust estimator (Bansak, Hainmueller, Hopkins, & Yamamoto, 2020). Estimating the AMCE in subgroup analyses and interaction effects are shown to be an effective way to estimate heterogeneous effects when the number of candidate variables is small (Hainmueller et al., 2014). However, when candidate heterogeneous effects are large, model selection and interpretation of estimated results are difficult. Our study has a maximum of 24 candidate subgroups (3 contexts × 4 information treatment groups × 2 years) just in the conjoint design. If we aim to estimate the effects of individual characteristics on the choice probability, it will add up. We used a novel method, LASSO (Least Absolute Shrinkage and Selection Operator) plus, proposed by Ratkovic & Tingley (2017), to estimate AMCEs and interaction effects. LASSOplus selects relevant interaction effects and reports point estimator and significant levels.

Furthermore, following the estimation strategy adopted by Beiser-McGrath and Bernauer (2019), we calculated the overall support for the SDG-minded companies. This strategy allows us to estimate the overall choice probabilities of hypothetical companies, whereas AMCEs, and LASSOplus give a choice probability of given attributes. Using the logistic or OLS regression model, the probabilities of support for the chosen companies were estimated.

2.2.3.1 Average Marginal Component Effect (AMCE)

AMCE represents the average causal effect of SDG contributions on the likelihood that a given company is chosen relative to a reference level across all possible combinations and among all respondents. AMCEs can be estimated using OLS with clustered standard errors by the respondent; the outcome binary variable is regressed on dummy variables for all attributes, excluding the referencing levels. AMCE for the choice of individual i regarding profile j in task t is defined as:

$$Y_{ijt} = \alpha + \beta_1 X_{ijt} + \varepsilon_{ijt}, \quad (2\text{-}1)$$

where X_{ijt} is a vector of levels of each attribute excluding a reference category (no contribution to SDG or no profit) or binary treatment variables for the presence of a certain level referred to a reference; β_1 is a causal effect and a corresponding coefficient to be estimated; α is a constant term; and ε_{ijt} is the error term. The outcome variable, Y_{ijt} is dichotomous, with a value of 1 if the respondent i's preference rank of profile j in task t is higher than its alternative and 0 otherwise. Because the unit of analysis is each choice set of a respondent, not the respondent, there is a possibility that the observed choice outcomes are correlated. To avoid this bias, we used cluster robust standard errors at the individual level.

2.2.3.2 AMCE and its Interaction Effects

LASSOplus extends the AMCE as follows:

$$Y_{ijt} = \alpha + \beta_1 X_{ijt} + \beta_2 X_{ijt} H_{ijt} + \varepsilon_{ijt}, \quad (2\text{-}2)$$

where X_{ijt} is a vector of the levels excluding the reference; β_1 is a baseline effect and a corresponding coefficient to be estimated; H_{ijt} is a vector of heterogeneous treatment variables; β_2 is an interaction effect in which a point estimator is reported only when it has a nonzero effect and also a corresponding coefficient to be estimated; α is a constant term; and ε_{ijt} is the error term. The outcome variable, Y_{ijt} is dichotomous, with a value of 1 if the respondent i's preference rank of profile j in task t is higher than its alternative and 0 otherwise.

2.2.3.3 Overall Support for SDG Minded Company

In this study, we also predict overall support for an SDG-minded company as follows:

$$Y_{ijt} = \alpha + \beta_1 X_{ijt} + \beta_2 H_{ijt} + \varepsilon_{ijt}, \quad (2\text{-}3)$$

where X_{ijt} is a vector of levels of each attribute excluding a reference or binary treatment variable for the presence of a certain level referring to a reference category; β_1 is a causal effect and a corresponding coefficient to be estimated; H_{ijt} is a vector of heterogeneous treatment variables (context group and survey year); β_2 is a treatment effect; and ε_{ijt} is the error term. Here, Y_{ijt} is dichotomous, with a value of 1 if the respondent i's preference rank of a profile j in task t is higher than the status quo (choosing none of two proposed profiles) and 0 otherwise. We used a different outcome variable than the one used for the AMCE. The aim here is to estimate aggregated demand to examine to what extent any proposed SDG-minded company is chosen over the status quo. After running OLS regression with clustered standard errors by respondent, we predict the fitted value for all the observations.

Table 2-3: Overviews of data used and estimation strategies

Study	Data used	Motivation of estimations	Estimation strategy	Dependent variable*	Independent variable**	Replication materials
Ch. 3	2019 Conjoint survey	Impacts of ITs on overall support of the SDG-minded companies	Support rate (fitted value)	External	the most and least SDG-minded companies	https://doi.org/10.7910/DVN/KNVPAZ
		Causal effects of the given attributes that are selected Impacts of ITs on the attributes	AMCEs	Internal	all attributes excluding baselines	
Ch. 4	2019-2020 Conjoint survey	Effects of three contexts on overall support of the SDG-minded companies	Support rate (fitted value)	External	the most SDG-minded company	https://doi.org/10.7910/DVN/CUPCKU
		Effects of the survey year, ITs and contexts on the attributes. Heterogenous effects on causal effects of the given attributes	LASSOplus	Internal	all attributes excluding baselines; Heterogenous variables including individual characteristics and pro-sustainability behaviors	
Ch. 5	2019 Conjoint survey	Heterogenous effects on the overall support of the SDG-minded companies	Support rate (fitted value)	External	the most SDG-minded company	
Ch.6 Study 1	2019-2020 Household survey	Generational effects of young on various sustainability behaviors	Double machine learning (for detail, Section 6.3.1)			JHPSDGs Dataset https://doi.org/10.7910/DVN/QWB2O0
Ch.6 Study 2	2020 Hirodai conjoint survey (for detail, Section 6.3.2)	Causal effects of the given attributes that are selected	AMCEs	Internal	all attributes excluding baselines	https://doi.org/10.7910/DVN/ILRQV5
		Impacts of ITs on overall support on the SDG-minded companies	Support rate	External	the SDG-minded companies	

* Definition of dependent variables: internal outcome variable, which implies that a company is preferable to another; external outcome variable, which implies that a company is preferable to the status quo

** Definition of the SDG-minded companies and baseline levels excluding the regressions are presented in Table 2-2, except for Ch.6 Study 2.

3 Sustainable Development Goals as New Business Norms: Stakeholder Preferences

3.1 Backgrounds

Under the SDGs, businesses are expected to assume increasingly active roles (GRI & United Nations Global Compact, 2018; Scott & McGill, 2018) by "apply[ing] their creativity and innovation to solve SD challenges" (United Nations, 2015). While investing in these goals will likely economically benefit businesses (Business & Sustainable Development Commission: BSDC, 2017), the private sector will have to mobilize considerable resources toward advancing the SDGs (United Nations Secretary-General, 2019).

Six years after adopting the SDGs, companies have begun embedding the goals into their corporate practice. A global survey targeting senior business practitioners indicated that the number of companies integrating the SDGs into strategy increased from 60% in 2017 to 71% in 2019 (Ethical Corporation, 2019a). However, as all G20 countries face significant challenges in achieving the SDGs, substantial transformations in various areas (e.g., education, energy systems, land use, urban development) and the long-term involvement of different stakeholders are required (The Bertelsmann Stiftung and Sustainable Development Solutions Network:SDSN, 2018). Significant changes in the way businesses think and function are required to meet sustainability challenges (Bocken, Rana, & Short, 2015) and reach the SDGs by 2030 (Ohno et al., 2019). In addition, the dominant business model, which is focused on short-term economic value, has to be reconsidered (Scheyvens, Banks, & Hughes, 2016). The SDGs require businesses to consider "integrating sustainability into the core business and embedding targets across functions" (SDG Compass, 2015). As such, SDG-related activities must be profitable and go beyond charity. More importantly, ensuring the creation of economic value may motivate businesses to support the SDGs.

Extant studies have highlighted the importance of involving stakeholders in business strategies (Freeman, 1984; Freudenreich, Lüdeke-Freund, & Schaltegger, 2019; Hörisch, Freeman, & Schaltegger, 2014; Parmar et al., 2010) and sustainable business models by emphasizing multi-stakeholder engagement (Geissdoerfer, Vladimirova, & Evans, 2018), which has received increasing attention from both research and practice (Lüdeke-Freund & Dembek, 2017; Schaltegger, Hansen, & Lüdeke-Freund, 2016). Companies need to address the issue of creating value for all stakeholders (Hörisch et al., 2014). To achieve this, they need to understand stakeholders' motivation as a prerequisite for sustainability and financial performance (M. T. Lee & Raschke, 2020) and also promote innovation (Tantalo & Priem, 2016). In this context, we argue that businesses can create value when stakeholders support sustainable practices. For example, if a jobseeker prefers a company that contributes to the SDGs and chooses to work for that company, it

can create value from its SDG contribution. This type of value creation through stakeholder support can have a normative effect and lead the SDGs to become a new norm for business practice (Fukuda-Parr & McNeill, 2019). However, little is known about the relationship between stakeholders' preferences and business contributions to the SDGs. Furthermore, despite theoretical contributions on businesses' actions toward sustainable development, only a few studies that revealed preferences of stakeholders have been conducted. This study, therefore, to fill this gap on existing literature exploring whether investing in the SDGs is beneficial for businesses by examining stakeholders' preferences for SDG contributions (i.e., a company contributes to sustainability under the SDG framework). It also discusses whether the SDGs can function as new business norms for standard corporate practice.

To encourage companies' sustainability-related decisions and actions, it is necessary to consider stakeholders' sustainability mindset, create mutual sustainability interest among them, and empower them by integrating education, regulation, and sustainability-based value creation (Hörisch et al., 2014). In this study, we look at how sustainability mindsets are created through education, specifically by raising awareness. We also assess whether stakeholders (i.e., consumers, investors, and jobseekers) support companies that contribute to the SDGs and whether increasing stakeholders' awareness of the inherent nature of the SDGs increases their selection of products, stocks, and jobs offered by companies that contribute to the SDGs.

We employ an exploratory survey experiment and examine the Japanese stakeholders' stated preferences for businesses based on these businesses' SDG contributions. This study also combines conjoint analysis with information treatment experiments, in which respondents were randomly assigned to different information treatment groups to measure the impact of SD education on their preferences. Hypothetical scenarios are used to estimate stakeholders' potential support for corporate practice, instead of real-life examples to eliminate factors (e.g., price, product features) that might influence stakeholders' preferences and examine the causal hypotheses on the multiple dimensions of stakeholders' preferences. Therefore, this study provides new quantitative evidence on whether the SDGs can become business norms and influence corporate practice toward pursuing sustainability.

The remainder of this Chapter is structured as follows. Section 3.2 reviews the literature on how sustainability concepts emerged in business and the SDGs, discusses the conceptual framework, and develops the hypotheses. Section 3.3 presents the estimation strategy. The results are presented in Section 3.4, Section 3.5 discusses including potential implications for both businesses and policymakers and whether the SDGs can function as new norms for corporate practice based on our experimental results.

3.2 Literature Review

Here, we review the literature on SD and stakeholder engagement and present the steps for the development and implementation of the SDGs, both internationally and in Japan. Furthermore,

we review the literature on the effects of information and stakeholders' preferences. Based on these previous studies, we develop a conceptual framework and formulate the research hypotheses.

3.2.1 The SDGs Framework

More than two years of intensive open consultation with the multiple stakeholders involved in developing the SDGs resulted in an agreement upon 17 goals and 169 targets (United Nations, 2015). In the process, Ambassador Macharia Kamau, the co-chair of negations for the SDGs and permanent representative of Kenya to the UN, often encouraged delegates to go beyond "business as usual" in reaching agreements (Dodds, Donoghue, & Roesch, 2016). SD challenges began conceptually in the so-called global South and later included environmental issues led by the global North. Through the SDG creation process, the South contributed significantly to the emergence of international norms (Fukuda-Parr & Muchhala, 2020). While all goals are aimed at SD, individual goals and targets may conflict with each other (Barbier & Burgess, 2019; International Council for Science, 2017; Mainali et al., 2018; van Zanten & van Tulder, 2021). Meeting the SDGs thus requires a deeper understanding of the trade-off system among the goals (Pradhan, 2019). While economic activities are imperative for advancing certain SDGs, companies have to mitigate negative interactions (van Zanten & van Tulder, 2021).

Rosati and Faria (2019) summarized recent studies on the SDGs within the corporate sustainability literature, identifying investigations on sustainable business models (Morioka, Bolis, Evans, & Carvalho, 2018), multinational enterprises (Donoher, 2017; Kolk, Kourula, & Pisani, 2017; Schönherr, Findler, & Martinuzzi, 2017; Topple, Donovan, Masli, & Borgert, 2017), investment opportunities (Schramade, 2017), and the marketing and advertising sector (P. Jones, Comfort, & Hillier, 2018). The numbers of empirical studies on SDG implementations draw data from corporate reports. Silva (2021) reviewed corporate reports of Financial Times Stock Exchange 100 companies and concluded that implementation of the SDGs to transform their business models had been limited. García-Sánchez et al. (2020) studied reports of Spanish companies and found that 84% of those companies did not use the SDGs to manipulate stakeholders' perceptions. A study in 22 Arabic countries has identified a regional priority as the water-energy-food nexus (C. Allen, Metternicht, & Wiedmann, 2019). A network analysis of the UN coordination on the water-energy-food nexus showed that because of complexity and potential trade-off among goals, innovative solutions to integrate silos are imperative to reach the SDGs by 2030 (Kapucu & Beaudet, 2020). Mobilizing foreign direct investment to African countries had a positive impact on advancing water-energy-food-related SDGs, but a negative impact on climate change (Aust, Morais, & Pinto, 2020). Ike et al. (2019) investigated the priorities in SDG implementation for Japanese multinational enterprises operating in Southeast Asia and found that host country factors influenced which goals were implemented.

Since the SDGs' emergence, scholars have increasingly studied the SDGs' role in business; however, stakeholders' preferences on corporate practice concerning the achievement of the SDGs remain unexplored. To explain this effect, we conducted a nationwide survey in Japan, where there

are active upstream initiatives promoting the SDGs, following Caiado et al. (2018), who suggested that larger survey sample sizes are necessary for improved strategic SDG implementation.

3.2.2 Sustainable Development by Businesses

Businesses have been involved in sustainability since the SD concept emerged in the early 1980s. The importance of the private sector's role was highlighted in all three major UN conferences on SD: Rio de Janeiro in 1992, Johannesburg in 2002, and Rio +20 in 2012 (Scheyvens et al., 2016). These public international events have also influenced societal expectations regarding corporate practice (Agudelo, Jóhannsdóttir, & Davídsdóttir, 2019). In alignment with global initiatives, the theoretical development in business research has contributed to incorporating sustainability in business practice. The purpose of a business must be broadened beyond mere profitability, meaning value creation for a broader set of stakeholders is imperative to address sustainability challenges (Busch, Hamprecht, & Waddock, 2018). Current global challenges further require corporations to create shared value (CSV) by maximizing corporate profitability and transcending mere philanthropic activities (Porter & Kramer, 2006, 2011). For these reasons, the sustainability concept has increasingly been integrated into business modeling.

In this study, we define stakeholders' preferences as the preferences for choosing a company as a provider of value (e.g., through products, stocks, and jobs). The conventional business model focuses on shareholders' and consumers' benefits (Bocken et al., 2015; Geissdoerfer et al., 2018; Velter, Bitzer, Bocken, & Kemp, 2020). Stakeholder theory, on the other hand, emphasizes the importance of companies developing business strategies while considering their relationships with various stakeholders (Freeman, 1984; Hörisch et al., 2014; Parmar et al., 2010). In this context, we focus on three major stakeholders: consumers, investors, and jobseekers (potential employees). In this study, we use hypothetical stakeholders. Although other stakeholder types might exist (Mitchell, Agle, & Wood, 1997; Mitchell & Lee, 2019), we select these three types based on previous empirical studies to ensure that our findings are comparable with the literature (Alniacik, Alniacik, & Genc, 2011; Koc, Alniacik, Akkilic, & Varol, 2015; Sen, Bhattacharya, & Korschun, 2006). Based on the above conceptualization of sustainable business model, stakeholders, and their preferences, we posit Hypothesis 1.

H1: Stakeholders support companies that contribute to the SDGs.

3.2.3 SDG Implementations in Japan

In Japan, different actors in business, local government, and education started incorporating the SDGs into their activities in line with the central government's initiatives. The government is committed to implementing the SDGs based on five principles: universality, inclusiveness, participatory approach, integrated approach, transparency, and accountability (SDGs Promotion Headquarters (SPH), 2016). In the SDGs Action Plan 2018, developed under SPH, businesses are expected to incorporate the SDGs into their strategies and speed up the SDG implementation process (Ministry of Economy, Trade, and Industry, 2019). As such, businesses in

Japan are especially active in SDG implementation (i.e., Ueno et al., 2018, 2017).

In 2020, 63.6% of Japanese companies had embedded the SDGs into their corporate strategies(Nikkei Research Inc, 2021).2 Wearing the SDG lapel pin has become a trend among businesses to show their commitment to SDG action and raise awareness (i.e., ANA HD, 2019). By contrast, at the individual level, only 6.7% of the surveyed Japanese adults were highly familiar with the SDGs in March 2019. As such, active upstream initiatives for SDG promotion are expected to familiarize the Japanese with the SDGs. Sasaya (2019) argued that the SDGs would become mainstream in the Japanese business sector, as the concepts underlying them are not new to Japanese firms because a similar merchant philosophy had always existed, which makes it convenient to implement the five principles mentioned above. He also underlined that a deeper understanding of SD is required by businesses for implementation.

A company's SDG implementation priorities and stakeholders' preferences may differ. In Japan, Keidanren, the Japan Business Federation, which is a private sector organization with significant influence in setting business agendas, conducted studies on businesses' SDG implementation priorities, and showed that Japanese companies prioritize Goal 8: Decent Work and Economic Growth; Goal 9: Industry, Innovation, and Infrastructure; and Goal 13: Climate Action (Keidanren, 2018). These findings are similar to those of a global survey conducted by PwC, indicating that Goal 8, Goal 13, and Goal 12: Responsible Consumption and Production are prioritized by companies from 31 countries (Scott & McGill, 2019). By contrast, an awareness survey conducted by Keizai Koho Center (KKC), the Japan Institute for Social and Economic Affairs, on the general public, who are potential corporate stakeholders, showed that priorities differ (KKC, 2019). The survey revealed that Goal 6: Clean Water and Sanitation, Goal 3: Good Health and Well-Being, and Goal 2: Zero Hunger are priorities for stakeholders. Another study on the Japanese public revealed similar results: Goals 6, 1, and 2 were found to be the most important SDGs (Chapman & Shigetomi, 2018). Based on this context background, we put forward Hypothesis 2:

H2: A gap exists between the stakeholders' preferred SDGs and companies' priorities concerning the SDGs implementation.

To address this gap, not only in Japan but also in general, it is important to involve different stakeholders. For businesses, working with and for stakeholders is essential for achieving sustainable societies and requires active communication with stakeholders to promote a sustainability mindset (Freudenreich et al., 2019) and strategically manage multiple stakeholders (Schaltegger, Hörisch, & Freeman, 2019). Anchoring sustainability in the mindset of all stakeholders is a critical challenge in creating mutual interest among stakeholders (Hörisch et al.,

[2] Nikkei, the main Japanese economics newspaper, conducted the second SDGs Management Survey targeting Japanese companies with 100 employees or more from May–July, 2020, and 731 companies participated.

2014).

3.2.4 Effects of Information and Stakeholders' Preferences

Both consumer awareness and sustainability-focused value orientation positively affect on responsible consumer behavior (Buerke, Straatmann, Lin-Hi, & Müller, 2017). If, for example, information on environmental impact and employees' working conditions is provided, consumers may base their purchase decisions on this information (Stöckigt, Schiebener, & Brand, 2018). However, since different stakeholder groups likely require different information, the effective means of communicating with target stakeholders should be explored (Du, Bhattacharya, & Sen, 2010).

In line with Du et al. (2010), we argue that raising public awareness is required, as without stakeholder support, companies cannot maximize their value creation through SDG implementation. Education can play a vital role in raising awareness, but its role in creating mutual stakeholder interests is less addressed in the business model literature (Hörisch et al., 2014). To fill this research gap, we examine stakeholders' preferences based on companies' SDG practices and investigate the effect of information treatment on different stakeholders by providing information on the inherent nature of the SDGs.

We expect that providing different pieces of information to stakeholders will result in different outcome preferences. That is, raising stakeholder awareness may affect their preferences. To test this assumption, we posit the following hypothesis:

H3: Providing information on the SDGs affects stakeholders' preferences when selecting a company.

We chose two parameters because they are emerging ideas included in the SDGs and different from previous international goals (see 1.1 for the development of the SDG concept). The first reflects the necessity for SDG contributions to be profitable for a company. In Japan, individuals may be reluctant to support companies that create economic value through social contributions (Kim, 2018). However, as discussed, profiting from SDG implementation is imperative for corporations to continue investing in the SDGs. The second parameter captures the complexity of SDG implementation, as there may exist trade-offs between goals and the actors involved. To account for these two parameters, we test H3 by providing participants with one of the following two pieces of information:

1: Businesses are expected to incorporate sustainability into their core business strategy, which requires them to make a profit from SDG contributions; and

2: There are significant gaps in achieving the SDGs between developed countries, such as Japan, and developing countries, such as some African countries.

We expected that providing different information to the public would result in different outcome preferences. This approach makes it possible to find out what aspect of information significantly influences stakeholder preferences. The results will help us understand how

information disclosure can be made more effective to raise public awareness and potentially change Japanese attitudes toward the achievement of the SDGs.

3.3 Estimation Strategy

To estimate stakeholder support for companies contributing to the SDGs and effects of raising stakeholder awareness, we used three different estimation strategies.

3.3.1 Average Marginal Component Effects (AMCEs)

To estimate the marginal effect of an SDG contribution on company selection, we estimated the average marginal component effects (AMCEs), as proposed by Hainmueller et al. (2014). The AMCEs represent the average causal effect of the SDG contribution on the likelihood that a given company is chosen relative to a baseline level, which is shown in Table 2-2. The outcome variable is dichotomous, and takes the value of 1 if the preference rank of a company is higher than its alternative company, and 0 otherwise. Using Ordinary Least Square (OLS) regression with clustered standard errors, the outcome variable was regressed on the dummy variables for all the attributes, excluding the baseline levels.

AMCE for the choice of individual *i* regarding profile *j* in task t is defined as:

$$Y_{ijt} = \alpha + \beta_1 X_{ijt} + \varepsilon_{ijt}, \quad (3\text{-}1)$$

where X_{ijt} is a vector of levels of each attribute excluding a reference category (no contribution to SDG or no profit) or binary treatment variables for the presence of a certain level referred to a reference; β_1 is a causal effect and a corresponding coefficient to be estimated; α is a constant term; and ε_{ijt} is the error term. The outcome variable, Y_{ijt} is dichotomous, with a value of 1 if the respondent i's preference rank of profile *j* in task t is higher than its alternative and 0 otherwise. Because the unit of analysis is each choice set of a respondent, not the respondent, there is a possibility that the observed choice outcomes are correlated. To avoid this bias, we used cluster robust standard errors at the individual level.

3.3.2 Probability of Overall Support

Following the estimation strategy adopted by Beiser-McGrath and Bernauer (2019), we calculated the overall support for a) the most SDG-minded company and b) the least SDG-minded company, as well as the effect of information treatment and stakeholder assignment on the selection of those companies. The definitions of those two companies are presented in Table 2-2. Using the logistic regression model, the probabilities of support for the chosen companies were estimated. The outcome variable is dichotomous, and takes the value of 1 if the preference rank of a company is higher than any proposed company, and 0 otherwise.

We estimated the overall support rate for the SDG-minded companies using the estimation model:

$$Y_{itj} = \beta_0 + \sum_{l=1}^{7}\sum_{r=1}^{4}\sum_{s=1}^{3}\beta_{lrs}\, SDG_{itjl} RCT_{ir} SH_{is} + u_{itj} \quad (3\text{-}2)$$

where Y $\in \{0,1\}$ is a binary choice outcome for company j in task t of respondent i. The aim here is to estimate aggregated demand to examine to what extent any proposed SDG-minded company is chosen over the status quo.

SDG_{itjl} is a dummy variable for attribute l (one of two levels in each attribute are the baseline levels, and no SDG contributions and no profit are excluded from the regression expression);

RCT_{ir} is a dummy variable for information treatment r, which is randomly attributed to respondent i;

SH_{ih} is a dummy variable for stakeholder assignment, which is randomly attributed to respondent i;

β_{lrh} is a parameter of attribute l, information treatment *r*, and stakeholder *s*;

β_0 denotes a constant term; and

u_{itj} denotes the error term.

After running the regression with clustered standard errors by respondent, we predict the fitted value for all the possible combinations($2^7 \cdot 4 \cdot 3 = 1539$) and selected combinations of both most and least SDG-minded companies by information treatment and stakeholder group.

3.4 Results

3.4.1 Stakeholder Support for a Company Contributing to the SDGs

Figure 3-1 shows the support rates of the treatment and scenario groups. To measure the effects of information treatment on overall stakeholder support to companies based on their SDG contribution, we estimated the support rates for the most and the least SDG-minded companies (the definition of SDG-minded companies are shown in Table 2-2). The most popular combination of the attributes among the respondents was the most SDG-minded company, which has stakeholder support of 79.8% for purchasing, 76.0% for investing, and 77.7% for job seeking. On the other hand, the least SDG-minded company has stakeholder support of 20.9%, 24.0%, and 22.4% for the three groups, respectively. In the context of investing, stakeholder support is the least favorable of the three in promoting the SDGs. H1, which states that stakeholders support companies that contribute to the SDGs, is thus supported.

Figure 3-1: Support rate and effects of information treatment on companies contributing to the SDGs.

The symbols and values indicate the overall support rate. The error bars illustrate 95% confidence intervals.

To measure the overall stakeholder support on each attribute, we estimated the AMCEs by pooling the three stakeholder groups. To see effects without information treatment, the results of the control group is presented. Figure 3-2 shows that all estimated coefficients are statistically significant at the 1% level. Contributing to any goal has a significant and positive effect on stakeholder support. When companies make profits directly from SDG-related activities, the public's preferences for that company increase by 2.9%. In a nutshell, contributing to any goal and profiting through SDG contributions have a positive effect on stakeholder support.

The coefficients for contributing to individual SDGs ranged from 5.1% to 12.0%, indicating that preferences for companies contributing to the SDGs vary depending on the goal. When a company changes from not contributing to Goal 2 (Zero Hunger) and Goal 6 (Clean Water and Sanitation), stakeholder support increases by 11.4% and 12%, respectively. However, contributing to Goal 13 (Climate Action)—the top priority of businesses—increases stakeholder support by only 6.9%. Contributing to Goal 5 (Gender Equality)—the most widely implemented SDG among Japanese companies—increases stakeholder support by only 5.1%. H2, which states that a gap exists between the stakeholders' preferred SDGs and companies' priorities, is thus supported.

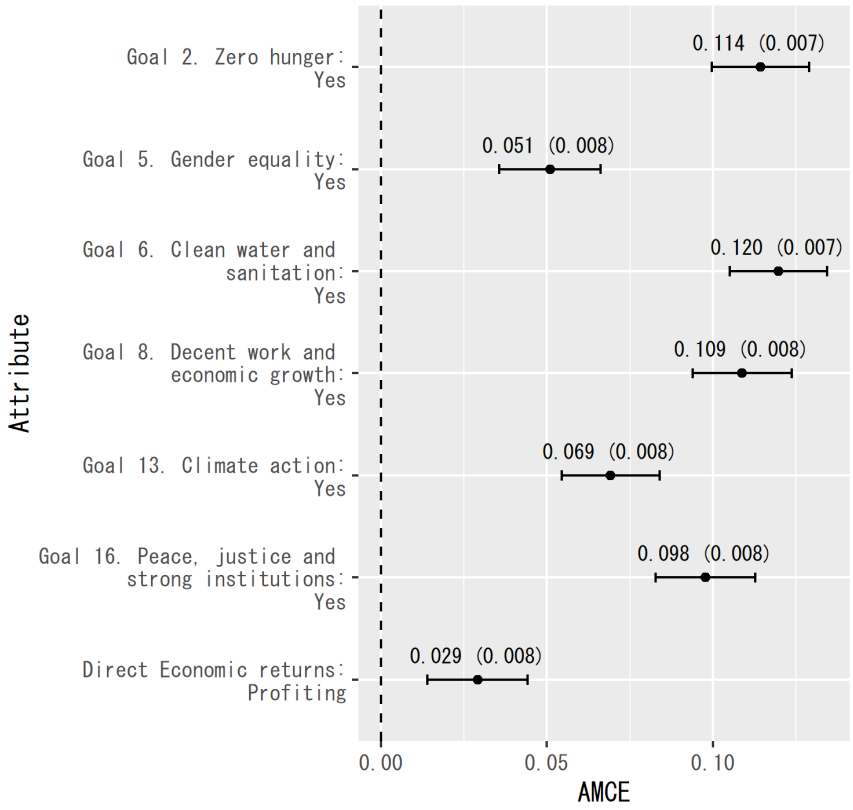


Figure 3-2:Estimated AMCEs.

The symbols and values indicate the AMCE point estimates for each attribute level indicating the respondent's likelihood of choosing a company with SDG contributions or gaining a profit directly from SDG-related activities referring to a baseline level. The error bars illustrate 95% confidence intervals. Robust standard error in parentheses

3.4.2 Effects of Information Treatment Treatments on Public's Preferences

Figure 3-3 shows the causal effect of the information treatment on attributes. Both pieces of information had a positive effect on stakeholders' preferences. T1 increases the AMCE of direct economic returns, as expected by our research design, along with Goals 5, 6, and 13, which are closely related to business. As expected, T2 increases the support of the goals that Japan is facing challenges on: Goal 5: Gender Equality and Goal 13: Climate Action. T2 also increases support for Goals 2 and 16, which are challenges that appear in developing countries; visible in the illustration the respondents were shown (see Figure 2-7). Thus, H3 was supported. The results indicate that each of the two pieces of information given to the treatment group had a positive effect on raising awareness to change stakeholders' preferences.

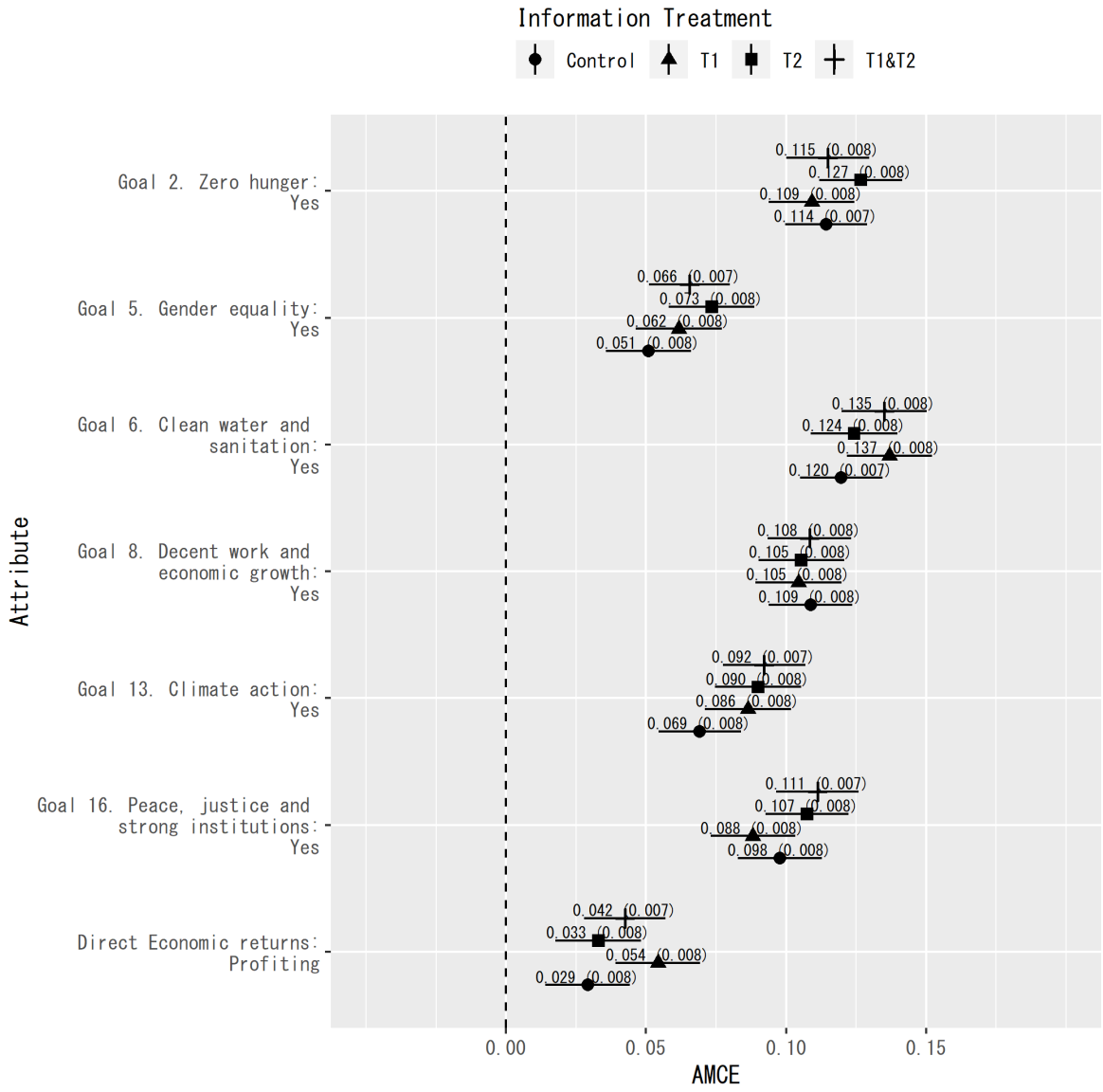


Figure 3-3: Estimated AMCEs by information treatment.

The symbols and values indicate the AMCE point estimates for each attribute level, indicating the respondent's likelihood of choosing a company with SDG contributions or gaining a profit directly from SDG-related activities compared to the baseline level. The error bars illustrate 95% confidence intervals. Robust standard error in parentheses

3.5 Discussion

Here, we highlight two main findings along with practical implications. First, the findings show that sustainable development and creating economic value can co-exist, as companies contributing to the SDGs and profiting from those contributions were supported by stakeholders. Second, we confirmed that stakeholders' preferences and businesses' priorities differ, which may be caused by stakeholders' low sustainability awareness. However, we also show evidence that

providing information to stakeholders increases their awareness and minimizes the gap.

The first main finding revealed that businesses contributing to the SDGs gain favorable support from the public. For instance, in the purchasing group, 79.2% of the public chose to purchase a product from a company that implemented the SDGs. In addition, the results confirmed that a business contributing to any SDG and profiting directly from this contribution received positive stakeholder support. Furthermore, our results show that stakeholders' support for a company increases by 2.9% if a company creates economic values through its SDG-related activities, even though it is known that Japanese may hesitate to support companies that obtain profits from social causes (Kim, 2018).

Regarding priorities for SDG implementations, gaps exist between stakeholders' and businesses' preferences. The results show that the public prefers companies to contribute to Goal 2 (Zero Hunger) and Goal 6 (Clean Water and Sanitation), which is consistent with previous findings (Chapman and Shigetomi, 2018; KKC, 2019). However, studies have shown that both in Japan (Keidanren, 2018) and worldwide (Scott & McGill, 2018, 2019), businesses prioritize Goal 8 (Decent Work and Economic Growth) and Goal 13 (Climate Change). One reason for this gap might be that the public's SDG awareness is low in Japan, whereas strong upstream initiatives have caused businesses to take action and rapidly embed the SDGs into their business strategies(Nikkei Research Inc, 2021; SPH, 2016). Chapman and Shigetomi (2018) showed similar results and argued that forming awareness depends on both the issue's visibility and how closely the Japanese public relates to it in their daily lives.

Because public awareness of the SDGs affects business practices, businesses are expected to anticipate stakeholders' thoughts and actions (M. T. Lee & Raschke, 2020) through active communication (Freudenreich et al., 2019). It is also necessary to strengthen the sustainability mindset and mutual sustainability interests of stakeholders through education (Hörisch et al., 2014). The present study employed information treatment experiments to test whether and how preferences shift with exposure to information. As discussed in Section 3.2.3, we can assume that the Japanese people's understanding of the SDGs was at a preliminary level during the survey. Exposure to the information claiming that companies are expected to mainstream the SDGs into their core businesses positively affected stakeholders' preferences for Goals 5 and 13, which are closely related to business. We suggest that providing information can effectively promote stakeholders' sustainable mindset and may help minimize the gap between stakeholders and businesses.

Businesses are expected to play more active roles in promoting SD and the private sector has begun to mainstream the SDGs into its corporate strategy. To further advance the SDGs, creating economic value through business practices and incorporating stakeholders in developing business strategies is important. Therefore, in this chapter, we focused on stakeholders' preferences regarding companies contributing to the SDGs. Using a combination of conjoint analysis and information treatment experiments, we investigated how corporate practice and content awareness affect stakeholders' preferences. Fundings in this chapter suggest that investing in the SDGs is

beneficial for businesses, as stakeholders support companies that both contribute to the SDGs and earn profits from those contributions. While our findings are limited because we used hypothetical rather than actual scenarios, they show that the SDGs have the potential to function as new business norms. To realize this potential, public support for companies contributing to the SDGs is necessary, and our study showed that this support would increase even more as SDG awareness increases. This novel insight lends support to companies' active involvement in SDG promotion. In the following chapter, we further investigate support of different stakeholders on company's SDG contributions from perspectives of CSR and test the robustness of the 2019 study using an additional year of study.

4 What Motivates Stakeholders to Demand Corporate Social Responsibility

4.1 Backgrounds

Corporate social responsibility (CSR) is demanded by society (Bénabou & Tirole, 2010; Kitzmueller & Shimshack, 2012), and it has become indispensable for businesses to comply with societal expectations regarding corporate practice (Agudelo et al., 2019). However, while the public sees it as a positive cause, some economists also claim negative aspects of CSR (Schmitz & Schrader, 2015). This is illustrated by a study that shows that CSR benefits firms by profiting, but employees have to compensate by accepting lower income (Briscese, Feltovich, & Slonim, 2021). A field experiment finds that CSR increases the misbehavior of employees, which harms the firm (List & Momeni, 2017). While some argue that there are business cases for CSR, some oppose, claiming that corporations sacrifice some profits by behaving prosocially (Bénabou & Tirole, 2010). Is pushing corporations to get involved in CSR create a sustainable future? Bénabou & Tirole (2010) attempted to classify the visions for CSR into three categories: (1) corporations make a profit through doing socially good, (2) stakeholders such as investors, employees, and consumers demand corporations do socially good on behalf of them, and (3) corporate insiders do socially good to fulfill their prosocial preferences rather than maximizing corporation's profit, which is called insider-initiated corporate philanthropy (Bénabou & Tirole, 2010). Stakeholders are motivated by a complex mix of intrinsic altruism, financial incentives, and social- and self-esteem concerns; thus, understanding individual prosocial behavior further contributes in prosocial policy-making (Bénabou & Tirole, 2010). We thus aim to examine stakeholders' motivation to demand socially responsible companies. We especially focus on the SDGs.

This chapter investigates motivations of stakeholders, namely, consumers, investors, and job-seekers, for demanding CSR, using the JHPSDGs dataset (n = 12,098) collected in Japan in March 2019 and 2020. We use a conjoint survey experiment (Hainmueller et al., 2014) to test what motivates stakeholder preferences for demanding CSR. Traditional economics, which assumes homo economicus who is selfish and makes perfect rational decisions as a prototypical agent, explains individuals' behavior by utility maximization and neglect other-regarding preferences. The development in behavioral economics revealed that human beings are altruistic and have prosocial preferences (for example, Camerer, 2006; Gsottbauer & van den Bergh, 2011). Other-regarding preferences which are explained as two types: (1) non-selfish motives or prosocial preferences, and (2) self-image concerns (Gsottbauer & van den Bergh, 2011) are not always motivated by positive reasons.

Furthermore, as previous literature on bounded rationality (Reinhard, 1990) shows that an individual's decision-making can be restricted due to limited knowledge and cognitive capacity, we embed an information treatment experiment, in which respondents are randomly exposed to

different sets of information, into the conjoint survey. As humans are not always rational thinkers, raising awareness about sustainable-related value influences an individual's decision-making in a sustainable way (Bolis, Morioka, & Sznelwar, 2017). The information treatment experiments allow us to test to what extent raising awareness affects making an informed decision.

This study provides novel insights into empirical studies of CSR in several ways. Consumers, investors, and employees are usually discussed as primary stakeholders in previous literature on CSR (for example, Bénabou & Tirole, 2010; Schmitz & Schrader, 2015); however, little research has been conducted to investigate the behavior of these three groups in one empirical design. First, this study investigates three different contexts: purchasing, investing, and job-seeking. Second, while similar studies commonly utilize economic games, this study uses a novel methodology in experimental economics, namely, a conjoint survey experiment that has been widely used in political science. By conducting a conjoint survey targeting a large-scale sample in Japan for two consecutive years, we have confirmed the robustness of our empirical strategy. Third, this study examines the effects of implementing the SDGs even though little study has been conducted on SDG implementation.

Our findings add unique evidence to the existing literature. First, our results show that consumers are more likely than other stakeholders to select companies that contribute to the SDGs. This finding suggests that stakeholders delegate corporations to contribute something they cannot do. Second, our study finds that while consumers support international-issue-related goals, job-seekers support companies that contribute to a job-related goal, which indicates that different stakeholders demand corporations to contribute to different issues. Third, the support of stakeholders to profit through SDG contributions is lower than directly contributing to each goal. These results suggest that social context reflects the preferences of stakeholders on corporates' SDG activities. Overall, raising awareness had effects on stakeholders' support and to what extent the information affected the decisions of stakeholders was varied by stakeholders.

The remainder of this chapter is structured as follows. Section 4.2 presents the empirical strategy. Results are presented in Section 4.3 and then discussed alongside implications and suggestions for future research in Section 4.4.

4.2 Estimation Strategy

Our study has at least 24 candidate groups (3 contexts × 4 information treatment groups × 2 years), and we try to estimate the effects of individual characteristics on the choice probability. Thus, we use a novel method, LASSO (Least Absolute Shrinkage and Selection Operator) plus, proposed by Ratkovic & Tingley (2017), to estimate AMCEs and interaction effects. LASSOplus selects relevant interaction effects and reports point estimator and significant levels.

4.2.1 Average Marginal Component Effect (AMCE)

AMCE represents the average causal effect of SDG contributions on the likelihood that a given company is chosen relative to a reference level across all possible combinations and among all respondents. AMCE for the choice of individual *i* regarding survey year *y*'s profile *j* in task t is defined as:

$$Y_{ijty} = \alpha + \beta_1 X_{ijty} + \varepsilon_{ijty}, \quad (4\text{-}1)$$

where X_{ijty} is a vector of levels of each attribute excluding a reference category (no contribution to SDG or no profit) or binary treatment variables for the presence of a certain level referred to a reference; β_1 is a causal effect and a corresponding coefficient to be estimated; α is a constant term; and ε_{ijty} is the error term. The outcome variable, Y_{ijty} is dichotomous, with a value of 1 if the respondent i's preference rank of a profile *j* in task t is higher than its alternative and 0 otherwise.

4.2.2 Average Marginal Component Effect and its Interaction Effects

LASSOplus extends the AMCE as follows:

$$Y_{ijty} = \alpha + \beta_1 X_{ijty} + \beta_2 X_{ijty} H_{ijty} + \varepsilon_{ijty}, \quad (4\text{-}2)$$

where X_{ijty} is a vector of the levels excluding the reference; β_1 is a baseline effect and a corresponding coefficient to be estimated; H_{ijty} is a vector of heterogeneous treatment variables (Table 4-1 shows the list of the variables and descriptive statistics); β_2 is an interaction effect in which a point estimator is reported only when it has a nonzero effect and also a corresponding coefficient to be estimated; α is a constant term; and ε_{ijty} is the error term. The outcome variable, Y_{ijty} is dichotomous, with a value of 1 if the respondent i's preference rank of survey year *y*'s profile *j* in task t is higher than its alternative and 0 otherwise.

4.2.3 To Avoid Within-Unit Correlation in Repeated Respondent-Level Observations

AMCE for the choice of individual *i* of year *y* regarding profile *j* in task t is defined as:

$$Y_{ijty} = \alpha + \beta_1 X_{ijty} + a_i + u_{ijty}, \quad (4\text{-}3)$$

where X_{ijty} is a vector of levels of each attribute excluding a reference; β_1 is a corresponding coefficient to be estimated; α is a constant term; a_i is the unobserved effect and u_{ijty} is the error term, Y_{ijty} is the outcome variable.

Let X_i donate the explanatory variables for all time periods of profile *j* in task t; thus X_i contains X_{ijty}.

The assumption for pooled OLS using repeated respondent-level observations:

Conditional X_i, the u_i are independent and identically distributed as Normal$(0,\ \sigma_u^2)$.

To obtain robust standard errors robust to within-unit correlation, cluster robust standard errors at the individual level are usually utilized in the conjoint survey (Hainmueller et al., 2014). For the same purpose, LASSOplus allows researchers to implement individual-level random effects instead. According to Ratkovic & Tingley (2017), LASSOplus includes random effects u_i as follow.

Let $u_i = a_{j[i]}$ (4-4)

$a_{j[i]} \sim \varkappa(0, \sigma_a^2)$ (4-5)

It takes the Jeffrey's prior $\frac{1}{\sigma^2}$ on σ^2.

Table 4-1: List of heterogeneous treatment variables and descriptive statistics.

Variables	2019					2020				
	N	Min	Max	Mean	S.D.	N	Min	Max	Mean	S.D.
Information treatment										
Control	6043	0	1	0.248	0.432	6055	0	1	0.268	0.443
T1	6043	0	1	0.246	0.431	6055	0	1	0.244	0.430
T2	6043	0	1	0.248	0.432	6055	0	1	0.244	0.430
T1&T2	6043	0	1	0.258	0.438	6055	0	1	0.243	0.429
Context group										
Purchasing	6043	0	1	0.339	0.473	6055	0	1	0.336	0.472
Investing	6043	0	1	0.334	0.472	6055	0	1	0.333	0.471
with investing experience[1]	2016	0	1	0.236	0.424	2014	0	1	0.269	0.444
Job-seeking	6043	0	1	0.328	0.469	6055	0	1	0.332	0.471
Individual characteristics										
Younger generation: 1 if aged 18–30	6043	0	1	0.166	0.372	6055	0	1	0.185	0.389
Women: 1 if woman	6043	0	1	0.501	0.500	6055	0	1	0.501	0.500
Higher education: 1 if completed tertial education degree or above	6043	0	1	0.465	0.499	6055	0	1	0.491	0.500
Earn enough: 1 if household income was more than their hopeful income	6043	0	1	0.325	0.468	6055	0	1	0.337	0.473
Pro-sustainability behaviors [2]										
Pro-environmental behavior: 1 if higher	6043	0	1	0.439	0.496	6055	0	1	0.465	0.499
Pro-globalization behavior: 1 if higher	6043	0	1	0.435	0.496	6055	0	1	0.468	0.499

1 Regarding the investing experience, respondents were asked, “How often do you do trade stocks on a daily basis?” and they chose one from a four-point scale: Often, Sometimes, Hardly, and Never. Often and Sometimes were coded as “with investing experience” within the investing group.

2 Regarding pro-sustainable behaviors, respondents were asked how often they did following activities on a daily basis, and they chose one from the four-point scale.

Participate in international cooperation and exchange activities;

Consume products with fair trade labels;

Buy locally produced ingredients;

Devise to reduce power consumption;

Purchase only food that I can consume;

Purchase imperfect food; and

Set the air conditioner temperature lower in winter and higher in summer

Activities 1–3 were used to formulate pro-globalization behavior, and activities 4–7 were used to formulate pro-environmental behavior. The above media score was recoded as “higher” pro-sustainability behaviors.

4.2.4 Overall Support for SDG-Minded Company

In this study, we also predict overall support for an SDG-minded company as follows:

$$Y_{ijty} = \alpha + \beta_1 X_{ijty} + \beta_2 H_{ijty} + \varepsilon_{ijty}, \quad (4\text{-}6)$$

where X_{ijty} is a vector of levels of each attribute excluding a reference or binary treatment variable for the presence of a certain level referring to a reference category; β_1 is a causal effect and a corresponding coefficient to be estimated; H_{ijty} is a vector of heterogeneous treatment variables (context group and survey year); β_2 is a treatment effect; and ε_{ijty} is the error term. Here, Y_{ijty} is dichotomous, with a value of 1 if the respondent i's preference rank of a profile j in task t is higher than the status quo (choosing none of the two proposed profiles) and 0 otherwise. We used a different outcome variable than the one used for the AMCE. The aim here is to estimate aggregated demand to examine to what extent any proposed SDG-minded company is chosen over the status quo. After running OLS regression, we predict the fitted value for all the observations.

4.3 Results

First, we predicted overall support for the proposed hypothetical SDG-minded companies in three different contexts—purchasing, investing, and job-seeking. We divided the investing context respondents into two groups: those with and those without the investing experience because asking randomly assigned respondents without investing experience may not capture real investors' preferences. In Figure 4-1, frequencies of the fitted values for each context are plotted by years. In addition to the overall support, we estimated AMCEs to test (1) how each attribute affects the selection of a company with SDG contributions, and (2) if interaction or partial effects of contexts and survey year (Figure 4-4) and individual characteristics and pro-sustainable behavior (Figure 4-5) on each AMCE can be observed. As discussed in Section 4.2, we used LASSOplus to effectively select the most relevant interaction variables and estimated interaction effects in addition to the baseline, which is AMCE. Specifically, we ran LASSOplus by splitting the sample into four information treatment groups. Estimated OLS sub-group analysis results are presented in Figure 4-2 and Figure 4-3.

Before discussing the results, we show how to read Figure 4-4 and Figure 4-5. Each attribute is shown separately in different panels. The baseline AMCEs are displayed as black markers, and selected interaction effects are displayed as non-black-colored markers. If interaction effects are not shown in those figures, this indicates that those interaction effects are found to have zero effects, so values are not reported. For example, the black circle marker in Figure 4-4′s Panel 1 shows that contributing to Goal 2 increases the probabilities of respondents in the control group to select the company by 11.7% versus not contributing to Goal 2. Being in the job-seeking context decreases the above baseline effect by 1.9%, which can be interpreted that contributing to Goal 2 increases the support for the company by 9.8%. Being in the investing (experienced) context

decreases the above baseline effect by 1.3%. The other contexts and survey years have zero effects on the baseline AMCE.

SDG-minded companies are more likely to be chosen in the purchasing context followed by investing (with experience), job-seeking, and the investing (with no experience) context (Figure 4-1). This tendency can be observed across all contexts and treatment groups in both 2019 and 2020. Furthermore, in Figure 4-4, interaction effects of 2020 have a nonzero effect only on Goal 13: Climate Action and Direct Economic Return in the control groups, indicating that changes in a year were observed only in these two attributes. These tendencies of having similar results over the years reinforce the robustness of the methodologies utilized in this study.

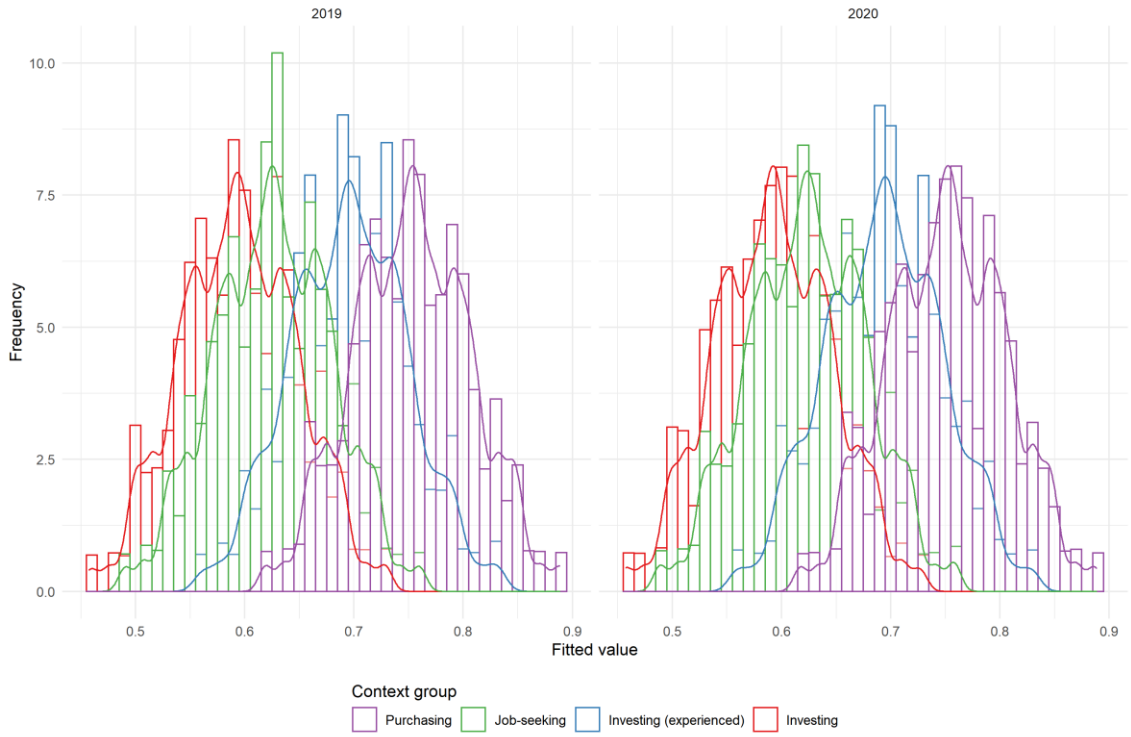


Figure 4-1: Estimated overall support for the SDG-minded companies.

Frequencies of fitted value are calculated based on the estimation strategy presented in Section 4.2.4 by the context group and plotted by survey year.

For treatment groups, interaction effects of year 2020 are observed mostly in the T2 group, which is potentially affected by the survey design change, as discussed in Section 2.2.2. In the 2019 design, the T2 group was given a confirmation question that Japan is behind in achieving Goals 5 and 13; however, in the 2020 design, respondents in the T2 group were requested to freely write down their reflection on the information provided.

Demand for companies to contribute to the attributes tested in the experiments was varied between the contexts (Figure 4-4, Figure 4-5). Generally, companies contributing to any tested attribute had positive causal effects (baselines, shown in black markers of Figure 4-4). T1 positively affected direct economic returns, as expected. T1 also positively affected SDG attributes except for Goal 2: Zero Hunger. T2 positively affected all the tested goals, but negatively affected direct economic returns. Effects of T1&T2 were observed in three patterns. The first pattern is that T1&T2 has additional effects. The degree of support for Goals 6 and 16 was the most positive, indicating that giving two different pieces of information has more positive effects than a single piece of information. The second pattern is that T1&T2 decreased the effects of T1 or T2. The degree of support for Goal 13 was the most negative. The third pattern is that T1&T2 has a diluting effect of T1 or T2. For Goals 2, 5, and 8 and Direct Economic Returns, T1&T2 falls between T1 and T2.

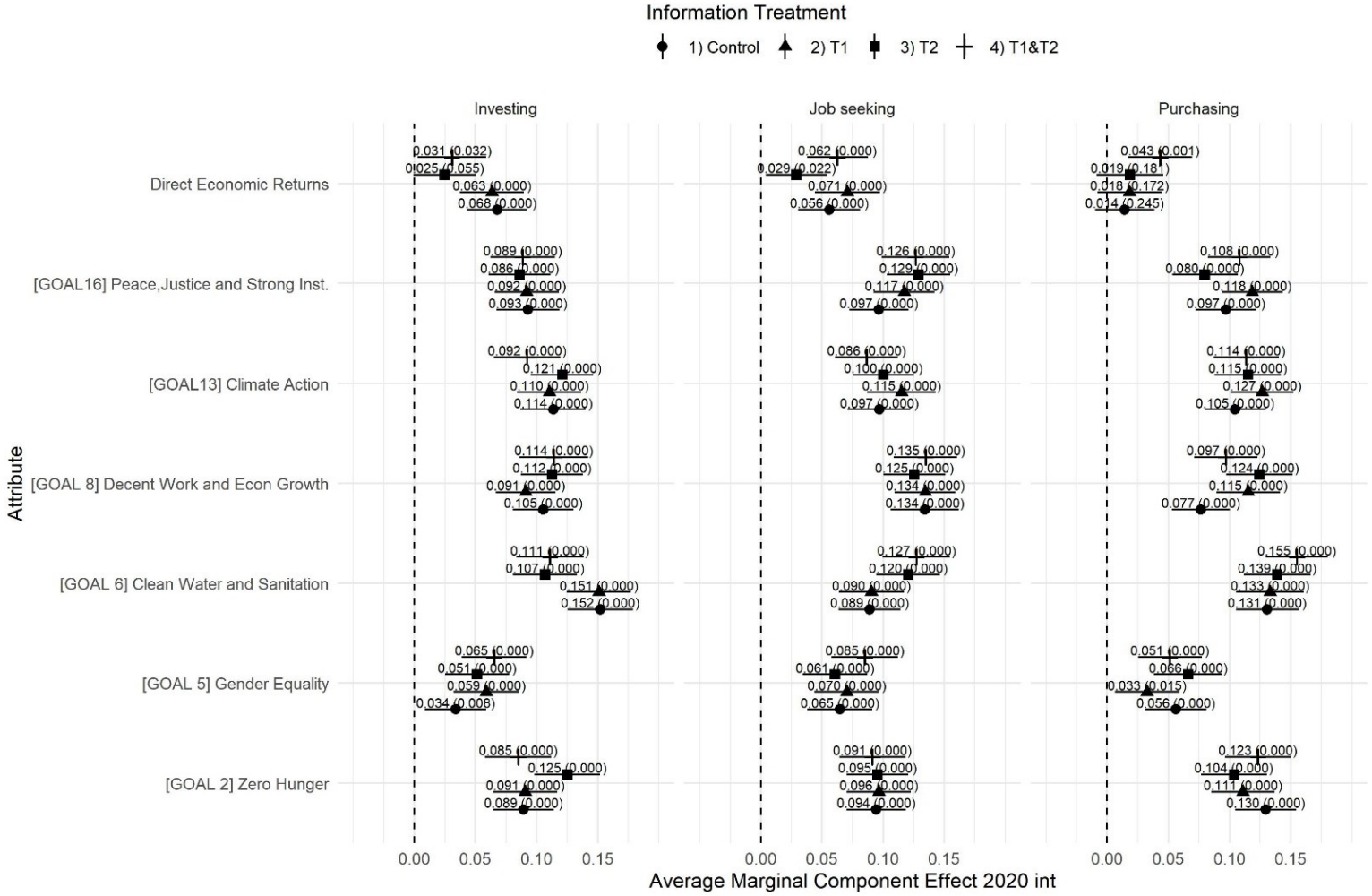


Figure 4-2: Estimated AMCEs using the dataset of year 2020.

AMCEs are estimated based on estimation strategy presented in Section 3.1 for context and information treatment groups. Symbols indicate AMCE point estimates. Error bars indicate 95% confidence intervals. P-values are in parentheses.

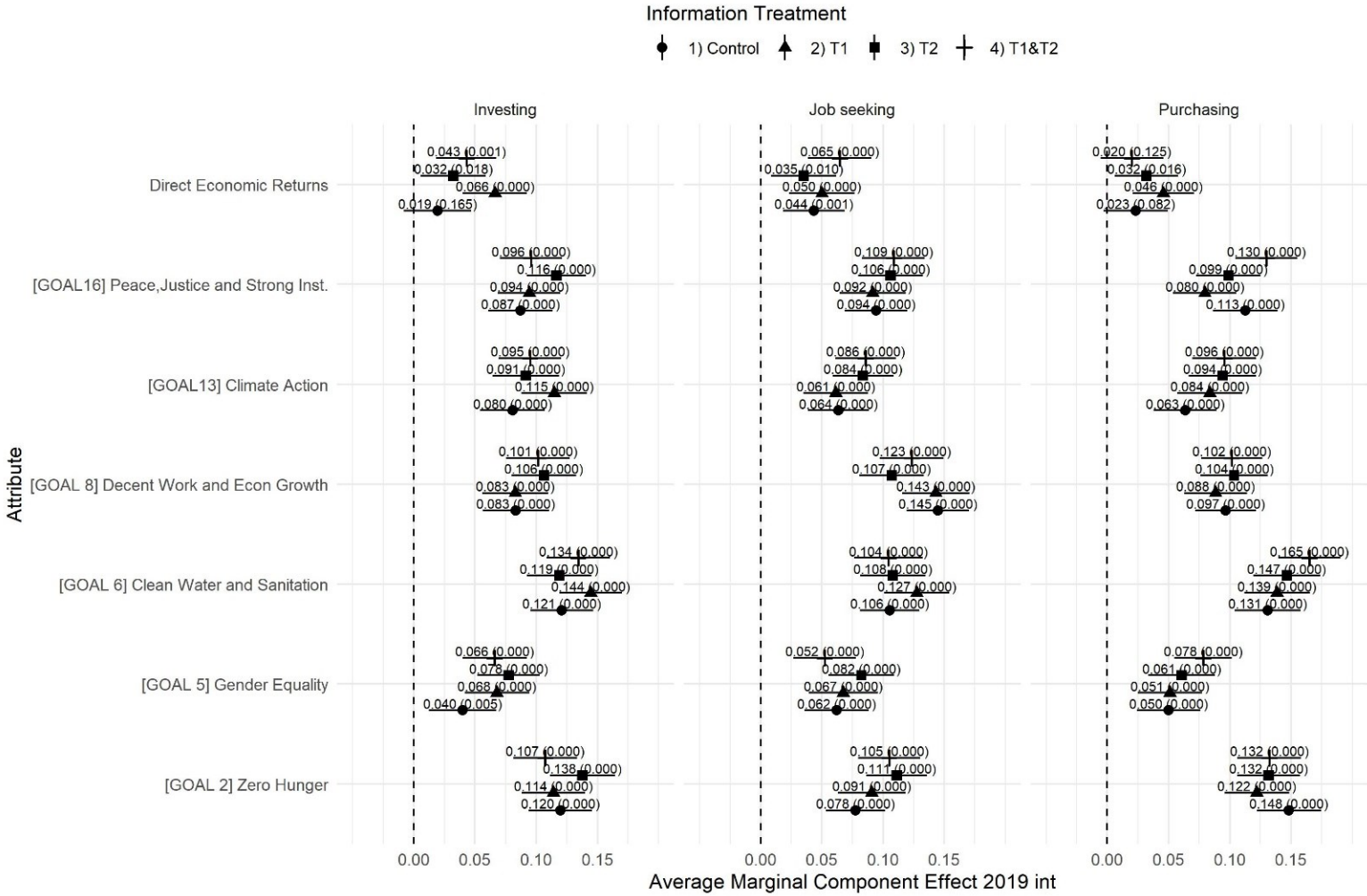


Figure 4-3: Estimated AMCEs using the dataset of year 2019.

AMCEs are estimated based on estimation strategy presented in Section 3.1 for context and information treatment groups. Symbols indicate AMCE point estimates. Error bars indicate 95% confidence intervals. P-values are in parentheses.

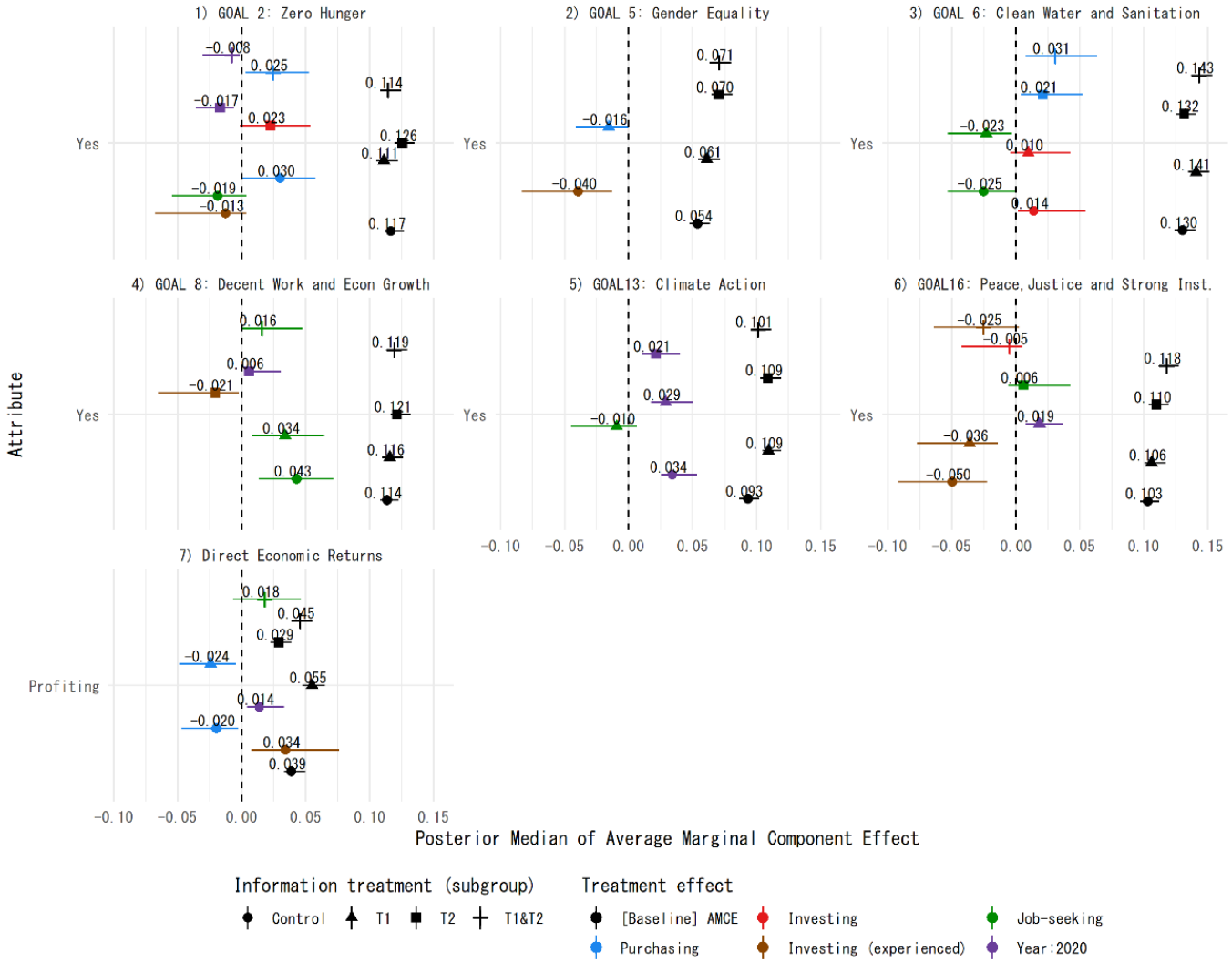


Figure 4-4: Estimated AMCE and interaction effect of context and survey year.

AMCEs and interaction effects are estimated based on the estimation strategy presented in Section 4.2.2. Attributes are separately displayed in panels. Values in black markers show the baseline AMCEs. LASSOplus selected values, in non-black colors, show interaction effects to the baseline. Error bars indicate 95% confidence intervals.

Some interaction effects of the context were selected, which means that these selected contexts affect the demand for SDG-minded companies. Respondents in the job-seeking context preferred a job-related goal more than others. The job-seeking context (green marker in Figure 4-4) has negative interaction effects on international-issue-related goals, such as Goals 2 and 6, which may not directly affect the work environment. However, the context has positive interaction effects on Goal 8: Decent Work and Economic Growth in all groups except for T2. When provided with the information that the progress toward achieving other goals was behind (T2), the job-seeking context's interaction effects on Goal 8 disappeared.

In the purchasing context, we observe negative interaction effects on Direct Economic Returns, indicating that consumers are less likely to support corporations that profit from contributions than the other stakeholders. However, T2 eliminated such effects. The purchasing context has positive interaction effects on Goal 2 in the control and T1&T2 groups and Goal 6 in T2 and T1&T2 groups, indicating that purchasing context is more likely to support international-issue-related goals than the other contexts.

In the investing context, the actual investor group (Brown market in Figure 4-4) has positive interaction effects in Direct Economic Returns in the control groups. In contrast, it has negative interaction effects on Goals 2, 5 and 16 in the control groups. Investors were more likely to support profit generation through SDG contributions; however, they were less likely to support contributions to social causes.

To further examine the demand for SDG-minded companies, we added heterogeneous variables to estimate interaction effects (Figure 4-5). We used personal characteristic variables such as education level, income, gender, and generation and pro-sustainable behavior as potential interaction variables (For descriptive statistics and definitions of variables, refer to Table 4-1). Regarding pro-sustainable behaviors, while pro-environmental behavior generally has a positive interaction effect on most attributes (turquoise markers), pro-globalization behavior has negative interaction effects to Goals 2 and 8 in the control group (brown markers). Pro-environmental behavior is especially responsive to information treatments that have positive effects. Regarding gender, being a woman positively affects Goal 5: Gender Equality and Goal 16: Peace, Justice and Strong Institutions (pale blue marker). Respondents in the younger generation (aged 18–30) are negatively affected by information treatment regarding Goals 2, 6, 8, 13, and 16 (pink marker). However, being young has positive effects on Goal 5. Earning enough (household income is more than their hopeful income) increases the likelihood of supporting companies profiting from the SDG contributions (orange marker). These results suggest that stakeholders' demands for SDG-minded companies were varied by personal characteristics.

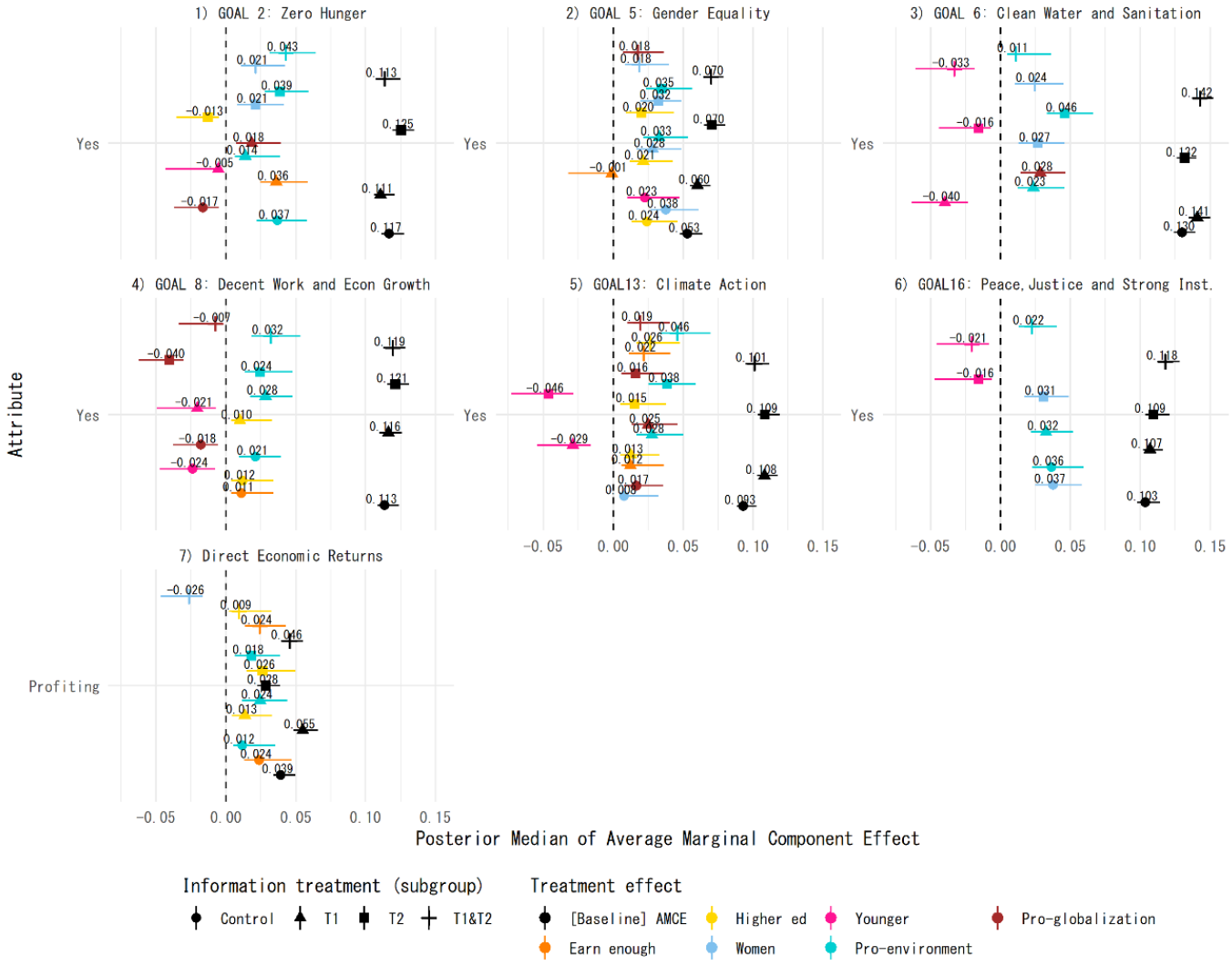


Figure 4-5: Estimated AMCE and interaction effect of heterogeneity.

AMCEs and interaction effects are estimated based on the estimation strategy presented in Section 4.2.2. Attributes are separately displayed in panels. Point estimators in black markers show the baseline AMCEs. LASSOplus selected values in non-black colors show interaction effects to the baseline.

4.4 Discussion

While CSR has become something companies cannot avoid and stakeholders demand, such demand is not well explained. Some studies have claimed that CSR has negative causes. How stakeholders demand CSR is essential in shaping a sustainable future. This chapter, thus, aimed to investigate what motivates stakeholders to demand corporations to behave in socially responsible manners. With limited knowledge about sustainable development, stakeholders may not be able to make an informed decision toward creating a sustainable future; therefore, we tested the effects of providing sets of different information to stakeholders on changing the support for the SDG-minded companies. In this section, we discuss the main findings of the survey experiment and offer practical implications to promote sustainable development.

4.4.1 Main Findings

Our results showed that stakeholders demanded corporations to contribute to international-related issues rather than domestic-related issues, unlike Tilman et al. (2019)'s localized pro-sociality assumption, which is discussed in the earlier section. The international-issue-related goals, Goals 2 and 6, had the highest stakeholder support among all goals, which is consistent with previous surveys targeting Japanese people (Chapman & Shigetomi, 2018; Keizai Koho Center, 2019). Even when the respondents were exposed to the information that Japan is not facing challenges in achieving these goals, support for these goals slightly increased. Consumers demanded corporations to contribute to international-issue-related goals more than other stakeholders. Consumers' motivation for demanding CSR can be explained by delegating companies to do good, so that they are more likely to support non-localized contributions such as international-issue-related goals than the other stakeholders. The job-seekers demanded corporations to contribute to the job-related goal more than the other stakeholders. However, stronger preferences for the job-related goal were not observed when respondents in the job-seeking context were informed that the other goals were lagging behind. These findings demonstrated that stakeholders have non-selfish motivations for CSR.

Furthermore, the results on investors showed that their preferences were similar to the current corporate practices in Japan. The Environmental, social, and governance (ESG) scorecard has shown that overall Japanese companies fall behind the US and European companies in meeting expected outcomes. While environmental performance was well performed, social and governance performance was lagging behind in Japan (Cremers, Goerg, Grundin, Nuttall, & Yamada, 2021). This trend is reflected in the investors' preferences, who also favored environmental issues over social and governance issues. Contributing to social issues such as Goals 2 and 5, and governance challenges, Goal 16, were less likely to gain support in the control group. However, these negative interaction effects disappeared when information was provided except for Goal 16′s T1 and T1&T2.

One reason why corporations implement CSR is that they can make profits by contributing

to social challenges. When corporations can make profits through SDG contributions, it may be an effective means for SDG achievement. For example, corporations can indirectly solve hunger or improve sanitation if corporations can gain economic returns through SDG contributions and supply decent work or accelerate economic growth. However, the support of stakeholders to profiting through SDG contributions was as low as 3.9%, while contributing directly to each goal had around 10% of support, except for Goal 5. When the information that profiting through SDG contribution can achieve a sustainable future (T1) was given to the respondents, the support increased to 5.5%. On the other hand, exposure to SDG achievement information (T2) decreased the support to 2.9%, while T2 positively affected support for each goal; giving two pieces of information (T1&T2) moderated the effect of T1. Furthermore, economic returns through SDG contribution increased investors' support by 7.5%, but T1 decreased to 5.5% and T2 to 2.9%. Those results indicated that raising awareness has a certain level of effects in changing stakeholders' preferences to support corporations profiting through contributing to the SDGs.

4.4.2 Implications

CSR has become imperative (Baskentli, Sen, Du, & Bhattacharya, 2019) and many companies have started developing corporate strategies around the. Understanding stakeholders' motivation to support SDG-minded companies helps practitioners formulate effective strategies to promote sustainable development. Our findings suggest that simply reflecting stakeholders' preferences when developing corporate strategy may not push society toward a sustainable future. We found that social context reflects the preferences of stakeholders on corporate SDG activities and that the change of social norms may have to happen in order to increase support for SDG-minded companies.

Support for gender equality and profiting directly from SDG contribution was the lowest among seven attributes, which may be reflecting Japanese cultural contexts. As Japan ranked 121th out of 153 countries in the recent Global Gender Gap Index (World Economic Forum, 2020), gender inequality is a deep-rooted social issue in Japan. Traditional gender roles, which expect women to play more prominent roles in the household and childbearing responsibility, limit the opportunity for women, especially in politics and businesses (The Associated Press, 2020). The government has been promoting gender equality as one of its priorities, although little progress has been made (The Asahi Shimbun, 2020). Furthermore, stakeholders were less likely to support companies making a profit through doing good. It may be more rational for companies to do socially good and profit through it; however, such a framework is less likely to be supported, especially by consumers. Our results were consistent with Japanese social norms, suggesting that making a profit through socially good causes is not well accepted (Kim, 2018). Our findings suggest that raising awareness may be one way to influence stakeholders' demands. In the study, we tested the effects of raising awareness, and those results are informative in developing a policy toward changing such social norms.

Overall, raising awareness had effects on stakeholders' support and to what extent the

information affected the decisions of stakeholders was varied by stakeholders. The information we tested in this study had a slightly negative effect on consumers' support on companies gaining direct economic returns, although it had a positive effect on job-seekers and investors' support. Therefore, it requires different contents of information for consumers to increase support for companies making profits through SDG contributions. Job-seekers, potential future corporate insiders, had stronger preferences on a job-related goal. After they were informed that other goals were lagging behind, they did not insist on the job-related goals. Investors had relatively lower support for social and governance-related SDG contributions. Investors' support to corporations contributing to gender equality was minimum. It is critical to raise investors' awareness. The achievement gap information positively affected the investors to support for social and governance contributions. Also, those effects of information treatment had heterogeneity. Pro-environmental stakeholders were more responsive to information. Environmentally conscious stakeholders do not only support environmentally friendly causes, but also other social causes.

This study was able to provide novel insights on the effectiveness of raising awareness on stakeholders' decisions. In the following chapter, we further investigate the heterogeneous effects of raising awareness.

5 Impact of Raising Awareness of the SDGs on Stakeholder Preferences

5.1 Backgrounds

A study on pro-environmental behavior has revealed that raising environmental awareness enhances responsible environmental behavior (Pavalache-Ilie & Cazan, 2018). Raising public awareness of the SDGs is one of the essential factors for their implementation (Guan, Meng, Liu, & Xue, 2019); however, to the best of our knowledge, the extent to which SDG-related information affects the perceptions of individuals, as well as their support for the SDGs, has not been sufficiently clarified.

Furthermore, businesses are essential players in the implementation of the SDGs, and they are expected to play more active roles in the future (GRI & United Nations Global Compact, 2018; Scott & McGill, 2018). Businesses have been contributing to sustainable development, for example, through Corporate Social Responsibility (CSR) (Ye, Kueh, Hou, Liu, & Yu, 2020). In the last decades, a body of literature has emerged focusing specifically on developing theoretical schemes to define or explain CSR (Agudelo et al., 2019; Bansal & Song, 2017; Carroll & Shabana, 2010; Nave & Ferreira, 2019), and over the years, the interpretation of CSR has been broadened. In the 1950s, the main social responsibility of companies was solely to generate profit. In the 1980s, it shifted toward contributing to social issues through philanthropic activities, and in the 2000s (Ye et al., 2020), it became integrated as a corporate strategy and focused on the creation of shared value and strategic management (Porter & Kramer, 2006, 2011). While the SDGs appeal to the private sector to contribute financially for their realization (United Nations Secretary-General, 2019), companies can also create value by investing in these goals (Business & Sustainable Development Commission: BSDC, 2017). Both scholarly evidence and practical experience have shown that because individual stakeholders reward companies engaged in CSR activities, companies can create value through CSR (Bhattacharya, Korschun, & Sen, 2009). However, a recent literature review on CSR and sustainable development has shown that the contribution of CSR practice to achieving the SDGs needs to be further investigated (Ye et al., 2020). While a large numbers of studies have discussed companies' social responsibility, limited studies uncover the stakeholder perspective (Buerke et al., 2017).

To fill these two research gaps discussed above, the objective of this Chapter is to investigate the impacts of raising awareness of the SDGs on stakeholder support for companies that contribute to achieving the SDGs. We tested if raising stakeholders' awareness about sustainable development may influence them to be more sustainably conscious and lead to responsible behavior. Previous studies have shown that personal characteristics, such as demographics, personality traits, and daily habits, are associated with the pro-sustainable behavior of individuals (e.g., Buerke et al., 2017; Pavalache-Ilie and Cazan, 2018; Rosati and Faria, 2019). However, little is known regarding the perception of individuals and response to information regarding SDG-

related concerns. Thus, this study investigates the individual characteristics related to individual stakeholder decision-making regarding their support for companies that contribute to achieving the SDGs and their perception of information.

This study draws from the 2019 JHPSDGs dataset (n = 6,048). We used a conjoint survey experiment that elicited the preferences of stakeholders for company contributions to SDG realization, investigated how these preferences shift with SDG-related knowledge acquisition, and determined how personal characteristics affect such shifts. Earlier sections showed that the effectiveness of raising stakeholder awareness, and this chapter further investigates the effects of information treatments.

Caiado et al. (2018) demonstrated that the SDGs require collective global action by different actors, including multinational enterprises (MNEs). Thus, it can be concluded that in-depth research using large sample sizes aimed at effective implementation of SDGs is required. Individual beliefs contribute to corporate behavior; therefore, it is helpful to understand the impacts of personal characteristics on CSR (Ivanaj, Guimaraes Da Costa, Ivanova, Ivanaj, & Kar, 2013). Contributions from MNEs are vital for achieving SDGs (Kolk et al., 2017; van Zanten & van Tulder, 2018). However, some studies have revealed that certain companies engage in SDG washing, wherein the SDGs are used only as a means of complying with societal expectations without actually contributing toward sustainable development (Buhmann, 2018; Kim, 2018). If businesses use the SDGs only to create a cleaner image to present to stakeholders without taking the sustainability challenges seriously, stakeholders would not trust these businesses to create value to achieve the SDGs. Therefore, we also discuss how the finding in this paper can inform MNEs in advancing SDG implementation, although the focus of this study was not exclusively MNEs, but companies in general.

The remainder of this paper is structured as follows. Section 5.2 provides a literature review and discusses the conceptual framework and hypotheses for the study, Section 5.3 introduces the methodology, including data collection and survey design. Further, Section 5.4 discusses the empirical strategy, and in Section 5.5, the results are presented. Finally, in Section 5.6, the results are discussed, including potential implications for MNEs, are also presented.

5.2 Conceptual Framework and Hypotheses

5.2.1 Effects of Personal Characteristics on Stakeholder Preferences Regarding the Contribution of Businesses to Sustainability Development

In this study, we examined the effects of personal characteristics, including demographics, personality traits, and pro-sustainable behavior, on stakeholder preferences or businesses that contribute to sustainable development. Table 5-1 provides a summary of the hypotheses.

Table 5-1: Study hypotheses

Hypotheses		Heterogeneous effects		
		Preferences on SDG contributing company	Information treatment: one piece	Information treatment: two pieces
Personal characteristics	1) Demographics	H1a	H2a	H3a
	2) Personality traits	H1b	H2b	H3b
	3) Pro-sustainable behavior	H1c	H2c	H3c

Demographic characteristics, including age, gender, educational level, and income level can, to a certain extent, have an effect on the behaviors of stakeholders with respect to sustainable development (BSDC, 2017; Gifford and Nilsson, 2014; Jones et al., 2017; Rosati and Faria, 2019). An increasing number of studies have explored the relationships between demographic characteristics and environmental attitudes or concerns. These studies have shown that pro-environmental attitudes and behaviors correlate with different individual characteristics (Brick & Lewis, 2014). For example, Ruegger and King (1992) showed that age is associated with ethical decisions. However, Rosati et al. (2018) observed that age has no significant effect on an employee's feelings regarding CSR. Recent studies have shown that younger individuals may be more attracted to companies that contribute to sustainable causes than their older counterparts (BSDC, 2017; White et al., 2019).

Gender also explains the heterogeneity of preferences toward corporate behavior. Women tend to be less likely to trust in and be satisfied with CSR than men (Rosati et al., 2018). Although the results of previous studies claim that a gap exists between the environmental attitudes and behaviors of consumers, this gap can be explained by gender, considering that women have a smaller gap between attitudes and behaviors than men (R. J. Jones et al., 2017). Studies on pro-environmental behavior have shown that women are more likely to report stronger environmental attitudes, concerns, and behaviors than men (Gifford & Nilsson, 2014). In contrast, a study by Pérez and Rodríguez del Bosque (2013) illustrated that gender is not associated with the formation of favorable CSR perceptions.

Reportedly, the educational level of respondents has no effect on the CSR attitudes of bank customers in Spain (Pérez & Rodríguez del Bosque, 2013) or employees in Turkey (Akman, 2011). However, a study on employee attitudes toward aspects such as CSR level of commitment, trust, and satisfaction demonstrated that more educated employees have a more positive attitude toward CSR than their less educated counterparts (Rosati et al., 2018).

In addition to demographic characteristics, studies aimed at clarifying the relationships

between pro-environmental behaviors and personality traits have also been conducted (Brick & Lewis, 2014; Pavalache-Ilie & Cazan, 2018). A particular study revealed that personality traits, such as honesty, agreeableness, openness, and proactiveness, have an effect on environmental behavior (Pavalache-Ilie & Cazan, 2018). In a study of the greenhouse gas emission reduction behavior of adults in the United States, Brick and Lewis (2014) suggested that openness, conscientiousness, and extraversion are strong predictors of pro-environmental behavior. In a more recent study, the role of core values and personality traits in an individual's support for a broad set of corporate sustainability practices, including economic, social, and environmental actions, was investigated, and it was observed that some personality traits are associated with these sustainable practices (Marcus & Roy, 2019). Additionally, these previous studies suggest that personality traits are one of the critical factors that predict sustainable behavior; however, to the best of our knowledge, little research has been conducted in the context of the SDGs.

Furthermore, the relationships between consumers' purchasing behavior and their environmental concerns and values have been investigated in several previous studies (Buerke et al., 2017; Farrow, Grolleau, & Ibanez, 2017; Gonçalves, Lourenço, & Silva, 2016; Lin & Huang, 2012). Lin and Huang (2012) confirmed that a high environmental concern positively influences green purchase decisions. A functional value (i.e., one of the five values defined in the theory of consumption values) is necessary to predict green buying; however, combining emotional, conditional, and social values is also necessary (Gonçalves et al., 2016). Both consumer awareness and pro-sustainable attitudes positively correlate with responsible consumer behavior (Buerke et al., 2017). Based on the discussion of the abovementioned literature, which explores the effects of personal characteristics on stakeholder preferences for corporate sustainable behavior, we developed the following hypothesis:

H1: Personal characteristics—(a) demographics, (b) personality traits, and (c) sustainable behavior—are associated with stakeholder preferences for companies that contribute to the realization of the SDGs.

5.2.2 Effects of Sustainable Development-related Information on Individual Stakeholders

Around the world, studies have been conducted regarding the influence of available information on sustainable purchase decisions for different products and contexts. Specifically, in a study conducted in Germany, the effect of information on purchase decisions related to dairy products was explored, and it was observed that the welfare of animals had the greatest influence among environmental protection and human right information (Hasanzade, Osburg, & Toporowski, 2018). Another study in Germany showed that if information, e.g., on the environmental impact and employee working conditions behind products is provided, consumers may base their decisions on this information, and the influence of this information is approximately the same as the influence of the product’s price (Stöckigt et al., 2018). A study of the furniture industry in the US and China argued that consumers preferred the companies with a high level of CSR to companies that did not provide their CSR activity information (Cai & Aguilar, 2013). However, in the context

of electric vehicles, Shao and Ünal (2019) investigated purchase decision in different parts of Europe and concluded that the awareness of sustainable performance was not necessarily associated with behavior, although they acknowledged its importance. Studies in France showed that advertising the green benefits of products did not significantly affect the decision to purchase products (Grolleau, Mzoughi, & Sutan, 2019). In addition to purchase decisions, other behaviors, such as job-seeking and investing, have been investigated. Some studies conducted in Turkey (Alniacik et al., 2011) and the US (Sen et al., 2006) showed that providing information on a company's CSR activities increases the support for that company with respect to the three areas of consumer behavior.

With respect to providing information to stakeholders, we developed the following hypothesis:

H2: Providing SDG-related information has heterogeneous effects on stakeholders with different personal characteristics—(a) demographics, (b) personality traits, and (c) sustainable behavior.

As discussed above, information generally plays a positive role in the sustainable development-related decision-making of individual stakeholders; however, the amount and form in which the information should be provided need to be carefully examined. Previous studies have provided a theoretical framework on the relationship between information strategy and pro-environmental behavior, and claim that decision quality and the quantity of information made available to stakeholders create an inverted U-curve, where the former increases to a certain point and then decreases (Bougherara, Grolleau, & Mzoughi, 2007). Several recent studies have added empirical evidence regarding the effect of the quantity of information given. Labeling, which is one source of pro-environmental information, is commonly used to influence consumers' decision-making. A study in Germany revealed that certified sustainable investment products have a higher stated preference among private investors (Gutsche & Ziegler, 2019). However, increasing the number of sustainability labels, such as fair trade or organic food, did not influence the consumers' decision-making (Tebbe & von Blanckenburg, 2018). A study on sustainable lifestyle in the U.K. revealed that providing more knowledge can be a source of dilemma, tension, and paralysis (Longo, Shankar, & Nuttall, 2019).

With respect to the quantity of information provided to stakeholders, we developed the following hypothesis:

H3: Providing additional SDG-related information has additional effects on the support of stakeholders with different personal characteristics ((a) demographics, (b) personality traits, and (c) sustainable behavior) for companies that contribute to the realization of the SDGs.

5.3 Materials and Methods

The study in this chapter used the dataset of the 2019 JHPSDGs conjoint survey. After the

conjoint tasks were completed, all the respondents were then assigned the same questions on personal characteristics, personality traits, and pro-sustainable attitudes. Table 5-2 describes the variables measured in the survey.

Table 5-2: Variables measures in the survey.

Variable	Description
Personal Characteristics	
Age/ Generation	Self-reported age. Respondents aged 18–74 were coded as "Younger" if they were less than 32 years old, and "Older" if they were older than 33 years old.
Gender	Self-reported gender.
Educational level	Self-reported highest level of education achieved. Respondents were coded as ">Higher ed" if they had a tertiary education degree or above, and "<Secondary" if their education level achieved was secondary or below.
Income level	Self-reported household income. Respondents were split into those above the median income and those below. Two groups were coded as “Higher” or “Lower.”
Personality traits	
This study used the Japanese Version of the Ten Item Personality Inventory (TIPI-J) developed by Oshio, Abe, & Cutrone (2012). Respondents' subjective measure of five personality traits were measured from the following questions on a five-point scale. Respondents were split into those above the median score and those below. Two groups were coded as “High” or “Low.”	
Extraversion	I see myself as Extraverted, enthusiastic Reserved, quiet
Agreeableness	I see myself as Critical, quarrelsome Sympathetic, warm
Conscientiousness	I see myself as Dependable, self-disciplined Disorganized, careless
Neuroticism	I see myself as Anxious, easily upset Calm, emotionally stable
Openness	I see myself as Open to new experiences, complex Conventional, uncreative
Pro-sustainable behavior	
Multi-construct measure of pro-sustainable behavior. To measure pro-sustainable behavior, we selected seven questions based on daily behavior familiar to Japanese people on a four-point scale with Likert-type responses. We recoded "often" as 3, "sometimes" as 2, "hardly" as 1, "never" as 0. Two pro-sustainable behavior measures were formulated using the following questions. Respondents were split into those above the median income and those below. Two groups were coded as “High” or “Low.”	

Pro-globalization behavior	How often do you do the following on a daily basis? Please select from the pull-down for each question. Participate in international cooperation and exchange activities Consume products with fair trade labels Buy locally produced ingredients
Pro-environmental behavior	How often do you do the following on a daily basis? Please select from the pull-down for each question. Devise to reduce power consumption Purchase only food that I can consume Purchase imperfect food Set the air conditioner temperature lower in winter and higher in summer

5.4 Estimation Strategy

To investigate the heterogeneous effects of personal characteristics on stakeholder support for companies contributing to SDG implementation, we estimated the overall support rate for the most SDG-minded company using the estimation model:

$$Y_{itj} = \beta_0 + \sum_{l=1}^{7}\sum_{r=1}^{4}\sum_{h=1}^{2} \beta_{lrh}\, SDG_{itjl} RCT_{ir} HET_{ih} + u_{itj} \quad (5\text{-}1)$$

where Y $\in \{0,1\}$ is a binary choice outcome for company j in task t of respondent i. This parameter is equal to 1, if the preference rank of a company is higher than both the status quo (choose neither of the companies) and an alternative company; otherwise, it is equal to 0;
SDG_{itjl} is a dummy variable for attribute l (one of two levels in each attribute are the baseline levels, and no SDG contributions and no profit are excluded from the regression expression);
RCT_{ir} is a dummy variable for information treatment r, which is randomly attributed to respondent i;
HET_{ih} is a dummy variable for respondent $i's$ personal characteristic h;
β_{lrh} is a parameter of attribute l, information treatment r, and personal characteristic h;
β_0, denotes a constant term; and
u_{itj} denotes the error term.

Using interaction terms in the logistic regression, we predicted support for all the possible combinations separately for each personal characteristic. In particular, we calculated the heterogeneous effect of information treatment on support for the most SDG-minded company.

After running the regression with clustered standard errors by respondent, we predict the fitted value for all the possible combinations ($2^7 \cdot 4 \cdot 2 = 1024$) and selected combinations of both most and least SDG-minded companies by information treatment and heterogenous group.

5.5 Results

Figures (Figure 5-2, Figure 5-3, Figure 5-4) show the estimated overall support for the most SDG-minded company. As our objective was to investigate the heterogeneous effects of information treatment, we do not discuss stakeholder support for the individual features of a company's contribution to the realization of SDGs here and instead focus on the company as a whole. For the same reason, we do not discuss the types of stakeholders here and instead focus on stakeholders as a whole.

Support rates estimated using the pooled data showed that providing one piece of information (T1 and T2 groups) has positive effects relative to the control group and providing two pieces of information (T1&T2 group) has an additional treatment effect (see Figure 5-1). In the following sub-sections, the heterogeneous effects of personal characteristics are discussed, and a summary of the results is presented in Table 5-3.

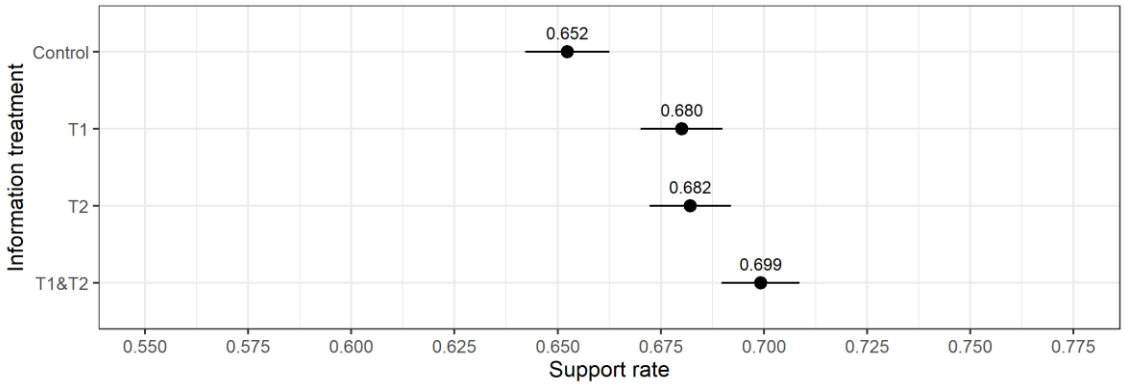


Figure 5-1: Overall support rate.

The symbols and values indicate the overall stakeholder support for the SDG-minded companies. The error bars illustrate 95% confidence intervals.

Table 5-3: Summary of the results

Hypotheses	Results
H1a	Partially supported.
H1b	Partially supported
H1c	Supported
H2a	Supported
H2b	Partially supported
H2c	Supported
H3a	Partially supported
H3b	Partially supported
H3c	Partially supported

5.5.1 Demographic Characteristics

Figure 5-2 shows the treatment effects of demographic characteristics on stakeholder decisions. With respect to gender, support rates were similar without information provision; however, as more information was provided, women's support rate increased. In the control group, the support rate was slightly higher for women than men. In the treatment groups, women were more responsive to information, as indicated by the widening gap between support rates (Panel 1). With regard to educational level, there was a large gap between support rates in the control group. Specifically, in the control group, respondents with a higher educational level showed a significantly higher support rate than their counterparts with a lower educational level. Further, in the treatment groups, respondents with a lower educational level were responsive to information, whereas those with a higher educational level did not respond to information provision (Panel 2). Regarding income level, respondents with a higher income level showed a higher support rate, and it was also observed that both high- and low-income respondents were responsive to information provision (Panel 3). With respect to generation, older respondents showed higher support rates than their younger counterparts. Both were responsive to information provision (Panel 4).

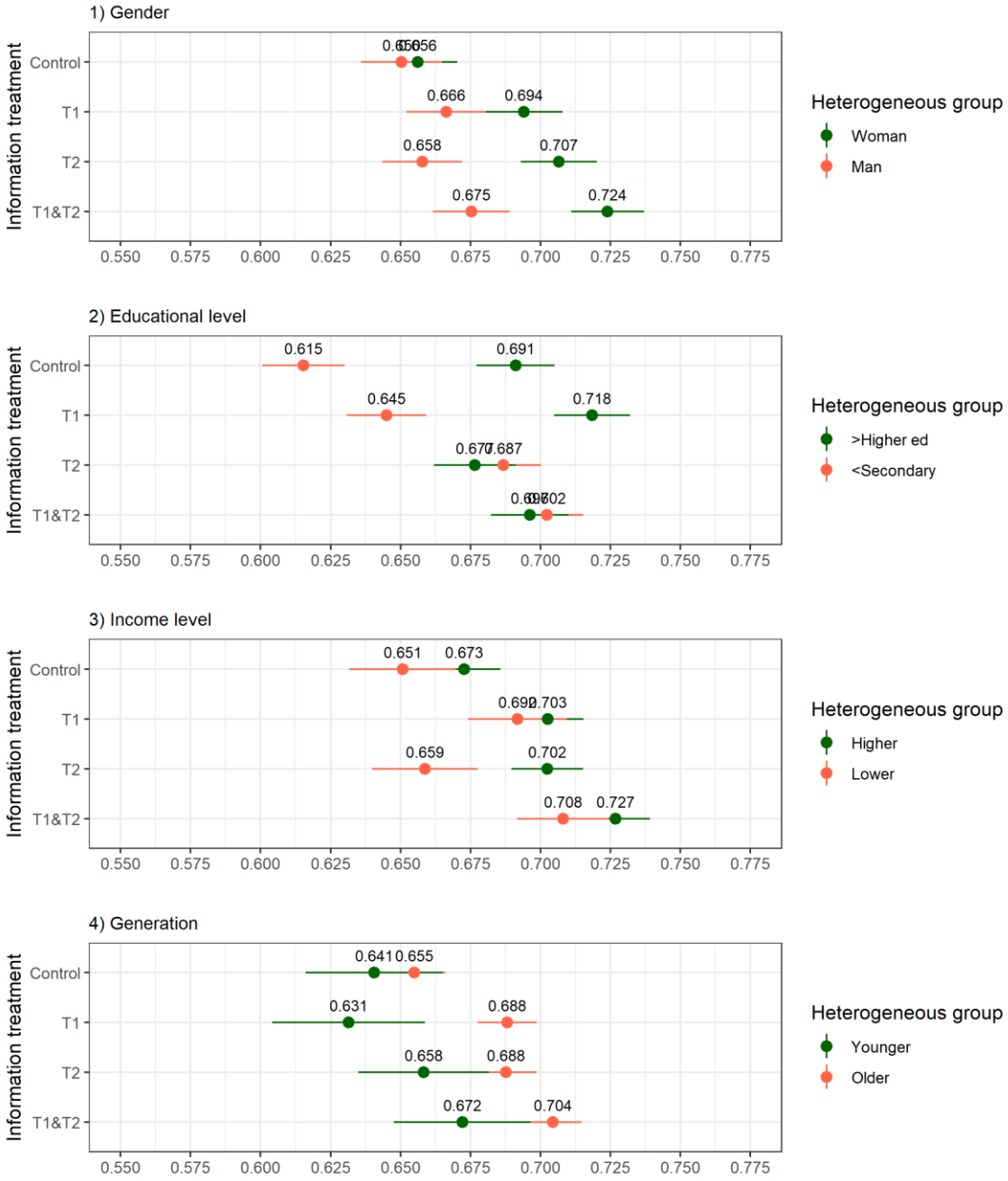


Figure 5-2: Heterogeneous effect: demographic characteristics.

The symbols and values indicate the overall support for the SDG-minded companies. The error bars illustrate 95% confidence intervals.

5.5.2 Personality Traits

To examine the treatment effects of personality traits, we employed the Japanese version of the Ten Item Personality Inventory (TIPI), which is employed to assess the Big Five personality dimensions (TIPI-J; Oshio et al., 2012), which include extraversion, agreeableness,

conscientiousness, neuroticism, and openness to experience. Figure 5-3 shows the estimated results for the five different personality traits, demonstrating that personality traits have various effects on stakeholder decisions. The support rate was higher among respondents with higher extraversion, neuroticism, or openness personality traits compared with those who were on the lower end of the scale. Additionally, both respondents with high and low measures were responsive to information treatment (Panels 1, 2, and 5). The respondents with high agreeableness showed high support rates compared to lower agreeableness respondents, even without information provision. However, the support rate increased for low agreeableness with information provision, whereas no effect was observed for high agreeableness respondents (Panel 2).

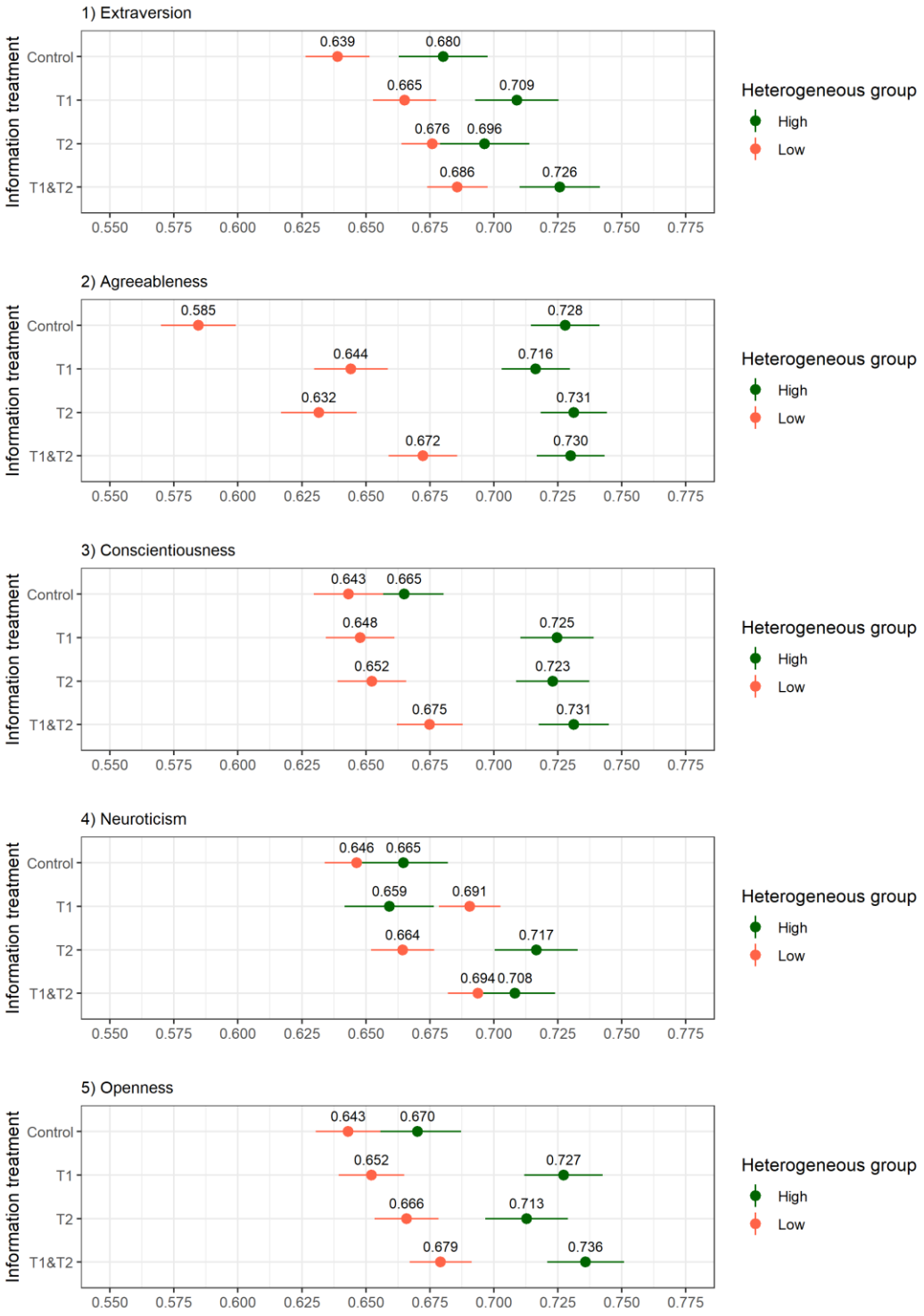


Figure 5-3: Heterogeneous effect: personality traits.

The symbols and values indicate the overall support for the SDG-minded companies. The error bars illustrate 95% confidence intervals.

5.5.3 Daily Pro-Sustainable Behavior

Figure 5-4 presents the estimated results corresponding to daily pro-sustainable behavior. We used two indicators ((1) pro-globalization behavior and (2) pro-environmental behavior) to measure the heterogeneous effects of such behaviors on the support rate for companies that contribute to achieving the SDGs. Respondents with high pro-environmental or pro-globalization behavior showed higher support for the most SDG-minded company. Overall, both groups were responsive to the provided information. In the T1 and T2 groups, except for high globalization behavior, the support rate was the highest relative to other groups, indicating that providing two pieces of information induced more positive effects than providing just a single piece of information. However, in the T1&T2 group for high globalization behavior, the support rate was lower than in other treatment groups, indicating that providing two pieces of information induced negative effects.

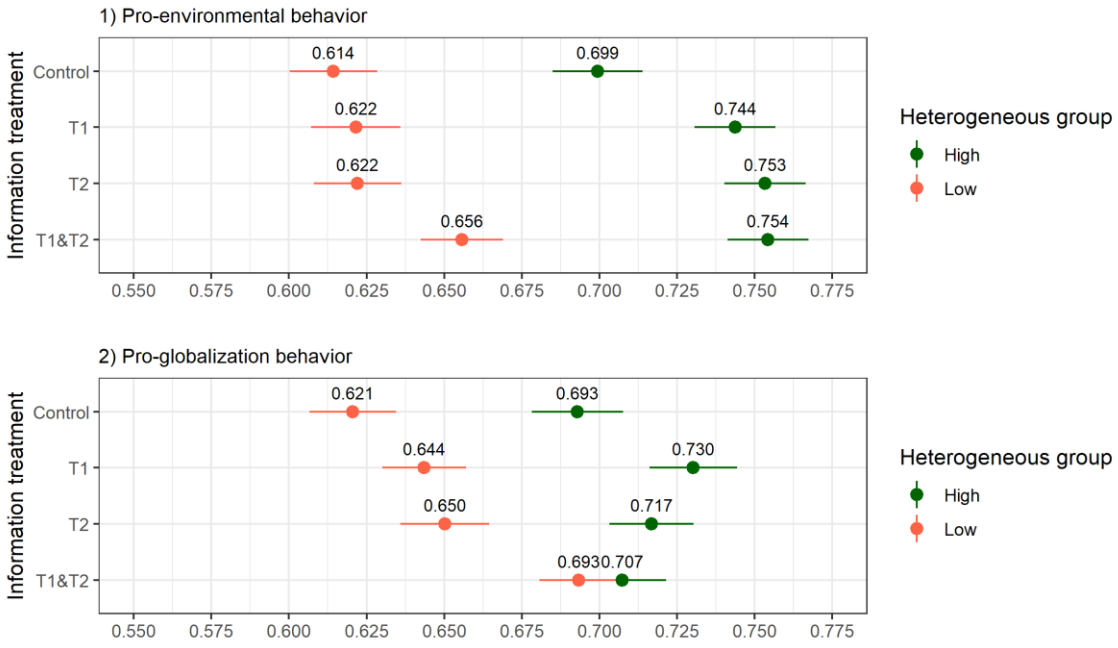


Figure 5-4: Heterogeneous effect: pro-sustainable behavior.

The symbols and values indicate the overall support of the SDG-minded companies. The error bars illustrate 95% confidence intervals

5.6 Discussion

This chapter explored the effects of raising awareness of SDG-related information on stakeholder support for companies that contribute to SDG realization. Thus, we provided

information to respondents and examined how raising awareness affects their support for such companies. Further, we determined how information treatment is perceived by individual stakeholders with different personal characteristics. When respondents were provided with sustainable development-related information, they generally showed a positive attitude toward sustainable development. The results suggest that raising stakeholders' awareness of sustainable development can influence them to be more sustainably conscious and leads to responsible behavior, which refers to supporting companies engaged in SDG implementation in this study. However, the results indicated that stakeholder preferences as well as effects of the information provided to them were heterogeneous, suggesting that the impact of raising awareness on behavior transformation can be complex.

Our results demonstrated one general pattern; the control group showed heterogeneous effects, the T1 or T2 groups showed positive treatment effects, and the T1 & T2 group showed additional treatment effects. Overall, differences among the heterogeneous groups remained similar. Another pattern observed was that one heterogeneous group was not responsive to the provided information, and this resulted in a widening or narrowing of the support rate gap. As more information was provided, support rates for women increased, whereas men were relatively unresponsive to the provided information, resulting in the widening of the support rate gap between genders. Gifford and Nilsson (2014) reviewed studies on pro-environmental behavior and claimed that women tend to report stronger environmental attitudes, concerns, and behavior than men; however, our study showed more complex results. Torelli et al. (2019) showed that gender did not significantly influence the overall perception of environmental responsibility and corporate greenwashing; however, our result demonstrated that gender affects perceived information. High agreeableness respondents were highly supportive toward the most SDG-minded company; however, information treatment did not affect them, resulting in a narrowing of the support rate gap. Respondents with higher educational levels were not responsive to the provided information, whereas the support rate increased for respondents with a lower educational level when they received the information.

These results indicated that promoting sustainability awareness using the information on the nature of the SDGs generally has positive effects on the pro-company behavior of stakeholders. Companies usually advertise their involvement in social causes; however, they do not address the social issues themselves (Du et al., 2010). Therefore, when communicating via social issues rather than via product-specific or company-specific information, favorable CSR consumer ratings increased, especially when the issues were not related to corporate activities (Menon & Kahn, 2003). Therefore, we suggest that companies should be responsible for promoting social issues in addition to reporting their contribution to sustainable development. The results of this study will assist corporate managers in the development of a strategy for effective communication with stakeholders to create value through achieving the SDGs.

Furthermore, the findings of this study provide helpful evidence for businesses to form a strategy to develop relationships with stakeholders; however, such strategies should not be used for

SDG-washing. Considering that MNEs have substantial global influence through their subsidiaries and value chains, they are responsible for utilizing the SDGs to raise awareness to advance a sustainable society.

6 Is the Younger Generation a Driving Force toward Achieving the Sustainable Development Goals?

6.1 Backgrounds

Today's younger generation, defined here as the older cohort of Generation Z (18–23) and the younger cohort of millennials (24–30)[3], is an essential stakeholder in building a sustainable future. In 2030, the younger generation will be the central working force in society and is expected to make real efforts to create a sustainable future and likely play a substantial role in achieving the SDGs. Millennials are generally characterized as socially conscious (Klimkiewicz & Oltra, 2017) and supportive of the SDGs (Cheng, 2015; Ministry of Economy Trade and Industry, 2019). However, these expectations and assumptions are based on non-scientific discussions; little scientific discussion has examined the younger generations' traits regarding the SDGs. This chapter, therefore, aims to investigate whether the younger generation really is the generation of pro-SDGs that have sustainable lifestyles and pushes society to shift toward the SDGs. Few rigorous empirical studies have examined generational differences in SDG-related decision-making (Deal, Altman, & Rogelberg, 2010; Lyons & Kuron, 2014; Magni & Manzoni, 2020). To fill this gap, we examine if the younger generation lives more sustainable lifestyles—motivating to work or live in a place that implements the SDGs, creating value through working, and having sustainable consumption behavior—than the older generation. To further understand the young generation's decision-making regarding SDG implementation, we investigate younger people's job-seeking preferences toward companies that are contributing to the SDGs.

Because tackling sustainability challenges requires an interdisciplinary approach (Brown, Werbeloff, & Raven, 2019; Chabay, 2020; Saito, Managi, Kanie, Kauffman, & Takeuchi, 2017), we did not develop this paper based on a single discipline but based it on different disciplines, including management and economics. To offer novel insights into the challenges requiring urgent attention, we combined different methodologies. We conducted two online surveys in Japan, where the rapid implementation of the SDGs into society has occurred. Study 1 targets all adult generations, which allows us to investigate generational differences among the younger and older cohorts. Marginal generational differences toward a sustainable lifestyle are estimated using a machine learning technique initially developed in the field of statistical sciences, which is increasingly being applied to other fields, including economics (Athey & Imbens, 2019) and

3 Commonly used definitions are people born in 1981–1996 (ages in 2020: 24–39) for millennials, and people born in 1997–2012 (ages in 2020: 7–23) for Generation Z. Considering Yutori education or education with latitude, which may characterize the cohort of the younger generation in Japan, we define the younger generation as born in 1990–2002 (ages in 2020: 18–30). The purpose of this paper is not to compare younger generations; therefore, we do not separate millennials and Generation Z.

epidemiology (Wiemken & Kelley, 2019), to study causal inferences. Study 2 aims to elicit the job preferences of university students based on companies' contributions toward the SDGs and expected income using a conjoint survey experiment. Ever since being introduced by Hainmueller et al. (2014), researchers have increasingly added methodological advancement to conjoint surveys to study topics such as voting behavior and demands for public policies in political science (Bansak et al., 2020; Beiser-McGrath & Bernauer, 2019). We embedded an information treatment experiment in the conjoint survey to further investigate whether younger people's support for companies contributing toward the SDGs expands or shrinks as they become more informed. The current study gives priority to drawing practical implications rather than focusing on providing theoretical ones.

The remainder of this paper is structured as follows: Section 6.2 reviews the literature on younger generations, discusses the conceptual framework, and states the hypotheses. Section 6.3 introduces the methodology, including data collection and survey design, and presents the calculations and results. Section 6.4 discusses the results, including the potential implications for both businesses and policymakers, and whether the younger generation is a pro-SDG generation based on our experimental results.

6.2 Concept Framework and Hypotheses

Although few studies have been conducted on the implementation of SDGs in younger generations, a growing number of studies have explored the sustainable lifestyles of younger generations, especially millennials. In those studies, researchers investigated the lifestyle of younger generations mostly from marketing and organizational studies. A limited number of studies have estimated generational differences after controlling for age (effect of being mature) and period (effects of events at any particular point in time) effects using advanced estimation strategies (Parry & Urwin, 2011).

Mannheim (1952) originally provided the theoretical background on generational differences, which was later developed by his followers (Parry & Urwin, 2011). The theory of generations suggests that studying generations, a group of people who are not only born in the same period but also share societal events and cultural symbols, can elucidate social structures. Today's young generation in Japan has shared the same events that may influence them to form pro-SDG attitudes. They can be defined as education reform in Japan—the younger generation went through Yutori education, a Japanese education policy that reduced classroom hours in school education to provide room for other activities (Hiam, Berger, & Eshghi, 2018). They also experienced social norm changes following the 2011 Tōhoku earthquake and tsunami and the ongoing Fukushima nuclear crisis. Drawing on the theory of generations, we developed a conceptual framework and formulated the research hypotheses.

6.2.1 Younger Generation and Sustainable Lifestyles

A growing number of empirical studies have offered features of younger generations regarding sustainable lifestyles in various areas, including sustainable consumption, pro-environmental behavior, and work value. Concerning sustainable consumption, a recent literature review on generational differences toward organic food purchase decisions has shown that while all generations have favorable attitudes toward organic food, Generation Z has the lowest purchasing behavior (Kamenidou, Stavrianea, & Bara, 2020).

Regarding pro-environmental behavior, previous studies have shown mixed results on generational differences. A study in the U.S. has shown that environmental value and political orientation are better predictors of environmental concerns than generation (Gray, Raimi, Wilson, & Árvai, 2019). In contrast, another study in the United States has shown that millennials are more environmentally conscious, and their greater tendencies toward pro-environmentalism would not change even if they were older (Etezady, Shaw, Mokhtarian, & Circella, 2020). Lee et al. (2020) showed that experiencing ride-sharing reinforces millennials' pro-sustainable behavior. Promoting alternative means of transportation during travel may increase millennials' pro-sustainable behavior.

To provide insights into managing young workers, researchers have conducted studies on work value. A study by Waples and Brachle (2019) showed that CSR is seen positively by young job-seekers, and information regarding pay levels is no mediator of the impact of CSR on attractiveness. Despite studies showing that millennials are socially conscious, the millennial generation is often described as the "me generation" because they are more individualistic and self-centered (R. Allen, Allen, Karl, & White, 2015; Twenge, Campbell, Hoffman, & Lance, 2010). Alonso-Almeida and Llach (2019) reported that regardless of millennials being individualistic, they are more attracted to sustainable companies, according to a cross-country analysis of six libero-American countries. Furthermore, Hirota (2015) showed that contemporary workers expect to gain something other than money from working.

Magni and Manzoni (2020) have shown that millennials and older generations have similar expectations toward the workplace, but the degree of their expectation is different. For instance, job security is one of the essential elements for both generations, but millennials have significantly higher expectations. Allen et al. (2015) found that millennials exhibit higher entitlement than older generations. Their study suggested that the unscientific assumption that the millennial generation is the "me generation" is accurate. Research on seasonal workers showed that millennials have lower organizational commitment than do Generation X (the 40s) (Glazer, Mahoney, & Randall, 2019). Twenge et al. (2010) used time-series data for 30 years and analyzed the generational differences in work values. They found that millennials have less intrinsic work values, including helping others and contributing to society, than do the older generations. Although studies have investigated millennials' attitudes toward the workplace, studies on Generation Z are rare (Magni & Manzoni, 2020; Schroth, 2019).

6.2.2 The Generational Differences between Younger and Older Generations

Generational effects, especially focusing on millennials in the workplace, have been a popular research focus (Lyons & Kuron, 2014). However, many of these studies were drawn from targeted cohort samples or used simple differences in mean. A limited number of studies provide evidence of generational differences; it is important that they are distinguished. Deal et al. (2010) reviewed research on millennials at work and found no notable generational differences. A meta-analysis on generational differences in work-related attitudes has demonstrated that no notable generational differences existed (Costanza, Badger, Fraser, Severt, & Gade, 2012).

Scholars have suggested that being young does not necessarily relate to the fact that a particular generation has specific traits; to investigate the generational effects, it is necessary to conduct longitudinal studies (Campbell, Campbell, Siedor, & Twenge, 2015; Deal et al., 2010) or well-constructed cross-sectional studies (Lyons & Kuron, 2014). Recent studies have used cross-temporal or panel datasets to estimate the pure generational effects after eliminating age and period effects (Kalleberg & Marsden, 2019). We agree that panel data can meet the statistical requirement to control other effects; however, developing sufficient datasets takes many years, so that researchers who attempt to investigate emerging issues may need to rely on a cross-section dataset. Some researchers have used econometric techniques, which allow them to control for age effects and estimate generational differences using cross-sectional datasets (e.g., Etezady et al., 2020; Zuo and Lai, 2020). Thus, in this study, we used a cross-sectional dataset and employed lasso regression to control for other effects that may affect the outcome variables (for details, see Section 6.3.1.2). Using this method, we attempted to estimate marginal generational differences in SDG-related lifestyles. In this study, we define sustainable lifestyles as attitudes and behaviors that may transform our society to advance toward reaching the SDGs, including higher expectations of society to be actively involved in SDG implementation, higher intrinsic work value, lower extrinsic work value, and higher pro-sustainable behavior. Based on the above, we developed the following hypotheses:

H1: The younger generation has higher expectations toward the society regarding the implementation of the SDGs than the older generations.

H2a: The younger generation prefers intrinsic work values such as ikigai (reason for being) and social contribution more than the older generations.

H2b: The younger generation prefers extrinsic work values such as good pay and job security less than the older generations.

H3: The younger generation has higher pro-sustainable behavior than the older generations.

In the real world, people make decisions in a multidimensional choice setting (Hainmueller et al., 2014); younger people's decisions to advance toward the SDGs may be made based on different choices. To investigate if the younger generation is a pro-SDG generation, we further examine how young people decide in a multidimensional choice setting. We particularly use the

case of job preferences, where younger people have to decide based on multiple attributes regarding companies' contributions toward the SDGs and expected income. Based on the above literature and discussion, we propose the following hypotheses:

H4: Younger people prefer to work for companies that contribute to the SDGs.

H5: Raising awareness of the SDGs influences young people's willingness to dispense with income to contribute to the SDGs.

6.3 Empirical Analyses

To test the five hypotheses presented in Section 6.2, we used two online surveys conducted in Japan. Study 1 draws on the whole adult population, which allows us to compare different generations' preferences for sustainable lifestyles. Study 2 looks at a sample of university students consisting of only the younger generation; this latter sample offers the first insights into university students' preferences for companies contributing to the SDGs and the effects of information treatment. The methods and results of the two studies are presented below.

6.3.1 Study 1

Using subjective measures collected through JHPSDGs, we aim to investigate whether the younger generation is a pro-SDG generation or not.

6.3.1.1 Dependent Variables

As discussed in Section 6.1, to achieve greater sustainability, the way we live has to change fundamentally. To measure the respondents' lifestyle sustainability, we use 13 different dependent variables, including expectations of society's efforts to contribute to the SDGs, work value, and pro-sustainable behavior. The dependent variables were constructed using subjective questions related to these measures. Table 6-1 presents a list of dependent variables used for this analysis, along with descriptive statistics.

Table 6-1: Measures of sustainable lifestyles: dependent variables used for cross-fit partialing-out lasso regressions

VARIABLES	All					Younger Generation					Older Generation				
	N	min	max	mean	s.d.	N	min	max	mean	s.d.	N	min	max	mean	s.d.
Generations															
Age as of 2020	12,098	18	75	47.93	15.72	2,127	18	30	24.61	3.606	9,971	31	75	52.90	12.50
1 if the younger generation (age:18–30)	12,098	0	1	0.176	0.381										
a) Expectations toward society regarding implementation of the SDGs															
All respondents were asked to rate on a three-point scale if they agree or disagree with the following statements and we recorded "agree" as 1 and "neither" and "disagree" as 0.															
a-1 I hope the municipality I am currently living in gets actively involved in the SDGs.	12,098	0	1	0.499	0.500	2,127	0	1	0.526	0.499	9,971	0	1	0.494	0.500
a-2 I hope the school/company I currently belong to gets actively involved in the SDGs.	12,098	0	1	0.465	0.499	2,127	0	1	0.540	0.499	9,971	0	1	0.449	0.497
a-3 If I were to move to a different location in the future, I wish to live in a municipality that is actively involved in the SDGs.	12,098	0	1	0.347	0.476	2,127	0	1	0.373	0.484	9,971	0	1	0.342	0.474

a-4 If I were to get a job or change occupation, I wish to work for a company that is actively involved in the SDGs.	12,098	0	1	0.385	0.487	2,127	0	1	0.401	0.490	9,971	0	1	0.381	0.486
b) Work-related attitudes															
All respondents were asked to rate on a five-point scale if they strongly agree (4) or disagree (0) with the following statements.															
b-1 Work is ikigai (reason for being) (intrinsic value).	12,098	0	4	2.604	1.120	2,127	0	4	2.478	1.254	9,971	0	4	2.631	1.088
b-2 Work is for making money (extrinsic value).	12,098	0	4	2.949	1.000	2,127	0	4	3.115	1.039	9,971	0	4	2.913	0.988
b-3 I plan for job security (extrinsic value).	12,098	0	4	2.673	0.982	2,127	0	4	2.695	1.110	9,971	0	4	2.669	0.953
b-4 Work is for contributing to society (intrinsic value). (Only in 2020)	6,055	0	4	2.833	0.996	1,123	0	4	2.771	1.123	4,932	0	4	2.847	0.965
c) Pro-sustainable Behavior															
Pro-sustainable behavior includes pro-globalization, pro-environment, and pro-sustainable consumption behaviors.															
First, we selected seven measures of daily behavior familiar to Japanese. All respondents were asked to rate on a four-point scale. We recorded "often" as 3, "sometimes" as 2, "hardly" as 1, and "never" as 0. Two pro-sustainability behavior measures were formulated using the following statements:															
Pro-globalization: Participate in international cooperation and exchange activities; consume products with fair-trade labels; and buy locally produced ingredients.															
Pro-sustainable: Devise to reduce power consumption; purchase only food that I can consume; purchase imperfect food; and set the air conditioner temperature lower in winter and higher in summer.															
c-1 Pro-globalization behavior	12,098	0	3	2.003	0.622	2,127	0	3	1.903	0.682	9,971	0	3	2.025	0.606

c-2 Pro-environment behavior	12,098	0	3	1.135	0.652	2,127	0	3	1.089	0.776	9,971	0	3	1.145	0.622
Second, to measures pro-sustainable consumption behavior, all respondents were asked to rate on a three-point scale if they agree or disagree with the following statements and we recorded "agree" as 1 and "neither" and "disagree" as 0.															
c-3 I purchase a sustainable product or service even if it is more expensive. (Only in 2020)	6,055	0	1	0.301	0.459	1,123	0	1	0.340	0.474	4,932	0	1	0.292	0.455
c-4 I care about corporate strategy when I choose their product or service. (Only in 2020)	6,055	0	1	0.181	0.385	1,123	0	1	0.253	0.435	4,932	0	1	0.164	0.370
c-5 I care about corporate SDG contribution when I choose their product or service. (Only in 2020)	6,055	0	1	0.142	0.349	1,123	0	1	0.218	0.413	4,932	0	1	0.125	0.330

6.3.1.2 Independent Variables

Our variable of interest is a dummy variable, the younger generation aged 18–30 in 2020, which takes a value of 1 if a respondent is born in 1990–2002 and 0 otherwise. As discussed in Section 6.2, estimating differences in generational cohorts is challenging because estimating generational differences requires differentiating the age and period effects from the generation effects. We included control variables in our models to eliminate such effects. Researchers usually identify potential controls based on theory or intuition; however, it is challenging to determine the right control variables to be included in a model (Belloni, Chernozhukov, Fernández-Val, & Hansen, 2017). Because we have a rich dataset on potential control variables, we utilized a data-driven method to select variables to control for other factors. In particular, we utilized cross-fit partialing-out lasso (double machine learning) regressions. As previous research has shown that individual characteristics, life events, and other factors affect sustainable lifestyles, we treat them as potential control variables. In JHPSDGs, we collected a large number of heterogeneous characteristics for respondents, and depending on the model, we used 139–143 control variables in our analyses. Of these variables, we included variables to control unobservable effects such as prefecture of living, birth year, personality traits, education level, annual household, occupation, employment status, daily behavior, parents' education levels, and survey experiment conditions. A list of the potential control variables is presented in Table 9-1.

6.3.1.3 Estimation Strategy

To estimate the younger generation's marginal effects on a sustainable lifestyle, we used the cross-fit partialing-out lasso regressions developed by Chernozhukov et al. (2018). As presented in Table 6-1, we have 13 different measures, including continuous and binary dependent variables. Thus, we utilized two estimation models.

The estimation model for linear regression is as follows.

$$E[y|\mathrm{d},\mathrm{x}] = \beta_0 + \mathrm{d}\alpha' + \mathrm{x}\beta', \quad (6\text{-}1)$$

where y is a continuous variable for work value, pro-globalization behavior, or pro-environmental behavior; d is a variable of interest for the younger generation; x is a set of the potential control variables that the lasso selects; α is the corresponding coefficient to be estimated; and β is the coefficient of the control variables, which was not reported in the analysis.

The lasso algorithm is as follows.

First, perform a linear lasso of y on x, and denote selected controls by $\tilde{x}_y$. The heteroskedastic plugin estimator was used to choose the lasso penalty parameter.

Second, perform a linear lasso of d on x, and denote the selected controls by $\tilde{x}_d$. The heteroskedastic plugin estimator was used to choose the lasso penalty parameter.

Let $\hat{x}$ be the distinct variables in the union of the variables in $\tilde{x}_d$, and $\tilde{x}_y$.

Finally, fit a linear regression of y on d and $\hat{x}$.

The estimation model for the logistic regression is as follows.

$$E[y|\mathrm{d},\mathrm{x}] = \mathrm{G}(\beta_0 + \mathrm{d}\alpha' + \mathrm{x}\beta'), \quad (6\text{-}2)$$

where $G(a) = \frac{\exp(a)}{\{1+\exp(a)\}}$, y is a dummy variable for expectations of the society regarding SDG implementation or pro-sustainable consumption, which takes the value 1 if the person agrees with the measure and 0 otherwise; d is a variable of interest for the younger generation; x represents the potential control variables that the lasso selects; α is the corresponding coefficient to be estimated; and β is the coefficient of the control variables, which was not reported in the analysis.

The lasso logit regression algorithm is as follows.

First, perform a logit lasso of *y* on d and x, and denote selected controls by $\tilde{x}$. The plugin value was used to choose the lasso penalty parameter.

Fit a logit regression of *y* on d and $\tilde{x}$, denoting the estimated coefficient vectors by $\tilde{\alpha}$ and $\tilde{\beta}$, respectively.

Let $w_i = G'\left(d_i\tilde{\alpha}' + \mathrm{x}_i\tilde{\beta}'\right)$be the *i*th observation of the predicted value of the derivative of $G(\cdot)$.

Second, perform a liner lasso of d on x using observation-level weights w_i, and denote the selected controls by $\tilde{x}_d$. The heteroskedastic plugin estimator was used to choose the lasso penalty parameter.

Let $\hat{x}$ be the distinct variables in the union of the variables in $\tilde{x}_d$, and $\tilde{x}$.

Finally, fit a logit regression of y on d and $\hat{x}$.

Although the dataset used in these analyses was treated as pooled OLS, because the dataset is collected as a panel dataset, it suffers from problem of serial correlation, as discussed in 4.2.3. We used Stata 16 to estimate marginal generational differences, and it does not report clustered robust standard errors; we only reported robust standard errors.

6.3.1.4 Results

To test H1, H2, and H3, we estimated 13 different models using the above regression analyses. Figure 6-1 presents the estimated marginal effect of the younger generation on sustainable lifestyles and Table 6-2 presents full regression results. The estimators indicate the probability of the younger generation to choose a specific measure referencing the older generation aged 31–75. Table 6-2 presents the full regression analysis results, statistical test results, and a

number of control variables used.

First, to understand the general sustainable lifestyles across generations, we reviewed the descriptive statistics presented in Table 6-1. The older generation also expected society to be actively involved in SDG implementation even though the younger generation showed a higher percentage. For example, 52.6% of the younger generation and 49.4% of the older hoped that the municipality they are currently living in is actively involved in working toward the SDGs (see a-1). Concerning pro-sustainable consumption behavior, 34.0% of the younger generation and 29.2% of the older claimed that they purchase a sustainable product or service even if it is more expensive (see c-3). Moreover, 21.8% of the younger generation and 12.5% of the older claimed that they care about a corporation's contribution toward the SDGs when choosing their product or service (see c-5). These results indicate that while the expectations of society are higher, pro-sustainable behavior remains low across generations. For work value, making money was scored the highest for both generations among the four measures used in this study (see b-2).

Expectations toward society (work, school, and community that respondents live in) regarding implementations of the SDGs were higher for the younger generation than for the older generation. Being younger increased the expectation of the municipality of residence to be actively involved in the SDGs by 27.9%, and those of the school or workplace by 23.8% (see a-1 and a-2). In terms of future perspectives, the younger generation was more willing to live in a municipality or work for a company actively involved in implementing the SDGs. Being younger increased the expectation of the future municipality of residence by 30.8%, and those to the future school or workplace by 18.3% (see a-3 and a-4). H1, stating that expectations of the society regarding implementation of the SDGs are higher for the younger generation than the older, is thus supported.

We used four measures to test the younger generation's work value. Two measures of intrinsic work value, such as reason for being and social contribution, were positive, but a parameter for social contribution was not statistically significant, indicating that being younger had no statistically significant effect. H2a is partially supported. However, two parameters for intrinsic work value, good pay and job security, were positive and statistically significant, indicating that the younger generation preferred extrinsic work value more than the older generation (see b-2 to b-3). H2b is not supported.

We used five measures to test if the younger generation's sustainable behavior is higher than that of the older generation. Three parameters for pro-globalization behavior, willingness to pay a premium for sustainable goods, and corporations' contributions toward the SDGs when choosing a service or product were positive and statistically significant, indicating that the younger generation was more likely to engage in pro-globalization activities, to pay higher prices for sustainable products, and to care about corporations' contributions toward the SDGs than was the older generation (see c-1, c-3, and c-5). However, a parameter for pro-environmental behavior was negative and statistically significant, indicating that the younger generation is less likely to engage in pro-environmental behavior than are older generations. Thus, H3, stating that the younger generation show higher pro-sustainable behavior than do the older generation, is partially

supported.

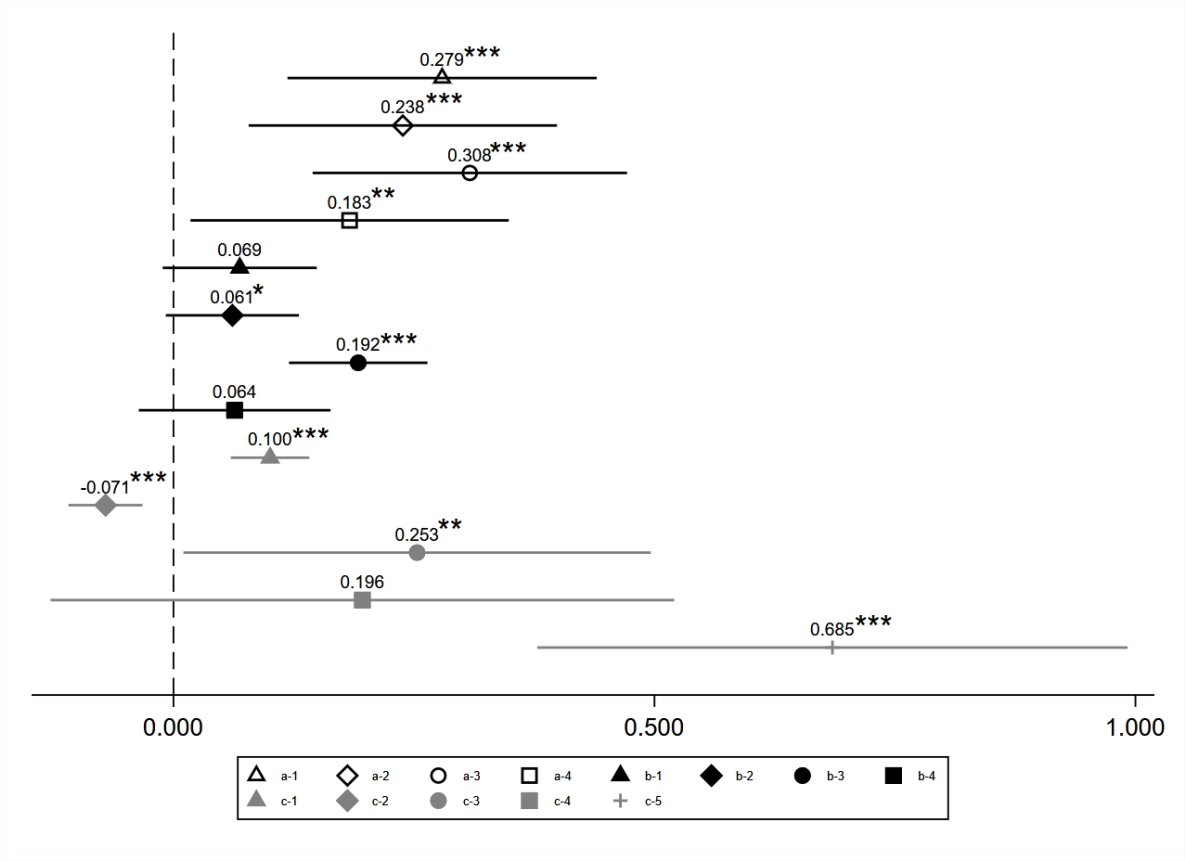


Figure 6-1: Estimated marginal generational effects on sustainable lifestyle using cross-fit partialing-out lasso regressions.

The markers and values indicate estimated coefficients/odds ratios with the following degrees of significance: *** p < 0.01, ** p < 0.05, * p < 0.1. The error bars indicate 95% confidence intervals. All measures are located in Table 6-1.

Table 6-2: Full regression results of estimated marginal generational effects on sustainable lifestyle using cross-fit partialing-out lasso regressions.

	a-1	a-2	a-3	a-4	b-1	b-2	b-3	b-4	c-1	c-2	c-3	c-4	c-5
	I hope the municipality I am currently living in gets actively involved in the SDGs.	I hope the school/company I currently belong to gets actively involved in the SDGs.	If I were to move to a different location in the future, I wish to live in a municipality that is actively involved in the SDGs	If I were to get a job or change occupation, I wish to work for a company that is actively involved in the SDGs.	Work is ikigai (reason for being).	Work is for making money	I plan for job security	Work is for contributing to society	Pro-globalization	Pro-environment	I purchase a product or service even if it is more expensive	When I choose a product or service, I care about corporate strategy	When I choose a product or service, I care about corporate SDG contribution
The younger gen 1 if aged18-30	**0.279*** **	**0.238*** **	**0.308*** **	**0.183** **	**0.065**	**0.061***	**0.192*** **	**0.064**	**0.100*** **	**-0.071*** **	**0.253** **	**0.196**	**0.685*** **
	(0.082)	(0.082)	(0.083)	(0.084)	(0.041)	(0.035)	(0.037)	(0.051)	(0.021)	(0.020)	(0.124)	(0.165)	(0.157)
Number of obs	12,098	12,098	12,098	12,098	12,098	12,098	12,098	6,055	12,098	12,098	6,055	6,055	6,055
Number of controls	143	143	143	143	143	143	143	141	140	139	141	141	141
Number of selected controls	30	31	25	28	33	27	31	25	30	35	19	20	19
Wald chi2(2)	11.59	8.505	13.65	4.703	2.511	3.006	27.34	1.564	23.30	12.93	4.176	1.409	19.13
Prob > chi2	0.000662	0.00354	0.000220	0.0301	0.113	0.0829	1.71e-07	0.211	1.39e-06	0.000323	0.0410	0.235	1.22e-05
Model	logit	logit	logit	logit	linear	linear	linear	linear	linear	linear	logit	logit	logit

Note: Robust standard errors are shown in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

In summary, Study 1 revealed that the younger generation has relatively higher expectations of society for SDG implementation and willingness to pay a premium for sustainable goods/services than is the older generation. However, results on pro-environmental behavior and intrinsic work value demonstrated that younger people do not always live more sustainably than the older generation. To further investigate the younger people's preferences, especially regarding the implementation of the SDGs in multidimensional choice settings, we conducted a study targeting university students, who cover parts of our target generations.

6.3.2 Study 2

We conducted an online survey targeting university students in February–March 2020. We recruited respondents at Hiroshima University (Hirodai), a comprehensive research university with a total of 14,875 undergraduate and graduate students in which the standard age of enrollment is 19–27. To ensure that the final data represent the diversity of the student body, we used the student information system of the whole university and collected completed samples from 668 university students. The survey was conducted in Japanese and English. To effectively recruit participants, we provided small incentives and allowed them to enter into a prize draw to win a gift card ranging from 500–5,000 yen upon completion of the survey. The data collection for this experiment was conducted in combination with the Hiroshima University Awareness Survey 2020 (Yamane, 2020).[4]

6.3.2.1 Experiment Design

To investigate the younger generation's job preferences for companies depending on their SDG contributions and the salary they offer, we extended the JHPSDGs conjoint survey discussed in 2.2. We have made two modifications to the JHPSDGs. First, we added the expected annual income at the age of 30 to measure the effects of monetary value. Second, we added one information treatment on SDG-washing. Table 6-3 presents the attribute design of the Hirodai study.

[4] Note that Yamane (2020) presents the distribution of the respondents and their perceptions of SDG implementation. A total of 700 respondents including 668 students and 32 alumni were classified as students in the report.

Table 6-3: Conjoint survey design of Study 2.

Attributes		Levels			SDG-minded companies		
		1 (baseline)	2	3	a	b	c
1	[GOAL 2] Zero Hunger	No	Yes		Yes	Yes	No
2	[GOAL 5] Gender Equality	No	Yes		Yes	Yes	No
3	[GOAL 6] Clean Water and Sanitation	No	Yes		Yes	Yes	No
4	[GOAL 8] Decent Work and Economic Growth	No	Yes		Yes	Yes	No
5	[GOAL 13] Climate Action	No	Yes		Yes	Yes	No
6	[GOAL 16] Peace, Justice and Strong Institutions	No	Yes		Yes	Yes	No
7	Direct Economic Returns from SDG-related activities/operations	No profit	Profiting		Profiting	Profiting	No profit
8	Expected Annual Income at the Age of 30	4.5 million yen	5 million yen	6 million yen	6 million yen	4.5 million yen	6 million yen

Yes: Contributing to the SDGs; No: Not contributing to the SDGs.

Respondents were randomly exposed to up to three sets of information regarding the SDGs, as follows:

T1: the SDGs should be mainstreamed in the business, and it must be profitable to realize a sustainable society (see Figure 2-6);

T2: Definition of SDG-washing (Figure 6-2); and

Please read the following sentences carefully before proceeding.

SDG-washing is the term used when businesses acknowledge the existence of the SDGs and point out the ways in which they align with the SDGs without making a meaningful contribution to the achievement of the goals.

Figure 6-2: Information treatment 2 (T2).

T3: Information on the achievements of the SDGs (Figure 6-3).

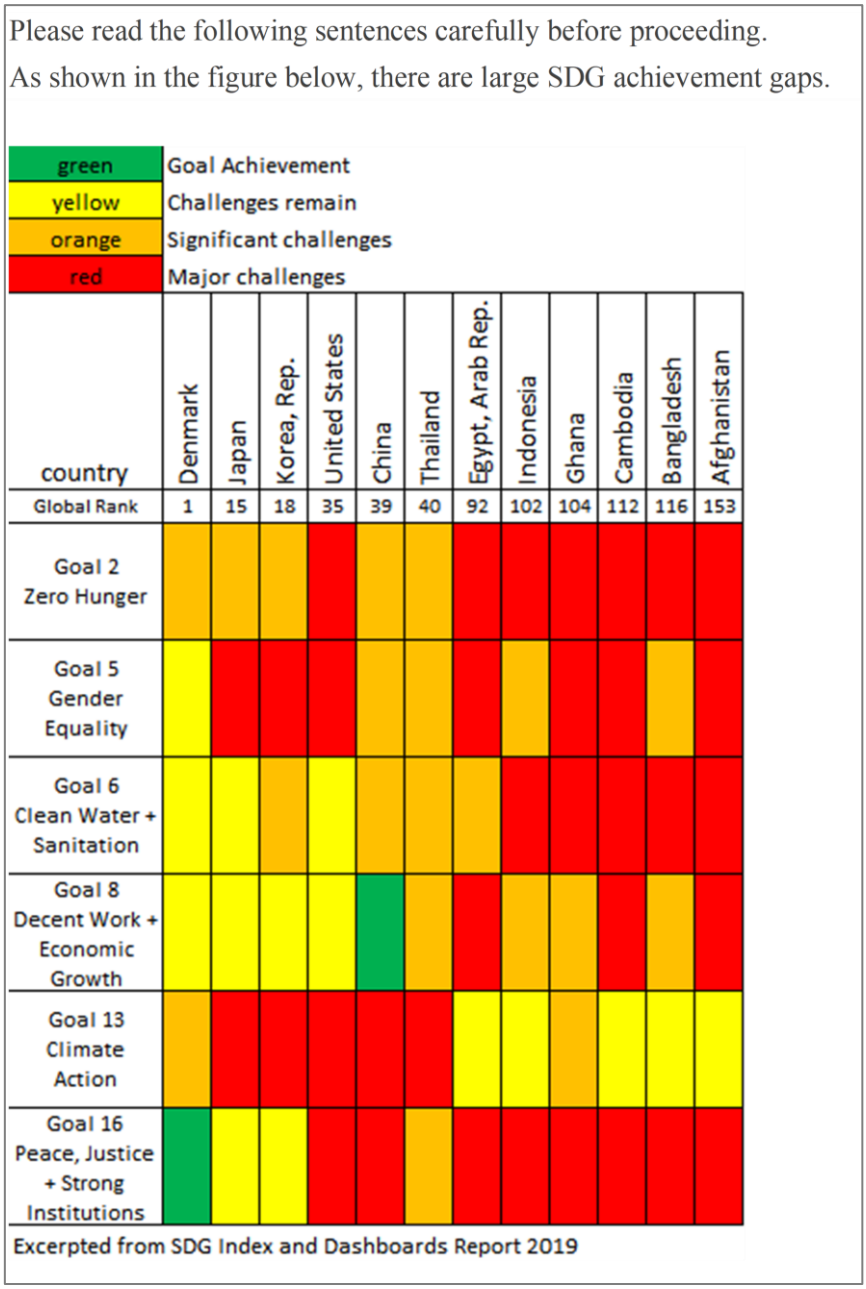


Figure 6-3: Information treatment 3 (T3).

To confirm their understanding of the content after each was provided, they were given quizzes of up to two questions. Information was provided for the second time if the quiz was failed, but quizzes were not repeated. Overall, in the RCT design, the participants were divided into eight groups. Figure 6-4 presents the structural flow of the survey design. After the information treatment was given or not based on the assigned groups, respondents were instructed to read the scenario and then rank three choices displayed on their screens in order of preference, imagining that they were seeking a job. Figure 6-5 presents the English version of the scenario given to all the respondents at the beginning of the conjoint questions.

Participants had to perform this task six times. The three choices were to select either of

the hypothetical companies or to choose neither of them.

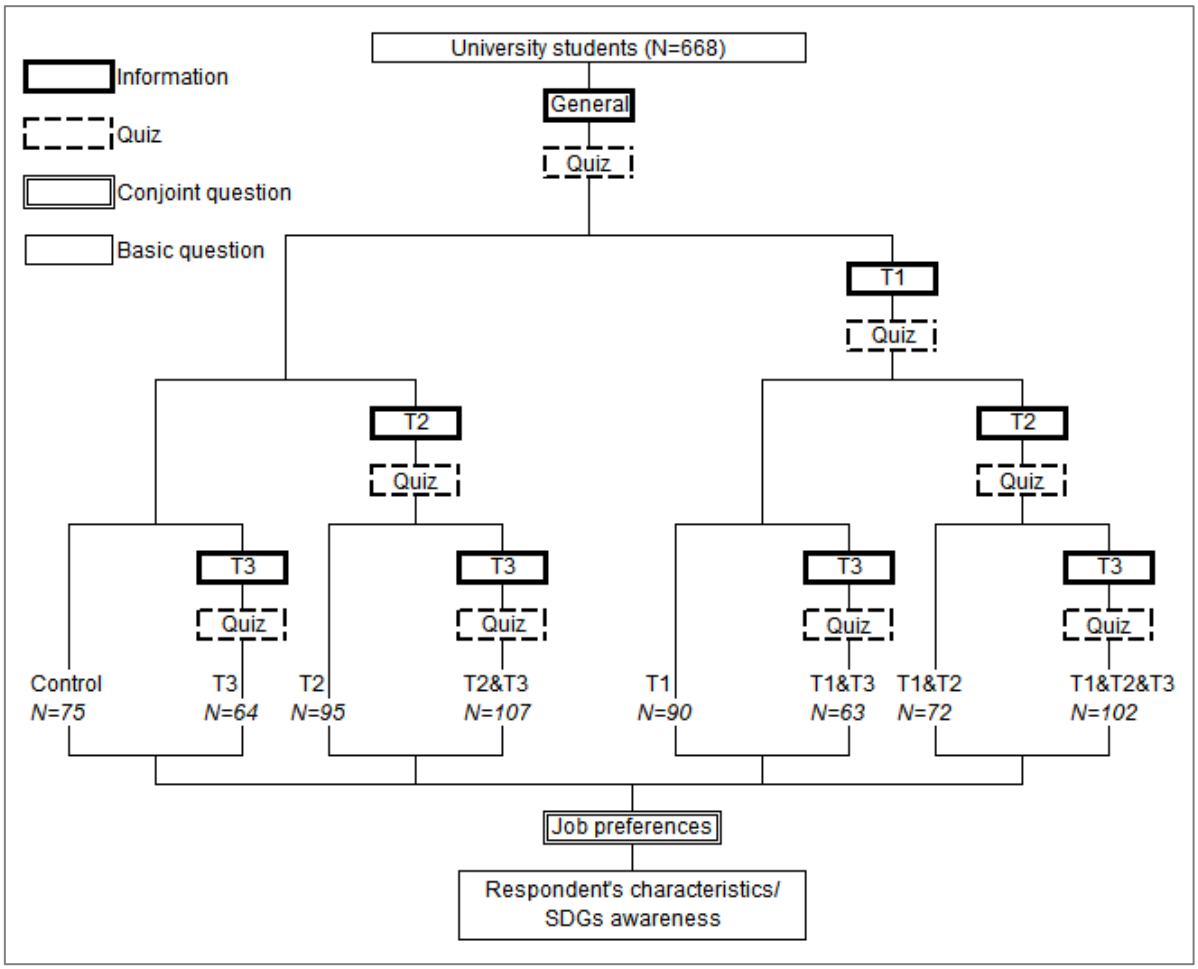


Figure 6-4: Structural flow of the conjoint survey.

Please read the following sentences before proceeding.

Please imagine: we have two companies which have the same profile and are offering the same jobs (same job description, etc...); both contribute differently to SDGs and an expected income is different.
If you were to work for a company, please rank in order of your preference each of the three choices which will be displayed on your screen. Choices A and B are the two hypothetical companies, and Choice C means preferring not to work either company. You are shown hypothetical companies 6 times with different combinations of attributes, and you are requested to choose as if you were to work for a company each time.
Contributions to each SDG are indicated as below:
◎: contributing to the SDGs
×: not contributing to the SDGs
Direct economic returns from SDGs related activities refer only to profits directly attributable to SDG-related activities, not to the whole company's profits.
Yes: Profitable
No: Not profitable or deficit including activities such as charity which doesn't seek profit

【Example】

	Company A	**Company B**
[GOAL 2] Zero Hunger	×	◎
[GOAL 5] Gender Equality	×	◎
[GOAL 6] Clean Water and Sanitation	×	◎
[GOAL 8] Decent Work and Economic Growth	◎	◎
[GOAL13] Climate Action	◎	×
[GOAL16] Peace, Justice and Strong Institutions	◎	×
Direct Economic Returns from SDG-related activities/operations	Yes	No
Expected Annual Income (at the age of 30)	4 million yen	6 million yen

Please rank among the three in order of your preference. Click on the following choices to rearrange them.

Company A
Company B
Prefer not to work for either company

Figure 6-5: English version of the scenario

6.3.2.2 Estimation Strategy

We estimated the causal effects of the younger generation's choices using the method proposed by Hainmueller et al. (2014). The average marginal component effect (AMCE) represented the average causal effect of an attribute on the likelihood that a given company is chosen relative to a baseline level across all possible combinations and among all respondents.

We used OLS regressions, as presented by Hainmueller et al. (2014). Using OLS regression with clustered standard errors, the outcome variable was regressed on the dummy variables for all the attributes, excluding the baseline levels. The outcome variable takes the value of 1 if the preference rank of a company is higher than its alternative company, and 0 otherwise.

AMCE for the choice of individual *i* regarding profile *j* in task t is defined as:

$$Y_{ijt} = \alpha + \beta_1 X_{ijt} + \varepsilon_{ijt}, \quad (6\text{-}3)$$

where X_{ijt} is a vector of levels of each attribute excluding a reference category (no contribution to SDG, no profit, or 4 million yen) or binary treatment variables for the presence of a certain level referred to a reference; β_1 is a causal effect and a corresponding coefficient to be estimated; α is a constant term; and ε_{ijt} is the error term. The outcome variable, Y_{ijt} is dichotomous, with a value of 1 if the respondent i's preference rank of profile j in task t is higher than its alternative and 0 otherwise. Because the unit of analysis is each choice set of a respondent, not the respondent, there is a possibility that the observed choice outcomes are correlated. To avoid this bias, we used cluster robust standard errors at the individual level.

In addition to the AMCE, following the estimation adopted by Beiser-McGrath and Bernauer (2019), the probabilities of overall support for the chosen company were estimated. Here, the outcome variable takes the value of 1 if the preference rank of a company is higher than both the status quo (choose neither of the companies) and an alternative company, and 0 otherwise. Using interaction terms in the logistic regression, we predict the support for all possible combinations. In particular, we calculated the effect of the information treatment on support for companies as indicated below:

a) the most SDG-minded company with the highest income;
b) the most SDG-minded company with the lowest income; and
c) the least SDG-minded company with the highest income.

The purpose of this approach is to examine whether awareness about the SDGs influences young people's willingness to dispense with the financial benefits resulting from work in favor of working for a more SDG-minded company.

We estimated the overall support rate for the SDG-minded companies using the estimation model:

$$Y_{itj} = \beta_0 + \sum_{l=1}^{8}\sum_{r=1}^{3} \beta_{lrh} SDG_{itjl} RCT_{ir} + u_{itj}, \quad (6\text{-}4)$$

where $Y \in \{0,1\}$ is a binary choice outcome for company j in task t of respondent i. The aim here is to estimate aggregated demand to examine to what extent any proposed SDG-minded company is chosen over the status quo.

SDG_{itjl} is a dummy variable for attribute l (one of two levels in each attribute are the baseline levels, and no SDG contributions and no profit are excluded from the regression expression);
RCT_{ir} is a dummy variable for information treatment r, which is randomly attributed to respondent i;
β_{lrh} is a parameter of attribute l, information treatment *r*, and stakeholder *s*;
β_0 denotes a constant term; and
u_{itj} denotes the error term.

After running the regression with clustered standard errors by respondent, we predict the fitted value for all the possible combinations ($2^7 \cdot 3 \cdot 3 = 1152$) and selected the combinations mentioned above.

6.3.2.3 Results

To test H4, we estimated the AMCE using the above regression analyses. Figure 6-6 presents the estimated AMCE. All estimated coefficients were statistically significant at the 1% level. Contributing to any goal and profiting through SDG contribution had a significant and positive effect on young people's job-seeking. This was consistent with the results of the JHPSDGs targeting all Japanese adult generations. H4, which states that the younger generation prefers to work for those companies contributing to the SDGs, is thus supported. However, the expected income of 6 million yen had the most significant treatment effects in support for a company, indicating that offering a higher income will increase the demand for a company even if it does not contribute to the SDGs.

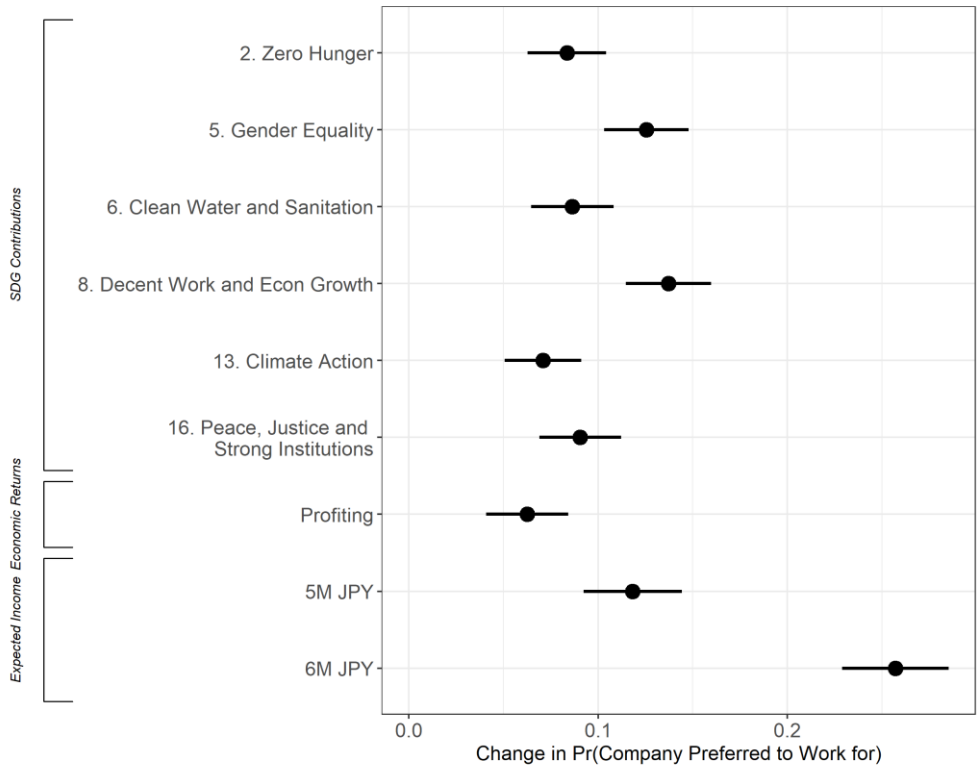


Figure 6-6: Estimated average marginal component effect (AMCE) for choice probability on young people's job-seeking.

The points indicate the AMCE for each attribute level, indicating the respondent's likelihood of choosing a company with reference to a baseline level. The error bars illustrate 95% confidence intervals.

To test H5, we estimated the effect of information treatment on the support for the different SDG-minded companies. The estimated overall supports are shown in Figure 6-7, and the definitions of SDG-minded companies are shown in Table 6-3. Not surprisingly, the most popular combination of the attributes among respondents was the most SDG-minded company with the highest income, which had a support of 0.871. In contrast, support of the most SDG-minded company with the lowest income was low at 0.562; support for the least SDG-minded company with the highest income was even lower at 0.281.

Awareness of the SDGs affected the perception of young people's job-seeking decisions. Support of the most SDG-minded company with the lowest income increased when the information was given to respondents (Figure 6-7-b). Their supports were higher in the information treatment groups than in the control group. We expected that giving negative information regarding a company's implementation of the SDGs would result in a negative impression of respondents and their support would be lower, but the negative information also caused positive effects, which requires further investigation.

Similarly, support of the least SDG-minded company with the highest income generally decreased when the information was given to respondents (Figure 6-7-c). This may indicate that awareness about the SDGs influences young people's willingness to dispense with income in favor of working for a more SDG-minded company. H5 is thus supported.

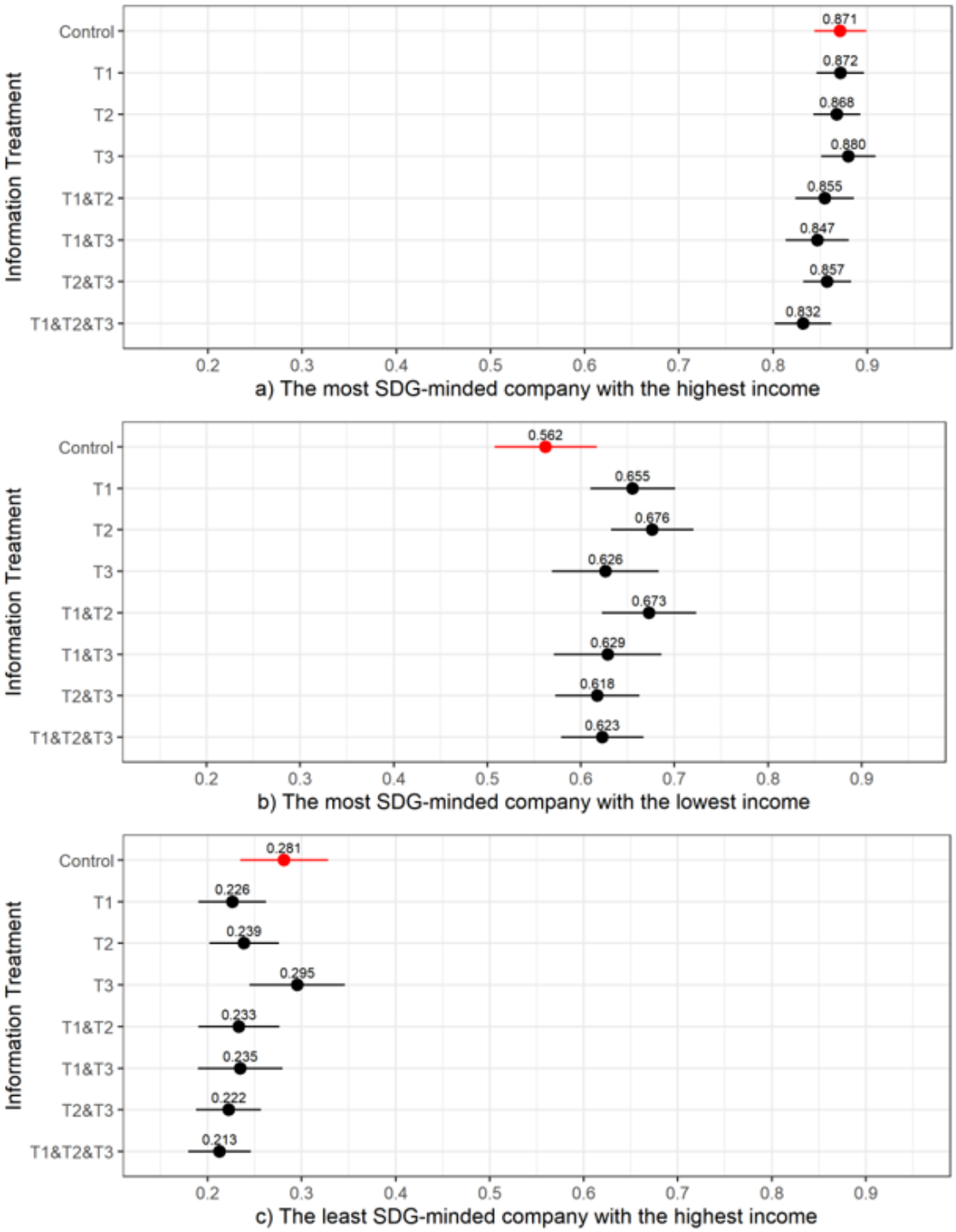


Figure 6-7: Effect of information treatment on support for the SDG-minded companies.

The points and values indicate probabilities of support. The error bars illustrate 95% confidence intervals.

6.4 Discussion

Many people have talked about the younger generation being more progressive about sustainability and having a pro-SDG lifestyle; however, academic studies that looked into generational differences found contradictory results, and in most of them could not show generational differences (Deal et al., 2010). Therefore, we examined whether the younger generation is a driving force for endorsing the SDGs by examining generational differences in lifestyle and younger people's job preferences. Here, we highlight two main findings, along with their implications for businesses, academics, and policymakers. First, the younger generation had relatively higher pro-sustainable attitudes or perceptions than did the older generation; however, for intrinsic work value and pro-environmental behavior, the younger generation was not more pro-sustainable than the older generation. Second, raising awareness about the SDGs influences young people's willingness to accept a lower income in favor of working for a more SDG-minded company.

6.4.1 Main Findings

The first main finding of this study was that younger people live more sustainable lifestyles than do older ones. Nearly half of the respondents, including both generations, claimed that they wished to live for a municipality actively implementing the SDGs. However, when it comes to pro-sustainable behavior, it decreased to 30.1% of the total respondents who claimed that they pay a premium for sustainable goods and 14.2% of total respondents who claimed that they care about corporate SDGs' contribution when choosing their product or service. Our results from the lasso regressions showed that after controlling for other factors, being the younger generation increased these sustainable lifestyles with reference to the older generations. These results suggest that the younger generation has attitudes and behavior to change society to be more sustainable.

However, in some measures, the results did not show that the younger generation is more pro-sustainable than the older generation. Unlike the study of Etezady et al. (2020) study, which found that millennials were more environmentally conscious in the U.S., our results showed that the younger generation might not contribute to pro-environmental behavior as much as the older does. Furthermore, generational differences were found in extrinsic work values. The younger generation is looking for good pay and job security more than the older generation. This is consistent with Guillot-Soulez and Soulez (2014), who found that younger generations prefer job security. Even though previous research has shown that millennials in the U.S. had less intrinsic work value (Twenge et al. 2010), no generational differences were found in intrinsic work value, particularly social contribution.

The second main finding comes from Study 2, which tested whether raising SDG awareness would lead to changes in preferences toward supporting an SDG-minded company when selecting a company to work for. This may indicate that awareness about the SDGs influences

young people's willingness to dispense with income in favor of working for a more SDG-minded company. Waples and Brachle (2019) showed that pay does not overpower the influence of CSR activity, and our findings are somewhat consistent with theirs. The findings suggest that younger generations could change their behavior when they become knowledgeable about the inherent nature of the SDGs, despite the findings from Study 1 showing that the younger generations preferred good pay more than the older generation.

6.4.2 Implications

These findings have intriguing practical implications. The primary aim of the current study was to explore the extent to which the younger generation lives sustainable lifestyles and supports the SDGs; the results are informative. Our findings suggest that today's younger generation can be driving forces for achieving the SDGs. When university students were selecting a company to work for, the probability of selecting the least SDG-minded company was as low as 0.281, even if it offered a high salary. The probability of selecting the most SDG-minded company increased to 0.562 with the lowest salary and 0.871 with the highest salary. These findings are consistent with those of Alonso-Almeida and Llach (2019), who suggested that millennials are attracted to sustainable companies, and Hirota (2015), who stated that people today are looking for something other than money from work. The younger generations already have a somewhat higher pro-sustainable lifestyle than do the older generations, and raising awareness would increase sufficient support for SDG implementation even further. The younger generation can push society forward to increase lifestyle sustainability.

Furthermore, the traditional business model, oriented toward short-term economic value, needs to be revisited (Scheyvens et al., 2016). The way businesses operate requires significant transformation to meet sustainability challenges (Bocken et al., 2015) and achieve the SDGs (Ohno et al., 2019). These results provide evidence for businesses to consider making such a change. Knowing the preferences of the younger generation, businesses need to contribute to the SDGs because potential employees place a value on sustainability. Employees' expectations would increase even more as awareness of the SDGs increases. Policymakers can use this evidence to promote SDG implementation.

The purpose of the current study was to investigate if today's younger generation represents pro-SDG generations, using interdisciplinary approaches because sustainability challenges are interconnected and require urgent attention. While we draw our study on the theory of generations, we built our research on studies from different disciplines and applied the methods commonly used in different disciplines. This study contributes to elucidating the theory of generations and sustainable lifestyles. To the best of our knowledge, this is the first study to investigate generational differences in the context of SDG implementations. The methodology used to investigate generational differences in this paper enriches previous studies because it controls age and period effects using a cross-sectional dataset.

7 Conclusions

This dissertation aimed to explore individuals' decision-making toward the achievement of the SDGs. Also, we investigated to what extent of raising awareness affects an individual's pro-sustainable preferences. Using two original survey datasets conducted in Japan: 1) the large-scale national level survey data (JHPSDGs 2019-2020) and 2) survey data targeting university students, we estimated the stated preferences of SDG-minded companies and the effects of raising awareness. Generally, our results showed that the respondents preferred companies contributing to the SDGs. Raising awareness about the SDGs positively affects the support of companies contributing to the SDGs. We showed heterogeneous effects of information treatment on the support of SDG-minded companies. These findings suggest that while raising awareness is effective in promoting pro-SDG behavior, the impacts of raising awareness can be complex. We conducted the conjoint survey twice, 2019 and 2020, and obtained similar results, which showed the robustness of the estimators. Furthermore, we showed that the younger generation is likely to be a pro-SDG generation. Here, we highlight the main findings of each chapter.

7.1 Main Findings

Chapters 3 investigated whether the SDGs can function as business norms by examining stakeholder support for sustainable practices. Using the 2019 conjoint survey dataset, we examined the preferences for companies that contribute to the SDGs and the effects of raising awareness regarding the inherent nature of the SDGs on stakeholders' preferences. The results showed that implementing the SDGs increased stakeholders' preferences for companies. Businesses benefit from implementing SDG initiatives. However, a gap existed between the stakeholders' preferred SDGs and companies' priorities concerning the SDG implementation. The findings suggest that increasing stakeholders' awareness was effective in closing the gap.

In Chapter 4, we estimated stakeholders' stated preferences on companies' contribution to the SDGs in three different contexts, purchasing, investing, and job-seeking using both the 2019 and 2020 conjoint survey datasets. The general results were similar to ones in Chapter 3 which only used the dataset of 2019. The results showed that stakeholders demanded corporations to contribute to international-related issues rather than domestic-related issues. Stakeholders' support was low when the companies profited from contributing to the SDGs. These results suggest that social context reflects the preferences of stakeholders on corporates' SDG activities. Overall, raising awareness had effects on stakeholders' support and to what extent the information affected the decisions of stakeholders was varied by stakeholders.

In Chapter 5, we further examined the extent to which SDG-related information affects stakeholder preferences in supporting the realization of the SDGs. Our results showed that when the respondents in the treatment groups were provided with sustainable development-related information, they were more likely to support SDG-minded companies compared with the control

group. However, the results also indicated that stakeholder preferences and effects of the information provision were heterogeneous, and consequently, the impact of raising awareness can be complex.

In Chapter 6, we examined the generational effects of pro-SDG behavior. Is the younger generation, including millennials and Generation Z, a driving force toward achieving the SDGs? To seek answers to the questions, this chapter draws from two studies. The aims of the chapter are to investigate (1) whether the younger cohorts are the pro-SDG generation who drive societies with their sustainable lifestyles to achieve SDGs more actively as compared to the older generations; further, this work elucidates (2) the job-seeking behavior of the younger generations. Generational differences in sustainable lifestyles exist. Younger people are more willing to pay a higher price for sustainable goods. Younger people are likely to work for a pro-SDG company for a lower salary. Together, the current findings suggest that the younger generation is likely to be pro-SDGs.

7.2 Implications for Sustainable Development

The SDGs, being international goals, require stakeholders' support to become norms (Fukuda-Parr & McNeill, 2019). Our studies have shown that stakeholders support companies that contribute to the SDGs even when those companies economically benefit from such contributions. At the same time, we confirmed that challenges exist in stakeholder management, echoing the concerns raised by Freudenreich et al. (2019) and Hörisch et al. (2014). The public needs to be educated and develop an ability to penetrate businesses façade sustainability practices; otherwise, it might be difficult to prevent SDG-washing—a tactic used simply to promote a cleaner image (Buhmann, 2018; Ethical Corporation, 2019b; Kim, 2018), or manage stakeholders' perception by disclosing only self-promoting information or not disclosing irresponsible behavior without actually contributing the SDGs (García-Sánchez et al., 2020). To overcome these challenges, our study revealed that raising awareness of the inherent nature of the SDGs is useful. The information treatment tested in this study was effective in increasing more sustainability decision-making of stakeholders. These results demonstrate that businesses may benefit from mainstreaming the SDGs as stakeholders support businesses' SDG contributions. However, for the SDGs to function as a business norm to corporate sustainability, raising stakeholders' awareness is imperative. Our analyses provide in-depth findings on heterogeneous treatment effects on information treatments. The evidence from this dissertation could not only help managers develop corporate strategies around the SDGs, but also public policymakers who promote SDG implementations.

7.3 Limitations and Future Research Directions

The limitations of studies presented in this dissertation can provide directions for future research as follows. Although this study's findings provide clear evidence that stakeholders' reactions vary depending on the situation and information provided, the findings did not discern

which background factors influence stakeholders' preferences. In future investigations, it might be useful to broaden the scope of the experiment to other countries. As per the previous discussion, engaging multiple stakeholders is essential for sustainable development. We have provided novel evidence on different stakeholders' preferences; however, we have only tested three stakeholder groups. Future studies should thus focus on expanding the analysis to other stakeholder groups.

Furthermore, we only examined to what extent two contents affected stakeholders' support for SDG-minded companies. Future research needs to test the impacts of raising awareness using different contents of information and how such information is perceived by stakeholders.

This study was not specifically designed to evaluate the factors related to information communication channels or instruments; however, as a study by Lazaric et al. (2019) demonstrated that communication channels are essential in stimulating sustainable consumption, considering the means of communication may be useful in future studies. In addition, the scope of the study should broaden to other countries to increase knowledge on effective SDG implementation.

Furthermore, this study's findings certainly elucidate the pro-sustainable lifestyle of the younger generation; however, our paper relied on a maximum of two years of observations. Thus, we were not able to show the long-term perspectives. Furthermore, our studies were conducted in Japan. Therefore, observing long-term behavior changes and collecting evidence from other countries may add further insights into this topic in the future.

Studies presented in this dissertation set the framework for future research on understanding individuals' behavior of SDG realization.

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9 Appendix

Table 9-1: List of potential control variables used in lasso regressions presented in 6.3.1.

Variable	Obs	Mean	s.d.	Min	Max
Prefecture					
Hokkaido	12,098	0.051	0.219	0	1
Aomori	12,098	0.009	0.096	0	1
Iwate	12,098	0.006	0.080	0	1
Miyagi	12,098	0.022	0.145	0	1
Akita	12,098	0.005	0.074	0	1
Yamagata	12,098	0.006	0.079	0	1
Fukushima	12,098	0.011	0.103	0	1
Ibaraki	12,098	0.016	0.125	0	1
Tochigi	12,098	0.010	0.099	0	1
Gunma	12,098	0.012	0.107	0	1
Saitama	12,098	0.051	0.220	0	1
Chiba	12,098	0.049	0.216	0	1
Tokyo	12,098	0.132	0.339	0	1
Kanagawa	12,098	0.081	0.272	0	1
Niigata	12,098	0.015	0.122	0	1
Toyama	12,098	0.010	0.101	0	1
Ishikawa	12,098	0.009	0.093	0	1
Fukui	12,098	0.006	0.078	0	1
Yamanashi	12,098	0.003	0.056	0	1
Nagano	12,098	0.013	0.112	0	1
Gifu	12,098	0.017	0.129	0	1
Shizuoka	12,098	0.026	0.159	0	1
Aichi	12,098	0.067	0.251	0	1
Mie	12,098	0.014	0.118	0	1
Shiga	12,098	0.009	0.093	0	1
Kyoto	12,098	0.021	0.145	0	1
Osaka	12,098	0.068	0.251	0	1
Hyogo	12,098	0.047	0.211	0	1
Nara	12,098	0.012	0.109	0	1
Wakayama	12,098	0.006	0.080	0	1
Tottori	12,098	0.004	0.065	0	1
Shimane	12,098	0.004	0.065	0	1
Okayama	12,098	0.016	0.126	0	1
Hiroshima	12,098	0.023	0.150	0	1
Yamaguchi	12,098	0.009	0.094	0	1
Tokushima	12,098	0.005	0.069	0	1
Kagawa	12,098	0.009	0.096	0	1
Ehime	12,098	0.011	0.106	0	1
Kochi	12,098	0.004	0.060	0	1
Fukuoka	12,098	0.054	0.227	0	1
Saga	12,098	0.005	0.067	0	1

Nagasaki	12,098	0.011	0.105	0	1
Kumamoto	12,098	0.009	0.095	0	1
Oita	12,098	0.008	0.091	0	1
Miyazaki	12,098	0.006	0.075	0	1
Kagoshima	12,098	0.010	0.102	0	1
Okinawa	12,098	0.006	0.080	0	1
Birth year	12,098	1972	15.718	1945	2002
Big five personality traits					
Personality extraversion	12,098	4.685	2.009	1	9
Personality agreeableness	12,098	6.278	1.654	1	9
Personality conscientiousness	12,098	5.145	1.917	1	9
Personality neuroticism	12,098	4.890	1.895	1	9
Personality openness	12,098	4.870	1.874	1	9
Education level					
Less than secondary	12,098	0.028	0.166	0	1
Secondary	12,098	0.458	0.498	0	1
Higher	12,098	0.415	0.493	0	1
Post-graduate	12,098	0.063	0.243	0	1
Refuse to answer	12,098	0.036	0.185	0	1
Annual household income (10,000 Yen)					
<100	12,098	0.028	0.164	0	1
≥100, <200	12,098	0.046	0.209	0	1
≥200, <400	12,098	0.170	0.376	0	1
≥400, <600	12,098	0.189	0.392	0	1
≥600, <800	12,098	0.145	0.352	0	1
≥800, <1,000	12,098	0.092	0.289	0	1
≥1,000, <1,200	12,098	0.053	0.225	0	1
≥1,200, <1,400	12,098	0.026	0.159	0	1
≥1,400, <1,600	12,098	0.018	0.131	0	1
≥1,600, <1,800	12,098	0.006	0.076	0	1
≥1,800, <2,000	12,098	0.006	0.075	0	1
≥2000	12,098	0.016	0.125	0	1
Refuse to answer	12,098	0.205	0.404	0	1
Size of Household	12,098	2.690	1.365	1	11
Female					
0	12,098	0.499	0.500	0	1
1	12,098	0.501	0.500	0	1
Current occupation					
Office and administrative support	12,098	0.178	0.383	0	1
Sales and related occupations	12,098	0.065	0.247	0	1

Management, business, and financial operations	12,098	0.073	0.261	0	1
Professional and related occupations	12,098	0.157	0.364	0	1
Service occupations (healthcare support/protection services, or food preparation and serving-related, security guards, etc.)	12,098	0.069	0.254	0	1
Construction, extraction, and maintenance	12,098	0.044	0.205	0	1
Farming, fishing, and forestry	12,098	0.005	0.073	0	1
Housewives/Househusbands	12,098	0.143	0.350	0	1
Student	12,098	0.049	0.215	0	1
Retired (excluding housewives/househusbands)	12,098	0.088	0.284	0	1
Unemployed (excluding housewives/househusbands)	12,098	0.021	0.143	0	1
Other (Specify)	12,098	0.107	0.309	0	1
Current employment status					
Full-time employee	12,098	0.429	0.495	0	1
Part-time employee (Pa-to)	12,098	0.095	0.293	0	1
Part-time employee (Arubaito)	12,098	0.049	0.217	0	1
Temporary work (sent to a company from a temporary job agency, internship, specific project for a company, etc.)	12,098	0.016	0.127	0	1
Contract worker	12,098	0.048	0.213	0	1
Other (Specify)	12,098	0.087	0.281	0	1
Not working/applicable	12,098	0.276	0.447	0	1
Currently seeking a job					
0	12,098	0.876	0.329	0	1
1	12,098	0.124	0.329	0	1
Do you have children					
1 if children below primary school					
0	12,098	0.875	0.331	0	1
1	12,098	0.125	0.331	0	1
1 if children at primary school					
0	12,098	0.949	0.221	0	1
1	12,098	0.051	0.221	0	1
1 if children at secondary school					
0	12,098	0.919	0.273	0	1
1	12,098	0.081	0.273	0	1
1 if children at university					
0	12,098	0.949	0.220	0	1
1	12,098	0.051	0.220	0	1
Do you make purchase decisions					
1 if chosen durable goods					
0	12,098	0.362	0.481	0	1

1	12,098	0.638	0.481	0	1
1 if chosen daily goods					
0	12,098	0.375	0.484	0	1
1	12,098	0.625	0.484	0	1
1 if chosen invest/save					
0	12,098	0.352	0.477	0	1
1	12,098	0.648	0.477	0	1
Year the survey was conducted					
2019	12,098	0.500	0.500	0	1
2020	12,098	0.500	0.500	0	1
Did you already know about the SDGs before doing this questionnaire?					
Yes, I have heard of them and know them well.	12,098	0.142	0.349	0	1
I have heard of them, but I do not know what they mean.	12,098	0.215	0.411	0	1
No.	12,098	0.644	0.479	0	1
Information treatment assigned for conjoint					
0	12,098	0.504	0.500	0	1
1	12,098	0.496	0.500	0	1
treat2					
0	12,098	0.504	0.500	0	1
1	12,098	0.496	0.500	0	1
treat3 (only in 2020)					
0	12,098	0.752	0.432	0	1
1	12,098	0.248	0.432	0	1
Scenario assigned for stakeholder conjoint					
products	12,098	0.337	0.473	0	1
invest	12,098	0.333	0.471	0	1
job	12,098	0.330	0.470	0	1
Daily Behavior (Some variables were used to construct C1 & C-2. If those variables were used, exclude.)					
Int'l corporation	12,098	0.629	0.830	0	3
Decrease energy consumption	12,098	1.981	0.880	0	3
Buy only what you can eat	12,098	2.123	0.875	0	3
Buy imperfect products	12,098	1.949	0.843	0	3
Buy fair trade	12,098	0.998	0.846	0	3
Think about your job satisfaction	12,098	1.685	0.901	0	3
Buy locally grown food	12,098	1.778	0.913	0	3

Use AC efficiently	12,098	1.960	0.968	0	3
Interested in news on peace	12,098	1.547	0.899	0	3
Invest	12,098	0.735	1.008	0	3
Father's education Level					
Less than secondary	12,098	0.162	0.368	0	1
Secondary	12,098	0.337	0.473	0	1
Higher	12,098	0.241	0.428	0	1
Post-graduate	12,098	0.022	0.146	0	1
Refuse to answer	12,098	0.238	0.426	0	1
Mother's education Level					
Less than secondary	12,098	0.160	0.366	0	1
Secondary	12,098	0.513	0.500	0	1
Higher	12,098	0.098	0.297	0	1
Post-graduate	12,098	0.006	0.079	0	1
Refuse to answer	12,098	0.223	0.416	0	1