

EU CARBON BORDER ADJUSTMENTS AND DEVELOPING COUNTRY EXPORTS: SAVING THE WORST FOR THE LAST

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The introduction of the EU carbon border adjustment mechanism (CBAM) will come with a high cost for developing economies¹, particularly African trade partners and the Arab states of the Persian Gulf, which will face the highest 'carbon tariffs'. For simplicity, we use the term 'carbon tariffs' for the cost burden imposed by an EU CBAM². In our [recent report](#)³, we identified cement, iron & steel and petroleum products to be the sectors most likely to be affected, with basic chemicals, fertilizers, industrial gases, aluminum and paper being the next in line. In terms of absolute embedded CO₂ emissions in exports to the EU, we found the Russian Federation is the most exposed compared to all other countries⁴. The U.S. follows well behind in rank 2, and ranks 3 through 7 are occupied by oil-producing developing economies. China follows only in rank 8 and features a more diverse portfolio, with its top three emission exports originating from chemicals, pharmaceuticals and aluminum.

However, when it comes relative exposure, the ranking is very different. Figure 1 indicates the relative exposure to carbon tariffs by region (further details on the countries underlying the regions are displayed in Figure 4 in the Appendix). Individual countries are indicated by the smaller dots, with colors specifying the regions. Countries in the upper half face high carbon tariffs on the carbon leakage or 'brown' sector exports. The tariff on the export value is based on a carbon price of EUR60 per ton of embedded CO₂. The 4% tariff on the export value as a cutoff for the high burden in Figure 1 is rather high. Typically, a tariff of 5% relative to value added (not relative to total export value, which is much higher) has been considered as an essential burden for identifying carbon leakage risk. As only carbon leakage sectors are relevant here, the 5% of value added cutoff is almost always fulfilled by definition.

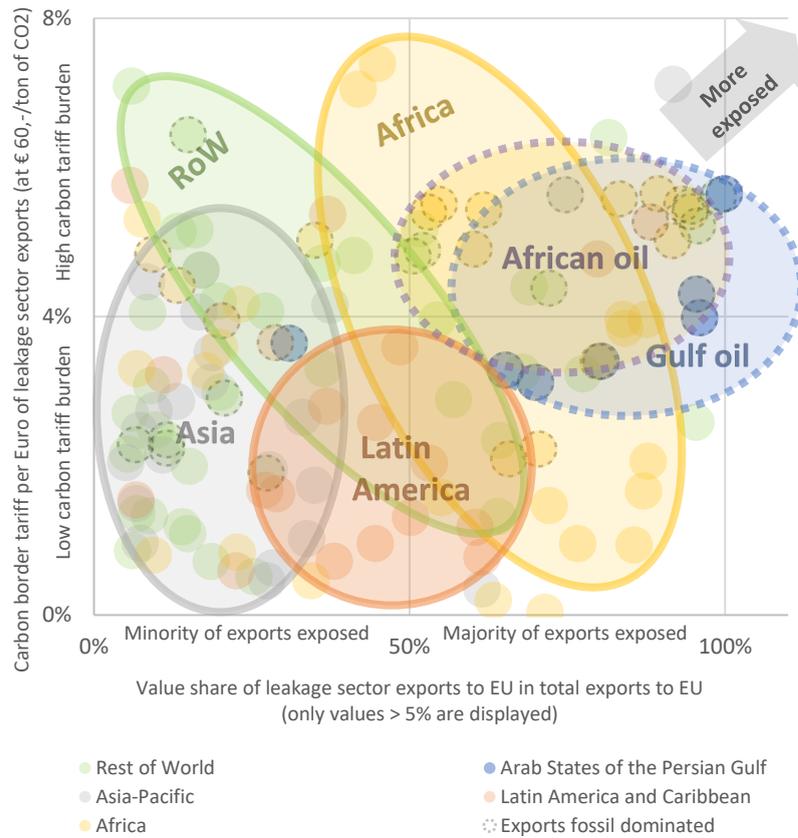
¹ Using the latest 'UN World Economic Situation Prospects 2020' definition online available at https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2020_FullReport.pdf. In principal, we extended the analysis to all countries with an income level equal to or below lower middle income as defined by UN WESP.

² CBAM related carbon costs can come in various forms like tariffs, taxes or emission certificates. For further details, see our recent report '[EU climate policy goes global](#)'.

³ [EU climate policy goes global](#)

⁴ Russia, being a transition economy, is not included here because by UN WESP it is neither considered a developing economy, nor does it belong to the group of economies with income equal to or less than lower middle income.

Figure 1 – Exposure of developing and least developed countries to EU carbon border adjustments



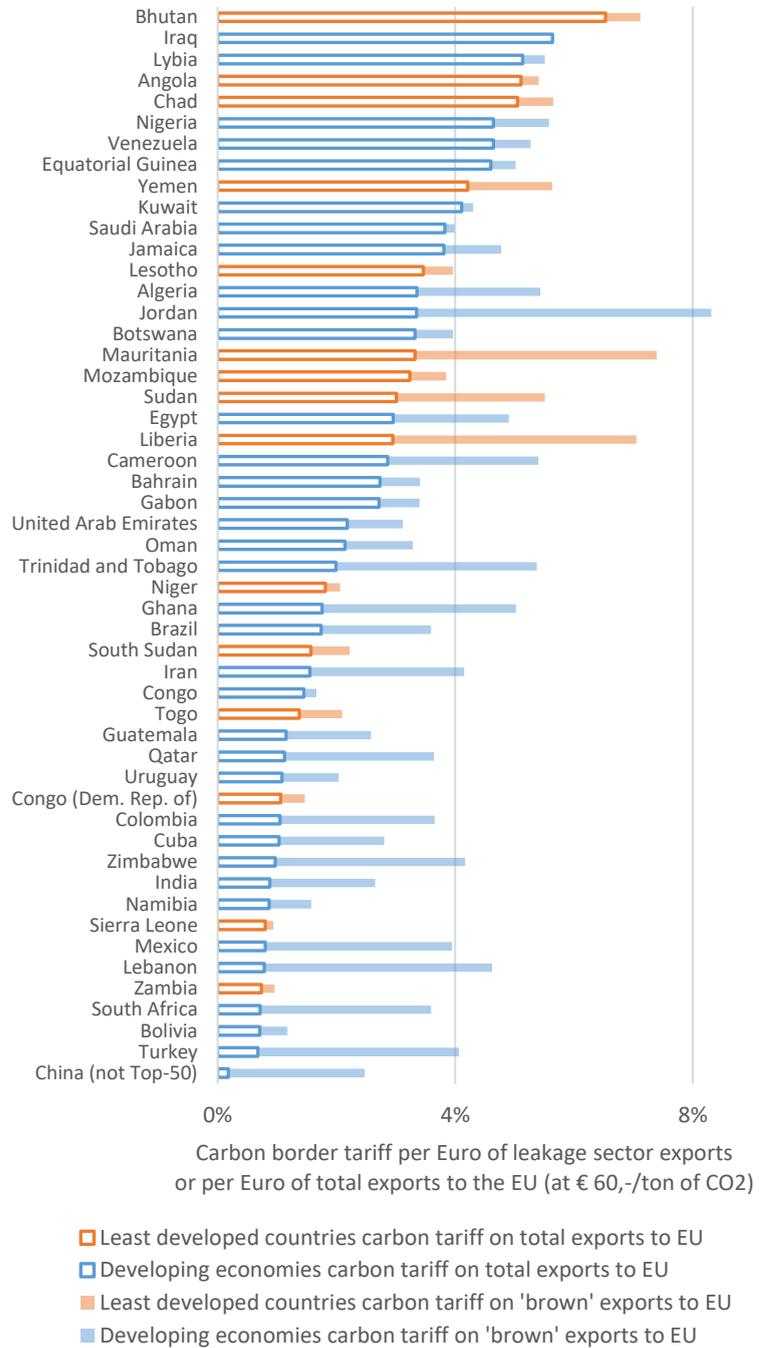
Source: Allianz Research.

In the left half of the figure, only a small share of the respective countries' exports to the EU are exposed to carbon tariffs, while in the right half the majority of export value is generated in a 'brown' sector. Consequently, the countries in the upper right quarter are most exposed to carbon tariffs in both dimensions. Besides the oil-producing countries in Africa and the Persian Gulf, further African developing economies join the group of the most exposed.

Figure 2 lists the top 50 developing or least developed countries by declining total exposure⁵. The filled bars end at the country's respective carbon tariff on 'brown' exports to the EU and the hollow bars indicate the worth of the tariff relative to total exports to the EU. The most exposed country, Bhutan, for instance, owes its position to a large share of iron and steel products in its exports. But it will likely be exempt from carbon tariffs due to its least developed country status (indicated by the orange color). The countries that will be actually exposed to the EU CBAM are the developing economies indicated by the blue color.

⁵ We define 'total exposure' as the product of the carbon tariff on 'brown' exports to the EU and the share of 'brown' exports in total exports to the EU.

Figure 2 – Top 50 least developed and developing economies most exposed to EU carbon border tariffs



Source: Allianz Research.

Bilateral CO2 pricing commitments and mechanisms could act as a substitute to EU CBAM-related tariffs⁶. The natural candidates for this would be countries with net-zero commitments such as Japan, South

⁶ Using the possibility to substitute EU CBAM related tariffs by bilateral CO2 pricing commitments and mechanisms has been highlighted on various occasions by different stakeholders in the EU CBAM consultation process. For additional details check the EU CBAM initiative website, particularly the response of the Autorités Françaises in the feedback round: <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12228-Carbon-Border-Adjustment-Mechanism>

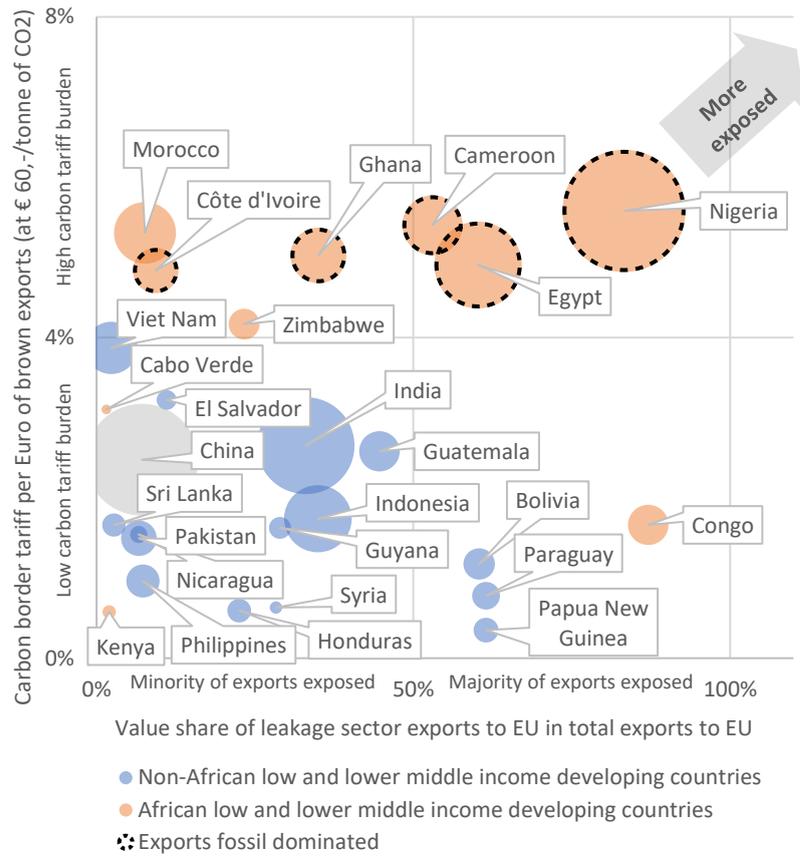
Korea, New Zealand and China, as well as potentially the U.S., given the designated president's recent comments. However, the least-developed countries will likely be excluded from the mechanism. The remaining developing economies, particularly the poorer ones, will thus be affected the most, because they lack the administrative infrastructure or the financial resources to satisfy the regulatory requirements of the EU CBAM. In Figure 3, we focus on these countries and show which of them would be most affected. Thus limiting our analysis to 'lower-income developing economies'⁷ (using the UN definitions and including 'low-income' and 'lower-middle-income' groups), it becomes apparent that the strongly exposed countries are dominantly located in Africa (African countries being indicated in orange). The most affected among the lower-income economies include the African fuel-exporting countries such as Nigeria, Egypt or Cameroon, with other African economies such as Congo, Ghana, Zimbabwe and Morocco being the next in line. For comparison reasons, the figure includes China as well (not being considered poor by our definition), which is much less exposed than the typical country displayed.

What does this mean for policymakers? Africa will play a crucial role in the development of the hydrogen economy, so it is in the EU's very own interest not to jeopardize existing trade relations by applying the strict logic of CBAM. A functioning hydrogen economy is a necessary component of a complete European renewable energy transition, but as the EU has itself acknowledged, domestic production won't be enough to satisfy the expected hydrogen demand. Africa has an abundant potential for producing cheap green hydrogen through solar and wind energy, and the development of an African hydrogen economy was declared as a primary aim of the EU Africa strategy announced earlier this year⁸. It should be very clear that this would result in the EU being strongly dependent on Africa. The critical risk factors in this dependency will be rather institutional. Developing an African hydrogen economy would require a focus on stabilizing the continent politically and improving living conditions. A functioning hydrogen economy in turn will essentially contribute to these aims. Solving this chicken and egg puzzle will be the key to success for the EU energy transition.

⁷ This excludes the majority of countries from Figure 2 as they are above the lower middle income group as defined by UN WESP.

⁸ The process is currently especially driven by the German EU presidency. A strategic partnership with 31 African states has been invoked. These include Benin, Botswana, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Mali, Namibia, Niger, Nigeria, the southern African and western African regions, Senegal, South Africa and Togo. As a first step, a 'Hydrogen Potentials Atlas' for Africa is currently compiled through the mandate of the German Ministry of Research and Education.

Figure 3 – Exposure of lower income developing economies to EU carbon border adjustments (bubble size proportional to square root of tons of CO2 emissions embedded in exports to EU, China added for comparison)

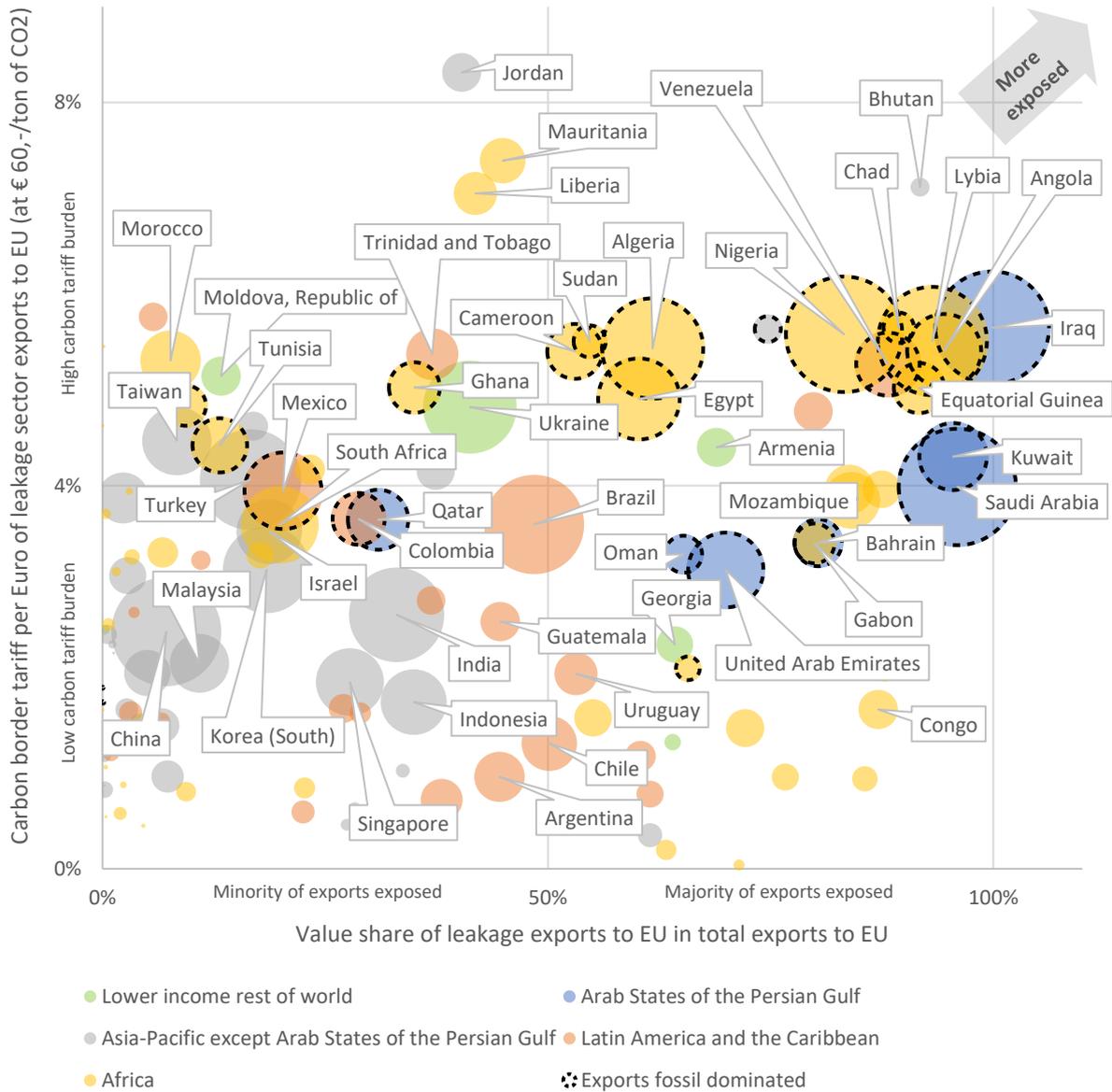


Source: Allianz Research.

Appendix

Figure 4 shows the full picture underlying Figure 3. The bubble sizes indicate the relative embedded absolute carbon content of exports to the EU. Labels were dominantly attached to countries with higher export volumes. Most of the least-developed countries are located as unrecognizable small dots on the very left of the lower half of the diagram due to a lack of 'brown' exports. The figure also includes low-income and lower-middle-income transition economies such as Ukraine.

Figure 4 – Exposure of developing and least-developed countries to EU carbon border adjustments (bubble size proportional to square root of CO2 emissions embedded in exports to EU)



Source: Allianz Research.

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