

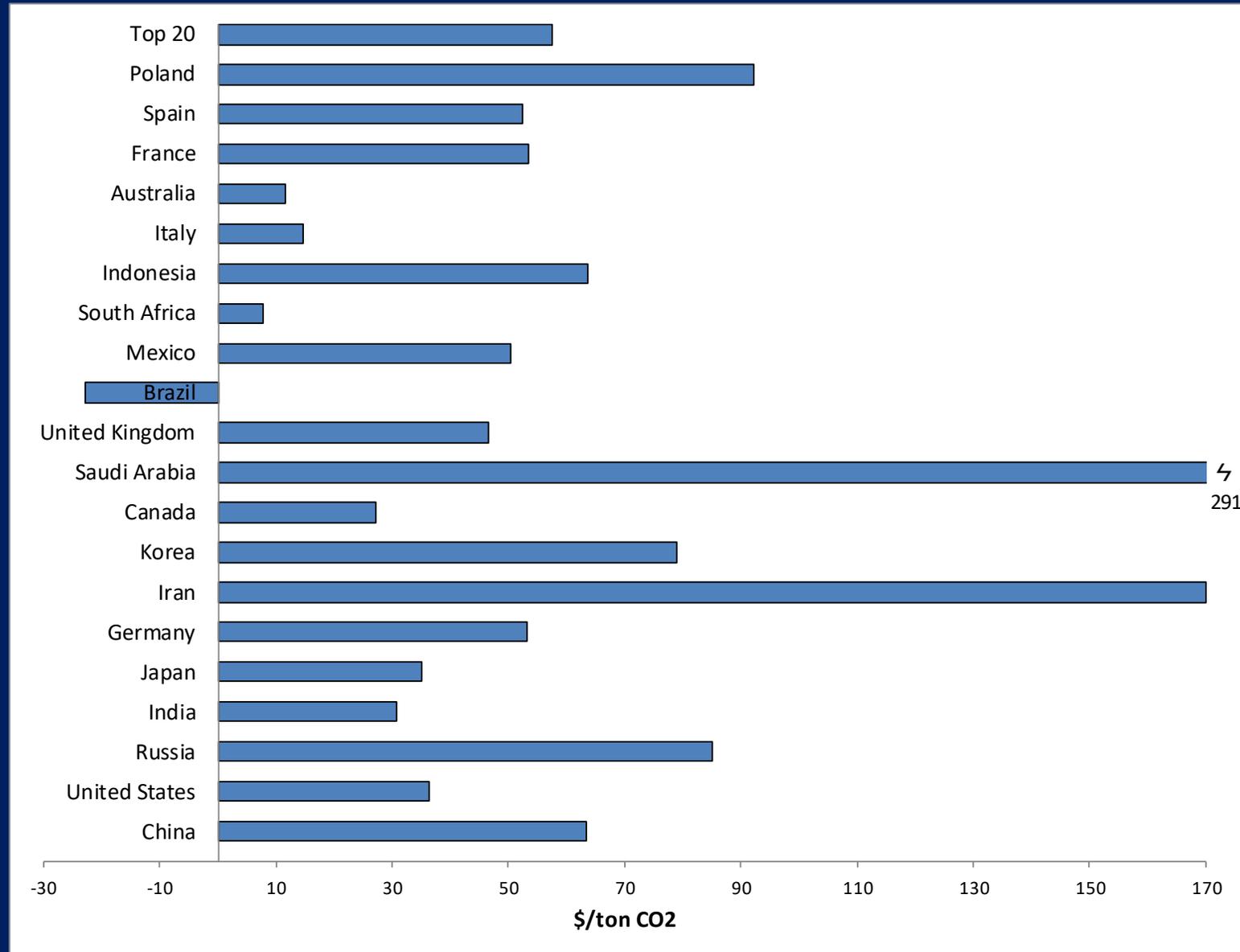
Addressing Competitiveness Concerns from Carbon Pricing

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Coalition of Finance Ministers for Climate Action
Workshop on Carbon Taxation, Stockholm, October 3-4, 2019

Free Rider Problem from Carbon Pricing Overstated

CO₂ Price Warranted by Domestic Environmental Co-Benefits, 2010

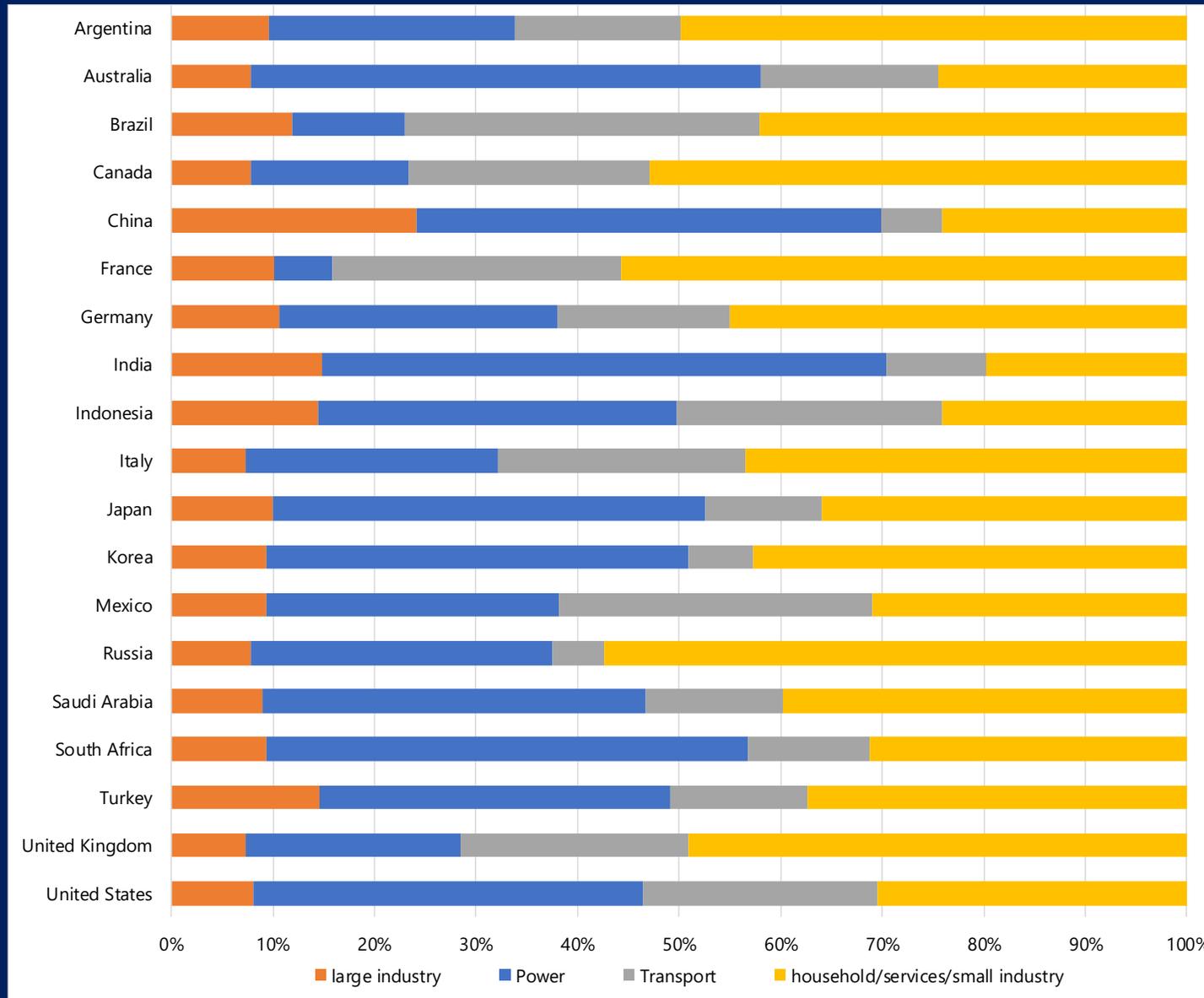


Leakage and Competitiveness: Some Basics

- Estimated leakage rates \approx 5-20%
 - Mostly from changes in international fuel prices rather than firm migration
 - Helping vulnerable firms only addresses the latter effect
- But in principle leakage does not matter under Paris Agreement
 - If all countries were to meet their mitigation pledges
- Efficient resource allocation \rightarrow closure of uncompetitive firms
 - But transitory assistance is needed
 - Political resistance

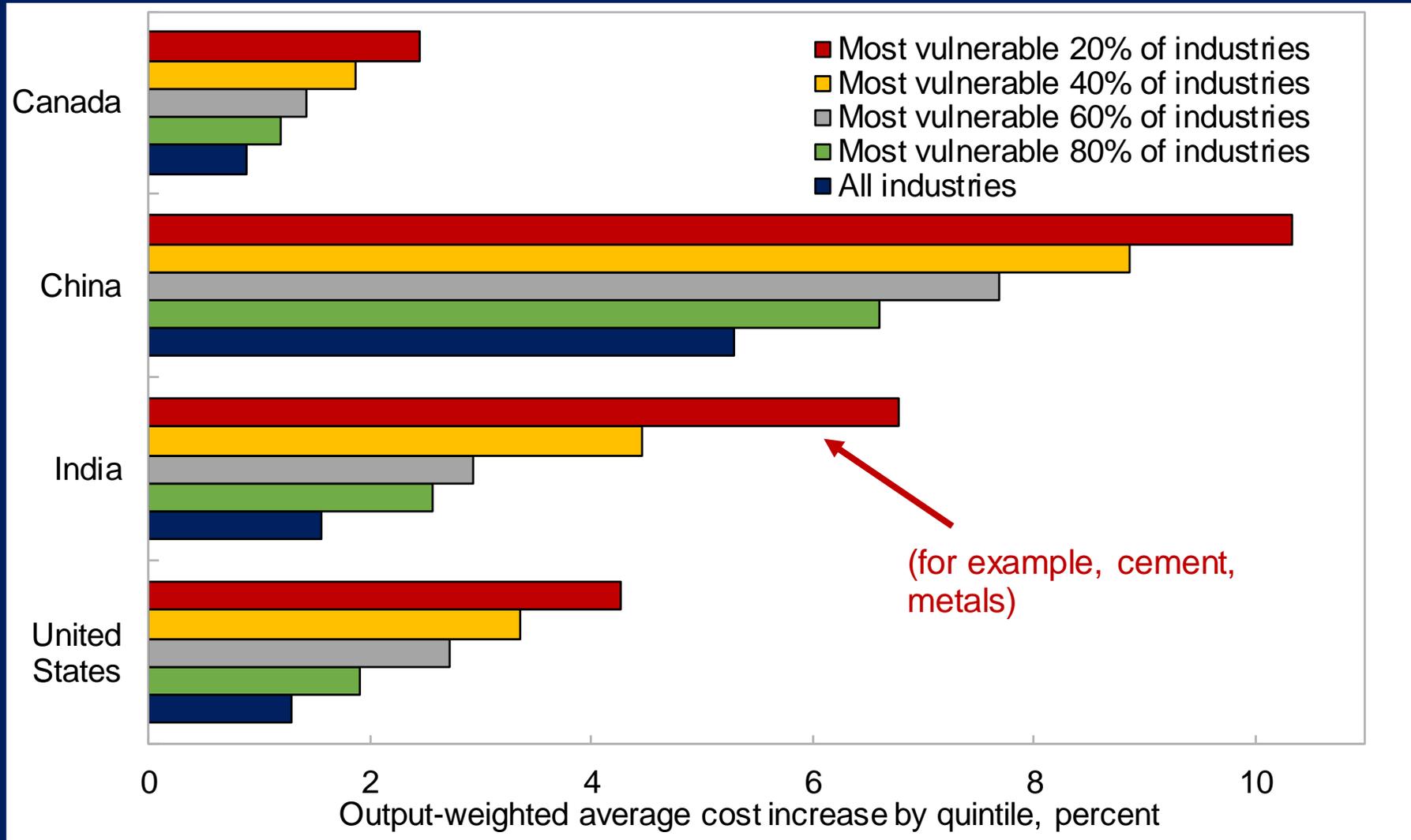
Industry Accounts for Modest Share of Emissions

Baseline projections of emissions by sector, 2030



Burden of Carbon Taxation by Industry

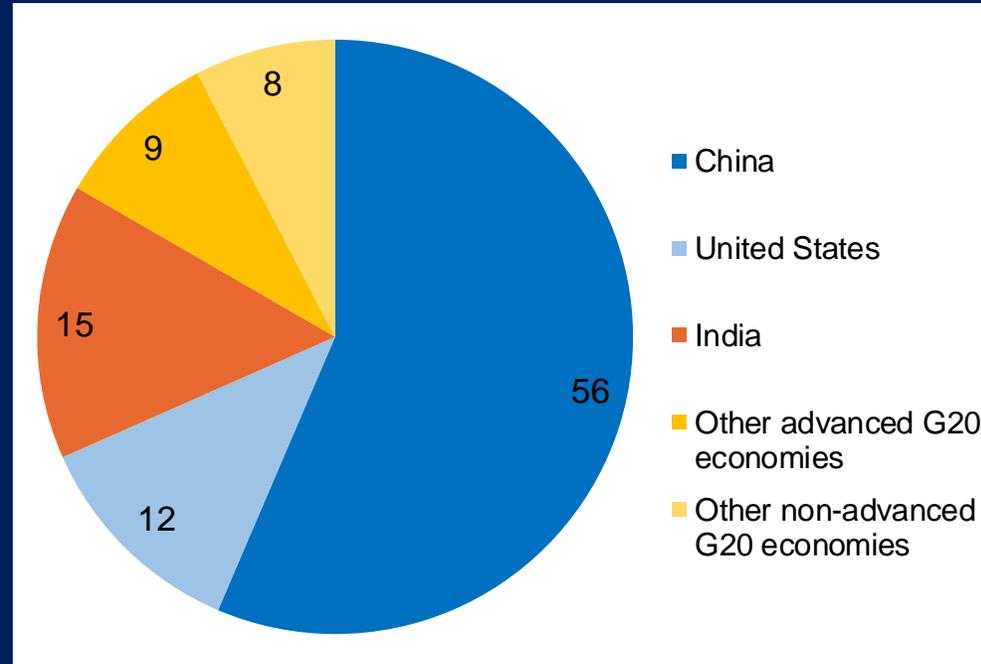
\$50/ton CO₂ tax 2030



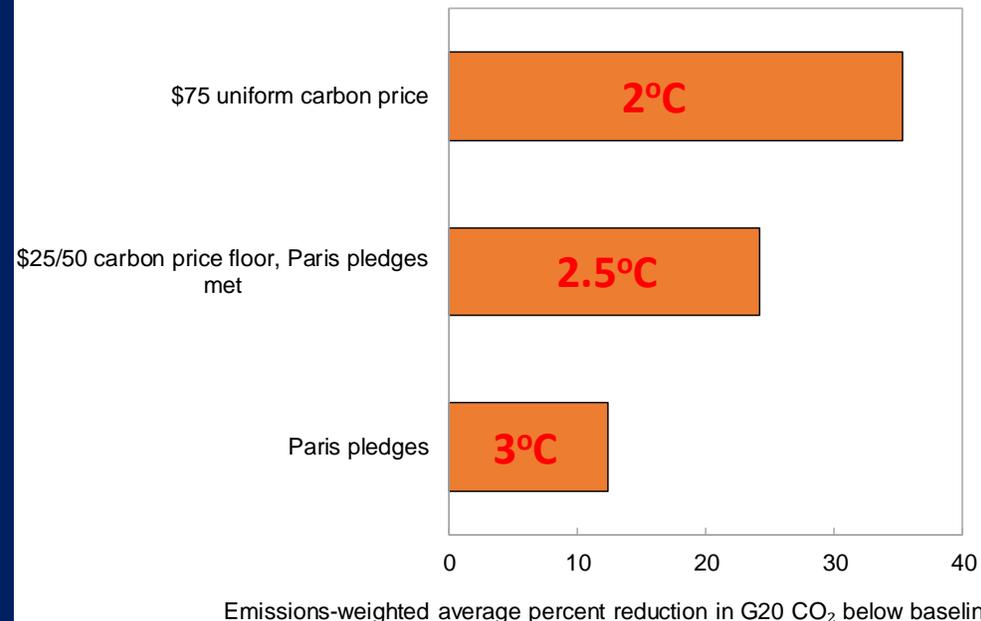
International Carbon Price Floor

- 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
- Trading provisions (“ITMOs”) may promote participation



Contribution to G20 CO₂ reduction in 2030 (from uniform carbon price)

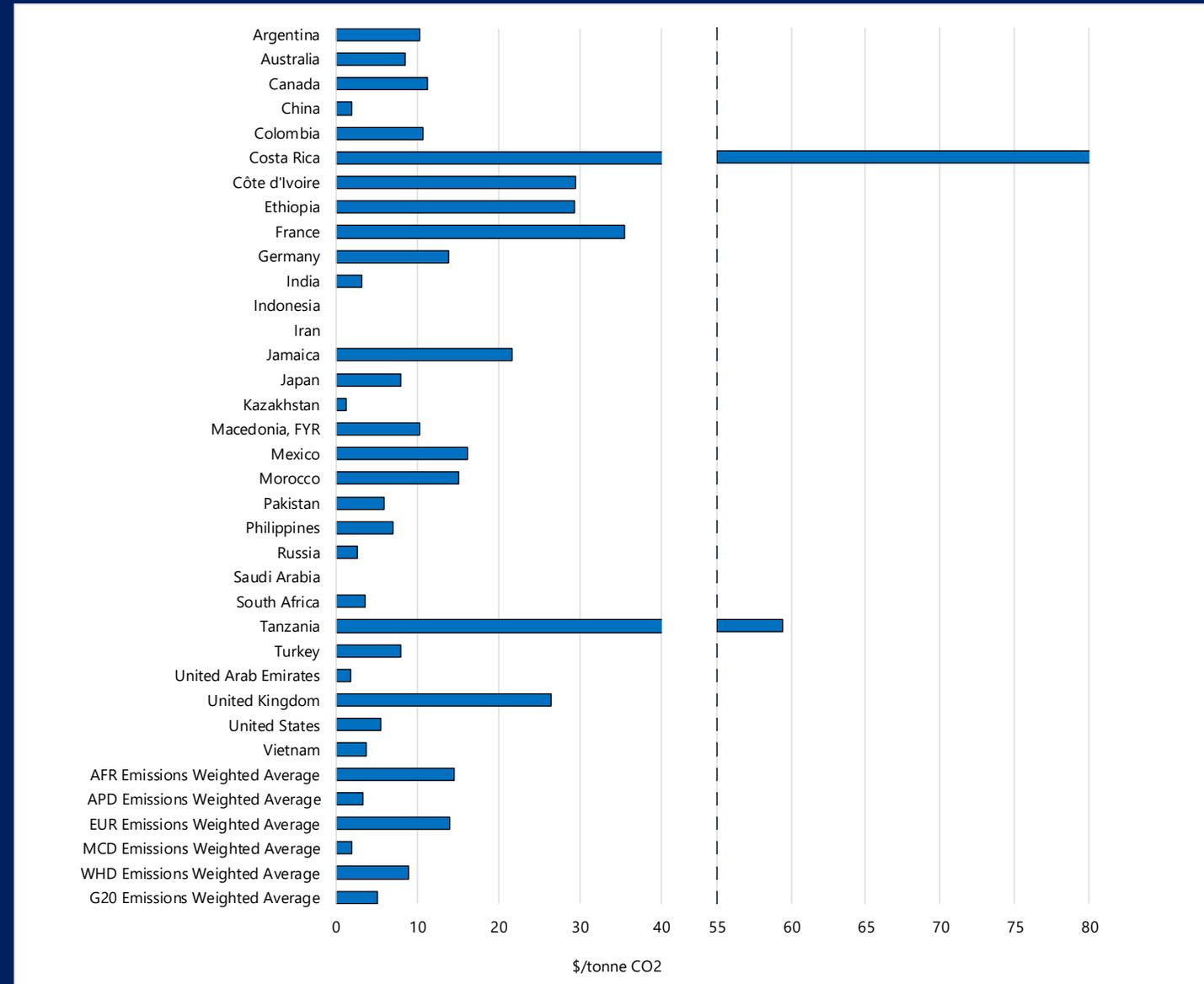


G20 CO₂ reductions in 2030, alternative scenarios

Operationalizing Price Floors

Effective Carbon Prices, 2030

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



Instruments for Offsetting Burdens on Trade-Exposed Firms

	Rebates for Direct/Indirect Emissions	Output-Based Rebate	Border Carbon Adjustments	General Corporate Tax Cut	International Carbon Price Floor
Effectiveness at Addressing Competitiveness of Trade	Effective	Effective	Effective	Poorly targeted at exposed industries	Effective
Preserving Mitigation Incentives for Trade Exposed Industries	Removes all incentives	Maintains incentive for reducing emission intensity	Maintains all incentives	Maintains all incentives	Maintains all incentives
Revenue Loss from Instrument	Moderate	Moderate	Increases revenue	Large cost	na
Added Administrative Burden	Moderate	Need to indentify industries and monitor their output	Need to identify imported products and measure their embodied carbon	na	Monitoring by international organization required
Compatibility with World Trade Organization Rules	Compatible if carefully designed	Compatible if carefully designed	Compatible if carefully designed	Compatible	Compatible if carefully designed
Compatability with Paris Agreement	Compatible	Compatible	May penalize countries using indirect pricing	Compatible	Compatible

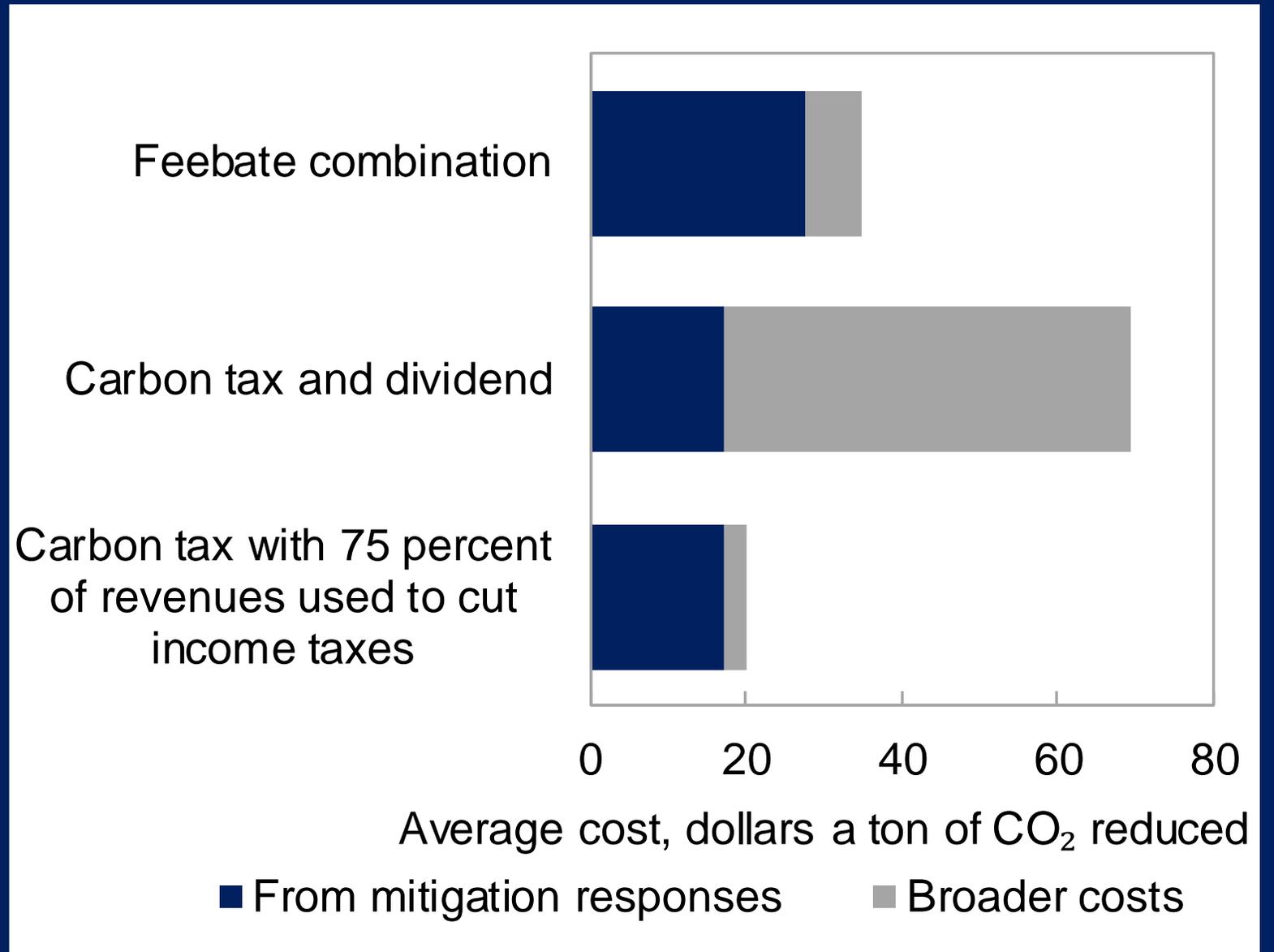
Carbon Pricing vs. Indirect Pricing

- If higher energy prices are difficult, indirect pricing may be preferred
 - No pass through of revenues in higher energy prices
- Regulations—energy efficiency, generation emission rates, etc.
 - 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 pay tax on $(\text{CO}_2/\text{kWh} - \text{industry average CO}_2/\text{kWh}) \times \text{output}$

Costs of Alternative Mitigation Instruments

\$50 Carbon Tax, United States, 2030

- Productive revenue use contains costs of carbon pricing



Assistance for Vulnerable Workers/Communities is Needed

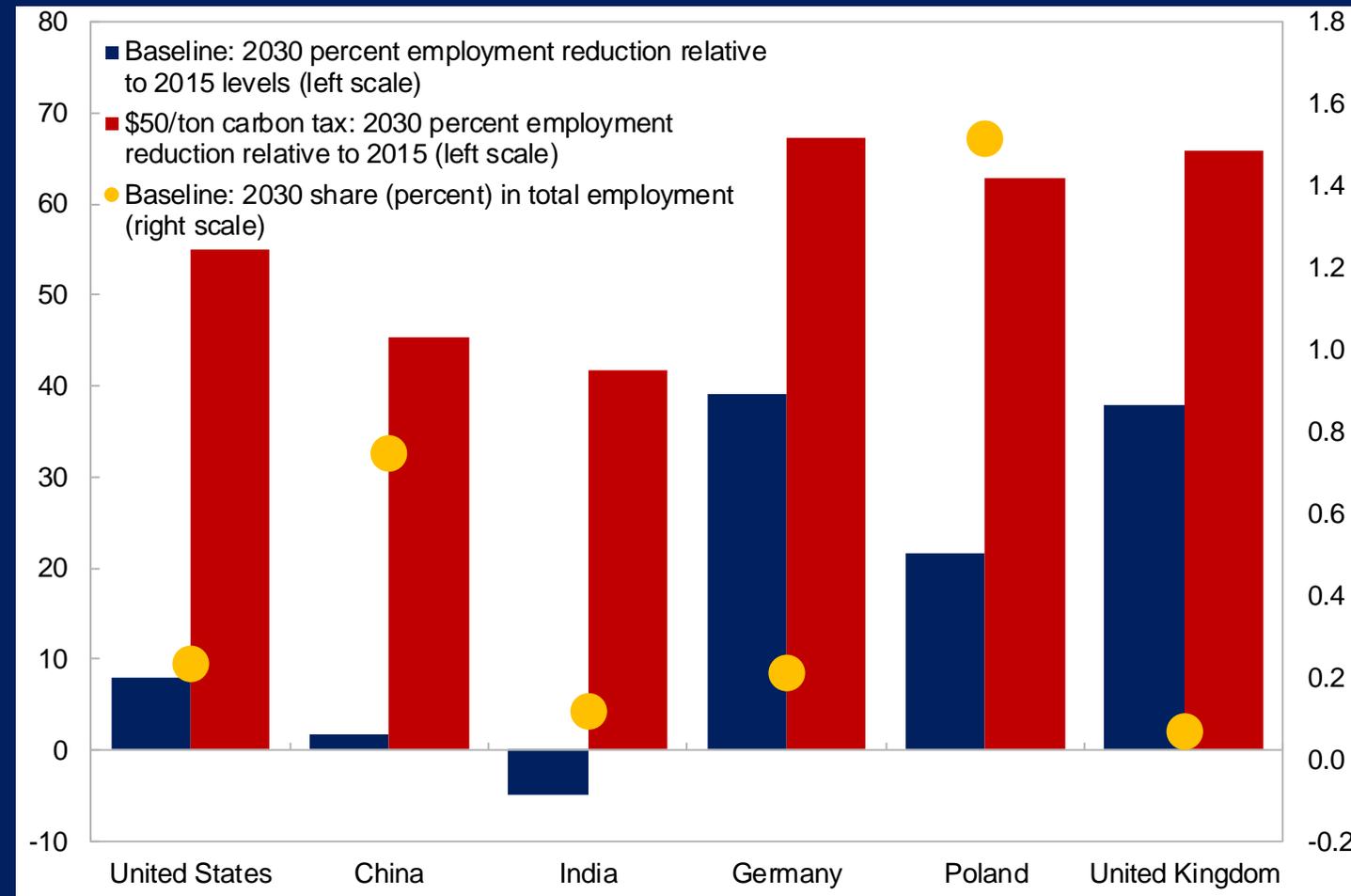
Impact of Carbon Pricing on Coal Sector Employment, \$50 tax in 2030

- Workers

- Unemployment benefits, retraining, relocation
- Costs <2% of \$50 carbon tax revenues (China, India, UK, US)

- Communities

- Assistance for reclaiming abandoned mining/drilling sites
- Temporary budget support for local job creation



Concluding: Role for Coalition

- Sharing experiences
 - Instruments for offsetting burdens on industry
 - Worker and community assistance programs
- Fleshing out practicalities of price floors