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Green Taxation as a Catalyst for Sustainable Commerce: A Comparative Analysis of Policy Frameworks in Developed and Developing Nations

Mr. Satyamgiri Goswami[1], Dr. Hemant Valand[2]

[1]Research Scholar, Department of Accounting and Financial Management, Faculty of Commerce, The Maharaja Sayajirao University of Baroda.
[2]Assistant Professor, Department of Accounting and Financial Management, Faculty of Commerce, The Maharaja Sayajirao University of Baroda.

Abstract:
Green taxation has emerged as an important policy instrument for aligning economic activities with environmental sustainability. This study examines green taxation as a catalyst for sustainable commerce through a comparative analysis of policy frameworks in developed and developing nations. The research adopts a mixed-methods and comparative approach to analyse the design, implementation, and outcomes of environmental taxes, including carbon, energy, pollution, and resource-use taxes. It explores how differences in economic structure, institutional capacity, and development priorities influence the effectiveness of green taxation policies. The findings indicate that developed nations employ green taxation primarily to achieve climate mitigation goals, promote energy efficiency, and support green innovation, supported by strong enforcement mechanisms and revenue recycling. In contrast, developing nations use green taxation more cautiously, focusing on pollution control, resource conservation, and sustainable growth while facing challenges related to administrative capacity and equity concerns. The study highlights that, despite contextual differences, green taxation plays a significant role in encouraging environmentally responsible business practices and sustainable commerce. The paper concludes with policy recommendations to enhance the effectiveness of green taxation by balancing environmental objectives with economic growth and social equity considerations across different development contexts.

Keywords: Green Taxation, Sustainable Commerce, Environmental Policy, Developed Nations, Developing Nations, Tax Instruments, Comparative Analysis.

Introduction:

Governments worldwide are increasingly turning to “green taxation” fiscal instruments that price pollution, disincentive environmentally harmful activities, and incentivize low-carbon alternatives as a central pillar of climate and environmental policy. Environmental taxes can target energy use, transport, waste, and measured emissions; when well-designed they both correct market failures associated with negative externalities and mobilize public revenue that can be used for green investment or to offset distributional harms. The practical design and impacts of green taxes, however, diverge sharply between developed and developing economies. Advanced economies typically possess more mature tax

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administrations, broader social safety nets, and deeper financial markets, which allow them to implement carbon pricing or emissions trading with complementary measures (revenue recycling, targeted transfers, and clean-technology subsidies) to smooth distributional impacts and spur innovation. In contrast, many developing nations face binding constraints limited administrative capacity, heavier reliance on fossil fuels for energy access and industry, and pressing poverty-alleviation needs making political economy trade-offs and sequencing of reforms especially critical (https://www.oecd.org/en/topics/policy-issues/tax-and-the-environment). Although empirical data demonstrates that carbon pricing and associated green fiscal reforms can change behaviour and produce quantifiable revenue streams, present coverage and pricing levels fall well short of what integrated climate models suggest is required to achieve the objectives of the Paris Agreement. The gap between policy purpose and necessary ambition is highlighted by the fact that, despite the expansion of global carbon pricing instruments in recent years and the resulting record revenues, only a small portion of emissions are priced at levels consistent with effective climate stabilisation pathways. Policy decisions are influenced by factors other than efficiency, such as administrative viability, competitiveness, and equity. Transparency, predictable pricing, effective revenue use (such as lump-sum rebates or targeted assistance for low-income households), and coordination with larger fiscal and industrial policies are all emphasised in the literature as key components of successful design, especially in situations where ongoing distributional or competitive risks affect political viability. Lessons on the sequencing, compensatory measures, and institutional changes required to convert green taxes into sustainable, equitable green commerce can be learned via comparative case studies (e.g., carbon taxes in high-income countries vs broader energy taxes or subsidy reforms in lower-income settings). In order to assess how various design affect social, environmental, and economic results in established and developing contexts, this research employs comparative policy analysis.

By synthesizing international experience and empirical evidence, it seeks practical policy recommendations that balance ambition with feasibility harnessing green taxation as a catalyst for sustainable commerce without undermining development priorities.

Review of Literature:

Parry, Heine, Lis, and Li (2014) sustainable commerce can be supported by green taxation of developing countries only if it is accompanied by tailored compensation for low-income household. However, green taxes ran the risk of making inequality worse in the absence of accompanying social programs. Overall, the literature consistently indicated that green taxation functioned as an effective catalyst for sustainable commerce only when aligned with institutional capacity, equity considerations, and long-term development goals.

The Organisation for Economic Co-operation and Development (OECD, 2017) discussed environmental tax policies in member countries and discovered that green taxes helped to reduce emissions while still aiding budgetary consolidation. The study found that revenue recycling through tax cuts or social transfers reduced detrimental distributional effects in industrialised countries.

The World Bank (2019) explained carbon pricing policies in low as well as middle income nations and discovered that green taxes helped to reduce emissions while still aiding budgetary consolidation. The study found that revenue recycling through tax cuts or social transfers reduced detrimental distributional effects in industrialised countries.

The International Monetary Fund (IMF, 2019) the research focused on carbon taxing method globally and concluded that political resistance due to worries about poverty, competitiveness and inflation are

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faced by emerging economies. However, the IMF study also demonstrated that targeted compensation mechanisms and gradual implementation improved policy acceptability.
Jabeen, G. (2025) conducted a cross-country analysis and reported that green taxation packages contributed to low-carbon transitions in G7 economies, though outcomes varied with complementary policies and revenue-use strategies.

Objectives of the Study:

- To study the conceptual and theoretical foundations of green taxation, including its role in internalizing environmental externalities and promoting sustainable economic behaviour.
- To examine the nature and scope of green taxation measures adopted in developing nations, focusing on policy constraints, institutional capacity, and socio-economic challenges.
- To identify policy design features and best practices that enhance the acceptability and effectiveness of green taxation across countries.
- To suggest policy recommendations for designing inclusive and context-specific green taxation frameworks that support sustainable commerce and development goals.

Scope of the Research Study:
The major scope of the research study is to compare policy framework for Green Taxation in representative Developed and Developing Countries. The study also covering how Green Taxes influences Sustainable Commerce.

Research Approach:
The present study will adopt a descriptive research approach, as it seeks to provide a detailed understanding of how Green Taxes contribute the evaluation of policy effectiveness across different income and institutional contexts in Developing Countries. As the study is in a descriptive nature which also highlights the specific challenges and major solutions for improving the conditions of Developing Countries in Green Taxes.

Research Methodology:
The research paper is an attempt at exploratory research based on secondary data. The required secondary data for completing the investigation will be collected mainly from published sources in Journals, Articles, Books, Web, Government report, etc. An attempt has been made to understand the various initiatives taken by Government for Sustainable Development.

Concept of Green Taxation:
Green taxation, also referred to as environmental taxation or eco-taxation, is a fiscal policy instrument designed to discourage environmentally harmful activities by internalizing the social and environmental costs associated with pollution and resource depletion. The fundamental principle of green taxation is derived from environmental economics, which argues that market prices often fail to reflect the true social cost of production and consumption, leading to overuse of natural resources and environmental degradation (Pigou, 1920).
Green taxes are typically levied on activities or products that generate negative environmental externalities, such as carbon emissions, fossil fuel consumption, industrial pollution, waste generation, and excessive use of natural resources. By increasing the cost of environmentally damaging behaviour,

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green taxation provides economic incentives for producers and consumers to shift toward cleaner technologies, energy efficiency, and sustainable practices (OECD, 2017). The concept of green taxation is closely associated with the "polluter pays principle," which states that those responsible for pollution should bear the cost of managing it. This principle has been widely endorsed in international environmental policy and serves as a normative justification for environmental taxes (OECD, 2011). Unlike regulatory approaches that mandate specific technologies or standards, green taxes allow economic agents the flexibility to choose the most cost-effective means of reducing environmental harm.

An important dimension of green taxation is its potential to generate a "double dividend." The first dividend arises from environmental improvement through reduced pollution, while the second dividend emerges when tax revenues are recycled to reduce other distortionary taxes or finance green investments and social welfare programs (Bovenberg & de Mooij, 1994).

This dual benefit has strengthened the appeal of green taxation among policymakers, particularly in the context of climate change mitigation. In recent years, green taxation has gained prominence as a central tool for achieving sustainable development and low-carbon transitions. Institutions such as the World Bank and the International Monetary Fund have advocated carbon pricing and energy taxation as efficient instruments to align economic growth with environmental sustainability (World Bank, 2020; IMF, 2019). However, the effectiveness of green taxation depends on policy design, institutional capacity, and the socio-economic context in which it is implemented.

Common green tax instruments include:

- **Carbon Taxes:** Charges on carbon dioxide emissions.
- **Energy Taxes:** Levies on consumption of non-renewable energy.
- **Pollution Charges:** Fees for air, water, and soil pollution.
- **Resource Extraction Taxes:** Applied to mining, logging, and water use.
- **Vehicle Emission Fees:** Based on emission standards or fuel efficiency.

Green Taxation in Developed Nations:

1. Sweden

Sweden pioneered environmental taxation in the 1990s with high carbon and energy taxes. Its tax framework includes:

- A broad-based carbon tax covering fossil fuels.
- Tax incentives for renewable energy.
- Rebates for low-income households to mitigate regressively.

Impact: Substantial reduction in emissions while maintaining strong economic growth (**Green**

2. Germany

Germany's ecological tax reform encompassed fuel taxes, electricity levies, and waste disposal charges. It is coordinated with EU emissions trading systems.

Key Features:

- Gradual tax escalation.
- Use of revenues for renewable energy subsidies (e.g., Energiewende).

3. Japan

Japan's carbon tax has been used alongside energy efficiency policies. Its tax regime:

- Focuses on industrial emissions and energy intensity.
- Encourages clean tech investments.

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Outcomes: Improved energy efficiency but limited CO_2 reduction due to structural economic dependencies.

Green Taxation in Developing Nations

1. India

India introduced several environmental levies, including:

- Cess on coal and crude oil.
- Road-user charges based on vehicular emissions.

Challenges:

- Implementation gaps due to administrative complexity.
- Equity concerns for low-income groups.

2. Brazil

Brazil applies environmental taxes in forestry, water use, and pollution spheres. Policy is fragmented across federal and state levels.

Strengths: Incentivized reforestation.

Limitations: Limited enforcement in informal sectors.

3. South Africa

South Africa's carbon tax, established in 2019, targets large industrial emitters.

Observations:

- Tax rates are initially modest with gradual escalation.
- Revenue recycling into renewable projects is in early stages.

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Comparative Analysis:

1. Policy Design and Breadth

- Developed nations typically have strong enforcement systems and thorough coverage of all industries.
- Sectoral or pilot-scale policies and implementation obstacles are common in developing countries.

2. Revenue Use and Redistribution

- Tax funds are more likely to be recycled into social rebates, equitable mechanisms, and clean energy subsidies in developed countries.
- Developing countries have conflicting budgetary demands, which limits the amount of money that can be allocated to environmental projects.

3. Institutional Capacity

- Effective monitoring, compliance, and the ability to reduce economic downturns through fiscal buffers are all correlated with institutional resilience.
- Emerging countries fall well short in these areas.

4. Economic and Social Trade-offs

- Low-income households may be disproportionately affected by regressive green taxes.
- Developed countries tackle this through social transfers and refunds.

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- while poor countries suffer from a lack of financial resources.

Discussion:

1. Policy Effectiveness

Green taxation influences both supply and demand but its effectiveness is shaped not only by tax design but also by:

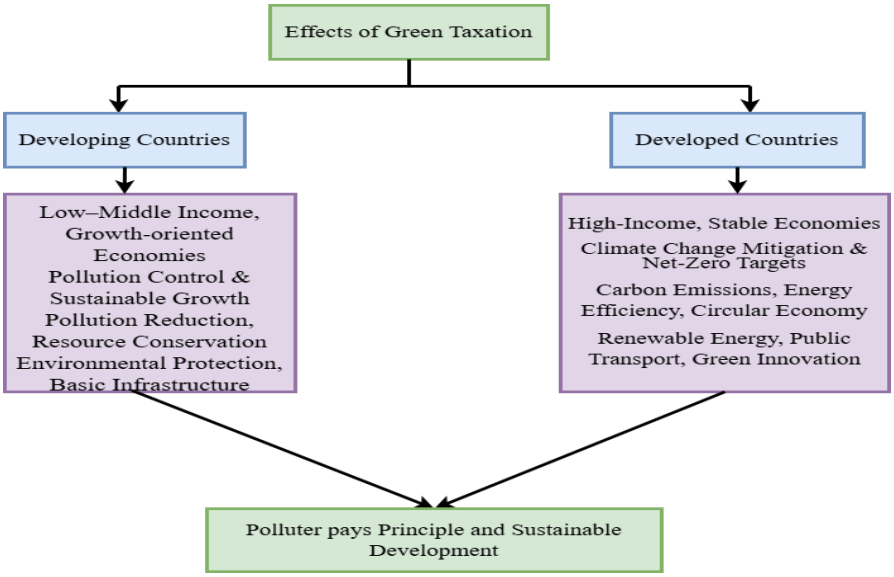
- Complementary policies (subsidies, regulations).
- Technological readiness.
- Public awareness.
- Administrative capacity.

2. Lessons for Developing Nations

To enhance impact:

- Implement graduated tax rates sensitive to economic contexts.
- Strengthen monitoring and data systems.
- Integrate green tax policy with national sustainable development goals.
- Enable progressive measures to balance equity and environmental goals.

Figure No. 1.0 A Comparative Conceptual Model of Green Taxation and Sustainable Development in Developed and Developing Economies



Source: Developed from Review of Literature

The proposed research model explains the effects of green taxation in both developed and developing countries within the framework of the Polluter Pays Principle and sustainable development. It highlights how green taxation operates differently across economies based on income levels, development priorities, and institutional capacity. In developing countries, green taxation primarily focuses on pollution control, resource conservation, and supporting basic infrastructure while balancing growth-oriented economic needs. In contrast, developed countries use green taxation as a strategic policy tool for carbon emission reduction, energy efficiency, circular economy practices, and achieving net-zero climate targets. Overall,

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the model demonstrates that although policy objectives and outcomes differ, green taxation serves as a common catalyst for promoting environmentally responsible and sustainable commerce across economies.

Conclusion:

Green taxation holds significant promise as a catalyst for sustainable commerce, shaping market behaviour while generating revenue for environmental investments. Developed economies showcase mature frameworks with demonstrable impacts, whereas developing nations face structural challenges but also opportunities to tailor green taxation to their developmental priorities. Future research should empirically model distributional impacts and explore digital taxation tools for real-time compliance. the study demonstrates that green taxation contributes positively to sustainable commerce by encouraging cleaner production, energy efficiency, and green investment. The research concludes that context-specific policy design, strengthened administrative capacity, and equitable revenue use are essential to enhance the role of green taxation in advancing sustainable development across economies.

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