

## Press Points for Chapter 4: *Climate Change and the Global Economy*

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Prepared by Natalia Tamirisa, Florence Jaumotte, Ben Jones, Paul Mills,  
Rodney Ramcharan, Alasdair Scott, and Jon Strand

- **Uncertainty surrounds estimates of the extent of future damages that may result from climate change, but there is agreement that the risk from these potential damages could be large and even catastrophic if global warming is unchecked.**
- **The costs of policies to address climate change can be contained by ensuring that mitigation policies are well designed. It will be crucial to aim at a framework that is sustainable and provides incentives for a broad country participation.**
- **The IMF staff uses a global dynamic model to examine the macroeconomic and financial consequences of policies to address climate change. The analysis shows how mitigation policies could affect countries' economic growth, savings and investment, capital flows and exchange rates. It also points to several principles that would help reduce the costs of mitigation policies—carbon pricing must be global, long term, flexible and equitable.**

**Climate change is a potentially catastrophic global externality and one of the world's greatest collective action problems.** The latest business-as-usual projections produced by the United Nations' Intergovernmental Panel on Climate Change imply a sizable risk that global climate would change dramatically by the end of the century, with potentially severe economic and social consequences. Poor countries will be hit earlier and harder by climate change, owing to their geography, heavier reliance on agriculture, and more limited capacity to adapt. Their health and water systems may come under stress from more frequent natural disasters, coasts may be flooded, and populations may migrate. Rich countries could be affected by spillovers from climate change in poor countries, and they would also face severe direct damage if the tail risks of climate catastrophes were to materialize.

**Serious efforts to abate climate change could have rapid and wide-ranging macroeconomic consequences.** The impact of recent biofuel policies on food prices and inflation provides a cautionary lesson. Reducing emissions of greenhouse gases that contribute to climate change requires putting a price on these emissions. This would raise the costs of producing emission-intensive products and would also affect productivity, saving and investment, capital flows, and exchange rates. Over the long term, carbon pricing should help enhance economic growth, as it would create incentives for people and businesses to innovate and shift to using more efficient, low-emissions products and technologies.

**The IMF staff analysis points to some lessons as to how the costs of mitigation policies could be minimized:**

- *Carbon-pricing policies need to be long term and credible.* They need to establish a time horizon for steadily rising carbon prices that people and businesses believe. Only then

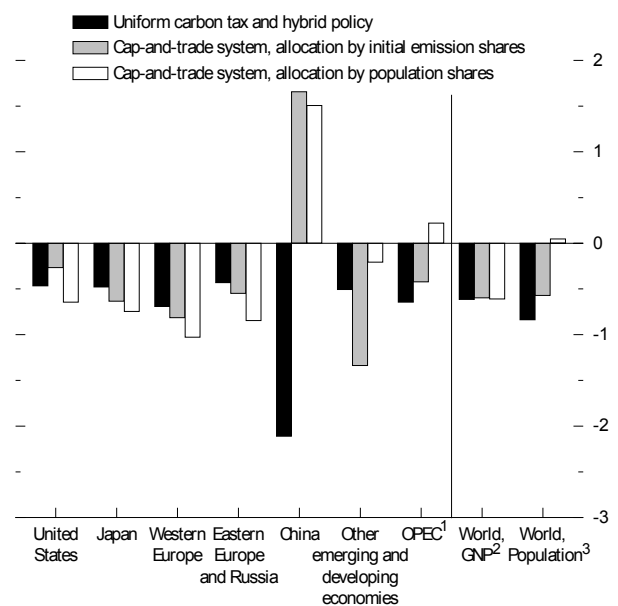
would carbon prices induce the needed shifts in investment and consumption away from emission-intensive products and technologies. Gradual increases in carbon prices, starting early and from a low level, would minimize the cost of adjustment by spreading it over a longer period of time. For example, according to staff estimates, mitigation policies introduced in 2013 and aiming to stabilize CO<sub>2</sub>-equivalent concentrations at 550 parts per million by 2100 would entail only a 0.6 percent reduction in the net present value of world consumption by 2040. Even with this loss, world GNP would still be 2.3 times higher in 2040 than in 2007. These estimates are consistent with the literature.

- A framework for multilateral policy should induce all groups of economies—advanced, emerging market, and developing—to start pricing their emissions.* Any policy framework that does not include large and fast-growing economies (such as Brazil, China, India, and Russia) in some way (with a lag or with initially weaker emissions targets) would be extremely costly and politically untenable. That is because during the next 50 years, 70 percent of emissions are projected to come from emerging and developing economies.
- Carbon-pricing policies should aim at establishing a common world price for emissions.* This would ensure that emission reductions occur where it is least costly to do so. If carbon prices are not equalized across countries, the global costs of mitigation policies would be at least 50 percent higher.
- Carbon-pricing policies should be sufficiently flexible to accommodate cyclical economic fluctuations.* During periods of high demand it would be more costly for firms to reduce their emissions, and the opposite would be true when demand is low. Abatement costs would be lower if firms are allowed to vary their emissions over the business cycle, while still targeting a given level of emission reductions over the medium term. Unlike carbon taxes, schemes for trading emission permits (also known as cap and trade) could prove restrictive in periods of higher growth, unless they incorporate elements that help control price volatility (hybrid policies).
- The costs of mitigation need to be distributed equitably across countries.* The direction and magnitude of transfers under cap-and-trade schemes would depend on how easily different countries could reduce emissions and the specific design of cap-and-trade schemes. A scheme generating a flow of transfers toward emerging and developing economies would reduce the costs of carbon-pricing policies for them and would encourage them to participate.

#### Total Costs of Mitigation, 2013–40

(Consumption; deviation of the net present value from the baseline, percent)

The global costs of mitigation could be moderate between 2013 and 2040, but vary by country and policy. The magnitude of costs and their distribution across countries are sensitive to how easily countries could reduce their emissions as well as the specific design of mitigation policies.



Source: IMF staff estimates.

<sup>1</sup>Organization of Petroleum Exporting Countries.

<sup>2</sup>Weighted by GNP shares in 2013.

<sup>3</sup>Weighted by population shares in 2013.