


RESEARCH ARTICLE

# How can we accept ‘our’ decisions?: an experimental study on lottocracy, epistocracy, and electoral democracy

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## Abstract

Lottocracy and epistocracy have received deeply insightful attention as political regimes. Herein, by conducting an experiment using an online survey, we explored the extent to which public opinion is receptive to political decisions under various regimes regarding two environmental policies: education policy and environmental tax policy. By doing so, we examined whether the presence of tax burdens affected the acceptability of political regimes, i.e., electoral democracy, lottocracy, and epistocracy. Our results revealed that decisions based on lottocracy and epistocracy were significantly less acceptable than those based on electoral democracy. Nevertheless, lottocratic and epistocratic decisions were more acceptable regarding the issue of environmental tax policy. The difference was mainly attributed to people’s rejection of environmental tax policy offsetting their rejection of lottocracy and epistocracy. This suggests, first, that decisions based on electoral democracy increase policies’ acceptability if they do not involve taxation, and second, that the status of whether or not a decision is electoral does not significantly affect policy acceptability if taxation is involved, whereas on the other hand, people are sensitive to differences between the regimes if the policy does not involve taxation.

**Keywords:** lottocracy; epistocracy; sortition; survey experiment; environmental policy

## 1. Introduction

In liberal democracies, legislators are generally appointed by an electoral process based on the ‘one person, one vote’ concept. However, because in some electoral democracies legislators may not be responsive to the electorate and/or their performance may be perceived as undesirable, there is growing dissatisfaction with them. For this reason, some normative political theorists propose two alternatives to electoral democracy: lottocracy and epistocracy. A lottocracy is a political regime in which representatives are randomly selected from among the populace.<sup>1</sup> An epistocracy is a political regime in which representatives are selected based on competence. Both lottocracy and epistocracy are classical ideas and have been revived against the backdrop of growing dissatisfaction with electoral democracy in recent years.

Although the desirability (of political decisions) of lottocracy and epistocracy have been fiercely discussed, the *acceptability* of these alternatives in light of their political decisions has been ignored. This is a serious problem, given that no matter how good political decisions produced by these alternative systems may be, such decisions will be untenable if people do not accept them. Therefore, any sound defence of these systems by their supporters must account for the acceptability of the political

<sup>1</sup>Unlike an epistocracy, a lottocracy is considered to be a non-electoral but democratic regime (e.g., Landemore, 2020: Ch. 4).

decisions they engender. We conducted the present study to explore the extent to which public opinion is receptive to political decisions made under a lottocracy and epistocracy, by performing an experiment with an online survey.

The remainder of this paper is organized as follows. Section 2 provides the theoretical background of lottocracy and epistocracy and reviews the relevant extant literature. Section 3 explains the experimental design. Section 4 presents the results of our experiment and discusses the implications.

## 2. Background

### 2.1 Challenging electoral democracy in normative political theory

The idea of electoral democracy is widely accepted. However, it may be asked why electoral democracy<sup>2</sup> has been regarded as the most desirable regime. In answer, it has been suggested that electoral democracy is desirable because it appears to satisfy the two desiderata for polities (Guerrero, 2014: 136–7):

**Responsiveness:** In an electoral democracy, policies that are responsive to people’s preferences, interests, and values are achieved through elected representatives. As Dahl (2015: 93) stated, to control political decisions, citizens elect political officials from among political candidates and hold them accountable for political decisions through (subsequent) elections.

**Better performance:** Electoral democracy results in better governance than the other alternatives. As is well known, Madison (1787) argues that electoral democracy (in his term, ‘a republic’) is better than ‘a pure democracy’, for, in an electoral democracy, representatives ‘refine and enlarge the public views by passing them through the medium of a chosen body of citizens, whose wisdom may best discern the true interest of their country, and whose patriotism and love of justice will be least likely to sacrifice it to temporary or partial considerations’.

According to these two desiderata, however, the triumph of electoral democracy is in doubt. First, there is empirical evidence that elected politicians tend to respond to the preferences of the affluent (e.g., Gilens, 2012; Mathisen *et al.*, 2024; see also Lupu and Warner, 2022). For one, Gilens (2012: 84) found that policy changes are more responsive to the affluent than to the poor and middle class. This highlights a lack of responsiveness to the latter groups. Similar trends have been observed in countries such as Germany, the Netherlands, Norway, and Sweden, despite their lower income inequality, stronger unions, lower income inequality among participating voters, and less costly, publicly subsidized election campaigns (Mathisen *et al.*, 2024: 30). Four primary explanations have been proposed for the causes of unequal policy responsiveness: the costs of election campaigns and politicians’ dependence on private sources of campaign funding, the income gradient in political participation, lobbying by corporations and organized interest groups, and the social and occupational backgrounds of elected representatives (Mathisen *et al.*, 2024: 50).<sup>3</sup> While prior studies have varying

<sup>2</sup>Since this paper is an experimental study involving Japanese voters, it takes Japan as the primary exemplar of electoral democracy. As a result, some of the arguments in this paper may not be applicable or have limited applicability to countries with other political systems, such as those with more or only proportional representation.

<sup>3</sup>According to the CRS Report for Congress (2012), in the United States, 44% of the members of Congress have a net worth over \$1 million, while 82% are male and 86% are white. More than half are lawyers or bankers. Notably, this bias in representation is not unique to the United States but extends to electoral democracies worldwide (Carnes and Lupu, 2023: 20–3). The underlying causes of this imbalance remain elusive, with little consensus on the causal mechanism. According to the experimental studies on voters’ perceptions about candidates in elections, the compositional bias in legislatures cannot be attributed to discriminatory attitudes of voters (Schwarz and Coppock, 2022; Van Oosten *et al.*, 2024). Regarding voters’ preferences for candidates in Japan, the experimental studies show that Japanese voters do not reveal a clear preference for male candidates over female candidates; they either disfavor or are at least indifferent to hereditary and elderly candidates versus their non-hereditary or younger counterparts (Horiuchi *et al.*, 2020; Eshima and Smith, 2022; Miwa *et al.*, 2023). This is surprising because, while it is well known that dynasties and middle-aged male lawmakers prevail in Japan, these studies show that voters’ preferences are not necessarily compatible with this view. As we see it, these findings suggest that the bias in the

views on the relative importance of these factors, their views, we believe, support the idea that countries with privately funded campaigns, lower voter turnout among the less affluent, more prevalent lobbying by corporations and interest groups, and wealthier parliamentarians relative to the general population are more likely to exhibit biases in representation.

There is also fundamental doubt regarding the idea that electoral democracy performs better; citizens are often ignorant of policy issues and, subsequently, of what the governors' actions are in such issues and whether to evaluate their actions. Although such ignorance is central to the debates over the competence of voters in political science (e.g., Campbell *et al.*, 1960; Lupia and McCubbins, 1998; Achen and Bartels, 2016; Douglas *et al.*, 2019), this is also a central focus in normative political theory (e.g., Caplan, 2007; Somin, 2013; Brennan, 2016). This is because ignorance of this sort may undermine the competence of citizens to hold their representatives accountable for their actions and outcomes. Nor are citizens guaranteed to make rational judgements even in cases in which they are relevantly informed, due to their lack of expertise to pertinently evaluate political deeds. Even when the requisite information is available, citizens are not sufficiently competent to make sound judgements concerning policies of the government. For one, Brennan (2016: 32–3), a prominent normative theorist against electoral democracy, finds it particularly troublesome that some voters possess systematically incorrect political knowledge, displaying a likelihood lower than random chance of selecting the correct option when voting. These voters also hold a distorted view of the major parties and cannot effectively use them as cognitive shortcuts (Brennan, 2016: 195–6). In this way, critics of electoral democracy argue that uninformed voters skew decisions in elections. This type of ignorance and/or incompetence is often viewed as detrimental to the resolutions of policy issues that are complex and require expertise.<sup>4</sup>

## 2.2 Lottocracy and epistocracy – two alternatives

In light of the two desiderata for politics and to avoid related problems, two alternatives have attracted attention in normative political theory. Proponents of the first alternative posit that to cope with the problems of over- and underrepresentation, lottocracy – a classical idea of randomly selecting representatives among the people – is called for (e.g., Mueller *et al.*, 1972; Carson and Martin, 1999; Leib, 2004; O'Leary, 2006; Barnett and Carty, 2008; Callenbach and Phillips, 2008; Buchstein and Hein, 2009; Zakaras, 2010; Bouricius, 2013; Guerrero, 2014, 2021; Burgers, 2015; MacKenzie, 2016; Van Reybrouck, 2016; Gastil and Wright, 2019; Landemore, 2020; Abizadeh, 2021).<sup>5,6</sup> The reasons why the concept of a lottocracy is receiving so much attention in recent years are twofold.

First, historical studies of sortition have progressed. Among them, a study by Manin (1997) has had a major impact on lottocracy research. Sortition was widely employed in the city states of ancient Greece and medieval Italy (Manin, 1997: 11–24, 51–67). Representative democracy was adopted in the late 18th century not due to a flaw in sortition, but because elections fit well with the social contract theory (Manin, 1997: 83–6). Due to historical studies of this kind, lottocracy is no longer viewed as a 'dead' regime.

Second, and more importantly, the recent development of deliberative democracy urges us to focus on the possibility of a lottocracy. Most proponents of lottocracy essentially favour mini-publics such as

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composition of the Diet is too complex to explain merely by examining voters' preferences, and thus it must be considered as a supply-side issue too.

<sup>4</sup>These problems may bear on the fact that confidence in parliaments has remained very low. According to the World Values Survey (2020), only 31.1% of respondents to the 2019 survey of Japan said they trusted their parliament 'a great deal' (1.9%) or 'quite a lot' (29.2%).

<sup>5</sup>Of the lottocratic proposals, Guerrero's is representative; it has three features. (1) There are many different single-issue legislatures (each focusing only on, e.g., agriculture, health care, and so on). (2) Each of these single-issue legislatures has 300 seats, and their members are selected by lot and serve a three-year term. (3) The members are informed by expert presentations of various types (Guerrero, 2014: 155–6).

<sup>6</sup>For a more detailed survey, see Vegne (2010).

deliberative polls and citizen assemblies.<sup>7</sup> In such mini-publics, citizens who are randomly selected take deliberations seriously and expect politics to reach good political decisions by virtue of their careful assessments of different views. Deliberative mini-publics arguably become evidence that a lottocracy can reasonably avoid undesirable decisions based on political ignorance (Zakaras, 2010: 466–7).

What is distinguishing about lottocracy is that, as varied as its forms are,<sup>8</sup> a lottocracy signifies *descriptive representation* (Farrell and Stone, 2018: 234–6).<sup>9</sup> The existence of a lottocracy helps to defuse the problems of over- and underrepresentation and, in some contexts, the lottocracy is a more effective regime than electoral democracy in tackling controversial issues that demand political solutions. Climate change is seen as one of the issues that a lottocratic legislative body would be expected to address more effectively than an electoral body (Mulvad and Popp-Madsen, 2021). Elected representatives tend to prioritize the electorates' short-term interests (especially those of the wealthy) over their long-term interests, in order to win elections (Guerrero, 2014: 168), whereas representatives who are randomly selected may more proactively address the issues relating to the long-term interests of citizens because they do not have to worry about subsequent elections.<sup>10</sup> Moreover, randomly selected representatives may be more neutral in addressing environmental policy issues, as a lottocratic system is free from the constraints of election. By being completely unconcerned about making a good impression on the various interest groups for the sake of subsequently receiving their votes, the representatives have the freedom to truly focus on doing what is best for society. Indeed, environmental issues are common in mini-publics (e.g., Fishkin, 2009: 152–4; Mellier-Wilson, 2020).

The second alternative to electoral democracy is an epistocracy – the rule of experts. Epistocracies have historically been supported by distinguished and classical philosophers, such as Plato and J.S. Mill. The ignorance and/or incompetence of citizens (whether unavoidable or rational) in contemporary society has pushed some normative political theorists to endorse epistocracy again (Caplan, 2007; Somin, 2013; Brennan, 2016). The most notable among them is Brennan (2016), whose argument has been discussed intensely.<sup>11</sup> Brennan reasons that ignorant and/or incompetent citizens illegitimize democratic political decision-making, because they harm not only others' interests but also their own by making bad choices in politics. As seen above, the presence of a certain number of voters with systematically incorrect political knowledge can indeed distort election outcomes. For this reason, proponents of epistocracy argue that restricting the voting rights of these uninformed individuals could improve the outcomes of political decision-making. With this in mind, we cannot dismiss epistocracy as a plausible alternative to electoral democracy, especially when it comes to contentious policy issues that are inextricably complex and require special knowledge.

<sup>7</sup>See, e.g., Fishkin (2009, 2018) and Van Reybrouck (2016: 115–31). Their studies provide a form of evidence in support of lottocracy.

<sup>8</sup>There are two types of lottocracy in normative political theory: (1) a full lottocracy in which lottocratic legislature(s) replaces the electoral legislature completely (e.g., Bourcibus, 2013; Guerrero, 2014; Landemore, 2020), and (2) a complementary lottocracy in which the lottocratic chamber coexists with the electoral chamber (e.g., Zakaras, 2010; Gastil and Wright, 2019; Abizadeh, 2021). According to Van Reybrouck (2016: 132), the second type is more popular than the first. In the present study we consider both types of lottocracy.

<sup>9</sup>Note, however, that descriptive representation here applies only to those who are eligible for suffrage; in particular, representatives are randomly selected from adult citizens, not children. Moreover, the extent to which a lottocratic legislature functions as a microcosm of the people depends on the willingness of the selected citizens to become legislators. Many proponents of lottocracy argue that the provision of adequate remuneration should motivate most selected citizens to take on the legislative roles (Van Reybrouck, 2016: 137–8). We will revisit this point in Section 4.

<sup>10</sup>The fact that randomly selected representatives are not re-elected was recently problematized from the accountability perspective in two respects. (1) Since the randomly selected representatives need not fear that voters will punish them in the next election, they may be more likely to be captured representatives than elected representatives would be. (2) The decision-making process may be dominated by bureaucrats and lobby groups because randomly selected representatives are replaced in a short period and do not have political experience. For discussions of this point, see Landa and Pevnick (2021) and Umbers (2021). For a critique of lottocracy in terms of self-government, see Lafont (2020: Chs. 4, 5).

<sup>11</sup>Note that Brennan (2018: 55) considers the various types of epistocracy such as restricted suffrage (which guarantees the right to vote only to those who pass a political competence exam and/or who obtain certain educational credentials) and plural voting (which gives additional votes to those who pass the exam and/or who obtain the educational credentials).

If epistocracy is adopted as a political regime, experts or representatives selected only from among the relevantly informed competent citizens who have the requisite skills may reasonably evaluate the seriousness of the issues and implement effective policies for environment conservation.<sup>12</sup>

### 2.3 The acceptability test and political issues

As mentioned above, lottocracy and epistocracy have attracted attention in normative political theory. Given the problems of over- and underrepresentation and the phenomena of citizens' ignorance and/or incompetence, some normative political theorists have attempted to demonstrate that lottocracy and epistocracy are more plausible than electoral democracy. However, there is a non-negligible flaw with their proposals: their arguments for lottocracy and epistocracy fall short of *empirical* bases. In particular, whether or not ordinary people favour political decisions through these regimes is of great significance in verifying the tenability of the theorists' proposals, especially given the global dominance of electoral democracy. To defend lottocracy or epistocracy, it is not enough to show that political decisions made under the two alternative regimes are (likely to be) more desirable than those made under electoral democracy; it must also be shown that political decisions made in those alternative regimes are acceptable to people. No political decision is tenable if people do not accept it. It is thus essential to investigate whether political decisions made under the two alternative regimes are acceptable to citizens. Collectively, such investigation can be called 'the acceptability test'.

There has been important research regarding differences in the acceptability of decisions issued by different regimes. In one recent strand of such research, surveys have been conducted to gauge the public's support for lottocracy, in order to evaluate whether, and the extent to which, the attributions of participants affect their attitude towards lottocracy. For example, Bedock and Pilet (2021) investigated whether and the extent to which respondents in France who endorse lottocracy differ from those who support schemes of direct participation in political decisions. Jacquet *et al.* (2022) examined the acceptability of lottocracy in Belgium among not only citizens but also members of parliament (MPs), and they evaluated the influences of the citizens' and MPs' social status, dissatisfaction with elections, and political ideology on its acceptability. These two studies obtained significant findings, especially concerning the Belgian MPs' views on lottocracy in the latter study. However, the studies focused mainly on the correlations between the attributes of their respondents and their ability to accept lottocracy, and did not address whether and when people are receptive to *decisions* made under a lottocracy. Moreover, they did not cover the acceptability of epistocracy among ordinary people. With the results of only these studies, we cannot reasonably estimate the causal effect of endorsing the three political regimes on the acceptability of their respective political decisions.

In contrast to the Bedock and Pilet and Jacquet *et al.*, studies, Arnesen and Peters (2018) conducted survey *experiments* to examine how differences in representational regimes (electoral democracy, lottocracy, and epistocracy) affect Norwegian citizens' attitudes towards political decisions involving monetary spending. In their experiments, the respondents were presented vignettes that differed in terms of (1) whether or not the representatives reflect the Norwegian population in socioeconomic terms; (2) lottocracy, electoral democracy, or epistocracy; and (3) whether or not the political decision was in agreement with the respondent's preference.

The results of their experiments can be summarized as follows: the descriptive representation regarding each social background characteristic (such as 'similar political views', 'similar work background', and so on) was only slightly important to the respondents. The respondents favoured a more descriptively representative body over a non-descriptively representative body. This tendency was

<sup>12</sup>However, there are criticisms against the claim that epistocracy leads to desirable decision-making. For example, once experts (or simply the competent) are given greater political power, they may have some systematic biases that counteract the advantages of their knowledge and abilities (Estlund, 2008: Ch.11; Kloocksiem, 2019; Bhatia, 2020; Vandamme, 2020; Ingham and Wiens, 2021). As an epistocratic response to these critiques, see Brennan (2018). For other types of criticisms of epistocracy, see, e.g., Moraro (2018), Reiss (2019), Somin (2022), Umbers (2019), and Viehoff (2016).

robust: their preferences over the decision were less reduced by the change from favourable to unfavourable outcomes with descriptive representation than by that with non-descriptive representation. Notably, however, the respondents considered the most acceptable political decisions through the epistocratic body, regardless of whether the body was descriptively representative. On the other hand, the decisions made by thelottocratic body were considered to be the least acceptable of the three, despite the fact thatlottocracy is thought to achieve descriptive representation.

Arnesen and Peters (2018) conducted an important enquiry into the acceptability of the three representational regimes, but three concerns with their investigation should be addressed. First, the vignettes in their investigation involved no policies that would impose financial burdens on the constituencies: the respondents were asked to defer a decision about how the given money in the 'Oil Fund' would be spent.<sup>13</sup> Second, their experiment did not comparelottocracy, epistocracy, and electoral democracy *as political regimes*. They compared cases in which the group that decides how to spend a portion of the Oil Fund's budget is 'selected by lot, elected by the population, or appointed as experts by the government' (Arnesen and Peters, 2018: 878). Third, and more importantly, the vignettes included only *general* scenarios with political decisions involving monetary spending. As Arnesen and Peters admit (2018: 890–3), this may limit the implications of their experimental results. This is because people's reaction to the difference between the regimes may vary *across policy issues*. The elements of financial burdens and specificities of policy issues are highly relevant in the investigation of acceptability. For example, climate change issues, which are often used to show the relevance oflottocracy and/or epistocracy, are specific. Although people may (or may not) be concerned about the myopia of elected representatives and the impact of financial burdens on the electorates, they may (or may not) believe that the issues in question should be deferred to experts by virtue of the relevant information and expertise required to resolve them. Such elements with unpopular (in terms of people's short-term interests) policies and convoluted policy issues should not be dismissed while examining the acceptability of electoral democracy,lottocracy, and epistocracy.

### 3. Experimental design

The aim of our experiment was threefold. (1) We tested which regime was more acceptable to ordinary people – electoral democracy,lottocracy, or epistocracy. (2) We examined the extent to which the differences in policies, specifically in terms of contentiousness, in complex issues that involve long-term interests and specific expertise affect ordinary people's acceptance of political decisions under the three regimes. (3) We scrutinized how financial burdens imposed on the electorates affected people's acceptance of political decisions. In this regard, environmental issues are appropriate, because they normally inflict monetary burdens on the constituencies, offer few benefits in the short-term, and require certain expertise. We can thereby see what the results of the experiment suggest for normative political theorists, especially for proponents oflottocracy and epistocracy, who must take seriously the problem of transitions from electoral democracy to their preferred regimes.

For this purpose, we conducted an experimental survey that focused on how differently two environmental policies influenced people's (un)favourable attitudes towards political decisions reached via the four representative forms. The two policies were (1) an education policy that would provide education for the prevention of disasters caused by climate change, and (2) an environmental tax policy that would impose an extra tax for environmental conservation (10%) in addition to the 10% consumption tax.<sup>14</sup> The experiment thus involved a total of eight experimental groups.

<sup>13</sup>The Oil fund's 'revenues come from the country's oil sector' (Arnesen and Peters, 2018: 878).

<sup>14</sup>It may seem that the environmental tax policy involves a 10% tax, which is huge. The reason for setting the environmental tax increase at 10% is threefold. First, from an experimental perspective, it is important that respondents realize that the policy is financially burdensome. Second, many European countries have consumption tax rates that exceed 20%. This licenses a 10% tax as not excessive. Third, and most importantly, in November 2019, just before this experiment, media reports highlighted the IMF's proposal to the Japanese government to gradually increase the consumption tax rate to 20% by 2050 to cover social security costs (Nikkei Asia, 2019). It is thus reasonable to assume that respondents were

The significance of conducting the experiment in Japan was as follows. Japan can reasonably be regarded as a country that is least likely to adopt a lottocracy and epistocracy. Among the countries belonging to the Organisation for Economic Co-operation and Development (OECD), Japan is well known to have low political participation. According to the World Values Survey (2020), only 50.8% of the Japanese respondents have ‘signed a petition’, 1.8% ‘joined a boycott’, 5.8% ‘attended a peaceful demonstration’, and 4.1% ‘joined a strike’. With the exception of ‘signing a petition’, these percentages are lower than those in most other countries. In addition, the percentage of Japanese respondents who answered ‘[h]aving experts, not government, make decisions according to what they think is best for the country’ is ‘very good’ or ‘fairly good’ was only 38.6% (with ‘very good’ at 5.0% and ‘fairly good’ at 33.6%). This is very low, given that the average percentage of respondents with corresponding answers for all of the studied countries was 67.5% (with ‘very good’ at 20.9% and ‘fairly good’ at 36.6%) (World Values Survey, 2020). These responses make the findings of an experiment in Japan interesting as a test case for epistocracy and lottocracy, because they may imply a relatively higher satisfaction with electoral democracy in Japan.<sup>15</sup> In the Pew Research Center’s Spring 2017 Global Attitudes Survey, 77% of the Japanese public upheld electoral democracy, even though their opinions on the success of electoral democracy in Japan were divided (Stalks, 2017).

### 3.1 Method

#### 3.1.1 Participants

The experiment was conducted in Japan from 10 to 12 March 2020.<sup>16</sup> The participants were recruited from an online panel registered with a Japanese research company (Rakuten Insight Inc.), which had over 2.2 million members as of March 2020. There were 2,505 respondents, and a sample size of 2,398 was available for analysis. To make our sample representative of the Japan electorate as a whole, we set quotas for gender (male or female), age (18–29, 30–39, 40–49, 50–59, 60–69, or 70 and older), and ten blocks by prefecture (Hokkaido, Tohoku, North-Kanto, South-Kanto, Hokuriku, Chubu, Kinki, Chugoku, Shikoku, and Kyushu and Okinawa) based on the 2015 Japanese National Census.<sup>17</sup>

#### 3.1.2 Procedure

The survey procedure was as follows. The participants were asked to sign an informed consent form before beginning the survey. After answering questions about their demographic characteristics and political attitudes, they were randomly assigned to eight experimental groups. Once the respondents were assigned to one of the groups, they were required to answer questions regarding their acceptance of a policy approved via the given regime in the group. In the next step, the respondents were asked to write why it was acceptable.

### 3.2 Experiment

In the experiment, a hypothetical scenario was shown to the respondents. The scenario involved four types of political decision-making (Treatment 1-X) and two policy issues (Treatment 2-X), with the Lead providing the following guidance.

*Lead: Please consider a hypothetical national assembly in Japan.*

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somewhat familiar with these reports. For these three reasons, especially the last two, we say that the environmental tax policy of 10% is not unreasonable.

<sup>15</sup>As evidence for the least-likeness of Japan in terms of lottocracy, we can also emphasize how the Japanese are not familiar with the sortition system; the lay judge system (*Saibanin Seido*), where citizens are randomly selected to participate in trials, was introduced only in May 2009.

<sup>16</sup>Our experimental study was reviewed and approved by the University of Tokyo Ethics Review Committee on Experimental Research with Human Subjects (approval no. 692).

<sup>17</sup>See Online Appendix-A for details.

**Treatment 1-X**

*Treatment 1-A: In this national assembly, a ruling coalition between the Liberal Democratic Party and Komeito occupies the majority, as in the current political situation.*

*Treatment 1-B: In this national assembly, the following political reform was initiated.*

*To make politics reflect people's wishes as much as possible, elections were abolished in both the lower and upper houses. Subsequently, 465 ordinary citizens were randomly selected to engage in politics as representatives who serve for four years.*

*Treatment 1-C: In this national assembly, the following political reform was initiated.*

*To make politics reflect people's wishes as much as possible, elections were abolished in the upper house only. Subsequently, 465 ordinary citizens were randomly selected to engage in politics as representatives who serve for four years.*

*Treatment 1-D: In this national assembly, the following political reform was initiated.*

*To make politics reflect the views of experts as much as possible, elections were abolished in both the lower and upper houses. Subsequently, 465 experts in each field of policies would engage in politics as representatives who serve for four years.*

**Treatment 2-X**

*Treatment 2-A: In this session, a bill 'accommodating education for the prevention of disasters, to tackle climate change issues which cause frequent disasters such as flood damage and fierce heat' was passed to be enforced the following year.*

*Treatment 2-B: In this session, a bill 'to impose an extra tax for conservation of the environment (10%) in addition to the 10% consumption tax, to tackle the problems of climate change, which causes frequent disasters such as flood damage and fierce heat' was passed to be enforced the following year.*

Subsequently, we asked the following question:

*After reading the text above, how do you feel about the decision in the legislative session? Please choose the option that is closest to your opinion from among the following options:*

- *I cannot accept the decision (1).*
- *I would rather not accept the decision if I were given the choice (2).*
- *I cannot be sure (3).*
- *I could accept the decision if I were given the choice (4).*
- *I can accept the decision (5).*
- *No answer (6).*

In the Treatment 1-X set, Treatment 1-A reflected the current Japanese parliamentary system (the maximum number of members of the lower house: 465); i.e., electoral democracy. Treatment 1-B invokes a radically reformed situation in political decision-making, in which a lottocracy replaces the electoral democracy. We also put forward a scenario in which a lottocracy was introduced only in the upper house, with the aim of singling out the effects of partial lottocracy.<sup>18</sup> The reasons for this must be noted. Normative political theorists explore two types of lottocracy,<sup>19</sup> and people may be averse to the radical reform of introducing a lottocracy in the Japanese political system, even if they support lottocracy. Treatment 1-D reflected a political decision-making system that excluded

<sup>18</sup>Since the number of seats in the upper house in Japan is 242, it might seem strange that Treatment 1-C in our experiment involving only the upper house sets the number of seats at 465. However, our paper focuses on the differences in how legislators are selected. Thus, if we were to change the number of legislators, it would be difficult to discern whether the effects on acceptance were due to the political decision-making process or the number of legislators. For this reason, the number of legislators was controlled at 465 seats in the experiment.

<sup>19</sup>See note 8.



the participation of citizens and depended on the opinions of experts in each field of policy; i.e., epistocracy.

In the Treatment 2-X set, Treatment 2-A is an environmental education policy that could easily gain support from citizens by virtue of the low monetary cost to them. In contrast, Treatment 2-B, the environmental tax policy, involves the imposition of financial burdens (extra taxation) on citizens. Treatment 2-B would thus be expected to be less popular than Treatment 2-A.<sup>20</sup>

These scenarios were randomly associated to investigate what type of policy was acceptable in each regime for issues involving long-term interests, especially given a particular area of expertise. We could thereby examine the acceptability of electoral democracy, lottocracy, and epistocracy for establishing unpopular (in light of citizens' short-term interests) policies and complex policy issues.

### 3.3 Validity check

It has been demonstrated that survey respondents may not read vignettes carefully, and thus survey findings could be biased due to the inclusion of the satisficers' data (Oppenheimer *et al.*, 2009). To evaluate how effective the manipulation of the experiment was, we asked the respondents about the bill and legislative body. This method is what we call 'the manipulation check' in terms of internal validity.

*Lead: Finally, we would like to ask about the text you just read regarding a hypothetical national assembly in Japan.*

*What is the content of the text in the following two respects? Please choose the most fitting option for each respect.*

*Regarding the bill:*

- *The bill to strengthen education for the prevention of disasters (1).*
- *The bill to strengthen Artificial Intelligence (AI) in education (2).*
- *The bill to impose an extra 5% tax in addition to the current consumer tax (3).*
- *The bill to impose an extra 10% tax in addition to the current consumer tax (4).*
- *I do not know (5).*

*Regarding the legislative body:*

- *The body that constitutes randomly selected representatives in both the upper and lower houses (1).*
- *The body that constitutes randomly selected representatives only in the upper house (2).*
- *The body that defers to experts of various specialties in both the upper and lower houses (3).*
- *The body that is similar to the coalition government of the Liberal Democratic Party and Komeito (4).*
- *I do not know (5).*

The results of the manipulation check were as follows. The percentages of the respondents who gave the correct answer to the questions regarding the bill and legislative body were 65.4% and 45.2%, respectively. The percentage of the respondents who chose the correct answer for both questions was 42.3%.<sup>21</sup> The results for this 42.3% of the respondents are analysed below.

<sup>20</sup>In Japan, the consumption tax rose from 8% to 10% in October 2019. In a poll by the Asahi Shimbun newspaper in September 2019, 39% of the respondents supported a consumption tax hike, while 54% did not (Asahi Shimbun, 2019). Since a majority of people opposed this 2% tax hike, we can reasonably expect that even more people would oppose a 10% tax hike.

<sup>21</sup>Although the proportion of the respondents who correctly answered both questions in the experiment was not very high, it was also not extremely low. For example, in the Oppenheimer *et al.* (2009) experiment, up to 46% of the respondents did not read the instructions correctly and thus provided incorrect answers.

The manipulation check was conducted immediately after the experiment. Notably, the ratio of respondents who gave correct answers to the question regarding the legislative body was quite low. This may echo the difficulty for ordinary people in perceiving lottocracy and epistocracy as alternative regimes; it may seem ridiculous to some respondents to be asked about lottocracy and epistocracy as alternative legislative bodies. Since neither of these regimes has been employed widely in Japan, the treatments in our experiment were impelled to be hypothetical and thus to face the problem of ‘transportability’, i.e., whether empirical findings can be generalized. However, the transportability issue cannot fully be dislodged in experiments of this kind; we cannot ensure bias-free experiments that involve unfamiliar political regimes. In the following analyses, we therefore show the results based on the total sample ( $n = 2,398$ ) and based on the 42.3% of the respondents ( $n = 1013$ ) who passed both of the two manipulation checks correctly. This, we believe, enables us to estimate the differential effects of acceptability, especially concerning the legislative body, and to thus render our analysis more robust.

### 3.4 Balancing test between the experimental groups

Unless the randomization process creates groups that are balanced, the outcomes may be biased by virtue of the uncontrolled effects. We therefore checked the balance of the respondents’ basic characteristics. Table 1 shows the respective means of the eight experimental groups for the five covariates: gender (male = 1, female = 2), age (min = 18, max = 79), educational level (min = 1, max = 5), household income (min = 1 [under \$30,000 per year], max = 21 [over \$200,000 per year]), and political knowledge<sup>22</sup> (min = 0, max = 3). According to our test of the difference in means among all experimental groups for each of the five covariates, there was no significant difference even at the 0.1% level. We also tested 30 other variables, all of which showed no significance at the 0.1% level. This indicates that the experiment was successfully randomized.

## 4. Results and discussion

### 4.1 Results

Table 2 lists the basic features of our experiment. Figure 1 provides the histograms of frequency distributions based on descriptive statistics (using a five-point scale, which excludes ‘No answer’). The highest acceptability (3.99) was given for the scenario of electoral democracy combined with the education policy (Group 1), with the greatest gap between Group 1 and the other groups (Fig. 1). More distinct was the difference in policy acceptability: although the acceptability of the education policy was 3.47, the environmental tax policy was much less acceptable at 2.58. Among the different regimes, electoral democracy was the most acceptable at 3.32, followed by lottocracy in the upper house (3.00), epistocracy (2.91), and full lottocracy (2.87).

The distribution in the difference of regimes was not as great as that in the difference of policies, as is shown by the frequency distribution of each group in Figure 1. While the most frequent value (mode) in Groups 1 to 4 (the education policy cases) was number (4), i.e., ‘I could accept the decision if I were given the choice’; it was number (2), i.e., ‘I would rather not accept the decision if I were given the choice’, in Groups 5 to 8. With these results, we can reasonably conclude that the acceptability of the regimes was conditional on the content of the policies.

How different are the alternatives to electoral democracy – lottocracy and epistocracy – from the existing regime, i.e., electoral democracy, in terms of acceptability? Figure 2 illustrates the results of our multiple regression analysis of the acceptability of political decisions with the construction of

<sup>22</sup>Political knowledge is measured by the number of correct answers to three questions, i.e., questions about political institutions, recent political trends, and political actors, based on Delli-Carpini and Keeter (1996). For more details, see Online Appendix-B.

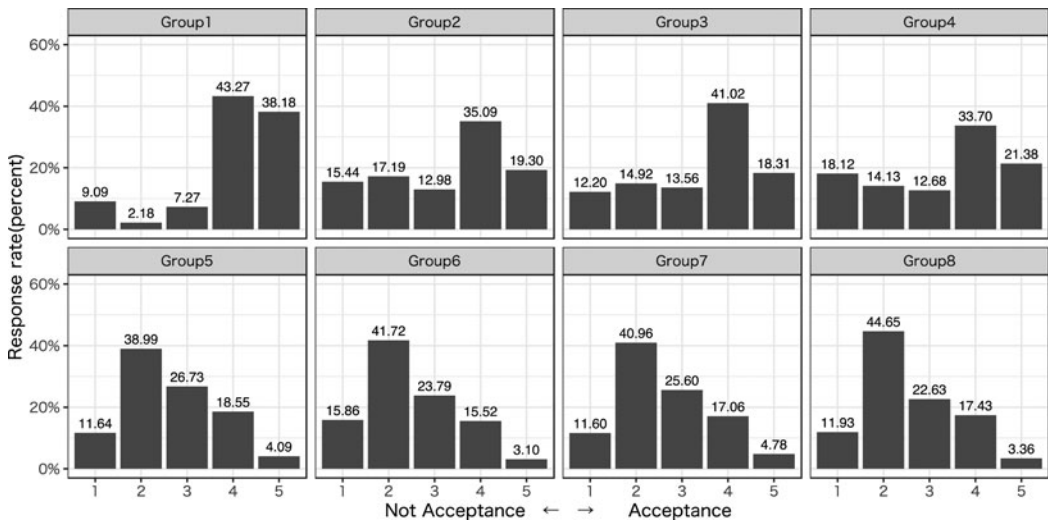
**Table 1.** Results of the balancing test

	Gender (male:1, female:2)	Age (min:18, max:79)	Educational level (min:1, max:5)	Household income (min:1, max:21)	Political knowledge (min:0, max:3)
Group 1	1.51	50.62	3.19	9.13	1.04
Group 2	1.52	48.90	3.17	8.46	0.97
Group 3	1.50	49.14	3.27	7.85	1.01
Group 4	1.50	49.95	3.31	8.18	0.93
Group 5	1.49	50.57	3.25	8.61	1.03
Group 6	1.48	48.88	3.22	8.25	0.94
Group 7	1.52	51.17	3.29	8.76	1.02
Group 8	1.54	50.76	3.18	8.23	0.99
Average (all groups)	1.52	50.22	3.22	8.46	0.99

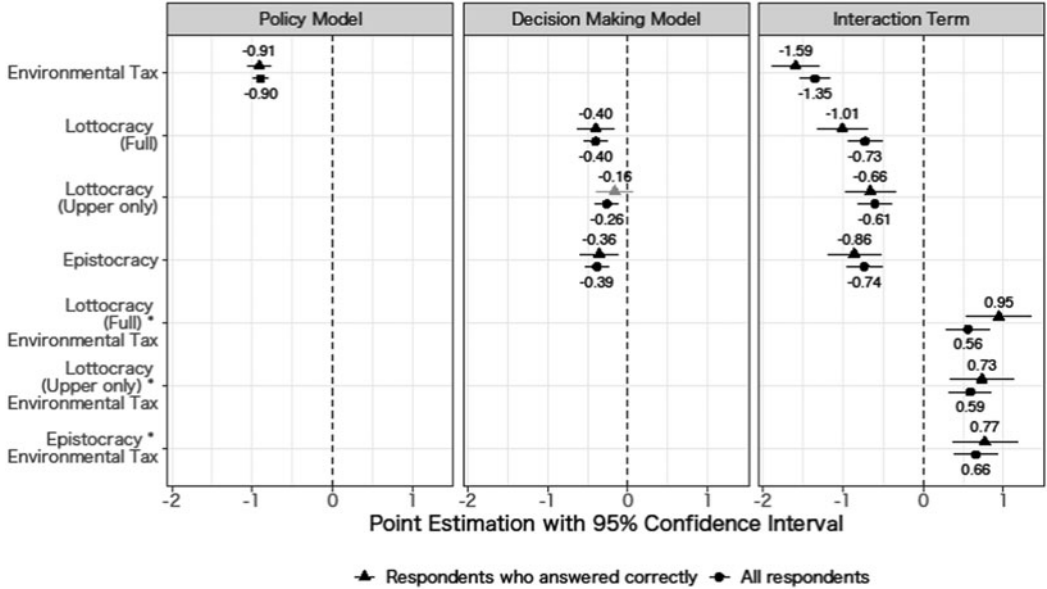
**Table 2.** Descriptive statistics for the eight experimental groups

	Decision making				Policy		N	Average Treatment Effect (ATE) <sup>1</sup>	Standard Deviation
	Electoral democracy	Lottocracy (full)	lottocracy (upper only)	epistocracy	Education policy	Environmental tax			
Group 1	✓				✓		279	3.99	1.17
Group 2		✓			✓		292	3.26	1.36
Group 3			✓		✓		298	3.38	1.28
Group 4				✓	✓		281	3.26	1.41
Group 5	✓					✓	321	2.64	1.04
Group 6		✓				✓	296	2.48	1.03
Group 7			✓			✓	300	2.62	1.05
Group 8				✓		✓	331	2.56	1.02

1Include respondents who made the mistake of checking for manipulation test.



**Figure 1.** Histograms of frequency distribution in the eight experimental groups.



**Figure 2.** Results of the multiple regression analysis.  
*Note:* The coefficients of ‘Respondents who answered correctly’ ( $n = 1,013$ ) were based on the results of the manipulation check (see Section 3-3). The coefficients of ‘All respondents’ reflected the data of all respondents ( $n = 2,398$ ). The elements highlighted in black indicate statistical significance at the 5% level. Dots are point estimates, and segments represent 95% confidence intervals based on HC2 robust standard errors.

three models<sup>23</sup>: (1) the model of policies (Groups 1–4 vs. Groups 5–8), (2) the model of political decision-making (Groups 1 + 5 vs. Groups 2 + 6 vs. Groups 3 + 7 vs. Groups 4 + 8), and (3) the model of these interaction terms. Our particular interest lies in the interaction term between policy and the decision-making method. Formally, for the interaction term model, we used the following linear probability mode:

$$Y_i = \alpha + \beta_{1*}P_i + \beta_{2*}D_i + \beta_{3*}P_i*D_i + \epsilon_i \quad \dots (1)$$

where, for respondent  $i$ ,  $Y_i$  is an outcome variable (1: not acceptable ~5: acceptable of a political decision),  $P_i$  indicates a treatment about policies condition (the baseline is ‘educational policy’),  $D_i$  indicates a treatment about political decision-making (the baseline is ‘electoral democracy’), and  $\epsilon_i$  is an error term. The parameters were estimated using ordinary least squares.

In light of the main effects, as the descriptive statistics showed, the environmental tax policy had a negative value (compared with the education policy), and all three alternative regimes had a negative value (compared with electoral democracy). What was distinct about the results of the ordinary least squares regressions was that, according to the interaction terms, the combinations between the environmental tax policy and the alternative regimes had *positive* values. In addition, there were no positive values between the environmental tax policy and the alternative regimes if the results were based only on the respondents who did not properly capture the differences in the legislative bodies. This implies that the institutionalization of lottocracy and epistocracy may be difficult unless people understand the features of those regimes.

<sup>23</sup>Although as shown in Table 1 the results of all of the experimental groups were well balanced, we calculated the estimates of the three models involving the five covariates (gender, age, educational level, household income, political knowledge) just to be sure. Figure 2 displays only the data of the experimental groups based on Group 1 (the control group) for the relevant discussion of our analysis below.

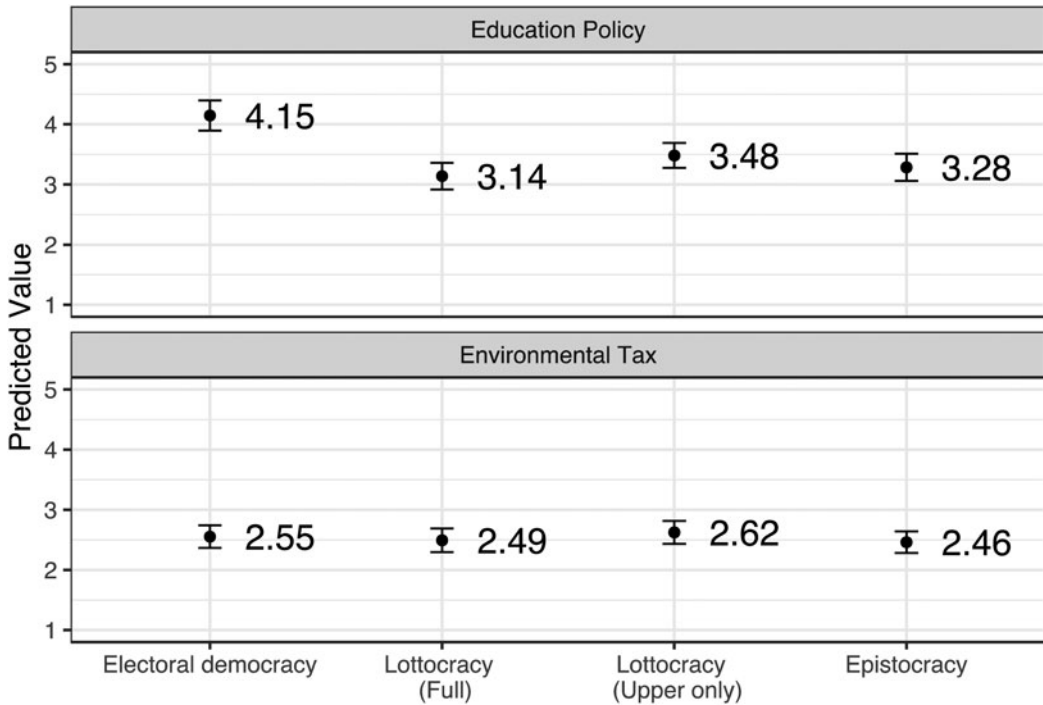


Figure 3. Results of the post-estimate simulations.

Note: This predicted value was estimated using R (version 4.2) and calculated utilizing the ‘marginaleffects’ package. The error bars in this figure indicate the 95% confidence intervals. All variables except the key variable were held constant at their mean values.

It may seem that lottocracy and epistocracy are more acceptable than electoral democracy under the condition that a political decision to adopt the environmental tax policy is taken. However, since the interaction terms may be susceptible to the strong effects of specific variables, we should strictly interpret the results of the multiple regression analysis by using post-estimate simulations (Brambor *et al.*, 2006). Figure 3 illustrates the difference in the combined acceptability of regimes and policies with the use of post-estimate simulations. The figure shows that decisions made through electoral democracy are more likely to be accepted when an educational policy imposes no burden on citizens. However, there are no significant differences in acceptability across various regimes, including electoral democracy, for an environmental tax that imposes substantial economic burdens on citizens. Additionally, although the differences are slight, full lottocracy consistently has lower acceptability than half lottocracy in both policy proposals. Despite some potential benefits of lottocracy in terms of representation, it appears that people are generally less accepting of this decision-making method.

Indeed, interestingly, the most significant difference between the two policies was under electoral democracy (1.60), followed by the differences in lottocracy in the upper house (0.86), epistocracy (0.82), and full lottocracy (0.65). This implies that citizens are unlikely to be satisfied with decisions that impose financial burdens on them, regardless of the political decision-making process.

The results of the post-estimate simulations were as follows. (1) The dominant regime, electoral democracy, was the most popular regime. In particular, popular policies with which few disagreed were suited to electoral democracy. (2) Unpopular policies for which gaining the support of ordinary citizens was difficult (such as the environmental tax policy) tended to undermine the acceptability of electoral democracy compared to popular policies (such as the education policy); many citizens do not accept burdensome policies under any political regime. (3) This suggested that whether or not a regime was electoral democracy-based had no significant effect if the policy was unpopular.

## 4.2 Discussion

The above-described three findings of the acceptability test have two important implications for normative political theorists, especially for supporters of lottocracy and epistocracy.

First, ordinary people tended to be more sensitive to the difference between electoral democracy and alternative regimes under a more popular policy. This was supported by our finding that the main effects of electoral democracy were significantly larger than those of the three alternatives in the education policy. Put differently, people's reaction to different regimes, especially concerning the difference between the current system and alternatives, seemed to be significant under more popular policies such as the education policy. This result differs from that of Arnesen and Peters (2018), who found expert decisions to be the most acceptable. The difference may suggest that people tend to think well of expert decisions regarding individual issues, while they reject epistocracy as a political regime in which experts make decisions on *all* issues. This is because people may be concerned with the undesirable consequences of having national politics in the hands of experts who cannot reasonably be controlled through elections.

The findings that people are more likely to accept the decisions of an electoral democracy than those of a lottocracy or epistocracy may be due in part to people's preferences for the status quo. This is particularly so in Japan, given that Japan is reasonably considered as the country that is least likely to adopt these alternative regimes. In this sense, the comparison between electoral democracy and alternative regimes may not be reasonable. However, supporters of the alternative regimes should be able to overcome this disadvantage. To do so, they will need to gain people's support not only for the realization of the alternative regimes, but for their normal operation. We thus propose that normative political theorists who support these alternatives may have a reason to focus on evidently popular policies. In the stable implementation of these alternative regimes, it is important to win people's trust in their decision-making about these policies. This is paradoxical because introducing a lottocracy or epistocracy (or a similar type of proposal) may be proposed in regard to *unpopular* policies where there are complex issues, such as the environmental tax policy (e.g., González-Ricoy and Gosseries, 2016).

Second, ordinary citizens tend to find few differences between electoral democracy and alternative regimes in regard to unpopular policies such as the environmental tax policy. This may lend support to the supporters of the alternative regimes. Given that the public are not sensitive to the difference of political regimes in implementing unpopular policies, proponents of lottocracy and epistocracy may act on their preferred regimes with few difficulties. Moreover, it is enormously important for proponents of lottocracy and epistocracy to show the tenability of their political decisions in such a way as to utilize the theoretical resources (e.g., citizens' long-term interests and expertise). This is specifically the case when the political issue concerns advanced and unpopular policies such as environmental tax policies. This may encourage proponents of lottocracy and epistocracy to put forward their proposals for the obviously unpopular policies if they demonstrate the policies theoretically and thus persuade the public that their preferred regimes function better, at least to a certain context.

These two implications cannot be disregarded when considering a transition from an electoral democracy to a lottocracy or epistocracy. The first implication involves a careful treatment of people's sensitivity to the difference between electoral and non-electoral regimes. The second implication involves which type of policies should be the focus when introducing the two alternative regimes. Since these two implications contradict what normative political theorists believe, our findings provide important feedback for the debates on representation in normative political theory.

Several limitations of this paper should be noted. First, our experiment does not address the questions of how and under what circumstances a lottocracy or epistocracy is introduced and established. We assume that political regime change can occur through legitimate procedures with popular support. However, there is no denying that it can also occur through violent or revolutionary means, such as the occurrence of coups d'état. This suggests, at least in part, that the way in which regime transitions and transformations can be expected to occur varies according to the political and economic background in a given region. Because such backgrounds differ between Japan and other countries, the acceptability of policy decisions may deviate from our experimental results if these background factors are taken into account.

Second, our experimental result concerning the lower acceptability of lottocracy and epistocracy may have been influenced by status quo bias. It is of course very difficult to eliminate the influence of status quo bias in a survey experiment. Thus, we cannot deny that status quo bias affected the outcome of our experiment to some degree.

Third, our study does not fully account for the effects of skewed political participation found in politics through parties or other political organizations. This may well call into empirical question the viability of presumptions by proponents of lottocracy and epistocracy about the formation of lottocratic and epistocratic legislatures. This question is particularly important in the case of lottocracy, because the viability of a lottocracy depends on whether it can achieve a descriptively representative legislature. Clearly, skewed participation thwarts descriptive representation. And skewed participation, which correlates with socioeconomic status and other individual-level resources such as networks and skills, does not seem to be negligible. This may be the case in Japan. One could then argue that the participation of randomly selected citizens may not be what proponents of lottocracy theoretically expect. In response to this, many of them claim that sufficient remuneration should encourage selected citizens to become legislators (Van Raybrouck, 2016: 137–8). However, there is no empirical evidence to support this claim. Worse, past citizens' assemblies on electoral reform have cast doubt on the way forward for lottocracy: in British Columbia, Ontario, and the Netherlands, for example, only about 6–7% of those invited responded positively to an invitation to participate. In addition, members of these assemblies were significantly more educated than the general population, showed a higher interest in politics, and expressed dissatisfaction with the current electoral system (Fournier *et al.*, 2011: Ch. 3). We must acknowledge that how to address these practical concerns about the implementation of lottocracy is, on the one hand, a serious issue that this experimental study could not fully address. On the other hand, we believe that addressing this issue will require another experiment and should be our task for another day.

**Supplementary material.** The supplementary material for this article can be found at <https://doi.org/10.1017/S1468109924000094>. The link for the replication data is: <https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/TTQWMQ>

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