On the acceptance of intergenerational climate legacies: A comparison of Canada and Japan

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Abstract

Intergenerational climate justice negotiations often flounder on three questions: What was the outcome on climate change? Was it intentional? Why should the current generation pay for the misdeeds of previous generations? In this research, participants from Japan and Canada rated their willingness to accept intergenerational climate legacies and the responsibilities these legacies entail; judged the importance of intent and outcome associated with creating these legacies; and rated their willingness to compensate those negatively impacted by previous generations. The study found: a) while outcome was important, intent did not matter; b) Canadians were more likely to accept an inheritance and c) more likely to equivocate, in acceptance, if it entailed obligations than the Japanese; d) among those who accepted the inheritance, Japanese were more generous in settlement of previous generation’s obligations; e) lower-income, non-Judeo-Christian participants were systematically fairer than others; and f) the resistance to compensation for past generations’ actions was diminished with the awareness about the broad scope of intergenerational climate legacies that the current generation enjoyed. Our findings highlight the influences of culture and historic awareness on accepting climate responsibilities for actions of previous generations and willingness to provide compensation. The findings also support abandoning the debate on intentionality.

Introduction

We live in a world shaped by historic legacies (e.g., structural, cultural, artistic, and legal]. Many legacies of riches have had and continue to have social, material, cultural, and environmental externalities impacting others. As a prime example, the Industrial Revolution generated untold wealth to industrial nations but climate change for the world. There is an enduring disagreement among stakeholders on the awareness, intentionality, responsibility, and compensation regarding these historic legacies that have contributed to climate change.

To date, there is no universally accepted legal framework on how to treat such climate legacies. Despite this knowledge gap, current discussions about injustice from historic legacies often hinge on how the current generation of enriched and impacted acknowledge these legacies and accept responsibility for fair compensation. A proper framework will thus involve a
resolution of tensions between the ethics, procedural justice, and public perceptions of legacies.

In this paper, we aim to shed light on the last element--public perception of climate legacies. The sparse literature in this area has primarily focused on financial inheritance, not on climate legacies. These studies examined how older generations choose to pass inheritance onto the next generation rather than how younger generations view inheritance. Furthermore, although literature on collective guilt explores the perspective of the receiving side, it looks exclusively at negative legacies. These studies examine how current generations feel about the wrongdoings of preceding generations, but do not touch on their positive legacies [1–4].

Regarding climate legacies, addressing injustice due to climate change has been difficult. The answer to “fair” treatment of contributions to climate change continues to elude negotiators, largely due to two factors. The first involves emissions and development. Some argue that nations enriched by a long history of greenhouse gas (GHG) emissions should shoulder a heavier burden of mitigation domestically and adaptation globally [5]. Others are concerned about today’s rapidly industrializing major emitters such as China and India. The second factor involves awareness of GHG emissions and intentionality of the emitting actions. Setting aside discussions of uncertainty, plausible deniability, and willful ignorance of GHG emissions, some argue for responsibility of GHG emissions only since scientific consensus about their role in climate change, while others extend responsibility to the dawn of industrialization [6].

In addition to the existing problems to climate negotiation, legal differences present another significant barrier. Differences in how different countries treat intergenerational bequests and obligations are reflected in laws governing inheritance and debt. Under Common Law (where judicial opinions are of primary importance), the estate is settled by an executor who distributes what remains of the estate after all outstanding debts have been settled. However, under Civil Law (where codified statutes are of primary importance), the heir is obliged to settle outstanding debts even in excess of any legacy they may be receiving, unless they renounce the right to succession.

Beyond the legal differences, cultural differences in how intent and outcome are weighed in moral judgement and attribution of blame remain another challenge. People in North America tend to focus on intent, whereas people in non-Western societies tend to argue that it is impossible to know the mind of a person and thus they only consider outcomes [7,8]. Finally, individualist and collectivist cultures differ in their treatment of distant responsibilities. People in individualist cultures, like in North America, tend to look at individuals as independent actors and disavow responsibility for actions of past generations, while people in collectivist cultures, like in East Asia, tend to look at individuals as part of a group, and accept responsibility as a member of an extended group [9–11]. There is a large knowledge gap on how different cultures with different laws perceive and treat climate legacies.

In terms of demographic factors, past studies suggest that women are more uncomfortable with debt [12]. Furthermore, religious involvement, in this case Christianity, decreases the rate of non-payment of debt [13]. In addition, people from the Islamic cultures tend to be more willing to pay off debt than those from Christian cultures [14]. Finally, there is a large difference in lifetime exposure to climate extremes for different age cohorts where younger cohorts experience significantly higher number of extreme events [15]. There is another knowledge gap on how these demographic factors influence the perception of climate legacies.

In the current study, we aim to explore how people from different cultures treat positive and negative climate legacies since a wide range of intergenerational justice challenges involve both bequests and obligations. Specifically, our research question is: How do the public in Canada and Japan perceive and accept positive and negative climate legacies? We selected Canada and Japan for comparison as their similar states of industrialization and governance
allow us to focus on their cultural distinctions [16,17]. There are two important dimensions to construct of acceptance in the current work. The first dimension is whether the participant agrees to receive the inheritance from the previous generation. The second dimension is whether the participant agrees to pay a portion from the inheritance. To our knowledge, this is the first study to explore public perceptions and treatment of climate legacies within a consistent cross-cultural framework.

**Methods**

**Participants**

The study protocol was approved by the University of British Columbia’s Behavioural Research Ethics Board on July 30th, 2019. The record of this can be found under reference number (H19-01444) on the UBC ethics website. Participants in this study provided informed consent before starting the study and could leave the study at any time without their inputs being retained for analysis.

To determine the sample size, we first conducted a power analysis assuming a minimum effect size of 0.08, alpha = 0.05, power = 0.95, and a three-way mixed factorial design (culture: Canada vs. Japan, outcome: positive vs. negative, intent: intentional vs. unintentional). The power analysis showed that we need a minimum of 984 participants total. Therefore, we recruited 999 participants using the Qualtrics panel. The participants consisted of a representative sample of the Canadian population (n = 499; Women = 50.5%; Judeo-Christian = 81.2%) plus a representative sample of the Japanese population (n = 500; Women = 54.8%; Judeo-Christian = 0.4%). The samples were targeted to have similar age and gender composition (see Table 1 for demographic information).

**Materials and procedures**

We designed and launched an online survey on Qualtrics. The survey was available in English and Japanese (see Sections 1 and 2 in Supplementary Information). The English survey was

**Table 1. Demographics of participants.**

<table>
<thead>
<tr>
<th></th>
<th>Canadians (n = 499)</th>
<th>Japanese (n = 500)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td>50.5% women</td>
<td>54.8% women</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–34</td>
<td>32.7%</td>
<td>27.2%</td>
</tr>
<tr>
<td>35–54</td>
<td>32.3%</td>
<td>33.8%</td>
</tr>
<tr>
<td>55–74</td>
<td>31.3%</td>
<td>36.8%</td>
</tr>
<tr>
<td>Over 75</td>
<td>3.8%</td>
<td>2.2%</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Up to High school</td>
<td>31.1%</td>
<td>26.6%</td>
</tr>
<tr>
<td>College</td>
<td>1.6%</td>
<td>11.2%</td>
</tr>
<tr>
<td>University / professional studies</td>
<td>65.5%</td>
<td>61.6%</td>
</tr>
<tr>
<td>other</td>
<td>1.8%</td>
<td>0.6%</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td>(NA = 6%)</td>
<td>(NA = 0%)</td>
</tr>
<tr>
<td>Less than $25,000</td>
<td>10.4%</td>
<td>44.0%</td>
</tr>
<tr>
<td>$25,000 to $49,999</td>
<td>21.4%</td>
<td>28.4%</td>
</tr>
<tr>
<td>$50,000 to $99,999</td>
<td>39.5%</td>
<td>19.8%</td>
</tr>
<tr>
<td>$100,000 to $149,999</td>
<td>15.4%</td>
<td>5.2%</td>
</tr>
<tr>
<td>$150,000 to $199,999</td>
<td>4.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>$200,000 or more</td>
<td>2.6%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Judeo-Christian</td>
<td>81.2%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

https://doi.org/10.1371/journal.pclm.0000048.t001
first translated into Japanese by a bilingual speaker. We then invited two native Japanese
speakers to translate it back to English without accessing the original survey. We compared the
translations and made minor edits in order to make the survey in two languages as culturally
neutral as possible, avoiding words like debt and donation that have different cultural connota-
tions, and making the language more accessible such that anyone with a high-school education
should be able to understand the survey. Participants from Canada and Japan completed the
survey between April 15, 2021 to April 23, 2021. The survey was informed by a pilot study con-
ducted earlier to test the wording of some questions (see Section 3 in Supplementary
Information).

Participant were first asked to rate their likelihood of accepting an inheritance from a
deceased individual (a close relative or a stranger) on a 5-point Likert scale (from -2 = very
unlikely to 2 = very likely). They were then asked if information about how the wealth was
accumulated would change their likelihood of accepting the inheritance. To manipulate wealth
accumulation and intentionality, we chose four occupations that represented four methods of
wealth accumulation in a 2 × 2 matrix of climate outcome (positive vs. negative) and intention-
ality (knowing vs. not knowing the outcome): wind turbine manufacture (positive outcome,
inentional), software development (positive outcome, unintentional), coal mining (negative outcome, intentional), and intensive agriculture (negative outcome, unintentional) (see
Table 2 for the descriptions of occupations presented in the survey). Positive outcomes include
reduced GHG emissions or climate change mitigation efforts. Negative outcomes include
increased GHG emissions. For each occupation, we used a 4-point Likert scale (“More likely”,
“No change”, “Less likely”, and “Don’t know”) for participants to indicate whether they would
like to change their likelihood of accepting the inheritance after learning about how the wealth
was accumulated. Participants were also encouraged to describe the reasoning behind their
choice by typing their reasons in an open-ended text box.

Afterwards, participants were informed that the deceased had intended to make "pay-
ments," amounting to 50% of the inheritance, to correct a lifetime of their mistakes. In framing
this part of the survey, our earlier pilot studies allowed us to avoid the use of language that
would elicit different responses by participants from Japan and Canada due to linguistic
nuances. We specified that information about intended payments were found as "notes" in the
deceased personal effects. We specified that they had no legal standing, hoping to minimize
diversity in attitude towards the law. We avoided framing the notes as "debts owed by the
deceased" as our pilot study showed that Japanese participants have a much stronger aversion
to debts than Canadians (see Section 3 in Supplementary Information for the pilot study).
Finally, we used "payments" not "donations" which could introduce the artefact of virtuous
intent.

Participants were asked if awareness of these intended payments would make them reconsid-
er if they should accept the inheritance – and why it would or would not. Next, participants

<table>
<thead>
<tr>
<th>Table 2. Four means of wealth accumulation in our survey.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Negative outcome</strong></td>
</tr>
<tr>
<td><strong>Intentional/ Knowingly</strong></td>
</tr>
<tr>
<td><strong>Unintentional/ Unknowingly</strong></td>
</tr>
</tbody>
</table>

https://doi.org/10.1371/journal.pclm.0000048.t002
were asked to assume they had accepted the inheritance. Having done so, what fraction of payments indicated by the deceased would they make to each of four intended recipients (to employee, bank, government, and nature park)?

Finally, participants completed a few questions to measure their environmental attitudes and awareness about intergenerational legacies and obligations. Then, they were asked if the questions focused on historic legacies motivated them to revisit their previous answers. At the end of the survey, participants completed a few questions on demographics (see Sections 1 and 2 in Supplementary Information for the full survey).

**Results**

The data collected from the survey contains no personal identifiers and is available for review and further analysis at Open Science Framework: https://osf.io/7yh8q/?view_only=d52dd962abcb4baeb78eaf0a42e5cfad. The full descriptive statistics are presented in Section 2 of the Supplementary Information.

1. **Acceptance of inheritance**

   Effects of kinship and culture on the acceptance of inheritance. A two-way mixed-effects ANOVA (kinship×culture) showed that there was a main effect of kinship \( F(1) = 79.82, \ p < .001, \ \eta_p^2 = .65 \) and culture \( F(1) = 42.97, \ p < .001, \ \eta_p^2 = .35 \), but no interaction \( F(1) = .21, \ p = .65, \ \eta_p^2 < .001 \) (see Fig 1). This suggests that kinship and culture both influenced the willingness to accept the inheritance. Specifically, participants were more likely to accept the inheritance from a close relative than from a stranger, whereas Canadians were more likely to accept the inheritance than Japanese participants.

![Fig 1. Acceptance of inheritance by kinship distance between Canadian and Japanese participants.](https://doi.org/10.1371/journal.pclm.0000048.g001)
Effects of methods of wealth accumulation on the acceptance of inheritance. A three-way mixed-effects ANOVA (outcome×intent×culture) showed that there was a main effect of outcome \[F(1) = 10.80, p < .001, \eta_p^2 = 29.8\] and culture \[F(1) = 24.15, p < .001, \eta_p^2 = 67.3\], but no main effect of intent \[F(1) = .00, p = .996, \eta_p^2 = 0.0\], and no significant two-way or three-way interactions [outcome×intent: \(F(1,1) = 1.12, p = .291, \eta_p^2 = .0\); outcome×culture: \(F(1,1) = .08, p = .778, \eta_p^2 = .0\); intent×culture: \(F(1,1) = .07, p = .787, \eta_p^2 = .0\); outcome×intent×culture: \(F(1,1,1) = .02, p = .896, \eta_p^2 = .0\); see Fig 2]. Specifically, participants were more likely to accept the inheritance if the wealth was associated with positive climate outcomes (e.g., renewable energy and better greenhouse gas emissions management) than if it was associated with negative climate outcomes (e.g., contributing to climate change). Canadians were more likely to accept the inheritance than Japanese participants. Whether the outcomes were intentional or unintended did not matter to the beneficiaries.

We also analyzed and categorized participant explanations of how the means of wealth accumulation changed their willingness to accept the inheritance (see Fig 3 and Table 3). For any of the four methods of wealth accumulation, the majority of participants said that they would still accept the inheritance. Slightly more Japanese participants said that they would be less likely to accept the inheritance if it was obtained through intensive agriculture \([X^2 = 6.64, p < .01]\) or wind energy \([X^2 = 4.45, p = .035]\). For occupations with negative climate outcomes, more Canadians than Japanese said that they would want to use the inheritance to compensate the damage caused by the deceased \([X^2 = 6.26, p = .01]\). Our sample had very few true altruists who initially rejected the inheritance and only accepted the inheritance in order to address damages due to how the wealth was created.
Effects of voluntary payments on the acceptance of inheritance.

The majority of participants (66.5% of Canadians, 58.8% of Japanese) did not change their mind about accepting inheritance after learning about the payment attached to the inheritance (see Table 4). The chi-squared test found one statistically significant cultural difference: of those who were initially willing to accept the inheritance, more Canadians became unsure of accepting inheritance after learning about payments \( \chi^2 = 13.59, p < .001 \).

Table 3. Percent of participants who selected each answer to the question. Did the means to wealth accumulation change your mind about accepting the inheritance? (C = coal mining, A = chemical intensive agriculture, W = wind turbine, S = software development).

<table>
<thead>
<tr>
<th>Answer</th>
<th>Canadians (%)</th>
<th>Japanese (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C</td>
<td>A</td>
</tr>
<tr>
<td>1. Accept</td>
<td>58.1</td>
<td>61.9</td>
</tr>
<tr>
<td>2. Accept &amp; Use to compensate</td>
<td>9.8</td>
<td>8.2</td>
</tr>
<tr>
<td>3. Less likely / Do not accept</td>
<td>7.8</td>
<td>6.2</td>
</tr>
<tr>
<td>4. Not accepting anyway</td>
<td>5.0</td>
<td>4.8</td>
</tr>
<tr>
<td>5. Accept to correct the damages or to support deceased’s contribution</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>6. Accept because it feels better</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>7. Need more time</td>
<td>4.4</td>
<td>4.0</td>
</tr>
<tr>
<td>8. Other</td>
<td>14.0</td>
<td>13.6</td>
</tr>
<tr>
<td>Total count</td>
<td>499</td>
<td>499</td>
</tr>
</tbody>
</table>
2. Decision to pay out

Effects of kinship, culture and payee on voluntary payments. Since the decision to make payment was a binary variable, we ran a binomial logistic regression which showed that there were no significant effects of kinship \( B = -0.16, \ SE = 0.22, \ p = 0.48 \) or culture \( B = 0.24, \ SE = -0.25, \ p = 0.29 \) on the level or distribution of voluntary payments.

A two-way mixed-effects ANOVA (payee \( \times \) culture) showed that there was a main effect of payee type \( F(3) = 59.36, \ p < .001, \ \eta^2_p = 0.27 \) and culture \( F(1) = 38.34, \ p < .001, \ \eta^2_p = 0.47 \), as well as interaction of payee and culture \( F(3,1) = 56.81, \ p < .001, \ \eta^2_p = 0.26 \); see Fig 4. A post-hoc Tukey HSD test further showed that people paid less to the bank compared to the other three categories \( p's < .001 \). Furthermore, Japanese participants were more likely to make a higher fraction of payments to the bank \( p < .001 \) and government \( p < .001 \) than Canadian participants, but no cultural differences were found for employee and nature park.

In terms of demographic factors, we found that non-Judeo-Christians were more willing to make payments regardless of payee (see Table 5). Moreover, people with higher income were less likely to make payments to the bank and government. Neither age nor gender was a significant factor in explanation of willingness to make payments. Finally, the greater awareness and sense of responsibility people had, the more likely they were to make payments. Those with higher environmental attitudes were also more likely to make higher payments to all except the bank. The correlations among these demographic variables are presented in Section 5 of the Supplementary Information.

Effects of intergenerational legacy prompts on payment. In the final section of the survey we assessed participants’ attitude toward different kinds of intergenerational legacy by asking them to rate their level of agreement with the following statements on a scale from 1 to 7 (1 = Strongly disagree, 7 = Strongly agree):

- I think my country, language, laws, art and values are, to a large extent, a legacy from past generations and their actions. (cultural heritage)
- I think past generations’ use of fossil energy led to development, greenhouse gas emissions and climate change. There is a debt that should be paid to restore the climate. (development)
I think past generations’ exploitation of race and class have, to some extent, led to different levels of prosperity today. I feel we need to restore these injustices. (intergenerational justice)

We then asked participants if reflecting on the above statements made them reconsider answers to the previous question on the payments the deceased intended. We categorized their text entries into three groups: people who would pay less (-1), pay more (1), and no change (0). To see if considering intergenerational legacy affected their willingness to reconsider payments. We ran a multiple linear regression that used the level of agreement with the three questions to predict the change in payment. The regression showed that the statement about intergenerational justice was the only significant predictor of payment [$\beta = .015, p = .048$], and the statements about cultural heritage [$\beta = -.01, p = .30$], development with negative environmental externalities [$\beta = .00, p = .63$], and climate change attitudes were not significant [$\beta's <$]

![Fig 4. Payment amount (%) by payee type. Mean and standard deviation of responses by Canadian (CA) and Japanese (JP) participants to four different types of payees: Employee, bank, government, and nature park.](https://doi.org/10.1371/journal.pclm.0000048.g004)

| Table 5. Correlation between four types of payment (%) and demographic factors. |
|---------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Employee | Bank | Government | Nature Park |
|-----------------|-----------------|-----------------|-----------------|-----------------|
| Gender (Woman = 1) | 0.03 | 0.363 | 0.03 | 0.330 | 0.04 | 0.161 | 0.04 | 0.230 |
| Age | -0.04 | 0.256 | -0.06 | 0.052 | -0.02 | 0.559 | -0.02 | 0.559 |
| Judeo-Christians (non-JC = 1) | 0.07 | 0.038* | 0.15 | <0.001*** | 0.31 | <0.001*** | 0.08 | 0.013* |
| Education | 0.04 | 0.236 | 0.01 | 0.756 | 0.01 | 0.864 | 0.03 | 0.300 |
| Income | -0.04 | 0.253 | -0.07 | 0.020* | -0.19 | <0.001*** | -0.04 | 0.190 |
| Legacy Score | 0.18 | <0.001*** | 0.09 | 0.003** | 0.2 | <0.001*** | 0.21 | <0.001*** |
| Climate Score | 0.1 | 0.001** | 0.05 | 0.086 | 0.11 | <0.001** | 0.18 | <0.001*** |

https://doi.org/10.1371/journal.pclm.0000048.t005
.02, p’s > .20]. This suggests that explicit prompts about intergenerational justice can prime larger allocations towards obligations left by past generation(s).

Discussions
The current study demonstrated interesting differences in the treatment of intergenerational bequests and obligations when comparing representative samples of the Japanese and Canadian public.

First, the Japanese were more reluctant to accept a bequest than Canadians. Furthermore, they were more sensitive to whether their benefactor was a close family member or a stranger. In other words, kinship mattered more in Japan.

Second, neither Canadians nor Japanese participants considered intent to be an important factor in their decision to accept the inheritance. This finding stands in contrast to the past studies that found that intent is a strong factor in how North Americans pass judgement (7,8]. Our findings contradict these earlier studies. However, our study has a larger participant pool (hence statistical power) as well as a more rigorous methodology with consistent vignettes used for all participants. The reason for contradiction, therefore, could be the scenario used in our survey or differences in methodology. Unlike past studies where the participants were asked to judge someone else's action, in our scenarios only one of two benefactors is a stranger to the respondent. Furthermore, as opposed to past studies where individual actions have an immediate and limited influence, the participants in our study recognize that the actions are already committed, and have unavoidable lingering consequences. This might be making the intent behind actions less relevant. Another explanation could be money priming. Since participants are deciding on whether or not to accept a legacy, they may justify their decision by being less critical of their benefactor.

Third, more Canadians than Japanese indicated a willingness to accept the inheritance in order to correct the damage caused by the deceased. The Japanese were less likely to accept an inheritance made through intensive agriculture or wind turbines. Their reasonings highlight that many Japanese participants did not want the responsibility for a deceased’s estate when the wealth brings uncertain risks (intensive agriculture). Interestingly, when the wealth was created with good intentions for a positive cause [wind turbine], they felt overwhelmed by the beneficence of the deceased and unworthy of their legacy.

Fourth, more Canadians than Japanese became unsure of accepting the inheritance after learning about the voluntary payments intended by their benefactor. They explained that their hesitance was due to their need for more information about other possible "obligations". 

Finally, when asked how much of the payment they were willing to pay, Japanese participants were willing to settle a higher fraction to the government and the bank than Canadians did. In explaining their decisions, Japanese participants frequently mentioned how payment to the government was an obligation and they needed to take on that responsibility. Payment to the bank was low in general for both groups of participants and no reasons were given to support higher payment. Yet, Japanese participants, on average, made higher payments to the bank than Canadians. We think these patterns may be linked to the stronger sense of a collective society in Japan, where it is important for one to respect institutions. This finding is consistent with past studies comparing collectivist and individualist cultures showing that members of collectivist cultures are more likely to value their relationship to others and their shared institutions [18–21].

The above discussion is indicative of an asymmetry in reactions to inheritance and payout: Canadians chose to accept inheritance more than Japanese. Canadians chose not to settle payments associated with their inheritance but Japanese did. Since our study was exploratory, it
did not directly deal with the exact type of legacies in intergenerational justice negotiations. Those legacies differ from inheritance and the deceased’s intended payments in the sense that they are not just a transaction between two generations, but are embodiments of multi-generational transfers of both tangible and intangible assets and liabilities. Although we framed our study with explicit treatment of kinship distance, legacies dealt in justice negotiations usually cannot be traced to a single identifiable person.

In addition to the above cultural differences, our study also raised several interesting findings on people’s willingness to make payment for intergenerational deeds. First, among both Canadians and Japanese, payment to an environmental fund was negatively correlated with the allocation of inheritance to personal use, while it was positively correlated with allocation to charity. The correlation results support the existing literature on the relationship between values and pro-environmental actions. [22] argues that people who endorse hedonic or egoistic values are less likely to act pro-environmentally, as such actions often entail some personal cost. In contrast, people with strong altruistic and/or environmental values, in which collective consequences are heavily concerned, are more likely to act pro-environmentally. The motivation to pay out can be partly explained by the degree to which people endorse altruistic values.

Second, non-Judeo-Christians were more likely to accept responsibility for payment accrued by the deceased and made a higher percentage of payment. Moreover, people with lower income made greater payments to the bank and government than people with higher income. In contrast to the high level of anxiety and engagement among high school and university students as demonstrated through the Fridays for Future movement, there was no age effect in explanation of willingness to make payments to any cause. One factor is that our participant selection criteria was limited to those above 18 years old. It could be also a reflection of a fact that lifetime extreme events for the younger participants have yet to occur. The high multiple of events when comparing cohorts born in 1960s and 2020s will be clearer towards the 2080s and the generational injustice might be yet to be truly realized.

Third, broad agreement with statements about historic legacies of culture and material wealth and precursors to climate change did not lead participants to change their contributions to any of the four payment categories. However, when participants agreed with the injustice associated with these legacies, a significant fraction opted to increase their payments. The section on reflection revealed that few participants actively think about the connection between the unequal legacies we enjoy today and the past generations’ actions, unless specifically reminded.

There were several limitations with the current study. For example, participants could have struggled to imagine themselves in the scenario of the survey. Their real-life decisions, where there is more time for contemplation, may be different from responses in the survey. This survey, as with all others, poses a particular scenario in a particular wording to a limited number of participants. It is important to recognize that the results are dependent on representativeness of participants and their interpretation of the survey [23–25]. We also acknowledge the limitation of the current quantitative methods and call for the need for future qualitative and mixed methods research to further explore the cultural differences in the perception and treatment of intergenerational climate legacies. Finally, the two countries (Canada and Japan) may not represent other Western or Asian countries, and more countries need to be included in the future to further investigate the cultural differences.

To conclude, the current work has revealed cultural differences in the treatment of intergenerational bequests and obligations around climate change. There are several contributions from this work. First, we demonstrate significant cultural differences in the acceptance of legacies. This may indicate that groups engaged in intergenerational justice negotiations may not share a common understanding of a fair treatment to climate legacies.
Second, our findings show that representative samples of participants from these countries only consider outcomes, not intent, as relevant to their climate change obligations. This suggests that there may be public acceptance of national negotiation positions that extend the period of responsibility to the dawn of industrialization. This stands in stark contrast to negotiators from Canada and Japan who claim that the lack of foreknowledge of harmful effects of GHG emissions should limit their national liabilities to when scientific consensus was achieved (nominally 1990).

Third, lower-income participants and non-Judeo Christians were more likely to accept responsibility for intergenerational obligations and settle a greater fraction of payments. Future research is needed in order to assess cross-cultural expectations about compensation to further inform negotiation frameworks more likely to meet with lasting acceptance. Finally, our study also revealed that there are a significant portion of the public in developed nations that agree to giving more compensation for the climate impacts, but only if they are made aware of the broader context of intergenerational legacy they enjoy and the injustice that has come with it. This indicates both the need for better public education leading to more generous and lasting agreements.

Supporting information
S1 Text. Supplementary information for intergenerational legacies. (DOCX)

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References


