Policy brief

Corporate tax policy

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Global corporate tax competition leads to unintended yet non-negligible climate impacts

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The worldwide trend of decreasing corporate tax in recent years has contributed to an increase in global carbon emissions, but implementing a global minimum tax rate of 15% could partially mitigate this impact. Policymakers should coordinate corporate tax policies with climate regulations.

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The policy problem

Over the past two decades, an increasing number of countries have been decreasing their corporate tax rates in a competitive effort to attract international capital inflows. The worldwide competition to lower corporate taxes could pose challenges to climate change mitigation efforts, especially because developing nations with higher carbon-intensity might become tax havens. To capitalize on lower corporate taxes, multinational enterprises might shift their production activities to these regions, potentially increasing global carbon emissions. However, such claims lack quantitative support. Understanding the potential environmental impacts of global corporate tax competition is crucial for policymakers interested in developing sustainable economic policies that prioritize environmental conservation and address the challenges posed by global corporate tax competition.

The findings

We find that the global corporate tax competition from 2005 to 2016 resulted in an increase in global emissions by reshaping the geographical distribution of production through an impact on trade and investment. This leads to a shift of more emissions towards developing economies, with a notable rise of 118.5 $MtCO_2$ emissions in developing countries compared with a modest rise of 10.2 $MtCO_2$ in developed countries. To address the global corporate tax competition, more than 130 countries and jurisdictions approved a global minimum tax rate of 15% in October 2021. We find that the global minimum corporate tax would contribute to climate change mitigation, albeit to a modest extent. Our study may underestimate the environmental effects of global corporate tax competition as we do not consider its negative impact on low-carbon technology.

The study

We develop a theoretical multi-country, multi-industry general equilibrium model. By taking into account multinational enterprises, international trade flows and corporate tax, the constructed model is suitable for analysing the impact of tax change on regional and global carbon emissions through reshaping global production and investment patterns. We first calibrate our general equilibrium model to 2016 data, based on the ICIO–AMNE (Inter-country Input–Output and Activity of Multinational Enterprises) tables and other data from KPMG, the World Bank and the Organisation for Economic Co-operation and Development (OECD) database. The data are publicly available and can be freely downloaded. We further conduct two counterfactuals to quantify the welfare and environmental impacts of global corporate tax competition and the OECD's global minimum tax policy. Welfare is a composite measure encompassing both real income and the disutility arising from global carbon emissions. We conduct our first counterfactual by forcing all economies' corporate tax rate changes as these economies actually did from 2005 to 2016 while keeping other exogenous variables constant. We conduct the second counterfactual by forcing a 15% corporate tax rate on economies whose original corporate tax rate was less than 15%.

Recommendations for policy

- The environmental impact assessment is essential for formulating fiscal or monetary policies. Specifically, coordinating economic and environmental policies simultaneously is recommended.
- Implementing higher and industry-specific minimum corporate tax rates is recommended to alleviate the challenges posed by climate change.
- The increased revenues resulting from the minimum tax reforms could be considered for use in supporting green investments to further alleviate climate pressure.
- When attracting international investments, policymakers should balance economic objectives with environmental impacts.

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Further reading

1. Ramondo, N. & Rodríguez-Clare, A. Trade, multinational production, and the gains from openness. *J. Polit. Econ.* **121**, 273–322 (2013).
   This paper reports a model that captures key dimensions of the interactions between trade and multinational production flows.
2. Arkolakis, C., Ramondo, N., Rodríguez-Clare, A. & Yeaple, S. Innovation and production in the global economy. *Am. Econ. Rev.* **108**, 2128–2173 (2018).
   This paper reports the development of a quantifiable general equilibrium model of trade and multinational production in which countries can specialize in innovation or production.
3. Zhang, Z. et al. Embodied carbon emissions in the supply chains of multinational enterprises. *Nat. Clim. Change* **10**, 1096–1101 (2020).
   This paper traces carbon transfer through international investment.
4. Duan, Y., Ji, T., Lu, Y. & Wang, S. Environmental regulations and international trade: a quantitative economic analysis of world pollution emissions. *J. Public Econ.* **203**, 104521 (2021).
   This paper quantifies the intersection effect of trade and the environment using a general equilibrium model.
5. Tian, K. et al. Regional trade agreement burdens global carbon emissions mitigation. *Nat. Commun.* **13**, 408 (2022).
   This paper analyses the environmental effects of regional trade agreements.

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Competing interests

The authors declare no competing interests.