

Carbon Pricing Trends in Japan and Other Countries
--Can Carbon Pricing be Contribute to Economic Growth? --
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What is carbon pricing?

1. Carbon pricing represents an economic instrument to use carbon tax or emissions trading to put a price on CO₂ emissions and encourage CO₂ emitters to reduce emissions.
2. Carbon pricing can be divided into two categories: (1) explicit measures including a carbon tax, emissions trading, and energy taxes, and (2) implicit measures including energy efficiency and conservation, renewable energy promotion subsidies, and voluntary initiatives.
3. Explicit carbon pricing began to be introduced in Northern Europe in the early 1990s and 64 economies by 2020.
4. Not only explicit carbon pricing but also national energy supply and demand conditions and policies influence actual CO₂ emission cuts.

Carbon tax systems in major countries

5. Carbon tax systems in major countries differ from country to country, featuring various tax rates and coverages. However, fuel for power generation and raw materials use are exempted from a carbon tax, indicating that these systems are commonly designed to impose less burden on the industry sector.
6. Sweden's carbon tax, which is frequently referred to by other countries, was introduced along with an income tax cut under a tax reform of the century. The carbon tax rate has been gradually raised, standing at 1,150 SEK/t-CO₂ in 2018. By contrast, the industry sector's tax rate was set at a low level (300 SEK/t-CO₂) until 2015.
7. As well Sweden, Switzerland, and Denmark have introduced high carbon tax rates and have been viewed as having decoupling CO₂ emission cuts with economic

growth. However, we must note that their respective conditions (Sweden's and Switzerland's zero-emission power mix comprising hydro and nuclear energy and Denmark's large power mix shares for biomass and wind) are essential background factors.

8. Germany introduced an electricity tax when an ecological tax reform for a social security reform was implemented in 1999. However, electricity tax revenue has been used primarily to reduce companies' social security contributions rather than for subsidizing energy savings and promoting renewable energy to reduce emissions.
9. Generally, it is challenging to predict contributions of specific carbon tax rates (price effects) to CO₂ emission reduction, making it difficult to link tax rates to emission reduction targets.

Emissions trading in major countries

10. After the European Union Emissions Trading System (EU ETS) was introduced in 2005, China, South Korea, and some states in North America introduced their respective emissions trading systems. As is the case with carbon tax systems, emissions trading systems differ from country to country and are complex regulations for taking into considering the industry sector competitiveness.
11. Since its launching in 2005, the EU ETS has been plagued with problems such as excessive allocation and allowance price fluctuations, leading the system to be modified with minor revisions almost every year.
12. Emission allowances are allocated by free or auction to ETS sectors. However, the allocation is bound by complex rules considering East European countries and the industry sector.
13. On July 14, the European Commission proposed revising the ETS directive. It proposed emissions reduction from ETS sectors in 2030 by 61% (current is 43%) from 2005, for subjecting shipping, transport and building sectors to the ETS and for phasing out free allocation for sectors subject to the Carbon Border Adjustment Mechanism to accelerate the transition to auctions.
14. Separately from the EU ETS, Germany has introduced a domestic emissions trading system for the transport and building sectors, requiring fuel suppliers to purchase emission certificate.
15. China had planned to introduce emissions trading in 2017 but has taken time for domestic coordination, launching emissions trading only in the power generation sector in 2021. It started trading in July, making the first step to utilizing the market.
16. Generally, it is easy to link emissions trading systems to emission reduction targets. But these systems are extremely complex and vulnerable to price fluctuations.

Challenges for carbon pricing

17. In Japan, energy costs paid by the industry sector and consumers and impact their behaviors are higher than international levels.
18. Any additional carbon pricing measures may further boost energy costs and cause electricity bill hikes to raise burdens on final energy consumers such as the industry and household sectors and affect international industrial competitiveness.
19. While overall spending in a low-income household is limited, payments for basic needs such as electricity and gas account for a high share of their spending. Sufficient consideration should be given to the regressivity of carbon pricing.
20. In designing carbon pricing in Japan, the government should pay attention to international trends including carbon border adjustment mechanisms and the expansion of voluntary credit markets.

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