Transitions Review

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The Fiscal Wall: What the Paris Agreement Could Transform, and What It Couldn't

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Abstract

Did the Paris Agreement alter the trajectory of decarbonisation, or did it merely formalise changes already underway? Using thirty-five years of data from nineteen advanced economies, this paper shows that the Agreement produced genuine, but incomplete, structural change. Structural-break analysis of emissions, innovation, climate finance, and consumption identifies three enduring economic relationships that shifted after Paris. A fourth did not. The relationship between a donor country's domestic emissions trajectory and the volume of bilateral climate finance it provides remained unchanged. Domestic emissions continue to shape international climate finance despite the Agreement's global commitments. The findings suggest that the Paris Agreement transformed aspects of domestic decarbonisation but did not overcome the fiscal politics that govern international climate finance.

Keywords: Paris Agreement · climate finance · structural change · directed innovation · fiscal capacity · foreign aid procyclicality · climate governance · institutional design

1. The Hedge Every Climate Economist Gives

Ask a climate economist whether the Paris Agreement worked and the answer is often qualified. Emissions in many signatory countries have fallen. Green patenting has increased. Renewable energy has expanded far faster than expected in 2015. Yet none of these developments demonstrates that the Paris Agreement caused the transformation. They are equally consistent with a different explanation. Advanced economies were already decarbonising, and Paris merely formalised a transition that was already underway. This paper addresses that ambiguity by asking a simple question: Did the Paris Agreement change the trajectory of decarbonisation, or did it simply reinforce existing trends? Rather than assuming that Paris marked the turning point, I allow the data to determine whether and when structural change occurred. Using panel structural-break methods for nineteen advanced OECD economies over 1990 - 2025, I identify two endogenous break points [3, 4].

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The first occurs in 1995. It reflects the post-Soviet industrial restructuring, a shock large enough to alter the joint evolution of emissions, innovation, climate finance, and consumption across advanced economies. The second occurs in 2018, with a two-year confidence interval centred on the period when Paris Agreement commitments began to move from political commitments to implementation through expanded carbon pricing, national research and development programmes, and climate-finance mechanisms supporting Nationally Determined Contributions (NDCs). The evidence points to genuine structural change after Paris. However, it also reveals a clear boundary to that change. Three long-standing economic relationships shifted after 2018, consistent with the Agreement's objectives. One did not. The relationship between a donor country's domestic emissions trajectory and the volume of bilateral climate finance it provides remained essentially unchanged. Countries continued to adjust international climate finance in response to domestic emissions pressures much as they had before Paris. This asymmetry is the paper's main finding. The Paris Agreement appears to have reshaped domestic decarbonisation but not the fiscal politics that underpin international climate finance. The findings therefore raise a broader question. Can voluntary climate agreements transform the domestic political economy that governs international climate finance, or do those fiscal constraints remain largely beyond the reach of multilateral cooperation?

2. Three Things Paris Transformed

The channel that went quiet: Emissions no longer punish innovation

Before 2018, higher emissions were followed by lower innovation. The relationship was large and statistically robust. It is consistent with an economic environment in which emissions-intensive production and innovation competed for scarce investment resources. After 2018, that relationship disappeared. The change is consistent with the theory of directed technical change [1]. As green innovation policies became more institutionalised through mission-oriented R&D programmes, patent incentives, sector-specific support, and environmental regulation, firms no longer faced the same trade-off between emissions compliance and innovation. Public policy increasingly rewarded low-carbon innovation directly rather than relying only on carbon pricing to induce technological change. This finding is important because it marks a structural break in a relationship that remained stable for almost three decades. Although the analysis cannot attribute the change to a single policy, its timing closely matches the implementation of Paris-aligned innovation policies. The evidence suggests that the Agreement's most enduring legacy may have been to change the conditions under which low-carbon innovation occurs rather than simply to accelerate decarbonisation.

The channel that switched on: Tourism now moves the emissions needle

Before 2018, international tourism expenditure showed no systematic relationship with national emissions. The two evolved largely independently. After 2018, tourism became the strongest predictor of emissions dynamics among the channels examined. This shift consists of the expansion of carbon pricing and related climate policies. As emissions became increasingly embedded in prices, the carbon intensity of tourism, especially aviation and energy-intensive travel, became more economically important. Therefore, tourism shifted from a large emissions-neutral consumption activity to one that increasingly shaped national emissions outcomes.

Whether this represents an unqualified success is less clear. Carbon pricing appears to have strengthened the transmission of emissions costs into consumption decisions. At the same time, it increases adjustment pressures on tourism-dependent sectors and regions whose economic models

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remain closely tied to carbon-intensive travel. The findings suggest that effective decarbonisation requires complementary policies that support economic adaptation alongside emissions reduction.

The channel that appeared from nothing: Finance now causes innovation

The most novel finding concerns the relationship between climate finance and innovation. Before 2018, bilateral climate finance showed no measurable association with subsequent innovation activity. Across all specifications, the relationship remained statistically insignificant. After 2018, that pattern changed. Climate finance became positively and significantly associated with subsequent innovation. A relationship that had been absent for almost three decades emerged after the implementation of the Paris Agreement.

The timing is consistent with one of the Agreement's central design principles. Paris envisaged climate finance not only as a mechanism for funding mitigation projects but also as a catalyst for technological change through the Green Climate Fund, NDCs, and technology-transfer initiatives. Until recently, that proposition rested largely on institutional design rather than empirical evidence. This study identifies the first structural evidence consistent with that mechanism. While the analysis cannot establish that climate finance caused the observed increase in innovation, it shows that finance and innovation became systematically linked only after Paris implementation. Therefore, the findings suggest that climate finance has begun to function not merely as an instrument for financing emissions reduction but also as a mechanism for supporting technological change.

> **The channel that never moved.** The strength of the relationship between a donor country's domestic emissions growth and its bilateral climate finance decline is identical in 1990–2007 and in 2019–2025. Not weaker. Not different in direction. Unchanged by Kyoto, unchanged by the 2008 financial crisis, unchanged by Paris. Whatever this channel is responding to, it is not responding to climate governance at all.

3. The Fiscal Wall

What the fiscal wall actually is

The evidence points to a persistent relationship. When a donor country's domestic emissions rise, its bilateral climate finance commitments fall. This relationship is as strong after the Paris Agreement as it was before it. The most plausible interpretation is that bilateral climate finance remains procyclical with donor fiscal capacity. When governments face domestic fiscal pressure, whether from higher energy costs, economic downturns, or competing budget priorities associated with rising emissions, climate finance is one of the first expenditures to adjust. Domestic spending remains politically protected. International climate finance does not.

This finding extends earlier evidence that foreign aid is sensitive to domestic economic conditions [2]. The difference is that the same pattern now characterises climate finance, the financial commitment at the centre of the Paris Agreement. Despite successive institutional reforms, including the Green Climate Fund, enhanced transparency under NDCs, and repeated COP finance pledges, the underlying fiscal relationship has remained unchanged. This is the fiscal wall. International climate agreements can reshape innovation, consumption, and decarbonisation incentives. They appear far less able to alter the domestic budgetary politics that determine how much climate finance governments provide abroad. The Paris Agreement changed the economics of decarbonisation. It did not change the politics of public finance.

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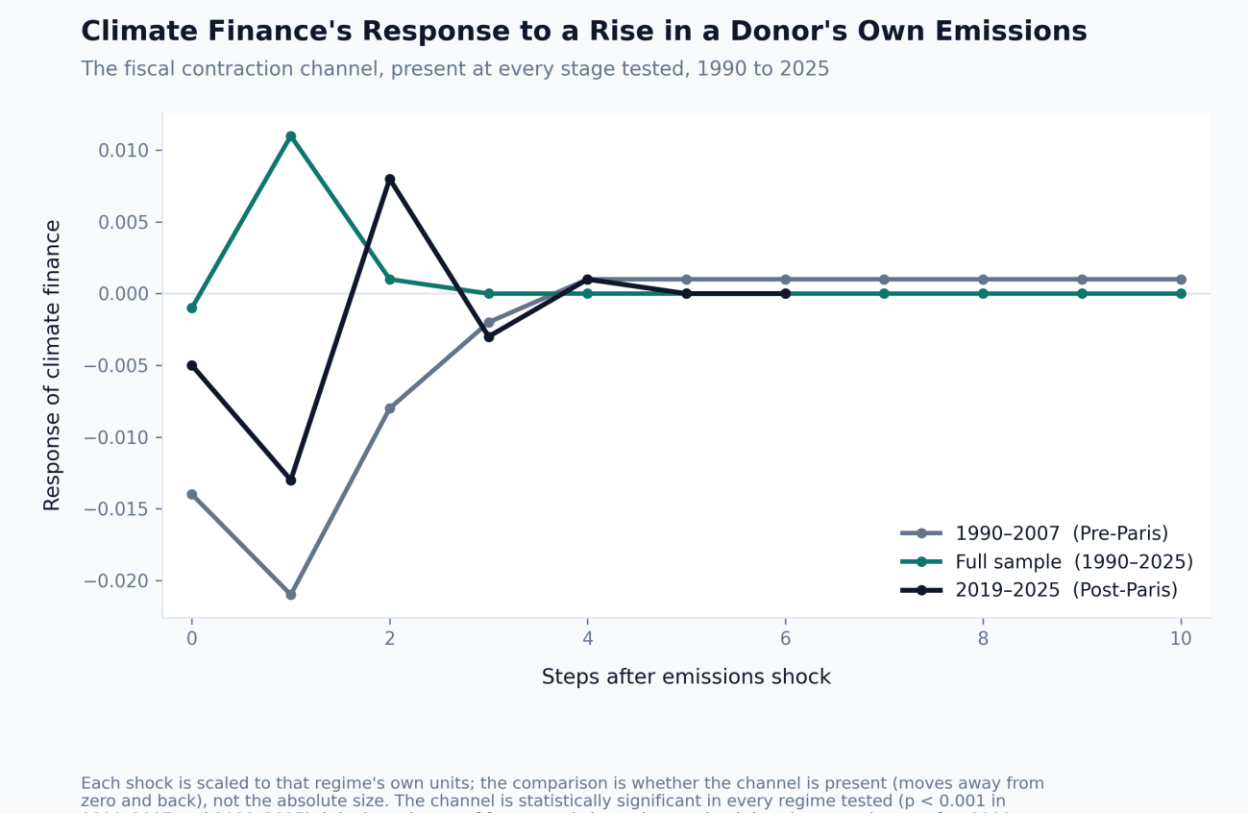


Figure 1. Response of bilateral climate finance to an increase in a donor country's domestic emissions in the pre-Paris, full-sample, and post-Paris periods. The relationship remains statistically significant ($p < 0.001$) throughout the 1990 – 2025 period, making it the only transmission channel that does not exhibit a structural break. The figure is a stylised reconstruction based on the underlying PVAR impulse-response estimates; see the companion empirical paper for the full coefficients and confidence intervals.

The evidence is already sitting in the news, not just the data

The fiscal-capacity mechanism is visible not only in the data but also in recent climate finance decisions. The Green Climate Fund's second replenishment in 2023 fell well short of the level needed to place the Fund on a trajectory towards its stated USD 50 billion ambition by 2030 [5]. In January 2025, the United States withdrew its USD 3 billion pledge to that replenishment, reversing a commitment announced at COP28 little more than a year earlier [6]. Neither decision reflected a change in climate science or renewable technology. Both reflected changes in domestic fiscal and political priorities.

These events illustrate the mechanism identified in the empirical analysis. Climate finance remains embedded in domestic budget cycles rather than insulated from them. International commitments create expectations, but they do not bind future budget decisions. When domestic fiscal pressures intensify, climate finance competes with other public expenditures and can be reduced or postponed. This is the fiscal wall. It is not defined by any single country's decision or by one replenishment round. It is a structural feature of voluntary and bilateral climate finance. The Paris Agreement strengthened

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international commitments, but it did not create institutions capable of protecting climate finance from domestic fiscal politics. As long as climate finance remains a discretionary budget item, donor governments will continue to adjust it in response to domestic fiscal conditions rather than international climate needs.

4. Why Can a Treaty Transform an Economy but Not a Budget?

This is the paper's main question. Rather than treating the persistence of the fiscal channel as an implementation gap, it asks whether it reflects a deeper institutional limit. The three relationships transformed after Paris, namely the innovation-emissions link, the tourism-emissions link, and the climate finance-innovation link, all operate through markets. They depend on prices, regulations, investment incentives, and research funding. Once these rules are established, they continue to shape firm and consumer behaviour without requiring annual political approval. A carbon price does not need to be renegotiated every budget cycle. Nor does a green innovation incentive.

Bilateral climate finance operates under a different institutional logic. It is not a market rule but a recurring budget decision. Governments must approve it repeatedly through domestic fiscal processes. Each budget cycle reopens the competition between climate finance and other public expenditures. Those decisions are made by domestic political actors who are primarily accountable to national constituencies rather than to international climate commitments. A treaty can influence markets. It cannot appropriate public spending.

This distinction explains the asymmetry identified in the empirical results. The Paris Agreement changed the incentives that shape private economic behaviour, but it did not change the institutions that allocate public budgets. International agreements can alter the returns to innovation, investment, and consumption through domestic regulation. They have far less influence over discretionary fiscal transfers from one sovereign government to another. Seen in this light, the persistence of the fiscal channel is not simply a policy failure. It reflects the institutional boundary of voluntary climate governance. The Paris Agreement succeeded where it could rely on domestic market institutions to transmit its objectives. It was much less able to influence decisions that remain under the exclusive control of national budget processes. Therefore, the fiscal wall is not an implementation gap. It is the point at which international climate governance encounters the constitutional authority of sovereign states over public finance.

5. Is There a Fix, or Is This a Category Error?

The obvious response is to reduce the dependence of climate finance on donor budget cycles. Many countries already insulate some public institutions, such as central banks, from short-term political pressures. Climate finance could, in principle, follow a similar logic by relying more on automatic revenue streams than on annual appropriations. Elements of this approach already exist. The Adaptation Fund receives a fixed share of revenues from international carbon markets. It was financed through 2% of proceeds under the Kyoto Protocol and now receives 5% of proceeds from the Paris Agreement's Article 6.4 mechanism. Because these revenues flow automatically, they are less exposed to annual donor budget decisions. The Fund therefore illustrates that climate finance can, at least partly, operate outside traditional budget cycles.

Scaling this model would require more ambitious financing mechanisms. Multilateral climate funds could be supported through treaty-based levies on carbon markets, aviation, shipping, or other

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internationally coordinated revenue sources rather than relying primarily on voluntary pledges. Such mechanisms would weaken the fiscal wall by reducing the role of annual political decisions in determining climate finance. They would also be difficult to negotiate because they imply a more binding claim on public revenues than voluntary commitments. However, there are legitimate objections. Automatic financing mechanisms reduce governments' flexibility to respond to changing domestic fiscal conditions. They may also face stronger political resistance because they constrain national budgetary discretion. The 2025 withdrawal of the United States' Green Climate Fund pledge illustrates the underlying tension. Voluntary commitments are politically easier to make but easier to reverse. Mandatory mechanisms provide greater financial certainty but raise more fundamental questions about national sovereignty.

The purpose of this paper is not to prescribe a single institutional solution. It is to identify the constraint that any solution must address. Existing reforms, including greater transparency, replenishment conferences, and stronger links between NDCs and finance, have improved coordination. They have not reduced the dependence of climate finance on domestic fiscal decisions. If automatic financing mechanisms are considered politically unacceptable, alternative arrangements must resolve the same structural problem. Otherwise, climate finance will remain vulnerable to the fiscal dynamics documented in this study.

6. The Obvious Objection

The post-break period covers only seven years per country and includes the COVID-19 pandemic, which disrupted tourism, emissions, and climate finance simultaneously. The pandemic therefore provides a plausible alternative explanation for some of the observed post-Paris changes, particularly those involving tourism and climate finance. A seven-year post-break period cannot be interpreted with the same confidence as three decades of pre-break evidence.

However, two considerations preserve the paper's central argument. First, the fiscal wall is not a post-2018 result. It is a thirty-five-year relationship that predates the Paris Agreement and the pandemic. COVID-19 may complicate the interpretation of newly emerging channels, but it cannot explain a mechanism that has remained stable since 1990. Second, the disappearance of the emissions-innovation relationship reflects the removal of a long-standing constraint rather than the appearance of a new one. A temporary shock is therefore an unlikely explanation for the sustained absence of a relationship that had persisted for nearly three decades.

The appropriate conclusion is therefore one of uneven confidence rather than uniform certainty. The tourism and climate finance-innovation channels should be interpreted cautiously because of the limited post-break period. By contrast, the reversal of the emissions-innovation relationship and the persistence of the fiscal wall rest on much stronger empirical foundations. Recognising this difference strengthens the argument by distinguishing the results that are well established from those that require longer-term confirmation.

7. Conclusion

The question of whether the Paris Agreement worked invites a simple answer to a more complex problem. The evidence suggests that the Agreement operated through two distinct institutional channels. One reshaped domestic market incentives. The other depended on voluntary fiscal transfers between sovereign states. The first channel proved durable. After 2018, long-standing relationships

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linking emissions, innovation, and consumption changed in ways consistent with the Agreement's objectives. The second did not. The relationship between a donor country's domestic emissions and its bilateral climate finance remained unchanged. International climate finance continues to respond to domestic fiscal conditions much as it did before Paris.

The broader implication extends beyond the Paris Agreement itself. Voluntary climate agreements appear capable of reshaping markets more readily than budgets. They can alter the incentives governing innovation, investment, and consumption through domestic regulation. They are much less able to influence the political processes through which governments allocate public resources. Whether this institutional boundary can be overcome remains an open question. More automatic financing mechanisms could reduce the dependence of climate finance on annual budget decisions, but they would require a level of fiscal commitment and sovereignty sharing that governments have so far been reluctant to accept. Thus, the fiscal wall identified in this paper represents more than a limitation of the Paris Agreement. It marks the point at which international climate governance encounters the enduring authority of sovereign states over public finance.

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Data availability: This essay is based on the formal structural-break and panel VAR results of 19 advanced OECD economies (Austria, Canada, Czechia, Estonia, Finland, France, Germany, Iceland, Italy, Japan, Korea, Latvia, Lithuania, Norway, Poland, Slovak Republic, Sweden, Switzerland, United States), 1990–2025, using World Bank WDI data, alongside public reporting on Green Climate Fund replenishment cycles. Data are available on request.

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