

Options for Mitigating Adverse Carbon Tax Impacts on EITE Industries

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What is Competitiveness?

- Increase in production costs of domestic firms from carbon tax, likely affecting industrial prices, profits, output and employment
- Recent modeling suggests impacts up to 3-4% for particular industries for \$15 tax, although average EITE is 0.5% in short run and 1% in long run (sensitive to size of coalition).

What is Leakage?

- Shift in economic activity to nations with weak or no comparable carbon tax.
- Two principal avenues:
 - Reduction in net exports
 - Increases in foreign carbon intensity via fuel price changes
- Recent modeling finds leakage rates 5-20%, although sensitive to size of coalition

What is EITE?

- H.R. 2454 definition focused on manufacturing industries:
 - At least 5% energy or CO₂ intensive *and* 15% trade intensive or
 - At least 20% trade intensive
 - Petroleum refining excluded from definition but receives comparable benefits
- EPA has identified 43 presumptively eligible industries
- Petition process also to be established

Options for Mitigating Impacts Under Carbon Tax

- Strong international action best way to address both competitiveness and leakage
- Other options considered
 - Partial or full exemption from tax
 - Some form of output based rebates
 - Border carbon adjustments

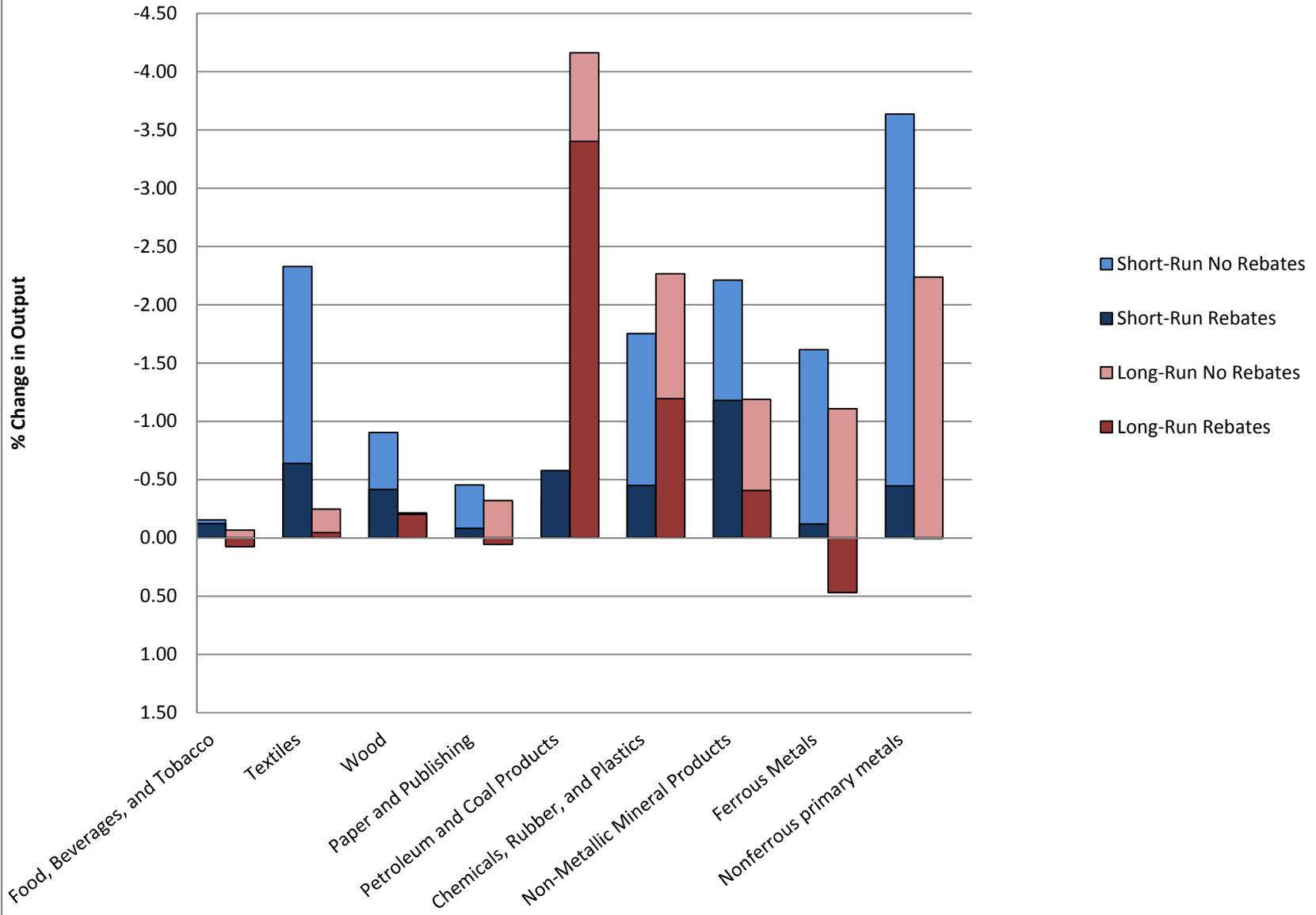
Partial or full exemption from tax

- Mechanics of exemption straightforward for both upstream and downstream tax schemes
- Principal advantage is protection of vulnerable industries
- Principal disadvantage is inefficiency and cost of higher carbon tax needed to achieve given revenue or emissions goal
- Likely to involve cross industry equity issues
- Clinton Btu tax offers lessons of political hazards of exemptions

Output based rebates

- Key is that rebates are tied to firms' domestic output
- Reduces competitiveness impacts but maintains incentives to reduce carbon intensity
- H.R. 2454 uses sector-wide carbon intensity as benchmark
- EU scheme less generous: based on top 10%

Output Effects on EITE Industries of a Unilateral \$15/Ton Carbon Tax, with and without Rebates



WTO Subsidies Code limits design options for rebates

- Rebates directly tied to firm output and sector benchmark likely illegal WTO subsidy
- Embedding rebate in the determination of tax base for EITE sectors may be more WTO compatible. A too generous base may require tax refundability.
- Tax exemption combined with tradable performance standard for EITE industries is another option, possibly allowing sale of excess credits, or payment of tax as alternative compliance

Border carbon adjustments

- Most effective method of addressing leakage
- Import adjustments require importers to pay equivalent carbon tax
- Full border adjustment would add relief for exports, although H.R. 2454 did not include it
- Important design issues tied to WTO (and UNFCCC) focus on leakage, not competitiveness:
 - Which products?
 - Include embodied emissions?
 - How to reflect local carbon regulations?
 - Exemptions for some exporting countries?

Tuning the design of BCA

- Focus exclusively on qualified EITE sectors to ensure benefits of reduced leakage outweigh administrative costs
- Probably use default as opposed to actual measure of embodied emissions
 - Use of foreign benchmarks creates strongest incentives for efficiency, emission reductions
 - Domestic benchmark easiest to implement but also least stringent
- Need to account for output based rebates in calculating size of BCA
- Need strategy for exemptions compatible with UNFCCC goal of “common but differentiated responsibilities; trans-shipment of goods

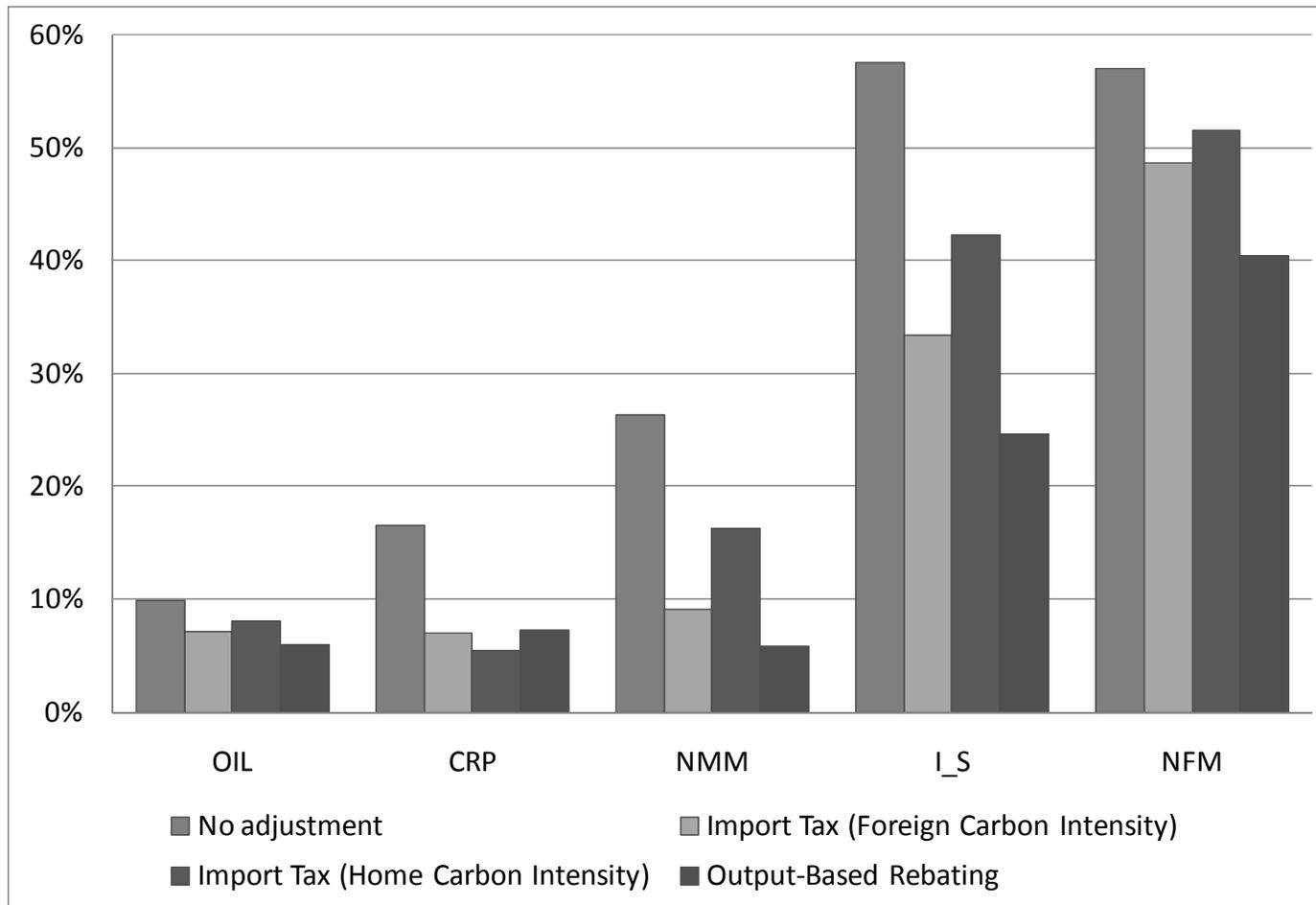
Cross cutting observations

- Both exemptions and output based rebating reduce net revenue and increase overall costs
- Exemption approach is clearly least efficient b/c it foregoes incentives for emission reduction in unregulated sectors. Yet, some studies find the costs of this strategy are small
- Output based rebating retains incentive effects of carbon tax while keeping product prices low, thus reducing competitiveness losses.
 - B/c it discourages conservation of energy intensive goods, is most suitable for sectors sensitive to international trade
 - Most appropriate for small coalition; efficiency costs grow with size of coalition

Cross cutting observations (2)

- Full BCA (including exports) most effective for both competitiveness and leakage concerns
- Fischer and Fox (2012) find that OBR may be more effective in reducing leakage than BCA of imports only
- In terms of global welfare, import BCA achieves most of the benefits of full BCA. However, BCA in general involves most shifting of burdens to developing nations
- Especially with small coalition, OBR is a middle ground

Leakage rates by sector and policy option



Conclusions

- Headlines say competitiveness or leakage impacts are huge; modeling suggests more modest effects
- Most promising alternatives are OBR and CBA
- Devil is largely in the details of the design, especially with respect to WTO issues

Thank you