Enhancing the Acceptability of Carbon Pricing Reforms

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Main Messages

Domestic

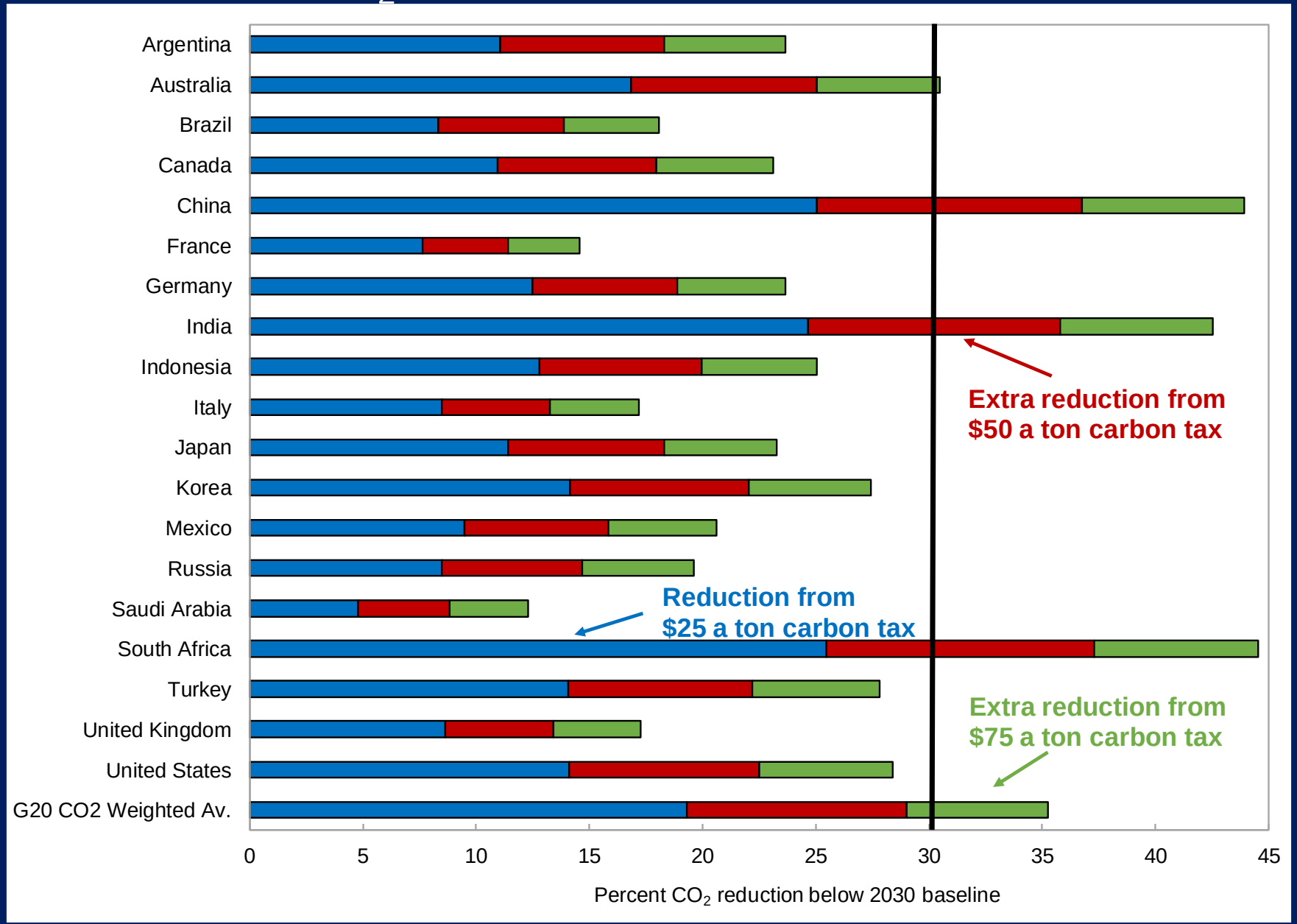
- High carbon prices needed for deep emissions reductions
  - Resulting energy price increases likely difficult politically
- Carbon pricing may need reinforcing with other measures
  - Less efficient but avoid significant energy price impacts
- A comprehensive policy package needed to enhance acceptability

International

- Carbon price floors are needed to scale up action

High Carbon Prices Needed for Deep Emissions Reductions

% Reduction in CO_2 below Baseline from Carbon Taxes, 2030



Source: IMF staff estimates.

Impact of Carbon Taxes on Energy Prices

Impact of $50 Carbon Tax on Energy Prices, 2030

Country	coal		natural gas		electricity		gasoline	
	BAU price, $/GJ	% price increase	BAU price, $/GJ	% price increase	BAU price, $/kWh	% price increase	BAU price, $/liter	% price increase
Argentina	3.0	198	3.0	89	0.10	36	1.4	8
Australia	3.0	176	9.6	29	0.11	58	1.3	10
Brazil	3.0	150	3.0	87	0.12	5	1.4	8
Canada	3.0	167	3.0	85	0.10	8	1.1	12
China	3.0	159	9.6	27	0.09	51	1.2	9
France	5.0	82	8.3	33	0.12	2	1.8	6
Germany	5.2	88	8.4	35	0.12	14	1.8	6
India	3.0	153	9.6	17	0.09	66	1.3	9
Indonesia	3.0	160	9.6	24	0.12	47	0.6	21
Italy	5.3	89	8.3	33	0.14	13	2.0	6
Japan	3.0	153	9.6	32	0.13	31	1.4	7
Korea	3.0	147	9.6	31	0.16	32	1.5	4
Mexico	3.0	150	3.0	88	0.10	54	1.0	12
Russia	3.0	113	7.0	36	0.14	18	0.9	8
Saudi Arabia	3.0	156	7.0	37	0.22	27	0.6	18
South Africa	3.0	136	7.0	16	0.08	72	1.2	11
Turkey	3.0	155	7.0	40	0.09	30	1.5	6
United Kingdom	6.1	105	8.3	34	0.13	12	1.7	6
United States	3.0	170	3.0	90	0.08	40	0.8	13
Simple Average	3.5	142	7.0	45	0.12	32	1.3	9

Source: IMF.

Reinforcing Carbon Pricing

- Other measures avoiding significant energy price impacts
- →Regulations—emission rates, energy efficiency, etc.
  - Package can mimic many responses of pricing
  - But inflexible and difficult to coordinate across sectors
- →Feebates more promising
  - Sliding scale of fees/rebates on activities/products with above/below average emission rates, e.g.:
  - Generators: tax on (CO_2/kWh — industry average CO_2/kWh) × output
  - Vehicles: tax on (CO_2/mile — industry average CO_2/mile) × lifetime mileage

Effectiveness of other Policies

Table 5. CO_2 Reduction from Alternative Policies Relative to $50 Carbon Tax, 2030

Country	Coal tax	ETS	Electricity output tax	Electricity CO2 tax	Road fuel taxes	Fuel switching in power	Energy efficiency combination
Argentina	0.04	0.47	0.17	0.43	0.03	0.26	0.37
Australia	0.80	0.85	0.36	0.86	0.03	0.49	0.25
Brazil	0.36	0.47	0.02	0.40	0.10	0.38	0.31
Canada	0.28	0.41	0.03	0.38	0.06	0.35	0.32
China	0.96	0.80	0.20	0.74	0.01	0.54	0.23
France	0.41	0.22	0.00	0.17	0.33	0.16	0.42
Germany	0.72	0.58	0.08	0.54	0.18	0.46	0.27
India	0.94	0.88	0.31	0.84	0.01	0.53	0.23
Indonesia	0.72	0.75	0.28	0.70	0.11	0.42	0.29
Italy	0.40	0.46	0.10	0.43	0.23	0.33	0.34
Japan	0.72	0.68	0.26	0.64	0.02	0.38	0.31
Korea	0.84	0.72	0.21	0.69	0.01	0.48	0.26
Mexico	0.20	0.61	0.31	0.56	0.09	0.25	0.37
Russia	0.39	0.46	0.14	0.44	0.01	0.30	0.35
Saudi Arabia	0.00	0.52	0.43	0.46	0.11	0.03	0.49
South Africa	0.97	0.74	0.27	0.72	0.01	0.46	0.27
Turkey	0.76	0.65	0.17	0.61	0.02	0.44	0.28
United Kingdom	0.41	0.43	0.07	0.42	0.22	0.35	0.33
United States	0.52	0.70	0.23	0.69	0.05	0.46	0.27
Simple Average	0.55	0.60	0.19	0.56	0.09	0.37	0.31

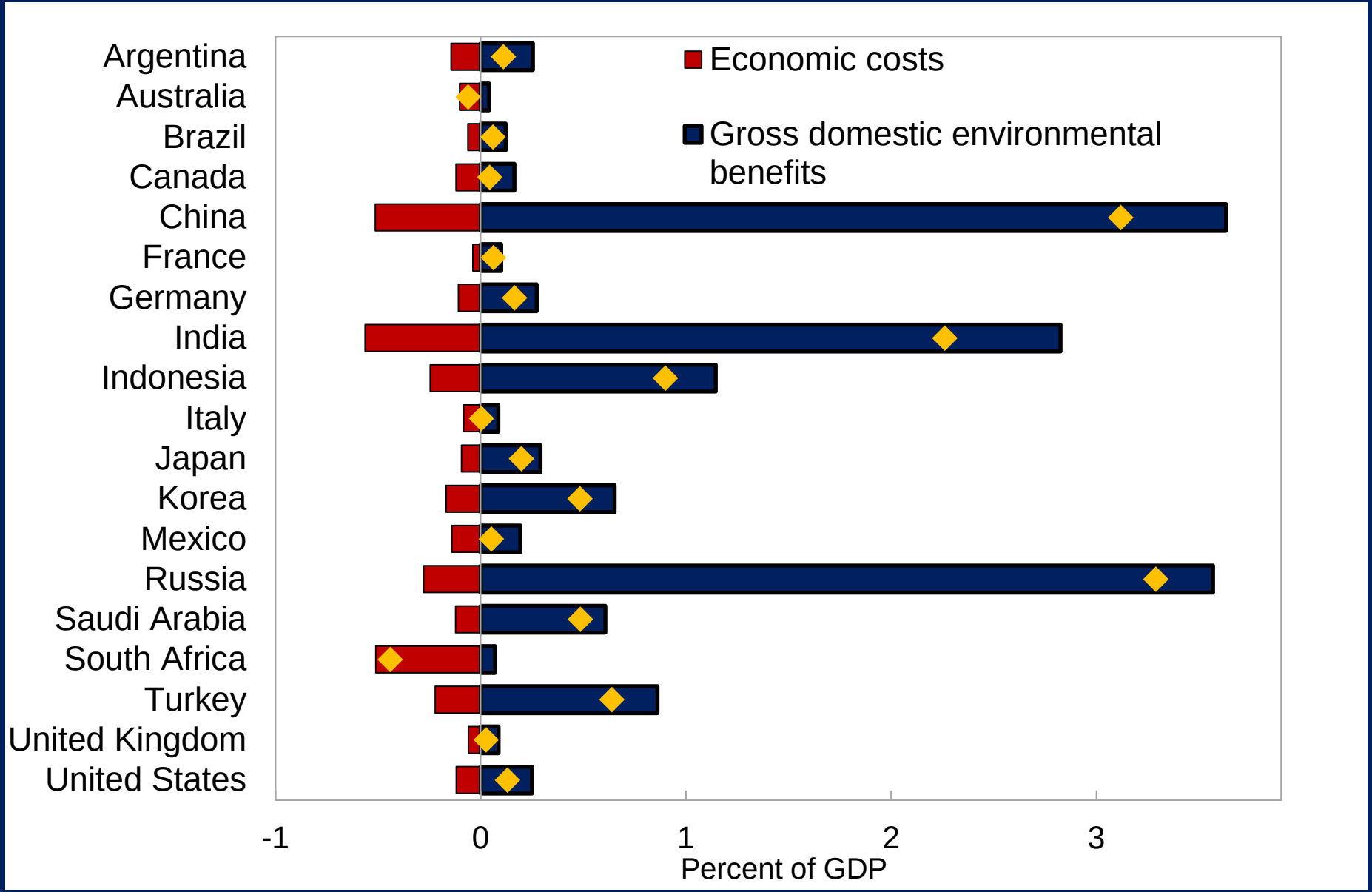
Source: IMF.

Enhancing Acceptability of Carbon Pricing

- Comprehensive strategy is needed
  - Pricing introduced gradually, stakeholder consultation, clearly communicated
  - Equitable, productive, and transparent use of revenues
  - Assistance for vulnerable households, firms, workers, regions
  - Reinforced with feebates/regulations
- Supporting policies
  - R&D (e.g., batteries for energy storage, carbon capture and storage)
  - Deployment incentives (e.g., for scale economies, learning by doing spillovers)
  - Infrastructure investment (e.g., grid upgrades, charging for electric vehicles)
  - Extend pricing to other emissions—cement, methane leaks, F-gases, forestry

Carbon Pricing Can Be in Countries' Own Interests

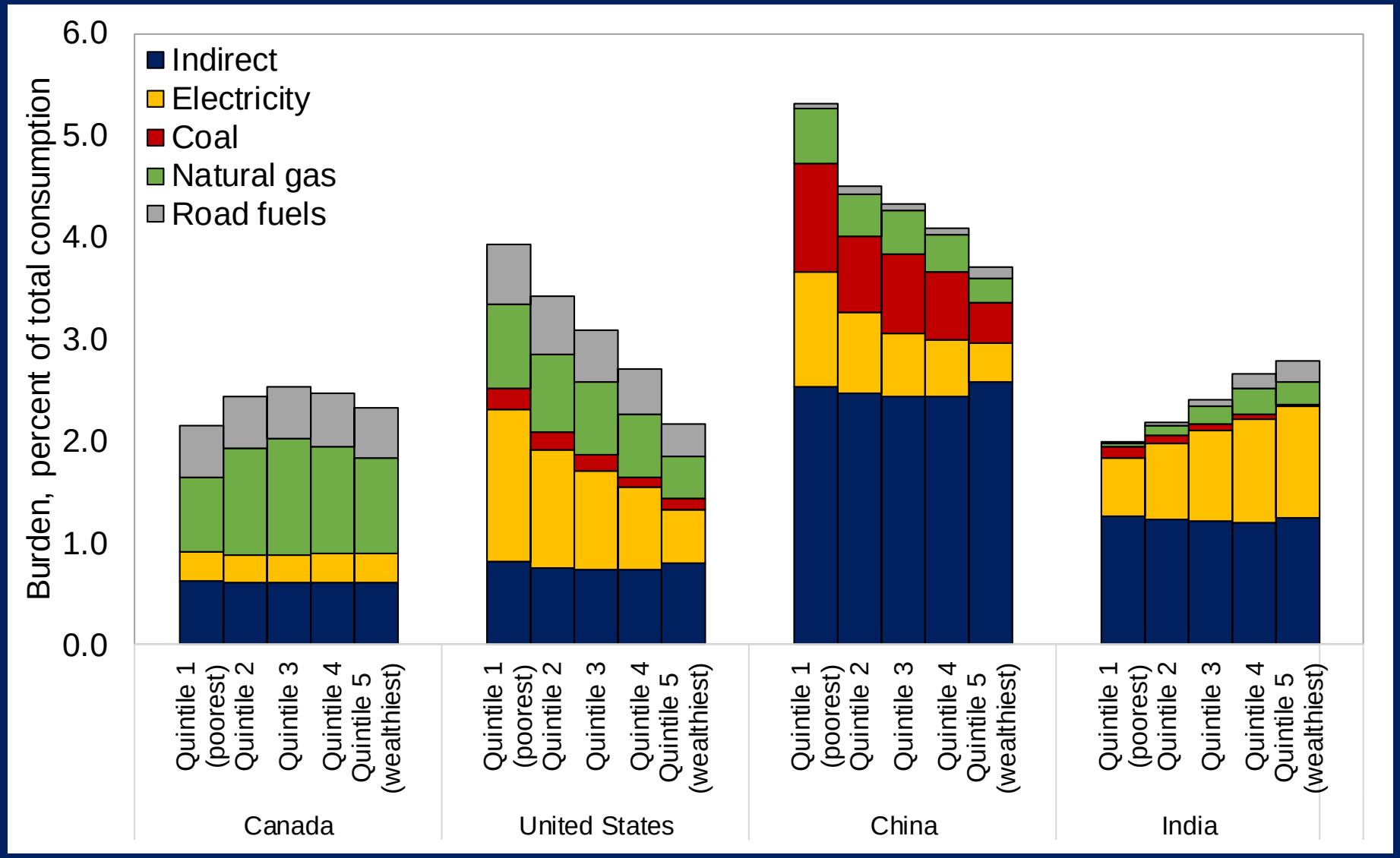
Unilateral Costs/Benefits of $50/ton CO_2 Carbon Tax, 2030



Source: IMF staff estimates.

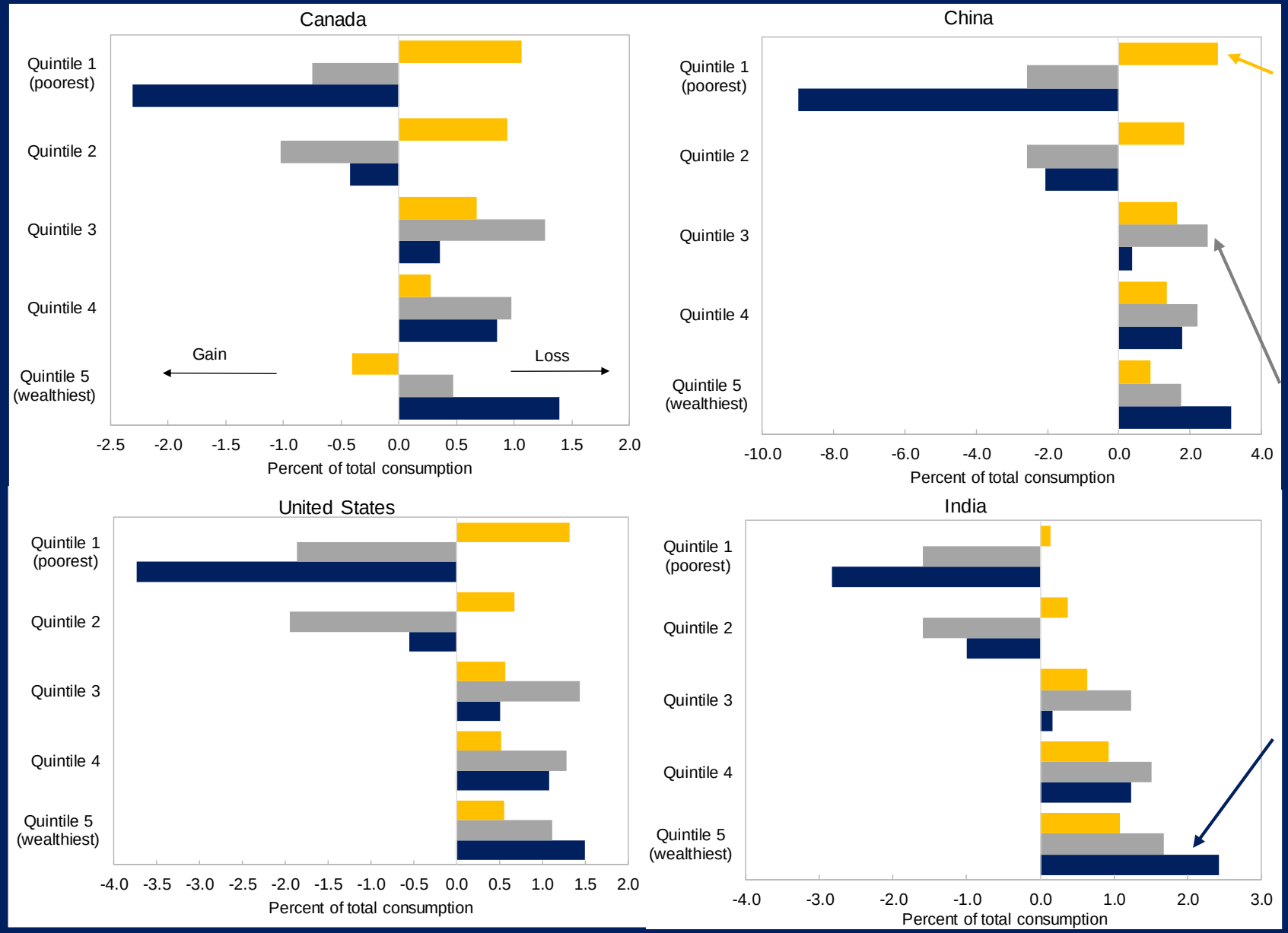
Composition of Household Incidence

(% total consumption for $50/ton CO_2 Carbon Tax in 2030)



Source: IMF staff estimates.

Level of Household Incidence by Revenue Recycling Scenario
(% total consumption for $50/ton CO_2 Carbon Tax in 2030)



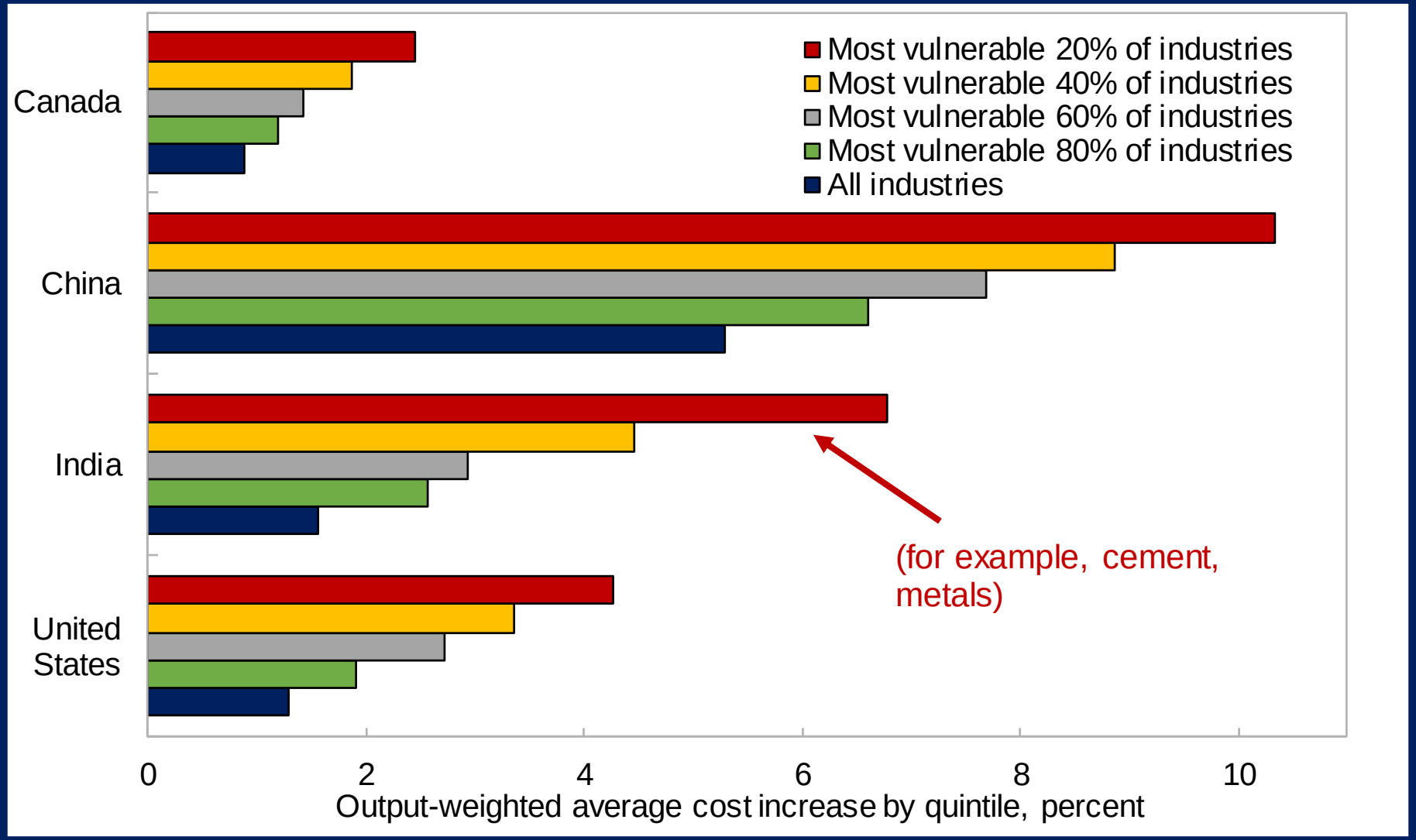
Labor tax cuts or public investment)

Lump-sum bottom 40%+labor tax cuts or public investment

Universal lump-sum

Source: IMF staff estimates.

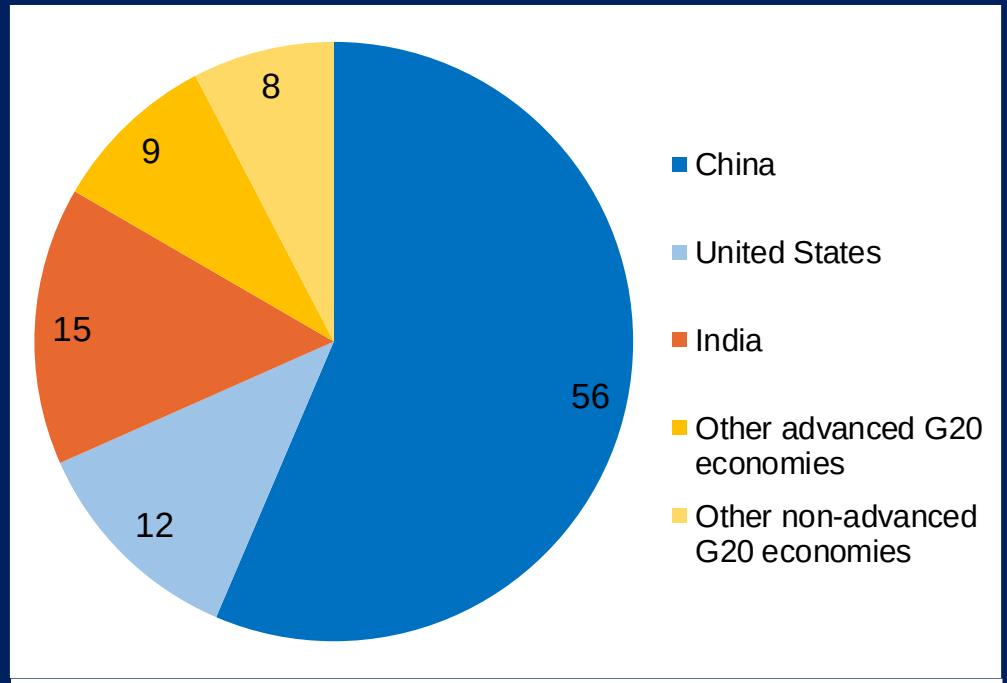
Burden of Carbon Taxation by Industry
$50/ton CO_2 tax 2030



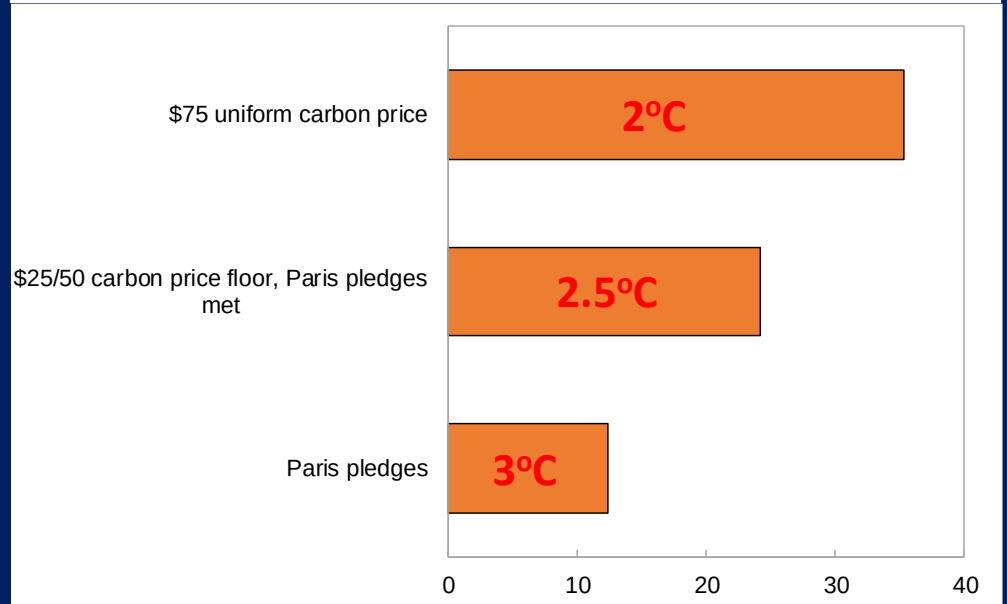
Source: IMF staff estimates.

International Carbon Price Floor

- Rationale
  - Complement to Paris Accord
  - Addresses competitiveness
  - Limited number of countries needed
  - Equitable (if developing countries have lower floor)
  - Flexible (could be met by tax, trading, regulations)
  - Effective
  - Enforced through border carbon adjustments



Contribution to G20 CO_2 reduction in 2030 (from uniform carbon price)



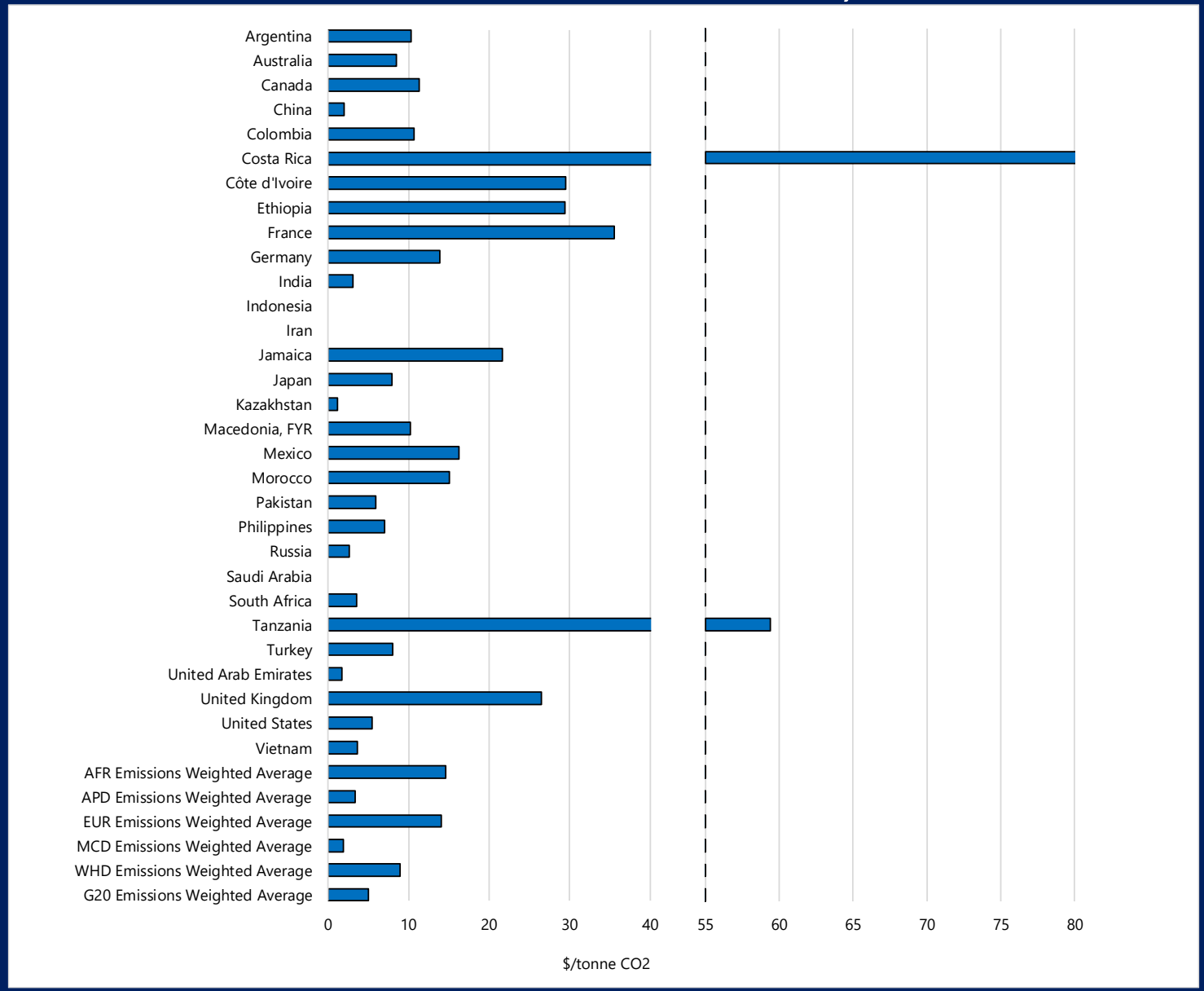
G20 CO_2 reductions in 2030, alternative scenarios

Source: IMF staff estimates.

Operationalizing Price Floors

- Focus on ‘effective carbon price’
  - Accounts for incomplete coverage of pricing and energy taxes
  - Agree to increase effective price relative to baseline

Effective Carbon Prices, 2030



Source: IMF staff estimates.