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The Welfare Gains from Macro-Insurance Against Natural Disasters

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Abstract

This paper uses a dynamic optimization model to estimate the welfare gains that a small open economy can derive from insuring against natural disasters with catastrophe (CAT) bonds. We calibrate the model by reference to the risk of earthquakes, floods and storms in developing countries. We find that the countries most vulnerable to these risks would find it optimal to use CAT bonds for insurance if the cost of issuing these bonds were significantly smaller than it is in the data. The welfare gains from CAT bonds range from small to substantial depending on how insurance affects the country's external borrowing constraint. The option of using CAT bonds may bring a welfare gain of several percentage points of annual consumption by enhancing the country's ability to borrow. These large gains disappear if the country can opportunistically default on its external debt.

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