Supplementary Information for "The Clash of Traditional Values: Opposition to Female Monarchs"*

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Contents

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A Appendix

A.1 Historical Background of the Japanese Imperial House

The Japanese monarchy is currently in a succession crisis. Among the Japanese Imperial House members, only one person in the next generation has the right of succession. If he dies without having a son, there will be nobody to ascend to the throne. This crisis has evolved since the late 19th centry as a consequence of strict male-only patrilineal succession.

The modern Japanese imperial system was institutionalized in the late 19th century as the Meiji government pursued the modernization of the nation. After the regime change in 1868 from the feudal Tokugawa Shogunate, political leaders of the new Meiji government—named after the Meiji Emperor who was "restored" to political power—promoted legal modernization from above. The Imperial House Law, along with the 1889 Constitution of the Empire of Japan, established the imperial system in statutory law. Unlike the pre-modern era when no written rules on imperial succession were stipulated, these Meiji laws established male-line (patrilineal), male-only primogeniture as the explicit succession rule for the first time in confirmed Japanese history. Although there were two female emperors during the Tokugawa Shogunate, the Meiji "modernization" prohibited any women from ascending to the throne. Under this rule, women left the Imperial House altogether after their marriage, and their children were stripped of the right to succession unless they married another male member of the Imperial House.

Limiting succession to male-only patrilineal descendants necessarily risks exhausting the number of legitimate successors, but there were no succession crises in the first decades after the Meiji Restoration. Table A.1 shows the list of emperors in modern Japan, as well as the numbers of their sons and male-line grandsons. Although Emperor Meiji had no children with his empress, he had several concubines. While all of his children except for one son and three daughters died in their childhood, which is not surprising given high infant mortality at the time, his surviving son succeeded the throne and became Emperor Taisho. Emperor Taisho might have endangered succession because he ended the custom of having concubines. However, he had four sons, making dynastic succession (seem) safe when his eldest son, Emperor Showa (a.k.a. Hirohito), ascended to the throne in 1926.

In addition to Emperor Taisho's sons, branch families also held legitimate heirs. When World War II ended in 1945, eleven families—and their male lines—were considered to be part of the legitimate imperial family. Although the male-line common ancestor of those families and the three post-Meiji-pre-WWII emperors dates back to the 15th century, those cadet branches had been given imperial status and the right of succession during the pre-modern era. This status was reconfirmed by the laws of the Meiji government. As a result, in addition to the three brothers and two sons of Emperor Showa, 26 men were in the line of succession as of 1945.

The question of stable succession has evolved gradually since the end of WWII. On the one hand, the Constitution of Japan, enacted under the Allied Occupation, prohibits discrimination

	Reign	Sons	Male-line grandsons
Emperor Meiji	1867–1912	1	4
Emperor Taisho	1912–1926	4	5
Emperor Showa	1926–1989	2	2
Emperor Akihito	1989–2019	2	1
Emperor Naruhito	2019–	0	0
Fumihito, Crown Prince		1	?

Table A.1: List of emperors in modern Japan and the number of their sons and male-line grandsons. Up to Naruhito, each emperor is the eldest surviving son of his predecessor. Fumihito is the younger brother of Naruhito.

based on gender, but the male-only patrilineal succession rule was left intact. On the other hand, the 11 cadet families with claims to patrilineal legitimacy left the Imperial House in 1947. As a result, the line of succession has been limited to the male-line male descendants of Emperor Taisho. However, among Emperor Taisho's five male-line grandsons, only Crown Prince Akihito, Emperor Showa's son, had sons. After Emperor Showa died and Akihito succeeded in 1989, two daughters were born to his younger son, Fumihito, in 1991 and 1994. When the first child born to Emperor Akihito's older son, Crown Prince Naruhito, in 2001 was a daughter, it was finally recognized that the current succession rule was not sustainable in the long run. In 2005, Prime Minister Junichiro Koizumi of the conservative Liberal Democratic Party (LDP) appointed a commission to discuss possible reforms to rules of imperial succession. The commission's report proposed "to open the way to a female Emperor or an Emperor of female lineage in order to ensure the stability of succession to the Throne." [1] However, a boy, Hisahito, was born to Fumihito in 2006, which stalled the drive to reform the succession rule completely. As of 2021, Hisahito is the only heir after Fumihito, who was born in 1965.

A.2 Measureing Sexism Scores

We use the following six items to measure sexism scores.

1. Women do not have much social experience so experienced men should support them;
2. People who do not have intimate relationships, such as romance or marriage, with the opposite sex are not truly happy;
3. Even if they are successful at work, men who are not in love to or married with women are missing something;
4. Men are able to play an active role thanks to the support of women behind the scenes;
5. Women are more compassionate to the vulnerable than are men;

[1] *The Advisory Council on the Imperial House Law Report*, published on November 24, 2005, available at `https://japan.kantei.go.jp/policy/koshitsu/051124_e.pdf` (accessed on February 25, 2021), p. 23.

6. Women have family responsibilities, so it would be a pity to give them too much responsibility. Consistent with prior research using the USI, responses to each statement are on a six-point Likert scale, ranging from strongly disagree to strongly agree.

A.3 Survey Implementation Protocol

The two-wave panel survey consists the following steps.

Survey wave 1 Respondents were recruited from the national sample pool of Nikkei Research, a prominent survey vendor in Japan. We employed quota sampling by age (20-69), gender, and region to match the most recent national census distribution. We used a block randomization scheme for treatment assignment, based on respondents' *gender* (two levels) and *party identification* (three levels).[2] Within each block, half of the respondents were assigned to the *sensitive list group* and received the questionnaire *with* sensitive items in the list questions. The other half were assigned to the *nonsensitive list group* and received the questionnaire *without* sensitive items in the list questions. All other questions were identical between the two groups. The random assignment was conducted on the Qualtrics platform, which relies on the Mersenne Twister algorithm. The survey link was active between July 27th, 2020 to July 31st, 2020. 6,412 respondents participated in the first wave, of whom 5,442 are valid and entered our analysis.

Time interval Respondents were not contacted by the research team between August 1st, 2020 and August 20th, 2020 (20 days).

Survey wave 2 All respondents from the first survey wave were invited to participate in the second wave, through Nikkei Research. Before answering the second wave survey, respondents were randomly assigned by Qualtrics to one of four groups (three treatment arms and one control). The informational intervention was randomized completely, i.e. treatment assignment was *independent* of whether respondents answered the sensitive or not in the first wave. Respondents saw only one of the subfigures in Figure 2 after assignment. After the information treatment, each respondent then proceeded with the second wave survey questions. Respondents who were in the *sensitive list group* were assigned to the same group in this round, as were those in the *non-sensitive* list group. In other words, identical list questions were used in the first and second waves.The survey link was active between August 21st, 2020 to August 24th, 2020. For respondents who participated in the first wave, 3,458 participated in the second wave.[3] 3,156 responses were valid and entered the analysis.

[2]The three levels are respondents who 1) identified as LDP supporters, 2) identified with none of the existing political parties, and 3) chose a non-LDP party.

[3]The attrition rate is 46.1%, which is comparable to the estimates from Nikkei. We did not find any correlation between dropout status and response to list questions in the first wave. This makes us less concerned about the self-selection problem in our case.

A.4 Consistency of the Design-Based Estimator

When we rearrange the design-based estimator in the paper, we get

$$\begin{aligned}\hat{\tau} \equiv & \Bigg\{ \Big(\frac{\sum_{i=1}^{N} Y_{i2} D_i T_i}{\sum_{i=1}^{N} D_i T_i} - \frac{\sum_{i=1}^{N} Y_{i2} D_i (1-T_i)}{\sum_{i=1}^{N} D_i (1-T_i)} \Big) \\ & - \Big(\frac{\sum_{i=1}^{N} Y_{i2} (1-D_i) T_i}{\sum_{i=1}^{N} (1-D_i) T_i} - \frac{\sum_{i=1}^{N} Y_{i2} (1-D_i)(1-T_i)}{\sum_{i=1}^{N} (1-D_i)(1-T_i)} \Big) \Bigg\} \\ & - \Bigg\{ \Big(\frac{\sum_{i=1}^{N} Y_{i1} D_i T_i}{\sum_{i=1}^{N} D_i T_i} - \frac{\sum_{i=1}^{N} Y_{i1} D_i (1-T_i)}{\sum_{i=1}^{N} D_i (1-T_i)} \Big) \\ & - \Big(\frac{\sum_{i=1}^{N} Y_{i1} (1-D_i) T_i}{\sum_{i=1}^{N} (1-D_i) T_i} - \frac{\sum_{i=1}^{N} Y_{i1} (1-D_i)(1-T_i)}{\sum_{i=1}^{N} (1-D_i)(1-T_i)} \Big) \Bigg\} \end{aligned} \tag{1}$$

where i denotes individual respondents. D_i is a factor variable that indicates treatment status. It is coded as 1 if i receives an information treatment and 0 otherwise. $T_i \in \{0, 1\}$ denotes sensitive list status, where $T_i = 1$ denotes receiving the sensitive list in both survey waves; Y_{i1} is i's total number of reported affirmative answers in the first wave, and Y_{i2} is i's total number of reported affirmative answers in the second wave.

Let us focus on the first term.

$$\frac{\sum_{i=1}^{N} Y_{i2} D_i T_i}{\sum_{i=1}^{N} D_i T_i} = \frac{\sum_{i=1}^{N} D_i T_i \{Y_{i,2}(0,1) + Z^*_{i,2}(1)\}}{\sum_{i=1}^{N} D_i T_i} \tag{2}$$

$$= \frac{\frac{1}{N}\sum_{i=1}^{N} D_i T_i \{Y_{i,2}(0,1) + Z^*_{i,2}(1)\}}{\frac{1}{N}\sum_{i=1}^{N} D_i T_i} \tag{3}$$

According to the continuous mapping theorem

$$\xrightarrow{p} \frac{\mathbb{E}[D_i T_i \{Y_{i,2}(0,1) + Z^*_{i,2}(1)\}]}{\mathbb{E}[D_i T_i]} \tag{4}$$

According to randomization,

$$= \frac{\mathbb{E}[D_i T_i]\mathbb{E}[Y_{i,2}(0,1) + Z^*_{i,2}(1)]}{\mathbb{E}[D_i T_i]} \tag{5}$$

$$= \mathbb{E}[Y_{i,2}(0,1) + Z^*_{i,2}(1)] \tag{6}$$

Similarly, the second term in the parentheses convergence in probability to $\mathbb{E}[Y_{i,2}(0,1)]$. Following the same steps, we know that

$$\begin{aligned}\hat{\tau} \xrightarrow{p} & \Big\{ \big(\mathbb{E}[Y_{i,2}(0,1) + Z^*_{i,2}(1)] - \mathbb{E}[Y_{i,2}(0,1)] \big) - \big(\mathbb{E}[Y_{i,2}(0,0) + Z^*_{i,2}(0)] - \mathbb{E}[Y_{i,2}(0,0)] \big) \Big\} \\ & - \Big\{ \big(\mathbb{E}[Y_{i,1}(0,1) + Z^*_{i,1}(1)] - \mathbb{E}[Y_{i,1}(0,1)] \big) - \big(\mathbb{E}[Y_{i,1}(0,0) + Z^*_{i,1}(0)] - \mathbb{E}[Y_{i,1}(0,0)] \big) \Big\} \end{aligned} \tag{7}$$

According to linearity

$$\hat{\tau} \xrightarrow{p} \Big\{ \big(\mathbb{E}[Y_{i,2}(0,1)] + \mathbb{E}[Z^*_{i,2}(1)] - \mathbb{E}[Y_{i,2}(0,1)]\big) - \big(\mathbb{E}[Y_{i,2}(0,0)] + \mathbb{E}[Z^*_{i,2}(0)] - \mathbb{E}[Y_{i,2}(0,0)]\big) \Big\} \quad (8)$$
$$- \Big\{ \big(\mathbb{E}[Y_{i,1}(0,1)] + \mathbb{E}[Z^*_{i,1}(1)] - \mathbb{E}[Y_{i,1}(0,1)]\big) - \big(\mathbb{E}[Y_{i,1}(0,0)] + \mathbb{E}[Z^*_{i,1}(0)] - \mathbb{E}[Y_{i,1}(0,0)]\big) \Big\}$$

According to the assumption of *no design effect*,

$$\hat{\tau} \xrightarrow{p} \Big\{ \mathbb{E}[Z^*_{i,2}(1)] - \mathbb{E}[Z^*_{i,2}(0)] \Big\} - \Big\{ \mathbb{E}[Z^*_{i,1}(1)] - \mathbb{E}[Z^*_{i,1}(0)] \Big\} \quad (9)$$