Task Force 4
Refuelling Growth: Clean Energy and Green Transitions

ESTABLISHING EQUIVALENCE BETWEEN TAXES ON FOSSIL FUELS AND CARBON PRICES UNDER BORDER CARBON ADJUSTMENTS

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Abstract

Achieving net-zero emissions by 2050, as many countries have proposed to do, will require a steep increase in carbon prices. However, this may also imply a higher risk of carbon leakage. Border carbon adjustment (BCA) measures aim to prevent carbon leakage by charging a fee on imported carbon-intensive goods based on their greenhouse gas emissions and carbon pricing. In practice, BCAs exempt countries with similar emissions policies from import taxes, but do not take account of effectively equivalent regulations and often-high fossil fuel taxes imposed in third countries, with India being the highest (at 69 percent of the price). This policy brief recommends the G20 develop an approach to account for equivalent mechanisms to carbon prices, including regulations and high fuel taxes, when taxing imports under BCAs. The main idea is to establish equivalence between different policy approaches that meet the same objectives as BCAs. Any equivalence policy should also take account of the long-established principle of 'common but differentiated responsibilities'.

The Challenge

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As governments intensify their efforts to limit global warming to 1.5°C above pre-industrial levels while adapting to its impacts and building resilience, accelerating a transition to a low-carbon economy will require a drastic reshaping of global production and consumption patterns. Carbon pricing mechanisms have long been used by governments as a possible instrument in this transition. According to the World Bank Carbon Pricing Dashboard, in 2022, 70 regional, national, or subnational carbon-pricing initiatives were already in place in 47 countries including nine developing countries, covering 23 percent of global greenhouse gas (GHG) emissions.[1] These mechanisms included both carbon taxes and emissions trading schemes (ETS).

While they have contributed to reducing GHG emissions, carbon prices have generally remained significantly lower than the level necessary to meet the Paris Agreement goals. Achieving the objective of net-zero emissions by 2050 set by a wide range of countries will therefore require a steep increase in the price of carbon compared to its past levels.[2] This, however, may imply higher risks of carbon leakage—i.e., increased emissions in jurisdictions with no or less stringent carbon constraints. If GHG reductions at the domestic level are replaced by increased emissions embedded in imported goods, it could affect the competitiveness of domestic industries vis-à-vis foreign competitors as well as national efforts to reduce GHG emissions. In other words, while governments may be ready to impose higher carbon costs on energy-intensive sectors like steel, cement, or aluminium, they will not do so if this simply means shifting emissions to competitors abroad. In the past, this concern was often addressed through the free allowances of emissions in trade-exposed sectors, a move that contributes to reducing the price of carbon.

In recent years, these concerns have prompted calls to level the playing field and preserve 'competitive equality' between domestic and foreign products through mechanisms like border carbon adjustment (BCA) mechanisms.[3] Adapting this approach to climate change, several countries have started exploring BCAs. The European Union (EU) approach to climate change mitigation, for example, relies heavily on the so-called carbon

border adjustment mechanism (CBAM) to support the strengthening of its ETS and the progressive phasing out of free emission allowances.[4] Other countries are contemplating similar schemes, including the US through the Fair, Affordable, Innovative, and Resilient (FAIR) Transition and Competition Act (introduced in the US Congress in July 2021). In May 2022, the UK government also announced its intention to consult on a range of carbon leakage mitigation options including product standards or CBAMs, and in January 2023 the Australian government signalled its intentions to do the same.[5]

In international circles, proposals for such unilateral schemes have spurred a heated debate. Proponents, generally present BCAs as climate measures designed to prevent carbon leakage without reducing the price of carbon, unlike alternative approaches such as granting free emission allowances to trade exposed sectors. Detractors argue that BCAs fail to reflect the Paris Agreement's flexible approach informed by international cooperation and the principle of 'common but differentiated responsibilities and respective capabilities' (CBDR-RC). They consider that BCAs are unilateral measures with

Box 1: How BCAs work in practice: The CBAM case

The CBAM will initially apply to imports of certain carbon intensive goods and selected precursors particularly exposed to risks of carbon leakage, namely cement, iron and steel, aluminium, fertilisers, electricity, and hydrogen. The adjustment will therefore apply on a product-by-product basis, with importers having to purchase emissions certificates in the EU. Once the permanent system enters into force on 1 January 2026, importers of the goods covered under the scheme "will need to declare, each year, the quantity of goods imported into the EU in the preceding year and their embedded GHG. They will then surrender the corresponding number of CBAM certificates. The price of the certificates will be calculated depending on the weekly average auction price of EU ETS allowances expressed in €/tonne of CO_2 emitted". If importers can prove that a carbon price has already been paid at the production stage, the corresponding amount can be deducted.

Source: European Commission[6]

extraterritorial effect and that their main objective is to force third countries to raise their climate ambition above their Paris Agreement commitments. Some argue that such mechanisms constitute disguised forms of 'green protectionism' aimed at preserving the competitiveness of domestic firms and question their legality under the rules of the World Trade Organization (WTO).

Limited evidence of carbon leakage

Economic literature suggests that the likelihood of carbon leakage is very low.[7] One study reveals that over the two phases of the EU ETS, in the two most emissions-intensive manufacturing industry sectors (cement and steel), and controlling for other factors such as economic activity in and outside Europe, there was hardly any leakage. This may be partly because the price of carbon remained relatively low during the study period, but also because net imports of cement and steel, and investments in other countries, are driven more by demand than CO_2 prices.[8] For the large majority of industries, energy costs play a rather minor role, very rarely accounting for more than 5 percent of total production costs.[a] Hence, factors such as proximity to key markets, access to skilled labour, as well as a favourable political and institutional environment to conduct business, might be more important.

If the possibility of carbon leakage is low, the first best economic policy solution will be not to impose the BCA. Naturally, this does not address domestic political imperatives in the country considering the BCA. Nonetheless, to the extent that these dictate action and a BCA is imposed, it is essential to consider the suggestions provided below to generate a system that takes account of trading partners' legitimate concerns.

Key considerations in the design of BCA

Assuming that the BCA's objective is genuinely to prevent carbon leakage, any good faith attempts at designing and implementing specific measures will have to respect a few key considerations.[9] First, goods subject to

a Note that energy costs for steel are higher at 20% but fixed costs of a steel plant are also very high, reducing the possibility of relocation or closure as legacy costs would be very high.

the border adjustment should logically be limited to those susceptible to carbon leakage. While this may be the case for certain carbon-intensive and highly trade-exposed sectors, such as aluminium and certain chemicals, it may not apply to more transformed goods, such as cars, electronics, or textiles, whose production location is likely to be influenced by a much wider range of factors. In other words, the inclusion of downstream sectors will only be acceptable if the risk of leakage can be demonstrated to be equivalent to upstream sectors. Second, governments should only charge a border carbon price that is equivalent to the domestic carbon price. Any attempt at imposing a higher cost on imports will indicate an attempt at protecting domestic industries from foreign competition rather than avoiding carbon leakage. In practice, this calls for mechanisms to recognise equivalences, an issue that has generated many discussions, not least given the variety of approaches that different governments are taking to incentivise lower carbon emissions domestically.

Recognising equivalences

Recognising equivalences implies avoiding double protection, for example, by charging a carbon price on goods that have already been taxed domestically or on goods that benefit from exceptions or free allowances under the domestic ETS scheme. It means that equivalent measures should be recognised to the extent that they reduce the risk of leakage, and that credit for carbon-equivalent (CO_2-e) costs already incurred by exporters should be granted. As argued by Young,[10] given that the world contains variable domestic political economies, governance, and regulatory arrangements, regulatory approaches, for example, might yield better results for the climate than pricing measures, and in some cases are likely to be more politically palatable, domestically. In other words, the environment is blind to measure design; what matters is the impact of those measures in relation to addressing the mitigation problem. Young calls this the “equivalent price signal requirement”.[11]

Box 2: Regulations-intensive approaches to carbon abatement: The Australian case

Australia is in the process of revising its regulations-intensive approach to carbon abatement. Focused on the 215 highest heavy-industry carbon emitters, the revision mandates an overall cumulative carbon emissions 'budget' (cap) by 2030, and then allocates that budget primarily among the 215 facilities, with each receiving a quota depending on industry, existing production plant, and the need to introduce new entrants into the market that would require a share of the budget. On an annual basis, each facility's cap is reduced by a predetermined amount, with 'trade-exposed' facilities being accorded relative leniency. The mechanism allows for carbon trading to occur at two levels: among the 215 facilities, and between individual facilities and other sectors subject to the Australian Carbon Credits Scheme, an offset programme tracing its roots to the Kyoto Protocol. While these trading schemes will establish an effective carbon price for these facilities over time, the safeguard mechanism does not cover most of the carbon-intensive sectors in Australia, and so does not establish a carbon price for the economy per se.

Source: Department of Climate Change, Energy, the Environment and Water, Government of Australia.[12]

Measurement challenges in establishing equivalence

There are several measurement challenges with the equivalent price signal principle. First, how to measure indirect price signals, as captured in regulations. One option is to use domestic regulatory impact assessments. Young observes,[13] for example, that the Organization for Economic Cooperation and Development's (OECD) long-established Producer Support Estimate (PSE) measures and methodology[b]

b These were developed in the 1970s and 1980s to measure the impacts of different kinds of agriculture support policies on international agricultural trade. They estimate 5 effects on farmers: price support mechanisms; direct payments and charges; input price supports; general government services impacts; and other indirect costs primarily arising from sub-national policies. The results can often be surprising, but always provide a holistic assessment of the true impact of government measures on a country's farming sector.

could serve as a potential model. Specifically, the development of a CO2-e set of measurement tools and an associated methodology could be used to provide objective quantitative estimates of the effect of alternative emission reduction strategies on the cost of producing 'carbon intensive' products, at the product level. Those could then be used to determine objective benchmark prices for comparison across different jurisdictions. A related challenge in defining equivalences relates to measuring the effect of fossil fuel subsidies on the price of carbon. Globally, fossil fuel subsidies were US$5.9 trillion, or 6.8 percent of GDP, in 2020 and are expected to increase to 7.4 percent of GDP in 2025.[14] Ultimately, though, as Young argues, the first best solution is for countries to agree to establish a multilateral CO_2-e measurement approach, and the G20 is arguably the group of countries best-placed to do so. For example, the EU may use carbon prices whereas several other G20 countries may impose carbon taxes, such as the high carbon tax that India imposes on coal (see Box 3).

Equivalence between fossil fuel taxes and carbon pricing

Carbon taxes are imposed on the carbon content of fossil fuel supply and are therefore indirectly a carbon-pricing instrument. Fuel taxes[c] create economic incentives similar to those of carbon taxes even if their primary objective may be to raise revenue. Thus, fuel taxes can be seen as implicit carbon taxes.[15] Furthermore, the subsidies given to fossil fuels in developing countries are the lowest among the G20.[16] Therefore, while carbon-pricing discussions are often limited to carbon taxes and emissions trading systems, it is useful to also consider effective carbon tax rates.[d]

The OECD's PSE approach and the CO_2-e measurement concept together capture a broader view of abatement incentives resulting from price-based policies. Effective carbon tax rates measure the prevailing carbon price signal. They describe the policies to take into consideration when seeking energy-pricing reforms that strengthen

c Fossil fuel taxes include taxes on all fossil fuels including gas, fuel and coal among others.

d Effective carbon rates include taxes net of subsidies.

carbon price signals or, more broadly, the environmental performance of taxes on energy use and emissions trading systems. For example, in 2020, India had the highest effective tax rate on fuel (diesel, gasoline, and coal), amounting to 69 percent. Under the equivalence principle, or CO_2-e measurement, these taxes could be included in the tariff calculations under CBAM.

Box 3: Establishing equivalence between Indian tax on coal and carbon price in the EU: The steel industry example

A carbon price at €87 (US$94) to €113 (US$122) per tonne in the EU, and emissions of carbon per ton of steel in the range of 1.6 to 2 tonnes per tonne of steel produced are currently being discussed. This translates in a 5 percent price increase given that the steel price in Europe was around €2,000 (US$2,160) per tonne. The price per tonne of steel in India is roughly €800 US$874) to €900 (US$960) and the tax on coal in India is roughly €5 (US$5.40) a tonne of coal. Given that around eight tonnes of coal are needed to produce a tonne of steel and the carbon tax on coal amounts to roughly 60 percent of the price per tonne of coal, this works out to roughly a tax rate of 5 percent on the price of steel, which is similar to the rate that Europe applies to its steel producers. Given that they create similar economic incentives, there are serious ground for considering the two different instruments as being equivalent. Hence the methodology used in calculating CBAM may need to be adjusted for taxes being charged in other jurisdictions. A similar methodology can be applied to other countries in the G20 as well.

Source: Authors' calculations

The G20's Role

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CBAM's objective is to prevent carbon leakage. But all countries, especially all G20 countries could explore different mechanisms for pricing carbon. For example, the fuel tax in India described above is set by the government, not the market, and is not necessarily designed to reduce GHG emissions. Nonetheless, the critical consideration is the incentive that such schemes generate for economic actors. Furthermore, countries have variable domestic political economies, governance approaches, and regulatory systems, which have to be taken into account and should be positively incentivised if they move emissions' reductions forward.

The need to consider the specific conditions prevailing in different countries is well recognised in international law, including WTO law, with GATT Article XX prohibiting arbitrary or unjustifiable discrimination *between countries where the same conditions prevail*. This also means that treating countries where different conditions prevail exactly the same way could constitute unjustifiable discrimination. In its Report on US-Shrimp, the WTO Appellate Body further clarified this point by stating that "a measure may result in arbitrary or unjustifiable discrimination when the application of the measure at issue does not allow for any inquiry into the appropriateness of the regulatory program for the conditions prevailing in those exporting countries".[17] In other words, limiting excessively the scope of what is recognised as equivalent could be considered arbitrary or unjustifiable discrimination. This may be particularly relevant in the case of developing countries that do not have the capacity to put in place carbon taxes or ETS schemes similar to the ones set up in developed countries. By contrast, recognising as equivalent measures that are better suited to the conditions prevailing in developing countries will not only avoid discrimination, it will also constitute a concrete way to reflect the CBDR-RC principle in the design of BCAs. This will go a long way towards bolstering inclusive international cooperation on the design and operationalisation of BCAs while reducing tensions and avoiding politically charged disputes at the WTO, which could have major systemic consequences for the multilateral trade system and undermine climate action.

Recommendations to the G20

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Moving forward, the G20 should set up a working group comprising relevant international organisations to explore specific methodologies to give effect to potential equivalence pathways with a particular focus on approaches implemented in developing countries. Once such a pathway is developed, it can be used in different international forums such as the WTO or the United Nations Framework Convention on Climate Change working groups and could be multilateralised.

Attribution: Christophe Bellmann, Peter Draper, and Veena Jha, "Establishing Equivalence Between Taxes on Fossil Fuels and Carbon Prices Under Border Carbon Adjustments," *T20 Policy Brief*, June 2023.

Endnotes

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