Fiscal Policies for Development and Climate Action

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Outline

- The growing importance of climate-smart fiscal policies in the developing world
- Environmental tax reform: benefits beyond climate
- Leveraging fiscal policy to support climate-change adaptation
- A fiscal-policy package for climate resilience and accelerated growth
The growing importance of climate-smart fiscal policies in the developing world

- The effects of climate change are already evident. Rising average temperatures are slowing global growth and inhibiting progress on poverty reduction and on the Sustainable Development Goals.

- Greenhouse gas (GHG) emissions in developing countries now exceed those in developed countries.

- Less-developed countries are especially vulnerable to the effects of climate change, as are poor households worldwide.

- Fiscal instruments can reduce carbon emissions in a cost-efficient manner while advancing development goals.
Climate-change mitigation is a global priority

The world has a finite global carbon budget to keep global warming under 2°C.

Total CO₂ Emissions Budget

1.9 trillion tonnes used
1 trillion tonnes left

Evolution of recent CO₂ emissions (in gigatonnes):
- Low-income countries
- Middle-income countries
- High-income countries
Two key obstacles inhibit action on climate change

• The first is the perception that the costs of mitigation are large, concentrated, and immediate, while the benefits are modest, diffuse, and future-oriented. This perception reflects inadequate public awareness of the economic gains that investing in mitigation can generate.

• The second is uncertainty regarding the scale and pace of climate change and the distribution of its associated costs. Interests that favor the status quo continue to leverage this uncertainty to advocate against climate action.
Meeting the challenge: mitigation, adaptation, risk management

Mitigation: measures to slow the pace and lessen the severity of climate change.

Adaptation: measures to reduce the damage caused by climate change.

Disaster-risk management: policies that strengthen disaster preparedness, build response capacity, and promote resilience.
Environmental Tax Reform: Benefits beyond Climate
Why pricing carbon matters

• Burning fossil fuels generates large amounts of carbon dioxide. This is the main source of greenhouse gas (GHG) emissions, which causes climate change.

• Firms and consumers base their decisions on private costs, which exclude the social costs of carbon, production and consumption of fossil fuels generate socially inefficient amounts of GHG.

• Aligning the private costs of GHG emissions with their social costs requires adopting mechanisms to price carbon at both the national and international levels.
What does ‘putting a price on carbon’ mean?

• Putting a price on carbon means to include in the price of fossil fuels the costs of the damage they produce (pollution, environmental degradation, climate disruption).

• The idea of pricing carbon can be traced back to ‘the Economics of Welfare’ published by Pigou in 1920. He introduced the concept of externality and the idea that it can be corrected by the imposition of a charge.
How to price carbon

Price-based interventions

• Taxing emissions or emissions-producing activities
  • A carbon tax is imposed on the carbon content of fossil fuels

• Emissions Trading Systems
  • ETS set a cap on total GHG emissions and require emitters to hold a permit for each ton of CO₂ that they emit. Permits are allocated through (i) auctioning; (ii) free allocation based on historical emission levels or (iii) emissions per unit of output

• Combinations of taxes or ETS with carbon offsets
  • Mechanisms allowing individuals and organizations to substitute their tax or ETS obligations when they purchase “offsets” by funding activities that abate greenhouse gases elsewhere.

• Reducing or eliminating fossil fuel subsidies

Non-price instruments

• Regulatory policies which results in an implicit marginal price on carbon, such as tradable performance standards
Environmental taxes

• Taxes whose base is: “a physical unit (or a proxy of it) that has a proven specific negative impact on the environment” (OECD 2018)

• This includes:
  • pollutants – e.g. CO2, NOx, SO2, solid waste
  • energy – coal, electricity, petroleum, diesel
  • transportation – road, shipping & air duties, congestion

What is optimal environmental taxation?
Taxing environmentally damaging activities yields benefits that extend well beyond emissions reduction.

Environmental taxes have long been recognized as a means to:

- **Increase market efficiency**, as prices are adjusted to reflect the environmental costs of production.
- **Improve the efficiency of the tax system**, as upstream taxes on energy and fuels are especially effective at covering the informal sector, entail relatively low administration and compliance costs, and can supplant more distortive forms of taxation.
- **Broaden the tax base and increase domestic resource mobilization**.
- Reduce GHG emissions, other forms of pollution, and traffic congestion.
Distributional and poverty impacts of environmental taxation

• Distributional and poverty effects depend on various factors:
  • Fossil fuel consumption patterns, tax bases, revenue usage
  • Demand responses, factor incomes, production structures

• Evidence suggests that a small portion (6% to 12%) of revenues are needed to compensate the lowest quintile for the income loss deriving from the increase in energy prices

• Compensation methods include:
  • universal basic income and conditional or unconditional cash transfers
  • tax rebates and raising income tax thresholds
  • increasing progressive social spending – health, education, social safety nets
  • increasing public investment where this benefits the poorest, e.g. public transportation, energy access

Methods vary by country, need to balance leakage (of monies to other quintiles) and under-coverage (missing out some of the poorest)
What is environmental tax reform (ETR)?

ETR combines taxes on:
- pollutants – CO2 (carbon tax), NOx, SO2, solid waste
- energy – coal, electricity, petroleum, diesel
- transportation – road, shipping & air duties, congestion

with measures to allocate the revenues:
- To lower other, more distortive taxes (e.g., labor taxes)
- Expenditure policies:
  - Investments in infrastructure, human development, or climate-change adaptation;
  - Rebates – e.g. to less polluting emitters;
  - Compensation – e.g. to bottom quintiles

and supplementary policies:
- Fossil fuel subsidy reforms
- Changes to R&D policies
Benefits of ETR

- Increased output and employment, if revenues are used to lower distortive taxes on the formal sector
- Welfare gains, if revenues are spent on education, health, and other public goods
- Greater economic resilience, if revenues are spent on adaptation (e.g., investment in climate-resilient infrastructure)
- More rapid technological change and increased investment in low-carbon sectors and production models
- Development co-benefits (non-economic, non-emissions benefits):
  - Better air quality – and improvements in human health (reduced morbidity and mortality)
  - Fewer road accidents – fuel taxes can help cut costly road accidents
  - Less congestion – fuel taxes can reduce costly congestion
  - Increased energy security – ETR can help countries reduce their reliance on fossil-fuel imports
Various channels tend to increase the positive effects of ETR on output, employment, and welfare …

• Channels include:
  • Informal sector interactions – ETR can shrink the size of the informal sector
  • Taxing ‘Ricardian rents’ – ETR can incentivize innovation vs. rent-seeking by firms, the latter of which is prevalent in the fossil-fuel sector
  • Tax evasion effects – ETR can reduce the economic costs of the tax system by reducing tax evasion (upstream environmental taxes are harder to evade vs. income or capital taxes)
  • Others: involuntary unemployment, labor skills composition, induced technological change, imperfect goods market competition
Environmental tax reform is particularly important in developing countries

- All countries have committed to climate-change mitigation, but poor countries have the most to gain from adopting least-cost mitigation instruments.
- The benefits of reducing local pollution and congestion are greatest in developing countries, which account for 92 percent of the 9 million premature deaths caused by pollution each year.
- Taxes on fuel are especially well suited to countries with large informal sectors, high rates of tax evasion, and limited capacity for tax administration.
- Due to differences in consumption patterns across income groups, fuel taxes tend to be especially progressive in developing countries.
Two key questions about environmental taxes and competitiveness:

Do environmental taxes weaken the competitiveness of domestic firms?

Do environmental taxes encourage firms to relocate production to countries with lower environmental tax rates?
Environmental taxation can boost firm productivity and improve competitiveness in emerging economies.

Evidence from the World Bank’s Enterprise Surveys show that higher energy prices are associated with firm-level improvements in labor productivity and profitability. This result holds even for energy-intensive firms and is not affected by other firm characteristics, such as size or type of ownership.
Environmental tax reform need not reduce firm-level competitiveness

In addition to the findings of the Enterprise Surveys, recent empirical analyses in Indonesia and Mexico have revealed that higher fuel prices may improve plant-level performance by incentivizing investments in productive efficiency, which prevent higher fuel costs from passing through to output prices.

These results are consistent with the strong version of the Porter hypothesis, which argues that more stringent environmental policies can spur innovation, yielding productivity gains that exceed compliance costs (Porter and Van der Linde, 1995).

These results also contradict the assumption that environmental taxation has an inherently negative impact on the productivity and international competitiveness of domestic firms.
Higher energy prices are associated with less energy-intensive production

Leveraging Fiscal Policy to Support Climate-Change Adaptation
Climate change adaptation can be described as essentially “development in a hostile climate.”

- Nicholas Stern
Climate change is a gradual process punctuated by extreme events

Gradual process:
Some aspects of climate change, such as crop displacement and rising sea levels, have a relatively slow but progressively intensifying economic impact.

Extreme events:
Climate change also increases the frequency and severity of weather-related shocks, such as hurricanes, tornados, and droughts, which can inflict severe human and economic costs in a short period of time.
Adapting to climate change requires complementary actions that build resilience to both its gradual and extreme effects.

**Public policies:** pricing reforms, zoning measures, building codes, and other regulations that integrate climate resilience.

**Infrastructure investment:** dikes, seawalls, irrigation and drainage networks, and other systems that reduce the damage from environmental changes and extreme weather events.

**Disaster management:** risk analyses, early warning systems, communication strategies, and other measures to mitigate the economic and human costs of natural disasters.

**Financing instruments:** microcredit, insurance, and other financial products designed to manage risk and promote the efficient reallocation of resources.
Fiscal policy can play a key role in climate-change adaptation and disaster response

- Early, preventive investments in adaptation combined with policies to maintain adequate fiscal space and ease borrowing constraints
- Credible fiscal rules to avoid a procyclical fiscal response to the economic volatility generated by climate change and extreme weather events
- Fiscal buffers, such as contingency funds, built up gradually and dispersed according to clearly defined criteria
- A climate dimension added to the chart of accounts to allow policymakers to systematically plan, track, and manage climate-related spending
- Climate-change considerations mainstreamed into the design, appraisal, and selection of public investment projects
- Disaster-related extension clauses in debt instruments to defer payments of both principal and interest in the event of a natural disaster
Public investment in climate-change adaptation must not add to the deficit

Adopting new environmental taxes, increasing existing taxes on income and consumption, and/or reducing spending in low-priority areas can finance climate policy without compromising fiscal sustainability.

By contrast, deficit financing increases the debt stock and reduces the scope for external borrowing in response to extreme weather events.
Well-designed fiscal policies can strengthen disaster response and reinforce financial resilience

Disaster Response
A strong fiscal stance can ensure domestic funds are available to finance short-term relief and reconstruction while facilitating rapid access to donor grants or concessional financing.

Financial Resilience
Governments can minimize the fiscal risks associated with climate change through: (i) ex ante financing arrangements; (ii) fiscal buffers, self-insurance, and contingent instruments (e.g., CAT DDO); and (iii) disaster-risk insurance (e.g., parametric insurance, catastrophe bonds).
Climate change intensifies fiscal risks

- Both gradual environmental changes and extreme weather events can cause fiscal outcomes to deviate from expectations.

- Climate change disproportionately magnifies certain sources of fiscal risk—including natural disasters and shocks to agricultural production—that are already especially acute in developing countries.

- While climate change entails risks to both the revenue and expenditure sides of the budget, the spending demands of disaster relief and reconstruction are often the most challenging to manage.
Climate change increases different dimensions of fiscal risk through different channels

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Examples</th>
<th>Climate-change channels</th>
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<tbody>
<tr>
<td><strong>Economic growth</strong></td>
<td>Weaker-than-expected economic performance reduces tax revenue and increases the cost of unemployment insurance and other social protection programs.</td>
<td>Environmental changes and extreme weather events threaten to disrupt activity across a wide range of economic sectors.</td>
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<tr>
<td><strong>Commodity prices</strong></td>
<td>Sudden changes in commodity prices affect government spending, customs duties, and energy, agricultural, or food subsidies.</td>
<td>The increased frequency and severity of extreme weather events increase the volatility of global commodity prices.</td>
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<td><strong>State-owned enterprises (SOEs)</strong></td>
<td>The poor financial or commercial performance of SOEs may generate contingent liabilities.</td>
<td>Climate change intensifies risks to SOE performance.</td>
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<tr>
<td><strong>Public-private partnerships (PPPs)</strong></td>
<td>PPPs may entail contractual obligations and/or implicit public guarantees with important fiscal implications.</td>
<td>Climate change threatens the financial viability of PPPs.</td>
</tr>
<tr>
<td><strong>Natural disasters</strong></td>
<td>Disasters can disrupt production in fiscally important sectors and may require large-scale relief and reconstruction spending.</td>
<td>Climate change increases the frequency and severity of natural disasters.</td>
</tr>
<tr>
<td><strong>Public health emergencies</strong></td>
<td>Epidemic disease can radically increase health spending and may adversely affect employment, production, and trade.</td>
<td>Rising temperatures and extreme weather events increase the risk of epidemics.</td>
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<td><strong>Judicial awards</strong></td>
<td>Court judgments against the government may result in unexpected spending.</td>
<td>Courts may determine that a government is liable for climate-adaptation measures.</td>
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Addressing the fiscal risks associated with climate change

- Include climate and disaster risks in fiscal risk assessments
- Integrate disaster risk into medium-term fiscal frameworks and debt-sustainability analyses
- Create escape clauses that allow for the suspension of fiscal rules in the wake of natural disasters
- Expand social safety nets to strengthen disaster preparedness
- Develop financial contingency plans and instruments to reduce and transfer risk
The World Bank has developed a toolkit for assessing fiscal risks related to climate change.

**Fiscal Risks and the Fiscal Hedge Matrix**
- Used to identify fiscal risks and design risk-mitigations strategies.

**Integrated Fiscal Framework**
- Used to quantify the fiscal resource envelope and allocate resources among competing spending programs.

**Stochastic Fiscal Sustainability Analysis**
- Used to project macroeconomic variables under various climate-related shock scenarios and assess the impact of alternative strategies for financing disaster response.
In the Dominican Republic, a major natural disaster would entail a heavy fiscal cost...

- Scenario: The country is struck by a major disaster (with a probability of occurring once in 100 years).

- The disaster’s large fiscal impact causes the primary balance to deteriorate sharply, while the debt-to-GDP ratio rises to 70 percent over the projection period, up from 40 percent in the baseline scenario.
...but in Jamaica, a financing strategy could mitigate the fiscal impact of a disaster.

- Scenario: The country is struck by a major disaster (with a probability of occurring once in 100 years).

- The disaster’s large fiscal impact is buffered by the use of various pre-established financing instruments, enabling the government to begin recovery and reconstruction efforts quickly and with limited recourse to new commercial borrowing, which mitigates the deterioration of the debt-to-GDP ratio.
A Fiscal-Policy Package for Climate Resilience and Accelerated Growth
Using fiscal policy to combat climate change while accelerating economic growth (1)

1. Adopt environmental tax reforms that align the private cost of energy with its social cost.
   - Eliminate fossil-fuel subsidies
   - Implement actions that benefit the public, such as pollution charges and incentives for renewable energy
   - Introduce carbon taxes or build carbon costs into existing fuel taxes, then use the revenues to reduce distortive taxes and to offset the distributional and poverty effects of higher fuel taxes
   - Reform the energy sector to ensure that costs pass through to consumers; reforms to improve energy efficiency may also be warranted

2. Compensate affected firms only when necessary.
   - Ensure that any support to affected firms is well targeted, proportionate to the negative impact of the policy changes, and designed to decrease over time
   - Rather than offering exemptions for exporters, use output-based rebates or consumption-based excise taxes
Using fiscal policy to combat climate change while accelerating economic growth (2)

3. Strengthen resilience by investing in adaptation, building fiscal buffers, and creating or enhancing insurance mechanisms.

- Pursue policies that encourage climate adaptation and the adoption of low-carbon technologies by the private sector
- Include climate-related fiscal risks in fiscal risk statements and budget processes
- Integrate climate considerations into all stages of the public-investment cycle
- Use sectoral policies to identify adaptation needs and prioritize public investments that mitigate climate risks and build resilience
- Develop a comprehensive financing strategy for climate-change mitigation and adaptation
- Incorporate disaster-risk management into fiscal rules, medium-term fiscal frameworks, and debt sustainability analyses
- Gradually build fiscal buffers and ease borrowing constraints
- Explore innovative ways to transfer risks to markets, as well as mechanisms to pool risks at the national, regional, or international level
Annex
Private and social costs of fossil fuels: an example

classification (economic):

- private costs = $1
- social costs (externalities) = $0.50

socially optimum price = $1.50

price:

- consumer: $0.75
- government: $0.12 $0.13
- society: $0.20 $0.20 $0.10

monetized cost type:

- pre-tax subsidy (1)
- foregone VAT (at 15%) (2)
- local health costs (4)
- road accidents & congestion (5)
- global warming costs (6)

classification (fiscal):

- subsidized price = $0.75
- post-tax subsidy = $0.75
Big gaps between efficient prices and market prices persist

Thank You