Optimal Climate Policy with Incomplete Markets*

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Abstract

We study the optimal taxation of carbon in a fiscal climate-economy model with incomplete markets. Our objective is twofold. First, we want to understand how the presence of inequality and uninsurable idiosyncratic income risk affects the optimal trajectory of climate policy, i.e. both its level and timing. Second, we want to understand how climate policy in turn affects the economy, i.e. the level of aggregate variables, redistribution, insurance provision, and welfare. To investigate these issues, we consider a Ramsey problem where the planner maximizes welfare by choosing the path of proportional taxes on capital and labor, transfers, and debt, as well as taxes on carbon emissions and energy production. We quantitatively study this Ramsey problem under various constraints over the choice of instruments, and highlight the trade-offs faced by a government seeking to jointly address inequality, imperfect insurance, and climate change.

JEL classification: E62, H21, H23, Q5; D52

Keywords: Climate policy; Carbon taxes; Optimal taxation; Heterogeneous agents; Incomplete markets.

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