



Fiscal Policies for Climate Mitigation

**CREATING PATHWAYS TOWARDS THE
GREEN ECONOMY**

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Urgency of Near-Term Mitigation Action

Last window to keep alive 1.5-2°C is closing

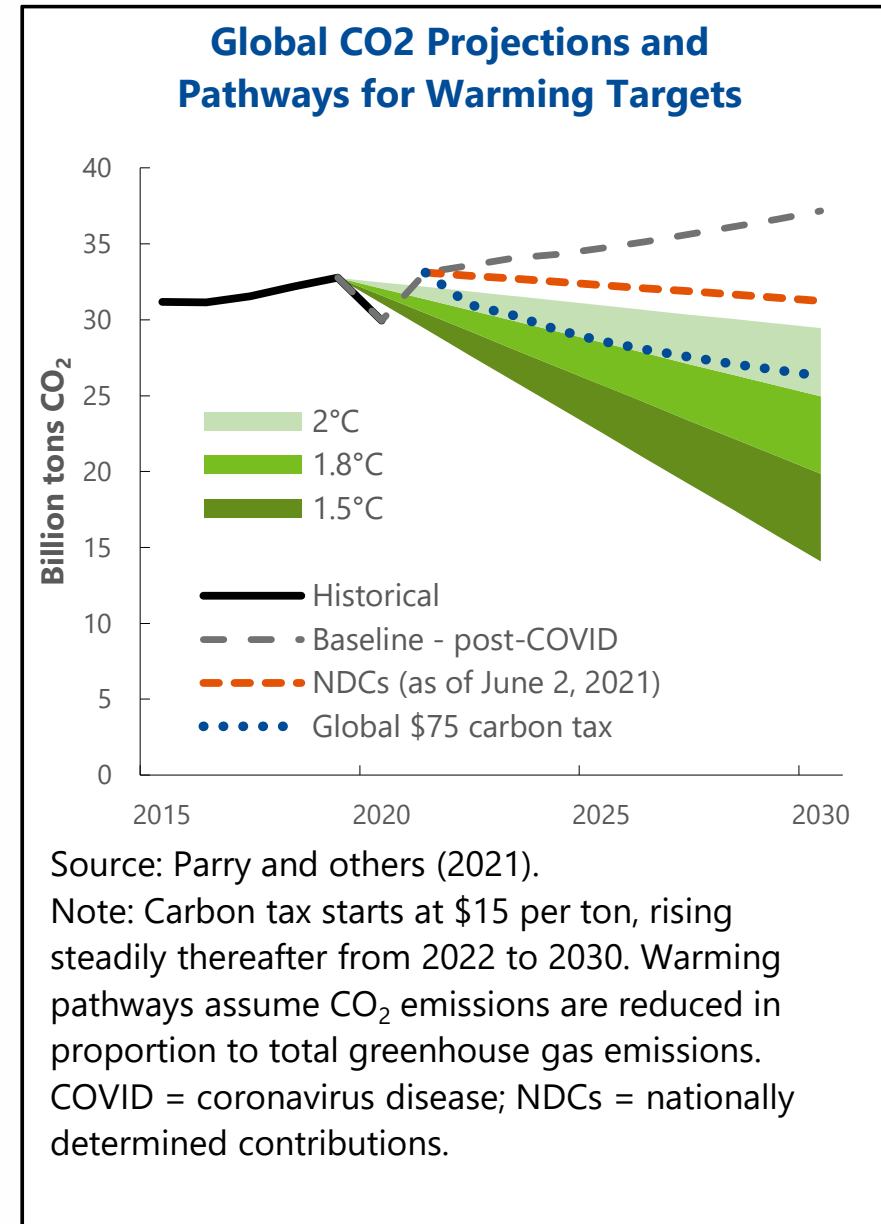
- Unless global emissions cut 25-50% by 2030

Paris Agreement is working...

- 195 parties, many have net zero pledges

...but is insufficient

- Current pledges would achieve 60 percent of 2030 reductions for 2°C
- No mechanism for ensuring pledges achieved



Carbon Pricing

Central role in mitigation policy

- Across-the-board incentives, cost-effective, price signal, revenue, co-benefits, administration

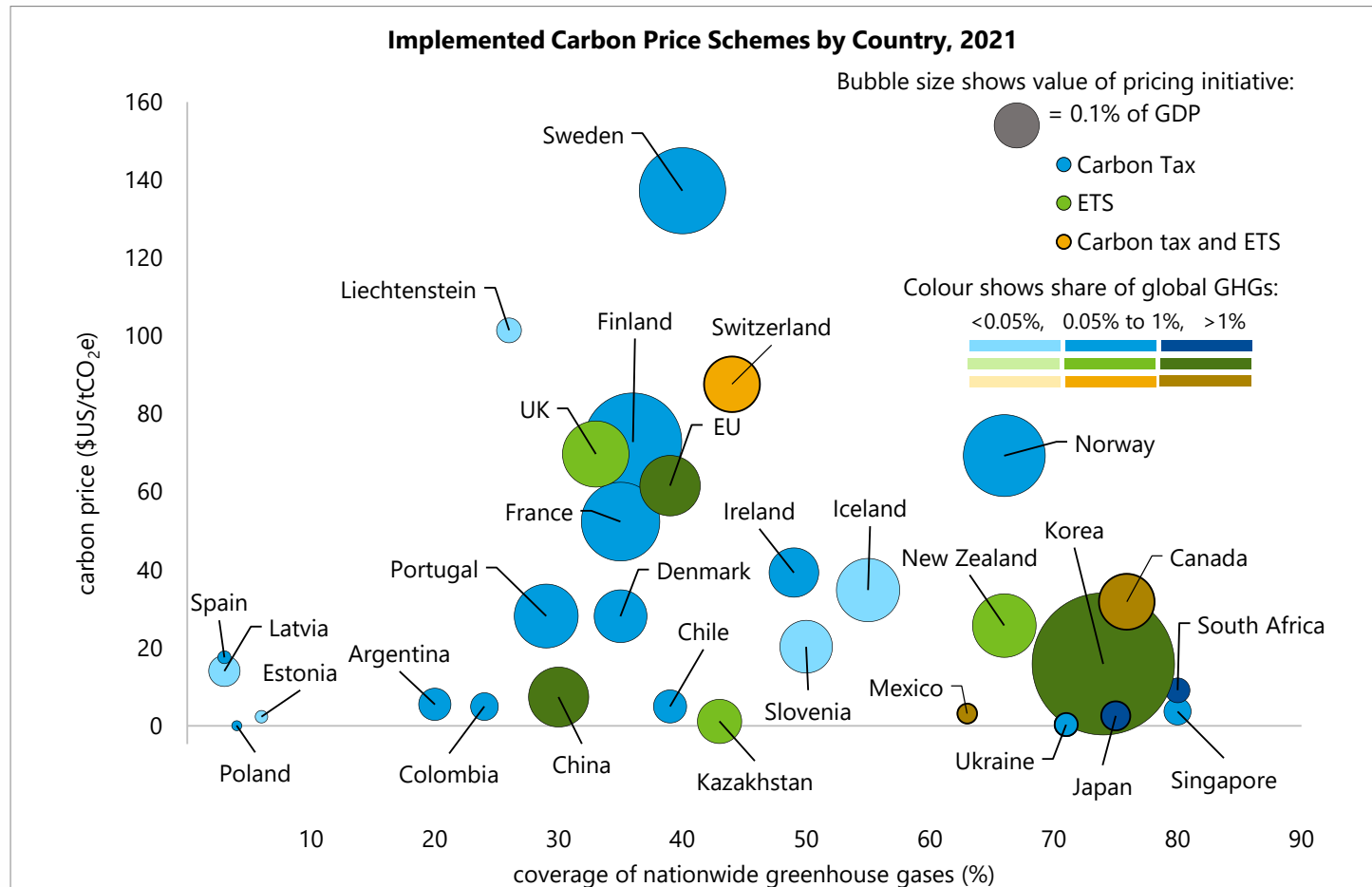
Basic design details are critical

- Coverage
- Prices
- Revenues

Carbon taxes are a natural pricing instrument

- Price certainty, revenues to the government, build off fuel tax collection
- Trading systems similar benefits if they include price floors, allowance auctions
 - Often confined to power/industry, not always practical (e.g., limited capacity)

Growing Momentum for Carbon Pricing



Sources: WBG (2021); EMBER (2012); Climate Watch (2021); IMF staff calculations.

Notes: Carbon prices are from April 01, 2021 from WBG (2021). EU ETS price is from July 19, 2021 from EMBER. GHGs are from 2018. EU includes Norway, Iceland, Liechtenstein. Values less than 0.005 percent of GDP are of equal size for illustrative purposes. The value of the UK's ETS is an estimation for 2021 based on a £50/tCO₂e price. China's value estimate and price is based on the opening pricing of \$7.40/tCO₂e. Finland's transport fuels are priced at \$73/tCO₂e. Ireland's F-gases are priced at \$20/tCO₂e. Norway has a reduced rate on natural gas for EU ETS installations of \$4/tCO₂e. Norway and Mexico prices represent carbon price upper bounds. Lower bounds are \$3.9/tCO₂e and \$0.37/tCO₂e respectively. Switzerland's price is a weighted average between carbon price and ETS by emissions covered.

Impact of Carbon Taxes on Energy Prices

Impact of per ton \$50 Carbon Tax on Energy Prices, 2030

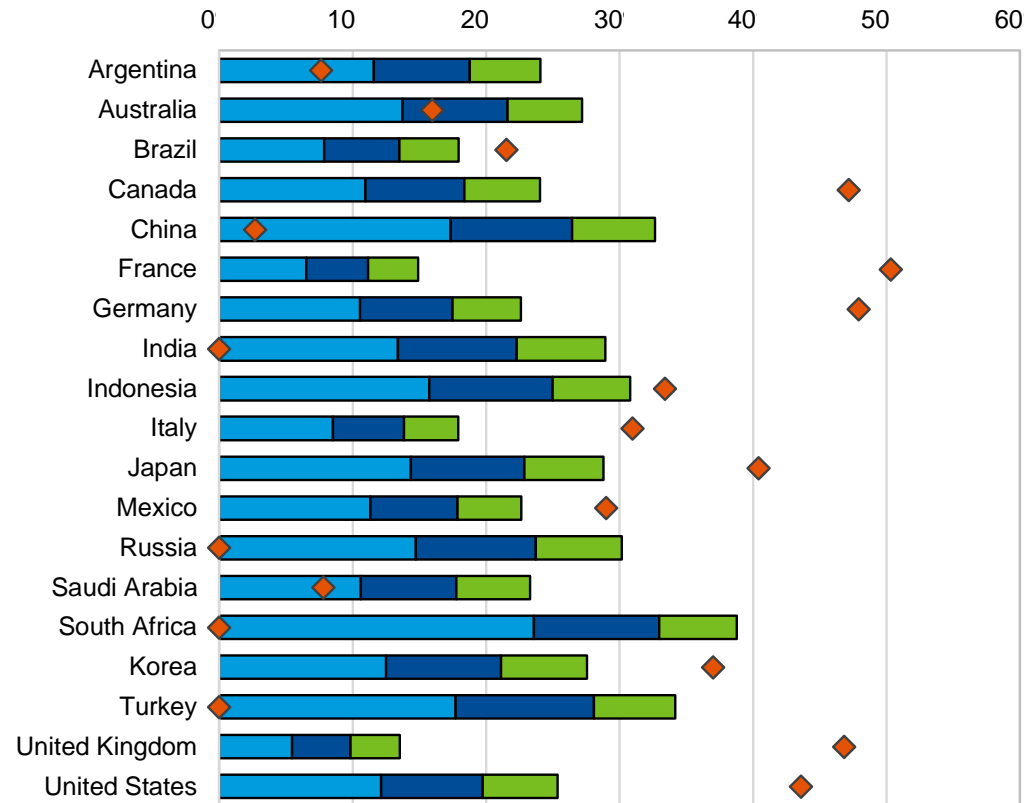
Country	Coal		Natural gas		Electricity		Gasoline	
	Baseline Price, \$/GJ	Price Increase	Baseline Price, \$/GJ	Price Increase	Baseline Price, \$/kWh	Price Increase	Baseline Price, \$/liter	Price Increase
Argentina	2.9	172%	3.7	86%	0.08	18%	1.14	13%
Australia	3.4	154%	7.9	37%	0.12	25%	1.13	12%
Brazil	4.4	122%	9.2	34%	0.07	7%	1.23	8%
Canada	2.6	209%	4.2	69%	0.08	10%	1.14	11%
China	4.4	114%	10.5	25%	0.05	46%	1.13	12%
France	6.2	94%	15.8	18%	0.13	2%	1.77	9%
Germany	5.8	91%	12.4	23%	0.17	9%	1.74	8%
India	5.0	99%	3.5	98%	0.06	47%	1.12	12%
Indonesia	2.7	187%	5.7	44%	0.08	57%	0.45	31%
Italy	4.6	116%	15.4	24%	0.12	11%	1.90	8%
Japan	3.7	132%	11.1	24%	0.12	24%	1.37	10%
Mexico	1.8	284%	3.0	91%	0.09	26%	0.97	14%
Russia	2.2	209%	2.7	95%	0.08	36%	0.73	18%
Saudi Arabia			3.9	69%	0.10	33%	0.27	45%
South Africa	1.6	285%	3.7	62%	0.05	66%	1.16	10%
Korea	4.7	103%	11.4	25%	0.08	37%	1.46	8%
Turkey	1.4	421%	7.6	41%	0.06	59%	1.40	10%
United Kingdom	6.9	74%	11.5	27%	0.12	9%	1.72	8%
United States	2.4	220%	4.4	69%	0.07	23%	0.83	16%
Simple Average	3.7	171%	7.8	51%	0.11	39%	1.19	14%

Source: IMF staff calculations.

Note: Baseline prices are retail prices estimated in Coady and others (2019) and include preexisting energy taxes. Baseline prices for coal and natural gas are based on regional reference prices. Baseline prices for electricity and gasoline are from cross-country databases. Impacts of carbon taxes on electricity prices depend on the emissions intensity of power generation. Carbon tax prices are per ton. GJ = gigajoule; kWh = kilowatt-hour

Prices Implicit in 2030 Mitigation Pledges Vary Considerably

CO₂ Reductions for 2030 Pledges/ From Pricing



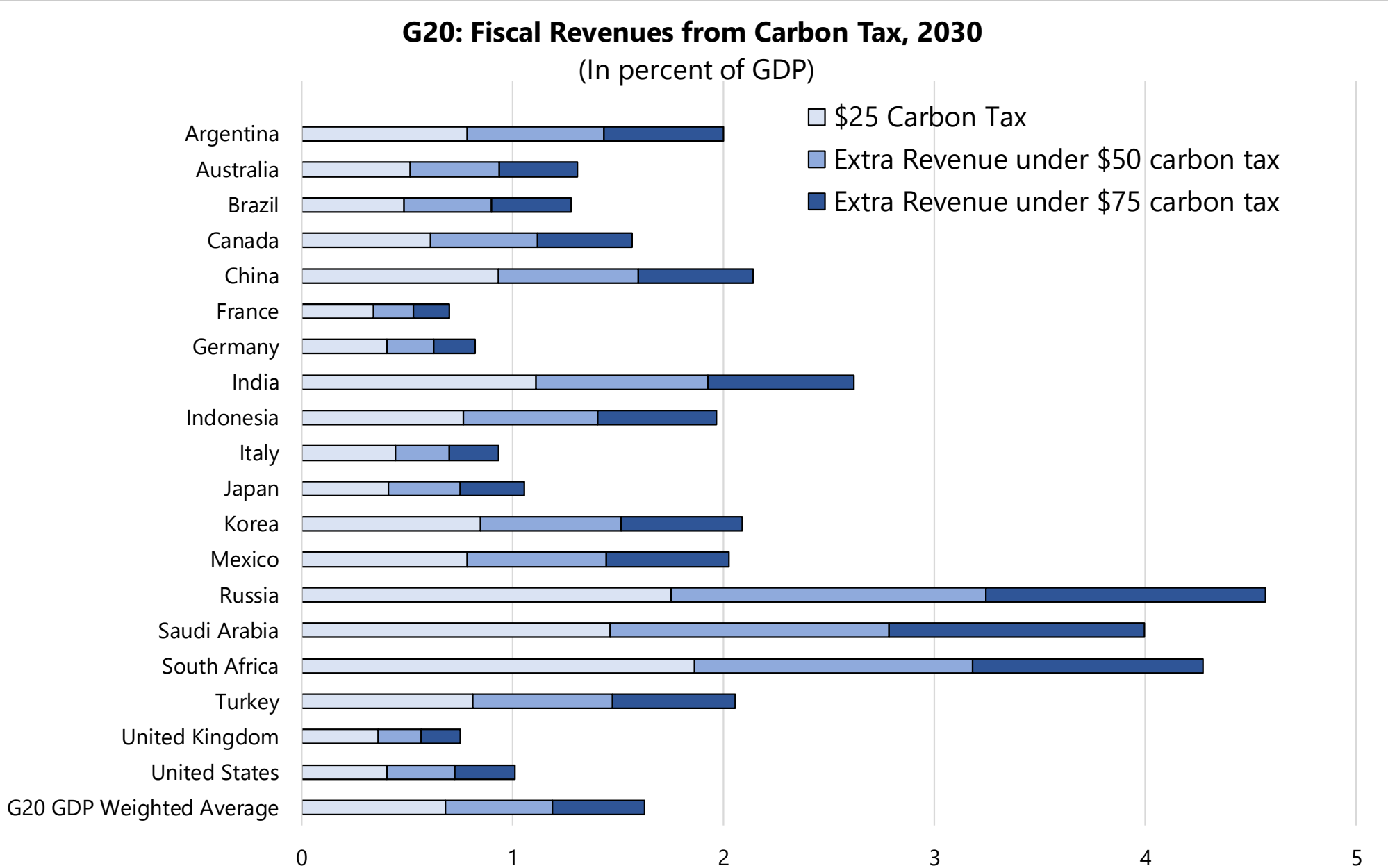
Percent emissions reductions vs. 2030 baseline

- Emissions reductions from \$25 carbon price
- Extra reductions from \$50 carbon price
- Extra reductions from \$75 carbon price
- ◆ NDC target

Source: IMF staff calculations.

Note: NDCs targets are from first-round or (if applicable) second-round Paris pledge. Estimates assume that CO₂ must fall in proportion to other GHGs to achieve the target (i.e. non-CO₂ GHGs must also fall in order for the target to be achieved). Where a country has a conditional NDC the target is defined as the average between the conditional and unconditional target. NDCs as of 6 May 2021.

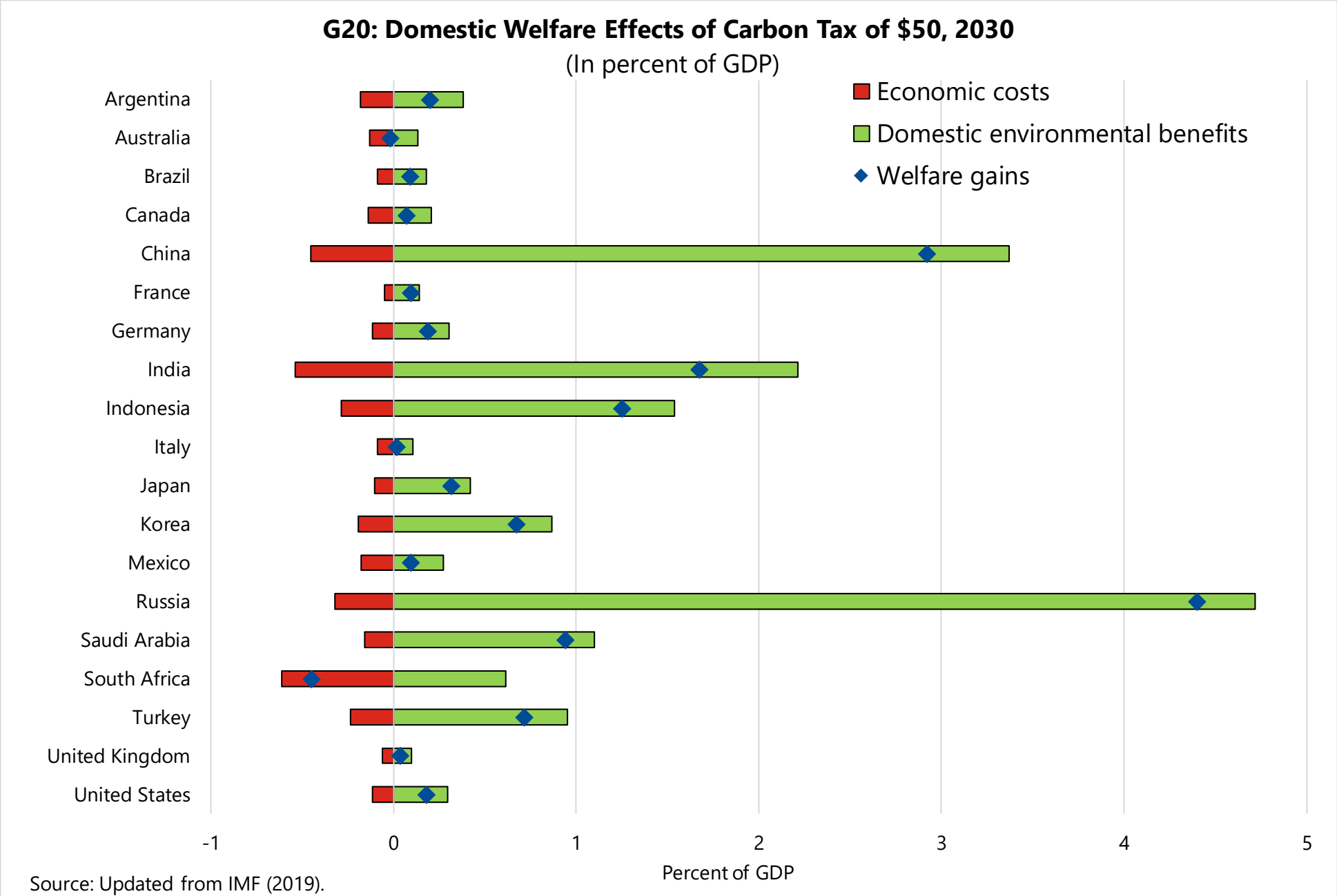
Carbon Pricing has Significant Fiscal Benefits



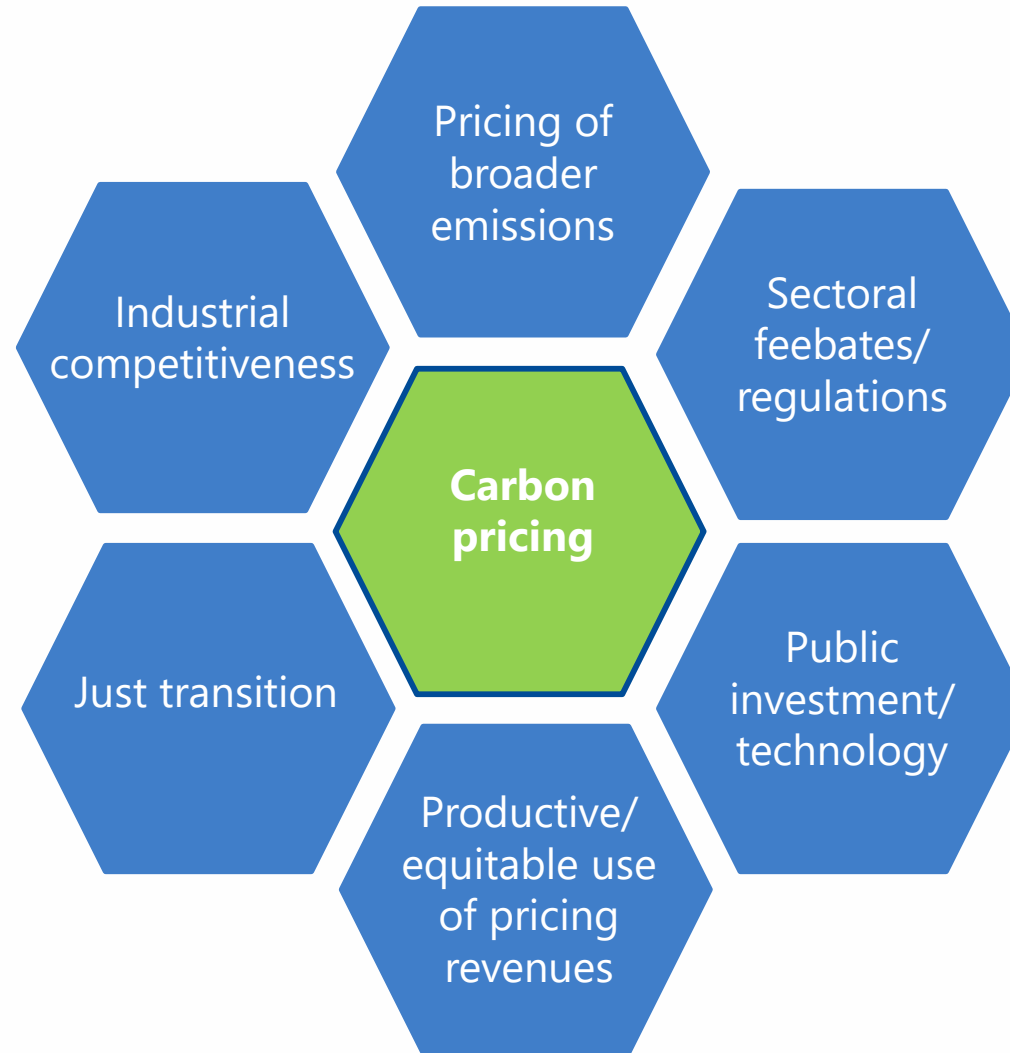
Source: Updated from IMF (2019).

Percent of GDP

Carbon Pricing Can Be in Countries' Own Interests



Supporting Policies Needed to Enhance Effectiveness and Acceptability of Mitigation Strategy



Reinforcing Sectoral Instruments

- Needed because of acceptability constraints on pricing
- Feebates (fiscal analog of regulations)
 - ▶ Revenue neutral sliding scale of fees/rebates for products/activities with $>/<$ average CO₂ rates
- Attractions
 - ▶ Promote all responses for reducing emissions intensity (though no demand response)
 - ▶ Cost effective (unlike emission regulations)
 - ▶ Avoid a fiscal cost (unlike subsidies)
 - ▶ No burden on average household/firm (unlike carbon pricing)
 - ▶ Compatible with regulations
- Applications
 - ▶ Vehicles, power, industry, buildings, forestry

International Carbon Price Floor (ICPF)

- Unilateral action difficult
 - ▶ Competitiveness, free riding
- Focus on large emitters
 - ▶ China, India, US, EU, G20
- Focus on minimum carbon price
 - ▶ Efficient, easily understood
 - ▶ Addresses competitiveness/free rider
 - ▶ Equity: differentiated floors, transfers
 - ▶ Flexibility: allow alternative approaches

G20 CO₂ Outcomes under Alternative ICPF Scenarios

Percent reduction in G20 CO₂ emissions below baseline, 2030

Minimum emissions reductions required for temperature goals¹:

2°C	20.8
1.8°C	32.8
1.5°C	46.6

China, US, India,
EU, Canada, UK All G20 Countries

NDCs Only	10.9	14.1
NDCs+\$50 Floor	23.4	25.3
NDCs+Differentiated Floor \$75/50/25 ²	22.6	24.6

Source: NDCs from June 2, 2021; and IMF staff calculations.

Note: G20 - Group of Twenty; GHGs - greenhouse gases; NDC - nationally determined contributions.

¹ Assumes energy-related national CO₂ emissions need to reduce in proportion to total GHGs.

² Higher/middle/lower price for advanced/high income emerging market/low income emerging market economies.