Effects of Major Countries' Climate Change Responses on Korea's Exports: Centering on Carbon Border Tax

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With the seriousness of climate change having been highlighted by the outbreak of COVID-19, major countries are now making all-encompassing efforts to transition to a low-carbon, green economy in an attempt to respond to climate change. The EU and the US are planning and considering introduction of a carbon border tax, i.e. a tariff on imported goods based on their associated carbon emissions. The linking of major countries' climate change initiatives and trade policies could weigh on Korea's economy, which is heavily dependent on exports and whose key industries have high carbon intensity. This paper first looks into the developments of climate change response measures in advanced economies, and then analyzes the potential impacts of a carbon border tax on Korea's exports using an international input-output analysis model.

The climate change response measures in major countries are developing in a way that (1) seeks to meet the emission reduction target by enhancing global and multi-lateral cooperation; while (2) strengthening the linkage with trade policies, including the consideration and introduction of a carbon border tax. In addition to emission reduction policies, major countries are also (3) pursuing planning a "green new deal," aiming to transition to a green economy and generate new growth engines.

This paper analyzes two scenarios. The base scenario assumes the EU and the US impose a carbon border tax of 50 US dollars per ton of GHG emitted from imported goods, while the tax cut scenario assumes a reduced carbon

border tax, imposing tariffs of 35 US dollars per ton. The impact of the tax on Korean exports through different channels is evaluated.

According to the analysis, the introduction of a carbon border tax in the EU and the US would likely weigh quite heavily on Korea's exports, given the high carbon intensity of its key export industries. Korea's exports are expected to contract by 0.5% (based on median average, approximately 3.2 billion US dollars) and by 0.6% (approximately 3.9 billion US dollars), due to the adoption of the tax in the EU and the US, respectively. The tax negatively affects exports by deteriorating the price competitiveness of Korea's exported goods (direct channel) and by causing a drop in Korea's intermediate goods exports to its key trading partners, such as China, who are significantly affected by the carbon border tax (indirect channel). By industry, those with high carbon intensity and those that account for a large share of Korea's exports were analyzed to be hit hard, such as transportation equipment (automobiles and ships, a drop of 0.16%p for the EU tax and 0.15%p for the US tax), metal goods (steel, 0.10%p and 0.13%p respectively) and chemical goods (synthetic resins and medicine, 0.10%p and 0.09%p respectively). Moreover, electronic goods like semiconductors, which account for a large share of Korea's exports to China, would inevitably suffer, as the adoption of the carbon border tax is expected to cause Chinese exports to drop, resulting in a reduction in Korea's intermediate goods exports to the country. Nevertheless, if Korean companies are given a tax break in recognition of the emission costs the companies have covered domestically, the negative impact on Korea's exports would be somewhat dampened.

While the Korean government is implementing a long-term plan aimed at achieving carbon neutrality by 2050, it appears that short-term responses at the

company and government levels will also be necessary in order to minimize the adverse effects of the carbon border tax on the Korean economy. In the meantime, given that major countries are pursuing a green new deal in an attempt to transition to a green economy, Korean companies should take this opportunity to develop new growth engines and expand their markets.

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