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Informal Economy, Institutional Quality, and Socioeconomic Conditions in Lampung Province, Indonesia

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Abstrak

Penelitian ini mengkaji hubungan antara ekonomi informal, kualitas institusi, dan hasil sosial ekonomi di Provinsi Lampung, Indonesia. Studi ini mengadopsi kerangka metodologis yang ketat dengan menggunakan pendekatan Fully Modified Ordinary Least Squares, Quantile Regression, dan Dynamic Threshold Analysis untuk menganalisis data panel tingkat kabupaten/kota yang seimbang selama periode 2010 hingga 2023. Hasil penelitian menunjukkan bahwa aktivitas ekonomi informal memberikan pengaruh negatif terhadap kesejahteraan regional, khususnya di wilayah dengan kinerja institusional yang lemah. Sebaliknya, kualitas institusi yang lebih baik berkorelasi dengan kondisi sosial ekonomi yang lebih positif. Analisis ini mengidentifikasi nilai ambang kritis Indeks Kualitas Institusi sebesar 5,2, di mana di atas nilai tersebut, dampak negatif dari ekonomi informal berkurang secara signifikan. Temuan ini menegaskan peran penting pengembangan institusi dalam mengurangi konsekuensi buruk dari aktivitas ekonomi informal serta mendorong kemajuan regional yang inklusif. Untuk memastikan ketelitian analitis, studi ini juga melibatkan pengujian diagnostik yang komprehensif dan mengonfirmasi reliabilitas serta validitas konstruknya melalui uji konsistensi antar variabel, prosedur normalisasi, dan uji ketahanan lintas berbagai model.
Kata kunci: Ekonomi informal; Kualitas institusi; Pembangunan sosial ekonomi; Data panel; Provinsi Lampung.

Abstract

This study examines the relationship between the informal economy, institutional quality, and socioeconomic outcomes in Lampung Province, Indonesia. It adopts a rigorous methodological framework using Fully Modified Ordinary Least Squares, Quantile Regression, and Dynamic Threshold Analysis to analyze balanced district-level panel data covering the years 2010 to 2023. The findings reveal that informal economic activity exerts a negative influence on regional welfare, particularly in districts with weak institutional performance. In contrast, stronger institutional quality is associated with more favorable socioeconomic conditions. The analysis identifies a critical value of the Institutional Quality Index at 5.2, above which the negative effects of informality are significantly reduced. These results emphasize the crucial role of institutional development in mitigating the adverse consequences of informal economic activity and advancing inclusive regional progress. To ensure analytical rigor, the study incorporates comprehensive diagnostic testing and confirms the reliability and validity of its constructs through consistency checks across variables, normalization procedures, and robustness assessments across multiple models.
Keywords: *Informal economy; Institutional quality; Socioeconomic development; Panel data; Lampung Province*

INTRODUCTION

The informal economy continues to exert a significant influence on economic and social outcomes in many developing countries, including Indonesia (Hill & Resosudarmo, 2023). In Lampung Province, where the economy remains largely agriculture-based and is gradually transitioning toward semi-urban development, informal employment serves not only as a primary source of livelihood but also as an indicator of institutional vulnerability. Informal activities such as unregulated trading, subsistence farming, and unregistered service provision are especially widespread in peri-urban and rural districts (Asian Productivity Organization, 2024). Although these activities provide essential income opportunities, they are often associated with low productivity, limited access to social protection, and increased vulnerability to economic shocks.

Data from BPS Lampung in 2022 show that approximately 62 percent of the non-agricultural labor force is engaged in informal employment, reflecting the deep-rooted presence of informality in the regional economy. Despite its scale, the informal sector is frequently overlooked in development policy due to its connection with institutional challenges, including regulatory inefficiency, weak law enforcement, and bureaucratic complexity (ILO, 2020; IOE, 2021; Schneider & Asllani, 2023; UC Berkeley, 2021). These institutional limitations can discourage formalization and reinforce persistent cycles of poverty and informal activity. In this context, institutional quality, defined as the effectiveness of formal and informal rules that shape political and economic behavior, plays a vital role in determining development outcomes.

Empirical studies have shown that strong institutions marked by transparency, accountability, and administrative competence can reduce the harmful impacts of informality and promote inclusive growth (North, 1990; Wang, 2022; Moyer & Hedden, 2020). In contrast, regions with weak governance often face more pronounced socioeconomic disparities. In Lampung, significant variation in district-level institutional performance suggests that institutional capacity may be a key factor in shaping regional development trajectories. Research by Osinubi and Simatele (2025) and Bolarinwa and Simatele (2023) emphasizes the moderating influence of institutional quality in the relationship between informality and poverty.

Although several studies have addressed the informal economy and institutional quality at the national level, limited empirical research has examined their interaction at the subnational level in Indonesia. Moreover, few studies have investigated whether a critical level of institutional quality exists beyond which the effects of informality on development outcomes begin to change significantly. This study seeks to fill this gap by analyzing the relationship between informal economic activity, institutional quality, and socioeconomic development across 15 districts in Lampung Province during the period from 2010 to 2023.

The research is structured around three main questions. First, to what extent does the informal economy influence socioeconomic outcomes in Lampung? Second, how does institutional quality shape or moderate this relationship? Third, is there a critical level of institutional quality at which the negative influence of informality is notably reduced?

To address these questions, the study constructs a composite index to measure socioeconomic conditions and a multidimensional indicator to assess institutional quality. It applies a rigorous empirical approach using Fully Modified Ordinary Least Squares, Quantile Regression, and Dynamic Threshold Analysis. By focusing on subnational variations and integrating institutional quality as a central analytical factor, this research contributes valuable insights for developing region-specific policies aimed at promoting equitable and resilient economic development in Indonesia.

METHOD

This study employs a quantitative panel data design to examine the relationship between the informal economy, institutional quality, and socioeconomic conditions in Lampung Province, Indonesia. The dataset includes 15 districts observed over a 14-year period from 2010 to 2023, forming a balanced panel that supports longitudinal analysis. The methodological approach emphasizes analytical precision through the use of validated composite indices, rigorous estimation techniques, and extensive diagnostic testing.

The dependent variable is the Socioeconomic Conditions Index (SOC), which is constructed using three indicators: poverty rate, unemployment rate, and consumer confidence. Each indicator is normalized using a min-max transformation and then aggregated through an additive model, where higher SOC values indicate stronger socioeconomic resilience. The primary independent variable is the Informal Economy Index (IFE), calculated as the share of informal workers relative to the total labor force, based on labor force survey data from BPS Lampung.

Institutional quality is captured through the Institutional Quality Index (IQI), a multidimensional measure that averages five governance components: corruption control, law and order, bureaucratic quality, government stability, and democratic accountability. Each component is scored on a scale from zero to ten, with values derived from public audit reports, citizen complaint records, and satisfaction surveys. The internal consistency of the IQI is assessed using Cronbach’s alpha, yielding a coefficient greater than 0.7, which confirms the reliability of the index.

To account for external influences, the model includes three control variables: gross regional domestic product per capita (log-transformed), annual inflation rate, and the percentage of households with access to electricity. These covariates are selected to reflect broader economic and infrastructural conditions that may affect regional development outcomes.

The empirical strategy consists of three estimation techniques designed to ensure robustness and to capture the multifaceted nature of the relationships among variables. The baseline model is expressed as:

$$SOC\_it = \gamma 0 + \gamma 1\ IFE\_it + \gamma 2\ IQI\_it + \gamma 3\ GDP\_it + \gamma 4\ INF\_it + \gamma 5\ ELE\_it + \varepsilon\_it$$

where SOC_it denotes the socioeconomic index in district i at time t, and ε_it is the error term. The first estimation method is Fully Modified Ordinary Least Squares (FMOLS), which addresses endogeneity, serial correlation, and non-stationarity in cointegrated panels. Prior to estimation, the panel data are tested for unit roots using the Levin–Lin–Chu and Im–Pesaran–Shin tests, followed by Pedroni’s cointegration test to confirm the existence of long-run relationships.

To explore variation across the distribution of the dependent variable, the study applies Quantile Regression. This method estimates the effects of informality and institutional quality at different quantiles, such as the 25th, 50th, and 75th percentiles of the SOC distribution. This approach allows for an assessment of whether districts with weaker development outcomes are disproportionately affected by informality.

In addition, a Dynamic Panel Threshold Regression model is employed to detect potential non-linearities. Following the method proposed by Seo and Shin (2016) approach. This model detects whether a threshold level of institutional quality (τ) exists such that the impact of informality differs across institutional regimes. The model is defined as:

$$SOC\_it = \alpha + \beta 1\ IFE\_it \times 1(IQI\_it \leq \tau) + \beta 2\ IFE\_it \times 1(IQI\_it > \tau) + \delta X\_it + \mu\_it$$

where $1(\cdot)$ is an indicator function denoting whether the institutional quality falls below or above the threshold τ, and X_it represents the control variables.

Validity is maintained by sourcing all data from reputable public institutions, including BPS, Bappeda, and the Indonesian Ombudsman. The procedures for constructing the SOC and IQI indices follow internationally recognized standards in governance and development research. Reliability is further supported by internal consistency checks, and robustness is evaluated using a series of diagnostic tests. These include the Breusch-Pagan test for heteroskedasticity, the Wooldridge test for serial correlation, Pesaran's cross-sectional dependence test, and multicollinearity assessment via the variance inflation factor.

To assess the causal direction among variables, the study also applies Dumitrescu-Hurlin panel causality tests. All data used are secondary, aggregate in nature, and publicly accessible. Therefore, ethical clearance is not required. Nonetheless, the research adheres to ethical standards by ensuring transparency in index construction, clearly documenting analytical procedures, and appropriately citing all sources.

The methodological rigor embedded in this research design enhances the credibility of its findings and strengthens its relevance for policy discussions. It provides a robust framework for understanding how informality and institutional quality interact to shape development outcomes across diverse local governance environments in Indonesia

RESULT AND DISCUSSION

This study examines the relationship between informal economic activity, institutional quality, and regional development through a rigorous econometric framework applied to district-level panel data from Lampung Province. The empirical results provide strong evidence that the informal economy remains a persistent structural obstacle to socioeconomic progress. However, the magnitude and direction of its effects are highly contingent upon the quality of local institutions.

The Fully Modified Ordinary Least Squares (FMOLS) estimation, presented in Table 1, indicates that the informal economy has a statistically significant negative effect on the composite socioeconomic index. The coefficient for the informal economy is −0.060, suggesting that higher levels of informality are associated with lower socioeconomic resilience. This finding is consistent with previous research that highlights the developmental risks posed by high informality, particularly in regions with weak governance. In contrast, institutional quality displays a significant positive effect ($\beta = 0.145$, $p < 0.001$), demonstrating that governance factors such as corruption control, bureaucratic efficiency, and democratic accountability play a pivotal role in enhancing development outcomes. Furthermore, gross regional domestic product (GRDP) per capita and electricity access both show positive and significant coefficients, underscoring the importance of economic and infrastructural foundations. Inflation, while less pronounced, exerts a statistically significant negative influence, indicating that macroeconomic instability can act as a constraint on regional welfare.

The consistent significance of explanatory variables supports the robustness of the model and affirms the theoretical argument that institutional context is fundamental to shaping developmental trajectories. The observed negative effect of informality, even after controlling for economic factors, emphasizes that informality is not merely a by-product of poverty but a structural limitation in its own right.

Table 1. FMOLS Estimation Results

Variable	Coefficient	Std. Error	t-Statistic	p-Value
Informal Economy (IFE)	−0.060	0.018	−3.33	0.001
Institutional Quality (IQI)	0.145	0.026	5.58	0.000
GRDP per capita (log)	0.210	0.044	4.77	0.000
Inflation (INF)	−0.033	0.015	−2.20	0.030
Electricity Access (ELE)	0.082	0.039	2.10	0.036
Constant	2.356	0.587	4.01	0.000

To evaluate distributional heterogeneity, the study employs Quantile Regression across the 25th, 50th, and 75th percentiles of the socioeconomic index. Results in Table 2 reveal that the negative effect of informality is most pronounced at the lower end of the distribution. The coefficient at the 25th percentile is −0.074, indicating that underperforming districts are more adversely affected by informality.

As the quantile increases, the coefficient becomes less negative (−0.028 at the 75th percentile), implying that more developed districts are somewhat insulated from these negative effects. Institutional quality, by contrast, exerts an increasingly strong positive effect across quantiles, reinforcing the view that good governance not only promotes development but also mitigates the vulnerabilities introduced by informality. These findings confirm that institutional quality acts as both a direct driver and a contextual moderator in shaping development outcomes.

Table 2. Quantile Regression Results

Quantile	IFE Coefficient	IQI Coefficient	Observations
Q25	−0.074	0.112	210
Q50	−0.056	0.139	210
Q75	−0.028	0.168	210

The dynamic panel threshold regression offers a more nuanced understanding of institutional effects by identifying a critical threshold in governance quality. As shown in Table 3, this threshold is estimated at an IQI score of 5.2. Below this threshold, the effect of informality on socioeconomic outcomes is strongly negative (β = −0.088), whereas above it, the coefficient becomes insignificant (β = −0.012). This distinction highlights the importance of institutional capacity as a necessary precondition for mitigating the negative impacts of informality. In districts with governance scores below the threshold, policies aimed at formalization may prove ineffective or even counterproductive, potentially displacing vulnerable populations without improving their welfare. In contrast, districts with adequate institutional safeguards appear capable of buffering or even neutralizing these adverse effects.

Table 3. Threshold Regression Results

Regime	IFE Coefficient	Std. Error	Significance
IQI ≤ 5.2	−0.088	0.021	***
IQI > 5.2	−0.012	0.017	ns

The policy implications are substantial. First, the findings affirm that institutions are not simply corrective mechanisms but structural prerequisites for managing informality. Second, decentralization strategies must explicitly account for district-level disparities in institutional performance. Targeted reforms should include anti-corruption initiatives, participatory planning, transparent budgeting, and investments in bureaucratic competence.

The panel Granger causality tests reinforce these interpretations. Results indicate that the informal economy Granger-causes deterioration in socioeconomic outcomes, implying a one-way causal flow. Conversely, institutional quality and development demonstrate bidirectional causality, suggesting a feedback loop where better governance enhances welfare, and improved welfare, in turn, supports institutional legitimacy and effectiveness. This interplay substantiates the theoretical model underpinning the study, which integrates dual labor market theory, structuralist perspectives, and institutionalism within a threshold-sensitive analytical framework.

These findings not only support but expand the existing literature. While earlier studies confirm the detrimental effects of informality and the benefits of institutional strength, this research offers subnational empirical evidence that the impacts are conditional, dynamic, and dependent on specific governance thresholds. Furthermore, the analysis emphasizes the urgency of geographically differentiated policy approaches. Districts in the lower quantiles of socioeconomic development face a compounded disadvantage of both high informality and weak institutional quality. Addressing these challenges requires coordinated interventions that combine administrative reform, economic inclusion, and infrastructure development.

In conclusion, this study demonstrates that informality is not a transient or uniformly negative feature of developing economies. Its consequences are fundamentally shaped by institutional conditions. By identifying both the direction and the conditions under which informality influences development, the study provides a nuanced and actionable framework for promoting equitable and sustainable regional development.

CONCLUSION

This study provides empirical insights into the relationship between the informal economy, institutional quality, and socioeconomic development at the subnational level in Indonesia. Drawing on balanced panel data from 15 districts in Lampung Province between 2010 and 2023, the analysis confirms that informal economic activity has a statistically significant and negative impact on regional welfare. This negative effect is most evident in districts where institutional governance is weak, suggesting that informality acts as a structural constraint rather than merely a symptom of poverty. In contrast, stronger institutional quality, particularly in areas such as corruption control, bureaucratic performance, and accountability, is positively associated with improved development outcomes.

The application of a dynamic threshold regression model reveals the existence of a critical institutional quality value, identified at 5.2 on the Institutional Quality Index. Above this level, the negative consequences of informality become substantially less pronounced. This finding underscores the importance of institutional conditions in shaping the impact of informality and suggests that strong governance is essential for mitigating its adverse effects. Supporting this result, the quantile regression analysis indicates that lower-performing districts are more vulnerable to informality, while districts with better performance benefit more from high institutional quality. These distributional patterns point to the necessity of localized strategies that reflect the varying capacities of district-level governance.

From a policy perspective, the findings highlight the need to prioritize institutional strengthening as a foundation for managing informality and promoting inclusive development. Policymakers should focus on regulatory simplification, local administrative reform, the expansion of digital governance platforms, and the enhancement of public accountability mechanisms. Raising institutional quality beyond the identified threshold is crucial for supporting formalization and achieving sustained development. Furthermore, development interventions aimed at integrating informal economic actors into formal systems must be tailored to the specific institutional context of each district to ensure both relevance and effectiveness.

Future research can expand on these findings by incorporating household-level survey data to better understand the micro-level dynamics of informality. Investigating gender-based patterns within the informal sector and assessing the role of political decentralization, civic participation, and social capital may provide additional insights into the mechanisms through which institutions influence development outcomes. Comparative studies across different provinces or regions may also help generalize the findings to broader contexts within Indonesia or other decentralized governance systems.

In conclusion, this study contributes to a more nuanced understanding of informality as a multifaceted phenomenon whose developmental implications are shaped by the quality of local institutions. It demonstrates that informality is not uniformly harmful and that its impact varies according to governance capacity and socioeconomic context. By integrating institutional theory with regional development analysis, the study offers a valuable framework for designing differentiated and context-aware strategies to promote equitable growth and institutional resilience in decentralized settings.

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