EXECUTIVE BOARD MEETING

SM/19/39
Correction 2

March 29, 2019

To: Members of the Executive Board

From: The Secretary

Subject: **Fiscal Policies for Implementing Paris Climate Strategies—From Principle to Practice**

Board Action:	The attached corrections to SM/19/39 (2/19/19) have been provided by the staff:
Factual Errors Not Affecting the Presentation of Staff's Analysis or Views	**Pages 1, 5, 34**
Questions:	Mr. Parry, FAD (ext. 39724) Mr. Keen, FAD (ext. 34442)

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FISCAL POLICIES FOR PARIS CLIMATE STRATEGIES—FROM PRINCIPLE TO PRACTICE

EXECUTIVE SUMMARY

190 ~~countries~~ parties submitted climate strategies for the 2015 Paris Agreement. Most strategies include objectives for both mitigation (reducing emissions) and adaptation (building resilience to climate change). This paper discusses the role of, and provides practical country-level guidance on, fiscal policies for implementing climate strategies using a unique and transparent tool laying out trade-offs among policy options.

On mitigation, this tool shows that carbon taxes or equivalent pricing for fossil fuels can be attractive on CO_2, fiscal, domestic environmental, and economic grounds. Revenues might be used for lowering distortionary taxes or funding public investment. Fiscal instruments could also reduce other emissions (e.g., from forestry and international transportation). Many countries would need high carbon prices to meet their commitments however, and there can be a tension between efficiency and acceptability which (among other reasons) may imply a role for other instruments.

Accompanying measures at domestic and international levels would be needed. Domestically, research and development (R&D), infrastructure investment, and financial market policies can enhance the effectiveness of carbon mitigation, while measures are needed to relieve vulnerable groups and address broader political acceptability. Internationally, a carbon price floor arrangement among willing countries could reinforce the Paris process and partly address inefficiencies from the wide cross-country divergence in prices implied by current mitigation pledges.

A holistic strategy, going well beyond physical investment, is needed for adaptation. National strategies should encompass risk diversification across a range of fiscal and financial instruments; full integration of climate risks, fiscal buffers, and climate finance into a sustainable macro-fiscal framework; and inclusion of climate investments into national budgeting procedures. Development of capacity in debt sustainability and public investment management is required in many countries.

The Fund can advise on the implications of climate commitments for macro and fiscal policy given its expertise, universal membership, and close relationship with finance ministries. Finance ministries have a key role in integrating carbon charges into fuel taxes; allocating carbon pricing revenues; integrating climate risks and financing into macro-fiscal frameworks; addressing political economy aspects; and coordinating strategies across ministries.

	countries whose energy prices are increased by climate policy. Alternatively, it could result from increased demand for fossil fuels in other countries as world fuel prices fall in response to reduced fuel demand in countries taking mitigation actions.
ETS	Emissions Trading System or Scheme. A market-based policy to reduce emissions (sometimes referred to as cap-and-trade). Covered sources are required to hold allowances for each tonne of their emissions or (in an upstream program) embodied emissions content in fuels. The total quantity of allowances is fixed, and market trading of allowances establishes a market price for emissions. Auctioning the allowances provides a valuable source of government revenue.
Externality	A cost imposed by the actions of individuals or firms on other individuals or firms (possibly in the future, as in the case of climate change) that the former does not consider.
F-gases	Fluorinated Gases. Gases caused by human activity that remain in the atmosphere, thus leading to global warming. The most important F-gas is HFCs.
Feebate	This policy would impose a sliding scale of fees on firms with emission rates (e.g., CO_2 per kilowatt-hour) above a 'pivot point' level and corresponding subsidies for firms with emission rates below the pivot point. Alternatively, the feebate might be applied to energy consumption rates (e.g., gasoline per kilometer driven) rather than emission rates. Feebates are the fiscal analog of an emissions (or efficiency) standard, but they can better accommodate uncertainty (e.g., over future technology costs and fuel prices).
GHG	Greenhouse Gas. A gas in the atmosphere that is transparent to incoming solar radiation but traps and absorbs heat radiated from the earth. CO_2 is easily the most predominant GHG.
GWP	Global Warming Potential. A measure of how much heat a tonne of a non-CO_2 GHG traps in the atmosphere over a given period (usually a century) relative to the amount of heat trapped per tonne of CO_2.
HFCs	Hydrofluorocarbons. An F-gas, with especially high GWPs, used for example, in refrigeration and air conditioning.
INDC	Intended Nationally Determined Contribution. Commitments to climate mitigation (via a reduction in GHG emissions) and adaptation submitted by 190 ~~countries~~ parties for the Paris Agreement.

required *increase* in countries' effective carbon prices (e.g., of US$35 per tonne of CO_2 by 2030) relative to a historical baseline.

45. Tracking effective carbon prices is manageable analytically (though conventions would need to be agreed upon). They are calculated here by: (i) expressing energy taxes on a CO_2-equivalent basis (i.e., dividing them by the relevant CO_2 emissions factor); and (ii) weighting the energy taxes, and any direct carbon pricing, by their relative effectiveness at reducing CO_2 emissions compared with an (equivalently-scaled) comprehensive carbon price (i.e., using analogous fractions to those in Table 5), and then aggregating across fuel products.[65] The results (see Figure 7 for selected countries) suggest considerable dispersion in effective carbon prices: they vary from zero to about US$30 per tonne of CO_2 in most cases, and substantially more than that in countries (Costa Rica and Tanzania) where road fuels are both highly taxed and account for nearly all economywide emissions.

46. Carbon price floor arrangements have precedents from both a climate and international tax perspective. Under federal requirements introduced in Canada in 2016, provinces and territories are required to phase in a minimum carbon price, rising to CA$50 (US$38) per tonne by 2022.[66] More broadly, some progress has been made in combating excessive competition for internationally mobile tax bases through tax floor arrangements, for example, for indirect taxes in the European Union.

47. Success in multilateral fora more generally provides some grounds for optimism. For example, the 1987 Montreal Protocol successfully scaled back ozone-depleting substances and an amendment to it—the 2016 Kigali Agreement—is phasing out the most important F-gases.[67] Indeed, it is conceivable that coalitions of countries willing to price carbon emissions may emerge under existing international arrangements. For example, the trans-Pacific, US-Mexico-Canada, and other trade agreements contain chapters requiring enforcement of environmental laws, while the 2018 EU-Japan trade deal committed its signatories to uphold the Paris Agreement.

[65] OECD (2018) calculate effective carbon prices in 2018 for 42 (mostly advanced) countries using detailed national tax data, but weighting fuel taxes by the fuel's emissions share rather than the relative effectiveness of the fuel tax at reducing nationwide emissions (this approach, for example, would yield an effective carbon price of US$22 per tonne for the United States in 2030 rather than US$6 as calculated above). Including the carbon price equivalents from quantity-based regulations (e.g., for energy efficiency or renewables) in the effective carbon price would be challenging, as the implicit emissions prices are not observed.

[66] The enforcement mechanism is a federal 'carbon pricing backstop' imposing a carbon tax (which started in 2019 at ~~CAN US$30~~ CA$20 per tonne) in the event of non-compliance (Ontario and Saskatchewan have mounted legal challenges to the backstop). See, for example, Government of Canada (2016, 2018a and b), Parry and Mylonas (2018).

[67] See Mulye (2017) and, on further examples of successful international cooperation in non-environmental areas, Krogstrup and Obstfeld (2018).