Does the Criticism of Constitutional Experts Shape Public Attitude toward a Government’s Security Policy? - Reconsidering the Image of “Influential Constitutional Legal Scholars” in Japan

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Abstract:
Constitutional legal scholars are regarded as influential academic experts in the public debate on security policy in Japan. However, the majority of studies on expert cue fail to find evidence that messages from experts have a persuasive effect on public opinion. To empirically test the influence of constitutional scholars, this study conducted an online survey experiment on whether the criticism of constitutional scholars undermines Japanese public support for the hypothetical use of armed force. The results show that such criticism has no causal effect on public attitude even among respondents who are most liberal or have high confidence in constitutional scholars. On the contrary, adverse opinion from retired general officers declines the support for the dispatch among individuals who are conservative or have high confidence in the Japan Self-Defense Force. These findings imply that though the Japanese consciously sift through information from different sources, they reject it from constitutional scholars.

Keywords: expert cue, military elite cue, Japan’s security policy, public opinion, online survey experiment
Introduction

As international tension has been rising both globally and regionally, the salience of national security has been growing in Japanese politics. A prominent feature of the Japanese security policy is that national security is regarded and discussed to a great extent as a constitutional matter. Given that Article 9 of the Japanese Constitution states that any kind of armed force is not recognized, the constitutional legitimacy of the Japanese military has been cast doubt on. Consequently, constitutional legal scholars are often seen as influential actors in the national debate on defense and security.

The security related acts of 2015, which allows the Japanese Self Defense Force to participate in collective defense, presents an illustrative example. On May 6, 2015, three constitutional scholars, including Hasebe Yasuo, who participated as a witness on behalf of the governing Liberal Democratic Party (LDP), clearly stated that security related bills under consideration would violate the constitution on a session of the Commission on the Constitution of the House of Representatives (The Yomiuri Shimbun Seiji-bu 2015, p. 41). Many observers noticed that the comments of the three scholars accelerated the public opposition against security-related bills (Hasebe 2016, p. 91). In fact, constitutional scholars repeatedly appeared on mass media, including on famous TV shows, and the results of a survey of constitutional professors' opinions on the bills were reported in a prominent newspaper (Kimura 2022, p. 123). These examples suggest that constitutional experts in Japan have great influence on public opinion about security policies. Considering that both national security and constitutional law are highly specialized issues, it is plausible that people prefer to follow expert guidance.

However, even though constitutional scholars get media and public attention on security matters, whether they have persuasive effect on the public opinion is still unclear. Although the cueing effect of experts is a relatively novel topic, most studies demonstrate that the effect of this cue is relatively limited. However, the literature has examined cases in which experts propose certain policy programs, but research on situations when experts criticize government policy programs such as constitutional scholars criticizing security policy in Japan, is limited. Moreover, while most studies on expert cue focus on issues related to natural science such as global warming or public health, expert cues regarding constitutional affairs have not received enough attention.

To fill this gap, this study conducted an online survey experiment of a hypothetical dispatch of the Japan Self-Defense Forces (JSDF). The results show, contrary to the wide image in Japan, no evidence of cueing effects of the arguments of constitutional legal scholars. However, we also found that criticism from retired general officers, who represent another
type of security policy experts, undermines support for the decision of dispatch among individuals with right ideology or with higher confidence in the JSDF. It implies that respondents consciously evaluate information from different sources and reject criticism from constitutional legal scholars.

Hereafter, this paper is organized as follows. The second section briefly reviews the literature on expert cue and states the contribution of this study. The third section, based on the historical context and discussion of Japanese security policy and the role constitutional legal scholars have played, presents our hypotheses. The fourth section describes the research design of the survey experiment, and the fifth section describes the results. The final section discusses the implication of our experiment and concludes this paper.

**Expert Cue**

Ordinary people often lack sufficient knowledge or time to make decisions about political issues. Instead, they rely on source cues as an informational shortcut, as the public normally follow actors who are perceived as reliable (Lupia, 1994; Lupia & McCubins, 1998). Given that people use source cue as an informational shortcut, it may be plausible that they generally follow experts with knowledge in a policy issue under consideration. However, extant evidence suggests that the cueing effect of experts is still limited (Case et al. 2021; Heinzel and Liese 2022; Sapienza and Zingles 2013).

In the United States (US), Sapienza and Zingales (2013) demonstrate that there is a large gap between answers to policy questions from economic experts and those of ordinary American people. They also state that reporting experts’ answers has little effect on ordinary peoples’ responses, and conclude that people are skeptical to economic experts.

Since the COVID-19 pandemic, medical and public health experts have received a lot of media attention. The question here is whether people are more likely to support pandemic-control measures recommended by experts. From experimental evidence from the US, Case et al. (2021) reports that recommendation of experts made no difference on the people’s support for pandemic-control measures, thus implying that the public did not see experts as persuasive. Heinzel and Liese (2022) conduct similar experiments in Germany and the United Kingdom (UK) to examine whether endorsements of expert institutions such as health ministries, health institutes, university researchers, and the World Health Organization (WHO), increase public response to pandemic-control measures. Again, no evidence was found that recommendations from expert institutions matter, and in the case of endorsements from university, researchers even decrease people’s support. Bertsou (2022) demonstrates
that people prefer policies implemented or designed by independent experts to those by national representatives but do not favor policies whose decisions were made by independent experts.

Research also suggests that while people accept experts’ opinion which is consistent with their own prior beliefs, they resist the inconsistent experts’ opinion. Based on the cultural cognition theory, Kahan et al. (2010) assert that a person’s cognition determines their attitude to scientific consensus. Similarly, from survey experiments conducted in the US, Jonathan and Ballard (2016) examine the effect of economic expert consensus on people’s attitude to find that while US citizens trust experts in highly technical issues, for which only a few ordinary people have prior attitude, individuals reject experts’ opinion about more politicized issues for which they already have preliminary beliefs. Greve-Poulsen et al. (2021) present an exceptional study which confirms expert’s effect on people’s views. From experimental evidence from Denmark, they demonstrate how reporting hypothetical expert’s opinion to the public changes people’s attitude toward economic and life policy, regardless of the gender of the experts. However, as their research interest is in gender bias toward experts, they compare the treatment group that was informed of female or male expert opinion to the control group, which makes it difficult to evaluate whether expert opinion was persuasive or presenting an opinion changes respondents’ attitude no matter if the opinion was from experts or other sources.

In the Japanese context, McElwain et al. (2021) conduct a survey experiment to find that the support for a proposal of constitutional amendments is high when the proposition comes from non-partisan experts than from the ruling Liberal Democratic Party (LDP). However, it is again unclear whether proposal from experts is preferred or if the public simply rejects the suggestions from the ruling party.

To summarize, existing studies present limited evidence that experts’ opinions have persuasive effect on people’s attitude toward policy issues that opinions from other sources do not have. It is clearly contrary to the popular belief about the influence of constitutional legal scholars’ on security policies in Japan.

This study empirically examines whether criticism from constitutional scholar changes people’s attitude towards security policy of the Japanese government. Through our empirical methodology, we make the following contributions to the literature on expert cue on public opinion. First, we test cueing effect of experts who criticize certain policy outside of the government. Most prior studies examine whether people are more likely to support a policy proposed or endorsed by experts. On the contrary, whether experts are persuasive when they criticize certain policy is left to empirical tests. Given that people’s beliefs toward the involvement of experts is based on the stage of involvement of policy experts (Bertsou 2022),
the cueing effect of expert criticism should be investigated. Second, while most extant research about expert cue focus on natural scientists or economic experts, limited studies empirically examine the influence of legal experts on public opinion. Our work provides novel evidence on people's reaction to legal experts.


Based on the historical context of Japan, this section builds our hypotheses. The first one is that criticism from constitutional legal scholars on security policy has a persuasive effect which criticism from other sources lacks. As the security related acts in 2015 described in the introduction implies, constitutional legal scholars are regarded as reliable and influential experts on security policy.

Higuchi Yoichi, a leading constitutional scholar, summarizes the historical background though which constitutional legal scholars have acquired their influence (Higuchi 2017). Not long after the end of the occupation in 1952, conservative Hatoyama (1954-1956) and Kishi (1957-1960) governments attempted to amend the constitution drafted by the occupation US forces. The Kishi government tried to invite constitutional legal scholars to its advisory board on constitutional amendment, but most scholars refused to participate.

In response to the rise of the pro-amendment force, leading legal scholars Miyazawa Toshiyoshi (constitution), Kiyomiya Shiro (constitution), and Wagatsuma Sakae (civil law), together with academics from other fields, founded a study group for constitutional affairs. According to Higuchi, this group had an enlightening role, influencing the public opinion until it ended its activity in 1976. Describing the study group of scholars as the most influential academic group in post war Japan, Qiu (2014), who reports the history of the study group in details, also attributes the rise of anti-amendment public movement to the study group.

Other scholars also mention the recent influence of constitutional legal scholars. Shinoda Hideaki, an international relations researcher, criticizes the constitutional academic circle for illegitimately dominating the debate on public policy (Shinoda 2017, p. 10). Hasebe Yasuo, one of the constitutional legal scholars who first stated that the security related acts of 2015 was constitutionally suspicious, admits that it is unique to Japan that constitutional scholars’ opinion has an influence on a variety of policy issues, including ones which are not strictly constitutional matters. He also suggests that some may see constitutional scholars as arrogant (Hasebe 2018, p. 198).

As discussed in the previous section, research on expert cue presents inconclusive evidence on whether experts have persuasive effect on public opinion. In contrast, these
pervasive understandings imply that constitutional legal scholars are influential political actors in Japan. Therefore, we hypothesize that they affect people’s evaluation on certain government policies related to their expertise.

Hypothesis 1: Criticism from constitutional legal scholar declines people’s support for the government’s security policy.

Further, we hypothesize that the effect of experts’ criticism also depends on the preliminary attitude of the respondents toward the security policy. When people are presented with expert opinions which are inconsistent with their prior values, they tend to resist that information. Experimental evidence from the US shows that people are extremely likely to reject economists’ consensus in highly politicized issues (Jonathan and Ballard 2016). Considering that the constitutional legitimacy of the security policy is a highly ideological and politicized issue in Japan, people who are supportive for proactive security policy may refuse to accept scholars’ criticism.

The security policies in Japan, as in many other democracies, are based on the left-right ideology, with the right-wing favoring military power and the left-wing opposing it. Therefore, right-learning people may be skeptical to constitutional legal scholars, hence rejecting their opinions. Contrary, leftist may easily accept criticism of scholars which aligns with their prior belief.

Hypothesis 2: Criticism from constitutional legal scholar decline leftist support for the government’s security policy but does not decline rightist support.

Finally, we hypothesize that the cueing effect is conditional to the respondents’ confidence in information sources. As people’s trust in experts may be heterogeneous, individuals with high confidence in constitutional scholars are more easily persuaded by their comments while people with lower confidence are not.

Hypothesis 3: Criticism from constitutional legal scholar declines support for a government’ security policy among people with high confidence in the scholars but not among individuals with lower confidence.
Research Design

We conducted an online survey experiment between the 9th and the 11th of October, 2022, in Japan. We recruited 3238 Japanese adults between the age of 18 (voting age) and 69, registered with the Yahoo Cloud-sourcing, a Japanese crowdsourcing service, similar to Amazon Mechanical Turk. We exclude satisficers and those who failed to complete the questionnaire.

Our experiment had the following structure: First, we recorded the participants’ socio-economic and demographic traits. Then, to test hypothesis 2 and 3, we asked the respondents about their ideology and trust in each informational source. Finally, our results consisted of 2549 participants.

To measure the ideology of the respondents, we created an 11-point ideological scale. One problem here is that widely used ideological labels, such as left-right (saha-uha), liberal-conservative (liberal-hoshu), and liberal-conservative, are perceived differently by different generations (Endo and Jou 2016). To capture their ideology regarding security issues, we used the left-right and liberal-conservative labels, both of which are correlated with a set of beliefs toward security policy among most generations (Endo and Jou 2016), together.

For hypothesis 3, we asked the respondents to rate their confidence in constitutional legal scholars, universities, and for comparison, other institutions, through another 11-point scale. Both ideology and confidence are examined before respondents are assigned to control or treatment groups to avoid post-treatment bias.

Subsequently, respondents were randomly assigned to either the control or one of four treatment groups (Anonymous Treatment, Constitutional Scholar Treatment, Opposition Party Treatment, Retired Officer Treatment). In all groups, participants were presented with hypothetical scenarios in which an armed conflict occurs in the Middle East and the Japanese government decided to send the JSDF to the Strait of Hormuz for minesweeping operations. Minesweeping operations in conflict zones are considered a form of collective defense, which majority of constitutional academics regard it as unconstitutional.

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1 This survey experiment is approved by the Institutional Review Board of Kyoto University, Graduate School of Law (ID: R4-002).
2 For detail, see the Appendix.
3 We conducted balance tests to confirm that respondents’ demographic traits, socio-economic status, ideology, and confidence levels in opposition parties, the Diet, and the JSDF, are balanced between control and treatment groups. For detail, see the Appendix.
Therefore, the argument that dispatch of minesweepers violates the constitution seems to be realistic to the respondents.

In the Anonymous Treatment group, the respondents were additionally informed that the decision of deployment was criticized as it violated Article 9 of the Japanese Constitution, without information about who raised this criticism. In the Constitutional Scholar Treatment group, the participants were further informed that famous constitutional scholars argued that the dispatch violates the Constitution.

As we are interested in the cueing effect of constitutional legal scholars in comparison to other sources, we also tested the effect of two other sources of information, the first one being the opposition party. Parliamentary opposition is the primary critic on the government and its policies, as opposition parties have criticized the government-led security policies in Japan. Participants in the Opposition Party Treatment group were informed that major opposition parties, such as the Constitutional Democratic Party, claimed that the minesweeping operation is constitutionally illegitimate.

The second different source of information is a group of retired JSDF general officers. While the security policy has been largely discussed as constitutional affairs in Japan, national security is a highly multidisciplinary matter. Therefore, some may see military professionals, rather than constitutional scholars, as more proficient experts on that topic. Golby et al. (2018), for example, show that endorsement of US military elites heightens mass support for a use of armed force while negative opinions from the military elites lowers it. This suggests that the views of military leaders serve as an information cue for the US public. Similarly, Kenwick and Maxey (2022) suggest that reference to advisor with military experience increases US citizens’ approval to president’s decision to deploy military force. If these findings are applicable to the Japanese context, we expect that opposition from those with military experience would decline the support for the hypothetical dispatch of the JSDF. In the Retired Officer Treatment group, the respondents were informed that retired JSDF general officers pointed out that the minesweeping mission violates the Constitution.

Results

We estimated the average treatment effect of each scenario using the Ordinary Least Squares (OLS) regression with robust standard errors. In all models, we controlled for respondents’ age, gender, income, educational background, household income and political interest.
Figure 1 depicts the effects of each treatment. Since the control group consisted of those who were presented with no criticism, the effect shows how criticism declined respondents’ support for the JSDF dispatch compared to a situation where no criticism was presented.

As Figure 1 illustrates, any treatment did not have significant effect on respondents’ attitude toward the JSDF dispatch. In details, the effect of anonymous criticism was almost 0, meaning that criticism of constitutional illegitimacy itself, without information about its source, had no effect on people’s evaluation of a security policy. For our hypothesis, the effect of criticism from constitutional legal scholar was also almost 0 (even slightly positive) and statistically insignificant. This suggests that criticism from constitutional legal scholars had almost no persuasive effect, similarly to anonymous criticism. The null results were also observed with opposition party and retired officers as information sources, indicating that criticism of unconstitutionality from constitutional scholars and that from other actors made no difference in people’s beliefs toward government’s security policy. Therefore, Hypothesis 1 is rejected.

We also hypothesized that the effect of criticism depends on people’s ideology. Figure 2 shows the conditional effect of criticism from each source. Again, the effect of anonymous criticism was almost 0, regardless of respondents’ ideology. The treatment effect of constitutional legal scholars was, as we expected, negative among liberal respondents and near 0 or even positive among conservatives. However, the effect was relatively small and statistically insignificant even among the most liberal respondents. Therefore, Hypothesis 2 is also rejected.

Criticism from constitutional legal scholars did not change the opinions even among
the liberal public, who was expected to be supportive of anti-military actions. Similar pattern was observed in opposition parties. However, the result shows that criticism from retired higher officers had partial persuasive effect. The effect was negative and statistically significant among conservative respondents, indicating that when former JSDF officers criticized the dispatch of JSDF as being anti-constitutional, the support for the dispatch among conservative citizens declined.

Figure 2: Marginal Effects of Criticism Conditional on Respondents’ Ideology

Finally, Figure 3 illustrates conditional effect on people’s trust in each information sources. Contrary to our expectations, criticism from constitutional legal scholars had no significant effect even on individuals with highest confidence in the scholars. We also estimated the conditional treatment effect on confidence in universities in general. Again, the Constitutional Scholar Treatment group demonstrated no significant effect regardless of respondents’ trust in universities. We found no evidence supporting hypothesis 3.

We estimated the Opposition Party’s conditional treatment effect on one’s confidence in the Diet, and the Retired Officer’s conditional treatment effect on individual’s confidence in the JSDF. To test the conditional effect of opposition parties’ criticism, we used confidence in the Diet rather than confidence in opposition parties since a respondent’s confidence in an opposition party is supposed to overlap one’s ideological position.

Opposition parties’ argument of constitutional illegitimacy, like that from
constitutional experts, had no significant effect on participants’ attitude toward the mission, regardless of the degree of confidence the respondent has. However, if retired JSDF general officers argued that the dispatch violates constitutional provision, this argument lowered the support for the dispatch among those who had higher confidence in the JSDF.

![Figure 3: Marginal Effects of Criticism Conditional on Confidence in Sources](image)

To summarize, we find no evidence supporting our hypotheses. Contrary to our expectations and the popular logic, criticism of constitutional illegitimacy from constitutional scholars had no effect on people’s attitude toward government’s security policy, even among individuals with left ideology or higher confidence in constitutional scholars or universities. The null result also holds for criticism from opposition parties. The only exception was criticism from retired general officers, as their opposition declined support for the minesweeping mission among people with right-leaning ideology or higher confidence in the JSDF.

**Discussion**

In Japan, constitutional legal scholars have been thought as influential figures on public opinions, especially in debates on security policies. However, how much influence
constitutional legal scholars’ opinion has on public views has not been empirically examined. Considering the fact that the majority of extant research are skeptical to experts’ cueing effects, there is a non-trivial gap formed in literature on the topic.

To fulfil this gap, we conducted an online survey experiment. The results suggest, unlike widely shared perceptions, that criticism from constitutional legal scholars has no cueing effect on public attitude toward security policy, as arguments from such experts have persuasive effect neither on leftist respondents nor on those who have higher confidence in academics, with the two groups being the ones most likely to accept constitutional scholars’ opinion.

One may interpret this result to suggest that Japanese people are ignorant to security policy, constitutional affairs, or even both. However, our results also demonstrate that people with right ideology or high confidence in SDF follow adverse opinion from retired general officers, another kind of experts on security policy. This implies that the respondents consciously sift through information from different sources and reject that from constitutional scholars.

Nevertheless, our findings are largely in line with what the extant empirical research has revealed. Previous experimental evidence suggests that experts have no, or at least quite limited, cueing effect on public opinions (Case et al. 2021; Heinzel and Liese 2021; Johnston and Ballard 2016; Sapienza and Zingales 2013). Our evidence also demonstrates that constitutional scholars in Japan have no such effect, implying that the previous findings are applicable to constitutional legal scholars and criticism, not suggestion, from experts.

In contrast, as in studies on the US military have demonstrated, retired general officers have persuasive effects on individuals with right ideology or ones with high confidence in the JSDF. Retired general officers are not identical to higher officers at work. However, our results suggest that military specialists are exceptional type of experts who have persuasive influence on public debate on security policy. In other words, cueing effects of experts’ remarks are heterogeneous among the type of experts.

Regarding Japanese politics, our results suggest that the widely shared images of influential constitutional legal scholars should be reconsidered. We do not argue that constitutional legal scholars are not influencing the political scenes in Japan at all. It may be true that the academic experts have lead scholars’ and policy makers’ debate on security policy. As the example of the security related acts of 2015 shows, they have also attracted media attention. However, at least from our experimental evidence, their influence on mass level opinion is very limited.

Finally, we briefly discuss the limitations of our research and what future research should focus on. First, while we tested the cueing effect on people’s support for the dispatch
of armed forces, use of armed force is not identical to legislation of security related laws. Considering people prefer policy designed or implemented by experts but does not prefer one decided by experts (Bertsou 2022), it is possible that constitutional scholars have cueing effect not on decision regarding the use of armed force but on the development of legal systems.

Second, future work should also test other types of expert cue in other policy domains. Our results demonstrate that the cueing effects are heterogeneous among type of experts. While retired general officer shows conditional cueing effects, constitutional legal scholars show no such effect. The reason behind this mechanism is also worth examining. One simple interpretation is that people regard retired general officers as experts on security policy, unlike constitutional legal scholars. If this is true, the latter may have cueing effects on other policy issues or other types of scholars, such as professors majoring in international relations, may have persuasive effect like retired general officers. We need to further examine what types of experts have cueing effect in what kind of policy issues. Future works should address these questions to deepen our understandings about the influence of experts on public opinion.

References


Appendix

Satisficer Check

Pre-treatment Check
People are so busy today that they cannot afford time to understand what happens in their regions or countries. We would like to check whether people read questionnaires. To confirm that you have read this question, please choose both “I am strongly interested” and “I am to some extent interested.”

- I am strongly interested.
- I am to some extent interested.
- Neither.
- I am not so interested.
- I am not interested at all.

Post-treatment Check
In the hypothetical scenario you read, which country fought against the US? Please choose one country from the following:

- Iran
- North Korea
- Cuba
- Syria

We regard respondents who failed to choose correct answers in both pre and post-treatment checks as satisficers and excluded them from our analyses.

Pre-treatment Questionnaire

English Translation
[Ideology] We often use expressions such as “Conservative (right)” and “Liberal (left)” about politics. Suppose 0 means liberal (left) and 10 means conservative (right). Where do you think you are located?

[Confidence] To what extent do you have confidence in following institutions and people? Suppose 0 means “do not have confidence at all” and 10 means “have very high confidence”. Please choose the most suitable answer from 0 to 10.
イデオロギー

政治に関して、ときどき「保守（右派）」「リベラル（左派）」という表現をすることがあります。0が「リベラル（左派）」を意味し、10が「保守（右派）」を意味するとします。あなたは、どこに位置すると思いますか。

信頼

あなたは、下記の機関や人々をどの程度信頼しますか。「まったく信頼しない」を0、「非常に信頼する」を10とした場合に、あなたのお気持ちに最も近いものを選んでお答えください。

Original Vignette

Experiment Vignette

English Translation

Recently, international tension has risen in the Middle East over Iran’s nuclear development. We present a fictional story related to this problem. Please read it carefully and answer the following questions.

A few days ago, in response to Iran’s maritime mine blockade in the Strait of Hormuz, a maritime traffic hub, an armed conflict broke out between the US and Iran. The LDP prime minister ordered the dispatch of the JSDF for minesweeping operations.

[Control] (no additional text)

[Anonymous] In Japan, the dispatch was criticized for it violated the Japanese Constitution.

[Constitutional Scholar] In Japan, the dispatch was criticized from famous constitutional scholars for it violated the Japanese Constitution.

[Opposition Party] In Japan, the dispatch was criticized from Constitutional Democratic Party for it violated the Japanese Constitution.

[Retired Officer] In Japan, the dispatch was criticized from retired general officers for it violated the Japanese Constitution.

We ask a question about this scenario. Would you support the government’s response to the conflict?

Original Vignette in Japanese

近年、中東ではイランの核開発問題を巡って国際的な緊張が高まっています。この問題に
関連した仮想的なシナリオを示しますので、よくお読みいただいた上で、質問にお答えください。

先日、イランが海上交通の要衝であるホルムズ海峡を機雷で封鎖したことを受け、米国がイランとの武力紛争に突入しました。自民党の内閣総理大臣は、戦時下での機雷の除去を目的として、自衛隊の出動を命じました。

[統制群]（追加情報なし）
[批判（発言者なし）]ただし、日本国内では、憲法違反であるとの批判が起こりました。
[憲法学者]ただし、日本国内では、著名な憲法学者から憲法違反であるとの批判が起こりました。
[野党]ただし、日本国内では、立憲民主党から憲法違反であるとの批判が起こりました。
[元自衛隊将官]ただし、日本国内では、自衛隊の元将官から憲法違反であるとの批判が起こりました。

先ほどお読みいただいたシナリオについてお伺いします。あなたは、日本政府がとった対応を支持しますか。それとも支持しませんか。
● 支持する
● どちらかといえば支持する
● どちらかといえば支持しない
● 支持しない
Balance Check

We conducted a balance test by calculating standardized biases between control and treatment groups. We used the BalanceR package\(^4\) for calculation. Figure A1 illustrates the result of this balance test. As our experiment consists of 5 groups (4 treatment groups and 1 control group), we tested 10 pairs. To simplify, Figure A1 presents maximum standard biases for each covariate.

For all covariates, maximum absolute values of standardized biases are smaller than 25, a usually used criteria in social science.

Figure A1: Balance Test of Respondents Traits

\(^4\) (https://github.com/JaehyunSong/BalanceR)