

INTISARI

PEMODELAN SERTIFIKASI HALAL UMK DI INDONESIA MENGUNAKAN *GEOGRAPHICALLY WEIGHTED PANEL REGRESSION* DENGAN PENDEKATAN *FIXED EFFECT* PADA DATA PANEL PENDEK

Oleh

Lutfi Rahmawati

21/474505/PA/20489

Setelah lima tahun pemberlakuan kewajiban sertifikasi halal melalui UU No. 33 Tahun 2014, persentase sertifikasi halal UMK baru mencapai 8,15%. Variasi faktor pendorong sertifikasi halal pelaku UMK antarwilayah mengindikasikan terjadinya heterogenitas spasial (perbedaan karakteristik geografis). Metode *Geographically Weighted Panel Regression* (GWPR) dikembangkan untuk mengatasi heterogenitas spasial pada data panel dengan menggabungkan regresi data panel dan *Geographically Weighted Regression*. Penelitian ini menggunakan data tahun 2021-2024 untuk menganalisis pengaruh aspek kelembagaan halal, literasi, dan akses digital terhadap persentase pendaftaran sertifikat halal UMK di Indonesia menggunakan metode GWPR dengan pendekatan efek tetap. Evaluasi performa model menunjukkan bahwa model GWPR dengan pembobot kernel *adaptive bisquare* lebih unggul dibandingkan model panel efek tetap, GWR, dan regresi linear dalam pemodelan sertifikasi halal UMK, dengan nilai koefisien determinasi masing-masing sebesar 90,15%, 86,14%, 82,96%, dan 55,81%. Hasil penelitian mengidentifikasi faktor utama yang mendorong pendaftaran sertifikat halal UMK, meliputi akses digital (seluruh provinsi), jumlah LP3H (11 provinsi), literasi (7 provinsi), penyelia halal (3 provinsi), dan produk halal (1 provinsi). Papua dan Papua Barat sebagai provinsi dengan faktor signifikan terbanyak memerlukan perhatian kebijakan yang lebih intensif dalam upaya peningkatan sertifikasi halal UMK.

Kata Kunci: Pendaftaran Sertifikat Halal, Regresi Linear Berganda, Regresi Data Panel, *Geographically Weighted Regression*, *Geographically Weighted Panel Regression*.

ABSTRACT

MODELING HALAL CERTIFICATION OF MSEs IN INDONESIA USING GEOGRAPHICALLY WEIGHTED PANEL REGRESSION WITH FIXED EFFECT APPROACH ON SHORT PANEL DATA

By

Lutfi Rahmawati

21/474505/PA/20489

After five years of implementing the halal certification mandate under Law No. 33 of 2014, the percentage of halal-certified micro and small enterprises (MSEs) has only reached 8.15%. The variation in the driving factors of halal certification among MSE actors across regions indicates the presence of spatial heterogeneity (differences in geographical characteristics). The Geographically Weighted Panel Regression (GWPR) method was developed to address spatial heterogeneity in panel data by combining panel data regression and Geographically Weighted Regression (GWR). This study employs data from 2021 to 2024 to analyze the influence of halal institutional aspects, literacy, and digital access on the percentage of halal certificate registrations of MSEs in Indonesia using the GWPR method with a fixed effect approach. Model performance evaluation shows that the GWPR model with an adaptive bisquare kernel weighting outperforms the fixed effect panel model, GWR, and linear regression in modeling MSE halal certification, with coefficients of determination of 90.15%, 86.14%, 82.96%, and 55.81%, respectively. The study identifies key factors driving halal certificate registration among MSEs, including digital access (all provinces), the number of LP3H (11 provinces), literacy (7 provinces), halal supervisors (3 provinces), and halal products (1 province). Papua and West Papua, as provinces with the highest number of significant factors, require more intensive policy attention in efforts to improve MSE halal certification.

Keyword: Halal Certification Registration, Multiple Linear Regression, Panel Data Regression, Geographically Weighted Regression, Geographically Weighted Panel Regression.