



EDITORIAL

Introduction to the Special Issue: Perspectives on the Economics of Climate Change

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I first began teaching the economics of climate change to undergraduate students in 2008, shortly after the publication of the *Stern Review on the Economics of Climate Change*, which offered a stark warning about the severe consequences of inaction. Back then, the global land-and-ocean annual temperature anomaly was about 0.5°C above the historical baseline (National Centers for Environmental Information [NCEI], n.d.). Today, that figure is approaching 1.5°C. Over those years, climate change has moved from being a growing concern to a global reality, with increasingly visible economic, social, and ecological consequences. Despite decades of negotiations and policy pledges, emissions trajectories continue to diverge from climate targets (*Future Earth: A Student Journal on Sustainability and Environment*, 2026). It is now an economic reality, climate change is causing losses to production and consumption, as well as the destruction of manmade infrastructure and our natural assets. Climate change is not only an intergenerational justice issue, but also an intragenerational one, whereby the largest emitters disproportionately harm nations that have contributed the least to the problem (Strantz and Tsigaris, 2026). Climate change is reshaping how societies value forests, wetlands,



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fisheries, and biodiversity; how governments respond to disasters and to insurance failures; how nations negotiate cooperation; and how economists think about time and uncertainty. The economics of climate change is therefore not a narrow subfield. It is a meeting place for ecological and environmental economics, welfare economics, law and economics, political economy, and moral philosophy.

This special issue, *Perspectives on the Economics of Climate Change*, emerges from that long teaching experience and from an ongoing effort to engage undergraduate students directly in the economic analysis of climate change. It is the second major publication project to grow out of this course. The first resulted in a student-authored book, prepared at a time when a journal outlet was not yet available (Tsigaris et al., 2025). This issue builds on that earlier initiative by offering a new collection of undergraduate perspectives on climate change, economic reasoning, and public policy.

The special issue is the outcome of a semester-long project in which my undergraduate students, drawn from various fields of study including economics, business, tourism, political studies, geography, and natural resource science, applied economic reasoning to one of the defining challenges of our time. The project was shaped by a formalized journal-style review process in which students revised their work in response to detailed feedback by me, much like authors responding to peer review (Tsigaris, 2021). Their diverse academic backgrounds helped shape the range of topics explored in this issue, from wetlands and fisheries to wildfire risk, biodiversity, and climate justice, while also highlighting how climate change pushes economics beyond familiar market boundaries. Students were invited not simply to summarize the existing literature, but to conduct research and identify questions of value, trade-offs, policy failure, institutional design, and justice. The result is a collection of concise, thoughtful, and often ambitious commentaries that demonstrates how undergraduate researchers can engage seriously with contemporary climate debates. I also learned a great deal from their research, as their diverse academic backgrounds brought forward rich insights that extended well beyond the conventional boundaries of economics.

A major theme running through the issue is the problem of collective action. Climate stability is a global public good, yet incentives to protect it remain weak, uneven, and politically motivated. Ryleigh Adams captures this clearly in *Canada's Free-Rider Problem in Mitigating Climate Change*, observing that "Amongst many other nations, Canada continues to act in its self-interest as a free-rider in global climate mitigation efforts." A similar concern appears in Lily Ricle Carrera and Katherine Flores's *Why International Climate Agreements Are Hard to*

Enforce, where they note that “international climate agreements aim to coordinate global action on climate change, yet most have struggled to deliver meaningful emissions reductions.” They go further by recommending the creation of “a global governing body capable of providing global public goods (e.g., climate stability, pandemic prevention, biodiversity protection, and deep ocean/space governance),” a proposal I find both compelling and necessary considering the scale of contemporary global challenges. These two contributions highlight the collective-action problem of climate stability as a global public good: because the benefits of mitigation are non-excludable and non-rival, governments acting in their own national self-interest have an incentive to free ride. The missing link is a global institution capable of designing policies that better align incentives.

A second theme is the time dimension. Climate policy forces societies to confront the value of the future and, in doing so, exposes moral questions within economic analysis. Valentine Bulgarelli’s *Why Future Generations Deserve Equal Moral Consideration* states the issue directly: “climate policy makes societies confront a difficult question: How much should the well-being of future generations matter compared to our own?” This question lies at the heart of discounting, cost-benefit analysis, and climate action. Bulgarelli goes on to state that “we should think of climate action like buying insurance to protect ourselves against potentially irreversible future harms.” A related concern appears in Fatema Tasnim’s *Intergenerational Inequality From Climate Inaction*, which argues that when governments delay climate action, they shift the costs of climate damage onto young people and future generations. Tasnim reminds us that climate inaction is not only environmentally damaging, but also unfair across generations. The time dimension also reappears, in a more applied form, in Avery Sigurdsson and Talon Zakall’s *Wetlands: A Natural Defense Against Climate-Induced Flooding*, which shows that protecting natural systems today can reduce climate damages borne by communities tomorrow. Their research reveals that “wetlands play a crucial role in reducing the impacts of climate-induced flood damage and are a vital resource to humans as we navigate the uncertainty of climate change.” Together, these papers show that intergenerational responsibility is embedded in present-day choices about mitigation, adaptation, conservation, and risk reduction.

Questions of justice also animate this issue. In *Climate Change as a Global Externality: Those Who Contribute Least Suffer Most*, Sean Kite, Tendekai Kativhu, and Solomon Zawe argue that “low-income nations, which are responsible for only a small portion of the world’s carbon dioxide emissions, suffer the worst economic, social, and environmental effects of climate change.” The asymmetry between responsibility and harm is central to climate justice

debates and cannot be ignored in economic analysis. This concern carries over into *Financing Adaptation in Vulnerable Nations: Who Pays?*, where Nicolas Molina and Sofía Cartagena argue that wealthy nations should finance adaptation in vulnerable countries, not as charity, but as accountability. Their commentary shows that the current adaptation finance system often fails to support those most at risk, while catastrophe bonds may offer one possible, though imperfect, tool for financing climate resilience. Malina Willick's *The Economic Impact of Climate Lawsuits on Fossil Fuel Firms* turns to the legal sphere, beginning from the observation that "climate lawsuits targeting fossil fuel companies have been increasingly common across the globe." Her contribution shows that courts are becoming an increasingly important arena for assigning responsibility and testing whether economic actors can be held accountable for the damages associated with fossil-fuel dependence. By bringing to our attention seven court cases, she concludes that "...litigation not only penalizes harmful practices but also helps redefine the economic boundaries within which fossil fuel firms must operate."

Another set of papers challenges us to rethink what standard economic models capture, and what they omit. Aravna Lucsama's *Underestimating the Social Cost of Carbon* argues that "the social cost of carbon is underestimated because economic models systematically omit key climate damages." This critique goes to the core of climate policy, because if the value of damages is underestimated, then mitigation efforts are likely to be insufficient as well. Lucsama concludes by stating that "the persistent undervaluation of the social cost of carbon stems from incomplete modeling, problematic discounting practices, and unequal global impacts." Kathleen Moore raises a related challenge in *The Effects of Climate Change on Biodiversity: How Anthropocentric Climate Frameworks Undervalue Animal Welfare Losses*, writing that "climate change policy and economic analysis are overwhelmingly centred on human welfare." Her recommendation is to integrate "a biocentric perspective into economic decision-making allowing climate policy to account more fully for the losses experienced by non-human species and help us to save the natural world." Both pieces push economics beyond narrow conventions and force readers to ask what is counted, whose losses matter, and how harms that remain largely invisible to humans can shape supposedly objective policy tools.

Several contributions also focus on the non-market value of ecological systems, emphasizing that climate-relevant resources are routinely undervalued because markets fail to register their full social benefits. Micah Lowen's *Evaluating the Non-Market Value of Pacific Salmon: Why Current Water Withdrawals in the Salmon River Are Economically Unsustainable* argues that "Pacific salmon are foundational to the ecological, cultural, and economic fabric of

British Columbia, yet their value is profoundly understated in resource management decisions.” Lowen conducts an economic assessment showing that reallocating 10,000 m³ of water from agriculture to salmon habitat protection may impose modest private losses on irrigators, but even a small increase in returning salmon would generate public benefits that more than offset those costs. Olivia Simms, in *The Case for Greater Funding of B.C. Provincial Parks*, similarly writes that “the true net social value of protected areas is far greater” than conventional accounting suggests. The evidence Simms provides “suggests that public parks should be understood not merely as leisure hubs, but as multi-dimensional assets that generate substantial ecological, social, and economic value.” Becca Porrier extends this insight in *The Economic Role of Wetlands in Climate Change Mitigation*, noting that “Canada’s wetlands act as an important carbon sink, directly mitigating the effects of climate change, and should be conserved as a highly valuable resource.” Mackenzie Miller’s *Investigating the Economic Impact of Climate Change on B.C.’s Freshwater Fisheries* highlights the vulnerability of fisheries that sustain “recreational angling, tourism, and Indigenous food sovereignty.” She concludes that the preservation of the fish populations “in a climate-altered world is an investment in provincial economic stability, as well as reconciliation and biodiversity conservation.” The papers show the value of ecosystem services provided by natural assets, including their cultural value.

Rising climate risks form another major cluster in the issue. Logan Forman and Liam O’Beirne’s *The Economic Impacts of Wildfires in British Columbia* emphasizes that wildfires now “generate a cascading financial burden on the people and industries located in British Columbia.” They estimate that wildfires cost British Columbia about \$7.64 billion from 2018 to 2024, or roughly \$1,530 per resident in 2024 dollars. Jackson Weeber, in *Cost-Benefit Analysis of Fire-Resilient Home Retrofitting*, narrows the focus to the household level and finds that “investing in residential wildfire resilient retrofits is a cost-effective strategy for preventing home loss during these disasters, lowering ignition risk, and offering a high return per dollar spent.” Jackson shows that wildfire protection does not have to be expensive, as a basic FireSmart action plan provides the highest benefit-cost ratio despite offering less protection than more costly retrofit levels. Emerson Goodall broadens the geographic scope in *The Rising Economic Costs of Extreme Weather in a Warming United States*, showing that “extreme weather events in the United States (U.S.) result in significant economic costs, and these costs have been progressively increasing as the climate warms and storms become more devastating.” Her conclusion is supported by the unusually high tornado activity of 2025 and severe climate conditions continuing into early 2026 (NOAA National Centers for Environmental Information [NCEI], 2025, 2026).

The issue also includes important reflections on how climate change is exposing the limits of conventional responses, whether in mitigation, technological adaptation, or insurance markets. Balthazar Bellion's *Afforestation and Reforestation as Cost-Effective Mitigation Tools* argues with urgency that "afforestation and reforestation are more than cost-efficient mitigation tools. They are essential for humanity's survival." Mansieve Mahmood's *IPAT, Emissions Drivers & Economic Growth: Technology Alone Won't Solve Climate Change* offers a warning against technological complacency, arguing that "technological development alone is insufficient to offset the combined effects of expanding population and economic expansion." Tinomuda Renee Nherudzo's *Insuring the Future: Catastrophe Bonds* then explores what happens when climate volatility strains conventional insurance systems, beginning from the claim that "climate change is exposing the limits of insurance markets," and presents catastrophe bonds as a financial mechanism for compensating property losses after climate-related disasters. These commentaries show that climate change is exposing the inadequacy of business-as-usual approaches, whether in land use, technological development, or insurance markets, and is forcing societies to think more creatively about resilience and long-term protection.

What is especially encouraging about this collection is that the students do not treat economics simply as a technical toolbox, but as a framework for asking difficult questions about value, trade-offs, responsibility, and justice. They use it to ask how we should value the future, how we compare visible and invisible losses, how we think about justice across countries and generations, and how we design better institutions to deal with the global challenges. Whether discussing free-riding, discounting, litigation, salmon, parks, wildfire retrofits, catastrophe bonds, or biodiversity loss, the students show a willingness to apply economic reasoning while also questioning its conventional limits. What surprised me in this collection is that several students refuse to treat nature merely as a backdrop to human welfare. They bring forward the voices of nature and the often-overlooked welfare of non-human animals, a concern expressed most directly in Kathleen Moore's critique of anthropocentric climate frameworks.

This special issue is therefore both the result of sustained undergraduate research and an invitation. It invites readers to see climate change not as a single policy problem, but as a field of interconnected economic questions. It also invites us to take undergraduate scholarship seriously. These commentaries demonstrate intellectual curiosity, analytical effort, and a willingness to confront the complexity of climate change with both rigor and imagination. If there is a common thread across the issue, it is this: climate change forces economics to become broader, and more attentive to the values and institutions that markets alone cannot protect. I

am very proud of my students for the seriousness, creativity, and intellectual courage they brought to this work.

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