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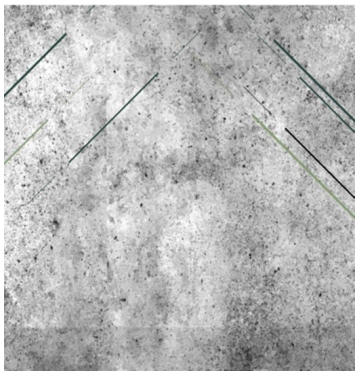

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Stuck in the Smoke: When Carbon Meets Capital in the Global South and Beyond

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Abstract

Over the past decade, carbon taxation has emerged as a central instrument in global emission reduction efforts. Yet in many developing countries of the Global South, its implementation has fallen short of the urgency posed by the climate crisis. A significant gap in the literature remains: how industrial resistance and domestic power configurations shape the design and enactment of carbon tax policies. This study examines carbon tax dynamics in three Global South countries (India, South Africa, Mexico) and one contrasting case (South Korea), to highlight divergent trajectories of policy delay and industrial resistance. This study adopts a qualitative approach, employing a comparative research design to analyze policy documents, statistical data from the World Bank, IEA, and Carbon Pricing Dashboard, along with relevant academic literature. Findings show that in all four cases, the state functions less as a transformative agent and more as a facilitator of fiscal and political compromises with industry. The resulting policies are largely symbolic—characterized by low tax rates, broad exemptions, and the absence of escalation strategies. Framed through the lens of strategic delay, this study argues that the persistence of weak carbon tax policies reflects not merely technical or administrative shortcomings, but deliberate strategies by state and industry actors to postpone meaningful climate action. These findings offer important theoretical implications for climate policy research and the political economy of development.

Keywords: Carbon Tax; Industrial Resistance; Global South; State-Corporate Alliances; Strategic Delay

Introduction

Democratic countries in the Global South face a difficult balancing act between fulfilling global emission reduction commitments and sustaining domestic economic development. On the one hand, the scientific consensus underscores the urgency of cutting greenhouse gas emissions to address the escalating climate crisis. On the other hand, governments in developing economies are under pressure to promote industrial growth, provide affordable energy, and reduce poverty—objectives that remain central to their national agendas. In this context, carbon pricing instruments—such as carbon taxes and Emissions Trading Systems (ETS)—are often presented as pragmatic tools for cost-effective emissions reduction. Theoretically, these mechanisms are designed to steer industries toward cleaner technologies through economic incentives. Yet the actual implementation across many developing democracies has been fragmented, tentative, and often politically constrained.

In most cases, carbon pricing policies are limited in coverage, phased in gradually, and set at levels well below the thresholds recommended by climate scientists. World Bank data (2020) show that only around 0.5% of global emissions are priced at or above USD 40 per ton of CO_2—an amount considered the minimum necessary for significant impact. As a result, many existing schemes are perceived as largely symbolic, falling short of delivering real mitigation outcomes (Rabe, 2018). Carbon pricing in these contexts often functions more as a gesture of political

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commitment than as a driver of economic transformation (Cullenward & Victor, 2020). These patterns reflect the deeper structural challenge: domestic political dynamics continue to slow down the pace of climate policy in democratic developing states, creating a persistent gap between ambition and action.

Empirical cases illustrate the symptoms of strategic delay in climate policy. India, for instance, has yet to implement a comprehensive national carbon tax. The discourse surrounding carbon taxation in India has been persistently hindered by concerns over its potential impact on industrial growth and public welfare. As a developing country with millions living in poverty, the Indian government remains apprehensive that such a policy could constrain the expansion of the manufacturing sector, erode industrial competitiveness, and disproportionately burden low-income households through rising energy costs (Garg, 2024). Rather than adopting a direct carbon tax, India relies on indirect measures such as excise duties on coal and fossil fuels. However, the effective carbon price is extremely low—estimated at just US$1.6 per ton of CO_2 (Kalita & Barua, 2019; Ojha et al., 2020; Qutubuddin, 2023). Such a minimal pricing level is clearly insufficient to drive a substantial behavioral shift toward a low-carbon economy.

A similar pattern can be observed in South Africa. Although the country eventually passed a carbon tax in 2019, the policy followed nearly a decade of delay after its initial proposal in 2010 (Curran, 2018). Even upon implementation, the design of South Africa's carbon tax was riddled with concessions to industry: over 60% of emissions per facility were exempt, and additional allowances and offset provisions enabled companies to exclude up to 90% of their emissions from taxation (Baker, 2022a; Nong, 2020). As a result, the headline rate of R120 (approximately US$8) per ton of CO_2e translated into an effective burden of merely US$0.5 to US$3.6 per ton during the initial phase (Van Heerden et al., 2016). This level of implicit carbon pricing fails to send a strong economic signal to reduce South Africa's heavy dependence on coal. Unsurprisingly, the Climate Action Tracker continues to classify the country's climate contribution as "highly insufficient," despite the formal presence of a carbon tax (Curran, 2018).

Mexico's experience similarly reflects the limited achievements of carbon policy across much of the developing world. The country introduced a carbon tax in 2014, but the rate was set at a modest US$3.5 per ton of CO_2 (Renner et al., 2018). While the policy generated notable revenue—approximately US$263 million in 2019—it had a negligible effect on emission reductions due to its low pricing level (Sarpong et al., 2023; Skovgaard & Ferrari, 2023). National emissions have continued to rise annually, suggesting that Mexico has yet to undergo the kind of structural transition envisioned in the Paris Agreement. On paper, Mexico has laid out a more ambitious regulatory framework, including the 2012 General Climate Change Law, which authorizes cap-and-trade mechanisms and plans for a national ETS. In practice, however, implementation has proceeded at a sluggish pace.

A pilot ETS was conducted in 2020–2021, but only in a simulated format—without monetary transactions. The full-scale launch, initially planned for 2024, has been postponed yet again. These delays have been attributed to regulatory bottlenecks, weak institutional capacity, and a persistent lack of political will among key authorities (Porras, 2024). In effect, although Mexico has formally adopted carbon pricing and ETS frameworks, the policies have not been operationalized in a way that could meaningfully curb domestic emissions. The gap between policy design and execution remains wide, underlining a broader pattern of strategic inertia in climate governance across developing democracies.

Interestingly, one case stands out from the prevailing pattern. South Korea—an industrial democracy in East Asia—has demonstrated a more systematic approach to carbon policy. While it is not conventionally classified as part of the Global South (UNCTAD 2023), its inclusion in this study serves a deliberate purpose as a contrasting case, highlighting how some late-industrializing states can diverge from the prevailing pattern of realist compromise that constrains much of the Globlal South. Since launching its national Emissions Trading Scheme (KETS) in 2015, South Korea has emerged as a pioneer among late-industrializing economies in operating a full-scale carbon market. In contrast to India, South Africa, and Mexico, the Korean government has implemented

its ETS with relative consistency, following a carefully managed and phased transition. During its first phase, KETS covered approximately 60% of national emissions, with the majority of allowances allocated freely to industries to facilitate early adaptation (Joo et al., 2023b). Over time, the scope and stringency of the system expanded: by Phase III (2021–2025), coverage had increased to over 73% of emissions, and a partial shift toward auctioning of permits began (Oh & Yoon, 2018). This gradual approach reflects a strategy of "managed transition," whereby South Korea seeks to balance decarbonization pressures with the protection of domestic industrial viability.

The results are not without criticism—South Korea's climate targets are still classified as "highly insufficient" by Climate Action Tracker—but institutionally, the country has succeeded in building a more robust framework for reducing its carbon intensity compared to many of its Global South counterparts. The contrast between South Korea and the three previously discussed cases reveals more than just a policy divergence; it raises an important scholarly puzzle. How can countries facing similarly intense pressures of industrialization arrive at such fundamentally different trajectories in climate policy design and execution?

The variation outlined above points toward a compelling hypothesis: that domestic political and institutional factors play a critical role in shaping the success—or failure—of carbon policy implementation. Existing studies have largely concentrated on advanced economies or on the technocratic dimensions of carbon instruments, such as comparing the efficacy of tax-based versus cap-and-trade systems (Aldy & Stavins, 2012; Rabe, 2018; Cullenward & Victor, 2020; Skovgaard & Ferrari, 2023). In contrast, relatively few have systematically explored how domestic political dynamics—such as industrial lobbying power, institutional arrangements, or elite strategies—affect the pace and depth of climate policy adoption in democratic developing countries. Even fewer have approached this question through an explicitly comparative framework grounded in Strategic Delay Theory, despite its relevance for states grappling with intense industrialization pressures.

Strategic delay refers to a deliberate strategy in which policymakers postpone, dilute, or slow the implementation of climate policy to balance decarbonization pressures with entrenched industrial interests. While Meckling and Nahm (2018b) highlight how state–industry coalitions often seek to preserve incumbent industries, more recent scholarship has explicitly theorized such dynamics as "discourses of climate delay," showing how arguments and policies are intentionally designed to justify inaction or symbolic responses (Cullenward & Victor, 2020; Lamb et al., 2020). Rather than openly rejecting climate commitments, governments may adopt minimal or symbolic measures while systematically deferring substantive action until a more politically or economically favorable moment arises. Recent climate politics literature increasingly acknowledges that such inertia is often the result of calculated strategic behavior, not merely institutional weakness or capacity gaps. Cullenward and Victor (2020), for instance, argue that domestic politics frequently "undermine" the potential of carbon market mechanisms, rendering them far less effective than their design intends. Building on this insight, the present study seeks to investigate: *what specific forms does strategic delay take in the carbon policies of India, South Africa, Mexico, and South Korea? What political and institutional factors drive some states to defer or circumvent implementation? And crucially, why has South Korea managed to depart from this pattern while the others have not?*

To address these questions, this study adopts a cross-case comparative approach framed by the concept of strategic delay. This theoretical lens highlights how political actors deliberately postpone, dilute, or slow the implementation of climate policies in order to reconcile pressures for rapid decarbonization with entrenched industrial interests. While Meckling and Nahm (2018a; 2018b) underscore how state–industry coalitions shape the trajectory of policy change, more recent scholarship has conceptualized these dynamics as forms of climate delay, showing how governments design policies that appear ambitious yet function symbolically (Lamb et al., 2020; Cullenward & Victor, 2020). Within the context of carbon taxation and emissions trading, strategic delay often takes the form of pilot programs, generous exemptions, or distant long-term targets

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without credible enforcement—measures that mitigate resistance from industrial and public stakeholders while sustaining the appearance of symbolic compliance with international climate norms.

This research contributes to both theory and practice. Theoretically, it advances the political economy debate on climate policy by applying the concept of strategic delay to the underexplored context of developing democracies. Practically, it demonstrates how industry resistance and state strategies produce weak or symbolic carbon tax policies, while offering insights for designing more robust mechanisms to accelerate low-carbon transitions. The study pursues two aims: (1) to identify and compare patterns of strategic delay across three Global South countries (India, South Africa, and Mexico) and one contrasting case (South Korea); and (2) to analyze the domestic political, economic, and institutional factors that explain divergent implementation trajectories. In doing so, it fills a gap in the literature on climate policy politics in developing democracies, while also situating these findings within broader ideological debates through selective engagement with schools of green political thought—liberal, realist, and radical.

Method

This research employs a qualitative comparative approach through a cross-national case study design, aiming to capture the domestic dynamics that shape the implementation of carbon tax policies. Anchored in a qualitative approach, the study adopts analytical generalization to draw theoretical insights from a small number of cases. This methodological choice allows for a contextualized understanding of how strategic delay unfolds differently across settings, while also illuminating the interplay between political, institutional, and market-related factors in each context. Epistemologically, the study is grounded in a post-positivist and critical tradition, which rejects the notion that climate policy emerges in a vacuum. Rather, it assumes that such policies are inherently political—shaped by power negotiations, actor resistance, and institutional compromise (Hoffman, 2020).

The primary data for this study were obtained through document analysis. Sources include: (1) official policy documents such as national legislation, regulations, and carbon policy roadmaps; (2) reports from international organizations including the World Bank, IMF, ICAP, and OECD; (3) approximately 30 peer-reviewed academic journal articles published since 2010; and (4) verified media publications, used as supplementary sources to capture actor dynamics and public discourse.

Case selection followed a purposive sampling strategy based on four key criteria: (1) recognition as a democracy by Freedom House; (2) the presence of a national carbon tax or equivalent carbon pricing instrument introduced since 2010—chosen as a benchmark year because it marked the post-Copenhagen period in which many emerging economies began to experiment with carbon pricing ahead of the 2015 Paris Agreement; (3) exposure to high industrialization pressure and pressing domestic development needs; and (4) documented instances of delay or resistance in carbon policy adoption. Three Global South democracies—India, South Africa, and Mexico—were selected to represent diverse yet comparable contexts. South Korea was deliberately included not as part of the Global South, but as a contrasting case, since its carbon pricing trajectory diverges from the other three countries and provides a useful counterpoint for highlighting variation in strategic delay.

Data collection was conducted between January and June 2025 through a systematic exploration of academic databases such as Scopus, JSTOR, and ProQuest, as well as official portals of relevant institutions, including the National Treasury of South Africa, Mexico's Secretaría de Hacienda y Crédito Público, and the Ministry of Environment of South Korea. In total, over 70 core documents were analyzed following a rigorous selection process based on relevance, credibility, and recency (documents published between 2010 and 2024).

The analytical strategy employed was comparative thematic analysis, utilizing open coding and axial coding techniques to identify patterns of institutional resistance, forms of strategic delay, and industrial actor involvement across the four countries. This process involved intensive

document reading, categorization into analytical dimensions, and the construction of interpretive narratives that connected empirical findings with the framework of strategic delay theory. Analytical validity was strengthened through source triangulation—drawing on policy documents, international reports, and academic literature—and through cross-case analytical checks to mitigate contextual bias. Through this methodology, the study aims not only to describe what has occurred in the implementation of carbon taxes in each country, but also to interrogate why particular forms of delay have emerged, and how actors and institutional structures shape the direction and design of carbon policy.

Results

The implementation of carbon taxes does not occur in an institutional or economic vacuum. Advanced economies generally possess stronger capacities to design and enforce climate policies, owing to well-established regulatory infrastructures, relatively stable carbon markets, and institutionalized state–industry relations. In many such contexts, carbon taxation emerges as a logical extension of longstanding environmental reforms, embedded within broader trajectories of ecological modernization. These efforts are often reinforced by active civil society engagement and a sustained commitment to multilateral climate agreements (Meckling & Nahm, 2018b, 2018a, 2022).

In contrast, developing countries face a far more complex structural dilemma. On one hand, they are expected to respond to the global climate crisis and uphold international commitments—such as their Nationally Determined Contributions (NDCs) under the Paris Agreement. On the other hand, they remain entangled in domestic economic pressures, short-term fiscal demands, dependence on fossil energy, and institutional weaknesses that constrain the state's ability to implement climate policy consistently (Dubash, 2018; Jakob & Steckel, 2014). Under such conditions, carbon taxes are often introduced half-heartedly—not as transformative instruments, but rather as symbolic gestures of compliance or as supplementary fiscal tools. Policies that are normatively intended to drive decarbonization are frequently diverted from their purpose, shaped instead by industrial resistance, short-term budgetary logic, and elite political calculations.

This section presents the findings of the study on carbon tax implementation in India, South Africa, Mexico, and South Korea since 2010. The analysis focuses on policy design, sectoral coverage, pricing mechanisms, and the strategies of delay and institutional resistance that have shaped the course of implementation. The findings are drawn from an in-depth analysis of official policy documents, international institutional reports, and academic literature. Rather than assuming carbon taxes function uniformly as market-based instruments grounded in economic efficiency, the study traces how these policies have been reinterpreted and repurposed within each national context. The evolution of carbon tax design reflects not only domestic political configurations and fiscal pressures, but also the interests and influence of industrial actors embedded within each country's policymaking landscape.

Table 1. Carbon Policy Types and Implementation Barriers in Four Global South Countries

Country	Type of Carbon Policy	Key Barriers	Dominant Actors	Key References
India	Clean Energy Cess (not a direct carbon tax)	Dependence on domestic coal, resistance from energy sector, fiscal pressure	Coal-producing state governments, Ministry of Energy	Dubash (2018); Jakob & Steckel (2014); Gupta & Sudarshan (2009); Sathaye et al. (2011)

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Country	Type of Carbon Policy	Key Barriers	Dominant Actors	Key References
South Korea	Emissions Trading Scheme (K-ETS)	Initial resistance from heavy industry and export-oriented sectors	Ministry of Environment, large conglomerates (chaebol)	Kalinowski, 2020; E.-S. Kim (2016); Winchester & Reilly (2019); S. E. Kim et al., (2024); Choi, 2016; H. Oh et al., (2017)
South Africa	Carbon Tax (with phased implementation)	Energy inequality, pressure from mining and electricity sectors (Eskom)	National Treasury, Eskom, energy industry associations	Ntombela et al., (2019); Baker, (2022b); Steenkamp, (2017); Alton (2024)
Mexico	Fixed-Rate Carbon Tax (IEPS)	Fiscal focus, limited coverage, absence of tariff escalation roadmap	Ministry of Finance, domestic industrial actors	Muñoz-Piña et al., (2022); Arlinghaus & Dender (2017); Arlinghaus et al., (2018)

India and Strategic Delay in the Clean Energy Cess

India introduced a veiled form of carbon taxation in 2010 through the Clean Energy Cess, a levy imposed on every ton of domestically produced or imported coal—including lignite and peat—at an initial rate of ₹50 per ton (Dubash & Ghosh, 2019). While not labeled as a carbon tax per se, the policy was framed explicitly as a fiscal mechanism to support the National Clean Energy Fund (NCEF), channeling revenues toward renewable energy and clean technology initiatives (Jayaswal, 2022). It reflected the application of the "polluter pays" principle and was closely aligned with India's co-benefits approach, which links climate action to broader national development goals.

The Clean Energy Cess has often been referred to as India's de facto carbon tax (Dwivedi, 2019), and it was widely regarded as a key climate policy innovation in the early 2010s (Agarwal, 2016). Rather than emerging from global pressure alone, the policy was positioned as a domestic solution that could deliver both environmental and economic dividends. As such, it marked an important symbolic step in India's evolving climate governance architecture.

Since its launch, the Clean Energy Cess underwent a series of incremental increases. The levy rose from ₹50 per ton in 2010 to ₹100 per ton in FY 2014–15, then to ₹200 in FY 2015–16, and reached ₹400 per ton by 2016. This upward trajectory elevated India's coal tax to approximately US$5–6 per ton of coal, equivalent to around US$3–4 per ton of CO_2 by 2016 (Dubash & Ghosh, 2019). The repeated hikes were intended not only to raise the cost of domestic fossil fuels but also to narrow the price gap between coal-based electricity and renewables, while signaling regulatory risk to carbon-intensive industries (Agarwal, 2016).

From a fiscal standpoint, the cess proved highly effective in revenue generation. By the end of FY 2017–18, the policy had collected a cumulative ₹86,440 crore—roughly US$12 billion—through coal taxation (Dwivedi, 2019). These carbon-related revenues were originally earmarked for the National Clean Energy Fund (NCEF), with the goal of financing climate mitigation projects and clean energy innovation. The policy, at least in its early design, embodied a dual function: to shift price signals and to finance structural transitions in India's energy system.

However, the actual trajectory of India's carbon policy reveals a gradual shift away from its original environmental objectives. Despite the massive revenue generated, disbursement toward clean energy programs remained minimal. Between 2010 and 2018, only about 34% of the total funds—₹29,645 crore—were actually allocated to the National Clean Energy Fund (NCEF), and ev-

en this portion was partly used for projects unrelated to clean energy (Bhat & Mishra, 2020; Pradhan & Ghosh, 2022). More than half of the revenue collected through the carbon tax remained idle or unspent by 2018 (Bhat & Mishra, 2020). This disconnect between fiscal accumulation and programmatic deployment suggests deeper issues in the governance of climate finance, marking an early indication of implicit strategic delay within the policy itself.

India's strategy of delay in carbon taxation is evident in its gradualist approach and the shifting of policy objectives that blurred its original climate focus. Rather than introducing a robust and wide-reaching carbon tax from the outset, the government opted for an incremental path—starting with a very low rate and increasing it slowly over six years. The initial rate of ₹50 per ton of coal in 2010 translated to a carbon cost of merely US$0.7 per ton, a figure that had negligible impact on coal profitability. Even at its peak in 2016 (₹400 per ton), the climate signaling effect remained weak, with an effective carbon price of only about US$3.5 per ton of CO_2 (Fahad, 2021) —far below the estimated price level needed to drive substantial emission reductions. Input–output modeling studies indicate that doubling the rate from ₹200 to ₹400 per ton reduced coal-related emissions by only around 1%, and total fossil energy emissions by less than 0.5%, while the impact on GDP was minimal (approximately –0.09%) (Pradhan & Ghosh, 2012). These findings underscore that India's carbon tax, in the form of the coal cess, was deliberately designed to be moderate—sufficient to raise public revenue, but not disruptive enough to challenge the coal-based energy status quo (Verma & sivamani, 2022). In effect, the government deferred more aggressive carbon pricing by keeping rates at a symbolic level, preserving fiscal gain without provoking structural change.

Another characteristic of India's delay strategy lies in the broadening of policy scope and relabeling of the initiative, which effectively diversified its focus. In 2016, the government renamed the National Clean Energy Fund to the National Clean Environment Fund, thereby expanding the fund's mandate beyond clean energy to include general environmental projects—such as river restoration and wildlife conservation. This redefinition diluted the original intent of the carbon tax and weakened the clarity of its environmental rationale. Observers have noted that this shift undermined incentives for clean energy investors, as the market signal that revenues would be dedicated exclusively to clean energy became increasingly ambiguous (Iyke, 2023; Zahoor et al., 2021). Rather than repealing the tax outright, the government subtly blurred its purpose, softening the political and fiscal pressure to accelerate a clean energy transition. This represents a quiet form of strategic delay—policy continuity preserved, but its transformational edge intentionally dulled.

The culmination of India's strategic delay emerged in 2017, when the Clean Energy Cess was effectively dismantled as a climate instrument and absorbed into the broader GST Compensation Cess mechanism. In the context of implementing the national Goods and Services Tax (GST), the central government faced the challenge of compensating states for revenue shortfalls. The solution: redirect coal cess revenues to fill fiscal gaps at the subnational level. Since July 2017, the coal levy has been officially repurposed under the GST Compensation Cess and is no longer allocated to the National Clean Energy Fund (NCEF) for clean energy initiatives (Joseph & Kumary, 2023). In practice, this meant that the original climate objective of the carbon tax was indefinitely deferred, with the revenues instead serving general fiscal needs until at least 2022—and later extended to 2026 to cover pandemic-era GST compensation debts (Kanojia & Gautam, 2023). This transformation redefined the carbon tax as a revenue instrument, legitimizing a short-term prioritization of fiscal stability over climate ambition. In institutional terms, the Indian government postponed the full operationalization of carbon taxation as an emissions control tool, opting instead for fiscal repurposing cloaked in administrative rationality.

It is important to note that strategic delay does not always manifest as passive inaction; it can also involve active efforts to stall or scale back policies perceived as burdensome to key sectors. For instance, in 2019–2020, the Prime Minister's Office (PMO) reportedly proposed scrapping the coal cess entirely, arguing that lowering electricity generation costs would free up funds for alternative pollution-control technologies, such as flue-gas desulphurization (FGD) systems in coal-fired power plants. Although the proposal was not implemented, the PMO's directive signaled a

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governmental preference for alternative approaches—namely end-of-pipe air pollution technologies—over maintaining high carbon taxes. Such moves illustrate a more proactive form of delay: the government stands ready to retreat from carbon pricing instruments when political or economic pressures intensify, thereby postponing implementation or diminishing the policy's intended impact.

India's climate policy trajectory illustrates the tension between international commitments and domestic strategic delay. As a signatory to the Paris Agreement, India pledged to reduce the emissions intensity of its GDP by 33–35% from 2005 levels by 2030 and to achieve 40% of its power capacity from non-fossil fuel sources (Dubash, 2019; Rajamani, 2016) (Rajamani, 2016; Dubash & Rajamani, 2018). These targets have often been highlighted by Indian officials to demonstrate international credibility and leadership among developing economies. Yet, the domestic implementation of carbon pricing reveals a more ambivalent pattern. The coal cess introduced in 2010 was incrementally raised but later diluted, and broader carbon tax proposals repeatedly stalled due to industry pushback and concerns over energy security (Rattani & Dubash, 2016). In this sense, India's formal adherence to global climate regimes coexists with deliberate strategies of delay at home, where symbolic commitments at the international level contrast with incremental or weakened implementation domestically. This duality underscores how strategic delay can manifest not as outright rejection of global agreements, but as a calculated balance between external signaling and internal resistance.

South Africa in the Shadow of Institutional Resistance

South Africa became the first Sub-Saharan African country to introduce a carbon tax, but the policy's trajectory was marked by a long and contested journey since its initial proposal in 2010. Much like the case of India, the conversation around carbon pricing in South Africa began in the early 2010s. The National Treasury published a carbon tax discussion paper in 2010, and the country's 2012 National Development Plan (NDP 2030) identified carbon taxation as a central policy instrument for reducing emissions. By 2013, an initial design for the tax had been outlined: it would apply upstream—targeting fossil fuel producers or inputs—at a rate of R120 per ton of CO_2e (approximately US$10 at the time), with a planned annual increase of 10% through 2020 (Baker, 2022b; Steenkamp, 2017). The policy aimed to cover the energy, industrial, and transport sectors, while agriculture and waste were initially excluded (Ntombela et al., 2019).

The 2013 carbon tax design already incorporated a range of concessions aimed at enhancing political acceptability and mitigating early economic impacts. Each company was granted a basic tax-free allowance covering 60% of its total emissions (Baker, 2022b), with additional exemptions for energy-intensive and export-oriented sectors, as well as credits for firms that had undertaken energy efficiency measures. Companies were also permitted to use carbon offsets—emission reductions from external projects—to partially fulfill their tax obligations (Ntombela et al., 2019). Altogether, the total volume of emissions that could be exempted was capped at 90% per firm, effectively reducing the applicable tax rate to as low as R6 to R42 per ton of CO_2e after accounting for the full range of allowances.

Initially, South Africa's carbon tax was scheduled to take effect on January 1, 2015. However, following the announcement of this timeline, a series of delays unfolded. In the 2016 Budget Statement, implementation was postponed indefinitely, with the official rationale citing the need for further consultation and alignment with other climate policy instruments (Steenkamp, 2017). The issue resurfaced toward the end of 2017, when the government released a draft Carbon Tax Bill, bringing carbon pricing back into the public policy agenda. The bill was approved by Cabinet in early 2018, with a revised implementation date set for January 2019. Yet even then, Finance Minister Tito Mboweni announced another six-month postponement in October 2018, citing remaining administrative and technical concerns. As a result, South Africa's carbon tax officially came into force on June 1, 2019, following its formal enactment by President Cyril Ramaphosa (Siweya, 2021).

Reuters reported that South Africa's carbon tax was "long-delayed," having been postponed at least three times since its initial proposal in 2010 due to mounting pressure from multiple stakeholders. The implementation delay was not merely a function of technical readiness, but rather a product of deep-rooted institutional resistance and inter-agency tensions. Lucy Baker (2022b) characterizes South Africa's climate governance as fragmented, marked by longstanding frictions among government ministries and institutions responsible for energy and environmental policy. The National Treasury—architect of the carbon tax—was tasked with coordinating policy with the Department of Environmental Affairs, which advocated for climate action, while simultaneously navigating pushback from the Department of Energy and the Department of Trade and Industry, both of which expressed concern over the tax's potential impact on economic growth and employment. Policy continuity was further undermined by political turnover: from 2010 to the tax's eventual implementation in 2019, South Africa had no fewer than seven different finance ministers. These overlapping sources of friction reflect the domestic political dynamics that complicated and ultimately delayed the institutionalization of carbon pricing as a stable policy tool.

Policy fragmentation also played a significant role in South Africa's prolonged delay. Throughout the 2010s, the country developed multiple climate policy frameworks in parallel—most notably the Climate Change Bill, which introduced sectoral and company-level carbon budgets, operating separately from the carbon tax regime. The legislative process for the Climate Change Act itself was beset by delays, and the law was not formally enacted until 2024, underscoring the slow and siloed nature of cross-sectoral coordination. A key source of misalignment was the lack of integration between the carbon budget instrument, overseen by the Department of Environmental Affairs, and the carbon tax, administered by the National Treasury. This lack of policy harmony was frequently invoked as a rationale for delaying carbon tax implementation. For instance, South African officials emphasized the need to align the proposed carbon tax with existing energy efficiency and renewable incentive schemes to avoid policy conflict and redundancy (National Treasury, 2013). Similar concerns about policy overlap have also been observed in other jurisdictions (Skovgaard & van Asselt, 2019). In reality, this alignment narrative masked underlying inter-agency tensions and bureaucratic turf wars—suggesting that institutional bargaining, rather than policy coherence, was the real driver of delay.

In official budget speeches and policy documents, the South African government frequently justified the delays in carbon tax implementation as necessary for "further public consultation" and to allow the private sector sufficient time to prepare. The phased approach adopted—Phase 1 with low rates and generous exemptions, followed by a more stringent Phase 2—was a deliberate strategy to ease the transition and mitigate early resistance (Alton et al., 2014; Steenkamp, 2017). The National Treasury explicitly stated that this gradual rollout was intended to give businesses time to undertake structural adjustments, ensuring that carbon policy would not immediately disrupt the broader economy. The government also emphasized that the Phase 1 design was calibrated to avoid any increase in electricity tariffs for consumers—a direct response to concerns that the carbon tax would further strain Eskom, the financially troubled national power utility. These calibrated delays and policy concessions reveal a deeper form of internal institutional resistance: while the state sought to meet its climate commitments under the Paris Agreement through a tax based on the polluter pays principle, it simultaneously sought to deflect opposition from ministries and agencies responsible for economic policy, energy supply, and public utilities.

Mexico Between Fiscal Priorities and Carbon Symbolism

Mexico was one of the earliest developing countries to adopt a carbon tax, albeit through a cautious and measured approach. The legal framework began with the enactment of the General Law on Climate Change in 2012, which set national emission reduction targets—such as a 30% cut below business-as-usual levels by 2020 (Díaz & Gutierrez, 2018; González, 2021; Skovgaard & Ferrari, 2022). To help meet these goals, the government introduced a carbon tax as part of its 2013 fiscal reform. The tax took the form of a fixed-rate levy on fossil fuels, regulated under the

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Especial sobre Producción y Servicios (IEPS). Coming into effect on January 1, 2014, the policy made Mexico a pioneer in Latin America in the domain of carbon taxation.

The tax is imposed on producers, distributors, and importers of fossil fuels, based on the carbon content of each fuel type (Muñoz-Piña et al., 2022). Rates vary by fuel, averaging around US$3–3.5 per ton of CO_2e—relatively low when compared to recommended social cost of carbon benchmarks (Arlinghaus & Dender, 2017). For instance, in 2017, the rate was set at MXN 43.77 per ton of CO_2 (roughly US$2–3), converted into per-liter or per-kilogram charges depending on the fuel type—around 10–13 Mexican centavos per liter of gasoline or diesel. Several fuels were exempt: natural gas was excluded on the grounds of being the cleanest fossil fuel, and non-combustion uses (such as petroleum used as feedstock in petrochemical processes) were also not taxed.

Mexico's carbon tax covers a wide range of fossil fuels, including gasoline, diesel, LPG, coal, coke, and fuel oil. However, jet fuel was explicitly exempted through a presidential decree in 2013, citing international aviation agreements (Arlinghaus et al., 2018). Overall, the instrument applies to approximately 25–38% of Mexico's total greenhouse gas emissions, depending on assumptions, and excludes around 30% of CO_2 emissions from natural gas. While the policy nominally assigns a price to carbon, its implementation from the outset reflected a pattern of delay and compromise. The government did succeed in generating fiscal revenue—approximately MXN 17 trillion (about US$950 million) during 2014–2015, and US$263 million in 2019—but the tax's effectiveness in curbing emissions has been called into question (Labandeira et al., 2022; Muñoz-Piña et al., 2022). Studies indicate that the initial impact of Mexico's carbon tax reduced emissions by only about 0.3% of annual national totals (Arlinghaus et al., 2018)—a figure widely regarded as negligible in the broader context of climate mitigation.

From design to implementation, the Mexican government adopted a gradualist strategy that effectively delayed the robust application of carbon taxation. The primary form of delay was embedded in the policy's intentionally moderate design. First, the tax rate was deliberately set low to ensure political and economic acceptability. At approximately US$3 per ton of CO_2, the carbon price signal was far too weak to meaningfully alter consumer or industrial behavior (Renner et al., 2017). Studies on Mexico's experience underscore that such a low price was "too small to influence emission-reduction decisions," barely registering in fuel prices for end-users (Labandeira et al., 2022). This placed Mexico's carbon tax among the lowest in the OECD—and indeed, among the lowest globally. Second, the policy's limited coverage further delayed its substantive impact. The exemption of natural gas meant that nearly one-third of CO_2 emissions from energy use went untaxed, leaving only dirtier fuels—such as gasoline, diesel, and coal—subject to pricing. Even for coal, a statutory cap limited the tax to about 3% of the fuel's market price, thereby suppressing the effective rate per ton of CO_2 (Renner et al., 2017). Third, the government failed to scale up the tax after its introduction in 2014. Fixed in nominal terms (MXN per unit of fuel), the tax was not indexed to inflation, resulting in a steady erosion of its real value over time. For instance, the nominal rate of MXN 43.77 per ton of CO_2 in 2017 was equivalent to roughly US$2.3; adjusted for cumulative inflation, the real rate in 2023 was lower than at the time of adoption (Muñoz-Piña et al., 2022). By refraining from incrementally increasing the carbon price, the government effectively deferred the strengthening of its climate signal—contrary to environmental economic recommendations that carbon taxes should rise gradually to meet emission targets.

Additionally, delay in Mexico's carbon tax regime also materialized through the introduction of flexibility mechanisms added years after the policy was enacted. In late 2017, the government issued a regulation allowing carbon tax obligations to be met using carbon offsets. Under this provision, emitters could surrender Certified Emission Reductions (CERs) from Clean Development Mechanism (CDM) projects in lieu of direct tax payments. Implemented through the MexiCO2 trading platform, the policy provided a lower-cost compliance alternative for firms. While intended to stimulate the voluntary carbon market, this mechanism also diluted the immediate pressure on emitters to reduce domestic emissions—effectively postponing concrete mitigation action. Notably, the technical regulation governing the use of carbon credits was published four

years after the tax was enacted—another indication that the policy was not implemented in a timely or comprehensive manner (González, 2021). The delayed regulatory action by the Ministry of Finance (SHCP) reflects a broader governmental prioritization of short-term fiscal considerations over the acceleration of carbon market integration.

Mexico's strategy of delay was also embedded in the broader context of energy and fiscal reform throughout the 2010s. For years, the government heavily subsidized fossil fuels, and only in 2014 did it begin phasing out fuel subsidies and aligning domestic prices with global market levels. The carbon tax was introduced alongside this reform as an environmental "compensation" measure, yet it was implemented gradually. Policymakers deliberately avoided price shocks—fuel prices were raised incrementally, a strategy colloquially referred to as *un huevito*, and the carbon tax was positioned as a minor component within the final fuel price. While this gradualist approach helped increase fiscal revenue and partially internalized the external costs of emissions into energy prices, it postponed any meaningful transformation in energy consumption patterns. Even after full deregulation of fuel prices in 2017–2018, the government refrained from significantly raising the carbon tax (Arlinghaus & Dender, 2017). This contrasted with early projections from analysts who expected that liberalization would enhance the tax's effectiveness and boost its fiscal contribution to as much as 10% of total tax revenues (Muñoz-Piña et al., 2022). In practice, the carbon tax remained marginal in the overall energy pricing structure, and the government tended to retreat when faced with energy price volatility. For example, beginning in January 2022, in response to the global oil price spike, the government suspended the IEPS fuel tax—effectively including the carbon tax component—by up to 100%, in order to subsidize domestic gasoline and diesel prices. This suspension erased the carbon price signal entirely in favor of short-term economic stability, with estimated revenue losses of around MXN 70 billion (US$3.5 billion) in 2022 alone (Climate Action Tracker, 2022). Such backtracking reveals a deeper pattern: Mexico's carbon pricing remains vulnerable to political reversals during times of crisis, representing yet another form of strategic delay in strengthening the country's climate policy architecture.

South Korea and Market-Based Compromise in the ETS Mechanism

South Korea is among the largest carbon emitters in Asia, yet efforts to introduce a carbon tax have faced persistent setbacks for over a decade. In 2009, the government announced an ambitious goal to reduce emissions by 30% below business-as-usual (BAU) levels by 2020. To support this target, the country enacted the *Framework Act on Low Carbon, Green Growth* in 2010, which laid the legal foundation for a range of climate policies—including a cap-and-trade scheme and provisions for a potential carbon tax (Kalinowski, 2020; E.-S. Kim, 2016; Winchester & Reilly, 2019). However, despite being legally mandated, the carbon tax component was never realized in practice and remains on hold until at least 2025. Instead, South Korea launched the Korea Emissions Trading Scheme (K-ETS) in 2015 as its primary carbon pricing instrument.

Initially, the K-ETS covered the power sector, manufacturing industries, buildings, waste, and domestic aviation, accounting for approximately 70–80% of national emissions (Wang & Gopal, 2023). While the ETS has operated over the past decade, plans for a direct carbon tax have been repeatedly deferred under various policy justifications (Choi, 2016; H. Oh et al., 2017). As a result, South Korea has earned the label of a "climate villain" on the international stage, criticized for its reluctance to implement a direct and transparent carbon tax despite its global commitments (S. E. Kim et al., 2024).

Since 2010, the South Korean government has employed a series of deliberate delaying strategies in its approach to carbon taxation. First, repeated rescheduling and formal postponement characterized key phases of policy development. One example was the proposed carbon emissions tax on new vehicles—popularly referred to as the "smog tax"—which was initially slated for implementation between 2013 and 2015 but was deferred until the end of 2020. Authorities justified the delay by arguing that launching the vehicle emissions tax alongside the Korea Emissions Trading Scheme (K-ETS) in 2015 would overburden the domestic automotive

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industry (Routers, 2014). A similar postponement occurred with the Low Carbon Vehicle Fund, which was also delayed until 2020 (Morning Star, 2014). Second, the government tended to adopt softer alternative policies in place of a direct carbon tax. The rollout of the K-ETS was used as justification to shelve the carbon tax, under the rationale that implementing two carbon pricing mechanisms concurrently would create a "double burden" for businesses (ICAP, 2022)

Third, the K-ETS itself was designed with an implicit delay strategy: in Phase I (2015–2017), 100% of emissions allowances were allocated for free. Even by Phase III (2021–2025), over 90% of emissions from high-emitting industrial sectors continued to be covered by free allocations, effectively shielding them from the full carbon cost (ICAP, 2022). This generous allocation structure, along with a lenient emissions cap, postponed the real economic impact of carbon pricing, allowing the burden on industry to be phased in gradually rather than imposed immediately. Fourth, the government repeatedly revised ETS rules to further ease compliance obligations—a strategy often interpreted as a "watering down" of carbon pricing efforts (Suk, 2017). For instance, more flexible rules on offset credits and permit carry-overs were introduced to keep industry costs low (Influence Map, 2025). Taken together, these measures reflect a broader pattern in South Korea's climate governance: rather than implementing a comprehensive carbon tax swiftly and decisively, the government opted to diffuse the burden over time, deferring the full force of carbon pricing in favor of regulatory accommodation.

Opposition to carbon taxation in South Korea has not been limited to industry actors—it is also deeply embedded within the country's political institutions and state bureaucracy. Bureaucratic resistance has been particularly evident among economic ministries, which have shown reluctance to support ambitious climate policy. Recent studies reveal that until just before 2020, the notion of a 2050 net-zero target was practically a "taboo" within bureaucratic circles, as the Ministry of Trade, Industry and Energy (MOTIE) and the Ministry of Strategy and Finance (MOSF) refused to endorse it (Joo et al., 2023a). These institutions have tended to prioritize industrial growth and energy affordability, making them generally unenthusiastic about carbon pricing instruments that could raise energy costs. In contrast, the Ministry of Environment and the presidential office—particularly under Moon Jae-in's administration—pushed for carbon neutrality but encountered internal resistance from MOTIE and its allies. Political resistance has also been visible in the legislative arena. Throughout the 2010s, carbon taxation failed to gain serious traction among major political parties. Climate policy was not a priority on the mainstream political agenda, and parliamentary support for a carbon tax remained weak. Legislative attempts to pass carbon tax bills—such as Shim Sang-jung's 2013 proposal and similar efforts by Yong Hye-in and Jang Hye-young in 2021—consistently failed to pass through the National Assembly (S. E. Kim et al., 2024).

These legislative failures reflect a broader pattern of institutional resistance—driven both by industry lobbying and tepid public support—that has obstructed legal adoption of carbon pricing. Social factors have also played a role: South Koreans have long benefited from relatively low energy prices and remain highly sensitive to electricity cost increases. Although climate action enjoys broad rhetorical support, there is limited willingness among the public and political elites to accept the direct financial costs of carbon taxation. This combination of societal reluctance and institutional resistance—within bureaucratic and legislative arenas—has weakened political momentum and contributed to repeated postponements of a formal carbon tax. Policymakers have tended to prioritize minimizing economic disruption and avoiding political backlash, thereby reinforcing patterns of strategic delay.

Discussion

The relationship between the state and industry plays a central role in shaping the trajectory of carbon tax implementation. Carbon-intensive sectors—such as energy, heavy manufacturing, and transportation—are not merely targets of regulation but influential political actors with considerable bargaining leverage. Meckling and Nahm (2018b) characterize this relationship in terms of political coordination, whereby governments and large industrial actors cooperate to

preserve economic stability and competitiveness. Viewed through the lens of strategic delay, such coordination helps explain why carbon pricing schemes are frequently introduced as gradual, diluted, or symbolic measures: they enable governments to signal responsiveness to global climate pressures while accommodating resistance from domestic industry (Cullenward & Victor, 2020; Lamb et al., 2020).

Globally, three dominant patterns characterize industry engagement in carbon tax policy. The first is active co-optation, in which large corporations—particularly in Europe's renewable energy sector—support the adoption of carbon taxes as a means of securing regulatory certainty and enhancing their public and investor-facing reputations. The second is defensive lobbying, a strategy commonly employed by traditional energy industries in Global South countries, where firms tend to oppose carbon pricing or demand delayed implementation, citing concerns over economic burdens and threats to competitiveness (Aldy & Stavins, 2012). The third is pragmatic compromise, wherein governments offer fiscal concessions, free emissions allocations, or phased implementation schedules to avoid abrupt economic disruptions—an approach clearly observed in the cases of South Korea and South Africa (Döbbeling-Hildebrandt et al., 2024).

In advanced economies, state–industry relations tend to be more institutionalized and embedded within transparent policy frameworks. Within such contexts, many multinational corporations have increasingly supported the adoption of carbon taxes, viewing them as instruments that enhance legal certainty and ensure a level playing field in both domestic and international markets (Newell & Paterson, 2010). According to Skovgaard and Andresen (2022), the active participation of the private sector in shaping the European Union's Emissions Trading System (ETS) was a key factor in the policy's endurance over time. This form of engagement is often underpinned by a combination of fiscal incentives, subsidies for clean technology, and carbon price compensation schemes—mechanisms that help align the economic interests of industry with climate objectives, while mitigating the perceived risks of transition.

In contrast, state–industry relations in developing countries are often shaped by transactional logics and clientelistic arrangements. Jakob and Steckel (2014) observed that in many Global South contexts—including India and Indonesia—industrial actors wield significant veto power, enabling them to divert climate policy trajectories either through direct opposition or by negotiating favorable incentives. This resistance is further entrenched by states' fiscal reliance on fossil fuel sectors and the limited counter-pressure from civil society or independent media. Yet, the mechanisms of strategic delay are not uniform across contexts. In South Africa, for instance, Eberhard (2021) documented how dominant players like Eskom and coal industry associations successfully lobbied for broad exemptions in the early drafts of the carbon tax—reflecting the country's entrenched dependence on coal and its politically sensitive electricity sector. In Mexico, by contrast, short-term fiscal considerations and the prioritization of energy sovereignty shaped a carbon tax that remained low and lacked a clear escalation roadmap (Skovgaard & Ferrari, 2022).

India's delay dynamics are distinct again, where the state's developmental priorities and reliance on coal for affordable energy coexist with international commitments under the Paris Agreement, producing a more ambivalent trajectory. These cases suggest that while strategic delay is a common outcome, the pathways through which it emerges are conditioned by regional and national specificities—be it fiscal dependence, energy security concerns, or the structure of domestic political coalitions.

This dynamic reveals that carbon tax policies are often the product of political compromise rather than the autonomous expression of climate-conscious governance. On one hand, states seek to respond to international pressure by formally adopting carbon pricing mechanisms. On the other hand, market actors strategically leverage their influence to shape the content and trajectory of such policies in ways that safeguard capital accumulation. In many instances, this leads to a "watering down" of policy—where transformative components are diluted or replaced with technocratic incentives that are largely symbolic. These patterns underscore the importance of analyzing carbon taxation not merely as a technical instrument, but as a site of contestation shaped by power relations between state and market forces. Ultimately, structural and

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institutional constraints play a decisive role in limiting the state's capacity to pursue a just and effective energy transition (Dubash, 2018; Meckling & Nahm, 2018b).

Table 2 summarizes the strategies of industrial resistance to carbon taxation in four Global South countries—India, South Africa, Mexico, and South Korea. While each country exhibits a distinct pattern of resistance, they all share a common foundation: the asymmetric power dynamics between the state and industrial sectors. In India, resistance manifested through lobbying efforts to reduce the cess rate, which the government accommodated by keeping the tax stagnant and delaying structural reform. In South Africa, the collective strength of industry associations successfully pushed back implementation and secured broad exemptions, significantly limiting the policy's mitigation impact. Mexico's case reflects a dominance of short-term fiscal interests, resulting in a consistently low carbon tax with no accompanying roadmap for escalation. In South Korea, resistance took a more subtle form—through internal lobbying that shaped the design of the Emissions Trading Scheme (K-ETS) and delayed complementary regulations such as the smog tax.

Overall, the four cases demonstrate that carbon tax policies in the Global South are often pursued more as exercises in compliance politics than as genuine instruments of low-carbon transition. Rather than serving as tools for structural transformation, these policies reflect a state logic of accommodation—responding to international pressure while simultaneously safeguarding domestic industrial interests through fiscal concessions, subsidies, and regulatory leniency. The outcome is a suite of symbolic yet non-progressive measures, which fall short of catalyzing substantive decarbonization. This study, therefore, underscores the necessity of examining configurations of power and institutional resistance when assessing the real-world effectiveness of climate policy, particularly in the political and economic contexts of developing countries.

Table 2. Industrial Resistance Strategies Against Carbon Tax in Four Global South Countries

Country	Key Industrial/ Market Actors	Delaying/Resistance Strategies	Government Response	Impact on Policy
India	FIMI, Coal India, steel/cement sector, power plants, Ministry of Finance	Lobbying to reduce or abolish the cess; proposed shift to ad valorem rate; carbon cess frozen since 2016	Accommodative: stagnated cess, ongoing restructuring review, maintained fiscal neutrality	Reduced effectiveness; slow implementation; tendency toward industrial protection
South Africa	Sasol, Eskom, Minerals Council, EIUG, SAPIA, AMSA, BUSA	Coordinated lobbying for exemptions; job loss claims; Eskom exempted; phase 2 postponed	Compromising: very low effective rates, multiple exemptions, phase 2 delayed until 2026	Symbolic tax function; most emissions untaxed; highly limited mitigation impact
Mexico	Pemex, CFE, energy & manufacturing associations	Pressured for low initial rates; natural gas exemption; early-stage influence over policy design	Cooperative: extremely low tax rate, no escalation, accommodated preferences of fossil fuel sectors	Minimal emission reduction; policy stagnation; failed to trigger energy transition
South Korea	POSCO, Hyundai-Kia, KCCI, KEPCO, heavy industry associations	"Backdoor" lobbying to loosen K-ETS; demanded offsets and carryover rights; opposed smog tax	Bureaucratic-industrial coalition: weakened K-ETS, opted for non-tax subsidies, delayed smog tax	Persistently low carbon prices; high emissions until 2018; slow energy transition; policy deemed inadequate

Source: Compiled from various sources.

In general, major emerging economies such as India, South Africa, Mexico, and South Korea have begun adopting carbon pricing instruments, but their implementation remains influenced by political power and industrial interests. In India, for instance, there is no explicit carbon tax; the government only utilizes fossil fuel taxes as an indirect mechanism. By 2023, approximately 54% of India's emissions were already subject to a positive effective carbon price through fuel taxation (averaging around €7–8/tCO_2e), yet no explicit carbon pricing has been introduced. India is currently preparing the Carbon Credit Trading Scheme (CCTS), based on emission intensity for energy-intensive industries, which is expected to enter the full compliance phase in 2026. In this regard, the Indian industry tends to support renewable energy targets but remains relatively passive in the policymaking process. InfluenceMap (2025) reports that 19 out of 20 major Indian companies are only "partially" aligned with the Paris Agreement, and only five appear to be actively engaged in designing the CCTS. This means that while there is no strong opposition from major corporations, there is also little pressure from the industry to tighten policy. The electricity sector remains the largest source of emissions (~43% in 2019), followed by industry (~31%). Given the significant share of industrial emissions, pressure from manufacturing companies to maintain low production costs remains strong, leading to the design of India's carbon market using an intensity-based credit system (baseline-and-credit) rather than a strict emissions cap.

In South Africa, the government launched a carbon tax in 2019 covering approximately 80% of domestic emissions (including industry, electricity, transport, and buildings). However, the low tax rate (~US$9/t$CO_2$e) was offset by numerous exemptions (up to 60–95% of emissions), resulting in very weak outcomes: by 2020, the tax had only generated around US$38 million. Heavy industries, particularly mining and energy associations, actively lobbied for the tax to be delayed or softened. For example, in 2022, several key associations (BUSA, BLSA, Minerals Council, etc.) demanded an extension of the first tax phase (2023→2025), an extension of tax-free allowances until 2030, and a slower rate of tax increase. Such industrial pressure proved effective: the first phase of the carbon tax was extended by two years, and 95% of the tax burden was offset.

A report by JustShare (2025) even concluded that South Africa's industry has "held the economy hostage" to resist stricter climate policies, leaving the carbon tax among the lowest in the world. The share of industrial emissions in South Africa is relatively small (only ~14% of direct energy CO_2), but the electricity sector—driven by coal—is dominant. Given the country's strong coal and mineral base, the relationship between the government and large corporations tends to delay climate ambitions: for instance, the passage of the Carbon Tax Act was delayed for years and is currently under review. All empirical evidence indicates that South African industries have demanded regulatory relaxation, leaving the early impact of carbon pricing policies in the country highly limited.

Mexico has imposed a national carbon tax since 2014 (around US$3.5/t$CO_2$e), covering approximately 46% of domestic emissions and generating about US$306 million in 2021 (Climate Transparency, 2022). However, the low price level and the tax's concentration in the energy sector limit its effectiveness. Mexico is also preparing a cap-and-trade system: the national ETS pilot phase began in 2020, covering around 37% of emissions (energy and industry), but the full rollout has been delayed. The government reportedly struggles to advance due to "regulatory uncertainty" and a lack of political will (Villanueva & Ghosh, 2024). Industry resistance has further constrained Mexico's carbon pricing trajectory. Companies have consistently opposed higher tax rates, with willingness-to-pay estimates rarely exceeding US$3–4/t$CO_2$e (Villanueva & Ghosh, 2024). Major energy players are also unsupportive; for example, the state oil company Pemex has not publicly backed the national ETS and once proposed a "credit compensation" mechanism viewed as undermining the policy's goals.

The relationship between the Mexican government and industry appears fragmented: some states have implemented their own carbon taxes with varying rates (e.g., State of Mexico at US$2.56/t vs Querétaro at ~US$34.9/t), signaling disputes over carbon pricing across jurisdictions. In terms of industrial contribution, Mexico's manufacturing sector accounts for just over 20% of

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energy-related CO_2 emissions; this emissions load has led the government to carefully screen tax rates for energy-intensive industries. Overall, industrial engagement in Mexico's climate policy has been more passive-skeptical than proactive, resulting in slow and compromised progress in the national ETS.

South Korea is an exception: since 2015, it has operated a national ETS (K-ETS), one of the first in Asia. The scheme covers nearly 80% of Korea's GHG emissions and has generated around US$1 billion in carbon market revenue since its launch (ICAP, 2022). There is no standalone carbon tax aside from fuel taxes (which are relatively high in Korea), so nearly all explicit pricing comes from the ETS. Korea's heavy industries opposed the policy from the outset: in 2011, business federations (FKI, KCCI, etc.) urged the government to delay carbon trading, citing high costs and threats to competitiveness (Shinhye Kang, 2011). Although the government proceeded with launching the ETS, the bargaining power of industry remained clear. InfluenceMap (2025) found that Korea's largest steel companies (POSCO, Hyundai Steel) and the steel association (KOSA) actively resisted ambitious targets and warned of losing competitive standing if the ETS was tightened.

For instance, KOSA was reportedly against the revised 2030 emission reduction targets (Influence Map, 2025). Thus, although Korea has a well-established carbon pricing mechanism, its major industries continue to push for leniency—consistent with findings that the automotive and steel sectors rank low in climate commitment. In terms of data, Korea's industrial sector still accounts for around 26% of energy-related CO_2 emissions (as of 2021), alongside the power sector (~39%). The Korean government responded by increasing auction allocations and tightening allocation rules for energy-intensive sectors in its ten-year plan (ICAP, 2022). So far, Korea's "carbon tax" in the form of ETS has achieved notable outcomes—most emissions are priced (98.5% of emissions were priced at an average of €6.5/t in 2023) (OECD, 2024) —but further tightening remains compromised by industrial pressure.

In summary, each of the countries above navigates a distinct balance between state and industrial interests. India is still developing its market mechanism with relatively passive industry involvement; South Africa implements a carbon tax but relaxes its application under pressure from the mining sector; Mexico applies a low tax and delays its ETS due to corporate and bureaucratic opposition; while South Korea relies on a robust ETS that has nonetheless been shaped through political compromises to accommodate heavy industries. Empirical data supports these observations—for instance, carbon tax revenues (SA ≈US$38 million vs. Mexico ≈US$306 million) reflect differences in policy scale, and the industrial sector's contribution to emissions (India ~31%, SA 14%, Mexico ~21%, Korea 26%) influences the degree of business resistance (Climate Transparency, 2022). These findings draw on official sources and recent policy reports, such as those from the OECD, IEA, and Climate Transparency, which illuminate the practical dynamics of carbon pricing in each country.

An analysis of industrial resistance strategies and state responses in the implementation of carbon taxes in India, South Africa, Mexico, and South Korea reveals that climate policy cannot be separated from the political-economic power configurations embedded in each country. These dynamics reflect what environmental politics highlights as competing logics that shape the push-and-pull in the design and implementation of carbon pricing policies. The liberal approach, which underpins instruments such as carbon taxes and emissions trading schemes (ETS), is grounded in the assumption that market pricing can effectively internalize environmental externalities and promote both economic efficiency and technological innovation (Newell & Paterson, 2010; Skovgaard & Ferrari, 2022). However, in the context of developing countries, this framework is often curtailed by realist interests that emphasize domestic economic-political stability, energy security, and the competitiveness of strategic industries.

Table 3. Green Political Thought Schools

Aspect	Liberal	Realist	Radical
Position on Nature	An object that must be protected for the sake of economic sustainability	An object to be controlled in order to maintain national interests and stability	A subject with intrinsic value, not to be exploited
Source of Conflict	Scarcity due to market failure or weak regulation	Resource competition and threats to national security	Structural inequality, ecological colonialism, corporate hegemony
Unit of Analysis	Global institutions, international climate regimes, technocratic organizations	The state as the dominant actor, bureaucratic elites and strategic industries	Civil society, grassroots movements, indigenous communities, and socio-productive relations
Analytical Focus	Global governance, transparency, carbon market regulation reform	National protection, resistance to external pressures, political-economic cost-benefit calculations	Democratization of natural resources, transformation of economic systems, ecological justice
Solutions or Strategies	Market-based carbon pricing (cap-and-trade, carbon tax) - Climate accountability institutions (CDP, UNEP-FI) - Multilateral climate finance (GCF, JETP)	Partial carbon tax for fiscal purposes rather than mitigation - Fossil fuel subsidies, energy import/export controls - Co-optation of development narratives to delay reforms	Green New Deal and just transition - Agrarian reform and recognition of land rights - Community energy: solar cooperatives, decentralized systems - Transnational anti-extractivist movements
Key Literature	Malthus (1798); Wapner (1995); Newell & Paterson (2010); Skovgaard & Ferrari (2023)	Hardin (1968); Ophuls (1977); Luciani (2015); Dubash et al. (2018); Jakob et al. (2020);	Arne Naess (1973); Merchant (1993); Bernstein & Hoffmann (2019) ; Dibley & García-Mirón(2020)

Source: Compiled and developed based on the initial framework in Bolqiah (2021), with additions from contemporary literature.

In all four countries analyzed, resistance to carbon policies did not always take the form of explicit rejection, but often manifested as institutional compromises, the formation of bureaucracy –industry alliances, and the reinterpretation of policy objectives to support national fiscal goals rather than emissions reduction. For instance, India and Mexico—two countries facing high fiscal pressure—have implemented or designed carbon pricing schemes with very low rates, rendering them more symbolic than transformative. In India, the coal cess initially served as a pioneering carbon pricing tool since 2010, but it has remained stagnant since 2016 and has not escalated in tandem with rising emissions.

In national carbon planning documents such as the Energy Conservation Act and the Carbon Credit Trading Scheme (CCTS), it is evident that the state places greater emphasis on market incentives and industrial flexibility rather than strict mitigation targets. This aligns with a realist approach within green political thought, which views carbon policies primarily as instruments for maintaining fiscal stability and preventing social unrest caused by higher energy costs. From the perspective of strategic delay theory, such realist tendencies help explain why carbon pricing in

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these contexts has evolved in symbolic or diluted forms rather than as engines of structural transformation.

A similar stance is evident in South Africa, where carbon pricing has been shaped from the outset by the influence of the energy–mineral coalition, including Eskom, Sasol, and the Minerals Council. Although the country has had a national carbon tax since 2019 and claims wide emissions coverage (approximately 80%), the effective tax rate remains very low, with nearly all major sectors enjoying exemptions ranging from 60% to 95%. Pressure from industry has also succeeded in postponing the second phase of the carbon tax to 2026, initially planned for 2023. Analyses by Climate Transparency (2020) and JustShare (2025) indicate that weak incentives, a complex tariff structure, and systemic resistance from business associations have rendered the policy almost ineffective as a mitigation tool, serving more as a symbolic gesture of compliance with global norms. The state–corporate relationship in this case does not reflect open antagonism, but rather a strategic coexistence that mutually benefits short-term fiscal and economic stability.

Mexico exhibits a similar pattern, although institutionally it is more open to market-based mechanisms. The carbon tax introduced through IEPS in 2014 was framed as a fiscal instrument, with a flat rate of around USD 3.5 per ton of CO_2 and lacking any escalation roadmap. In its design, the policy even excluded natural gas—one of Mexico's dominant energy sources—on the grounds of maintaining domestic prices and industrial competitiveness. The launch of the national ETS has also stagnated: although a pilot phase began in 2020 covering approximately 37% of national emissions, there has been no significant progress toward full operational implementation. Meanwhile, several states such as Querétaro and the State of Mexico have enacted their own carbon taxes at varying rates, reflecting vertical fragmentation in climate governance and weak coordination across levels of government. The involvement of energy industries like Pemex and CFE has been formally cooperative but lacks long-term commitment to energy transition or investment in clean technologies. This reflects what Skovgaard & Ferrari (2022) describe as passive acceptance within the realist ideological framework: accepting climate policy insofar as it does not disrupt the foundational structures of national political economy.

Table 4. Carbon Tax Implementation Based on Typology

Category	Carbon Tax Variant	Scheme Description	Rate & Mechanism	Revenue Use / Policy Strategy	Country Example & References
Symbolic / Low Carbon Tax	Fixed-Rate Carbon Tax	Flat and low rate, without escalation or earmarked revenue.	< USD 5/ ton CO_2	Integrated into state budget without earmarking; fiscal or symbolic aim.	Mexico – IEPS 2014; Argentina – OECD (2021); Skovgaard & Ferrari (2022)
Revenue-Neutral / Dividend-Based	Revenue-Neutral Carbon Tax	Tax revenue returned via income tax cuts or direct transfers to citizens.	CAD 10/t → CAD 80/t CO_2	Income tax reduction and household dividends.	British Columbia – Carbon Tax Act (2008); Baranzini et al. (2017); Murray & Rivers (2015)
Revenue-Neutral / Dividend-Based	Climate Dividend with Escalator	Citizen dividends combined with progressive tariff increases.	€35 → €55/t CO_2	Annual cash dividends; tariff escalation roadmap.	Austria – Eco Social Tax Reform; Baranzini et al. (2017)

Category	Carbon Tax Variant	Scheme Description	Rate & Mechanism	Revenue Use / Policy Strategy	Country Example & References
Hybrid ETS + Floor Price	Cap-and-Trade + Price Floor	Emissions trading system with a minimum carbon price.	USD 20–30/t CO_2 (floor price)	Industrial compensation and low-carbon technology subsidies.	South Korea – Korea ETS Act (2015); UK – Carbon Price Floor (2013); Aldy & Stavins (2012)
Hybrid ETS + Floor Price	ETS with Offset & Revenue Recycling	ETS combined with carbon offsets and revenue recycling for green subsidies.	CO_2 market price with floor	Revenue used to support clean technology.	California (USA); Döbbeling-Hildebrandt et al. (2024); ICAP (2023)

Source: Compiled from various sources.

Meanwhile, South Korea appears more ambitious in its formal approach, yet remains firmly embedded within the logic of realist compromise. As the first Asian country to implement a national Emissions Trading System (K-ETS) in 2015, Korea now covers nearly 80% of domestic emissions under a relatively robust regulatory framework. Nonetheless, persistent pressure from major industrial associations—such as the Korea Chamber of Commerce and Industry (KCCI), POSCO, and Hyundai—has led to a series of institutional concessions: relaxed allocation rules, widespread use of carbon offsets, and the eventual abandonment of plans for a separate carbon tax. While K-ETS has succeeded in establishing an active and relatively stable carbon market, the resulting carbon price has often fallen short of the social cost estimates deemed necessary for meeting the Paris Agreement targets. According to ICAP (2024), the average K-ETS price in 2023 was merely USD 22—far below the recommended threshold (~USD 50–100) required to catalyze decarbonization in heavy industries. Thus, despite its institutional resemblance to liberal models, Korea's domestic power configuration continues to reproduce realist imperatives: preserving economic competitiveness and ensuring the stability of strategic industrial sectors.

When viewed through the typology of carbon tax implementation, the four countries occupy positions on the spectrum that lean toward symbolic or weak hybrid variants. India has yet to establish any explicit instrument and remains in a pre-compliance phase; South Africa imposes a low carbon tax with broad exemptions; Mexico applies a fixed-rate tax without any escalation mechanism; and South Korea relies on an ETS scheme supplemented by offsets and technology subsidies. None of these countries has adopted a revenue-neutral model akin to that of British Columbia or Austria, where carbon tax revenues are returned to citizens or invested in social and energy transformation initiatives. This highlights the absence of redistributive and transformational dimensions in their carbon pricing policies—features that are emphasized in both radical and progressive liberal approaches. As a result, what emerges in the Global South can be described as a form of climate fiscalism marked more by revenue collection than by structural ambition.

Beyond that, the dynamics across the four countries reveal that resistance to carbon taxation is not solely driven by industry, but is also embedded within state strategies aimed at preserving fiscal calculations, elite stability, and national development narratives. Within this framework, climate policy is far from neutral; it functions as a contested arena of power negotiation between the state, industry, and society. As noted by Dubash et al. (2018) and Jakob et al. (2020), developing countries often adopt a "low ambition, high flexibility" approach to carbon governance—accepting international principles in form, but implementing them with minimal

intensity in order to avoid domestic backlash or economic loss. This underscores the importance of viewing carbon taxation not merely through a technocratic lens, but as the outcome of ideologically infused policy alignments and context-specific political-economic coalitions.

Conclusion

This study compares the strategies of delay and industrial resistance to carbon taxation policies in India, South Africa, Mexico, and South Korea. The main findings indicate that in all four countries, industrial resistance occurs not only through direct lobbying, but also through strategic coalitions between state actors and carbon-intensive sectors. The state plays an active role in accommodating industrial pressure by offering fiscal concessions, delaying implementation phases, and designing policies that ultimately weaken the effectiveness of carbon tax instruments. As a result, symbolic policies emerge, tax rates stagnate, and incentives for energy transition remain weak.

India has not increased the coal cess since 2016, despite consistently high emissions intensity. Mexico's energy sector has maintained the carbon Excise Tax on Production and Services (IEPS) tariff below USD 5 per ton. In South Korea, the advanced Emissions Trading System (ETS) reflects a strong alignment between government agencies and heavy industry, which sustains the system's flexibility. South Africa has implemented a largely symbolic policy that permits extensive exemptions.

Concrete evidence of these findings is visible in India's decision not to raise its coal cess since 2016, despite persistently high emissions intensity. In Mexico, the energy industry has successfully pushed to keep the IEPS carbon tax rate below USD 5 per ton. South Korea, although operating a more advanced ETS, illustrates a close alliance between bureaucracy and heavy industry that has preserved the system's flexibility. Meanwhile, South Africa has adopted a largely symbolic carbon tax, granting wide exemptions, which reflects how short-term domestic calculations continue to outweigh long-term transition commitments.

As a final note, this study invites further research into the dynamics of resistance and negotiation in climate policy across other developing countries, especially through longitudinal analyses of state–industry relations within the context of decarbonization. Equally important is the need to explore how external pressures—such as international trade, multilateral climate agreements, and transitional financing—may reshape domestic political incentives and foster more ambitious structural reforms.

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