

Longtermist institutional reform

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I. Introduction

There is a vast number of people who will live in the centuries and millennia to come. Even if *homo sapiens* survives merely as long as a typical species, we have hundreds of thousands of years ahead of us. And our future potential could be much greater than that again: it will be hundreds of millions of years until the Earth is sterilized by the expansion of the Sun, and many trillions of years before the last stars die out. In all probability, future generations will outnumber us by thousands or millions to one; of all the people who we might affect with our actions, the overwhelming majority are yet to come.

These people have the same moral value as us in the present. So in the aggregate, their interests matter enormously. So anything we can do to steer the future of civilization onto a better trajectory, making the world a better place for those generations who are still to come, is of tremendous moral importance. This is the guiding thought that defines the philosophy of *longtermism*.²

Political science tells us that the practices of most governments are at stark odds with longtermism. This may seem obvious. After all, governments are run by and for presently existing people; future generations have essentially no political representation, and even in the face of the catastrophic risk to future generations posed by climate change, governments the

¹ We are grateful to Adam Gibbons, Alexander Guerrero, and Toby Ord for comments on previous drafts.

² This argument for longtermism is made in much greater detail in Greaves and MacAskill ms.

world over have failed to effectively respond. But the problems of political short-termism are even more substantial than they appear. Elected officials usually operate on 2-5 year time horizons, failing to look ahead even into the problems of the next decade. Estimates of the financial impacts of legislation typically extend to just a few years to a decade,³ and politicians are rarely able to allocate time to agendas which do not bear fruit until after the next election. In addition to the ordinary causes of human short-termism, which are substantial, politics brings unique challenges of coordination, polarization, short-term institutional incentives, and more.

Despite the relatively grim picture of political time horizons offered by political science, the problems of political short-termism are neither necessary nor inevitable. In principle, the State could serve as a powerful tool for positively shaping the long-term future. Governments collectively spend over \$25 trillion per year,⁴ and they are our best means of solving large-scale coordination problems. Moreover, research in legal theory and the social sciences shows us that countries' laws and policies have a profound effect on the moral norms and attitudes that people see as acceptable.⁵ The problem of aligning government incentives with the interests of future generations should therefore be a moral priority.

In this chapter, we make some suggestions about how we should best undertake this project. In Section II, we explain the root causes of political short-termism. Then, in Section III, we propose and defend four institutional reforms that we think would be promising ways to increase the time horizons of governments: 1) government research institutions and archivists; 2) posterity impact assessments; 3) futures assemblies; and 4) legislative houses for future

³ Binder 2006, González-Ricoy and Gosseries 2016.

⁴ World Factbook 2020, International Monetary Fund 2017.

⁵ Berkowitz and Walker 1967, Bilz and Nadler 2009, Flores and Barclay 2015, Tankard and Paluck 2016, 2017, Tyler 2006, Walker and Argyle 1964.

generations. Section IV concludes with five additional reforms that are promising but require further research: to fully resolve the problem of political short-termism we must develop a comprehensive research program on effective longtermist political institutions.

II. The Sources of Short-termism

The sources of political short-termism can usefully be divided into three major categories.⁶ *Epistemic determinants* of short-termism are features of political actors' state of knowledge that prevent (even properly-motivated) actors from adopting appropriately long-termist policy. *Motivational determinants* of short-termism are features of political actors' goals and motivations that lead (even well-informed) actors to wrongfully discount the future. *Institutional determinants* of short-termism are features of political actors' institutional context that strip the political means from (even well-informed, properly-motivated) actors who could otherwise adopt more appropriately long-termist policy, or which make political actors less well-informed or less well-motivated. A lesson of this section will be that the causes of short-termism are myriad, and are ideally combated through a variety of reforms targeting different determinants.

The most widely cited epistemic determinants of short-termism involve rational discounting of future impacts because of a lack of information about the future.⁷ When political actors are more uncertain about the possible benefits of an action due to uncertainty about causal mechanisms,⁸ the future state of the world, the preferences of future people, or the security of

⁶ This typology follows Caney 2016 and González-Ricoy and Gosseries 2016.

⁷ Frederick et al. 2002, González-Ricoy and Gosseries 2016, Halevy 2008, Irving 2009, Jacobs and Matthews 2012.

⁸ Jacobs 2011.

political commitments,⁹ the expected value of those actions decreases relative to actions whose benefits materialize in the short-term, which tend to be more certain.¹⁰ Over longer timelines, these problems proliferate, leading to greater discounting. While this discounting is rational, it could be reduced by increasing the availability of high-quality information about the future.

By contrast, *irrational* discounting primarily stems from cognitive biases and attentional asymmetries between the future and the nearby past. Cognitive biases include actors' tendencies to respond more strongly to vivid risks than to information acquired from abstract, general social scientific trends,¹¹ as well as over-optimism about their ability to control and eliminate risks under situations of uncertainty.¹² The attention that political actors pay to the future and to the nearby past are asymmetric because voters and many other political actors "can readily observe past economic performance but have little information about future conditions."¹³ Thus, to economize on cognitive effort, many political actors forego the task of making predictions about the future and choose policies which have worked in the recent past. (As a topical example: when confronted with the novel coronavirus, decision-makers may have assumed that the risks were similar to those posed by SARS and MERS, rather than making forecasts of the potential risks on the basis of the properties of the novel coronavirus itself, such as its basic reproductive number and its case fatality rate.) This both prevents political systems from responding successfully to new challenges and incentivizes electorates to prioritize visible, short-term benefits which constituents will attend to during the next election.

⁹ MacKenzie 2016.

¹⁰ Whether this is the best model of rational longtermist decision-making is not a closed question. For some discussion, see: Askill 2019, Tarsney 2019, Thorstad and Mogensen 2020, Vaeth ms.

¹¹ Caney 2016, Weber 2006: 103-20.

¹² Caney 2016, Johnson and Levin 2009: 1597.

¹³ Jacobs 2016.

The literature on motivational determinants of short-termism has been dominated by discussion of political actors' apparent positive rate of pure time preference (or impatience). While there is little consensus on the strength, shape, and malleability of political actors' time preferences, there is broad consensus that political actors have a positive rate of pure time preference and that this is a significant source of short-termism.¹⁴ Political actors' motivations are also made more short-termist by both self-interest and relational partiality. If political actors act to benefit themselves or their friends, family, or community, they will necessarily privilege the interests of their contemporaries over future citizens, who are neither their friends, family, community, or themselves. Finally, numerous cognitive biases make political actors less motivated to care about the future, including problems of procrastination¹⁵ and invisibility: our tendency to ignore problems that are not directly in front of us.¹⁶

Among institutional determinants of short-termism, election incentives are the most widely discussed.¹⁷ Politicians strongly desire to be re-elected—and parties desire to increase their proximate reputation—motivating them to prioritize policy which results in very near-term, visible benefits for which they can publicly take credit, while hiding or deferring costs. Politicians are also economically dependent on various firms and other bodies, whether for financial support or because they hold enormous economic influence. Where these bodies have short time-frames, they exert pressure on political actors to use short auditing durations as well.¹⁸ And short auditing durations are institutionalized in numerous areas of policy. Performance indicators with short-term goals and positive discount rates, inadequate credit-tracking over

¹⁴ Bidadanure 2016, Frederick, Loewenstein, and O'donoghue 2002, MacKenzie 2016.

¹⁵ Andreou 2007, Andreou and White 2010, Stroud 2010: 51-67.

¹⁶ Caney 2016.

¹⁷ Arnold 1989, Binder 2006, Caney 2016, Mayhew 1974, Tufte 1978. For a contrary view, see Beck 1982.

¹⁸ Caney 2016.

longer time-frames,¹⁹ and budget windows with short time-frames all incentivize political leaders to shift benefits to the short-term and costs into the future.

Beyond auditing incentives, there are also various pressures on careful deliberation. The 24-hour media cycle forces political actors to react and respond to political issues almost instantly. Political polarization significantly detracts from careful, collective deliberation due to the pressures to be uncooperative. Omnibus bills have further deleterious effects on deliberation in that they are passed or rejected long before they can carefully be discussed in full. All of these pressures are particularly harmful on long time-scales where the situation is most epistemically precarious.

The problem of temporal inconsistency also looms large among institutional determinants of short-termism.²⁰ A lack of strong commitment devices to ensure that governments will act on past promises leads to low levels of trust in long-term policy proposals. For voters and elites, levels of trust in government are an important driver of willingness to pay taxes for public goods and services.²¹ When these actors cannot trust governments to act on their past commitments, they will oppose future-beneficial policy promises which might be reneged, as well as investment in future-beneficial policy which might be diverted to other ends. Finally, even when everything else goes well, institutions may simply be too weak to reliably bring about long-run outcomes or they may be plagued by collective action problems that undermine successful coordination.

¹⁹ Binder 2006.

²⁰ Alesina and Tabellini 1988, Jacobs 2016, Persson and Tabellini 1994.

²¹ Chanley et al. 2000, Clinch and Dunne 2006, Hetherington 2005, Simonsen and Robbins 2003.

III. Proposals

Responding to a variety of sources of short-termism across numerous areas and levels of government requires a variety of solutions. To illustrate the kinds of solutions we think would be viable responses to short-termism, and to advocate for particular solutions that we find promising, we focus on four reforms: In-government research institutes and archivists, futures assemblies, posterity impact assessments, and legislative houses for the future. The first three reforms are relatively moderate interventions that we think can be implemented right away, and which have strong evidential support. The last reform is much more tentative, but symbolizes the kinds of radical and highly under-researched reforms we think longtermist political reformers should aspire to over the coming decades and centuries.

*In-government Research Institutions and Archivists*²²

Numerous sources of short-termism can be ameliorated through the production of digestible, widely-available, legitimate, and high-quality information about future trends and the future effects of policy. We therefore propose that existing national governments invest in the creation of many new in-government research institutions with the express purpose of information-gathering and information-sharing about issues of long-term importance. They should be tasked with producing periodic, public reports that (1) chronicle long-term trends, (2) summarize extant research to improve its accessibility by the legislature, (3) analyze the

²² This subsection owes a considerable debt to Caney 2016.

expected impacts of policy, and (4) identify matters of long-term importance that fall outside of the political business cycle.

Various in-government futures research institutions have existed throughout the world, with varying degrees of success, including in the U.S. and Singapore. Singapore's Centre for Strategic Futures has been influential in the civil service, and has improved the nation's receptivity to low-probability, high-impact events, such as global catastrophic risks.²³ The Office of Technology Assessment existed in the U.S. from 1972-95, during which time it produced 750 studies on a broad range of issues from health science to space technology. A 1990 study by the Carnegie Commission on Science, Technology, and Government found that OTA reports were "useful" to "very useful" to 91 percent of congressional staff, and one analysis found that the OTA's 1980s studies on synthetic fuels "helped secure approximately \$60 billion in savings."²⁴ The OTA's elimination by Congress likely had a direct and harmful effect on Congress's ability to think constructively about future problems, and a number of policy-writers and Members of Congress have advocated for reinstating it.²⁵

Well-designed in-government futures research institutions can significantly reduce four major sources of short-termism. They can increase the robustness of long-term policy initiatives by decreasing collective ignorance about the future state of the world and about policy causation, thereby increasing willingness among elites to invest in the long-term. They can reduce irrational discounting due to vividness effects and optimism bias by decreasing the ambiguity and increasing the salience of possible future trajectories. They can increase motivation to act for the long-term among political leaders by bolstering liability mechanisms such as public disapproval

²³ Jones, O'Brien, and Ryan 2018.

²⁴ Bimber 1990, Tudor and Warner 2019.

²⁵ Binder 2006.

and elections through the distribution of information to the general public. Finally, well-designed in-government research institutions are partially insulated from the institutional features that create a short-term “political business cycle,” allowing them to resist pressures to allocate agenda time only to short-term considerations.

The best in-government research institutions will generally be structurally and functionally independent of existing government offices, with the power to set their own research agenda, in order to insulate them from the political business cycle. It may also improve institutional independence to identify researcher selection mechanisms which do not rely on the judgment of politicians, such as by tasking relevant professional associations with selecting researchers. The institutions must be given a very broad mandate—to report on all matters of long-term importance—both to ensure comprehensiveness and to give them the flexibility to adapt to changing circumstances over long periods of time. They should continuously engage with relevant academics and professionals from a range of backgrounds through incoming visits, paid consultancies, interviews, and events. Successful institutions might further be empowered to require reading and response from the legislature, ensuring that their advice is not ignored. Finally, in-government research institutions must work to improve the absorptive capacity of government, identifying and improving ways of summarizing and packaging expertise so that it is readily usable for governmental decision-making.²⁶

²⁶ Tudor and Warner 2019.

To reduce the damaging influence of polarization, short-term institutional incentives, and motivational failures, we propose the creation of a novel representative, deliberative, and future-oriented body: the futures assembly. Futures assemblies are permanent citizens' assemblies with an explicit mandate to represent the interests of future generations. As citizens' assemblies, they are deliberative bodies of citizens who are randomly selected from the populace to provide non-binding advice to the national government on issues of long-term importance.

While no government has ever instituted a futures assembly similar to what we propose, citizens' assemblies have been employed for consultation and information-gathering purposes throughout the world. One of the most high-profile such initiatives was Ireland's 100-member Citizens' Assembly, which was established in 2016 and tasked with considering questions related to abortion, fixed term parliaments, referenda, population ageing, climate change, and gender equality. The deliberations of the Irish assemblies provoked a referendum to remove Ireland's constitutional ban on abortion and substantially shaped Ireland's Climate Action Plan.²⁷ The UK government's Select Committees have used citizens' assemblies on several occasions, most recently hosting a 110-member citizens' assembly designed to explore public views on strategies for reaching net zero emissions by 2050.²⁸

Such real-world experiments, along with armchair evidence and a growing literature of "laboratory" experiments suggest the promise of futures assemblies. Like in-government research institutes, futures assemblies would combat short-termism by providing permanent

²⁷ Coleman *et al.* 2019.

²⁸ At the time of writing, these deliberations are not yet complete.

allocated agenda time to the consideration of the long-term future, providing a deliberative policy environment that is insulated from short-term institutional pressures. Because futures assemblies are explicitly tasked with the sole mandate of producing recommendations on behalf of future generations, we should expect that they will be much more long-term-focused than ordinary citizens.²⁹ While research institutes excel at producing high-quality information, citizens' assemblies excel in three other areas. First, because membership in a citizens' assembly does not depend on election or successful fundraising, citizens' assemblies can almost completely eliminate short-term incentives from elections, party interests, and campaign financing. Second, citizens' assemblies have a demonstrated aptitude for reducing partisan polarization and creating areas of consensus on matters of great uncertainty and controversy to enable timely government action.³⁰ Third, citizens' assemblies are statistically representative of the populace, positioning them uniquely to serve as a legitimate voice for the people. As a consequence, recommendations from futures assemblies will have an authority close to that of a consensus statement from the general population. Governments can ignore their recommendations only at a costly risk to their reputations.

The most promising futures assemblies would be relatively large (50-250 members) to ensure demographic representativeness and resistance to corruption from interests groups. To further aid against corruption and ensure representativeness and minimal resignations, assembly members should be paid a high salary, for example commensurate with the typical salary for members of the national legislative body. Assembly members should be empowered to call upon relevant experts, and to convene expert summits on matters of long-term importance. Full-time

²⁹ There is some empirical evidence for this hypothesis in the literature on Deliberative voting (Aoki and Vaithianathan 2012) as well as in the literature on sociological institutionalism (Goodin 1995, Ch. 9).

³⁰ Fishkin and Luskin 2005, Fishkin *et al.* 2017, List *et al.* 2013.

terms should be long enough for assembly members to build expertise but short enough to guard against disruptiveness and interest group capture, which we suggest is about two years. Ideally, assemblies would be empowered to set their own policy agenda, to further prevent capture by government interests, and their deliberations would achieve a very high level of publicity, to better enshrine their recommendations as legitimate and informally binding on the legislature.

Posterity Impact Statements

Posterity impact statements provide another strong mechanism for creating political liability and gathering high-quality information about the long-run effects of policy. These reports are functionally an extension of the environmental impact statements required by many governments for policy proposals with a potentially adverse impact on the environment. Our proposal is to require posterity impact statements on all proposed legislation with significant effects that occur beyond the ordinary 2-4 year policy window.

Environmental impact assessments (EIAs) are required throughout North America, Europe, and Australia. They are required of militaries,³¹ developers,³² state and local agencies,³³ and national governments.³⁴ Typically, EIAs are required when certain triggering conditions are met, such as when an action is likely to impact water, heritage sites, and other environmentally-zoned areas. As part of the EIA, the party assessed must identify and commit to a plan for reducing the adverse environmental impact of their actions. If the party fails to conduct

³¹ Code of Federal Regulations 32 U.S.C. § 651.42

³² Gov.UK 2014.

³³ California Public Resources Code § 21000 et seq.

³⁴ *Friends of the Oldman River Society v. Canada (Minister of Transport)* [1992] 1 S.C.R. 3 (1992).

an accurate EIA or to make good on their mitigation plan, they can be held legally liable for environmental damages.

While posterity impact assessments (PIAs) are a much newer idea, they are not entirely without precedent. The UK's 2020 Well-being of Future Generations Bill, started in the House of Lords by Lord John Bird, requires all public bodies to "(a) publish an assessment ("future generations impact assessment") of the likely impact of the proposal on its well-being objectives, or (b) publish a statement setting out its reasons for concluding that it does not need to carry out a future generations impact assessment" upon proposing any change in public expenditure or policy.³⁵ The impact statements must assess the impact of policy on "all future generations... at least 25 years from the date" of publication, and include a statement of how any adverse impacts will be mitigated.

PIA requirements combat uncertainty about policy causation by requiring legislators to thoroughly research and publicize the long-term effects of their proposed policy for the opposing political party to scrutinize. They also hold legislators liable for the long-term effects of their decisions. Depending on the scheme, the associated liability mechanism can be "soft" in that it relies only on informal punitive and reward mechanisms, such as the embarrassment associated with putting forward a bill with harmful long-term effects, or it can be "hard" in that it is backed by formal sanctions, such as the requirement that legislators pay an insurance premium to cover expected damages. Both hard and soft liability mechanisms impose costs on legislators putting forward bills with adverse long-term effects, and so incentivize policy-makers to be proactive about mitigating long-term harms. Ideally, they would also reward legislators putting forward

³⁵ *Well-being of Future Generations Bill*, HL Bill 15, 2019-2020.

bills with beneficial long-term effects, since these benefits may otherwise be unknown to legislative proponents or covered up by detractors. One simple such mechanism would allow expected benefits to offset a bill's expected future costs.

Posterity impact statement requirements should have triggering conditions and enforcement mechanisms which ensure that they are required in any conditions where posterity is affected, positively or negatively. The bill in front of the House of Lords ensures that PIAs are triggered on appropriate occasions by making them universally required, but there are various other triggering conditions that may suffice: PIAs could be required on submajority vote of the legislature, or upon order of a court. Ideally, PIA policy should require a zero rate of pure time preference and an open-ended assessment period. Significant impacts on future generations should not be treated as null merely because they are centuries away; we should ignore these effects only when there is no reason to think they are more likely on the proposed policy than its alternative.

Legislative Houses for Future Generations

The three reforms just proposed have been relatively moderate, soft-power political reforms with payoffs that are potentially quite large. The reason for this is straightforward: moderate, soft-power reforms can feasibly be implemented immediately and have a lower likelihood of being repealed when the government changes hands. The recent examples of Hungary's (2008-2012) and Israel's (2001-2006) Commissioners for Future Generations suggest that more powerful institutions that hold veto or other similarly decisive powers are currently too

partisan to survive an election cycle.³⁶ To pave the way for the powerful and energetic future-oriented institutions that longtermism recommends, we may first need to engage in more modest reform efforts to signal the importance of the long term, and lay the groundwork for more vigorous possibilities.

Over the coming decades and centuries, however, longtermists should consider much stronger institutional reforms that can transform governments into the kinds of institutions that can positively shape the future on very long timescales. While it is currently difficult to imagine exactly what sorts of institutions could do this, we propose one possibility: an upper house in the legislative branch of government devoted exclusively to the well-being of future generations.

In the system we envision, bicameral national legislatures would be constituted by a lower house focused on attending to the interests of the people who exist today and an upper house focused on attending to the interests of all future generations. Legislation may be proposed in either house, but must be passed by both houses to become law. Thus, each house would provide a check on the other, ensuring that neither future-oriented nor present-focused legislation can be dominant. A strong constitution providing basic rights and freedoms to both presently-existing and future people would provide another strong backstop against the tyranny of either house.

Two major questions are relevant to the design of a successful legislative house for future generations: who serves?, and how do we ensure they have the right incentives? While we cannot provide conclusive answers to these questions, we have some preliminary ideas about what design might work well. Random selection of legislators from among voting-eligible citizens

³⁶ Jones, O'Brien, and Ryan 2018.

may provide the best mechanism for deciding who serves, given its aforementioned elimination of short-term incentives from elections, party interests, and campaign financing, as well as its ameliorative effects on industry corruption and partisan polarization. A subset of the legislators might be selected at random from among eligible experts, stratified by area of expertise, in order to ensure technocratic competence across a range of issues.

To ensure that the House has the right incentives, we suggest three further mechanisms. First, the House should have objective and concrete long-term performance metrics which are set in close deliberation between the House and an informed and non-partisan body, such as an independent research institution for future generations. These metrics should be updated regularly to correct for prediction errors and new developments. Second, the sole constitutional mandate of the House should be to set and pursue the achievement of long-term performance metrics. This would have some effect on the way House legislators conceive of their work and on the kinds of public justifications they can offer for their actions: any justification given to the media or in proposed legislation must cite concrete performance metrics. Third, the House should employ backwards pensioning: the pensions of House legislators should be determined some specified number of decades in the future, based on the House's long-term impacts. One obvious way of evaluating the House's impacts is by the extent to which objective performance metrics have been satisfied in the decades after their rule. An alternative evaluation mechanism would adjust pensions based on the retrospective attitudes of the future generations house in power at that future time. In this case, the reward scheme could have an intergenerational chaining effect. In deciding the pensions of past legislators, each house would be incentivized to consider how their pension choice will be evaluated by those who will in turn reward them,

decades into the future, thus providing incentives for every house to consider the very long-term impacts of their decisions. Regardless of how pensions are decided retrospectively, the mechanism suggests an age limit on selected legislators to make it probable that they each live long enough to collect and enjoy their adjusted pensions.

This proposed reform is speculative, and to work effectively it would require both robust future-oriented research institutions and a long-term-orientated culture stronger than we find in any modern nation. Nonetheless, we hope that it symbolizes the kinds of powerful and imaginative political reforms that we should aspire to in the years ahead, and serves as fodder for much-needed additional research on longtermist institutional reform.

IV. Future Directions

We have proposed several longtermist institutional reforms that can be implemented in the near-term future—in-government research institutions and archivists, futures assemblies, and posterity impact statements—and we have gestured at the more radical (but we think entirely warranted) reform of even having a separate, future-oriented division of government.

While the reforms proposed are significant, and will help to put society on a better long-term trajectory, we see this discussion as being merely a first step on a long path toward truly longtermist political institutions. The movement for longtermist political reform will require substantial advocacy, but it will also require substantially more research. Other promising possibilities which require further research include longer election cycles to reduce perverse

election incentives,³⁷ novel commitment mechanisms to enable longer-term decision-making, extra votes for parents to use on behalf of their children (or “Demeny voting”),³⁸ taxation for long-run negative and positive externalities, and broader long-term pay-for-performance incentive schemes such as tying public pensions to national performance. Because the literature on political short-termism is young and still relatively conservative, there are likely to be many more promising possibilities that we have not yet uncovered.

The indeterminacy of the future and the complexity of policy systems can cause a sense of vertigo when considering the possibility of longtermist institutional reform. But the sorts of societal change that the more enlightened of our forebears envisaged—the suffrage of women and people of colour, or the protection of the natural environment—must have seemed no less giddy. Even if future generations can never truly participate in our political system, through progressive changes to our political institutions we may one day yet give them the consideration that they deserve.

³⁷ Dal Bó and Rossi 2008, Dal Bó and Rossi 2011, Titunik 2015.

³⁸ Aoki and Vaithianathan 2012, Kamijo *et al.* 2019, Vaithianathan *et al.* 2013.

References

- Alesina, Alberto and Guido Tabellini. "Credibility and Politics." *European Economic Review* 32, no. 2-3 (1988): 542-550.
- Andreou, Chrisoula. "Environmental Preservation and Second-order Procrastination." *Philosophy and Public Affairs* 35, no. 3 (2007): 233-248.
- Andreou, Chrisoula and Mark D. White, eds. *The Thief of Time: Philosophical Essays on Procrastination*. Oxford University Press, 2010.
- Aoki, Reiko and Rhema Vaithianathan. "Intergenerational Voter Preference Survey-Preliminary Results." (2012). Hitotsubashi University Repository.
- Arnold, R. Douglas. *The Logic of Congressional Action*. Yale University Press, 1990.
- Askell, Amanda. "Evidence Neutrality and the Moral Value of Information." In *Effective Altruism: Philosophical Issues*, eds. Hilary Greaves and Theron Pummer. Oxford University Press, UK (2019): 37-52.
- Beck, Nathaniel. "Does There Exist a Political Business Cycle: A Box-Tiao analysis." *Public Choice* 38, no. 2 (1982): 205-209.
- Berkowitz, Leonard and Nigel Walker. "Laws and Moral Judgments." *Sociometry* (1967): 410-422.
- Bidadanure, Juliana. "Youth Quotas, Diversity, and Long-termism: Can Young People Act as Proxies for Future Generations?" In *Institutions for Future Generations*, eds. Iñigo González-Ricoy and Axel Gosseries. Oxford University Press, UK (2016): 266-281.
- Bilz, Kenworthy and Janice Nadler. "Law, Psychology, and Morality." *Psychology of Learning and Motivation* 50 (2009): 101-131.
- Bimber, B. "Congressional Support Agency Products and Services for Science and Technology Issues: A Survey of Congressional Staff Attitudes about the Work of CBO, CRS, GAO, and OTA." (1990) Paper prepared for the Carnegie Commission on Science, Technology, and Government.
- Binder, Sarah A. "Can Congress Legislate for the Future?" In *John Brademas Center for the Study of Congress, New York University, Research Brief*, no. 3. 2006.
- Caney, Simon. "Political Institutions for the Future: A Five-fold Package." In *Institutions for Future Generations*, eds. Iñigo González-Ricoy and Axel Gosseries. Oxford University Press, UK (2016): 135-155.

- Chanley, Virginia A., Thomas J. Rudolph, and Wendy M. Rahn. "The Origins and Consequences of Public Trust in Government: A Time Series Analysis." *Public Opinion Quarterly* 64, no. 3 (2000): 239-256.
- Clinch, J. Peter and Louise Dunne. "Environmental Tax Reform: An Assessment of Social Responses in Ireland." *Energy Policy* 34, no. 8 (2006): 950-959.
- Coleman, Martha, Laura Devaney, Diarmuid Torney, and Pat Brereton. "Ireland's World-leading Citizens' Climate Assembly. What Worked? What Didn't?" *Climate Home News*. 27 June, 2019,
<https://www.climatechangenews.com/2019/06/27/irelands-world-leading-citizens-climate-assembly-worked-didnt/>
- Dal Bó, Ernesto and Martín Rossi. *Term Length and Political Performance*. No. w14511. National Bureau of Economic Research, 2008.
- Dal Bó, Ernesto and Martín Rossi. "Term Length and the Effort of Politicians." *The Review of Economic Studies* 78, no. 4 (2011): 1237-1263.
- Fishkin, James S., and Robert C. Luskin. "Experimenting with a Democratic Ideal: Deliberative Polling and Public Opinion." *Acta Politica* 40, no. 3 (2005): 284-298.
- Fishkin, James S., Roy William Mayega, Lynn Atuyambe, Nathan Tumuhamy, Julius Ssentongo, Alice Siu, and William Bazeyo. "Applying Deliberative Democracy in Africa: Uganda's First Deliberative Polls." *Daedalus* 146, no. 3 (2017): 140-154.
- Flores, Andrew R. and Scott Barclay. "Backlash, Consensus, Legitimacy, or Polarization: The Effect of Same-sex Marriage Policy on Mass Attitudes." *Political Research Quarterly* 69, no. 1 (2016): 43-56.
- Frederick, Shane, George Loewenstein, and Ted O'donoghue. "Time Discounting and Time Preference: A Critical Review." *Journal of Economic Literature* 40, no. 2 (2002): 351-401.
- Greaves, Hilary and William MacAskill. *The Case for Strong Longtermism*. No. 7-2019. Global Priorities Institute Working Paper Series. GPI Working Paper, 2019.
- González-Ricoy, Iñigo and Axel Gosseries. "Designing Institutions for Future Generations." In *Institutions for Future Generations*, eds. Iñigo González-Ricoy and Axel Gosseries. Oxford University Press, UK (2016): 3-23.
- Goodin, Robert E. *Utilitarianism as a Public Philosophy*. Cambridge University Press, 1995.

- Gov.UK. "Guidance: Environmental Impact Assessments." 6 March 2014, <https://www.gov.uk/guidance/environmental-impact-assessment>.
- Halevy, Yoram. "Strotz Meets Allais: Diminishing Impatience and the Certainty Effect." *American Economic Review* 98, no. 3 (2008): 1145-62.
- Hetherington, Marc J. *Why Trust Matters: Declining Political Trust and the Demise of American Liberalism*. Princeton University Press, 2005.
- International Monetary Fund. General Government Total Expenditure, 2015-2022. *World Economic Outlook Database*, April 2017.
- Irving, Kym. "Overcoming Short-Termism: Mental Time Travel, Delayed Gratification and How Not to Discount the Future." *Australian Accounting Review* 19, no. 4 (2009): 278-294.
- Jacobs, Alan M. "Policy Making for the Long Term in Advanced Democracies." *Annual Review of Political Science* 19 (2016): 433-454.
- Jacobs, Alan M. and J. Scott Matthews. "Why Do Citizens Discount the Future? Public Opinion and the Timing of Policy Consequences." *British Journal of Political Science* (2012): 903-935.
- Johnson, Dominic and Simon Levin. "The Tragedy of Cognition: Psychological Biases and Environmental Inaction." *Current Science* (2009): 1593-1603.
- Jones, Natalie, Mark O'Brien, and Thomas Ryan. "Representation of Future Generations in United Kingdom Policy-making." *Futures* 102 (2018): 153-163.
- Kamijo, Yoshio, Teruyuki Tamura, and Yoichi Hizen. "Effect of Proxy Voting for Children under the Voting Age on Parental Altruism Towards Future Generations." *Futures* 122, (2020).
- Kamijo, Yoshio, Yoichi Hizen, and Tatsuyoshi Saijo. "Hearing the Voice of Future Generations: A Laboratory Experiment of Demeny Voting." *Social Design Engineering Series* (2015).
- List, Christian, Robert C. Luskin, James S. Fishkin, and Iain McLean. "Deliberation, Single-peakedness, and the Possibility of Meaningful Democracy: Evidence from Deliberative Polls." *The Journal of Politics* 75, no. 1 (2013): 80-95.
- MacKenzie, Michael K. "Institutional Design and Sources of Short-termism." In *Institutions for Future Generations*, eds. Iñigo González-Ricoy and Axel Gosseries. Oxford University Press, UK (2016): 24-48.
- Mayhew, David R. *Congress: The Electoral Connection*. Yale university press, 1974.

- Persson, Torsten and Guido Enrico Tabellini. *Monetary and Fiscal Policy. Vol. 1, Credibility*. MIT Press, 1994.
- Simonsen, Bill and Mark D. Robbins. "Reasonableness, Satisfaction, and Willingness to Pay Property Taxes." *Urban Affairs Review* 38, no. 6 (2003): 831-854.
- Stroud, Natalie Jomini. "Polarization and Partisan Selective Exposure." *Journal of Communication* 60, no. 3 (2010): 556-576, 51-67.
- Tankard, Margaret E. and Elizabeth Levy Paluck. "Norm Perception as a Vehicle for Social Change." *Social Issues and Policy Review* 10, no. 1 (2016): 181-211.
- Tankard, Margaret E. and Elizabeth Levy Paluck. "The Effect of a Supreme Court Decision Regarding Gay Marriage on Social Norms and Personal Attitudes." *Psychological Science* 28, no. 9 (2017): 1334-1344.
- Tarsney, Christian. "The Epistemic Challenge to Longtermism." No. 10-2019. Global Priorities Institute Working Paper Series. GPI Working Paper, 2019.
- Thorstad, David and Andreas Mogensen. "Heuristics for Clueless Agents: How to Get Away with Ignoring what Matters Most in Ordinary Decision-making." No. 2-2020. Global Priorities Institute Working Paper Series. GPI Working Paper, 2020.
- Titunik, Rocío and Andrew Feher. "Legislative Behaviour Absent Re-election Incentives: Findings from a Natural Experiment in the Arkansas Senate." (2018). *Journal of the Royal Statistical Society: Series A*, 181(2): 351-378, 2018.
- Tufte, Edward R. *Political Control of the Economy*. Princeton University Press, 1978.
- Tyler, Tom R. *Why People Obey the Law*. Princeton University Press, 2006.
- Väth, Martin, "Discounting the Future for Epistemic Reasons," ms.
- Walker, Nigel and Michael Argyle. "Does the Law Affect Moral Judgments?." *The British Journal of Criminology* 4, no. 6 (1964): 570-581.
- Warner, Justin and Grant Tudor. "The Congressional Futures Office." Paper, Belfer Center for Science and International Affairs, Harvard Kennedy School, May 2019.
- Weber, Elke U. "Experience-based and Description-based Perceptions of Long-term Risk: Why Global Warming Does not Scare Us (Yet)." *Climatic Change* 77, no. 1-2 (2006): 103-120.

World Fact Book 2020, The. "Field Listing: Budget." Washington, DC: Central Intelligence Agency, 2020.

<https://www.cia.gov/library/publications/the-world-factbook/fields/224.html>