

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



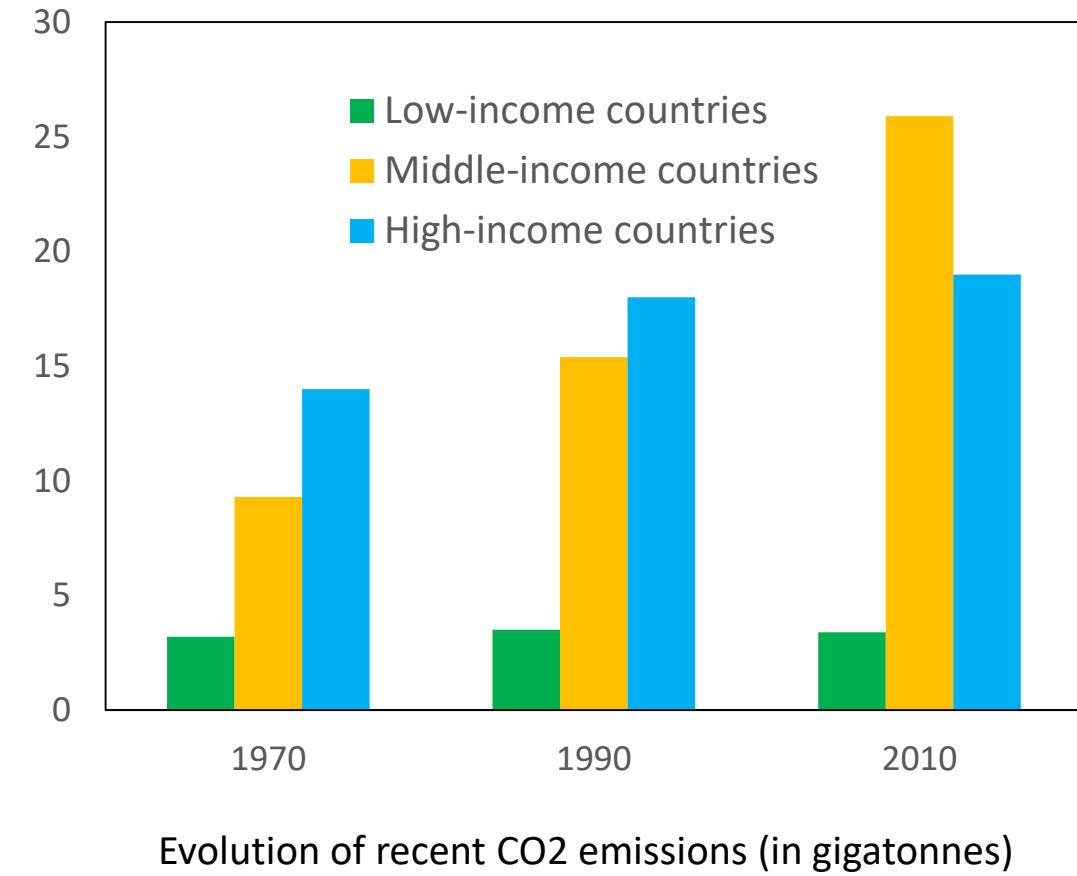
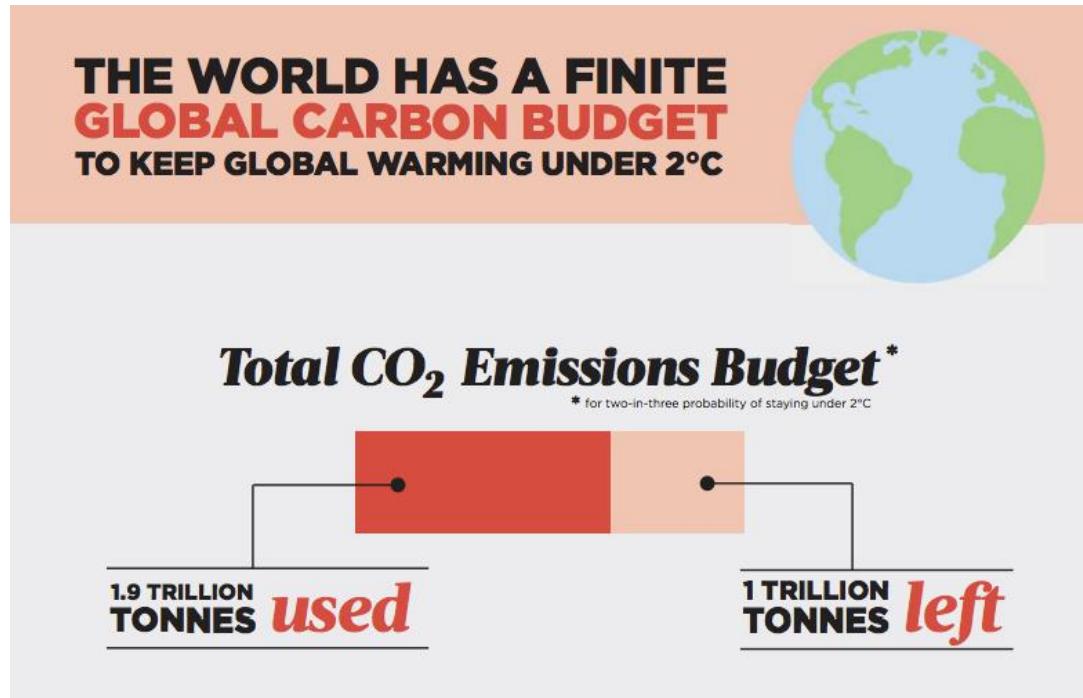
The growing importance of climate-smart fiscal policies in the developing world

Fiscal Policies for Development and Climate Action

Maria A. Figueres, Editor

- 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





Addressing climate change requires coordinated action on an unprecedented scale

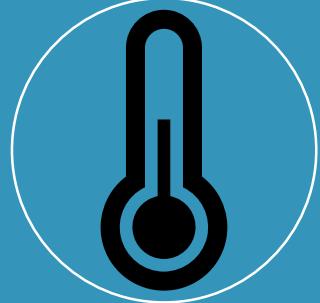
- Because firms and consumers base their decisions on private costs, which exclude the social cost of GHG emissions, production and consumption both generate socially inefficient amounts of GHG.
- Aligning the private costs of GHG emissions with their social costs will require adopting pricing mechanisms (e.g., carbon taxes) at both the national and international levels.

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



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, NO_x, SO₂, solid waste
 - **energy** – coal, electricity, petroleum, diesel
 - **transportation** – road, shipping & air duties, congestion

What is optimal environmental taxation?

socially optimum price:

optimum price = total costs = private costs + externalities = \$1.50

*classification
(economics):*

private costs = \$1

external costs = \$0.50

cost to:

consumer

government

society

price:

\$0.75

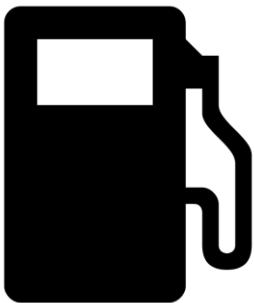
\$0.12

\$0.13

\$0.20

\$0.20

\$0.10



cost type:

price at pump
(1)

pre-tax
subsidy
(2)

foregone
VAT @
15%
(3)

local
health
costs
(4)

road
accidents &
congestion
(5)

global
warming
costs
(6)

*classification
(fiscal):*

subsidized price = \$0.75

total 'post-tax subsidy' = \$0.75

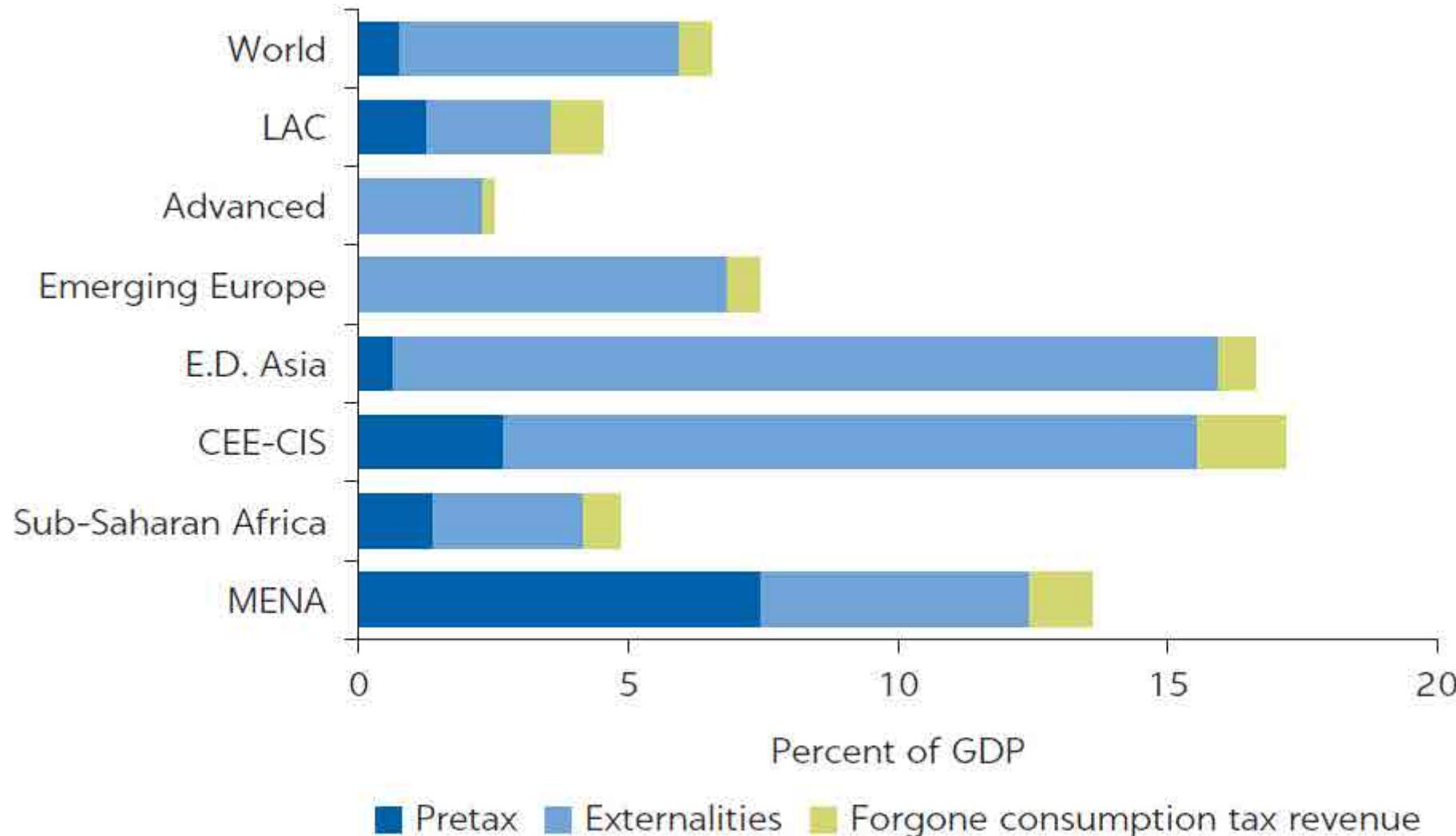
*corrective
policies:*

*"energy price reform,
fossil fuel subsidy reform":*

*"environmental taxes" e.g.
carbon taxation:*

*optimal environmental
taxation*

Big gaps between efficient prices and market prices persist



Source: IMF 2017.

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), NO_x, 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.

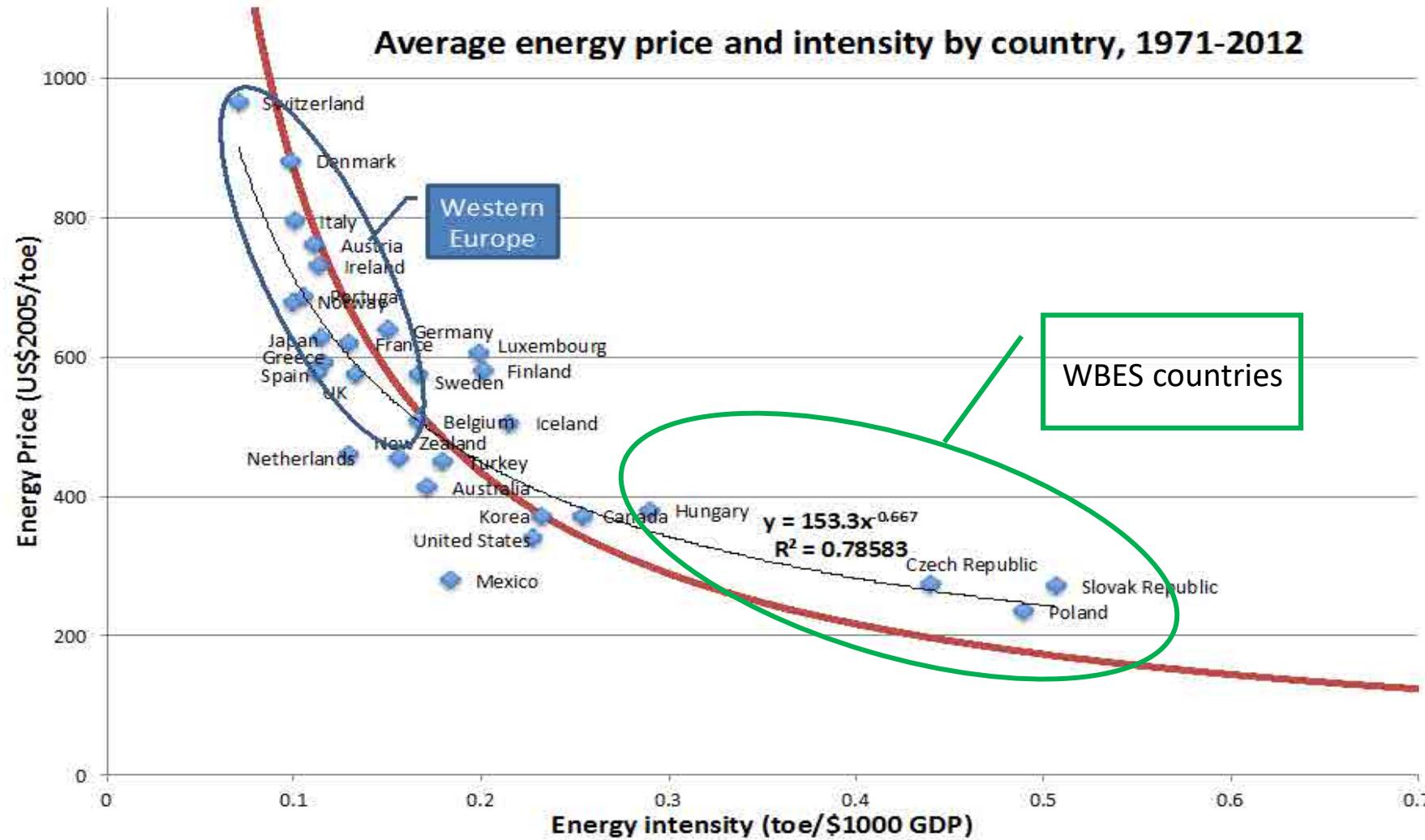
Environmental tax reform need not reduce firm-level competitiveness

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



Source: Grubb et al. (2018) "An exploration of energy cost, ranges, limits and adjustment process", UCL Research Report

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

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

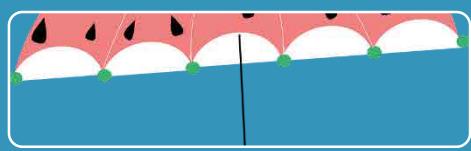
Addressing the fiscal risks associated with climate change



Include climate and disaster risks in fiscal risk assessments



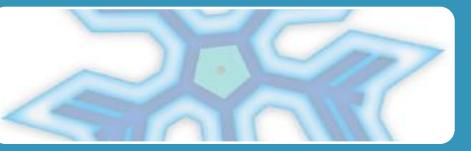
Integrate disaster risk into medium-term fiscal frameworks and debt-sustainability analyses



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

Thank You

