

2024/5/11

日本軍縮学会2024年度研究大会
慶應義塾大学三田キャンパス

核軍縮の規範論に一致する国民は日本人だけなのか？ 世論の核保有支持・不支持の決定要因の共分散構造分析

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Research Objectives

This study aims to verify the *normative effect of nuclear disarmament on public support for the possession of nuclear weapons.*

- The danger of nuclear war has increased since North Korean nuclearization.
 - The Doomsday Clock was reset at 90 seconds to midnight in 2024.
- Nuclear proliferation will be promoted if more public opinions support national nuclear possession in Northeast Asia.
 - Japan, South Korea, and Taiwan is under serious military and nuclear threat.
 - Even Japanese public opinion is suspected of agreeing on nuclear possession.
- **To prevent public support for nuclear possession, the causal relationship of the public support should be clarified.**

- **Previous studies have mainly highlighted military threat and nuclear deterrence in nuclear proliferation issues.**
 - **Trust in security effect of nuclear deterrence is an important reason of nuclear possession.**
 - Many countries tried to develop nuclear weapons during the cold war (Campbell, et al., 2004).
 - **Citizens of countries facing strong military threats, especially nuclear threats, tend to express greater support for the possession (Fuhrmann, 2009; Jo and Gartzke, 2007; Singh and Way, 2004). Public opinion polls confirm this tendency (ICRC, 2019, 17; Spektor, 2022).**
 - Normative values of nuclear disarmament and abolition have been partially discussed on the reasons of nuclear possession.
 - The experiences of Hiroshima and Nagasaki led people to believe that nuclear first strikes were taboo (Tannenwald, 1999). However, it is also clear that ethical constraints are not an absolute value criterion, as people tend to show greater support for nuclear attacks if there is no fear of nuclear retaliation (Dill, Sagan, and Valentino, 2022; Horschig, 2022; Press, Sagan, and Valentino, 2013; Sagan and Valentino, 2017).

- However, in international community, **nuclear disarmament has been often promoted as an alternative security policy to nuclear deterrence.**
 - NPT, IAEA inspection, TPNW are also security effect.
- **The effect of nuclear disarmament on support for possession has not been verified.**
 - Is normative perspective of nuclear disarmament weakened?

The image shows a screenshot of a news article from 'THE DIPLOMAT' and a BBC infographic. The article is titled 'Is Japan's 'Nuclear Allergy' Being Cured?' and discusses President Trump's rhetoric and North Korea's threats. The infographic consists of three red clock faces representing the progression of nuclear concerns over time.

THE DIPLOMAT
READ THE DIPLOMAT. KNOW THE ASIA-PACIFIC

Stanford University
Center for International Security and Cooperation
Freeman Spogli Institute

3分前
2015
気候変動や核への懸念が高まる

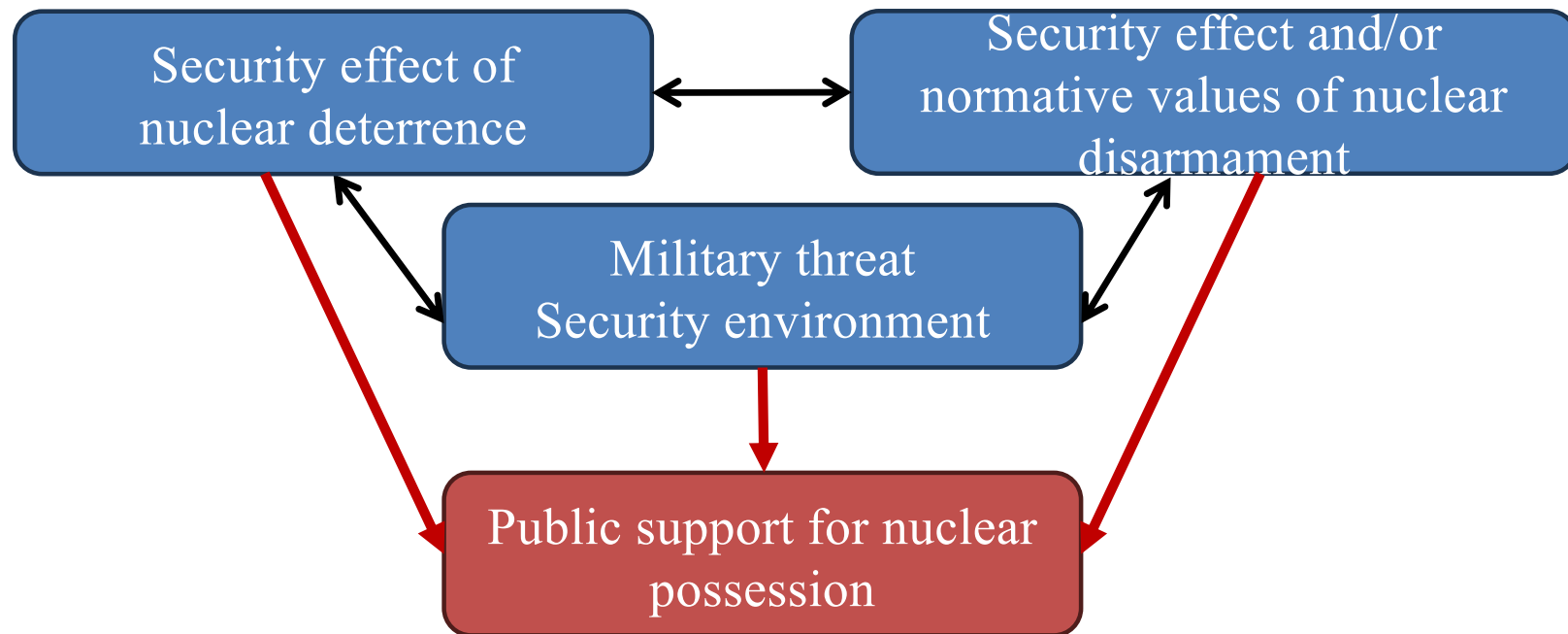
90秒前
2023
ウクライナでの戦争
核 生物学的リスク
気候変動への懸念

90秒前
2024
ウクライナでの戦争
核 生物学的リスク
気候変動
人工知能 (AI)
への懸念

出典: 終末時計の推移 (原子力科学者会報)

- **How is the normative effect of disarmament measured?**

If people have normative values in nuclear disarmament, trust in nuclear disarmament are *negatively correlated* with trust in nuclear deterrence.

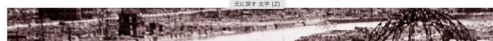


- Nuclear arms control, disarmament, and abolition are strongly related to nuclear deterrence. Their correlations and effect on support for nuclear possession should be clarified.

Security effect of nuclear deterrence with nuclear possession is needed in severe security environments (Security policies based on Schelling (1960); Waltz (1993, 2002)).

Nuclear arms control and disarmament are useful for the stability of nuclear deterrence (Brenann, 1961; Bull, 1965; Schelling and Halperin, 1961).

UN conference adopts treaty banning nuclear weapons



In response to questions on the joint statement, Ms. Whyte Gómez recalled that when the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was adopted decades ago, it did not enjoy a large number of accessions.

Opened for signature in 1968, the Treaty entered into force in 1970. Then in 1995, the Treaty was extended indefinitely. A total of 191 States have joined the Treaty, including the five nuclear-weapon States that are the permanent members of the UN Security Council – China, France, Russia, the United Kingdom and the United States.

Decreasing nuclear threat with nuclear disarmament and refraining from dependence on nuclear deterrence (Norm and peace movement since the Russell-Einstein Manifesto).



しかし、核による威嚇を行う為政者がいるという現実を踏まえるならば、世界中の指導者は、核抑止論は破綻しているということを直視し、私たちを厳しい現実から理想へと導くための具体的な取組を早急に始める必要があるのではないのでしょうか。市民社会においては、一人一人が、被爆者の「こんな思いは他の誰にもさせてはならない」というメッセージに込められた人類愛や寛容の精神を共有するとともに、個人の尊厳や安全が損なわれない平和な世界の実現に向け、為政者に核抑止論から脱却を促すことがますます重要になっています。



Research Method

- To measure the variables and correlations, this study classified states into four categories based on the security environment and nuclear status, and selected states and regions from each group to obtain data.

Table 1. Four Classifications of States According to the Nuclear Issue

Country to have ever suffered atomic bombings	Nation that has experienced a nuclear attack: Japan.
Nuclear power	States with nuclear weapons: U.S., U.K., France, Russia, China, India, Pakistan, Israel, and North Korea.
Potential nuclear power	Non-nuclear weapon states that face a strong military threat, especially nuclear threat, and have an incentive to possess nuclear weapons: South Korea, Taiwan, Iran, etc.
Non-nuclear power	States that have no strong military threat, especially nuclear threat, and no incentive to possess nuclear weapons: Australia, Canada, etc.

Survey Countries

Japan, Hiroshima and Nagasaki

The US

South Korea

Australia

母集団

日本	日本在住の 18 歳以上の有権者
広島県・長崎県	広島県および長崎県在住の 18 歳以上の有権者
アメリカ	アメリカ在住の 18 歳以上の有権者
韓国	韓国在住の 18 歳以上の有権者
オーストラリア	オーストラリア在住の 18 歳以上の有権者

標本

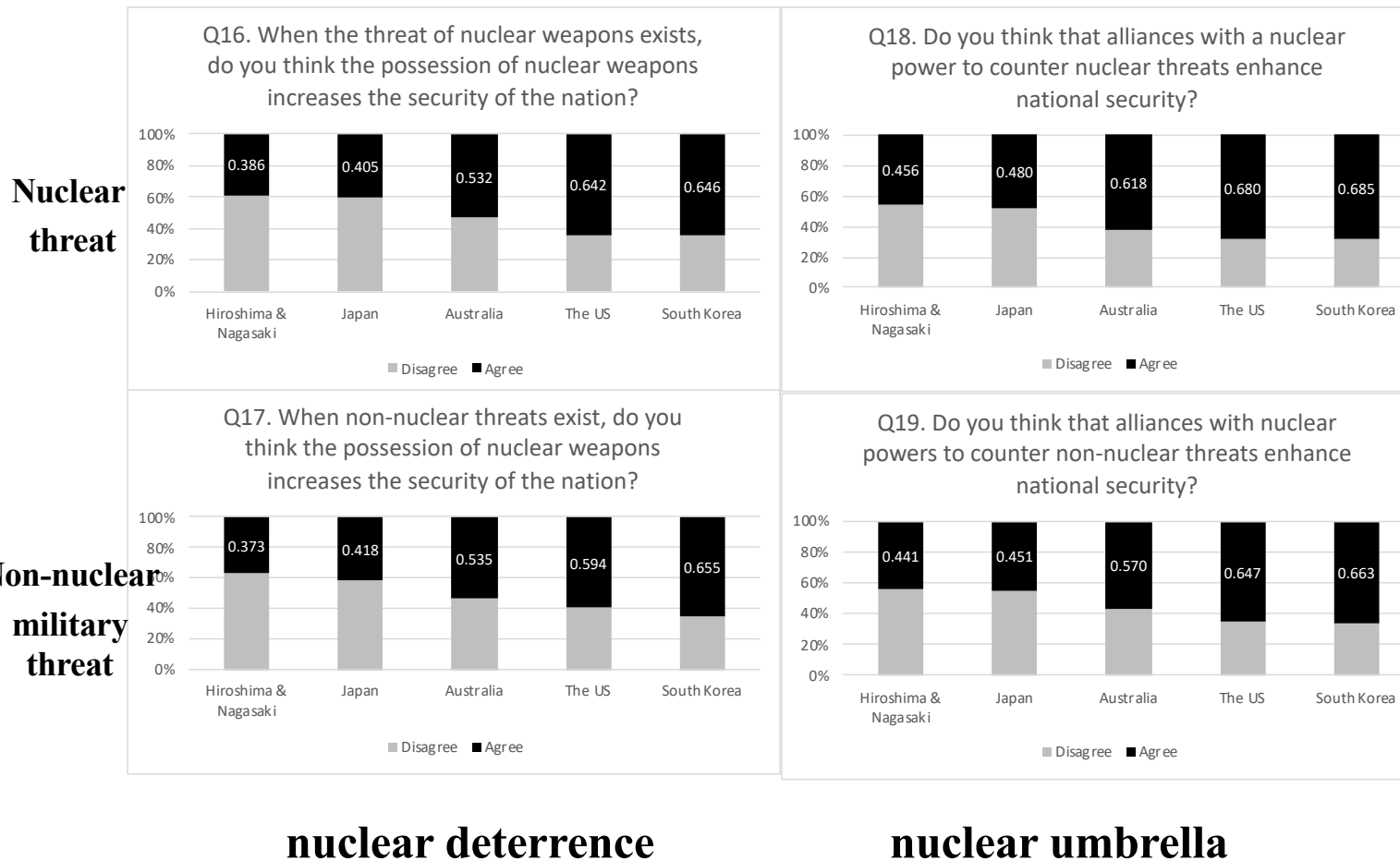
日本	計画標本 1000 名（47 都道府県の全国調査。回収サンプルには広島県民 8 名，長崎県民 5 名を含む）
広島県・長崎県	計画標本 800 名（各県で 400 名ずつ）
アメリカ	計画標本 1000 名
韓国	計画標本 1000 名
オーストラリア	計画標本 1000 名

調査期間

日本	2022 年 1 月 25 日から 2022 年 2 月 22 日にかけて実施。
広島県・長崎県	2022 年 1 月 25 日から 2022 年 2 月 22 日にかけて実施。
アメリカ	2022 年 1 月 25 日から 2022 年 2 月 22 日にかけて実施。
韓国	2023 年 2 月 7 日から 2 月 17 日にかけて実施。
オーストラリア	2023 年 2 月 7 日から 2 月 20 日にかけて実施。

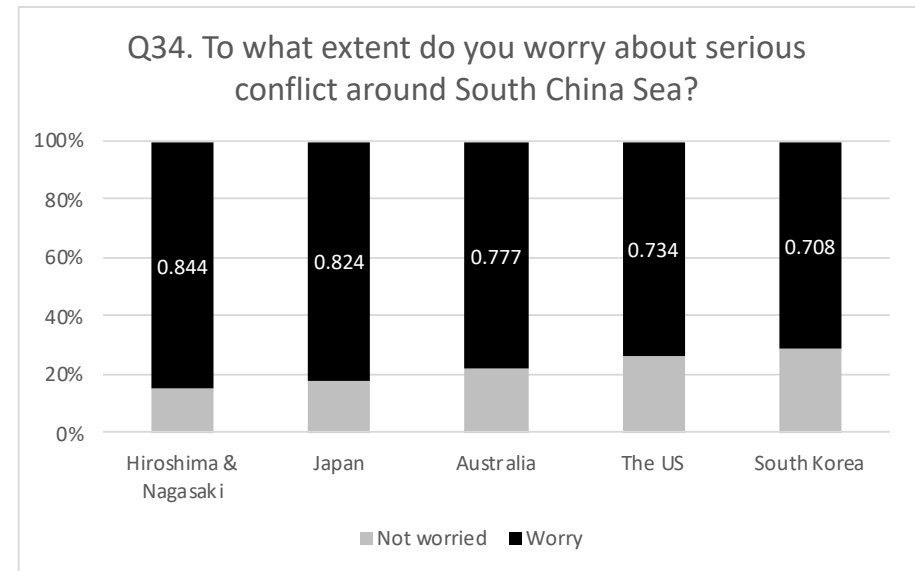
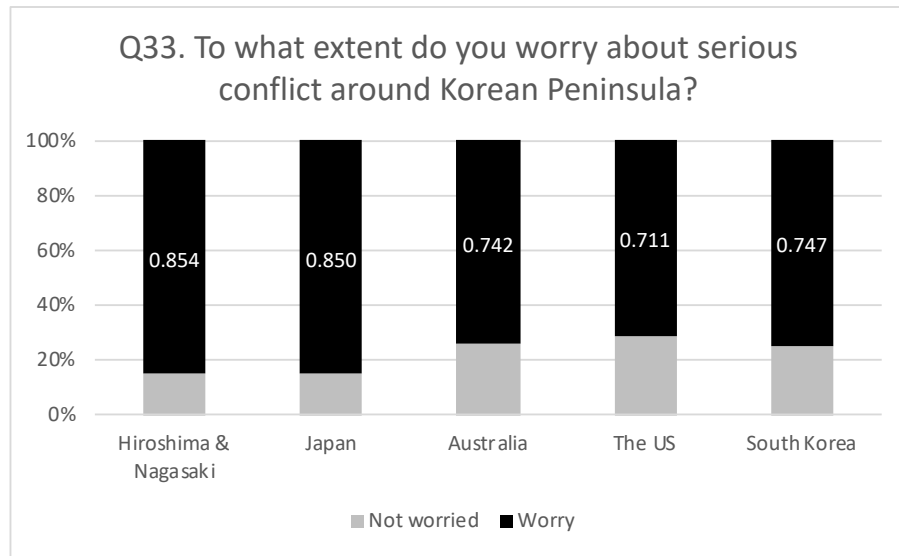
Analysis: Trust in Nuclear Deterrence

■ Questions to measure the evaluations on nuclear deterrence.



- **JP and HN have negative opinions on nuclear deterrence.**
 - Nuclear umbrella is relatively better for them than possession.
- **US, KR, and AU have positive opinions.**
 - KR have the highest rate of “agree” in all Qs.

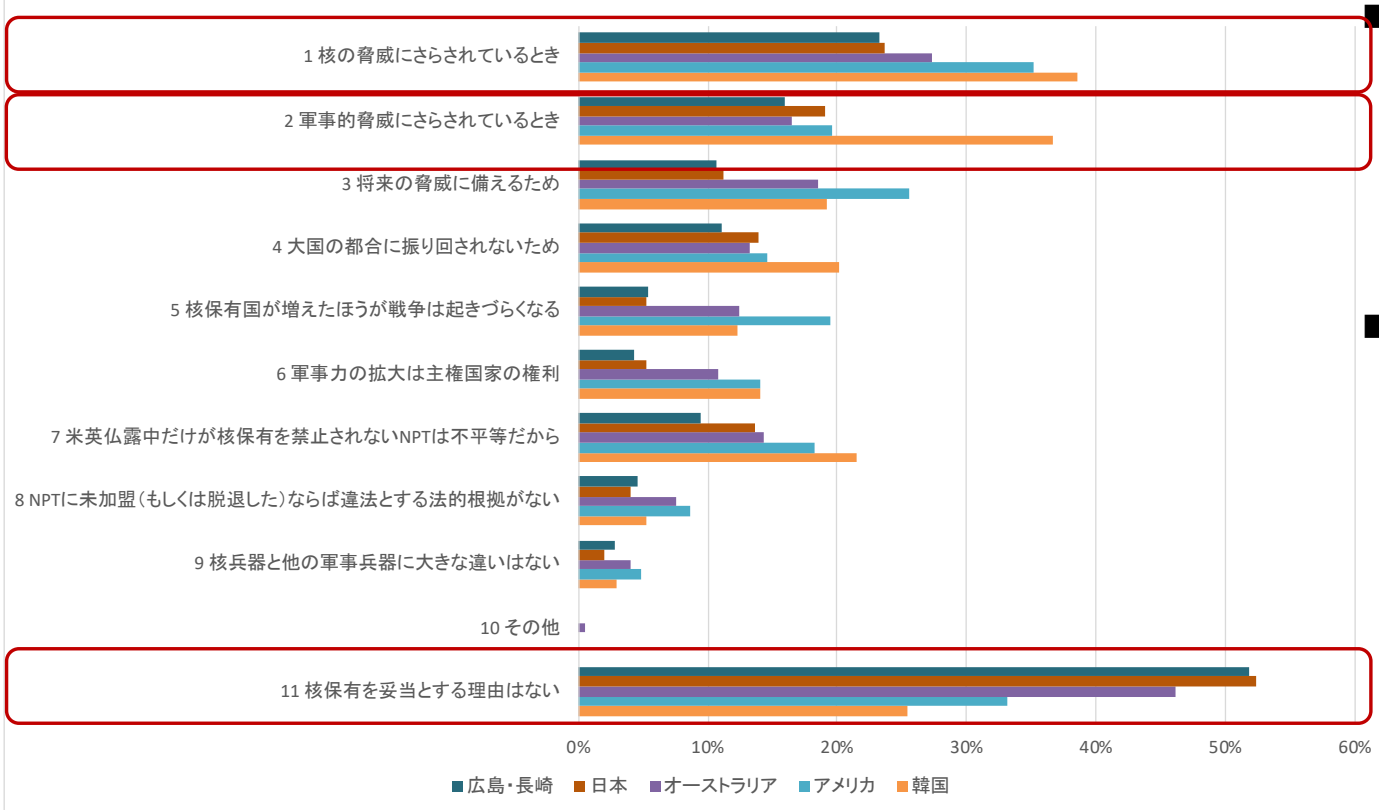
- Questions to measure the evaluations on fear of military conflicts.



- The response rates of “worry” are high in all nations. Japanese are most anxious.
- Regardless of nuclear status and security environment, there is no significant difference in anxiety among the other three countries.

The response rates for why nuclear possession is justified in the international community after the NPT.

1968年の核不拡散条約(NPT)の調印以降、国家が核保有する正当な理由といえるものはあるでしょうか。あなたが妥当だと考える理由をすべて選んでください。もし無ければ「核保有を妥当とする理由はない」を選んでください。




■ The response rate for “When a nation is under nuclear threat” is $KR > US > AU > JP \& HN$.

■ The response rate for “There is no reason to justify the possession of nuclear weapons” was remarkably high among the Japanese, and the order was $JP \& HN > AU > US > KR$.

■ **Correlations between trust in nuclear deterrence and fear of conflict *clearly differ among nations.***

- JP and HN decrease confidence in nuclear deterrence as their anxiety increases.
 - Only JP and HN lose trust in nuclear deterrence when they strongly worry about conflicts.
- US and AU's confidence in nuclear deterrence and the intensity of their anxiety are independent.
- KR increases confidence in nuclear deterrence as their anxiety increases.
 - KR's values are clearly primarily based on nuclear deterrence, and nuclear disarmament is correlated to it.

Table 2. Correlation coefficients between the level of anxiety about military conflict and the level of confidence in the security effects of nuclear deterrence and the nuclear umbrella

		q16	q17	q18	q19	Trust in nuclear deterrence
被爆国	hn_q33	-0.098 **	-0.134 **	-0.122 **	-0.107 **	
	hn_q34	-0.054	-0.080 *	-0.102 **	-0.080 *	
jp_q33	jp_q33	-0.105 **	-0.141 **	-0.099 **	-0.124 **	
	jp_q34	-0.044	-0.083 **	-0.002	-0.026	
非核保有国	au_q33	-0.052	-0.050	-0.008	-0.070 *	
	au_q34	-0.040	-0.060	0.003	-0.050	
核保有国	us_q33	0.049	0.000	0.068 *	0.049	
	us_q34	0.080 *	0.011	0.089 **	0.092 **	
潜在的核保有国	kr_q33	0.138 **	0.127 **	0.100 **	0.131 **	
	kr_q34	0.123 **	0.108 **	0.096 **	0.132 **	

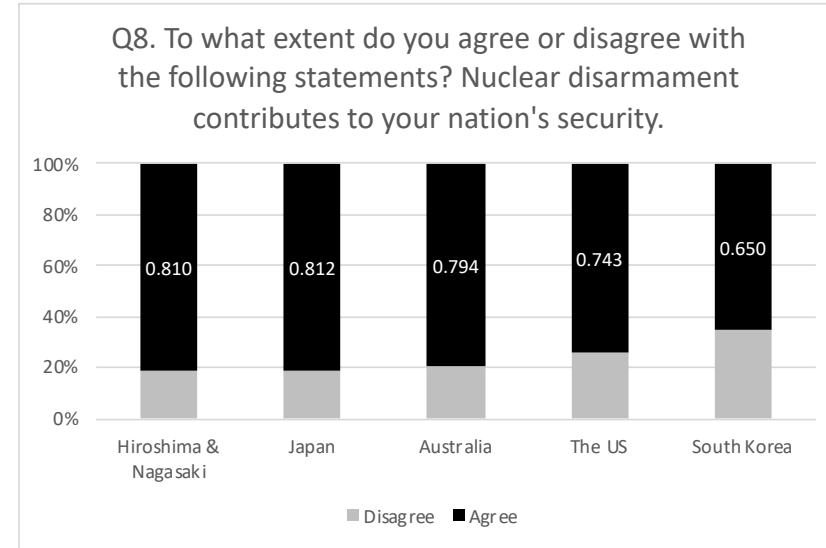
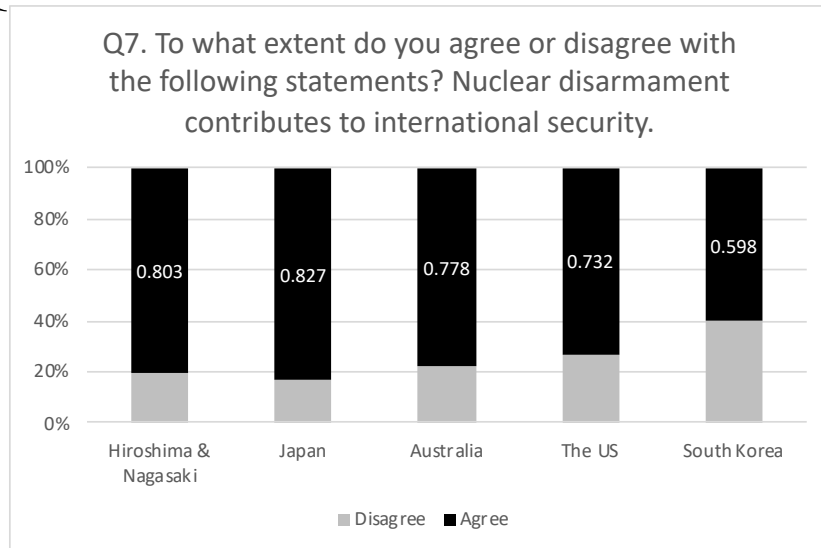
** $p < 0.01$, * $p < 0.05$

The more serious the security environment, the more people trust nuclear deterrence.

- **Only JP & HN lose trust in deterrence when they worry about military threat.**
 - The order of the positive evaluations on nuclear deterrence is KR > US > AU > JP & HN.
 - Potential nuclear power > Nuclear power > Non-nuclear power > Atomic bombed state.

Analysis: Trust in Nuclear Disarmament

■ Questions to measure the evaluations on nuclear disarmament.




- The majorities of all nations agree on security effect of nuclear disarmament.
- The response rates of agreement with both Q7 and Q8 were in the order of JP & HN > AU > US > KR.
 - Only the response rate of agreement for KR is distinctly lower.

■ **Correlations between trust in nuclear deterrence and disarmament also *clearly differ among nations.***

- JP and HN's confidence in deterrence decrease as trust in disarmament increases.
 - JP and HN's evaluations are compatible with the normative disarmament and abolition perspective.
- US and AU's confidence in deterrence and confidence in disarmament are independent.
- KR increases confidence in disarmament as trust in deterrence increases.
 - KR's evaluations are compatible with the realist arms control and disarmament theory.

Table 3. Correlation coefficients between the level of confidence in the security effects of nuclear disarmament and the level of confidence in the security effects of nuclear deterrence

		q16	q17	q18	q19	Opinion on nuclear disarmament
被爆国	hn_q7	-0.151 **	-0.175 **	-0.163 **	-0.118 **	Normative  Realism
	hn_q8	-0.246 **	-0.225 **	-0.207 **	-0.168 **	
非核保有国	jp_q7	-0.225 **	-0.257 **	-0.164 **	-0.174 **	
	jp_q8	-0.273 **	-0.294 **	-0.210 **	-0.225 **	
非核保有国	au_q7	0.006	-0.089 **	-0.008	-0.033	
	au_q8	-0.031	-0.061	-0.006	-0.065 *	
核保有国	us_q7	0.054	-0.013	0.109 **	0.057	
	us_q8	0.061	-0.002	0.105 **	0.083 **	
潜在的核保有国	kr_q7	0.323 **	0.283 **	0.341 **	0.313 **	
	kr_q8	0.372 **	0.353 **	0.362 **	0.347 **	

** $p < 0.01$, * $p < 0.05$

Do only JP & HN have *the normative perspectives of nuclear disarmament*?

- KR's values are consistent with the realist perspective of nuclear arms control and disarmament.
- US and AU's trust in deterrence are independent of trust in disarmament.
 - The orders of the positive evaluations on nuclear disarmament are JP & HN > AU > US > KR.
 - Atomic bombed state > Non-nuclear power > Nuclear power > Potential nuclear power.

Analysis: Correlations between Variables with SEM

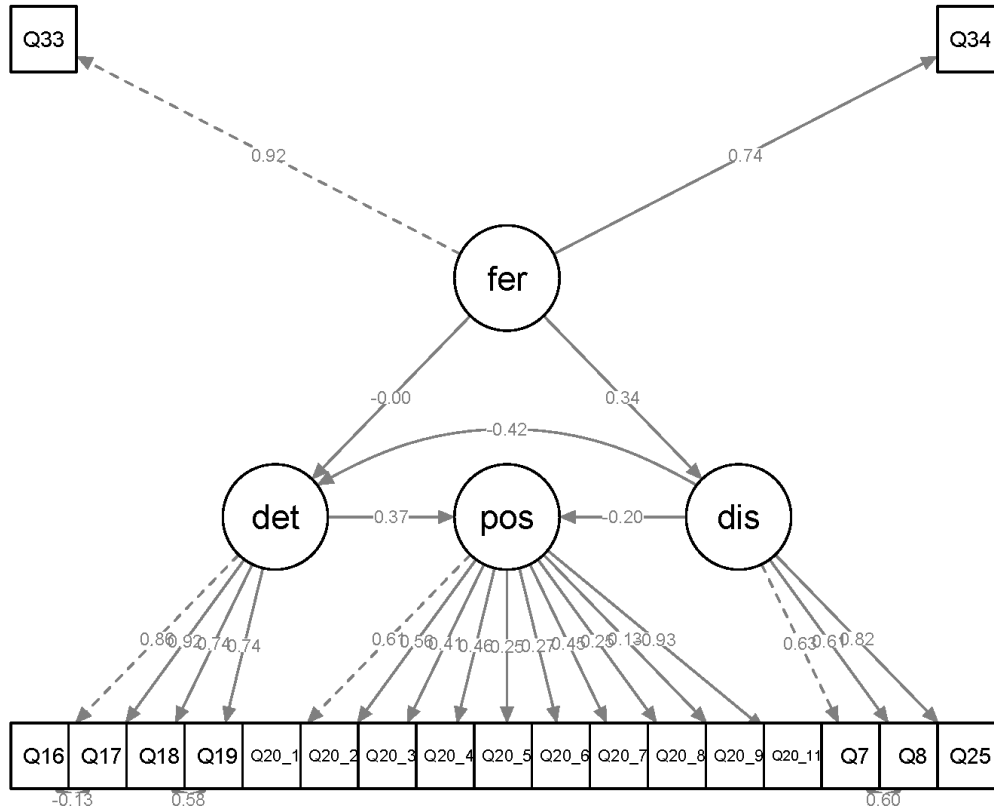
- **To analyze the structure and correlations between *fear of conflict (fer)*, *trust in deterrence (det)*, *trust in disarmament (dis)*, and *support for nuclear possession (pos)*, I use Structural Equation Modeling (SEM).**
 - R ver 4.3.3.
 - Package: lavaan, semPlot.
 - The influence of the latent variables and differences among nations are measured with the survey data.
 - The dependent variable is constructed by Q20's option 1 – 9, and 11 (Yes = 1, No = 0).
 - The independent variables are constructed by Q7 and Q8 (trust in nuclear disarmament), Q33 and Q34 (anxiety about military conflict), and Q16, Q17, Q18, and Q19 (trust in nuclear deterrence), and Q33 and Q34 (fear of military conflict).

For more information, see Shibai (2024b).

Figure and Table of the SEM of JP.

fer: fear of military conflict.
det: trust in nuclear deterrence.
dis: trust in nuclear disarmament.
pos: support for nuclear possession.

jp



Regressions:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
pos ~						
det	0.079	0.009	8.617	0.000	0.391	0.391
dis	-0.060	0.012	-4.849	0.000	-0.214	-0.214
det ~						
fer	-0.001	0.043	-0.020	0.984	-0.001	-0.001
dis	-0.583	0.063	-9.299	0.000	-0.420	-0.420
dis ~						
fer	0.279	0.044	6.416	0.000	0.335	0.335

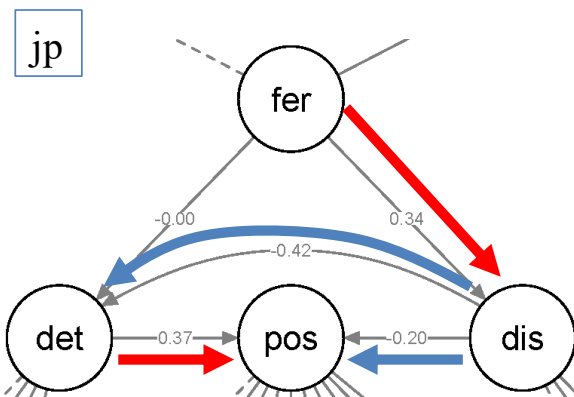
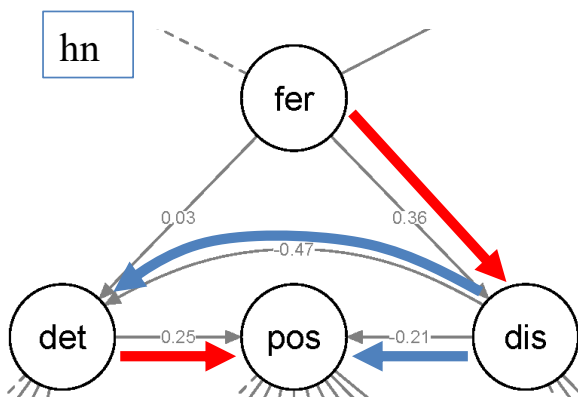
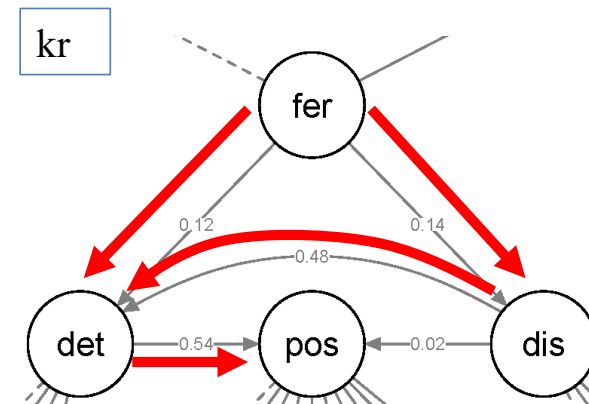
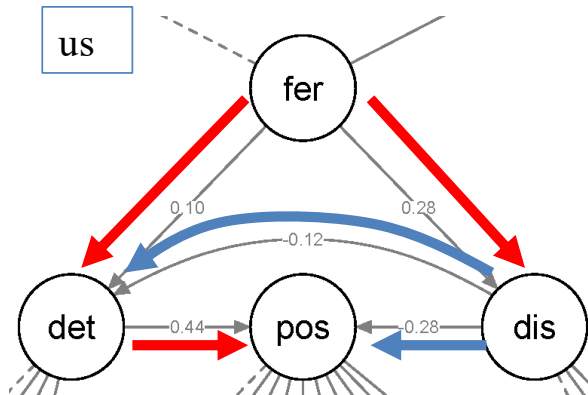
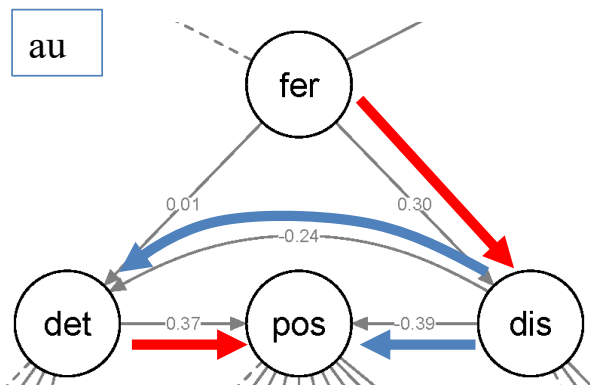
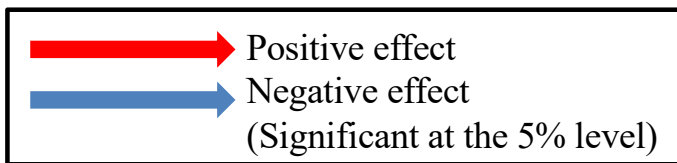
Covariances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.Q7 ~~						
.Q8	0.567	0.057	10.012	0.000	0.567	0.596
.Q18 ~~						
.Q19	0.370	0.029	12.586	0.000	0.370	0.568
.Q20_1 ~~						
.Q20_11	-0.025	0.006	-4.477	0.000	-0.025	-0.298

Variances:

	Estimate	Std.Err	z-value	P(> z)	Std.lv	Std.all
.Q16	0.502	0.034	14.912	0.000	0.502	0.288
.Q17	0.306	0.030	10.056	0.000	0.306	0.183
.Q18	0.661	0.035	18.663	0.000	0.661	0.437
.Q19	0.642	0.034	18.684	0.000	0.642	0.439
.Q20_1	0.130	0.007	18.499	0.000	0.130	0.721
.Q20_2	0.105	0.005	20.129	0.000	0.105	0.685
.Q20_3	0.082	0.004	21.408	0.000	0.082	0.824
.Q20_4	0.090	0.004	20.861	0.000	0.090	0.756
.Q20_5	0.046	0.002	22.023	0.000	0.046	0.927
.Q20_6	0.045	0.002	21.965	0.000	0.045	0.916
.Q20_7	0.091	0.004	21.003	0.000	0.091	0.772
.Q20_8	0.036	0.002	22.009	0.000	0.036	0.924
.Q20_9	0.019	0.001	22.277	0.000	0.019	0.980
.Q20_11	0.056	0.007	7.525	0.000	0.056	0.223
.Q33	0.156	0.098	1.594	0.111	0.156	0.145
.Q34	0.490	0.065	7.587	0.000	0.490	0.460
.Q7	0.949	0.065	14.593	0.000	0.949	0.597
.Q8	0.951	0.061	15.538	0.000	0.951	0.632
.Q25	0.454	0.072	6.295	0.000	0.454	0.328
.det	1.020	0.069	14.829	0.000	0.824	0.824
.pos	0.037	0.005	7.138	0.000	0.731	0.731
.fer	0.923	0.109	8.497	0.000	1.000	1.000
.dis	0.569	0.067	8.504	0.000	0.888	0.888

Severity of security environment



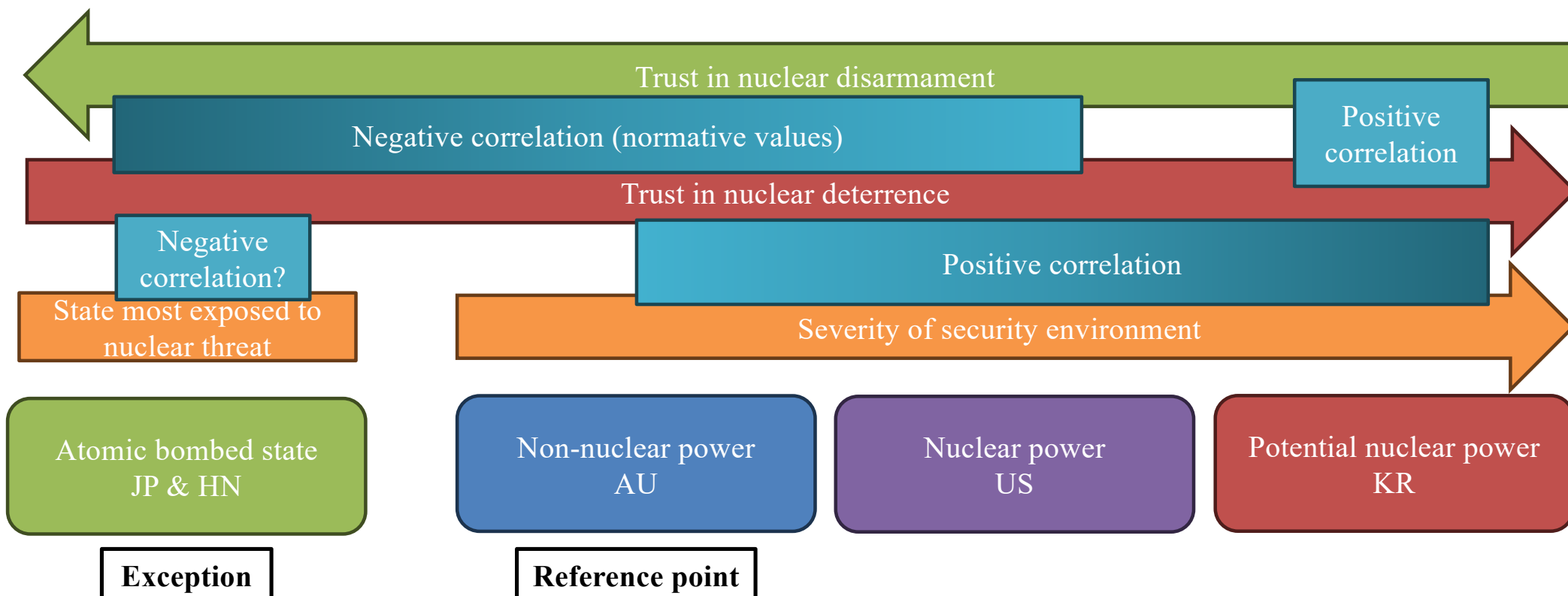
The values are *the standardized coefficients*.

- **dis → det has *negative effect* in JP, HN, AU, and US.**
- **dis → pos has *negative effect* in JP, HN, AU, and US.**
- Trust in nuclear deterrence is a general cause to increase support for nuclear possession.
- Fear of military threat influences trust in nuclear deterrence only in high serious security environment.

Conclusion and Summary

Japanese, Americans, and Australians have *the normative perspective of nuclear disarmament.*

- **Trust in nuclear disarmament decreases trust in nuclear deterrence and support for nuclear possession in JP, HN, US, and AU.**
 - JP & HN have the largest negative effect of dis → det.
 - AU has the largest negative effect of det → pos.
- **However, the negative effect of trust in nuclear disarmament weakens as the security environment becomes more serious.**



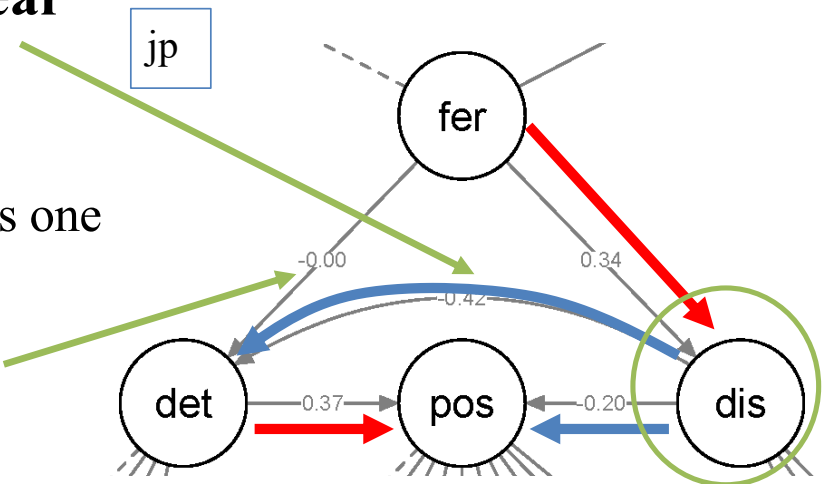
- The normative perspective on nuclear disarmament clearly influence the values of JP, HN, AU, and US.**

- To stop public support for nuclear possession, *weakening trust in nuclear deterrence is basic and important.*
- *Strengthening trust in nuclear disarmament and normative perspective can weaken trust in deterrence.*
 - The negative correlation between trust in disarmament and deterrence shows the effect of normative values.

- Making the negative effect of normative nuclear disarmament in every nation will prevent increasing support for nuclear possession.

- Increasing the effect of trust in nuclear disarmament is one important method to decrease support for possession.

- JP & HN show that fear of conflict negatively influences trust in deterrence.



Further Research Findings...

- To clarify anti-nuclear sentiment, comparative analyses of JP and HN are conducted.
- The amount of knowledge on nuclear issues makes the difference between JP and HN.
 - The findings will be published at another time.

表4-1 受動的教育によって得た知識量 (Q45で選択した項目数ごとの割合)

	0個	1個	2個	3個	4個	5個	6個	7個	8個	mean	mean w/o 0
hn	0.346	0.218	0.153	0.098	0.07	0.051	0.031	0.023	0.011	1.786	2.732
jp	0.549	0.172	0.105	0.082	0.051	0.02	0.009	0.003	0.008	1.074	2.382
us	0.399	0.239	0.137	0.132	0.055	0.022	0.01	0.004	0.002	1.343	2.235
kr	0.443	0.243	0.166	0.105	0.026	0.01	0.002	0.001	0.004	1.095	1.966
au	0.566	0.154	0.118	0.109	0.035	0.009	0.004	0.001	0.004	0.965	2.224

日本と広島・長崎の一元配置分散分析: $F = 71.822$, $p < 0.000$.

日本と広島・長崎のmean w/o 0の一元配置分散分析: $F = 10.136$, $p = 0.002$

表4-2 能動的教育によって得た知識量 (Q47で選択した項目数ごとの割合)

	0個	1個	2個	3個	4個	5個	6個	7個	8個	mean	mean w/o 0
hn	0.591	0.2	0.1	0.054	0.023	0.014	0.01	0.001	0.008	0.849	2.076
jp	0.691	0.149	0.081	0.045	0.022	0.007	0.002	0.002	0.001	0.604	1.954
us	0.515	0.233	0.111	0.092	0.025	0.012	0.006	0.002	0.004	0.973	2.006
kr	0.579	0.22	0.127	0.048	0.014	0.007	0.002	0	0.003	0.745	1.77
au	0.588	0.177	0.106	0.094	0.021	0.007	0.005	0	0.002	0.836	2.029

日本と広島・長崎の一元配置分散分析: $F = 16.655$, $p < 0.000$.

日本と広島・長崎のmean w/o 0の一元配置分散分析: $F = 1.240$, $p = 0.266$.

- For more information of my surveys and cross tabulations, see
芝井清久. 2022. 『核軍縮問題に関する国際世論調査：日本，広島・長崎，アメリカ2022 調査報告書』統計数理研究所.
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