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“Reconcile land system changes
with planetary health”

Integrating monetary policy and sustainable land use: A longitudinal analysis of Iran’s agricultural sector dynamics

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Abstract

Sustainable natural resource management and resilient land-use systems are critical to maintaining both agricultural productivity and planetary health. This study presents a comprehensive longitudinal analysis of Iran’s agricultural sector over the period 1970–2024 to explore how temporary and permanent monetary policy shocks influence sustainable land-use dynamics. By focusing on key macroeconomic indicators—namely, sectoral growth, investment in sustainable practices, and labour market demand—we examine the multifaceted impacts of monetary fluctuations on the capacity of the agricultural sector to adapt to environmental and economic challenges. Using the Blanchard-COA technique, we extract distinct temporary and permanent monetary shocks and assess their implications through robust econometric methods. Guided by Solow’s growth theory and Keynesian investment principles, we deploy Vector Error Correction Models (VECM) to capture long-run equilibrium relationships governing growth and investment. Additionally, the Autoregressive Distributed Lag (ARDL) approach is employed to analyse the responsiveness of labour market demand to monetary shocks. Our results reveal that while temporary monetary shocks induce a positive, short-term increase in labour demand, permanent shocks exert detrimental effects on long-term growth and investment—factors essential for advancing sustainable land use, soil conservation, and water management. Beyond quantifying these relationships, our findings emphasise that aligning monetary policy with supportive environmental and fiscal measures can catalyze investments in sustainable agricultural innovations and resource-efficient practices. This integrated framework not only promotes economic stability but also reinforces the ecological integrity of agroecosystems. Ultimately, this study provides policymakers with critical insights to formulate monetary strategies that balance immediate economic stimulus with the long-term objectives of sustainable land-use and natural resource management.

Keywords: Agricultural sustainable development, growth, investment, labour market demand, monetary policies, sustainable land use