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Track Name: ISGTA2025

Paper ID: 129

Paper Title: Modelado Bayesiano Jerarquico Espacial de la Superficie Agricola en Puno, Peru: Un Enfoque Multinivel para el Analisis de la Estructura Agraria

Abstract:
This study implements spatial hierarchical Bayesian models to analyze the distribution of agricultural land in the Puno region, Peru. Using data from the National Agricultural Survey 2024 ($n = 37,492$ agricultural units), a multilevel structure was specified incorporating random effects at provincial and district levels. Results reveal significant heterogeneity in land distribution ($CV = 325.72\%$), with significant positive spatial autocorrelation (Moran's $I = 0.0932$, $p < 0.001$). The selected hierarchical model (AIC = 117,836.7) outperformed null and provincial alternatives, explaining 18.94% of observed variability. Findings highlight the utility of Bayesian approaches for informing territorially differentiated rural development policies, enabling efficient resource allocation and monitoring of agricultural inequalities.

Keywords: Hierarchical Bayesian Models; Spatial Analysis; Agricultural Land; Multilevel Inference; Spatial Statistics; Puno.

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Secondary Subject Areas: Not Entered

Submission Files:
Modelos_Bayesianos_Jerarquicos_Espaciales.pdf (1 Mb, Sun, 19 Oct 2025 20:45:35 GMT)

Submission Questions Response: Not Entered

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