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Assessing the drivers of palm oil production in Malaysia: A quantile regression approach with environmental considerations

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Abstract

This study examines the factors influencing palm oil production in Malaysia across different points of the output distribution, with a particular focus on environmental factors. Employing quantile regression, which provides a more comprehensive analysis than Ordinary Least Squares (OLS) by capturing heterogeneous effects across quantiles, we analyze time series data spanning from 1991 to 2022. The findings reveal that CO₂ emissions significantly and positively contribute to palm oil production at lower quantile but become insignificant at higher quantiles. Pesticide use positively affects production at middle quantile, while labor has a consistently negative and significant impact across all quantiles. The results highlight the need for sustainable production practices, particularly for small-scale producers reliant on emissions-intensive methods. Stricter pesticide regulations and eco-friendly alternatives should be promoted to mitigate environmental risks. Additionally,

addressing labor shortages through mechanization and workforce training is crucial for industry sustainability. © Published under licence by IOP Publishing Ltd.

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Abstract

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