Weather Shocks and Banking Credit Risk: Evidence for Small Rural Municipalities in Colombia

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Abstract

This paper studies the impact of weather shocks on the credit risk of bank portfolios in small and rural municipalities in Colombia, which are highly vulnerable to these climate variations. It addresses the relationship between extreme temperature and precipitation events and the increase in the proportion of loans at risk, using data from 2011 to 2023. Extreme climate shocks negatively affect loan portfolio quality in Colombian rural municipalities, especially in microcredits. Credit risk decreases in municipalities with higher per capita incomes. It varies according to the type of loan and the nature of the weather shock. The results show that low temperature shocks increase risk in commercial and consumer loans. In contrast, low-precipitation shocks increase risk in microcredit. The increasing importance of climatic disturbances stresses the need for banks to develop their own

models to manage these risks and to deepen analysis that incorporate borrower-specific information and banking policies to protect both financial institutions and borrowers from the impacts of climate change. The integration of sustainable practices and climate education can be key to improving financial resilience in these vulnerable areas.