



POLICY BRIEF: MAKING BORDER CARBON ADJUSTMENTS WORK IN LAW AND PRACTICE

Adele C. Morris

July 26, 2018

Some U.S. firms use proportionately more energy than other firms do, and they compete in international markets. These firms and their products are called energy-intensive and trade-exposed (EITE). All else equal, a greenhouse gas (GHG) tax (a carbon tax, for short) imposed in the United States and not analogously in other countries could lower the tax's environmental benefits by driving production, new investment, and emissions to countries with less ambitious climate policy, a shift known as emissions leakage.

Draft U.S. carbon tax bills and other proposals seek to manage this with border carbon adjustments (BCAs). An import BCA would apply a charge to select imported emissions-intensive goods. An export BCA would rebate to domestic producers the carbon tax-related costs they incur in making goods they export from the United States.

A host of practical design questions arises. To which products should BCAs apply, and from what countries and on what basis? Under what conditions could or should BCAs be suspended, and who decides? Which responsibilities should fall to which agencies, and how might stakeholders appeal determinations made by federal agencies? What kind of emissions or economic data would BCA administrators need, and how can the program remain simple enough to administer feasibly? What constraints do World Trade Organization (WTO) rules impose on the design of a BCA program? And what would be the implications if other countries applied similar measures to U.S. goods?

I address some of these questions in a recent paper (Morris 2018). I focus on BCAs for three reasons. First, border adjustments appear consistently in draft U.S. carbon tax legislation and prominent proposals by climate advocates. Second, Böhringer, Carbone, and Rutherford (2012) suggest that BCAs are relatively more effective in reducing leakage and promoting global cost-effectiveness than alternatives like output-based rebates. Finally, while BCA design may appear intuitive, within the policy design lurks a thicket of competing objectives, legal pitfalls, administrative headaches, and unintended consequences.¹

¹ This view is echoed by Cosbey et al (2012); Aldy (2017) and Flannery (2016) note that while addressing some risks, BCAs can introduce new risks.

Why include BCAs in a carbon tax bill?

At least three potential motives apply to BCAs: reducing emissions leakage; preserving the competitiveness of U.S. manufacturers; and pressuring trading partners with less stringent climate policies to catch up.² However, in light of research revealing relatively small amounts of leakage as summarized by Aldy (2017), the primary goal of BCAs should be to address the concerns of the most vulnerable industries without worrying too much about emissions leakage more broadly.

What should a BCA adjust, exactly?

Intuitively, an export BCA would compensate domestic producers that export their goods for the increase in their costs of production that result from the carbon tax. An import BCA would charge importers for the carbon emitted in the production of the products they sell in the United States. In practice, a BCA program can only adjust what administrators can observe, measure, monetize, and administer.

What policymakers choose to adjust significantly affects the incentives of firms. Suppose the export BCA adjusts only for direct and indirect carbon tax liabilities embodied in the exported product. Then a firm's export rebate could shrink when it lowers its emissions, potentially reducing incentives to abate. Likewise, firms using a range of production processes would have the incentive to export their most carbon-intensive products. To address this concern, the policy could set the border adjustment based on embodied emissions for all production of a given product by a particular firm, not just exports. That would limit the returns to export shuffling, but could involve tracking tax burdens for far more goods than those that end up exported. It could also induce firms to spin off their higher emissions production into a separate export-intensive firm.

Policymakers could peg export BCAs to measures like current or historical U.S. industry averages, rather than firm-level behavior. Such benchmarks would simplify program administration, but then BCAs would diverge from firms' actual costs; some would be overcompensated and some undercompensated.

TABLE 1

Recent Carbon Pricing Bills and Proposals



Legislation	Date Introduced
American Opportunity Carbon Fee Act of 2018 (S.2368/ H.R. 4926) (Whitehouse-Schatz/Blumenauer- Cicilline)	2/5/2018
The America Wins Act (H.R. 4209) (Larson)	11/1/2017
Tax Pollution, Not Profits Act (H.R. 2014) (Delaney)	4/6/2017
Climate Protection and Justice Act of 2015 (S. 2399) (Sanders)	12/10/2015
Climate Leadership Council (CLC) Carbon Dividends	N/A
Citizens' Climate Lobby (CCL) Carbon Fee and Dividend Policy	2/2017
RFF-Georgetown Framework Proposal	3/2018

² Cosbey et al (2012), p. 4; Fischer and Fox (2012)

Similar challenges arise in setting import BCAs with the added problem of measuring the emissions in other countries attributable to the products they send into the United States. The import BCA could price the carbon in the firm's production process at the applicable carbon tax rate in the United States.³ This approach would require considerable information about the production process, but it would reasonably mirror the tax applicable to comparable production in the United States. Of course, another country could shuffle which goods go to export, steering its cleanest products to the United States (or wherever has the lowest import BCA). This could justify using a firm-level average for emissions attributable to production of all of a given product.

POLICY DESIGN CHOICES

BCA programs appear in all recent carbon tax proposals in the United States. I review seven of them. At least six economy-wide carbon-pricing bills have been introduced since 2015. The four bills in Table 1 would accomplish this through a tax (sometimes labeled as a fee). Table 1 excludes two other recent carbon pricing bills because they include border adjustment language that is very similar to that in Rep. Larson's. One is the 2015 bill sponsored by Rep. McDermott that would sell emissions permits. The other is H.R. 4889 sponsored by Rep. Beyer and 24 other House members in 2018, which would establish a cap-and-trade program for GHGs. The last three proposals in Table 1 are put forward by two advocacy groups and a team of research scholars.

Which traded goods will be subject to a BCA?

Most proposals set preliminary criteria for potential inclusion in the BCA program and then apply a separate method for determining the magnitude of the BCAs. This two-stage process means that BCAs may not actually apply to all of the goods that meet the initial criteria.

The Whitehouse-Schatz bill would border adjust only manufactured goods (other than any petroleum product or fossil fuel) for which energy costs comprise at least five percent of their overall production cost. The Larson and McDermott bills limit BCAs to specific primary products (such as metals and glass) and products manufactured with them, if the goods' total cost of production is "significantly increased by the bill." The Delaney and Larson bills center BCA eligibility on whether there was any increased cost of production "from the carbon tax," had the good been produced in the United States. Unlike the other bills, Sen. Sanders' specifies the goods that would be BCA-eligible, without regard to increased costs of production. Only the RFF-Georgetown proposal explicitly border adjusts electricity.

BCA Magnitudes

Much of the literature on BCA design deals with determining how large the border adjustments should be.

Although their exact text differs, most proposals include in their import BCA an estimate of the direct and indirect tax liabilities the foreign producer would have had if the same emissions in its supply chain occurred within the United States. The Whitehouse-Schatz and Delaney bills include language to that effect. The Larson, Sanders, and McDermott bills also include in the adjustment calculations the increased costs domestic producers would face from import BCAs on inputs to their production, but the Sanders bill is less clear on whether it taxes foreign emissions or comparable domestic emissions.

³ Kortum and Weisbach (2017) contemplate this approach.

Although the details differ slightly, most of the proposals set export BCA magnitudes close to the direct and indirect carbon tax burden. The exception is the Sanders bill, which does not provide any border adjustment for exports.

A number of the proposals would reduce or suspend BCAs under certain conditions. Only the Whitehouse-Schatz proposal scales the BCA with the carbon price in the trading partner, which is reasonable in principle but difficult to administer. Most of the proposals suspend export BCAs for U.S. goods sent to countries with comparable carbon pricing systems. The Larson and Sanders bills are more ambiguous, but in any case, imply that import BCAs for products are either all on or all off. The RFF-Georgetown framework applies BCAs to all countries no matter their climate policies.

Three recent plans – Sanders, McDermott, and CLC – specify how the revenue from BCAs would be used. The Sanders proposal creates a fund to support energy efficiency initiatives and a nationwide network of manufacturing extension partnership centers. The other two use the revenues to pay dividends to taxpayers.

SUMMARY, RECOMMENDATIONS, AND CONCLUSION

A few conclusions derive from this review of draft BCA proposals. The following summarizes the recommendations, with special attention to offering guidance to Congressional staff working on draft carbon tax legislation:

- The statutory language for BCA design requires careful thought. As reflected in the bibliography of the related paper, a large literature has accrued on this topic, not all of it covered here. The Congressional Budget Office could update its 2013 report called “Border Adjustments for Economywide Policies that Impose a Price on Greenhouse Gas Emissions” focusing specifically on a carbon tax.
- Expect BCAs to be the most time-consuming and complicated part of implementing a GHG tax. Relevant agencies will need sufficient resources to prevent undue bottlenecks. However, even with ample resources the process of promulgating the implementing regulations is likely to be protracted and subject to litigation. Once up and running, administering the program will be challenging but doable, provided the rules and processes are crafted carefully.
- Expect companies and foreign governments to try to exploit the BCA program in their self-interest. Plan to use oversight tools to ensure that executive branch agencies are faithfully carrying out the law’s stated goals and are not captured by rent-seeking interests.
- Many factors will evolve after passage of a carbon tax bill. Consequently, BCAs will require regular updates as technologies change and national GHG policies and ambition evolve. Regular reports to Congress could update policymakers on how the BCA program and other aspects of the carbon tax are working and whether they are keeping up with changes.
- Harmonize the screening criteria for BCA-eligible products with the criteria that determine the magnitude of the adjustments. For example, screening in products whose costs of production have gone up significantly as a result of the GHG tax makes more sense than screening in products that are energy-intensive, but possibly not emissions-intensive.
- It would make sense to border adjust electricity just like the more tangible GHG-intensive goods that appear in the legislation.
- McKibbin et al. (2018) suggest that border adjustments should apply to a sufficiently narrow set of products so as to prevent distortions in currency values that could undermine the trade goals.
- The net fiscal impacts of the BCA program are uncertain. They depend on the conditions under which BCAs are suspended, if any, and other countries’ response to those conditions. For example, if the policy suspends BCAs for imports from countries that price the GHG emissions associated with their exports, they are likely to do so in order

to collect revenue that would otherwise go to the United States. If this response is widespread, little revenue would be raised from import BCAs. Likewise, if export rebates are also suspended, then expenditures fall along with revenues. The net budget impacts would depend on the BCAs associated with the remaining traded products to which adjustments apply.

- Both revenues and expenditures would be larger in an approach like the RFF-Georgetown proposal in which no BCA suspensions apply. Flannery et al. (2018, p. 10) project the policy would generate billions of dollars in net revenues.
- Clarity about the use and source of BCA revenues and expenditures is important, particularly if the bill otherwise earmarks revenues for particular purposes. For example, do export rebates come out of gross carbon tax revenues or do they need separate appropriations?
- Even if the United States implements a BCA program, other countries' import BCAs might be higher than U.S. export rebates for the same products. This means some firms could be worse off on net despite their export rebate. This is not easily fixed. Raising a U.S. export BCA to match another country's higher import BCA could cause a WTO violation.
- Carefully consider and articulate any conditions under which BCAs are suspended. This is one of the more complex dimensions of a policy that is already complicated. Recognizing the reality of global competition could significantly complicate the drafting of an export BCA suspension.
 - Most proposals would suspend the export BCA for shipments to countries with an equivalent carbon price. However, this ignores the fact that U.S. firms would still face export competition from firms in other countries that export to that same destination. Only if the recipient country adopts an import BCA that equivalently taxes the U.S. firm's competitors and exempts the U.S. firms would those competitive pressures be alleviated.
 - When other countries meet the conditions to suspend BCAs, U.S. firms can avoid losing their export rebates by sending their products to other countries first and trans-shipping them from there. Deterring this behavior would be difficult.
 - BCA suspensions or discounts should take careful account of the literature on WTO compatibility. Policymakers should consult trade law experts to avoid legal pitfalls and be clear about the criteria that govern BCA suspensions. For example, should BCAs be suspended on a product-by-product basis or only wholesale across all products from a given country? Do the comparable measures adopted by the exporting country have to apply economy-wide to all emissions, to all emissions from production of a given good, or only to the emissions associated with goods exported to the United States?
 - Discounting BCAs by the amount of trading partners' carbon prices may create incentives on the margin for countries to raise their carbon price. However, discounting accurately may prove so complicated that in practice the incentives do not operate as hoped.
 - In light of how difficult it is to craft BCA workable suspension conditions, consider the RFF-Georgetown framework that would apply BCAs consistently across all countries, regardless of their climate policies. Although it obviates using BCAs for diplomatic leverage, it offers the virtue of relative simplicity and a strategy for WTO compatibility.
- To avoid litigation, it could be advantageous to specifically allow certain kinds of discretion. For example, if you want to enable the Secretary of the Treasury to set adjustments that depend on how a good's emissions compare to current or historical industry average emissions or industry best practice, then consider including statutory language that allows such benchmarking.

- The BCA program should provide a way for other countries and individual firms to appeal or petition determinations made by the U.S. authorities.
 - Authorities should establish an administrative structure for such petitions, for example one that parallels a countervailing duty process, with phases for determinations, appeals, and adjudication.
 - Some kind of notification to trade partners and stakeholders about pending BCA policy changes, and an opportunity to comment would also be wise, if not compulsory under the WTO.
 - These processes should be public, transparent, consistent, and predictable.

Future work must address important considerations not addressed here. The most important of these is compliance with WTO rules (assuming the United States cannot change them).

Another important consideration is how to coordinate different federal agencies' expertise to best effect. Efficient BCA implementation in the United States would take into account the facts that: Treasury collects existing fuel excises and has deep expertise in managing billions of dollars in financial flows; the Department of Commerce enforces rules on anti-dumping and countervailing duties; EPA collects GHG emissions data under its GHG reporting regulations; and U.S. Customs and Border Protection collects import tariffs. A useful complement to this review would compare how these proposals assign duties across agencies and suggest the best roles for each.

Implementing agencies will have to analyze the costs and benefits of the BCA program, and CBO and the Joint Committee on Taxation must forecast the program's uncertain fiscal impacts. Because the BCA policy poses novel questions about trade, emissions, industrial activity, incentives, and other outcomes, agencies may need modeling tools they do not normally require for their more typical duties. A thorough consideration of the appropriate tools is beyond my scope here, but it is an important priority to prepare for timely implementation of the program.

Finally, BCA determinations will require extensive data on domestic and foreign emissions and carbon fee liabilities. They will also require periodic updates as technologies and policies evolve.

REFERENCES

- Aldy, Joseph E. 2017. "Frameworks for Evaluating Policy Approaches to Address the Competitiveness Concerns of Mitigating Greenhouse Gas Emissions". *National Tax Journal* 70 (2): 395-420. doi:10.17310/ntj.2017.2.06.
- Böhringer, Christoph, Jared C. Carbone, and Thomas F. Rutherford. 2012. "Unilateral Climate Policy Design: Efficiency and Equity Implications of Alternative Instruments to Reduce Carbon Leakage". *Energy Economics* 34: S208-S217. doi:10.1016/j.eneco.2012.09.011.
- Cosbey, Aaron, and Susanne Droege, Carolyn Fischer, Julia Reinaud, John Stephenson, Lutz Weischer, and Peter Wooders. 2012. *A Guide for the Concerned: Guidance on the Elaboration and Implementation of Border Carbon Adjustment* (November 20, 2012). Entwined Policy Report No. 03. Available at SSRN: <https://ssrn.com/abstract=2178312> or <http://dx.doi.org/10.2139/ssrn.2178312>
- Fischer, Carolyn, and Alan K. Fox. 2012. "Comparing Policies to Combat Emissions Leakage: Border Carbon Adjustments versus Rebates". *Journal of Environmental Economics and Management* 64 (2): 199-216. doi:10.1016/j.jeem.2012.01.005.
- Flannery, Brian P. 2016. "Carbon Taxes, Trade, and Border Tax Adjustments". RFF Policy Brief. Washington, DC: Resources for the Future.
- Flannery, Brian, Jennifer A. Hillman, Jan W. Mares, and Matthew Porterfield. 2018. "Framework Proposal for a US Upstream Greenhouse Gas Tax with WTO-Compliant Border Adjustments," Georgetown University Law Center.
- Kortum, Samuel, and David J. Weisbach. 2017. "The Design of Border Adjustments for Carbon Prices". *National Tax Journal* 70 (2): 421-446. doi:10.17310/ntj.2017.2.07.
- McKibbin, Warwick J., Adele C. Morris, and Peter J. Wilcoxon, and Weifeng Liu. 2018. "The Role of Border Carbon Adjustments in a U.S. Carbon Tax." *Climate Change Economics*, 9(1).
- Morris, Adele C. 2018. "Making Border Carbon Adjustments Work in Law and Practice," Tax Policy Center.

ACKNOWLEDGMENTS

This brief was funded by the Laura and John Arnold Foundation and the Alcoa Foundation. We are grateful to them and to all our funders, who make it possible for the Urban-Brookings Tax Policy Center to advance its mission.

The views expressed are those of the authors and should not be attributed to the Urban-Brookings Tax Policy Center, the Urban Institute, the Brookings Institution, their trustees, or their funders.

The Tax Policy Center is a joint venture of the Urban Institute and Brookings Institution. For more information, visit taxpolicycenter.org or email info@taxpolicycenter.org.

Copyright © 2018. Tax Policy Center. All rights reserved. Permission is granted for reproduction of this file, with attribution to the Urban-Brookings Tax Policy Center.