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Analyzing the impact of climate change on inflation in Southern Africa (1998-2023)

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ABSTRACT

This study investigates the impact of climate change on inflation in Southern Africa using mediation analysis, KAO cointegration, and PMG-ARDL methodologies. We collected and analyzed annual data for 10 Southern African countries from 1998 to 2023. Mediation analysis revealed that expected inflation is the transmission channel through which climate change impacts inflation. Our findings indicate that increasing temperatures and natural disasters result in higher headline and food CPIs, pointing to climateflation. Additionally, we document that an increase in the number of natural disasters leads to higher transport and utilities CPIs in the region. In line with the New Keynesian Phillips Curve (NKPC) theory, expected inflation and the output gap were found to significantly influence inflation. The study also confirmed the quantity theory of money's effect on inflation. (Non)renewable energy consumption was found to significantly (increase)reduce headline inflation, implying fossilflation. Our results also suggest that food CPI is more elastic to climate change than other indices. Overall, the results highlight the importance of climate resilience, renewable energy promotion, and effective climate-sensitive inflation management. Recommendations for central banks include the adoption of a green monetary policy (GMP) framework, and integrating climate risk assessments into monetary policy frameworks to anticipate climate-induced inflationary pressures in the region. Practical implications involve targeted strategies for climate resilience and renewable energy investments, while research implications suggest further exploration of non-linear climate-economy interactions.

KEYWORDS PMG-ARDL; Southern Africa; Climate change; Inflation; Climateflation; Fossilflation; Greenflation; Divine coincidence hypothesis

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