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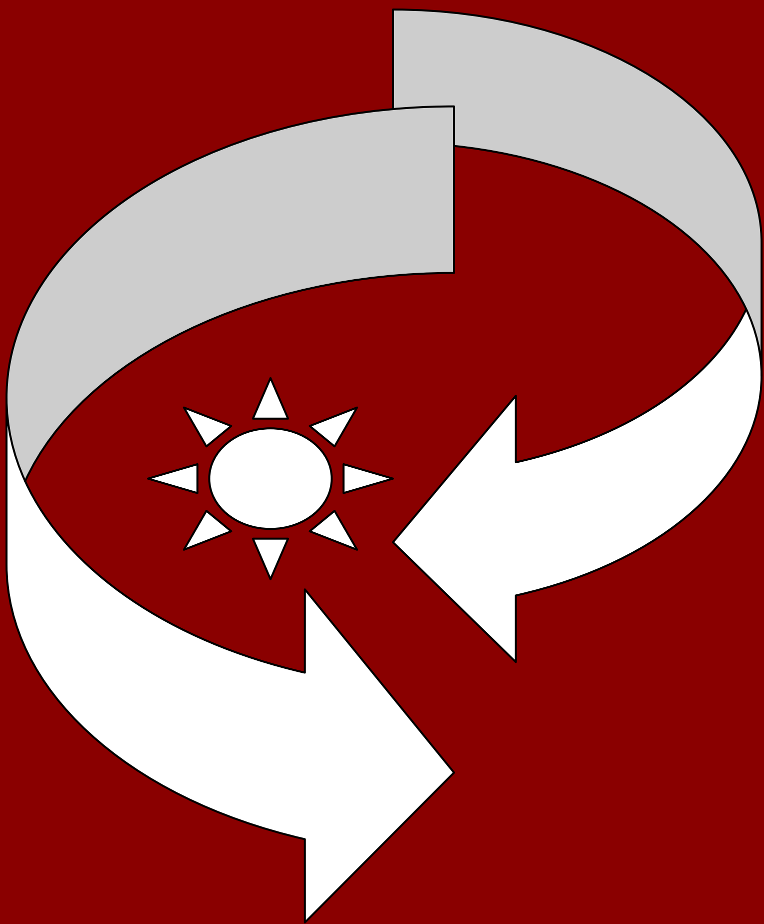

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Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is reffered to be a forum for the delivery of scientific thought and analysis in the field of economics especially related to financing and regional development for faculty staff, researchers, alumni, students and broad community. Starting from Volume 6 No. 1, this journal is published into six times a year (originally published four times a year). The editor receives articles that have unpublished yet in any media, either inside or outside the country. The online version of this journal is available at http://online-journal.unja.ac.id/JES

Jurnal
Perspektif Pembiayaan dan Pembangunan Daerah

(Journal of Perspectives of Financing and Regional Development)

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Editor's Note

Dear readers,

We are proud to present Volume 11, Number 1 of our esteemed journal, which brings together a diverse and thought-provoking array of research articles that explore various aspects of economics, finance, and social welfare. We aim to stimulate intellectual discourse, encourage innovative research, and contribute to understanding critical issues facing Indonesia and beyond.

In this edition, we begin with Millia, Ernawati, and Heriberta's study, which investigates the relationship between foreign direct investment, trade, and their interactions on economic growth in Indonesia. This paper offers valuable insights into the dynamics of international trade and investments in a developing economy.

Next, Azwardi, Sukanto, and Adnan examine the determinants of health expenditures by analyzing the income levels of different countries. This research has significant implications for policy-makers in allocating resources for public health systems.

Hardiani, Yulmardi, and Maisyarah delve into the socioeconomic determinants of NEET (Not in Education, Employment, or Training) youth in Jambi Province, highlighting the challenges and opportunities for addressing youth unemployment and underemployment.

Pangastuti and colleagues focus on the performance improvement of Micro, Small, and Medium Enterprises (MSME) in the border market of North Timor Central District – Timor Leste, offering insights into the factors that drive the growth and sustainability of these vital economic contributors.

Achmad and co-authors explore the growth centers and agricultural base commodities in Tanjung Jabung Barat Regency, Jambi Province, to enhance regional development. This study has significant implications for the sustainable development of rural areas through agricultural and agribusiness initiatives.

Rosalina and Wahyuningsih examine the impact of financial inclusion and banking characteristics on banking stability in Indonesia. Their findings provide a deeper understanding of the importance of financial inclusion for the overall health and stability of the banking sector.

Lastly, using a multidimensional approach, Akbar and colleagues assess consumer empowerment and its influencing factors in Central Bangka Regency. This study provides valuable insights into the role of consumer empowerment in promoting economic growth and social welfare.

We hope you find these articles informative, engaging, and inspiring as they shed light on pressing issues and provide evidence-based solutions for sustainable development in Indonesia and beyond.

Sincerely,

Prof. Dr. Junaidi, S.E., M.Si

Editor-in-Chief.

Do foreign direct investment, trade and their interactions affect economic growth in Indonesia?

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Abstract

This study examines the direct and indirect impacts of foreign direct investment, exports, and imports on Indonesia's long-term and short-term economic growth. To this end, we used quarterly data for 2005.1–2021.4 sourced from Statistics Indonesia, the Bank of Indonesia, and the Bank of St. Louis. The analytical tools employed were the autoregressive model of the lag distribution (ARDL) and the error correction model (ECM-ARDL). Findings showed that foreign direct investment, exports, and imports directly affected Indonesia's economic growth. However, while the two formers had an impact only in the short run, the latter also did so in the long run. In addition, foreign direct investment also indirectly influenced economic growth through exports in the short and long run, whereas this was not the case with imports. Based on these findings, we argue for policy recommendations. To begin with, the government should encourage foreign direct investment, which may gradually replace imported raw materials with local raw resources, thereby creating an upstream connection while slowing the rate of imports. Furthermore, the government needs to adopt a policy of downstream processing of primary commodities into industrial commodities to increase export value and expand employment opportunities.

Keywords: *ARDL model, Exports, Foreign direct investment, Imports*

JEL Classification: C13, F14, F29, F43

INTRODUCTION

Indonesia is a country that has abundant natural resources with the fourth largest population in the world. However, Indonesia faces low labor productivity, as indicated by an annual per capita income value of USD 4,349 (Statistics Indonesia, 2021). Therefore, Indonesia needs foreign direct investment (FDI) inflows to cover the shortfall in domestic savings to finance investment to maintain economic growth and employment opportunities.

The significant benefits of incoming FDI are access to capital, new technologies, management, structural reform of the domestic economy, increased business scale, competition in global markets, and innovation. Trade will encourage efficiency due to competition in the global market; these conditions will support the movement from inter-industry trade based on the gift of nature to intra-industry trade based on innovation (Asian Development Bank, 2020).

Natural resources attract export-oriented foreign investors, in addition to relatively low labor wages and relatively abundant supply. Meanwhile, a large population is an opportunity for domestic market-oriented foreign investors. This condition is proven by the fact that the Indonesian processing industry, including FDI, is concentrated on the island of Java, reaching 52 percent with a population that reaches 59 percent of the total population of Indonesia (Statistics Indonesia, 2021).

Theoretically, the investment will increase production capacity, increasing the supply of commodities for export and domestic consumption (Mankiw, 2016). However, an increase in foreign inflow investment will also trigger an increase in imports of components of capital goods and raw materials. These components of capital goods contribute 75.12 percent and raw materials 14.59 percent of Indonesia's total imports. Based on existing data, explicitly state the empirical gap of this research (Indonesian Foreign Trade Statistics, 2021). These conditions exacerbate Indonesia's current account balance, which affects revenue (Salvator, 2014). Indonesia must also consider the rapid outflow of funds as a return for foreign investors greater than the capital inflow (Habibie, 2019). Thus FDI inflow is expected to affect economic growth directly and indirectly through exports and imports.

FDI is a key variable that drives trade, growth, and prosperity (World Economic Forum, 2013). However, the distribution of resources that fails in trade will cause FDI to harm growth (Dritsaki & Stiakakis, 2014). FDI inflows to developing countries require imports of raw materials, which accumulate in the current account deficit, and affect economic growth (Çiğdem, 2019)

The impact of FDI on economic growth and trade depends on the capability of a country to absorb technology transfer by FDI and create upstream-to-downstream sector linkages that trigger the trade sector (Agosin & Mayer, 2000). Krugler (2006) found that in the case of Venezuela, FDI facilitated exports for export market-oriented companies to serve MNC input demands, while domestic market-oriented FDI would prefer imported raw materials.

Studies on the impact of FDI on economic growth have been extensively researched, including Orji et al. (2021) in Nigeria, Shoaib et al. (2021) in Pakistan, and Rehman et al. (2021) in India, Pakistan, and Sri Lanka by panel testing. The findings of these studies show that FDI inflow positively affects the host country's economic growth. In contrast, research by Iqbal & Munir (2018) in Pakistan and Millia et al. (2022) in Indonesia found a negative effect of FDI on the economic growth of receiving countries. Meanwhile, the study by Shoaib et al. (2021) shows no significant effect of FDI on Pakistan's economic growth

Several findings indicate a positive and significant effect of FDI inflow on the economic growth of the host country for the long and short term or of them, as the results of the study by Makun (2018) in Fiji, Sultanuzamman et al. (2018) in Sri Lanka, Mohd & Muse (2021) in Ethiopia, Navarro & Quiroz (2022) in Peru. In contrast, the results of the study by Mukhlis & Qodri (2019) found that in the long term, FDI is negatively correlated with economic growth in Indonesia, but not in the short term. Awan & Rasyid's (2021) study in Pakistan found that the effect of FDI inflows on economic growth was only in the short term. In line with these findings, the research results of Millia et al. (2022) show that in the short term, FDI inflow has a positive effect on Indonesia's economic growth, and in the long term, it has a negative effect.

Theoretically, exports are a component of income that positively impacts economic growth. However, empirical results are various. Findings by Iqbal & Munir (2018) in Pakistan, Nguyen (2020) in Vietnam, and Millia et al. (2021) in Indonesia show that exports have a positive and significant effect on economic growth. In contrast, the study of Bakari (2016) revealed that exports do not affect Egypt's economic growth. Sultanuzzaman et al. (2018) found that in the long term, exports harmed economic growth and positively affected Sri Lanka in the short term.

Imports are a component of expenditure in the income composition, which theoretically harms economic growth. However, empirically the findings still need to be consistent. Tahir (2015) in Pakistan found that imports had a negative long-term effect on economic growth and a positive effect in the short term. In contrast, the results of Bakari (2016) in Egypt and Mukhhlis & Qodri (2019) in Indonesia found that imports did not affect economic growth, while Iqbal (2019) in Pakistan found that imports have a positive effect on economic growth.

FDI inflows are expected to stimulate exports through interactions, boosting the host country's economic growth. Research from Purusa & Istiqomah (2018) in ASEAN-5 countries, Nguyen (2020) in Vietnam, and Irhamna et al. (2021) in Indonesia found a positive effect of FDI on exports. Meanwhile, Sultan (2013) found that FDI has not been able to stimulate exports; on the contrary, exports have stimulated FDI inflows. Mahmoodi and Mahmoodi (2016) found that FDI stimulated exports in eight developing European countries. On the contrary, exports stimulated FDI inflow in eight developing countries in Asia.

Studies of the long-term and short-term relationships between the effect of FDI on exports have been studied by several previous researchers. The research findings of Sunde (2016) in South Africa and Basilgan & Akman (2019) in Turkey show that FDI has a positive and significant effect on exports in the long and short term. Meanwhile, Mukhtarof et al. (2019) found that FDI positively affects exports in Jordan in the long term. In contrast, Jana et al. (2020) found a two-way causality relationship between FDI and exports only in the short term, while in the long term, exports stimulated FDI inflow.

Conversely, the increase in FDI inflow was accompanied by increased imports of raw and auxiliary materials, burdening the balance of payments. The interaction of FDI and imports will affect the economic growth of the host country, as the findings of Koyuncu & Unver (2020) have revealed a relationship between FDI and imports in Turkey. Keho (2020) found FDI to positively affect imports in the long and short term in Cote d'Ivoire. In comparison, Asunka et al. (2022) found a two-way causal relationship between FDI and imports in developing countries.

FDI affects economic growth indirectly through interactions with exports and imports, as the results of research by Marinela (2015) found that FDI contributes to trade deficits in developing countries. Jana (2020) found a two-way causality relationship between FDI and trade in India. Then, Dima (2016) found that FDI stimulated export and import activities in Romania. In contrast, Mukhlis & Qodri's (2019) findings concluded that no relationship exists between exports, imports, FDI, and economic growth in Indonesia. Based on variations in previous findings and the gap between theory and phenomena, this study aims to examine the direct effect of FDI, exports, and imports on economic growth. This study also examines the indirect effect of the interaction of FDI with exports and the interaction of FDI with imports on Indonesia's economic growth, which is our novelties. This study is expected to reveal whether FDI and trade synergize in driving economic growth in Indonesia. Previous studies analyzed the direct effect between economic variables; however, this study modifies the model as an indirect effect of the interaction of FDI with exports and imports through a statistical model to explain economic phenomena that have not been in previous studies.

METHODS

We utilized quarterly time series data covering the period from 2005.1 through 2021.4, sourced from the Bank of Indonesia, Statistics Indonesia, and the Bank of St. Louis publications. GDP data are measured in hundreds of millions of US dollars, whereas FDI, exports, and imports data are measured in millions of US dollars.

To assess the long-run effect of incoming FDI, exports, and imports, as well as the interaction of incoming FDI with exports and that of FDI with imports, on economic growth, we employed the autoregressive distributed lag (ARDL) model. The equation used to test the long-run effect is as follows:

$$GDP_t = C + \beta FDI_t + \gamma X_t + \delta M_t + \varphi XI_t + \omega MI_t + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where C , $\beta, \gamma, \delta, \varphi, \omega$ are the long-run multiplier parameters of the regression equation (1), which are assumed to be stable in the given period 2005.1-2021.4. Meanwhileε_t is residual to fulfill the classical assumptions of non-autocorrelation, homoscedasticity, and normality. The XI variable represents the interaction of FDI with exports, and the MI variable forms the interaction of FDI with imports. Both variables describe FDI as influencing economic growth through exports and imports (Kujarounprasit, 2012; Safitriani, 2013). The positive influence of the interaction of FDI with other variables indicates that FDI indirectly affects GDP (Millia et al., 2022).

The lag length used in our study is written in the ARDL formula (p, q, r, s, y, z) according to the model (Pesaran & Shin, 1999; Heij, 2004). Assuming the model equation (1) is stable, then the ARDL model formulation is as follows;

$$GDP_t = C_0 + \sum_{i=1}^{p} \propto_i GDP_{t-i} + \sum_{j=0}^{q} \beta_j FDI_{t-j} + \sum_{k=0}^{r} \gamma_k X_{t-k} + \sum_{l=0}^{s} \delta_l M_{t-l} + \sum_{m=0}^{y} \varphi_m XI_{t-y} + \sum_{n=0}^{z} \omega_n MIt_{t-z} + \varepsilon_{1t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where C_0, $\propto_i$ (i=1,2….., p), β_j(j= 0,…, q), $\gamma_k (k = 0,1 \ldots\ldots, r)$, $\delta_l (l = 0,1, \ldots.., s)$, $\varphi_m (m = 0,.., y)$, $\omega_n (n = 0, \ldots.., z)$ are parameters in equation (2), which are called long-run coefficients, so the effect of FDI, X, M, XI and MI to GDP in the ARDL model in equation (2) is called the long-run model. If each variable reaches equilibrium, then equation (2) is a cointegration equation, so that the value

$$C = \frac{C_0}{1-\sum_{i=1}^{p} \propto_i},\ \propto = \frac{\sum_{i=1}^{p} \propto_i}{1-\sum_{i=1}^{p} \propto_i},\ \beta = \frac{\sum_{j=0}^{q} \beta_j}{1-\sum_{i=1}^{p} \propto_i},\ \gamma = \frac{\sum_{k=0}^{r} \gamma_k}{1-\sum_{i=1}^{p} \propto_i},\ \text{dan}\ \delta = \frac{\sum_{l=0}^{s} \delta_l}{1-\sum_{i=1}^{p} \propto_i},$$

$$\varphi = \frac{\sum_{m=0}^{y} \varphi_m}{1-\sum_{i=1}^{p} \alpha_i},\ \omega = \frac{\sum_{n=0}^{z} \omega_n}{1-\sum_{i=1}^{p} \alpha_i}$$

To test the effect of FDI, X, and M, as well as the interaction of FDI with X (XI), and the interaction of FDI with M (MI) on GDP using equation (2), we followed a procedure involving three consecutive steps, which include a stationarity test, a cointegration test, and model estimation. In the first step, we adopted Augmented Dickey-Fuller (ADF) to test data stationarity for all variables (Dicky & Fuller, 1979). The test hypothesis was H0 (time series data are not stationary) versus H1 (time series data are stationary). The criterion for rejecting H_0 or accepting H_1 is determined by comparing the p-value to the critical value of the statistic test at a significant level of 1%, 5%, or 10%. In the following step, we examined the cointegration relationship between GDP, FDI, X, M, XI, and MI by using the ARDL bound cointegration test (Pesaran et al., 2000). This cointegration test requires that the data be stationary only at the level I (0) or first difference I (1) and allows stationary combinations of both. The formula of the bound test for our study is

$$D(GDP_t) = C_0 + \sum_{i=1}^{p} \propto_i D(GDP_{t-i}) + \sum_{j=0}^{q} \beta_j D(FDI_{t-j}) + \sum_{k=0}^{r} \gamma_k D(X_{t-k}) + \sum_{l=0}^{s} \delta_l D(M_{t-l}) + \sum_{m=0}^{y} \varphi_m D(XI_{t-m}) + \sum_{n=0}^{z} \omega_n D(MI_{t-n}) + \theta_1 GDP_{t-1} + \theta_2 X_{t-1} + \theta_3 M_{t-1} + \theta_4 FDI_{t-1} + \theta_5 XI_{t-1} + \theta_6 MI_{t-1} + \varepsilon_{2t} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

In equation (3), θ_i(i= 1, 2,3,4,5,6) is the regression parameter for equation (3). The hypothesis for testing cointegration is H_0: θi = 0 (no cointegration between variables). Conversely, H_1: θi ≠ 0, so θi ≠ 0 (there is cointegration between variables). To test our hypothesis, the F-test was used with the following criteria: (1) if the calculated $F_{statistic} > F_{critical\ value}$ of the upper bound I(1) at 1%, 5%, or 10% level, then the hypothesis H_0 is rejected (H_1 is accepted). Thus, a cointegration relationship exists between FDI, X, M, XI, and MI with GDP. Conversely (2), if the calculated $F_{statistic} < F_{critical\ value}$ of the lower bound I(0) at 1%, 5%, or 10% level, then hypothesis H_0 is accepted (H_1 is rejected).

In the next step, we estimated the long-run effect based on equation (1) and the short-run effect using the ARDL error correction model with the formula (ECM-ARDL) (Heij; 2004) as follows:

$$D(GDP_t) = \beta_0 D(FDI_t) + \gamma_0 D(X_t) + \delta_0 D(M_t) + \varphi_0 D(XI_t) + \omega_0 D(MI_t) + \pi EC_{t-1} + \sum_{i=0}^{p} {}'_i D(GDP_{t-i}) + \sum_{j=0}^{q} \beta'_j D(FDI_{t-j}) + \sum_{k=0}^{r} \gamma'_k D(X_{t-k}) + \sum_{l=0}^{s} \delta_l' D(M_{t-l}) \sum_{m=0}^{y} \varphi_m' D(XI_{t-m}) + \sum_{n=0}^{z} \omega_n' D(MI_{t-n}) + \varepsilon_{2t} \ldots\ldots (4)$$

The coefficient π is the error correction coefficient and the EC_{t-1} variable. The model of equation (4) is called the short-run unidirectional model from FDI, X, M, XI, and MI to GDP.

In the last step, we tested the classic assumptions, which included normality using the Jarque-Bera test, homoscedasticity using the Breusch-Pagan-Godfrey test, and serial correlations using the Breusch-Godfrey Serial CorrelationLM test. Meanwhile, we used the CUSUM and CUSUM-square to test the stability of all model parameters (Brown et al., 1975).

RESULTS AND DISCUSSION

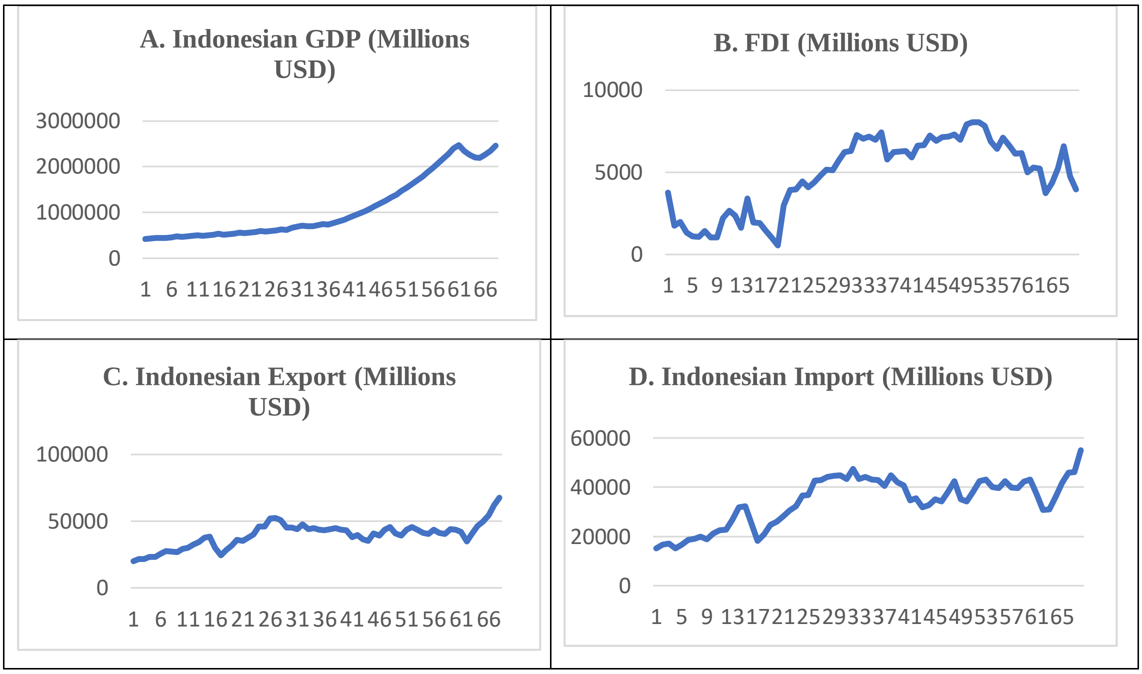
Results

Statistical descriptions are presented for all research variables as a basis for further statistical testing. The description components include minimum, maximum, mean, and standard deviation values. Table 1 presents the standard deviation values of all research variables, which are smaller than the mean, indicating that the observed values are valid and no control variables are needed.

Table 1. Descriptive statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
GDP	426612	2468722	1078577	680897
FDI	540	8058	4828	2252
X	20026	67486	39369	9272
M	15040	55053	34345	9877
XI	16896	367122	202895	109031
MI	13295	345836	182991	106304

Figure 2. Panels (A, B, C, and D) present the development of all variables from 2005.1 to 2021.4; the average growth rate of all variables is positive. Economic growth proxied by GDP in millions of USD reached 2.7 percent on average per quarter, while FDI growth reached 7.2 percent per quarter with sharp fluctuations. Meanwhile, the export value (X) and import value (M) growth was 2.2 percent and 2.5 percent, respectively, or less than economic growth. The average growth of the FDI-export interaction variable (XI) and FDI-import interaction (MI) is 10.5 percent and 10.6 percent, respectively, or greater than the average economic growth.



Source: BPS and BI (2010.1-2021.4), Bank St Louis (2005.1-2009.4) processed

Figure 1. Development of gross domestic product, foreign direct investment inflow, export and import of Indonesia 2005.1-2021.4 (Millions USD).

The results of the stationary test for all variables in Table 1 show the statistical values of the ADF test, both for the intercept and the intercept and trend. The test results show that all the variables: inward foreign investment (FDI), exports (X), imports (M), the interaction of FDI with exports (XI), and the interaction of FDI with imports (MI), are stationary at the first difference with a significant level of 1 percent. Meanwhile, the GDP variable is stationary at the first difference, with a significant level of 5 percent.

Table 2. Results of the stationarity test

Variable	ADF Test Statistic			
	Intercept		Intercept and Trend	
	Level	First Difference	Level	First Difference
FDI / d(FDI)	-1.426222	-9.419795*	-1.517625	-9.493378*
X/d(X)	-0.668308	-6.637739*	-1.498585	-6.617402*
M / d(M)	-1.314435	-6.453201*	-2.014681	-6.382205*
XI/ d(XI)	-1.543089	-8.828672*	-1.941667	-8.803828*
MI / d(MI)	-1.616999	-9.252892*	-1.774128	-9.264099*
PDB/d(PDB)	1.028345	-2.993981**	-1.433078	-3.522113**

*Note: *, ** significant at 1%, 5%*

After testing the stationarity of all variables, in the next step, we tested the cointegration among the following variables: FDI, X, M, XI, and MI. As stated in the methodology section, we employed the ARDL bound to test for cointegration with the lag length that has been tested before. Since the lag length is (p = 1, q = 4, r = 2, s = 5, y = 5, z = 1), we used the ARDL bound based on ARDL(1,4,2,5,5). From the calculation, the F-statistic value obtained is 3,979, for a significant level of 5%, while the upper bound critical value I(1) is 3,380. Since the value of the F-statistic is larger than the critical value of the upper bound I (1), it can be concluded that there is a cointegrating relationship between foreign investment, exports, imports, the interaction of foreign investment with exports, the interaction of foreign investment with imports, and gross domestic product.

In the last step, we estimated all the long-run coefficients of the ARDL model (1,4,2,5,5,1) and the short-run coefficients of the ECM-ARDL model (0,3,1,4,4,0). In Table 3, we include the statistical values and the estimated results of all long-run and short-run model parameters. Also, we include the P-value of the Jarque-Bera test, the P-value of the Breusch-Godfrey serial correlation LM, and the Breusch-Pagan-Godfrey test based on F-statistic.

Table 3. Estimation of long-run and short-run coefficients of the ARDL model (1,5,4,2,5,1) and the ECMARDL model(0,4,3,1,4,0).

	Coefficient	t-Statistic	P-value
Panel A. Long-run Coefficient dependent variable: GDP			
FDI	-0.288153	-1.459089	0.1528
X	-0.153968	-2.363912	0.0233
M	0.195762	2.872075	0.0066
XI	0.028783	2.265040	0.0293
MI	-0.029466	-2.436564	0.0196
C	89.36115	1.837574	0.0740
Panel B. Short-run coefficient dependent variable D(GDP.)			
D(FDI)	-0.288153	-1.843487	0.0731
D(FDI(-1))	1.203769	4.338664	0.0001
D(FDI(-2))	0.535279	2.281873	0.0282
D(FDI(-3))	0.785574	4.112366	0.0002
D(FDI(-4))	0.232279	2.559273	0.0146
D(X)	-0.153968	-3.052803	0.0041
D(X(-1))	0.127567	3.607446	0.0009
D(X(-2))	0.041861	1.544101	0.1309
D(X(-3))	0.099197	4.140473	0.0002
D(M)	0.195762	3.730746	0.0006
D(M(-1))	0.040448	2.268346	0.0291
D(XI)	0.028783	3.006900	0.0047
D(XI(-1))	0.033557	-4.805086	0.0000
D(XI(-2))	-0.013595	-2.266053	0.0292
D(XI(-3))	-0.019631	-4.012282	0.0003
D(XI(-4))	-0.005043	-2.614590	0.0127
D(MI)	-0.029466	-3.309074	0.0021
CointEq(-1)	-0.232146	-4.914189	0.0000

Note: The P-value of the Jarque-Bera test is 0.193 while the P-values of the Breusch-Godfrey Serial Correlation LM and Breusch-Pagan-Godfrey test based on F-statistic are 0.914 and 0.772, respectively.

Panel A of the table shows the estimated values of the long-run effect of the regression variables on Indonesia's economic growth. It shows the results of the ARDL model test (1,5,4,2,5,1) in which both imports and the interaction of FDI with exports have a positive and significant effect on Indonesia's economic growth. On the other hand, the effect of export is negative and significant, as is the interaction of FDI with import. Furthermore, despite being negative, the FDI effect was not significant, and therefore, unsurprisingly, it has not been able to drive the Indonesian economy.

In the short run, panel B of Table 3 demonstrates a positive effect of FDI on Indonesia's economic growth. The effect of exports is only positive in the first and third lags, whereas that of imports and the interaction of FDI with exports are positive and significant until the first lag. Meanwhile, the interaction effect of FDI with imports is negative and significant. Further, the cointegration coefficient is negative and significant, meaning the speed to long-run equilibrium is 23.21 percent (the adjustment occurs in the fifth quarter).

Based on the classic assumption test values in Table 3, we conclude that the ARDL (1,5,4,2,5,1) has normally distributed, independent, and homoscedastic residuals. It is based on a P-value that is greater than 0.05. Furthermore, from the CUSUM and CUSUM of Square tests, all the model parameters used are stable, as indicated by the blue graph, which does not come off the red border. Further, the stability test results for all these parameters are shown in Figure 2.

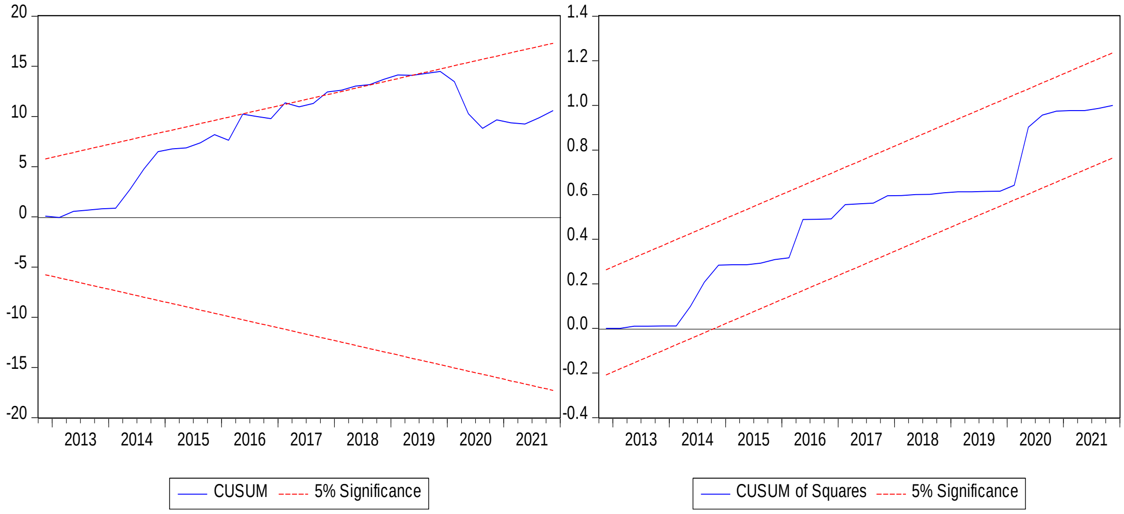


Figure2. Stability test results for all ARDL model parameters (1,4,2,5,5,1)

Discussion

FDI affects Indonesia's economic growth only in the short term. While in the long term, there is no effect. This finding is consistent with several study results, including Orji et al. (2021) in Nigeria, Shoaib et al. (2021) in Pakistan, and Rehman et al. (2021) in India, Pakistan, and Sri Lanka. In the short term, FDI has increased Indonesia's economic growth through consumption derived from the relatively high wages foreign companies pay workers and other FDI expenditures (Lipsay and Sjolom, 2001). The other finding, FDI has increased local company wages horizontally and vertically (Sultoni, 2022). Apart from playing a role in increasing wages, especially for educated workers, FDI also plays a role in transforming the increase in the low productivity of agricultural sector workers into high productivity in the industrial sector (Steenbergen, 2021). Then, FDI plays a role in reducing unemployment (Liang et al., 2021).

The study results show that long-term FDI does not affect Indonesia's economic growth. These results are supported by the findings of Mukhlis and Qodri (2019) and Awan and Rasyid (2021). The results of this study are different from the findings of Makun (2018), Sultanuzamman et al. (2018), Mohd and Muse (2021), and Navarro and Quiroz (2022). This gap is due to differences in socio-economic conditions or the data period used. The gap in research results can be made by infrastructure and institutional support, human capital, and the quality of host country workers to absorb the technology transferred by FDI (Adedoyin et al., 2020). Moreover, several local companies for specific sectors substituted for FDI ultimately causes local companies to lose competition and investment opportunities (Maminggi and Martin, 2018., Millia et al., 2022).

The results showed that exports only played a role in the short term towards Indonesia's economic growth, while in the long term, it had a negative effect. These findings indicate that Indonesia's exports are characterized by natural resources managed by foreign companies with limited downstream. Besides that, the exports of manufacturing companies are not local content and have no backward linkages. Meanwhile, local export products, such as agricultural products and handicrafts, are managed with low technology. This finding is supported by several research results, including Ramli et al. (2016), Malhotra and Kumari (2018), and Sultanuzzaman (2018). The findings of several studies are different from the results of research such as research by Koejaroonprasit (2012), Mahmoodi & Mahmoodi (2016), and Iqbal (2018). This gap is due to the high or low technological orientation of exported goods, ownership of export products, and a country's trade policies (Malhotra & Kumari, 2018).

The findings of subsequent research show that imports positively affect Indonesia's economic growth in the long run. This effect comes from an increase in value-added input originating from imports considering that more than 90 percent of Indonesia's imports are raw/auxiliary materials and capital goods (Indonesian Foreign Trade Statistics, 2021), which generate added value in production. This condition reflects Indonesia's continued dependence on imports in line with economic growth. In the short term, the effect of imports is negative because company operations in Indonesia have increased spending abroad, causing the current account deficit. In a country with company operations increasing spending abroad is a factor causing the current account deficit, negatively impacting economic growth (Salvator, 2014). The results of this study support the findings of Iqbal (2018) and Habibie (2019) and contrast with the results of the study by Tahir et al. (2015), Bakari (2016), Mukhhlis and Qodri (2019). This gap is due to the period of data used, differences in analytical tools, and differences in the consumption behavior of a country's population.

The interaction of FDI and exports positively impacts Indonesia's economic growth in the long and short term. These findings indicate that there is a synergy between FDI inflow and exports. This synergy has turned the negative effect of FDI and exports into a positive effect on economic growth, implying that FDI indirectly positively affects economic growth through exports. The results of this study are in line with the findings of Zhang (2006), Koejaroonprasit (2012), Quoc and Thi (2018) Mukhtarov (2019). In comparison, different results have been found by Sultan (2013) and Saimul & Darmawan (2020). Differences are triggered by data periods, analyses used, and social and economic characteristics between different countries.

The interaction effect of FDI and imports on Indonesia's economic growth is harmful in the long and short term. This finding reflects that foreign companies in Indonesia prefer imported raw/auxiliary materials with a narrow linkage. Furthermore, the fund outflow of return investors and dependence on import financing has continuously burdened the balance of payments, impacting income (ÇİĞDEM G.,2019). This finding is supported by the results findings of Krugler (2006), Marinella (2015), Dima (2016), and Nga (2019) and contrary to the findings of Keho (2020), Koyuncu & Unver (2020). The difference in results is due to socio-economic variations and government policies in developing upstream and downstream industries, which differ for each country.

CONCLUSIONS AND RECOMMENDATION

Conclusions

Inward FDI and trade can have long- and short-term impacts on Indonesia's economic growth. Further, it can enhance the production capacity, which has the potential to raise exports and imports of raw materials and auxiliary materials, resulting in economic growth. Thus, FDI can impact economic growth, directly or indirectly, via its interactions with exports and imports. This study's novelty has been the interactions themselves.

This study aimed to investigate the impacts of incoming FDI, exports, and imports, as well as the interaction of FDI with exports (XI) and the interaction of FDI with imports (MI), on Indonesia's economic growth. For this purpose, quarterly time series data were utilized. Inward FDI, exports, and imports were valued in millions of US dollars, and the GDP was in hundreds of millions of US dollars, covering the period from 2005.1 to 2021.4. The analytical tools we applied to examine these variables' impacts on economic growth were the ARDL model and the ECM-ARDL model.

Based on the bound test, we found that FDI, exports, imports, the interaction of FDI with exports, the interaction of FDI with imports, and Indonesia's economic growth are all cointegrated. The ARDL test findings revealed that there is a direct influence of import variables on economic growth and an indirect effect of FDI via exports on Indonesia's economic growth in the long run. Thus, imports and FDI via its interaction with exports can drive Indonesia's economic growth in a positive direction, according to the sign of the regression coefficient. On the other hand, exports and FDI through imports require improvement due to the negative coefficient value. This study indicates that exports, imports, and FDI impact economic growth in the short run. It is worth noting that the interaction of FDI with exports is similar, whereas the interaction of FDI with imports is distinct.

Recommendations

Based on our findings, we recommend that Indonesia accept inbound FDI to sustain its economic growth. However, some measures are required to balance the inflow and outflow of capital. To begin with, FDI with an orientation toward the domestic market should strive to establish upstream ties that have a wider scope. Second, the rate of increase in imports should be maintained so as not to outpace the increase in exports. Last but by no means least, FDI with a natural resources orientation whose aim is to export should undergo downstream processing so that there is an increase in added value and new job opportunities.

The recommendation for future research is to use other macro variables that interact with FDI in influencing economic growth. Then, use the Panel-ARDL or VAR panel model for a broader scope, for example, ASEAN, so the data source is uniform.

The limitation of this study is that the data source is not uniform because Statistics Indonesia and the Central Bank of Indonesia have yet to provide quarterly data for the period 2005.1-2009.4. Meanwhile, annual data requires dummy variables and their interactions due to the Indonesian economic crisis, which has consequences for the significance of the model.

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Determinants of health expenditures: income level countries analysis

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Abstract
A global health phenomenon, in particular, there is a significant difference between health spending in developed and developing countries. This study focuses on modeling health expenditures in short-term and long-term schemes in three categories of countries: low-income countries, moderate-income, and high income from 2000 to 2019. The health expenditure scheme is analyzed using the panel data regression approach as a model of determinants of health expenditures. The results showed relatively significant differences between the determinants of health expenditure variables, including populations variable in low-middle-income countries. The positive and significant influences on middle-income countries, whereas high-income countries have a negative and significant influence. As for the overall GDP variable, low-income, lower-middle, and advanced countries negatively and significantly influence health care. For middle-income countries have a positive and significant influence on health spending.

Keywords: *Covid-19, Health expenditure, Income level, Wagner law*

JEL Classification: H50, H510, H110

INTRODUCTION

Global health expenditures in 2018 totaled US$ 7.5 trillion, or over 10% of the world's GDP. Trend where health spending is growing faster than the global economy as a whole, and most nations, especially in low- and middle-income countries, most countries in the world spend less than $350 per person on health care on average. The disparity across state-income categories persists despite development in low-income nations. Differences in the number of health expenditures issued by some countries are significantly dominated by countries with high incomes (Fabiana, 2019). Health expenditure at the global level is contributed by high-income countries 81%, and the rest is contributed by low- and upper-middle-income countries (Buracom, 2016; Xu et al., 2019). This shows an increase because, previously, middle-income countries only represented 13% of total health spending. The largest increase in spending occurred in upper-middle-income countries, whose populations increased more than twofold during the period (due to China's large population joining the group), while the share of health spending in those countries increased globally almost twice as much (WHO, 2019).

Long-term and short-term scheme model approaches are presented in the literature. Some previous literature relied on cross-sectional techniques, while others used panel techniques. The findings often differ based on the study of static and dynamic models. Long-term modeling was studied by (Oliveira & Maisonneuve, 2015), who, using cost control scenarios and cost pressures, predicted that between 2010 and 2060, total long-term health expenditures would rise by 3.3 and 7.7 percent of total GDP. The latest scenario was studied by Raghupathi & Raghupathi (2020) & Sfakianakis et al. (2021) with the results of studies that increased health expenditure has a positive relationship with economic performance with policy implications including that good citizens' health does result in a better economy overall. The whole study supports the argument about the structure of the healthcare system in most limited countries (Ndaguba & Hlotywa, 2021; Piabuo & Tieguhong, 2017).

The main determinants of health expenditure are inseparable from the conditions of income per capita, demographics and epidemic conditions, and the character of the health system (Atilgan et al., 2017; Bloom et al., 2018; Erçelik, 2018; Halıcı-Tülüce et al., 2016; Ke et al., 2011; Obrizan & Wehby, 2018; Piabuo & Tieguhong, 2017). Based on a long-term scheme by predicting the condition of the Covid 19 pandemic, it will have a significant cost reduction on health expenditures in several countries, especially low-income countries (Eissa, 2020; Ozawa et al., 2016; Rengin, 2012) emphasizes the restructuring of public expenditures to expand the absorption of health institutions, which ultimately leads to sustainability and universal health insurance.

Based on the background above, this study examined the novelty and contribution of modeling health expenditures in short-term and long-term schemes in three categories: low-income countries, moderate-income, and high-income. Research is expected to be used to determine public policy strategies related to health expenditures and modeling health expenditures.

METHODS

In this study, health expenditures were based on population and health expenditure conditions based on government health schemes, and GDP revenues from 120 countries measured income. The income categories are low, medium, and high from 2000-2019.

The data type used is quantitative data in numbers, symbols, or statistics, either dug directly or obtained through results. Qualitative data processing to quantitative (Gujarati, 2011). This study used panel data, a combination of time series and cross-section data.

This research uses secondary data from the publications of other parties, such as the World Health Organization and the world bank, in the form of books, journals, and others that can support research. The data used is health expenditure per capita, population, health schemes, and consumption in 120 countries based on income categories: low, medium, and high from 2000 to 2019.

The method of collecting data in this study is carried out by observing the need for data, collecting and studying data as well as available (Gujarati, 2011). This study's data observed, collected, and studied included health expenditures, population structures, and income per capita in 196 countries based on low-income categories, medium and high, from 2000 to 2018.

The health expenditure scheme is analyzed using the panel data regression approach as a model of determinants of health expenditures with a model of health expenditure schemes and health expenditure schemes based on sustainability and macroeconomic variables, including population, GDP, and Consumption with the following general model:

CHE = F(POP,GDP,GS,CON)…………………………………………………………… (1)

Explanation:
CHE : Current Health Expenditure per Capita
POP : Population
GDP : Gross Domestic Product
GS : Domestic Health Expenditure Scheme
SF : Current Health Expenditure by Financing Schemes
CON : Final Consumption Expenditure

The panel's data approach is used by classifying countries based on the classification of income per capita, namely low-income countries (Low), Lower Middle-Income Countries (Middle-Low), High-Income Countries (High), and Middle-Up Middle-Income Countries

$$CHELow_{it} = \beta_0 + \beta_1 POP_{it} + \beta_2 \Delta GDP_{it} + \beta_2 GS_{it} + SF_{it} + \beta_2 CON_{it} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots \quad (2)$$

$$CHEM - Low_{it} = \beta_0 + \beta_1 POP_{it} + \beta_2 \Delta GDP_{it} + \beta_2 GS_{it} + SF_{it} + \beta_2 CON_{it} + \varepsilon_t \ldots\ldots\ldots \quad (3)$$

$$CHEM - up_{it} = \beta_0 + \beta_1 POP_{it} + \beta_2 \Delta GDP_{it} + \beta_2 GS_{it} + SF_{it} + \beta_2 CON_{it} + \varepsilon_t \ldots\ldots\ldots\ldots \quad (4)$$

$$CHEHigh_{it} = \beta_0 + \beta_1 POP_{it} + \beta_2 \Delta GDP_{it} + \beta_2 GS_{it} + SF_{it} + \beta_2 CON_{it} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots \quad (5)$$

RESULTS AND DISCUSSION

The data used in this article is the health spending scheme analyzed using the panel data regression approach as the determinant model of health spending (CHE) as the dependent variable, with the Domestic health spending (GS) scheme model and the financing-based health spending scheme (SF) and economic variables. The macro includes population (POP), Gross Domestic Product (GDP), and Consumption (CON) as independent variables.

The results of the estimated panel data are used to analyze the determinants of health expenditures. The analysis models to be selected are the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model. The following comparison between models is presented in Table 1.

Table 1. Low-income country health expenditure

Variable	Common		Fixed		Random	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
LNPOP	0.000005	0.92040	0.0015290	0.00000	0.00067	0.00000
LNGDP	-0.000001	0.00260	-0.0000015	0.00000	-0.000001	0.00820
LNGS	-0.000036	0.00130	-0.0000171	0.00000	-0.000018	0.05570
LNSF	0.000028	0.00000	0.0000274	0.00000	0.000029	0.00000
LNCONS	0.000001	0.25320	0.0000006	0.03380	0.000000	0.54740
C	34.190320	0.00000	5.0821330	0.00730	20.576200	0.00000

Table 1 shows that, in comparison, the statistically best model is the Fixed Effect Model (FEM). The model can be categorized as the best model because all variables, including LNPOP, LNGDP, LNGS, LNSF, and LNCONS, have a smaller probability value than the significance level of α. In contrast, the common effect model shows one expressed insignificant variable, namely the LNCONS variable, with a probability of 0.2530. Statistically, the Random Effect Model (FEM) shows the LNGS and LNCONS variables are insignificant with a probability greater than the significance level. Next analyzed is the comparison of the model of estimated health expenditure in middle-income countries. The comparison results can be seen in Table 2:

Table 2. Health expenditure models of middle-income countries down

Variable	Common		Fixed		Random	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
LNPOP	-0.159439	0.0000	0.333485	0.0071	-0.417010	0.0000
LNGDP	-0.215882	0.0457	-0.215947	0.0203	-0.121109	0.1988
LNGS	0.933512	0.0000	0.881090	0.0000	0.757706	0.0000
LNSF	0.203272	0.0053	0.097751	0.0195	0.211887	0.0000
LNCONS	-0.826470	0.0000	-0.319197	0.0000	-0.330436	0.0000
C	7.669734	0.0000	-1.917901	0.0212	3.845296	0.0000

Table 2 shows that, in comparison, the statistically best model is the Fixed Effect Model (FEM). The model can be the best because all variables, including LNPOP, LNGDP, LNGS, LNSF, and LNCONS, have a smaller probability value than the significance level α. In contrast, the common effect model shows one variable that is said to be significant. One variable contrasts with the theory; the LNPOP variable has a negative and significant influence on LNCHE with a probability of 0.000. Statistically, the Random Effect Model (FEM) shows the LNGDP variable is insignificant with a probability more than the level of significance.

These results do not align with model testing for high-income or developed countries, with results that differ from comparisons in low-income and lower-middle-income countries. The results show that statistically, the best model is the Random Effect Model (REM), which can be seen in Table 3.

Table 3. Health expenditure models of high-income countries

Variable	Common		Fixed		Random	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
LNPOP	-0.499468	0.0000	-0.362366	0.0009	-0.855425	0.0000
LNGDP	-0.022003	0.0351	0.430439	0.0021	-0.189397	0.0003
LNGS	1.087251	0.0000	1.215829	0.0000	1.462059	0.0000
LNSF	-0.005267	0.7879	0.047471	0.0005	0.105943	0.0000
LNCONS	-0.563351	0.0000	-0.404215	0.0000	-0.501876	0.0003
C	8.378651	0.0000	-0.752465	0.2052	8.969852	0.0000

Table 3 shows that statistically, the best model is the Random Effect Model (REM), which shows that all variables are significant. Meanwhile, based on the Common Effect Model (CEM) and Fixed Effect Model (FEM) models show that two variables are declared insignificant in health expenditure per capita. The next model comparison is based on the model of health expenditure in middle-income countries and above. A detailed comparison of models can be seen in Table 4.

Table 4. Health expenditure models of middle-income countries and above

Variable	Common		Fixed		Random	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
LNPOP	-1.332423	0.0000	-1.022553	0.0000	6.687000	0.0000
LNGDP	-0.091566	0.1783	0.020466	0.0365	-1.068832	0.0000
LNGS	1.441608	0.0000	0.965469	0.0000	0.028192	0.5292
LNSF	0.006080	0.7425	0.032771	0.0015	1.029602	0.0000
LNCONS	-1.271146	0.0000	-0.008214	0.3705	0.058373	0.0120
C	18.72182	0.0000	6.090122	0.0000	-0.116418	0.0033

Table 4. explains that statistically, the best models are the Random Effect Model (REM) and Fixed Effect Model (FEM), in which statistically, almost all variables are expressed as significant to health expenditure per capita.

Three tests—the Chow, Hausman, and multiplier Lagrange—are also run to evaluate the best model. The Chow, Hausman, and Lagrange multiplier tests are three of the tests used to choose the model. The model's test findings are shown in Table 5:

Table 5. Model test results

Testing	Low		Middle-Low		High		Middle-Up	
	Statistics	Prob.	Statistics	Prob.	Statistics	Prob.	Statistics	Prob.
Chow Test	40.706	0.0000	218.09	0.0000	175.6345	0.0000	358.399	0.0000
Hausman Test	44.3355	0.0000	127.545	0.0000	0.0000	1.0000	433.6	0.0000
LM TEST					28.012	0.0000		

Before creating an estimate, it is required to choose a regression approach. First, perform a Chow test to compare a Fixed Effect Model (FEM) and Pooled Least Square (PLS). According to the results of the Chow test, the probability value for the health expenditure model in low-income nations is 0.0000, which indicates that the Fixed Effect Model is the best option because its probability value is less than the actual amount of 5%. The next test is to choose the best model between the fixed and random effect models by doing Hausman Test. Based on the results of the Hausman test, the probability value of the Chi-Square on the model is 0.000, meaning the best model is the Fixed Effect Model.

In line with this, the results of the Chow test on the health expenditure model of the lower middle countries show the probability value < the significant level (0.05); thus, the best model is the Fixed Effect Model (FEM). The same result was also shown in Hausman testing, which showed the probability value < the significance level (0.05). Thus the best model is the Fixed Effect Model (FEM).

Different results were found in testing health spending models in high-income countries. The Fixed Effect Model (FEM) was chosen for the model based on Chow testing findings that showed the probability value at the significance level (0.05). As opposed to Hausman testing results that showed a probability value greater than the threshold of 1.00; hence the Random Effect Model (REM) was chosen. The Lagrange Multiplier test using the Breusch-Pagan test showed that the probability value of "both" was smaller than the true level of 5% (0.0000 0.05); hence the selected model was the Random Effect Model (REM). This was because of the difference in the selection results in each test. The last test was conducted on the health expenditure model in middle-income countries and above, with Chow test results showing a probability value (0.0000) < a level of significance (0.05) so that the selected model is the Fixed Effect

Model (FEM). In line with this, the results of Hausman testing show a probability value (0.000) < a level of significance (0.05) so that the model selected is a Fixed Effect Model (FEM).

Overall, the selection of models based on model testing is analyzed in detail based on the classification of countries on the level of income per capita that is breakout into model equations that can be seen in Table 6.

Table 6. Results of the panel data regression model estimate

Variable	Low (FEM)		Middle-low (FEM)		High (REM)		Middle-Up (FEM)	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
LNPOP	0.0015290	0.0000	0.333485	0.0071	-0.290719	0.0002	-1.022553	0.0000
LNGDP	-0.0000015	0.0000	-0.215947	0.0203	-0.100776	0.0000	0.020466	0.0365
LNGS	-0.0000171	0.0000	0.88109	0.0000	0.955946	0.0000	0.965469	0.0000
LNSF	0.0000274	0.0000	0.097751	0.0195	-0.071397	0.0000	0.032771	0.0015
LNCONS	0.0000006	0.0338	-0.319197	0.0000	-0.54566	0.0000	-0.008214	0.3705
C	5.0821330	0.0073	-1.917901	0.0212	8.059763	0.0000	6.090122	0.0000
Adj R2	0.772746		0.9468		0.8216		0.999	
Prob F	0.0000		0.000		0.000		0.000	
Obs	510		360		1057		1223	

Based on partial analysis shows that in the equation model in low-income countries, all variables partially have a significant effect on health expenditure per capita. In line with the model of equality in lower-middle-income countries, partially all variables are expressed as significant to health expenditure per capita. Despite differences in model selection results, the same results partially showed all variables expressed significance to health expenditure in high-income or developed countries. Meanwhile, the equation model in middle-income countries and above shows that the consumption variable has no significant effect on health expenditure per capita with a probability value > a significance level (0.370).

Low-income countries

The coefficient value (β1) = 0.0015290 indicates a number of population variables that positively affect health expenditure per capita; for example, if the population grows by 1%, health expenditure will grow by 0.001529 percent. The GDP variable positively impacts health spending, as indicated by the coefficient value of (β2) = -0.00000015, which means that a 1% increase in GDP will result in a 0.0000015 reduction in health spending per capita.

The domestic health expenditure scheme variable has a negative impact on per capita health expenditure, as indicated by the coefficient value (β3) = -0.0000171, which means that a 1% rise in the domestic health expenditure scheme will result in a 0.0000171 percent decrease in per capita health expenditure.

The coefficient value (β 4) = 0.0000274 can be interpreted as the health expenditure financing scheme variable positively affecting health expenditure per capita. If there is an increase in the health expenditure reduction scheme by 1%, it will increase per capita health expenditure by 0.0000274 per capita.

The coefficient value (β 5) = 0.0000006 can be interpreted as the consumption variable having a negative effect on health expenditure per capita. If there is an increase in consumption by 1%, it will reduce per capita health expenditure by 0.0000006 percent.

Lower-middle income countries

The coefficient value (β1) = 0.333 can be interpreted as a number of population variables positively affecting health expenditure per capita. If there is an increase in the population by 1%, it will increase health expenditure by 0.333 percent.

The coefficient value (β2) = -0.21694 can be interpreted as the GDP variable having a negative effect on health expenditure. If there is an increase in GDP by 1%, it will reduce per capita health expenditure by 0.88109 percent.

The coefficient value (β3) = 0.88109 can be interpreted as the domestic expenditure scheme variable positively affecting health expenditure per capita. If there is an increase in the domestic health expenditure scheme by 1%, it will increase per capita health expenditure by 0.88109 percent.

The coefficient value (β4) = 0.097751 can be interpreted as health expenditure financing scheme variables positively affecting health expenditure per capita. If there is an increase in the health expenditure financing scheme by 1%, it will increase per capita health expenditure by 0.097551 per capita.

The coefficient value (β5) = -0.319 can be interpreted as a consumption variable having a negative effect on health expenditure per capita. If there is an increase in consumption by 1%, it will reduce per capita health expenditure by 0.0000006 percent.

High-income countries

The coefficient value (β1) = -0.290719 indicates that a variety of population variables have a negative impact on health spending per capita; for example, a 1% increase in population will result in a 0.297 percent decrease in health expenditure.

The coefficient value (β2) = -0.100 can be interpreted as the GDP variable positively affecting health expenditure. If there is an increase in GDP by 1%, it will reduce health expenditure per capita by 0.1007%.

The coefficient value (β3) = 0.995 can be interpreted as the domestic expenditure scheme variable positively affecting health expenditure per capita. If there is an increase in the domestic health expenditure scheme by 1%, it will increase per capita health expenditure by 0.995 percent.

The coefficient value (β 4) = -0.071397 can be interpreted as the health expenditure financing scheme variable having a negative effect on health expenditure per capita. If there is an increase in the health expenditure management scheme by 1%, it will reduce health expenditure per capita by 0.0713 percent.

The coefficient value (β 5) = -0.5456 can be interpreted as the consumption variable having a negative effect on health expenditure per capita. If there is an increase in consumption by 1%, it will reduce per capita health expenditure by 0.5456 percent.

Middle-income countries and above

The coefficient value (β1) = 0.0204 indicates that a number of population variables positively impact health spending per capita; for example, if the population grows by 1%, health expenditure will grow by 0.0204 percent. The coefficient value (β2) = 0.965 indicates that the GDP variable positively impacts health spending; if GDP increases by 1%, health spending per capita will rise by 0.965%.

The coefficient value (β3) = 0.965 can be seen as domestic spending scheme variables having a positive effect on health expenditure per capita; if the domestic health expenditure scheme is increased by 1%, health expenditure per capita will also grow by 0.965 percent.

According to the coefficient value (β4) = 0.32771, the health expenditure financing scheme variable positively impacts per capita health expenditure. For example, if the health expenditure management scheme is increased by 1%, per capita health expenditure will rise by 0.32771 percent.

The coefficient value (β 5) = -0.000214 can be interpreted as the consumption variable having a negative effect on health expenditure per capita. If there is an increase in consumption by 1%, it will reduce per capita health expenditure by 0.00214 percent.

The coefficient value (β5) = -0.000214 indicates that the consumption variable has a negative impact on per capita health expenditure; for example, a 1% increase in consumption will result in a 0.00214 reduction in per capita health cost.

Discussion

The results of the estimates show that there are differences in the results of the analysis based on the classification of countries with different coefficient values. The number of populations in developed countries has a significant negative effect. This is due to demographic factors where countries with high income tend to be in demographic traps where fertility rates are low, high dependency ratios, and population aging where there is an increase in the number of residents.

The trend of an increasing population aged more than 65 in developed countries significantly impacts the decline in health expenditure. Population aging and decreased fertility will have an increased impact on the dependency ratio, so it impacts increasing health budgets. But the opposite condition occurs in developed countries. The increase in the elderly population reduces health expenditure per capita. This condition cannot be separated from health services in high-income countries and health infrastructure, so the risk of health decline can be reduced. In addition, although the dependency ratio is high, with high-income per capita conditions, it does not burden their health budgets (Vande Maele et al., 2019).

This condition can be seen from the average health expenditure in countries with high incomes and high middle incomes. Those countries have regulations on the efficiency of health expenditures. This is not in line with the catechism in low- and lower-middle-income countries; significantly, the number of residents in some low-income countries responded positively where the increase in health expenditure is in line with the increase in the number of residents (Martin et al., 2021).

This impact can be explained by the increased health budget due to low life expectancy in areas of the country with low income, low access to health facilities, and an increase in the number of children under five, which is quite high. Although the increase in fertility in some low-income countries, this condition is not absorbed, or in this context, an increase in the number of young people has not been able to keep up with the growth rate of the labor force, increasing disruption (Kalleberg, 2020).

Poor health conditions impact the swelling of health budgets in some countries. The condition is getting worse when viewed from the condition of a high dependency ratio, especially in countries in the African region. The phenomenon of increasing the number of elderly people and increasing the number of toddlers will increase total healthcare spending, and an increase in the number of elderly residents will burden the "burden" of this condition by increasing taxes to pay for their healthcare (Buracom, 2016; Yang, 2020). Thus because individual healthcare spending generally increases with age, healthcare per capita spending can be predicted to increase with an aging population.

Literature studies related to increasing population aging have various impacts on health expenditures. This evidence is in line with statistical results that explain that increasing population aging will significantly impact care spending, as revealed by (de Meijer et al., 2013; Hanushek, 2013; Naidu & Chand, 2013). In the scenario of estimated population aging, which provides the analysis results, the population's aging does not directly increase healthcare spending. Differences in analysis proved that an increase in older people would increase the dependency and health budget ratios (Bloom et al., 2010; Wang, 2011; Carreras et al., 2018).

The difference in GDP is a benchmark for a country that will determine the amount of health expenditure, considering that developed countries have a higher allocation of health budgets (Piatti-Funfkirchen et al., 2018). Health budgets in lower-income countries have a significant impact on declining healthcare quality. The country's high national income and good economic conditions will improve health quality. Estimates show that low- and middle-income countries and lower-income health spending are significantly negative overall.

Empirical results prove that economic growth reduces the proportion of health expenditures, whereas increased economic growth will reduce health expenditures. This condition is explained by the condition of the health budget in one country, especially in most developing countries that, on average, have a relatively low proportion of health expenditure to GDP; this condition generally affects the amount of health expenditure allocated (Dreger & Reimers, 2021; Grigoli & Kapsoli, 2013).

Variable economic growth is dynamic where the state of increased output also has not determined the amount of allocation of health expenditures budgeted by most countries. This is in line with empirical results in income countries that result in economic growth lowering health expenditures (Cima & Almeida, 2018; Paitoon Kraipornsak, 2017). This proves that high-income countries prioritize smaller health budget allocations over other budgets.

In contrast with the results of estimates in countries with middle incomes and above, which proved GDP has a positive and significant effect on health expenditure per capita. In general, this condition is explained by the phase of economic development where countries that experience development will prioritize infrastructure improvement, especially in the health sector (Bayar et al., 2021).

Empirical studies prove that economic growth has a good relationship in the short and long term to Baltagi et al. (2016) and Esen & Çelik (2022), with the approval results showing the unidirectional causality of health expenditures to economic growth in the short term. The long-term relationship between related variables and the short-term relationship between health spending and economic growth demonstrates the importance of investment in health care services. This economic growth can be regarded as a driver of investment in the health sector, so the government's allocation of health expenditures from the budget must be increased.

Government spending schemes are categorized into two, namely, based on domestic schemes and financing. Empirically it shows that low- and middle-income countries emphasize health spending schemes based on financing. This settlement is generally done due to the need for private financing to increase health expenditures (Kouassi et al., 2018). Government policies related to health expenditure financing schemes vary by country. This condition is inseparable from every individual or group of residents obtaining health services through various financing arrangements. It involves various third-party schemes, but also, according to the agreement, payments are made directly by the household (Dreger & Reimers, 2021; Xu et al., 2019).

Government funding programs, whether at the national or subnational level or for certain population groups, provide access to health care based on domicile and serve as the main payment method for medical expenses in practically all low- and middle-income nations. Some mandatory health insurance (administered through a public or private agency) is another important financing strategy. A significant portion of total health spending may be made up of out-of-pocket expenses, both at the consumer's complete choice and due to various co-payment plans. Last but not least, optional health insurance can also be a significant source of revenue in some nations (Ndaguba & Hlotywa, 2021; Obrizan & Wehby, 2018; Piabuo & Tieguhong, 2017).

Unlike high-income countries that consequently emphasize domestic financing, this is supported by the state of the country's economy to increase the health budget proportion. Utilizing a domestic spending plan, the health expenditure plan is dependent on the level of priority, with the domestic plan being the main priority in relation to public health services, the supervision and management of non-communicable diseases, administration, examination, operation, or support of public health services such as blood bank operations (collection, processing, storage, delivery), disease detection (cancer, tuberculosis, venereal disease), prevention (immunization, inoculation, vector control), monitoring (infant nutrition, child health) information gathering and birth control services preparation and dissemination concerning issues with public health (De La Maisonneuve & Martins, 2014) as well as public health services that are not provided by medically qualified doctors and public health service laboratories.

The difference in the estimation results based on the country classification in the regression analysis above shows that the probability of developed countries in determining the priority level of determinants of health spending place more emphasis on the level of health services as a whole. In comparison, developing countries emphasize improving health services internally, focusing on control, monitoring, and improving epidemic detection and control.

Consumption is one of the determinants of a country's health expenditure. The higher the consumption of a country will impact increasing health expenditure. But in comparison, the results found that the tendency of low-income countries is in line with the increase in consumption where the increase in their consumption is used to increase the proportion of health expenditures; thus, health expenditure per capita increases (Çelik et al., 2022; Nghiem & Connelly, 2017). In other country classifications such as middle and low, high and middle countries, and above, the increase in consumption has the opposite response, where the increase in overall consumption decreases health expenditure per capita. This condition is explained based on the consumption of each country which can be said to vary and depends on the income characteristics of the country (Panopoulou & Pantelidis, 2012).

This phenomenon can be explained empirically based on the country's health expenditure heterogeneity determined by the community's purchasing power. Consumption of people such as low-income countries with lifestyles tends to be consumptive and unhealthy. In addition, in the context of macroeconomics (Amiri et al., 2021), the increase in consumption was driven by demographic factors such as infant mortality (health outcomes), dependency ratio, the labor participation rate for women (demographic indicators), and alcohol consumption (lifestyle indicator).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The research explicitly discusses health expenditure schemes from the domestic side and financing and macroeconomic variables such as population, GDP, and consumption of health expenditures claimed by the country's income level. Panel data regression divides it into low-income, lower-middle-income, high-income, and upper-middle-income countries. The results showed relatively significant differences between the determinants of health expenditure variables, including variable populations in low-middle-income countries. The positive and significant influences on middle-income countries, whereas high-income countries have a negative and significant influence. As for the overall GDP variable, low-income, lower-middle, and advanced countries negatively and significantly influence health care.

For middle-income countries have a positive and significant influence on health spending. Variable consumption in low-income countries was shown to determine an increase in health spending, while in other countries classification, increased consumption determined a decrease in health spending. The classification of schemes from the analysis results proves differences in the findings that low and lower-middle-income countries emphasize moderate financing schemes for countries. At the same time, countries with upper-middle and high incomes emphasize domestic spending schemes.

Recommendations

Differences in health expenditure between countries are due to the differences in macroeconomic indicators of each country's classification. The analysis shows a high gap in each regional classification, especially in low-income countries with a high population, low GDP, and high government consumption. Thus, a priority policy is needed to allocate health budgets prioritizing health services with high categories rather than increasing health insurance and guarantees. In addition, the focus on each country emphasizes more policies on financing schemes based on expenditure priorities. Thus health expenditures can be more suppressed and on target so that the increase in health expenditure is in line with improving health care quality. In the future, in looking at the tension of the factors that make up the difference in spending on health variables with different country classification conditions, we can update research methods using long and short-term schemes with the VCEM or VAR approach. We can see the relationship between the two of each variable in the factors that affect Health Expenditure because this article only reveals a unidirectional relationship and does not clarify the long-term scheme of the results of this article.

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Exploring the determinants of NEET youth in Jambi Province: A socioeconomic perspective

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Abstract
This study aims to analyze: 1) the socioeconomic characteristics and NEET (Not in employment, education, or training) status of young individuals in Jambi Province; 2) the determinants influencing the NEET status of young people in Jambi Province. The data utilized in this study is derived from a survey conducted in four sample villages within Jambi Province, consisting of 200 young participants. Descriptive statistical tools, single-frequency and cross-frequency tables, and binary logit regression are employed for analysis. The findings of the study reveal that: 1) NEET youth, when compared to non-NEET youth, tend to be older, have a higher proportion of females, possess higher education levels, are more likely to be married, are predominantly non-migrants, and have fewer siblings or step-siblings; 2) The parents of NEET youth, in comparison to non-NEET youth, generally have higher incomes and predominantly belong to non-Malay ethnicities in Jambi. 3) Factors significantly impacting the categorization of youth as NEET include gender, education, marital status, and parental income.

Keywords: *NEET, Socioeconomic determinants, Youth population*

JEL Classification: I25, J21, J64

INTRODUCTION

By 2030, Indonesia is projected to undergo a demographic bonus, characterized by a larger working-age population than the non-working-age population, resulting in a decrease in the dependency ratio to 46.9 percent (Kementrian PPN/ Bappenas, 2017). This demographic bonus presents an opportunity to increase per capita output. However, this potential will not be fully realized without policies that enhance the participation of the young workforce (Crombach & Smits, 2022). In essence, the demographic bonus comes with its challenges. Failure to capitalize on the demographic bonus may increase economic burdens and unemployment.

Limited decent work opportunities for young people (aged 15-24 years) have emerged as a global issue (Kovrova & Lyon, 2013). Consequently, the youth labor market has become a significant concern in most countries as youth unemployment rises (Scarpetta et al., 2010).

The Open Unemployment Rate is a common indicator of youth unemployment. However, this metric only accounts for individuals within the labor force and does not encompass young people outside this group. The International Labour Organization (ILO) developed the NEET (Not in employment, education, or training) indicator to address this, representing young individuals not engaged in employment, education, or training (Wickremeratne & Dunusinghe, 2018). Reducing the proportion of NEET individuals is a crucial agenda for achieving the Sustainable Development Goals (SDGs) (Elder, 2015).

NEET differs from youth unemployment, as it includes all young people (aged 15-24 years) who are neither employed nor enrolled in education or training programs. NEET can be divided into unemployed NEET and inactive NEET. Unemployed NEETs comprise young individuals who are not working but are actively seeking employment, preparing a business, have been accepted for a job but have not started working, or have a business that has not yet commenced operations. Inactive NEETs, on the other hand, consist of young people who are neither employed nor participating in education or training and are not actively seeking employment or willing to accept work (Eurofound, 2016; ILO, 2017; Odoardi, 2020; Quarta, 2021).

However, this simplistic categorization may result in ineffective NEET abatement policies due to the highly heterogeneous characteristics of NEET individuals (Chen, 2011). Furlong (2006) suggests that policies targeting more vulnerable groups would be more effective if they consider the diverse characteristics of NEET populations.

Within this context, European countries have established five classifications for NEET individuals (Eurofound, 2016): (1) conventionally unemployed: those who are not working due to a lack of available jobs; (2) unavailable or carers-cared: those who do not have time to work, such as young housewives responsible for childcare at home; (3) opportunity-seekers: young people who actively seek work or training, but only pursue opportunities they perceive as commensurate with their skills and status; (4) discouraged: a group that has lost motivation to search for work; and (5) voluntary: young people who engage in alternative lifestyles, such as adventure or travel, and other activities like art, music, and more.

In addition to these classifications, Salvà-Mut et al. (2018) conducted research in Spain that identified three sub-groups of NEET individuals: (U) unemployed, (D) discouraged, and (C) carers-cared categories. This study will also utilize this grouping structure.

NEET represents a significant issue due to its social and economic impacts, which include social exclusion, marginalization, decreased mental health, criminal activity, and permanent unemployment. Furthermore, it leads to the loss of potential human capital from the young population for future economic development (Alonso et al., 2022; Felaco & Parola, 2022; Fougère et al., 2009; Heckman et al., 2018; Jongbloed & Giret, 2022; Maguire et al., 2013; Noh & Lee, 2017; Simões et al., 2021). In recent years, the proportion of youth not engaged in education, employment, or training (NEET) has significantly increased in many European countries (Quintano et al., 2018). This has resulted in substantial macroeconomic losses, with some countries experiencing losses of up to 1.21 percent of their Gross Domestic Product (GDP) (Eurofound, 2016).

Indonesia has the highest NEET rate in Asia (ILO, 2017), with a proportion of 21.7 percent. This figure is considerably higher than that of Malaysia at 12.5 percent, Thailand at 14.8 percent, and Vietnam at 8.3 percent. Consequently, addressing the high percentage of NEET in Indonesia is paramount.

Jambi Province in Indonesia has a relatively high proportion of young individuals with NEET status. According to 2021 data, the NEET proportion accounts for 21.76 percent of the total population aged 15-24 years, which amounts to 512,952 people (BPS, 2021). In other words, 111,618 residents aged 15-24 should have been engaged in education but did not receive it. Additionally, they were not absorbed into the job market and did not participate in economic activities.

Various studies have investigated the determinants of the young NEET population. Bynner & Parsons (2002) found that transitioning from school to an unfavorable work period was the primary factor causing young individuals to become NEET. Salvà-Mut et al. (2018) identified a connection between various macro, meso, and micro factors as determinants of youth NEET status in Spain. In line with this, Vancea & Utzet (2018) found that environmental factors influenced the likelihood of young individuals becoming NEET. The probability of youth becoming NEET tends to be higher in environments with elevated unemployment rates. Prasad (2013) also discovered a mismatch between skills and industry needs, resulting in youth unemployment.

Riphahn (2002) determined that gender, marital status, and regional and local labor market characteristics influence young people's decisions when transitioning from school to work. Young married women living in rural areas with high unemployment rates tend to be less active in the labor market. Concerning marital status, Salvà-Mut et al. (2018) and Sziraczki & Reerink (2004) found that cultural factors in Indonesia significantly influence the likelihood of married women becoming inactive or carers-cared NEETs. The gender-based division of roles, particularly in rural areas, requires young mothers to focus on family care, childcare, and avoiding work outside the home.

Riphahn (2002) also identified a link between economic and migration factors as determinants of NEET status. Economic constraints hinder young people from relocating to areas with greater job opportunities. In line with these economic factors, Chen (2011) found that economic disadvantages prevent young individuals from continuing their education or participating in job training, leading them to be categorized as discouraged NEETs.

Moreover, Gaffari & Handayani (2019) discovered differences in the effects of socio-demographic factors and regional and labor market indicators on the likelihood of youth becoming unemployed, discouraged, and carers-cared in Indonesia. NEET carers are predominantly teenage girls (15-19 years old), married, with low education levels, coming from low-income families, and residing in rural areas with high unemployment rates. Unemployed individuals are mostly teenage boys (15-19 years old), single, with higher education levels, and living in urban areas. Discouraged individuals share similar characteristics to the unemployed but have lower education levels.

Quarina (2017) found that age is one of the determining factors for NEET status. The younger youth group (15-19 years old) tends to become NEET. However, the older adolescent age group (20-24 years) is more vulnerable to becoming NEET.

In light of these findings, appropriate policies are needed in Jambi Province to reduce the NEET rate. Given the heterogeneity of young NEETs, it is essential to identify their socioeconomic characteristics, status, and the determinants of becoming NEETs to formulate suitable policies. The characterization and identification of NEET determinants aim to facilitate the early detection of individuals at risk of becoming NEET and to gather information about the challenges young people face when attempting to leave NEET status.

METHODS

The primary data used in this study consists of data collected from young people (15–24 years) sampled in Jambi Province. The population in this study includes all young people (15-24 years) in Jambi Province, without distinguishing between NEET and non-NEET individuals. The main unit of analysis is the young NEET population, while the non-NEET youth serves as the comparison group for the analysis.

The sample frame used consists of two types: the sample frame for the first stage of sampling and the sample frame for the second stage. The first stage of the sample frame involves selecting villages in Jambi Province. The sample frame's second stage consists of selecting a sample of young people by choosing a sample of households with young residents.

The sampling method employed is stratified two-stage sampling. The first stage involves selecting sample villages to serve as research locations. Purposive sampling involves the following considerations and approaches: 1) Jambi Province has 11 regencies/cities, which can be geographically divided into East and West regions. Jambi City represents the Eastern Region of Jambi Province as the district/city with the highest proportion of young people in the Eastern region. Bungo Regency represents the Western Region of Jambi Province as the district/city with the highest proportion of young people in the Western region; 2) From each selected district/city, two villages with the largest number of young people are determined. Information on the village to be selected is based on data from the BKKBN, referring to family data collection data. The second stage involves selecting a sample of 50 households with a young population in each village. Sampling is carried out by random sampling with the following stages: 1) Listing households with a young population in each village, based on family data collection conducted by the BKKBN in 2019; 2) Randomly selecting 50 households with young residents in each village using RNG (Random Number Generator) software; 3) If there is more than one young person in the household, one young individual is selected through simple random sampling.

The instrument for collecting data on a sample of young people utilizes a questionnaire. Furthermore, descriptive statistical tools and single-frequency tables are used to analyze the young population's socioeconomic characteristics. To explore the socioeconomic determinants that affect young people with NEET status in Jambi Province, a binary logit regression model is employed with the following equation:

$$g(x_i) = \ln\frac{P(x_i)}{1-P(x_i)} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_{3.D1} X_{3.D1} + \beta_{3.D2} X_{3.D2} + \beta_{.4} X_4 + \beta_{.5} X_5 +$$
$$\beta_{6.D1} X_{6.D1} + \beta_{6.D2} X_{6.D2} + \beta_{7.D1} X_{7.D1} + \beta_{7.D2} X_{7.D2} + \beta_8 X_8 + e \qquad (1)$$

Where:

P(xi) = probability of being a NEET, 1- P(xi) probability of not becoming a NEET)

X1 = Age (years)
X2 = Gender (0 = male; 1 = female)
X3 = Formal education (with the basic category of junior high school and below):
X3.D1 1 = < SLTA; 0 = other: X3.D2 1 = PT; 0 = other
X4 =Married status (0 = single, 1 = married)
X5 = Migrant status (0 = non-migrant, 1 = migrant)
X6 = Number of siblings (with basic category 0 – 1):
X6.D1 1 = 2- 3; 0 = others: X4.D2 1 = > 4; 0 = other
X7 = Per capita family income (IDR per month), with the basic category <IDR 500,000:
X7.D1 1 = 500,000 - < 1,000,000; 0 = other:
X7.D2 1 = >= 1,000,000; 0 = other
X8 = Tribe, (0 = Not Jambi Malay, 1 = Jambi Malay),

RESULT AND DISCUSSION

Characteristics of Non-NEET and NEET young population in Jambi Province

Out of 200 respondents aged 15-24, this study identified 49 (24.50%) in the NEET category and 151 (75.50%) in the non-NEET category. Figure 1 presents the characteristics of the youth population by age group, gender, and marital status.

The age group distribution indicates that the youth population in the NEET category is predominantly in the 20-24-year age range. Moreover, the gender distribution of the youth population demonstrates that females are more likely to be classified as NEET than non-NEET. Of the total NEET population, 83.67% are female, and 16.33% are male. An analysis of the marital status of youth reveals that the proportion of married individuals is higher among NEET youth than non-NEET youth.

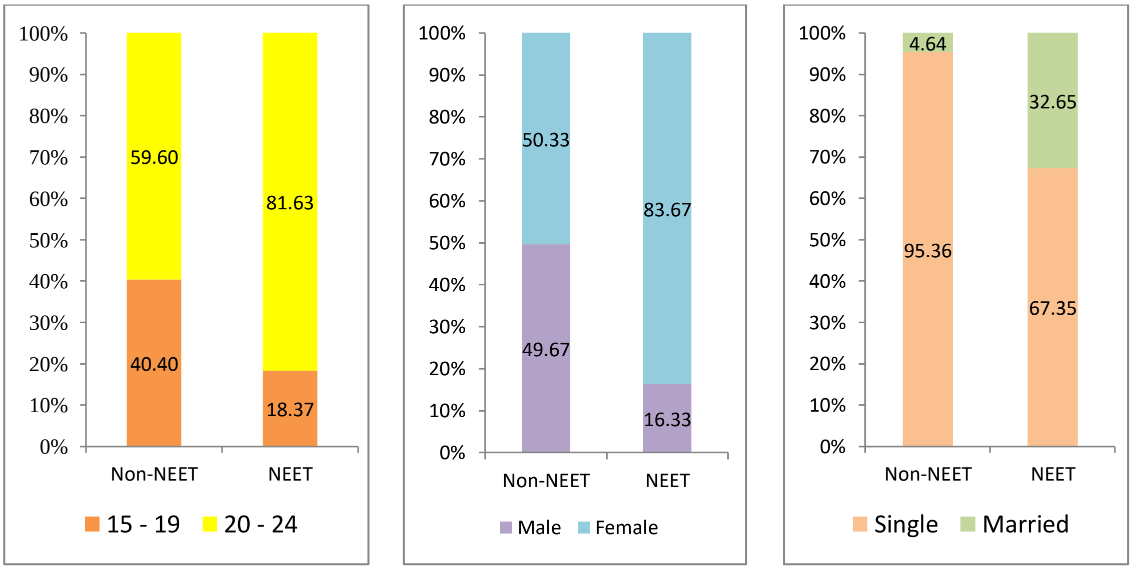

Figure 1. Non-NEET and NEET young population by age, gender, and marital status in Jambi Province, 2022

Table 1 demonstrates that youth in the NEET category tend to have higher education levels than non-NEET youth. More than a quarter (28.57 percent) of NEET youth have tertiary education (D1 – Masters), whereas only 12.57 percent of non-NEET youth have tertiary education (S1 – Masters).

Table 1. Non-NEET and NEET young population by education in Jambi Province, 2022 (%)

Completed highest education	NEET Status		
	Non- NEET	NEET	Total
Junior high school	18.54	6.12	15.50
High school	51.66	46.94	50.50
Vocational High School	17.22	18.37	17.50
Diploma I-III	1.32	4.08	2.00
DIploma IV	0.66	4.08	1.50
Bachelor	9.93	20.41	12.50
Magister	0.66	0.00	0.50
Total	100.00	100.00	100.00

Analyzing family size and sibling distribution can provide valuable insights into the NEET and non-NEET youth populations. Table 2 demonstrates that non-NEET youth have a higher average number of siblings (2.47 individuals) than NEET youth (2.35 individuals).

Table 2. Non-NEET and NEET young population by the number of siblings/step-siblings in Jambi Province, 2022 (%)

Number of siblings/step-siblings	NEET Status		
	Non- NEET	NEET	Total
0 - 1	23.18	24.49	23.50
2 - 3	59.60	55.10	58.50
4 +	17.22	20.41	18.00
Total	100.00	100.00	100.00
The average number of siblings/step-siblings	2.47	2.35	2.44

Table 3 presents the migration status of youth, categorizing youths as migrants if they have lived outside their current district/city in the last five years. Based on this, the proportion of NEET youth with migrant status (10.20 percent) tends to be lower than that of non-NEET youth (11.92 percent).

Table 3. Non-NEET and NEET young population by place of residence 5 Years in Jambi Province, 2022 (%)

Completed the highest education	NEET Status		
	Non- NEET	NEET	Total
Same district/city	88.08	89.80	88.50
Different districts/cities	9.27	8.16	9.00
Different province	2.65	2.04	2.50
Total	100.00	100.00	100.00

Table 4, based on maternal ethnicity and comparing Jambi Malay ethnicity with other ethnic groups, shows that the proportion of mothers with Jambi Malay ethnicity is greater among non-NEET youth than NEET youth.

Table 4. Non-NEET and NEET young population by mother's tribe, Jambi Province, 2022 (%)

Mother's tribe	NEET Status		
	Non- NEET	NEET	Total
Java	(35.76)	(38.78)	(36.50)
Jambi Malay	(35.10)	(34.69)	(35.00)
Minangkabau	(12.58)	(16.33)	(13.50)
Batak	(5.96)	(10.20)	(7.00)
Other	(10.60)	(0.00)	(8.00)
Total	100.00	100.00	100.00

Examining parental income can illuminate the socioeconomic factors influencing the NEET and non-NEET youth populations. Table 5 details parents' income, revealing that the average income of parents of NEET youth is greater than that of parents of non-NEET youth.

Table 5. Non-NEET and NEET young population by parental income in Jambi Province, 2022 (%)

Number of siblings/step-siblings	NEET Status		Total
	Non- NEET	NEET	
<= 2.500.000	(21.85)	(8.16)	(18.50)
2.500.000 - 5.000.000	(54.30)	(59.18)	(55.50)
> 5.000.000	(23.84)	(32.65)	(26.00)
Total	100.00	100.00	100.00
Average (IDR)	4,779,470	5,612,244	4,983,500

The average income of parents of non-NEET youth is IDR 4,779,470 per month, while the income of parents of NEET youth is IDR 5,612,244 per month. The higher income of the NEET youth's parents suggests that a person's willingness to search for a job for a longer period, in line with their expectations, is also determined by the support/guarantee from their parents when they are still unemployed.

The socioeconomic determinants of youth becoming NEET

Overall Model Fit Test

Table 6 presents the Overall Model Fit test for the model. Based on the Omnibus Test of Model Coefficients, the Chi-Square statistic is 57.864, with a significance probability (p) of 0.000. This result indicates that the independent variables in the model collectively impact the young population's decision to have NEET status.

Furthermore, the Hosmer and Lemeshow test yields a Chi-Square value of 5.943, with a p-value of 0.645. Since the Chi-Square value is insignificant ($p > 0.05$), it can be concluded that the predicted probabilities align with the observed probabilities. In other words, there is no difference between the model and the data, suggesting that the model is a good fit.

Table 6. Overall model fit test for the NEET determinant model

	Chi-square	df	Sig.
Omnibus Test of Model Coefficients	57,864	11	,000
Hosmer and Lemeshow Test	5,943	8	,654

Furthermore, Table 7 displays the 2 x 2 classification table, demonstrating how well the model classifies cases into two groups: NEET and Non-NEET. The overall prediction accuracy is 78.0 percent, with the prediction accuracy for Non-NEET at 91.4 percent and for NEET at 36.7 percent. This means that the model's accuracy in predicting the probability of youth being Non-NEET is relatively higher than the accuracy in predicting the probability of youth being NEET.

Table 7. Classification 2 x 2 for the NEET determinant model

Observation		Prediction		
		Category		
		Non-NEET	NEET	Correct Percentage
Category	Non-NEET	138	13	91,4
	NEET	31	18	36,7
Overall Percentage				78,0

Model coefficient estimation and partial hypothesis testing

Table 8 presents the estimation of the model coefficients and partial hypothesis testing of the model. In the logit model, the coefficients indicate the change in the log resulting from a one-unit change in the independent variable. The correct interpretation of these coefficients depends on understanding the difference between the two logits. Therefore, the logit model uses a measurement known as the odds ratio (ψ). The odds ratio can be formulated as $\psi = e^\wedge\beta$, where e is the number 2.71828, and β is the coefficient of each variable.

For categorical independent variables, the odds ratio interpretation shows the probability/chance/likelihood difference between a category and the base category (category with a value of 0). If the odds ratio is less than one, it indicates a lower/smaller chance than the base category. On the other hand, if the odds ratio is greater than one, it indicates a higher/bigger chance compared to the base category.

For continuous independent variables, the odds ratio interpretation shows the difference in probability/chance/likelihood between a value and a value one level below it. If the odds ratio is less than one, it indicates a lower/smaller chance compared to the value at the level below. Conversely, if the odds ratio is greater than one, it indicates a higher/bigger opportunity compared to the value at the level below.

Table 8. NEET determinant model parameter estimation

	B	S.E.	Wald	df	Sig.	Exp(B)	Information
X1(1)	-,140	,550	,065	1	,799	,869	Age (20-24)
X2(1)	1,455	,475	9,397	1	,002	4,285	Gender (Female)
X3			5,725	2	,057		Education
X3(1)	1,388	,758	3,355	1	,067	4,008	High school
X3(2)	2,190	,920	5,668	1	,017	8,938	College
X4(1)	2,456	,634	14,987	1	,000	11,657	Marital status (married)
X5(1)	,036	,639	,003	1	,956	1,036	Migrant status (migrant)
X6			2,567	2	,277		Number of siblings/step-siblings
X6(1)	-,021	,493	,002	1	,966	,979	2 – 3 persons
X6(2)	,920	,687	1,793	1	,181	2,508	> 3 persons
X7			10,936	2	,004		Family income
X7(1)	2,370	,718	10,900	1	,001	10,698	500.000 - < 1.000.000
X7(2)	1,910	,762	6,280	1	,012	6,750	>= 1.000.000
X8(1)	-,025	,431	,003	1	,954	,975	Tribe (Jambi Malay)
Constant	-5,758	1,139	25,558	1	,000	,003	

Additionally, the ordinal logit regression model is interpreted by examining each variable's significance and odds ratio value. There is no difference in the likelihood of becoming a NEET between youth aged 20-24 and those aged 15-19 (as the reference category), as indicated by the insignificant Wald test in this age group. This contrasts with the findings of Bisht & Pattanaik (2022) and Quintano et al. (2018), demonstrating an increased likelihood of becoming a NEET with age.

Females have a higher probability of becoming NEETs compared to males. The odds ratio reveals that females have a 4.285 times greater probability of becoming NEET than males (as the reference category). This finding aligns with prior research, which indicates a higher likelihood of females becoming NEET and suggests the presence of gender discrimination in the labor market (Lüküslü & Çelik, 2022; Odoardi et al., 2022; Quintano et al., 2018; Ralston et al., 2022).

Higher education levels are associated with a greater likelihood of youth becoming NEETs. Individuals with a high school education have a 4.008 times greater probability of becoming NEET than those with a junior high school education or lower (as the reference category). Moreover, youth with tertiary education have an 8.938 times greater probability of becoming NEET than those with junior high school education or lower. These findings are consistent with previous research and highlight the low job market absorption for better-educated job seekers (Caroleo et al., 2022; Gladwell et al., 2022; Salvà-Mut et al., 2018; Tamesberger & Bacher, 2014).

Married youth are more likely to become NEETs compared to unmarried youth. Married youth have an 11.657 times greater probability of becoming NEET than unmarried youth (as the reference category). This is consistent with previous findings that show married youth, particularly women, tend to have a higher probability of becoming NEET due to conflicts between managing the household and pursuing careers (Dicks et al., 2022; Naraswati & Jatmiko, 2022; Saputri & Setyodhono, 2019).

No difference exists in the likelihood of becoming a NEET between youth with migrant status and non-migrant status (as the reference category). This concurs with the observation that parents' ethnicity (particularly maternal ethnicity) does not influence the likelihood of youth becoming NEET or non-NEET. This contrasts with the findings of Quintano et al. (2018) that indicate a higher likelihood of becoming a NEET among migrants.

The number of siblings/step-siblings does not impact the likelihood of becoming a NEET or non-NEET, as evidenced by the insignificant Wald test on the variable number of siblings across various categories. This differs from prior research suggesting family size affects the probability of NEET or non-NEET (Furlong, 2006; Mendolia & Walker, 2015).

Moreover, family income significantly influences the likelihood of youth becoming NEET or non-NEET. Young people from families with a per capita income between 500,000 and under 1,000,000 face a 10,698 times higher risk of becoming NEET than those with incomes below 500,000 (as the reference group). Additionally, youth from families with an income equal to or greater than 1,000,000 have 6,750 times higher chances of becoming NEET than those with incomes below 500,000. This is consistent with prior research (Cabral, 2018; Furlong, 2006; Pitkänen et al., 2021; Rak, 2021), which indicates that parents' income and family economic conditions affect the likelihood of youth becoming NEET or non-NEET.

Parents' ethnicity, particularly the mother's ethnicity, has no significant impact on the chances of youth becoming NEET or non-NEET, as evidenced by the insignificant Wald test on this variable.

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CONCLUSION AND RECOMMENDATION

Conclusion

Compared to non-NEET youth, NEET youth are characterized by being older, having a higher proportion of women, and possessing a higher level of education. Additionally, they have a greater proportion who are married, a higher proportion of non-migrants, and fewer siblings or step-siblings.. Furthermore, the factors that significantly affect youth being categorized as NEET are gender, education, marital status, and parents' income.

Gender plays a significant role, with females having a higher probability of becoming NEET than males, indicating the presence of gender discrimination in the labor market. Higher educational attainment increases the likelihood of youth becoming NEET, reflecting the low absorption of better-educated job seekers in the job market. Married youth are more likely to become NEET than unmarried youth, particularly due to conflicts between managing household responsibilities and pursuing careers. Family income significantly affects the chances of youth becoming NEET or non-NEET, with higher income levels increasing the probability of NEET status.

Recommendation

Based on the research findings, the following recommendations are proposed to reduce the prevalence of NEET among youth: 1) Implement policies that address gender discrimination in the labor market and promote equal opportunities for both male and female job seekers; 2) Enhance career guidance and counseling programs to help youth make informed decisions regarding their education and career paths, taking market demands into account; 3) Develop programs to support married youth in balancing household responsibilities and career aspirations, particularly targeting women who face challenges in managing both roles; 4) Design targeted interventions to support youth from economically disadvantaged backgrounds, aiming to increase their likelihood of becoming non-NEET; 5) Foster collaboration between educational institutions and employers to better align educational offerings with the job market's needs, ensuring a smoother transition from education to employment for youth.

This study has limitations, as the analysis primarily focuses on the quantitative factors influencing NEET status. Consequently, it is recommended that future research supplement NEET studies with qualitative aspects, such as exploring the motivation behind youth becoming NEET. Additionally, future research should investigate the impact of other potential factors, such as geographical location and access to resources, on the probability of youth becoming NEET or non-NEET.

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Determinants of performance improvement of Micro, Small, and Medium Enterprises (MSME) in the border market of North Timor Central District – Timor Leste

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Abstract

This study examines the impact of financial literacy, technological innovation, government support, and subjective norms on the performance of Micro, Small, and Medium Enterprises (MSMEs) in the North Central Timor District (TTU)-Timor Leste Border Market. Furthermore, it seeks to identify appropriate strategies for enhancing MSME performance in this region. Both multiple linear regression analysis and descriptive analysis were employed as research methods. The study population included all MSMEs in the TTU District, totaling 693 entities. The researchers employed a purposive sampling technique based on the Slovin formula, selecting 80 respondents as research samples. The findings indicated that technological innovation, government support, and subjective norms significantly affect MSME performance in the TTU-Timor Leste Border Market. To improve the performance of MSMEs, various strategies can be implemented. These encompass the enhancement of financial literacy through training and mentoring programs, adopting e-commerce within the digital economy, and improving human resource quality and product standards. Other strategies include fostering partnerships among institutions, cultivating an investment-friendly bureaucracy, implementing product labeling, establishing legal business associations, and promoting motivation and self-confidence.

Keywords: *Border markets, Financial literacy, Government support, MSME performance, Subjective norms, Technological innovation*

JEL Classification: L25, M21, O32

INTRODUCTION

The role of the Micro, Small, and Medium Enterprises (MSMEs) sector in Indonesia is an important part of supporting the national economy. Historical reports show that when Indonesia went through a monetary and economic crisis in 1998, MSMEs were at the forefront of the country's economy. At that time, when most of the large capital-intensive companies operating in the import-export sector went bankrupt, the MSME sector was able to survive. It became the main pillar of the national economy. It also occurred in 2007-2008, when many countries experienced the global financial crisis. Indonesia was no exception, as MSMEs became the economy's savior in absorbing the number of workers, reducing poverty, and maintaining community purchasing power. (Pratiwi, 2020).

Indonesia is the largest country in the ASEAN region, with a total number of SMEs of 65.46 million units. The quantity of MSME ownership is much higher than Thailand, which is in 2nd place with a total of 3.1 million, and Malaysia, which is only 1.2 million units. The high number of MSME owners has a multiplier effect on several macroeconomic variables, including being able to absorb 97 percent of the workforce, increase the contribution of the foreign trade sector by 14.4 percent towards total national exports, and contribute to the establishment of Gross Domestic Product (GDP) by 60.3 percent. However, if we investigate closely, the high ownership of MSMEs is not directly proportional to the performance of MSMEs in aggregate. For example, Myanmar, which only has 72,700 MSMEs, can contribute 69.3 percent of the Gross Domestic Product (GDP). Another indicator is Indonesia's export performance from the output of MSME products nationally, which was recorded at 14.4 percent, still lower in value than Singapore at 38.3 percent, Thailand at 28.7 percent, Myanmar at 23.7 percent, and Vietnam at 18.7 percent (Ahdiat, 2022).

The factual conditions described above showed that MSMEs in Indonesia, in their development, also encounter various obstacles, both internal and external. One of the causes is that most of the MSMEs fell when the world was faced with the Covid-19 virus. In medical science, Corona Virus Disease in 2019, also known as COVID-19, is a new disease caused by a virus from the coronavirus group, namely SARS-CoV-2. This contagious virus attacks humans' lungs, so the patients experience fever, flu, dry cough, shortness of breath, and death (Amri, 2020).

The initial spread of this virus began in Wuhan, China, at the end of December 2019 and then spread massively and rapidly to all parts of the world, including Indonesia. Data released by the COVID-19 Response Acceleration Task Force (Indonesian: *Gugus Tugas Percepatan Penanganan COVID-19*) showed that starting from March 2, 2020, the first case entered Indonesia until December 2022. The number of people suffering from the disease continues to increase until recently at 6,715,586 people suffering from the disease with 160,524 deaths. It can be said that the death rate for Covid-19 sufferers (the case fertility rate) in Indonesia is 2.39 percent. It is quite a large number and has claimed many lives and national assets that must be protected. Even though the number of sufferers has not grown as quickly and massively as when this virus first entered Indonesia in 2020, the government continues to try to break the transmission chain. Several policy scenarios are taken by the government, including lockdown policies, Large-Scale Social Restrictions (PSPB), Work From Home (WFH), and socialization of the implementation of health protocols. Moreover, they also pursue vaccination targets for the community in stages, starting from the first vaccine to the third vaccine, as well as allocating a budget as a form of a social safety net (Rosita, 2020).

The various policies implemented so far suggest that the government has a strong commitment and attitude to control the spread of the coronavirus, even though other urgent matters must be sacrificed. Inevitably, this situation has resulted in a condition where the government faces a dilemma. On one side, we want to save the sufferers and victims who continue to fall, but at the same time, the national economy continues to decline, and many people have even lost their jobs due to layoffs from companies. The national data shows that when Indonesia coexisted with Covid 19, the national economic situation experienced a severe shock. It was recorded that the value of economic growth, originally 5.02 percent in 2019, fell to 2.97 percent at the end of 2020. The decline in national economic growth was also caused by the decline in the performance of the MSME sector as the most dominant sector in absorbing labor and contributing to the composition of Indonesia's Gross Domestic Product (GDP). Research conducted by Faizi et al. (2022) revealed that based on data from the Ministry of Cooperatives and Small and Medium Enterprises, around 64,194,057 business units could absorb a total workforce of 116,978,631. This situation changed during the Covid-19 pandemic. 163,713 MSME business units were forced to go bankrupt due to the Covid-19 pandemic. It resulted in a significant increase in the unemployment rate. Among the 29 million total labor force, 7.07 percent are unemployed, equivalent to 9.77 million people who have lost their jobs (Rusman, 2021).

The uncertainty of the national economy due to the COVID-19 pandemic has also been felt directly by all aspects of society in East Nusa Tenggara (NTT) Province. The Central Bureau of Statistics of NTT Province (2021) noted that during the second quarter of 2020, economic performance experienced a significant slowdown and an economic contraction of 1.96 percent. The sluggish economic performance in NTT Province is inseparable from the contribution of the business sectors that construct the Gross Regional Domestic Product (GRDP), which also contracted. Out of the 17 (seventeen) types of business sectors, only the information and communication sector experienced positive growth (15.36%), financial services (12.32%), and the electricity and gas manufacturing sector (11.76%). Meanwhile, the types of business fields or primary sectors closely related to people's businesses and directly related to the activities of Micro, Small, and Medium Enterprises (MSMEs) experienced a deep contraction. These include the corporate services sector, which is contracted by (-3.5%), the accommodation and food supply sector (-42.36%), and the transportation sector (-23.22%).

On the other hand, leading sectors in NTT Province, such as the agriculture, livestock, fisheries, and forestry sectors, experienced stagnation, and their influence was quite significant in boosting the value of GRDP (Elim et al., 2021). The findings indicate that the decline in economic performance during the pandemic significantly affected the open unemployment rate. Initially recorded at 1.14% in August 2019, the rate rose to 4.28% by August 2020, representing an increase of 3.14% within a year. This escalation in the open unemployment rate corresponds to an additional 0.12 million unemployed individuals. (BPS, 2021a).

The NTT Provincial Government realizes that in the middle of the predicament experienced by all levels of society due to the Covid-19 pandemic, a series of cross-sector strategic policies are needed to support the real sector, including micro, small, and medium enterprises (MSMEs). The Office of Cooperatives, Labor, and Transmigration of NTT Province stated that as many as 4,157 MSMEs suffered losses and had lost 75 percent of their income during the Covid-19 pandemic. The MSME sector has received serious attention from the local government and the Central Bank (or Bank Indonesia) Representative Office in Kupang. It is because of the recognized contribution of MSMEs to the Gross Regional Domestic Product (GRDP) of NTT Province, which is 99 percent and absorbs a workforce of approximately 1.5 million people (Atmaja, 2020).

North Central Timor District (TTU) is one of the districts in the Province of NTT directly adjacent to the Democratic State of Timor Leste (RDTL). Geographically, those areas adjacent to neighboring countries certainly have promising economic potential for increasing people's welfare through trade activities. The cross-border trade route is one of the economic activities that contribute to the income of the community and the region. Community interest in border areas in carrying out investment and trading activities through the existence of Micro, Small, and Medium Enterprises (MSMEs) is classified as having a fairly good prospect. From 2016 to 2021, it was recorded that 2,222 small and medium business actors had business licenses and are still operating today (BPS, 2021b).

As part of efforts to revive trading in the goods and services sector, the Regional Government has prepared trading facilities spread equally across 24 sub-districts for 32 public markets, both in the sub-district center and villages with a strategic position in bringing together consumers and producers. There are three public markets located in border areas. These three markets are Wini Market, located in North Insana Sub-district; Napan Market, in North Bikomi Sub-district; and Haumeni Ana Market, located in Bikomi Nilulat Sub-district. All three are directly adjacent to Ambeno Oecusse District, Timor Leste. The existence of these three border markets plays an important role as a mediator in responding to the needs of the community, not only for the people of TTU Regency who live in the three sub-districts but also for Timor Leste residents who still depend on various supplies of necessities from Indonesia (Oki & Babulu, 2021). Besides, the presence of the border market is not only an effort to fulfill the necessity of goods and services through trade transactions between the two parties but also an important moment as a "Gathering" event for relatives who were separated due to different political choices after the referendum of Timor Leste in 1999. This is mainly because, in one week, trading activities in the border market are only carried out on certain days. For example, the Wini border market in North Insana Sub-district operates on Mondays, the Haumeni Ana market in Bikomi Nilulat sub-district operates on Saturdays, and the Napan border market in North Bikomi sub-district operates on Fridays (Oki, 2021).

The high level of economic and trade activity in the border area that brings together the people of the two countries results in a relatively high flow of goods, services, and money. The prevailing currency in trade transactions is not only the Indonesian Rupiah (Rp) but also the United States Dollar (US$) which is the currency of Timor Leste. Unsurprisingly, people in the border areas, known as traditional communities with rural characteristics, also use the US currency. This condition has caused many groups classified as capital owners to assume the role of Money Changer agents (PVA) with speculative motives in seeking profits. It can be said that the benefits felt by the community of micro, small, and medium enterprises (MSMEs) in border areas are high business opportunities and employment as well as income in supporting family economic welfare.

This situation drastically changed when the Covid 19 pandemic entered NTT Province in March 2020. Several residents were exposed to the deadly virus, so the government was forced to issue a Large-Scale Social Restrictions (PSPB) policy aimed at limiting the space for movement and mobility of the population. All activities were stopped, and public members were prohibited from socializing and carrying out other activities. This unpopular policy had to be taken by the government to break the chain of the spread of the coronavirus so that it greatly impacted the regional economy. The number of MSME actors in TTU Regency has stagnated, and not a few have gone bankrupt. Redjo et al. (2022) revealed that during the Covid-19 pandemic, the condition of MSMEs in North Central Timor Regency in general (90%) experienced a potential loss of income of 80% of sales turnover.

In general, the difficulty for MSMEs to develop is inseparable from conventional problems that have not been completely resolved. Some of the problems that are often encountered, such as limited access to financing, lack of understanding of financial literacy, low competitiveness, limited human resource capacity, difficulty accessing marketing, limited access to information technology, minimal local government support, low motivation, and various other important variables in determining the existence of success and business development (Rahayu, 2017).

Thus far, research on cross-border trade routes in the NKRI-Timor Leste Region by making MSME actors the main research object has never been conducted. The study by Oki & Burhanuddin (2020) is limited to explaining the effect of cross-border trade when viewed from social capital variables and institutional changes when mediated by accessibility variables. Furthermore, research by Patiung & Taus (2022) only looks at how cross-border trading activities affect the economic level of local communities. Moreover, Maia et al. (2020) research looks more at the political economy aspect by imposing cross-border restrictions for the community that it creates illegal trade routes and military domination in illegal levies.

There are several differences between the current study and previous studies. This research uses a more comprehensive analysis method to explore and find various problems in the development of the MSME sector in the border area of the Republic of Indonesia-Leste Timor. This is expected to provide a comprehensive picture to suggest inputs for local governments as public policymakers and to improve the performance of MSMEs. Local governments have an important role in which the role and function of this sector can provide a chain effect for employment, increase welfare, and regional economic growth.

METHODS

This research is experimental with a quantitative approach or inferential analysis to determine the partial and simultaneous effect of independent variables (Financial Literacy, Technological Innovation, Government Support, and Subjective Norms) on MSME Performance Variables as the dependent variable. Moreover, to explore further the quantitative findings, it is necessary to combine them with qualitative methods to look further at the various indicators that cause the presence or absence of the influence of each independent variable on the dependent variable. This is intended so that the researchers can provide appropriate policy recommendations following the real problems faced by the MSME community in border areas.

The research focused on MSME actors conducting business activities in the Indonesia-Timor Leste Border Market. The population in this study consisted of all MSME actors spread across three points in the border market area, namely Wini Market in North Insana Sub-District, Haumeni Ana Market in Bikomi Nilulat Sub-District, and Napan Market in North Bikomi Sub-District. The total population of the three markets is 693 MSME actors. The sampling technique used is Simple Random Sampling based on the Slovin formula so that 80 respondents are representatives of MSME actors from the three border markets and are the research sample. The criteria set in the sampling were MSME actors engaged in the creative industry trading business, having capital ownership of around Rp. 50 million - Rp500 million, having a business license still active and consistent as an MSME actor in the Border Market for the last 10 years. The size of the population and sample can be seen in Table 1.

Table 1. Determination of the number of research samples

No	Location	Population	sample
1	Wini Border Market, North Insana District	342	34
2	Haumeni Ana Border Market, Bikomi Nilulat District	215	26
3	Napan Border Market, North Bikomi District	136	20
	Total	693	80

Source: Department of Industry, Trade, and Cooperatives. TTU Regency year 2022.

The location of the Border Market, which is a place for MSME activities spread across three districts in the NKRI-Timor Leste border area. The population and research samples can be seen in the following map picture.

Source: Results of map design with the ArcGIS Application in 2022
Figure 2. Map of North Central Timor District and research locations

This study consists of primary data and secondary data. Primary data is obtained directly from MSME actors who are respondents to this study, while secondary data is obtained from government agencies such as publication documents. These documents are closely related to research, such as data on the number of MSME actors obtained from the TTU Regency Industry, Trade, and Cooperative Office, and economic growth data for NTT Province and TTU Regency obtained from the NTT Provincial Statistics Agency.

This study's most important data collection instruments were questionnaires, interviews, documentation, and direct observation. Each indicator attached to the research variables (Financial Literacy, Information Technology, Government Support, Subjective Norms, and MSME Performance) was arranged in positive statements to make it easier for respondents to answer. Each indicator in the research variable is used as a statement item which is the result of theoretical studies or previous research and is relevant to research requirements. The alternative answers in the research questionnaire given to respondents have guided answers based on a level 4 Likert scale with the categories ‘strongly agree’, ‘agree’, ‘disagree’, and ‘ strongly disagree’.

After all, the respondents had filled in the data, the next step was to collect questionnaires and data tabulation. The purpose of the tabulation is as material for data analysis. The analytical tool used was descriptive statistical analysis to describe the characteristics of the respondents and the factual conditions in seeking in-depth information about the variables in this study. Meanwhile, inferential analysis was conducted using multiple linear regression analysis. This aimed to see the partial and simultaneous effects of financial literacy, information technology, government support, and subjective norms on MSME performance. The formulation of this multiple linear regression analysis used in this research was based on Krasniqi et al. (2020) and Pratama (2022).

$$Y = \beta_0 + ß_1X_1 + ß_2X_2 + ß_3X_3 + ß_4X_4 + \varepsilon \quad \ldots\ldots(1)$$

Where:

Y	=	Performance of MSME Actors in the Border Market
X_1	=	Financial Literacy
X_2	=	Information Technology
X_3	=	Government Support
X_4	=	Subjective Norm

To fulfill statistical rules, the first step that needed to be done was to test the quality of data collection instruments in the form of the validity and reliability of the data. This was an absolute requirement so that the data analyzed produced accurate research outputs. Furthermore, classical assumption tests were carried out as normality, autocorrelation, multicollinearity, and heteroscedasticity tests.

RESULTS AND DISCUSSION

Characteristics of respondents

In this study, the respondents who became the research sample had different characteristics from one another in terms of gender, age, educational background, and length of business.

Table 2. Characteristics of respondents

Characteristics	Frequency	Percentage (%)
Gender:		
▪ Man	27	33.75
▪ Woman	53	66,25
Respondent Age:		
▪ 25-35 Years	12	15.00
▪ 36-45 Years	45	56,25
▪ > 45 Years	23	28.75
Level of education		
▪ Elementary School	33	41.25
▪ Junior High School	26	32.50
▪ Senior High School	14	17.50
▪ Diploma	5	6,25
▪ Bachelor	2	2.50
Length of Business:		
▪ 1-5 Years	27	33.75
▪ 6-10 Years	16	20.00
▪ ≥11 Years Old	37	46,25

Table 2 shows that MSME actors who carry out trading activities at the border market in TTU-Timor Leste Regency are dominated by women at 66.25 percent of 80 respondents. Furthermore, based on age level, those classified as productive young people aged 36-45 years with a percentage of 56.25 percent. Meanwhile, if seen from the background level of education, most of them only have elementary school education (SD), with a percentage of 41.25 percent. Then from the mapping of MSME actors based on the length of business, the average is dominated by those who have carried out trading business activities for more than 10 years, with a percentage of 46.25 percent.

Data validity and reliability test

This study uses primary data in which MSME actors in the border market are used as respondents in answering questions in a questionnaire based on a 4-scale Likert scale (strongly agree, agree, disagree, and strongly disagree) on each indicator attached to the research variables. Therefore, the results of the questionnaire must be subjected to instrument testing. Data collection instruments are tested by testing the validity and reliability of data as terms and conditions in multivariate statistical tests. The value used as a benchmark in seeing whether the data to be analyzed is valid or not is through the Pearson correlation test with the condition that the r-count > r-table value with a standard alpha coefficient of 0.05 Crombach Alpha > 0.60, as Sugiyono showed in Nalle & Afoan (2022).

Table 3. Recapitulation of data validity and reliability test results

Variables	Items	R count	Rtable	Cronbach Alpha	Information
Financial Literacy (X1)	X1.1	0.569	0.195	0.787	Valid and Reliable
	X1.2	0.632	0.195		Valid
	X1.3	0.781	0.195		Valid
	X1.4	0.425	0.195		Valid
Technology Innovation (X2)	X2.1	0.630	0.195	0.732	Valid and Reliable
	X2.2	0.438	0.195		Valid
	X2.3	0.503	0.195		Valid
	X2.4	0.526	0.195		Valid
Government Support (X3)	X3.1	0.559	0.195	0.715	Valid and Reliable
	X3.2	0.660	0.195		Valid
	X3.3	0.356	0.195		Valid
	X3.4	0.459	0.195		Valid
Subjective Norms (X4)	X4.1	0.682	0.195	0.780	Valid and Reliable
	X4.2	0.498	0.195		Valid
	X4.3	0.533	0.195		Valid
	X4.4	0.635	0.195		Valid
MSME Performance (Y)	Y1	0.662	0.195	0.735	Valid and Reliable
	Y2	0.600	0.195		Valid
	Y3	0.425	0.195		Valid
	Y4	0.556	0.195		Valid

Based on Table 2, it is explained that all indicators inherent in each construct variable have met the elements of validity and reliability. This condition makes it possible to proceed to the next stage of analysis.

Classic assumption test

In multiple linear regression analysis, it is necessary to test the classical assumptions so that the parameter values produced in the regression model are not biased and have a high degree of accuracy in estimating. Ghozali stated this in Nalle et al., 2022). There are several classic assumption tests: Normality, Autocorrelation, Multicollinearity, and Heteroscedasticity.

Table 4. Recapitulation of classical assumption test results

Variables	Classic assumption test			
	Jargue-Bera test (P-value)	Prob. Chi-Square (2) (P-value)	Prob. Chi-Square(14) (P-value)	VIF value
Residual	3.895002	0.0701	0.1832	
Financial Literacy				3.851
Technology Innovation				4.976
Government Support				5.283
Subjective Norm				5.295

Table 3 explains that all the elements in the classic assumption test have been fulfilled and are feasible to continue at the data analysis stage. In the data normality test, it has been shown that the data is normally distributed because the Jargue-Bera test value is greater than alpha (3.895002>0.05). Furthermore, to test the assumptions of autocorrelation and heteroscedasticity, it shows that the value *Prob. The chi-Square* produced is greater than the alpha (0.0701 and 0.1832>0.05). It means that there is no similarity of variance in all research variables. The multicollinearity test also shows that the VIF value produced is less than 10, meaning there is no perfect correlation between each independent variable in this study.

Model estimation

This analysis is intended to answer the research objectives, namely to determine the partial and simultaneous effect of the variables of financial literacy, technological innovation, government support, and subjective norms on the MSMEs' performance in the Border Market of North Central Timor Regency. This variable was chosen based on the results of field observations and relevant tracking theories that reflect the actual conditions experienced by MSME actors in border markets. These actors have low levels of knowledge, expertise, and skills to run a business due to the limited availability of quality human resources. Furthermore, there are not a few who, even though they have lived in the modern era, are still "technology illiterate" in following technological developments, so they run conventional businesses without significant support from the government. This, sometimes, causes them to lose confidence in the continuity of their business. The results of the data analysis can be seen in Table 5.

Table 5. Model estimation

Variables	coefficient	std. Error	t-Statistics	Prob.
C	-1.285203	0.958476	-1.340882	0.1840
LIT_KEU	-0.019412	0.081599	-0.237901	0.8126
INOV_TEK	0.250428	0.086700	2.888453	0.0051
DUK_PEM	0.282313	0.105275	2.681686	0.0090
NORM_SUBJ	0.586869	0.068758	8.535307	0.0000
R-squared	0.826053			
Adjusted R-squared	0.816775			
F-statistics	89.04119			
Prob(F-statistic)	0.000000			

The probability F-statistic is smaller than alpha 0.01. This value indicates that simultaneously, the independent variables in this study, which are financial literacy, technological innovation, government support, and subjective norms, affect the dependent variable, namely the performance of MSMEs in the TTU-Timor Leste Boundary market.

The next value is the Adjusted R-squared, which is 0.816775. This indicates that the statistical model developed in this study can explain 81.67% of the variance in MSME performance in the Border Market of TTU-Timor Leste Regency, taking into account the variables of financial literacy, technological innovation, government support, and subjective norms. The remaining 18.33% is influenced by other variables not included in this study.

The financial literacy variable partially has an insignificant negative effect on MSME performance because the resulting regression coefficient value is -0.0194, and the probability value is greater than alpha (0.8126 >0.1). Financial literacy in research is defined as managing financial management appropriately to improve the business. The capabilities and expertise include access to financial institutions to support the business. It must be admitted that SMEs in border markets have an average level of education that is relatively low. This can be seen in the descriptive analysis in Table 2 before. The low level of education also affects the ability or expertise of MSME actors in managing their business finances. This condition creates opportunities for capital owners whose role is usury hunter moneylenders in offering loans with very easy conditions, namely simply having an Identity Card. Even with very high-interest rates, far from the loan interest charged by banking institutions, MSME actors still choose money lenders as a rational choice. Banks are often considered exclusive financial institutions, in which if someone wants to get banking services, they must be well-dressed, clean, and attractive with very formal procedural service standards. Moreover, one must also have a guarantee or collateral commensurate with the value of the loan and various other views. Due to this, there is a strong perception that banks are only accessible to the upper-middle class.

Apart from problems in obtaining access to financing from credible banking financial institutions, another problem that is part of the financial literacy variable here is skills in managing finances. Starting from basic personal finance management (basic personal finance), management of loans or credit, savings, and business development investments, as well as risk management in the face of threats of loss due to internal and external factors. MSMEs often have difficulties keeping financial records per applicable accounting standards. This condition makes it difficult for them to sort out sources of income from the profits of running a business and income from outside their business. The lack of institutional roles from the government, the banking sector, and non-governmental organizations.

This study presents findings that diverge from those reported by Aribawa (2016), Sabilla & Wijayaangka (2019), Septiani & Wuryani (2020), and Pusporini (2020), which demonstrate a positive and significant impact of financial literacy on the performance of MSME actors. Furthermore, research conducted by Nurlaela & Bahtiar (2022) elucidates that individuals with a strong grasp of financial literacy exhibit improved saving behaviors, allocating a portion of their income towards enhancing their future quality of life.

Furthermore, the technological innovation variable produces a regression coefficient value of 0.250428 with a probability value smaller than alpha (0.0051<0.05). This means that the technological innovation variable partially has a significant positive effect on the performance of MSMEs in the TTU Regency. If technological innovation is increased by 0.250428 percent, it will also increase MSME performance growth by one percent. The technological innovation variable in this study is regarding the adaptability of MSME actors in the NKRI-Timor Leste border region in carrying out digital transformation in the form of implementing e-commerce to support their business activities. From the results of field observations and information retrieval, it is known that it is very rare for MSME actors in research locations to have implemented a form of economic digitization. Marketing methods for various MSME products still apply the old, conventional methods by bringing all the products they want to trade using their vehicles or public transportation to the border market where they trade. Marketing methods like this are certainly ineffective in increasing business scale, market segmentation, and income. Andini (2021) explained that applying technology with various digital innovations positively affected the growth of MSME performance amid increasingly competitive business competition. MSMEs must adapt to the environment and the increasingly dynamic development of modernization.

Furthermore, the regression coefficient value for the government support variable is 0.282313, with the resulting probability value smaller than alpha (0.0090 <0.05). This means that the performance of MSMEs will experience an increase in performance by 1 percent if the role of the government support variable is increased by 0.0090 percent while taking into account the ceteris paribus principle. These results emphasize that support from every level of government is needed to support the trade sector, especially for MSME actors and creative industries in border areas.

Considering that the role of MSMEs is very large for the economy of the Province of NTT in general, government support in the form of policy synergy and collaboration for every level of government, from the lowest to the highest, is urgently needed. The government can partner with various institutions, be it banking institutions, educational institutions, the private sector, or non-governmental organizations that favor the continuity of MSME businesses amid a pandemic that is still hitting. Hartanti (2021) revealed that during a pandemic, the role of the local government through various supports can be sorted using three approaches as the best alternative solution: empowering, enabling, and protecting. This approach is certainly for the benefit of the resilience of MSME players during a pandemic, both in the short, medium, and long term. Government support programs in the short term, for example, can be distributing social safety net assistance funds, facilitating the issuance of business licenses, mentoring, training, and empowerment. Meanwhile, medium-term and long-term programs can be in the form of implementing tax incentives, training to increase production skills or expertise, business labeling, implementing digital marketing with various institutional partners,

So far, what can be observed in TTU Regency, specifically at the border market, is that MSME actors have not received full attention from the government, despite this sector potentially contributing around 43 percent to the regional economy in terms of Gross Regional Domestic Product. Several critical aspects require serious attention from the government. These issues include the absence of social assistance programs targeting MSMEs directly impacted by Covid-19 and unimplemented tax incentives. Additionally, there are insufficient partnership models with modern market business actors to support the uptake of MSME products, along with the suboptimal role of universities in providing education, training, and assistance to improve the mindset and expertise of MSME actors in producing quality products. Apart from that, People's Business Credit from banking financial institutions is still exclusive, and the network of MSME ecosystems that became more *Go-Digital* has not been built yet.

Furthermore, there is also the lack of role of BUMDes as a village government institution that can take part in the marketing chain of MSME products, the lack of assistance of product labeling, and licensing and patenting of regional superior products. Some of the problems above are exacerbated by very worrying supporting facilities such as border markets that are not well organized, wifi networks that are difficult to obtain, and low telecommunication network capacity so that the synergy of cooperation between institutions is not maximized. The minimal role of BUMDes as a village government institution that can participate in the marketing chain for MSME products, the lack of assistance in product labeling, licensing, and the granting of patents for regional superior products. Some of the problems above are exacerbated by very worrying supporting facilities such as border markets that are not well organized, wifi networks that are difficult to obtain, and low telecommunication network capacity so that the synergy of cooperation between institutions is not maximized. The minimal role of BUMDes as a village government institution that can participate in the marketing chain for MSME products, the lack of assistance in product labeling, licensing, and the granting of patents for regional superior products. Some of the problems above are exacerbated by very worrying supporting facilities such as border markets that are not well organized, wifi networks that are difficult to obtain, and low telecommunication network capacity so that the synergy of cooperation between institutions is not maximized.

The results of the subsequent analysis of the subjective norm variable obtained a regression coefficient value of 0.586869 with a probability value smaller than alpha (0.000<0.05). These results explain that the subjective norm variable partially has a significant positive effect on MSMEs' performance in the TTU-Timor Leste Regency's Border Market. The number 0.586869 implies that every one percent increase in MSME performance will also increase the subjective norm variable by 0.586869 percent when other variables are held constant.

The definition of subjective norms in this study is about the perspectives of other people, both positive and negative, about what is believed and can influence a person's final decision (Shalwoharjimas, 2019). The growth and development of MSMEs' performance are strongly influenced by their accuracy in running the business, as well as by other people's opinions and the business environment in which they operate In other words, the success or failure of a person's business is highly dependent on the input provided by other people. If people have a positive impression of MSME actors regarding education, motivation, and encouragement, it may also increase business progress. However, the opposite will happen if the perspective contains more negative things, pessimism, or criticism. This can have an unhealthy impact on the progress of the business. Therefore, SMEs need to be in an environment that can create a conducive business climate and healthy competition.

It must be admitted that the people in TTU Regency generally have very strong social capital culturally. Owned social capital is seen as a culture of mutual cooperation, togetherness, and even a sense of brotherhood that has been maintained to this day. A value is instilled in the Dawan people on the island of Timor with a philosophy of "Tabua Nekaf Mese Ansaof Mese", which means "Working Together with the Mind". This view has become a culture deeply rooted in everyday life and even a strong symbol of brotherhood. Ownership of this social capital should be the main pillar that can be used in the spirit of kinship, hand in hand with supporting all efforts carried out, even in fighting poverty on the island of Timor (Haukilo, 2021). Departing from the cultural conditions of the defense community on Timor Island, as described above, it has indirectly influenced the mindset and attitude in making business decisions even in a difficult situation during the pandemic. Confidence, motivation, and encouragement from those closest to you are the biggest assets to grow and continue to develop. Fanani & Fitrayati, (2021) revealed that social capital positively and significantly affects the performance of food and beverage SMEs in Surabaya. Likewise stated by Putro et al. (2022) stated that social capital owned by the community plays a very large role in supporting the performance of MSME artisans in Pulun village.

Discussion

Financial literacy, technological innovation, government support, and subjective norms significantly influence the performance of MSMEs in the Border Market of TTU-Timor Leste Regency, both individually and simultaneously. Therefore, in this sub-chapter, the discussion will be more directed at describing the determination of strategies that the TTU Regency Regional Government can carry out as a form of policy program implementation to support the growth of MSME performance in the Border market during the Covid-19 pandemic. Determining strategies to be carried out focuses more on the variables raised in this study.

The TTU district government must partner with credible Financial Institutions or several Cooperative Institutions. This partnership could eventually take the form of mentoring, training, and education so that MSME players understand financial management following applicable accounting requirements (Hossain, 2020). The People's Business Credit (KUR) assistance program, a banking institution program, is not exclusive but precisely targeted at small-scale MSME community groups. Additionally, the banking service model in channeling credit to revive the real sector must be more proactive in involving the community. KUR assistance funds distributed must be followed by an assistance and empowerment program for the beneficiary community so that both parties are not disadvantaged. Research conducted by Cahya et al. (2021) found that batik artisans in Yogyakarta do not always expect financial assistance from banks. Still, getting financial management training is far more important to avoid the risk of failure in running a business (Lusardi et al., 2017).

To improve the understanding of financial literacy, it is expected that local governments need to build partnerships with higher education institutions as institutions that produce quality and reliable human resource assets in border areas (Jati et al., 2021). The collaboration with universities is in the form of Tri Dharma in teaching/education to form a good mindset in the community. In the research aspect, it aims to explore and discover the phenomenon of development problems in various fields based on good theoretical and methodological approaches. This is conducted to provide input to local governments to carry out appropriate public policies to improve the performance of MSMEs and build quality regions. Likewise, in the service field, the role of higher education groups can provide various training and empowerment to improve the quality of financial management according to accounting principles. Mariati (2012) revealed that the role of higher education is very large in empowering entrepreneurship.

The pandemic that has hit this country for two years has caused economic activity to run stagnant. One might even say it is paralyzed. MSMEs cannot develop their businesses due to the Restricting Movement of Community Activities program. Having almost certainly passed the Covid-19 pandemic, the choice to carry out digital transformation by implementing an E-Commerce system is important to continue to develop market share and business scale. But on the other hand, one of the biggest obstacles in the effort to implement economic digitalization in the TTU-Timor Leste Regency Border Area is the limited capacity of human resources to adapt to the information technology-based E-Commerce system. Supporting infrastructure in telecommunications technology networks is still far from feasible. However, this hope remains as long as all stakeholders in the border areas have the same determination and commitment to support regional development (Ainin et al., 2015).

Local governments must collaborate and partner with higher education institutions, Telkomsel or Indosat providers, and banking institutions. In terms of improving the quality of human resources, for long-term purposes, higher education institutions can play a role through vocational education that leads to the specification of expertise and skills in digital technology. The community is prepared through formal education to face the demands of an ever-more modern era. Meanwhile, for short-term purposes, MSMEs are trained in various marketing methods using the marketplace platform provided (Aryawati et al., 2022). Furthermore, with their authority, telecommunications companies can make border areas a priority area for expanding telecommunications networks to support various community economic activities. The border region represents Indonesia's face, so it is appropriate to get adequate infrastructure development support, including telecommunication access (Irdayanti, 2017; Camisón & Villar-López, 2014).

Recognizing the significant role and contribution of MSMEs in the regional economy, local governments must prioritize implementing several measures to enhance the resilience of MSMEs in border areas during the Covid-19 pandemic. Due to the complexity of the problems MSMEs face, several strategic steps can be taken. The researchers map out several policies important for the growth of MSME performance into short-term and long-term targets. This is necessary to more easily untangle the tangled knot of problems that have been faced by MSME actors in the TTU-Timor Leste border region and to provide appropriate policies for their development. First is the Short-Term Target. The things that the government needs to do are (i) Strengthen the social safety net through direct cash transfer programs and provide tax incentives. Besides, the government can expand access to capital from the government budget and with banking partners through concessional loans. (ii) Establishing MSMEs with legal entities; to enable MSMEs to grow and develop properly, these business actors need an organizational platform to implement strengthening institutional aspects (Shafi et al., 2020).

This association of MSME actors is united in an association whose role and function is to protect its members' businesses and, beyond that, build a larger marketing network. (iii) Establishing Partnership Patterns with BUMN, BUMD, and Private Parties. The government needs to form a cooperation network with all stakeholders to support the uptake of MSME products to create sustainability. For example, in large-scale government activities, the government can partner with MSME actors to use their products as well as promotional media for various parties. Besides, Besides, MSMEs are also connected to large entrepreneurs so that their products can enter modern markets with good product quality standards, proper labeling, and health requirements from The National Agency of Drug and Food Control (NA-DFC) inspection results. (iv) Strengthening Partners and Inter-Institutional Cooperation Networks. This is necessary so that each institution can strengthen the capacity and existence of MSMEs in border areas according to their respective functions and roles. The government's main programs are improving product quality, increasing marketing and legal protection access, and facilitating licensing and investment processes (Hartanti, 2021).

Second, the Long Term Program. Improving the quality of human resources must be the main agenda of the regional government of TTU Regency, considering the lack of quality human resources in border areas. Support for formal education institutions that lead to vocational education by providing a curriculum that adapts to the demands of the industrial revolution 4.0 is necessary. Therefore, several tactical and strategic steps need to be carried out, including (i) making a Road Map for developing MSMEs in border areas. Inviting various parties, from MSME actors, banking institutions, Corporate Social Responsibility (CSR) parties, community leaders, and academics, to develop MSME development concepts in the form of standard documents that can be used as a guide in efforts to improve MSME performance. This is necessary so that the running programs do not overlap. Also, there is coordination between institutions and a multi-level monitoring and evaluation process. (ii) Implementing the Economic Digitalization Program. SMEs can reach all potential markets through digital technology as a marketing medium. The relevant technical agencies, banking institutions, and academic groups must continuously conduct training, mentoring, and empowerment programs. The application of the Go-Digital economy must be the main agenda as a response to the challenges of the times (Fatimah & Azlina, 2021; Mahajan, 2018).

The success or failure of MSMEs in a business that is run is very dependent on the form of self-confidence they have. This comes from the perception of the people around us (Supriono, 2015). This trust can arise if every MSME actor has sufficient quality and capacity to manage their business. Therefore, self-maturity is the best fortress in filtering all incoming information to influence the business. All kinds of positive feedback are used as the best motivation and supplement in developing the business.

Meanwhile, if pessimistic remarks come, it is still accepted as a small obstacle or challenge that must be overcome. The biggest asset in running a business is courage. Dare to accept all the risks faced (Nur'arif, 2021).

Experience proves that many successful people have achieved great success due to mental ownership and strong courage in facing all the existing challenges. All MSME actors need to have this in the border area of TTU-Timor Leste Regency. Therefore, this becomes the responsibility of the relevant technical agencies, such as the Department of Industry, Trade, and Cooperatives (Deperindagkop). This is in addition to the main program of improving product quality and capacity. However, what should not be forgotten is the encouragement and motivation to foster high self-confidence in running a business (Samah, 2018).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the analysis and discussion, several key conclusions can be drawn: (i) The simultaneous testing reveals that financial literacy, technological innovation, government support, and subjective norms significantly influence MSME performance in the TTU-Timor Leste Border Market. (ii) Partially indicate that financial literacy has a partially negative and insignificant impact on MSME performance, while technological innovation, government support, and subjective norms significantly and positively affect MSME performance in the TTU-Timor Leste Border Market. (iii) To enhance the growth and performance of MSMEs, strategic steps can be undertaken in various ways. This encompasses enhancing financial literacy through training and mentoring programs and bolstering access to technology by implementing a digital economic system. Additionally, it involves securing government support to improve human resource quality, fortify production quality, establish partnerships with various stakeholders, create investment-friendly bureaucratic services, implement product labeling, and form border area MSME group associations. These measures are essential for boosting motivation and confidence in conducting business.

The authors recognize the limitations of this research, as it does not include the perspectives of several relevant entities, such as regional head leadership elements, associated technical services, banking institutions, or Corporate Social Responsibility (CSR) leaders. More in-depth information regarding policies directly targeting MSMEs in the Border Market could have been obtained by involving these stakeholders. Consequently, this study can serve as a reference for other researchers to examine the extent to which local government policies develop the performance of MSMEs in the TTU Regency.

Recommendations

The researchers wish to elaborate on several crucial aspects to enhance the performance of MSMEs in the TTU-Timor Leste Border Market. These include: 1) To foster financial literacy among MSME stakeholders, the TTU Regency Government should establish partnership models with universities and banking groups. Synergy and coordination between institutions are vital, with MSME stakeholders being the target group for training, mentoring, and empowerment programs. 2) Implementing a digital economy is a rational choice to expand market share, business scale, and resilience of MSME stakeholders during the Covid-19 pandemic. 3) The TTU Regency Government can support the growth of MSME performance by developing a roadmap to achieve set short-term and long-term targets. Short-term targets can be attained by reinforcing the social safety net with various social assistance measures, tax incentives, and soft loans. Long-term targets include strengthening human resource quality and capacity, enhancing production quality, and implementing the digital economy through e-commerce systems. 4) As the pandemic continues, crucial roles are required from relevant technical offices, academic groups, CSR institutions, and banking institutions. In conducting their businesses, these organizations' respective roles foster optimism and confidence for MSME stakeholders in the TTU-Timor Leste Border Market area.

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Examining growth centers and agricultural base commodities to enhance regional development in Tanjung Jabung Barat Regency, Jambi Province

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Abstract

Determining growth centers and agricultural base commodities is essential for optimizing economic development and achieving economic equality in the Tanjung Jabung Barat Regency area. This study aimed to identify sub-districts that could become growth centers, establish agricultural commodities based in each Tanjung Jabung Barat Regency sub-district, and examine interactions between growth centers and surrounding areas. Three methods employed in this research include Scalogram analysis, Centrality Index, Location Quotient, and Dynamic Location Quotient. Based on the Scalogram analysis and Centrality Index results for the 13 Tanjung Jabung Barat Regency sub-districts, four sub-districts were identified as potential growth centers: Tungkal Ilir, Tebing Tinggi, and Merlung. The Tanjung Jabung Barat Regency Government is recommended to establish basic commodity specialization in each sub-district and strengthen inter-regional linkages to accelerate regional economic equity.

Keywords: Base commodity, Growth center, Hinterland

JEL Classification: O11, O13, O47

INTRODUCTION

Transitions of growth between regions must be mutually beneficial. The development of innovation at the regional level in transition economies are characterized by complex, multidirectional processes for generating and commercializing innovations (Rudskaya et al., 2022; Abosedra et al., 2020; Brueckner & Lederman, 2018). Consequently, production, population, and capital development are directly proportional over time (Iammarino et al., 2019; Chiang, 2018). However, economic growth transitions between regions have not proceeded smoothly. There remains a tendency to focus solely on areas with agglomeration or location advantages, which results in the concentration of human resources in one region and leads to disparities (Nazli et al., 2021; Bucevska, 2019). This concentrated economic activity is expected to impact national economic development activities positively (Sharma, 2020;

Sjafrizal, 2017). Furthermore, regional development efforts employing an agglomeration territorial system offer a solution to concentrate activities in economically potential areas (Pragmadeanti & Rahmawati, 2022).

Economic growth centers represent one method of mobilizing and stimulating development to increase people's income by directing it toward areas with potential (Ardila, 2012). Identifying growth centers is a development approach aimed at achieving a prosperous society. Establishing regional growth centers is beneficial for recognizing each region's potential to determine priority economic sectors in regional development due to budget constraints (Alwi et al., 2023; Amelia & Prabowo, 2022). Economic growth is concentrated in areas with sufficient potential and utility to accelerate economic development. Additionally, growth centers can influence production, distribution, and consumption, thus creating business fields (Jumino, 2019; Zhang et al., 2020; Gan et al., 2021). The role of a region's business field in producing goods and services significantly affects a region's economic structure, including that of Jambi Province (Panzera & Postiglione, 2022; Weng et al., 2022). In 2020, the economic structure of Jambi Province featured four sectors that contributed the most to its GRDP: agriculture, mining, manufacturing, and trade. According to BPS data (2020), these four sectors were distributed across various Regencies/Cities in Jambi Province. For the agricultural sector, Kerinci, Tebo, and Tanjung Jabung Barat Regencies, with plantation and oil palm products, played a role exceeding 50 percent. In contrast, Jambi City and Sungai Full City exhibited the lowest contribution to the agricultural sector due to limited agricultural land, which hindered production.

For the mining sector, Tanjung Jabung Timur Regency and Tanjung Jabung Barat Regency play the most significant roles, owing to their abundant oil, gas, and coal production. Tanjung Jabung Barat Regency, Muaro Jambi Regency, and Jambi City greatly contribute to the manufacturing industry sector. As for the trade sector, the largest contributions come from Jambi City, Sungai Penuh City, and Bungo Regency. Examining the four sectors that contribute the most to GRDP in Jambi Province, it becomes evident that Tanjung Jabung Barat Regency nearly dominates as the largest sector contributor in the province. This observation has piqued the author's interest in further investigating the economy's centralization and the agricultural sector's development in Tanjung Jabung Barat Regency.

This research is supported by a study by Umiyati (2012), which classifies Tanjung Jabung Barat Regency as a rapidly developing and fast-growing area. Upon analyzing the contribution of Tanjung Jabung Barat Regency's regional budget (APBD), it becomes evident that the funds are primarily utilized for public interests rather than the apparatus's interests. Consequently, this enables the achievement of development goals focused on improving people's welfare through increased economic growth (Suhendra et al., 2019). According to BPS (2020), Tanjung Jabung Barat Regency is the largest contributing area to the agricultural, forestry, and fisheries sectors in Jambi Province, with a GRDP value of 11.19 trillion or 30.14%. The increase in production results in the agriculture, forestry, and fisheries business fields is one reason for the heightened role of these business fields. Additionally, most employment opportunities for the people of Tanjung Jabung Barat are in the agricultural sector (Mahdi et al., 2017).

Although Tanjung Jabung Barat Regency is classified as a fast-growing and rapidly developing area and is the largest contributor to GRDP in the processing and mining industry categories, this does not guarantee equitable distribution of regional development. The limited number of growth centers in Tanjung Jabung Barat Regency also presents an obstacle to regional development efforts, leading to an uneven economy and a lack of smooth economic growth transfer between regions. In several areas, the poverty rate remains relatively high (Mahdi et al., 2017), thereby causing an imbalance between economic development and economic equity (Tan et al., 2023; Hariyanti & Rendra, 2022). According to Fitrawaty (2020), Indonesia's economic inequality level is relatively similar between provinces and districts/cities.

Considering these factors, an appropriate solution for accelerating and promoting equitable development is the establishment of new growth centers. This approach would allow the government to concentrate more on regional development, expecting these growth centers to encourage progress in underdeveloped regions (Cengiz et al., 2022; Garza & Rodriguez, 2018). Several studies have identified creating new economic growth centers as a viable solution for achieving equity and economic improvement (Karmila & Risma, 2022; Ridwan et al., 2022; Syaputra et al., 2020; Apriana & Rudiarto, 2020; Emalia & Farida, 2018).

METHODS

The research area under consideration is Tanjung Jabung Barat Regency. This region faces a significant challenge: despite relatively strong economic growth, development inequality persists, leading to a high poverty rate in Tanjung Jabung Barat Regency. The research method employed in this study is descriptive quantitative, which involves numeric or numerical systems.

The data collected in this study consists of secondary data from 2016 to 2021. A quantitative descriptive approach is applied to time series data to investigate the cointegration relationship between variables. The data for this research were obtained from various sources, including the Statistics of Jambi Province, the Department of Food Crops of Tanjung Jabung Barat Regency, the Department of Plantation and Animal Husbandry of Tanjung Jabung Barat Regency, the Department of Maritime and Fisheries Service of Tanjung Jabung Barat Regency, the Department of Public Works Service of Tanjung Jabung Barat Regency, and the Department of Investment and One-Stop Service Office of Tanjung Jabung Barat Regency. The data analysis method used is as follows:

Scalogram analysis and centrality index

Scalogram analysis and Centrality Index aim to identify social, economic, and government facility availability and analyze service center hierarchy and distribution (Zannatun & Wahyudi, 2023). The formula used to determine the number of orders is as follows (Priyadi & Atmadji, 2017):

The formula for determining the order number is:

$$k = 1 + 3.3 * \log(n) \qquad (1)$$

Where 'n' is the number of districts. Next, the class interval is determined using the following formula:

$$i = (A - a) / k \qquad (2)$$

Where: i: Class/Range Intervals A: The highest number of functions a: The lowest number of functions k: Order

The next search is to determine the weight value of the facility based on the total centrality value (set at 100) divided by the number of functions of each column. The centrality index formula is: C=t/T Where: C: The weight of the facility t : Centralis Reverb value (100) T: The total number of facilities Indeks Sentralitas (IS=∑C).

Locations quotients and dynamic locations quotient analysis

Locations Quotients and Dynamic Locations Quotient Analysis Locations Quotient (LQ) is a simple indicator that shows the strength or size of the role of a sector in an area compared to the area above it (Monica, 2020). The criteria for calculating LQ are a sector with a value of LQ ≤ 1, defined as a non-basic commodity, which means that the level of spatialization of agricultural commodities at the District level is smaller than the Regency level with the same commodity. Meanwhile, a sector with a value of LQ ≥ 1, is defined as a commodity base where the commodity level at the district level is greater than the regency level with the same commodity. The way to calculate Locations Quotient Analysis is formulated in the equation (Dhora et al., 2022):

The formula for calculating Location Quotient Analysis is:

LQ = (pi / pt) / (Pi / Pt) ………………………………………………………… (3)

Where: pi = Production of Commodity 'i' at the District Level pt = Total District Commodity "i" Production Pi = Production of Commodity 'i' at the Regency Level Pt = Total Production of Commodity 'i' at Regency Level

The concept of Dynamic Location Quotient (DLQ) analysis is as follows: DLQ ≥ 1 indicates that the development of commodity "i" is faster than the same sector in Tanjung Jabung Barat Regency. Conversely, DLQ ≤ 1 means the development of commodity "i" is slower than the same sector in Tanjung Jabung Barat Regency.

The formula for calculating Dynamic Location Quotient is:

DLQ = {(((1 + gik) / (1 + gk)) / ((1 + Gi) / (1 + G)))}^t ……………………….(4)

Where: DLQ = Dynamic Location Quotient gik = Growth rate of commodity 'i' at the district level gk = Average commodity growth rate at sub-district level Gi = Growth rate of commodity growth 'i' at the Regency level G = Average growth rate of commodity 'i' at regency level t = Number of years to be analyzed

Regional interaction analysis

Based on the gravity model analysis results, a higher number indicates a stronger interaction between the growth center sub-district and the surrounding sub-districts. This implies a stronger relationship between the two regions and greater support for the surrounding areas (Lahuddin, 2020).

Gravity Model Formula:

Tij = a (Pi x Pj) / Dij^b ……………………………………………………... (5)

Where: Tij: Interaction between growth center regions Pi: Number of the original population Pj: Number of destination population Dij: Distance between regions a: 1 b: 2

RESULTS AND DISCUSSION

The center of growth for Tanjung Jabung Barat Regency

Table 1 displays the district hierarchy based on the scalogram and centrality index analysis for each Tanjung Jabung Barat Regency sub-district. The sub-districts are categorized into hierarchies, ranging from I to V, based on their centrality index and the number of facility units and types. The higher the hierarchy, the more developed and better equipped the sub-district is in terms of facilities and services.

Table 1. District hierarchy according to the scalogram and centrality index

Subdistrict	Number of Facility Units	Number of Facility Types	Centrality Index	Hierarchy
Tungkal Ulu	129	17	179,7985	IV
Merlung	140	20	275,5561	III
Batang Asam	199	19	224,7985	IV
Tebing Tinggi	277	21	243,8894	III
Renah Mendaluh	134	14	118,7704	V
Muara Papalik	188	16	201,2704	IV
Pengabuan	230	17	158,0561	V
Senyerang	209	14	118,7704	V
Tungkal Ilir	352	32	443,8894	I
Bram Itam	130	15	131,2704	V
Sebrang Kota	95	11	93,7704	V
Betara	234	20	203,8894	IV
Kuala Betara	114	13	106,2704	V

Based on the results of the Scalogram and Centrality Index analysis, three sub-districts are identified as growth centers:

1. Tungkal Ilir is considered the primary growth center and administrative hub of Tanjung Jabung Barat Regency. This sub-district is categorized as a growth center due to its numerous facility units and various facilities. Hierarchy one represents a region in a favorable situation (Arkedani & Shakor, 2022), capable of stimulating rapid regional/regency economic growth and promoting a more equitable distribution of income (Osiobe, 2019).
2. Tebing Tinggi District and Merlung District are identified as secondary growth centers, corresponding to the third hierarchy. This aligns with research conducted by Jacob and Hasan (2016), which found that almost all of the nine sub-districts studied were in the third hierarchy. The third hierarchy describes an area with a low level of development and a relative scarcity of service facilities, situated far from the sub-districts activity center (Anwar et al., 2022).
3. The fourth hierarchy includes Tungkal Ulu, Batang Asam, and Muara Papalik, while the fifth hierarchy comprises Senyerang, Pengabuan, Seberang Kota, Bram Itam, Kuala Betara, and Renah Mendaluh. Hierarchies IV and V represent areas with insufficient facilities that cannot function as growth centers (Suryandari et al., 2020).

Current and future agricultural base commodities

The provided information highlights that the economic potential of Tanjung Jabung Barat district can be analyzed using the Location Quotient (LQ) analysis to identify the basic agricultural commodities in each sub-district. These basic commodities contribute significantly to the region's GRDP and help drive regional development. The agricultural commodity production approach encompasses four main areas: commodity crops, fisheries, livestock, and plantations.

Manaraja et al. (2023) state that the agriculture, forestry, and fisheries sector is considered the base sector when it has an LQ value greater than 1. Sub-sectors like horticultural crops, plantations, and agricultural and hunting services are also base sectors.

By examining the Location Quotient analysis, policymakers and stakeholders can better understand the economic potential of each sub-district in Tanjung Jabung Barat district, focusing on the development of these base sectors. This approach can lead to more balanced and equitable growth in the region while promoting its agricultural commodities, which are vital in meeting the region's needs and generating exports.

This research analyzes basic and non-basic agricultural commodities to examine the LQ value, as presented in Table 2.

Table 2. Location quotient analysis in Tanjung Jabung Barat Regency for the 2016-2020 period

Subdistrict	LQ analysis
Tungkal Ilir	cassava, lowland rice, marine fisheries, deep coconut, areca nut, goats, beef cattle, sheep, native chickens, and ducks
Bramitam	paddy rice, corn, sea fisheries, deep coconut, areca nuts, goats, beef cattle, native chickens, and sheep.
Sebrang Kota	general fisheries, corn, cassava, deep coconut, areca nuts, goats, free-range chickens, and ducks.
Betara	cassava, general fisheries, rubber, coffee, deep coconut, cocoa, goats, sheep, sheep, broiler chickens.
Kuala Betara	base in cassava, sea fisheries, coffee, deep coconut, goats, sheep, boiler chickens, and ducks.
Pengabuan	paddy rice, general fisheries, beef cattle, goats, and sheep.
Senyerang	paddy rice, general fisheries, beef cattle, goats, and sheep.
Tungkal Ulu	domestic chicken, goats, lowland rice, soybeans, field rice, corn, general fisheries, goat palm oil rubber, and domestic chicken.
Batang Asam	paddy rice, land rice, soybeans, sweet potatoes, general fisheries, oil palm, cocoa, buffalo, goats, and domestic chicken.
Tebing Tinggi	Sweet potatoes, cassava, corn, peanuts, general fisheries, oil palm, beef cattle, sheep, goats, pigs, boiler chickens, and ducks.
Merlung	sweet potatoes, cassava, corn, peanuts, general fisheries, rubber, palm oil, beef cattle, goats, and domestic chicken.
Muara Papalik	in the form of sweet potatoes, peanuts, soybeans, cassava, general fisheries, oil palm, beef cattle, goats, pigs, and ducks.
Renah Mendaluh	sweet potatoes, field rice, maize, cassava, soybeans, peanuts, general fisheries, rubber, palm oil and cocoa, ducks, buffalo, goats, sheep, domestic chicken, and beef cattle.

Table 2 presents the basic agricultural commodities in each Tanjung Jabung Barat Regency sub-district based on the Location Quotient (LQ) analysis. These commodities, which have an LQ value greater than 1, significantly drive the region's GRDP. By identifying the basic commodities in each sub-district, policymakers and stakeholders can better understand the economic potential and capitalize on the strengths of each sub-district, leading to more balanced and equitable growth.

Furthermore, basic commodities at present may not necessarily become basic commodities in the future, and commodities that are not basic at present may become basic commodities in the future (Hidayah et al., 2023). Table 3. presents future basic commodities in each Tanjung Jabung Barat Regency sub-district. The ratio of each agricultural commodity to the growth rate of each agricultural commodity for each sub-district in Tanjung Jabung Barat Regency is compared to the growth rate of agricultural commodities in Tanjung Jabung Barat Regency. The higher the DLQ index, the more basic and prospective the commodity will be for further development in the future for efforts to develop the regional economy and fulfill market demand.

Table 3. Commodity base of agricultural commodities in Tanjung Jabung Barat Regency

Subdistrict	LQ analysis
Tungkal Ilir	soybeans, peanuts, maize, lowland rice, sweet potatoes, cassava, marine fisheries, general fisheries, rubber, coffee, areca nut, cocoa, buffalo, goats, beef cattle, pigs, native chickens, ducks, and broiler chickens.
Bramitam	sweet potato, cassava, corn, soybean, peanut, general fisheries, rubber, coffee, deep coconut, oil palm, areca nut, cocoa, goat, beef cattle, buffalo, pig, duck, and native chicken.
Sebrang Kota	soybeans, sweet potatoes, cassava, peanuts, corn, lowland rice, general fisheries, rubber, coffee, palm oil, areca nut, cocoa, pigs, domestic chicken, beef cattle, buffalo, goats, sheep, boiler chickens, and ducks.
Betara	Sweet potato, cassava, paddy rice, corn, soybeans, peanuts, general fisheries, rubber, coffee, deep coconut, oil palm, areca nut, cocoa, buffalo, goats, pigs, and beef cattle.
Kuala Betara	paddy rice, corn, soybeans, peanuts, cassava, sweet potatoes, general fisheries, cocoa, oil palm, rubber, deep coconut, general fisheries, rubber, oil palm, deep coconut, areca nut, cocoa, goats, buffalo, beef cattle, boiler chickens, sheep, ducks, and free-range chickens.
Pengabuan	cassava, sweet potato, peanuts, soybeans, general fisheries, rubber, coffee, deep kelapan, oil palm, areca nut, cocoa, beef cattle, buffalo, goats, pigs, native chickens, boiler chickens, and ducks.
Senyerang	cassava, sweet potato, soybeans, lowland rice, peanuts, corn, general fisheries, rubber, deep coconut, areca nut, cocoa, beef cattle, buffalo, goats, pigs, free-range chickens, boiler chickens, and ducks.
Tungkal Ulu	peanuts, sweet potatoes, cassava, paddy, soybeans, paddy, maize, general fisheries, rubber, deep coconut, oil palm, areca nut, cocoa, pigs, beef cattle, buffalo, goats, boiler chickens, ducks, free-range chickens.
Batang Asam	sweet potatoes, cassava, corn, soybeans, peanuts, general fisheries, rubber, coffee, deep coconut, oil palm, areca nut, cocoa, buffalo, goats, beef cattle, domestic chicken, broiler chickens, and ducks.
Tebing Tinggi	sweet potato, cassava, soybeans, lowland rice, corn, peanuts, general fisheries, rubber, coffee, deep coconut, oil palm, areca nut, cocoa, beef cattle, buffalo, goats, pigs, ducks, and chickens.
Merlung	sweet potatoes, cassava, corn, soybeans, peanuts, general fisheries, buffalo, beef cattle, goats, pigs, free-range chickens, ducks, and broiler chickens.
Muara Papalik	cassava, sweet potato, corn, soybeans, peanuts, general fisheries, rubber, coffee, deep coconut, oil palm, areca nut, cocoa, beef cattle, buffalo, goats, pigs, sheep, boiler chickens, ducks, and domestic chickens.
Renah Mendaluh	peanuts, lowland rice, land rice, corn, soybeans, cassava, sweet potatoes, common fisheries, rubber, coffee, deep coconut, oil palm, areca nut, cocoa, beef cattle, buffalo, goats, pigs, native chickens, boiler chickens, and ducks.

Table 3 shows the prospective future basic commodities in each Tanjung Jabung Barat Regency sub-district. These future basic commodities are based on the ratio of each agricultural commodity's growth rate to the growth rate of agricultural commodities in the region. The higher the DLQ index, the more basic and prospective a commodity is for further development in the future. Developing these commodities is essential for boosting the regional economy and fulfilling market demand.

Regional stakeholders and policymakers can more effectively plan for agricultural development, allocate resources, and support infrastructure in the respective sub-districts by identifying future basic commodities. This strategic approach ensures that each sub-district can meet the growing market demand and contribute to the overall economic growth of Tanjung Jabung Barat Regency (World Bank, 2007).

Understanding the current and future basic agricultural commodities in each sub-district is crucial for driving regional development, meeting market demand, and promoting equitable growth across Tanjung Jabung Barat Regency. Access to this information enables policymakers and stakeholders to make informed decisions about resource allocation, infrastructure development, and targeted support for these essential commodities (Porter, 2008).

Regional interaction

Each growth center district has supporting areas (Juardi & Bimontoro, 2022). Tungkal Ilir, as the primary growth center, has hinterland areas including Sebrang Kota, Kuala Betara, Betara, and Pengabuan. This is evident from the interaction values: Pengabuan District has an interaction value of 834,134.1; Sebrang Kota District has an interaction value of 9,656.6; Kuala Betara District has an interaction value of 92,383.92095; and Betara District has an interaction value of 1,377,086.542.

Tebing Tinggi District, as a secondary growth center, has hinterland areas such as Senyerang, Muara Papalik, and Bram Itam Districts. The interaction values for these districts are as follows: 344,061.7831 in Senyerang District; 110,062.1 in Muara Papalik District; 6,841,165 in Bram Itam District; and 684,116.526 in Senyerang District.

Merlung Subdistrict, as a secondary growth center, has hinterland areas, including Renah Mendaluh, Tungkal Ulu, and Batang Asam Subdistricts. The interaction values for these subdistricts are as follows: 395,502.6015 in Renah Mendaluh; 638,795.82 in Tungkal Ulu District; and 200,807.75 in Batang Asam District.

The analysis of growth center districts and their supporting areas reveals patterns of regional interactions and dependencies (Isard et al., 2017). The interaction values provide insights into the relative importance of these districts and subdistricts and the strength of their connections.

Firstly, the high interaction value of Betara District in relation to the primary growth center, Tungkal Ilir, suggests a strong relationship and dependency between these two areas. This may be due to essential resources, infrastructure, or economic activities that benefit both regions. Policymakers should recognize the significance of this relationship and consider strengthening it by investing in transportation networks and supporting industries to enhance regional development further (Barca et al., 2012).

Secondly, the interaction values for the secondary growth center districts of Tebing Tinggi and Merlung and their respective hinterland areas are relatively lower than the primary growth center (Huggins & Thompson, 2015). This indicates that while these districts still have significant connections with their surrounding areas, the level of interdependence may not be as strong as the primary growth center. To promote balanced regional development, policymakers should focus on nurturing these secondary growth centers, for instance, by encouraging the development of small and medium-sized enterprises (SMEs) and improving access to resources and services (Pike et al., 2017).

Lastly, it is essential to recognize the variation in interaction values among the districts and subdistricts, which might be attributed to geographical conditions, resource availability, and socio-economic factors (Isard et al., 2017). Understanding these disparities can help local governments design targeted interventions to address specific challenges and promote sustainable development in each area. Regular monitoring and evaluation of these interaction values can further inform policymakers on the effectiveness of their interventions and guide future policy decisions (Huggins & Thompson, 2015).

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

From the research, several key points can be concluded as follows: 1). The hierarchy of growth centers in Tanjung Jabung Barat Regency consists of Tungkal Ilir as the primary growth center, along with Tebing Tinggi and Merlung as secondary growth centers. These growth centers are crucial in supporting regional economic development; 2). Various basic agricultural commodities have been identified for each sub-district, and these commodities have the potential to support economic growth and fulfill market demand in the future; 3). The interactions between growth centers and their hinterland areas show strong economic connections and potential for further development.

Recommendation

Based on the research results, the following two recommendations can be made: 1) Allocate adequate resources and infrastructure support for growth centers and their hinterland areas to maximize regional economic growth; 2) Enhance collaboration between governments, the private sector, and local communities to promote sustainable and inclusive development throughout Tanjung Jabung Barat Regency.

To elaborate on the first recommendation, the government must invest in infrastructure projects, such as transportation networks, utilities, and communication systems, connecting growth centers with their hinterland areas. This will facilitate easier movement of goods, services, and people and attract new businesses and investments to the region. Moreover, providing resources such as education, training programs, and financial support will empower local communities and enable them to participate more actively in the regional economy.

Regarding the second recommendation, fostering a strong partnership among various stakeholders, including the government, private sector, and local communities, is essential for achieving sustainable and inclusive development. This collaboration can be achieved through regular consultations, joint planning, and the establishment of public-private partnerships to implement development projects. By ensuring that all stakeholders are actively involved in the decision-making process and share a common vision, the development initiatives in Tanjung Jabung Barat Regency will be better aligned with the needs and aspirations of the local population. Consequently, this will contribute to improving the overall quality of life, economic opportunities, and social equity across the region.

This study has limitations, particularly in relation to its focus on basic agricultural commodities, which may not encompass other sectors contributing to regional economic growth. Therefore, for future research, it is recommended to: 1). Conduct more comprehensive research that includes other economic sectors in Tanjung Jabung Barat Regency to gain a complete picture of regional economic growth; 2). Investigate the impact of climate change and other environmental factors on basic agricultural commodities and economic growth potential in Tanjung Jabung Barat Regency.

Additionally, it is essential to recognize the potential limitations in data availability and accuracy, as these factors may influence the research findings. To overcome this challenge, future studies should consider utilizing multiple data sources, conducting field research, and employing advanced analytical techniques to ensure the reliability and validity of the results. Moreover, exploring the socio-political dynamics affecting regional development can provide valuable insights into the various factors influencing growth centers and agricultural commodities. By addressing these limitations and expanding the scope of research, a more holistic understanding of the regional economic landscape can be achieved, thereby informing more effective policy-making and development strategies in Tanjung Jabung Barat Regency.

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Impact of financial inclusion and banking characteristics on banking stability in Indonesia

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Abstract

This study aims to examine the impact of financial inclusion and banking characteristics (bank size, Capital Adequacy Ratio (CAR), and Non-Performing Loans (NPL)) on the stability of the Indonesian banking sector from 2009 to 2019. The sample in this research comprises 22 banks in the BUKU 3 category and 7 banks in the BUKU 4 category. The data processing method employed is panel data analysis. The fixed effect model was selected as the most suitable model for this study. This research indicates that the financial inclusion variable significantly negatively impacts banking stability due to uneven access to financial inclusion and low financial literacy regarding banking products. Additionally, banking characteristics negatively influence banking stability through the NPL and bank size variables. In contrast, the CAR variable significantly positively affects the banking stability variable. Therefore, expanding financial access through financial education about utilizing and selecting financial service products that cater to the community's needs is essential. This will enhance the benefits of financial inclusion in society and subsequently positively affect banking stability in Indonesia.

Keywords: *Banking stability, Financial inclusion, Panel data*

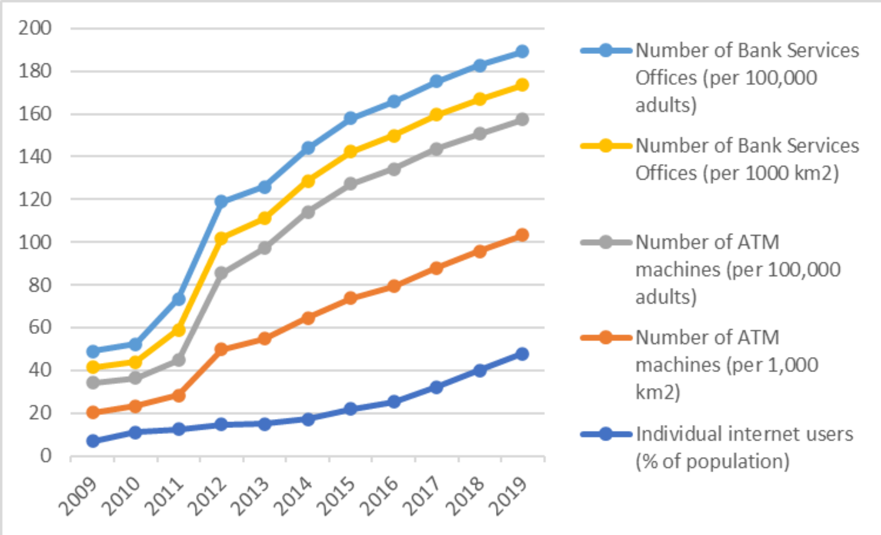
JEL Classification: C23, E59, G21

INTRODUCTION

The global financial crisis of 2008-2009 caused turmoil for many banks and financial institutions. In response to the crisis, policymakers sought to reform the banking system to increase stability (Cihak et al., 2016). Financial inclusion emerged due to the financial crisis affecting the bottom-of-the-pyramid group, which is generally classified as the unbanked community. Financial inclusion represents easy access to banking services and technological advancements through efficient, low-cost payment mechanisms. In terms of access to finance in Indonesia, a World Bank Survey (2010) revealed that only 49% of Indonesian households have access to formal financial institutions. A Household Balance Sheet Survey (2011) showed that the percentage of households saving in formal or non-financial institutions is 48% (Departemen Pengembangan Akses Keuangan dan UMKM Bank Indonesia, 2014). In July 2012, Bank Indonesia collaborated with the National Team for the Acceleration of Poverty

Reduction (TP2PK) and the Fiscal Policy Agency of the Ministry of Finance to issue the National Strategy for Financial Inclusion (SNKI).

The current profile of financial inclusion in Indonesia is characterized by the increasing number of individuals accessing internet services. This growth is accompanied by a rise in the number of ATMs and bank service offices each year, as illustrated in Figure 1.



Source: Bank Indonesia (2020)

Figure 1. Digital technology development in Indonesia

Various innovative technological developments in the banking system, such as mobile and internet banking, facilitate the provision of banking services without a physical bank branch (branchless banking). Zahangir et al. (2013) show that mobile and internet banking can increase banking activities, accelerate financial transactions, and provide better financial services. Increasing the provision of digital infrastructure in remote areas and opening more financial literacy centers for the unbanked public can help fulfill the benefits of financial inclusion (Barik & Sharma, 2019). A high level of financial inclusion in banking contributes to bank stability; this can be observed in banks with many customers and high deposit levels but with low bank service fees, resulting in better stability for these banks (Ahamed & Mallick, 2019). Other studies propose that financial inclusion can lead to positive effects, such as improved household welfare resulting from easy access to finance for low-income groups. However, it may also have negative consequences if financial institutions fail to manage systemic risks, maintain financial stability, and promote financial inclusion effectively. (Amatus & Alireza, 2015). This is because when banks attempt to contain systemic risk, they may reduce financial service facilities for low-income groups.

In addition to the effects of financial inclusion, several pieces of literature state that individual bank characteristics can influence bank stability (Baselga-Pascual et al., 2015; Carreta et al., 2014; Chaibi & Ftiti, 2015; Karim et al., 2016; Nkusu, 2011; Shim, 2019). Several bank-specific factors, such as capital, bank size, and provision of credit reserves, are determinants of stability in banking institutions. Banks with good profitability levels generally have well-maintained stability. According to the market power hypothesis, a bank with a large market share and good product quality can use its market power to determine product prices and achieve above-average profits.

Furthermore, in the banking sector, large banks benefit from economies of scale and other advantages related to bank market share (Goddard et al., 2004). However, (Mishkin, 1999) argues that if a large, complex bank with a larger share is systematically situated within the country's economy, the bank may obtain government guarantees. Consequently, financial intermediary managers usually involve this type of bank in risk-taking activities, making them less stable. This is supported by research by Köhler (2014) and Odundo & Orwaru (2018).

The Capital Adequacy Ratio also reflects a bank's health. Menicucci & Paolucci (2016) state that a strong capital structure is essential for financial institutions because it adds resilience in dealing with financial crises and provides security for depositors during unstable economic conditions. Similarly, Bourke (1989) suggests that banks with high capital can enjoy access to cheaper sources of funds with minimal risk. In addition to mitigating risk to maintain stability, banks will set aside significant funds as a cushion to absorb credit losses. One of the most important steps is to create a Reserve for Impairment Losses (CKPN). Allowance for credit losses is an allowance for credit losses on credit portfolios and their funding that experience an economic decline (Budiarti, 2012). Therefore, providing credit losses is essential to reduce the risk of customers failing to meet their obligations to the bank. Beatty and Liao (2011) define CKPN as a policy followed by commercial banks by setting aside a specific amount of money (reserves) to deal with potential loan defaults, which will help protect the bank's position in profitability and capital.

This research differs from previous studies in several ways. Firstly, it uses micro variables to measure banking stability through financial inclusion and bank characteristics. This contrasts with Sakarombe's research (2019), which measures bank stability based on the level of financial inclusion and the influence of macroeconomic factors. Similarly, Ahamed and Mallick (2017) measure bank stability using a cross-country analysis based on bank, country-specific, and institutional characteristics across multiple countries. Secondly, the research focuses on Indonesia after the global crisis, with bank objects based on BUKU 3 and 4 categories during the 2009-2019 period. The more intensive development of the financial inclusion sector in Indonesia has facilitated people's access to financial services. Financial inclusion is also one of Bank Indonesia's strategies to increase the efficiency of the financial system, which, over time, will strengthen the security of the Indonesian financial industry and address potential risks that could impact financial system stability. Therefore, this study aims to analyze the effect of financial inclusion and banking characteristics on Indonesia's banking stability level.

METHODS

This study uses secondary data: banking financial reports from OJK websites, related bank annual publications, and BPS. The research hypothesis is tested by using panel data that combines time series data with the research period from 2009-2019. This was chosen because that was a recovery period after the global financial crisis in 2008-2009.

This study used cross-sectional data also, where cross-sectional units were measured at different times (Baltagi, 2008). The panel data analysis technique in the study was carried out using the common effect model, fixed effect model, and random effect model method (Jelanti, 2020). This study uses data from 29 banks in Indonesia which are classified as BUKU 3 (Bangkon Comp, BNP Paribas, BPD West Java and Banten, BPD Central Java, BPD East Java, BTN, BTPN, Bukopin, City Bank, DBS Indonesia, Bank DKI, HSBC Indonesia, ICBC Indonesia, Bank Hanna, Mandiri Syariah, Bank Mayapada, Bank Mega, OCBC, Permata, Standard Bank, UOB Indonesia, Maybank) and BUKU 4 (BCA, BNI, BRI, CIMB Niaga, Danamon, Mandiri, Panin Bank).

BUKU 3 and BUKU 4 category banks were chosen for this study because they have a minimum core capital of 5 trillion rupiahs and can carry out all banking business activities, as mentioned in Articles 3 and 4 of the Financial Services Authority Regulation Number 6/POJK.03/2016. These banking activities can be in the form of rupiah or foreign currency. Additionally, they can participate in equity in financial institutions in Indonesia and/or overseas, which are limited to the Asian region for BUKU 3 Banks and in financial institutions in Indonesia and/or abroad with a wider reach than BUKU 3 for the BUKU 4 bank category (Otoritas Jasa Keuangan, 2016).

Based on two previous studies by Ahamed and Mallick (2017); Sakarombe (2019); Van et al. (2020), which test the hypothesis between financial inclusion, banking characteristics in the form of bank size, capital adequacy ratio, and allowance for impairment losses on banking stability in Indonesia from 2009 to 2019, this research uses the following basic model:

$$SB_{it} = \beta_0 + \beta_1 IKI_{it} + \beta_2 UB_{it} + \beta_3 CAR_{it} + \beta_4 CKPN_{it} + \mu \quad \text{.....................(1)}$$

Where SB is banking stability represented by the value Z-score, IKI is a financial inclusion index. UB is a banking measure that is a scale for measuring the size of a bank by calculating the ratio of total assets, total capital, and total sales as a scale for measuring its size. CAR is a capital adequacy ratio that shows the extent to which a bank has the risk of each credit/Productive Assets, which is risky. CKPN is the ratio of loan provisions to total assets used to calculate the risk of lending to individuals.

Based on Sarma (2012), the model for measuring IKI first calculates the dimension index for the dimensions of financial inclusion. The steps used to calculate the value of the Financial Inclusion Index are as follows:

First, by calculating the value of each dimension index (di) for the dimensions of financial inclusion, using the equation:

$$d_i = w_i \frac{D_i - m_i}{M_i - m_i} \quad \text{.....................(2)}$$

Description :

wi : weight attached for i dimension
Di : true value (actual) i dimensions
mi : lower limit value of i dimension
Mi : upper limit value of i dimension

Equation (2) aims to ensure that 0 ≤ di ≤ wi. The higher the value of di, the higher the bank's achievement. If the 3 dimensions of financial inclusion are taken into account, then the achievement of a bank in these dimensions will be represented by point X = (d1, d2, d3). In 3-dimensional space, point O = (0, 0, 0) represents the point that signifies the worst situation, while point W = (w1, w2, w3) indicates the ideal location. The location of the X achievement point compared to the worst point O and the ideal point W is an important factor in measuring a bank's financial inclusion level.

Therefore, to calculate IFI, we first compute X1 (distance between X and O) and X2 (inverse distance between X and W), and then take a simple average of X1 and X2 to calculate IFI. Finally, we calculate the index.

Second, calculate X1 and X2, using the following equation

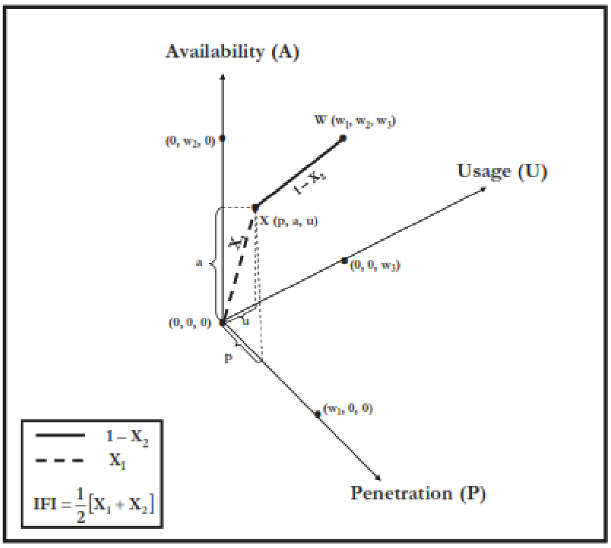
$$X_1 = \frac{\sqrt{d_1^2 + d_2^2 + d_3^2}}{\sqrt{(w_1^2 + w_2^2 + w_3^2)}} \qquad (3)$$

$$X_2 = 1 - \frac{\sqrt{(w_1 - d_1)^2 + (w_2 - d_2)^2 + (w_3 - d_3)^2}}{\sqrt{(w_1^2 + w_2^2 + w_3^2)}} \qquad (4)$$

Third, determines the simple average values of X1 and X2, thus combining the distances from the worst and ideal points. By using the following equation:

$$IKI = \frac{1}{2}[X_1 + X_2] \qquad (5)$$

Figure 2 shows how financial inclusion occurs



Source: Sarma, (2012)

Figure 2. Graphical explanation of 3 dimensions of IKI

From the graphic explanation, IKI is equipped with three-dimensional assistance in accessibility or penetration, availability, and use of the financial system. Each of these dimensions is represented by an axis in three-dimensional space. Point W = (w1, w2, w3) represents the ideal point, and point X = (p, a, u) describes a bank's achievement in this dimension. Banks with an inclusive financial system must be closer to the ideal point W than less inclusive banks. Likewise, a bank with a more financially inclusive system has to be further away from point O than a less inclusive bank. In other words, the distance between points X and W and the farther the distance between X and O will show high financial inclusion in country X (Sarma, 2012).

From several stages to measure the IKI, it was found that all the weighted dimensions in this study were considered important for measuring the inclusiveness of the financial system so that heavily installed for all dimensions, the value is the same (wi = 1). Following the method Sarma (2012) and Azwar (2017) used, where all dimensions have the same priority, they are weighted with a value of wi = 1 for all i. So that the ideal situation will be represented by the point W= (1, 1, 1) in 3-dimensional space, and the final formula for IKI is as follows:

$$IKI = \frac{1}{2}\left(\frac{\sqrt{d_1^2+d_2^2+d_3^2}}{\sqrt{3}} + \left(1 - \frac{\sqrt{(1-d_1)^2-(1-d_2)^2-(1-d_1)^2}}{\sqrt{3}}\right)\right) \quad (6)$$

Description :

IKI = Financial Inclusion Index

d1 = banking penetration (number of accounts per population aged 15 years and over)

d2 = availability of banking services (number of ATMs and number of offices branch of each bank)

d3 = use of financial services (volume of loans and deposits to the country's GDP)

RESULTS AND DISCUSSION

The calculation of bank stability based on the z-score values indicates that among the 29 banks in Indonesia (7 banks in the BUKU 4 category and 22 banks in the BUKU 3 category), the average (mean) z-score is 5.45, with the minimum value at -20.04, the maximum value at 49.79, and a standard deviation of 5.37 (Table 1). This study's Financial Inclusion Index variable has a mean value of 0.8044817%, the highest value at 0.9082437%, the lowest value of 0.5361027%, and a standard deviation of 0.0255862.

The Bank Size variable has a mean value of 18.40, with the lowest value at 14.29, the highest value at 24.99, and a standard deviation of 1.66. The Capital Adequacy Ratio (CAR) calculations reveal an average ratio (mean) of 20.99, the lowest ratio at 8.34, the highest ratio at 162.72, and a standard deviation of 13.23. The Non-Performing Loans (NPL) variable has a mean value of 1.98, which falls into the category of financing requiring special attention (5%), with the lowest value at 0 (indicating current financing, i.e., <1%), and the highest value at 8.61 (classified as less current financing, i.e., 15%), along with a standard deviation of 1.41. The percentage classification is based on PBI Number 13/26/PBI/2011 (Bank Indonesia, 2011).

Table 1. Descriptive statistics

Variable	n	Minimum	Maximum	Mean	Std. Dev
SB	319	-20.03829	49.78963	5.454968	5.36652
IKI	319	0.5361027	0.9082437	0.8044817	0.0255862
UB	319	14.29447	24.99799	18.40179	1.662755
CAR	319	8.34	162.72	20.99411	13.22696
CKPN	319	0	8.61	1.978245	1.406085

The model specification test employs the Chow test, which reveals a probability value of 0.0000 (as shown in Table 2). Since this value is smaller than the alpha level of 0.05, the null hypothesis (H0) is rejected, and the alternative hypothesis (H1) is accepted. Consequently, the fixed effect model is deemed more appropriate for this study than the common effect and fixed effect models.

Table 2. Chow test

Effect Test	Statistic	Df	Probability
Cross Section Chi-square	63.78	0,1966	0.0000

The Hausman test compares the random effect and fixed effect models. The best model for this research will be selected based on the comparison results. In Table 3, the chi-square value indicates that the random effect model is inefficient, with a chi-square value of 13.57. The Hausman test compares the probability of the chi-square value with the alpha value. Since the p-value is smaller than the alpha value (0.0088 < 0.05), the null hypothesis (H0) is rejected, signifying that the fixed effect model is the most suitable model to use in this study.

Table 3. Hausman test

Chi^2 (Hausman Statisic)	$Prob>chi^2$
13.57	0.0088

Information regarding the effect of the independent variables (Financial Inclusion Index (FII), Bank Size, Capital Adequacy Ratio (CAR), and Non-Performing Loans (NPL)) on the dependent variable, Banking Stability (BS), can be observed in Table 4.

An R-squared value of 0.7415 indicates that the contribution of all independent variables in explaining the dependent variable is 74.15%, while variables outside the research model account for 25.85%. Furthermore, the F-test regression results in the study demonstrate that the calculated F-value is greater than the F-table (63.78 > 2.76). Thus, it can be concluded that all independent variables in this study simultaneously influence the dependent variable used in the research model.

Utilizing the best-fixed effect model, the results of this study reveal that the FII variable has a negative and significant impact on banking stability in Indonesia at a 5% significance level. The FII variable has a t-statistic of -6.25, a probability value of 0.000, and a coefficient value of -61.18, indicating that with each increase in FII, there will be a 61.18% decrease in banking stability in Indonesia.

The Bank Size variable negatively and significantly impacts banking stability in Indonesia at a 10% significance level. This variable has a t-statistic of -1.69, a probability value of 0.093, and a coefficient value of -0.41, signifying that with every 1% increase in bank size, banking stability will decrease by 0.41%. The Capital Adequacy Ratio has a positive and significant effect on banking stability in Indonesia at a 5% significance level, with a coefficient of 0.12. This means that for each 1% increase in the capital adequacy ratio, banking stability will increase by 0.12%.

The Non-Performing Loans (NPL) variable negatively and significantly affects banking stability in Indonesia at a 5% significance level. The NPL coefficient from the regression results is -0.78, indicating that for each 1% increase in the allowance for impairment losses, the stability level will be reduced by 0.78%.

Table 4. Estimation of SB

Variable	Coefficient	t-Statistic	Probability
IKI	-0.611813	-6.25	0.000^{*}
UB	-0.4180485	-1.69	0.093^{***}
CAR	0.1224319	6.57	0.000^{*}
CKPN	-0.7890188	-5.22	0.000^{*}
Constant	61.35757	7.26	0.000^{*}
R-squared	0.7415		
F.Statistik	63.78		
Prob F-Statistik	0.00000		

** significant at α = 1%, ** significant at α = 5%, *** significant at α = 10%*

This study demonstrates that financial inclusion negatively and significantly affects banking stability. This finding contradicts contemporary banking theory, which expands upon the theory of financial intermediation. Contemporary banking theory posits that commercial banks and financial intermediaries play a crucial role in the distribution of capital resources (Bhattacharya & Thakor, 1993). These financial intermediaries reduce transaction costs and play a vital economic role. Nowadays, financial intermediaries are widely used to address financial inclusion needs. Commercial banks operate branch networks to reduce the distance between customers and banking service providers, thereby enhancing banking performance efficiency and lowering costs for the financial services provided to their customers.

The negative relationship between financial inclusion and banking stability can be attributed to two factors. First, in terms of expanding access, the level of the financial inclusion index remains unevenly distributed across regions. Access to finance in urban areas (83.60%) is still higher than in rural areas (68.49%), and many Indonesian provinces have a financial inclusion index below the national average of 76.19% (Otoritas Jasa Keuangan, 2019). Provinces with an index above the national average should be encouraged to use financial products and services more to improve their welfare. Meanwhile, provinces with an index below the national average need to receive more financial education to optimize financial products and services tailored to their needs.

Second, the level of understanding among the Indonesian population regarding banking and its services is still low. Indonesians have four financial literacy levels: well-literate, sufficiently literate, less literate, and not literate. Only about 38 out of 100 Indonesians fall into the well-literate category. Individuals must understand financial institutions before knowing the products and services offered. The importance of comprehending financial service institutions lies in how people use financial products and services. Therefore, a balance between expanding access to financial inclusion and providing financial education is necessary. This notion is supported by research from the OCDE (2013), which emphasizes the importance of financial education in conjunction with access to financial inclusion. The Alliance for Financial Inclusion also asserts that financial literacy is an investment to achieve financial inclusion (Alliance for Financial Inclusion, 2016).

Moreover, numerous banking institutions have started to reduce the number of branch offices and ATMs due to digitization, even though the public still uses financial service institutions' offices and ATMs for financial transactions (OJK, 2016). The preference for traditional delivery channels over phone banking is due to limited internet infrastructure networks in various regions, especially areas outside Java (APJII). According to the Asian Development Bank (2016), digital financial services encompass the use of technology to provide financial services from providers to a wide range of consumers, including electronic money, mobile money, card payments, and protection against electronic transaction crimes.

Additionally, consumer protection efforts remain inadequate. The application of internet technology to banking products and services offers numerous benefits, such as the convenience of internet banking and mobile banking for customers to conduct transfers, account mutations, and payments (credit cards, insurance, telephone accounts, and electricity accounts). However, implementing these programs in Indonesian banks is still highly vulnerable to criminal activities such as malware, hacking, and phishing. These issues reduce public interest in accessing financial services via internet banking, leading them to prefer traditional banking services. To maintain customer protection, the implementation of branchless banking programs should be accompanied by the development of innovative security systems that effectively combat and protect against electronic transaction crimes.

The findings of this study align with research by Khan (2011), which indicates that financial inclusion negatively impacts stability if strong regulations are lacking and credit standards are lowered to reach the unbankable community by reducing loan requirements. Dupas et al. (2012) argue that merely expanding access to reduce transaction costs and time without improving the quality of services will fail to achieve financial inclusion effectively, leading to instability. This occurs because many people are unaware of banking options and lack trust in banking services.

The findings related to the influence of bank size variables on banking stability are inconsistent with the hypothesis. Differences between the research results and the hypothesis can occur because BUKU 3 and BUKU 4 banks are categorized as large market-scale banks. Essentially, banks of various sizes face different challenges in the banking industry. Small banks are often perceived as less capable of surviving during a crisis but tend to be less vulnerable to risk. On the other hand, large banks are considered capable of weathering a crisis but are also more susceptible to risk. Banks in BUKU 3 and BUKU 4 categories have a higher business complexity than other BUKU category banks, as stated in Article 4 of the Financial Services Authority Regulation Number 6/POJK.03/2016. The wide range of financial services that the BUKU group can offer increases both business profits and the level of risk.

The results of this study also support Odundo and Orwaru's (2018) research, which found that bank size has a negative effect on the financial stability of commercial banks. This finding supports the "too big to fail" hypothesis, which postulates a negative relationship between bank size and financial stability due to government guarantees for large banks should they go bankrupt. Köhler's (2014) research on the effect of business models on bank stability in the EU banking sector similarly revealed a negative relationship between bank size and stability, meaning that smaller banks are more stable than larger ones.

In this study, the capital adequacy ratio variable positively influences banking stability, which aligns with the hypothesis. Torbira & Zaagha's (2016) study explains that a bank's capital adequacy ratio indicates the financial sector's solvency and is considered a safety valve to protect depositors, thus promoting stability and efficiency in the banking system and financial institutions. This research supports Rustendi's (2019) findings that banks with good capital adequacy have better financial stability, whereas banks with insufficient capital adequacy have unstable financial stability. Putu and Dewa (2015) state that the higher the CAR, the lower the risk of bank failure, as capital acts as a buffer for banks to handle losses and enables them to face intense competition.

Lastly, the allowance for impairment losses significantly negatively impacts banking stability. This study supports Pogorzelski's (2017) argument that the allowance for impairment losses is instrument banks use to anticipate losses that may arise from unpaid loans, with the amount determined by the level of credit risk. This reserve for losses is charged to the bank's profit provisions, meaning that providing excess reserves reduces bank profits. Consequently, the bank's gross profit declines, affecting profitability and, ultimately, the bank's financial security and the stability of the national banking system. Ahamed & Mallick's research (2017) indicates that banks with good management and high capital have better stability than banks with higher allowances for impairment losses. Ahmad et al. (2014) findings are consistent, stating that the allowance for impairment losses is an essential factor influencing banking stability and profitability, with well-established banks expected to have lower levels of impairment loss.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The research related to the level of stability of banks in Indonesia, as measured by BUKU 3 and BUKU 4 Banks between 2009 and 2019, reveals that financial inclusion has a negative effect on banking stability in Indonesia. This occurs because the expansion of bank access has not been evenly distributed across all regions, and there is limited public knowledge about banking products and services. People must understand financial institutions before becoming familiar with the products and financial services provided. Therefore, expanding access to financial inclusion through financial education is essential. The allowance for impairment losses (CKPN) also negatively impacts bank stability, as banks with low CKPN values tend to have better stability conditions.

The capital adequacy ratio positively affects banking stability, where a bank with good capital adequacy will have stable financial stability. In contrast, a bank with insufficient capital adequacy will have unstable financial stability. Meanwhile, bank size has a negative effect on banking stability because BUKU 3 and BUKU 4 banks are banking groups with high business complexity compared to other BUKU category banks. The various types of financial services that this BUKU group can offer will increase business profits and the level of risk.

Thus, expanding banking access services through financial inclusion and digitalization is crucial, accompanied by providing education related to banking products and equitable infrastructure development. This will allow the wider community to access banking services easily.

Recommendations

The government and banking institutions need to collaborate on expanding banking service access in every region of Indonesia, along with adequate infrastructure development. They should also provide financial education on using and choosing financial products and services according to the community's needs. For further research, other BUKU bank categories can be added to strengthen the findings of the influence of bank size, capital adequacy ratio, and CKPN on bank stability.

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Assessing consumer empowerment and influencing factors in Central Bangka Regency: a multidimensional approach

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Abstract

The rapid development of trade technology in Indonesia exposes consumers to potential exploitation during purchasing. This study examines consumer empowerment in Central Bangka Regency using primary data from 88 respondents across four districts. The Consumer Empowerment Index (CEI) value of 38.53, classified as "understand," indicates a fundamental grasp of rights and obligations and reveals room for growth in consumer empowerment. The analysis shows higher empowerment during the purchase phase, with informed decision-making and support for local businesses. However, a weakness emerges in the post-purchase phase, as consumers are less likely to voice experiences or criticize unsatisfactory products, potentially impacting product quality and customer satisfaction. Regression analysis reveals that only years of schooling and age significantly influence the CEI, while the location of residence, gender, and income group do not have significant effects. The model's low R-squared value suggests potential refinement through additional variables or research. These findings provide valuable insights for the government and stakeholders to enhance Central Bangka Regency's consumer empowerment. Focusing on increasing consumer awareness and engagement in the post-purchase phase through targeted educational campaigns, consumer rights workshops, and accessible complaint channels is essential. However, it is crucial to recognize that observed associations do not imply causation and further research is required to establish causal relationships and explore other factors contributing to consumer empowerment.

Keywords: *Asymmetric information, Consumer behavior, Consumer empowerment*

JEL Classification: D12, D18, D82,

INTRODUCTION

The level of consumer activism in the marketplace has increased due to greater exposure and accessibility to information regarding global concerns (Au, 2019; Bhatia & Panneer, 2019; Zankovsky et al., 2021). The advancement of digital media has facilitated economic activities, providing a foundation for the global market to engage in seamless trading. This accessibility enables producers, consumers, and distributors to access more symmetrical information, resulting in optimal economic contracts that benefit all parties involved (Aguirre et al., 2015; Hermalin et al., 2007; Wolfinbarger & Gilly, 2003; Kamil, 2007).

However, the heightened level of trade maneuvering also presents risks that both the government, as a regulator, and the public, as users, must monitor. Studying the readiness of consumers to engage in digital transactions in Indonesia is crucial, as digitization may increase information asymmetry between consumers and producers, negatively affecting consumers (Yang et al., 2021; Mckinsey, 2018). One study found that analyzing consumer behavior using e-commerce applications in Indonesia can provide insight into these issues (Suleman et al., 2013; Mckinsey.,2022; Wibowo et al., 2019).

To mitigate the risks associated with digital transactions, regulators must implement policies and regulations that ensure consumer protection. Additionally, consumers should be aware of their rights and responsibilities when conducting digital transactions, which can be achieved through the dissemination of information and awareness campaigns.

Consumer protection in digital markets is crucial to ensure businesses with greater knowledge, power, or resources do not exploit consumers. Implementing consumer protection laws and procedures can help establish trust in digital markets and give consumers the confidence to engage and transact (Ashworth & Free, 2006; Fong et al., 2014; Martin & Murphy, 2016; UNCDF Policy Accelerator, 2022).

Key issues include fairness, accountability, transparency, data privacy and security, product safety, redress, and dispute resolution mechanisms (UNCDF Policy Accelerator, n.d.). The OECD has established core characteristics of consumer protection for electronic commerce, encompassing fair and transparent business and advertising practices, information about businesses, goods and services, and transactions, as well as adequate dispute resolution and redress mechanisms, payment protection, privacy, and education (OECD, 2016). Consumer protection is essential for ensuring a fair trade climate, as the trade sector is vital for the national economy (Muris et al., 2016).

Consumers have become increasingly empowered to influence suppliers' behavior through their actions in the marketplace (Shaw et al., 2006). With the growth of business activities, it has become necessary for academics to supervise and review consumption activities to protect community interests, particularly those of consumers. According to the National Strategy on Consumer Protection in Indonesia, established by Presidential Decree Number 50 of 2017, the Ministry of Trade has identified indicators of empowered consumers aimed at promoting consumer protection and interests in the marketplace. These indicators include optimal decision-making ability, identifying the best price and quality, understanding preferences and options, asserting rights, recognizing rights violations, and seeking compensation (ASEAN Consumer, 2017).

The government plays a central role in defining trade rules to protect consumers (Muris et al., 2016). Additionally, the media can raise awareness of consumer rights, and academic institutions can provide research on consumer behavior and protection (Shaw et al., 2006). When consumers avoid information, it is assumed that they are aware they are doing so, as indicated by terms used to study the phenomenon—strategic, willful, or deliberate ignorance (Ehrich & Irwin, 2005; Golman et al., 2017; Hertwig & Engel, 2016). However, some scholars suggest that nonconscious (Sweeny et al., 2010) or implicit (Howell et al., 2016) processes can drive information avoidance. Consequently, estimating information avoidance by explicitly asking consumers whether they want such information, as typically done, may provide a lower bound for a more common behavior (Woolley & Risen, 2021).

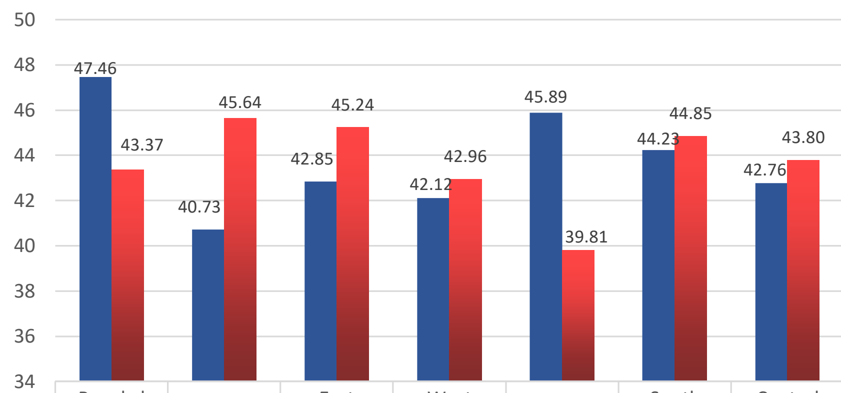
When examining the concept of information avoidance, it is often assumed that consumers consciously choose to ignore specific details, as demonstrated by terms such as strategic, willful, or deliberate ignorance (Ehrich & Irwin, 2005; Golman et al., 2017; Hertwig & Engel, 2016). However, some researchers propose that this avoidance can also stem from nonconscious or implicit processes (Howell et al., 2016). Consequently, assessing information avoidance by directly asking consumers if they desire certain information, as is commonly done, may only capture the minimum extent of this behavior.

Based on the idea that consumers may avoid information without acknowledging it, it is suggested that more individuals will likely dodge information when they can justify their decisions without admitting their avoidance (Kivetz & Yuhuang, 2006; Okada, 2005; Philip E; Tetlock & Richard, 1989; Philip E Tetlock & Jae I. Kim, 1987). We know that consumers look for justifications for their choices and prefer easily explainable decisions, but it remains unclear what constitutes an effective justification and how it influences avoidance (Slovic, 1975). To gain a deeper understanding of the mechanisms behind information avoidance, we turn to research on motivated reasoning and attributional ambiguity, which shows that people use "cover" to interpret situations and engage in desired behavior flexibly (Kunda, 1990; Snyder et al., 1979). We define decisions that offer "cover" as those where consumers can attribute their choice to another relevant environmental factor, such as a different product attribute, rather than the true reason behind their decision. The cover provides consumers with an alternative explanation for their choices.

The consumer protection system in Indonesia has been regulated by UUPK number 8 of 1999, concerning consumers, business actors, the government, the Non-Governmental Consumer Protection Agency (LPKSM), the Consumer Dispute Resolution Agency (BPSK), and the National Consumer Protection Agency (BPKN). In its implementation, the government formulates policies or regulations as the party responsible for implementing and supervising consumer protection according to the sector. However, sometimes when an incident occurs, and the business actor restores their rights, it does not receive a positive response. Business actors often do not understand their rights and obligations as business actors; sometimes, they exploit the weaknesses that exist in consumers and focus on temporary profits (Safari & Simanjuntak 2020).

Currently, the Bangka Belitung Islands Province consumers have entered the "capable" classification in the consumer empowerment index conducted by the Industry and Trade Office of the Bangka Belitung Islands Province. This can be seen in Figure 1.

The results of the 2019 Consumer Empowerment Index Survey, in general, did not experience significant changes when compared to the 2018 Consumer Empowerment Index, which was 43.9 in 2018 and 43.34 in 2019. This study analyzes consumer empowerment in Central Bangka Regency in the era of economic digitization. The Empowerment Index is prepared by formulating a questionnaire that captures the insight needed to buy an item. Seventy individuals who have met the requirements to become adult consumers will be surveyed within the community. The sampling process begins with determining the criteria for someone considered a rational consumer who can make their own choices (Gujarati, 2004).



	Pangkal pinang	Belitung	East Belitung	West Bangka	Bangka	South Bangka	Central Bangka
Index Value 2018	47.46	40.73	42.85	42.12	45.89	44.23	42.76
Index Value 2019	43.37	45.64	45.24	42.96	39.81	44.85	43.80

Source: Department of Industry and Trade Bangka Belitung Islands Province
Figure 1. District consumer empowerment index

It is known that three-phase dimensions must be explored to understand how well-informed and empowered a consumer is. The three phases include the Pre-Purchase, Purchase, and Post-Purchase phases. The pre-purchase phase is a dimension that describes the search for information and knowledge of applicable rules. In contrast, the purchase phase includes the selection of goods and services and purchasing behavior, and the post-purchase phase includes the tendency to talk and submit complaints. Several phases in this study were adapted to the format of the consumer empowerment index conducted by the Industry and Trade Office. Still, several specifications were made to deepen the social behavior aspect of the people in Central Bangka Regency so that a qualitative study would be conducted to understand consumer behavior sociologically.

Metehan & Zengin (2011) illustrate that demographic characteristics and education level positively influence complaint behavior in Turkish society. The various ethnicities/cultures of the Turkish demographic affect consumers in continuing their complaints when they are dissatisfied. The higher level of education also affects consumers to struggle to make complaints. Thøgersen et al. (2003) state that attitudes and personality strongly influence complaint behavior. Prasetyo et al. (2016) state that the behavior of complaining is divided into four groups, namely private, voicers, Dissatisfied customers, and activists.

Meanwhile, according to Iyiola & Ibidunni (2013), negative consumer emotions encourage consumers to carry out negative word-of-mouth complaints. In their research, Blodgett et al. (2015) show that attitude and the level of product importance affect complaint behavior. Subsequent research, according to Putra & Giantari, (2014), found the influence of attitude and gender on complaint behavior. Women are considered more likely to complain than men when experiencing post-purchase dissatisfaction.

In addition to demographic characteristics and attitudes, communication channels also play a role in complaint behavior. Park et al. (2007) shows that the anonymity of the communication channel positively affects consumers' willingness to complain. Moreover, consumers choose communication channels that can solve their problems

(Mendoza et al., 2018). Furthermore, social media has become a popular channel for consumers to voice their complaints publicly (Schivinski & Dabrowski, 2014). However, not all complaints are voiced. Carleton et al. (2007) indicate that fearing negative consequences like retaliation can prevent consumers from complaining.

Additionally, consumers may stay silent if they perceive the issue as minor or do not believe their complaint will be addressed (Vos et al., 2008). Therefore, understanding the factors influencing complaint behavior is crucial for businesses to manage customer complaints and maintain customer satisfaction effectively. As such, research on complaint behavior has important implications for businesses and policymakers alike.

One of the novelties of this research is its focus on the specific context of consumer empowerment and complaint behavior in Central Bangka Regency in the era of economic digitization. By exploring the effects of demographic characteristics, education levels, attitudes, personality, and communication channels on complaint behavior in this region, the study aims to provide a unique and comprehensive understanding of the factors influencing consumer empowerment and compliant behavior in the Indonesian digital market. Furthermore, this research integrates qualitative and quantitative methods to obtain a deeper sociological insight into consumer behavior, considering the diverse cultural and ethnic backgrounds of the community. As a result, the findings can contribute to developing more targeted and effective consumer protection policies and strategies, ultimately enhancing consumer welfare and ensuring a fair trade climate in Indonesia's rapidly evolving digital economy.

The results of this study are expected to be used as material for monitoring and evaluating how well consumers know about their rights and obligations in carrying out consumption activities. The results of monitoring and evaluation through surveys are expected to provide a real picture of the actual conditions in the market so that the government can properly determine what steps can be taken next to achieve consumer welfare at large.

METHODS

This study aimed to assess consumer empowerment in Central Bangka Regency, focusing on the influences of various demographic factors. Primary data were collected from a survey involving 88 respondents distributed across four regional districts. The survey investigated the pre-purchase, purchase, and post-purchase phases of consumer understanding.

A quantitative research method was employed, utilizing Stata 13 and Orange statistical software for data processing. The research emphasizes theory testing by measuring the Consumer Empowerment Index (CEI) variables using numbers and analyzing data through statistical procedures.

The CEI compilation method was systematically arranged to produce data on consumer empowerment in Central Bangka in 2022. Respondents were individuals aged 17 to 60 years, with income/married status, and capable of making independent decisions. The selection of respondents considered the population density of each sub-district.

The regression analysis model is as follows:

$$CEI_i = \alpha + \beta_1 LOC_i + \beta_2 SCH_i + \beta_3 GDR_i + \beta_4 AGE_i + \beta_5 INC_i + \varepsilon_i \quad \text{……………………(1)}$$

where:
CEI_i: Consumer Empowerment Index for individual i
LOC_i: Location of residence of individual i (e.g., rural or urban)
SCH_i: Number of years of schooling completed by individual i
GDR_i: Gender of individual i (e.g., male or female)
AGE_i: Age of individual i
INC_i: Income group of individual i (e.g., low, middle, or high)

By estimating the coefficients in this model, we can quantify the effect of each independent variable on the CEI and assess how much variation in the CEI is explained by these variables. This analysis can provide valuable insights into the determinants of consumer empowerment, informing policies and interventions aimed at improving consumer empowerment levels among individuals in the sample.

RESULTS AND DISCUSSION

Respondent characteristic

Table 1 provides descriptive statistics for five variables in a dataset consisting of 88 observations in Bangka Tengah. The variables are income group, age, gender, years of education, and rural/urban residence.

Table 1. The statistical description of respondent

Variable	Obs	Mean	Std. Dev.	Min	Max
Income Group	88	1.875	0.841625	0	4
Age	88	38.45455	13.66168	17	70
Gender	88	0.363636	0.483802	0	1
Years Of Education	88	9.829545	2.913392	6	16
Rural/Urban	88	0.159091	0.367857	0	1

The descriptive statistics presented indicate the characteristics and demographics of the individuals in the dataset from Bangka Tengah. The mean income group value of 1.875 and standard deviation of 0.841625 suggest that the dataset consists of individuals with moderate to high-income levels. The mean age of 38.45455 and standard deviation of 13.66168 indicate that the dataset includes individuals with a diverse age range from 17 to 70 years. Moreover, the gender variable shows more males than females in the dataset, with a mean value of 0.363636 and a standard deviation of 0.483802. The years of education variable has a mean value of 9.829545 and a standard deviation of 2.913392, indicating a varied range of education levels. Some individuals have as little as six years of education. In comparison, others have up to 16 years. Lastly, the rural/urban variable has a mean value of 0.159091 and a standard deviation of 0.367857, suggesting that more individuals in the dataset reside in rural areas than urban areas in Bangka Tengah.

These descriptive statistics offer a basic understanding of the dataset's characteristics and demographics from Bangka Tengah, which can inform further analysis and exploration of relationships between variables. The study uses three general dimensions, namely pre-purchase, purchase, and post-purchase, with each dimension further described by seven questions to capture the respondents' insights needed for purchasing items. These seven question sections comprise information search, knowledge of consumer protection laws and institutions, product selection, product preference, buying behavior, the propensity to talk, and complaint behavior. To obtain a more detailed picture, refer to Figure 2.

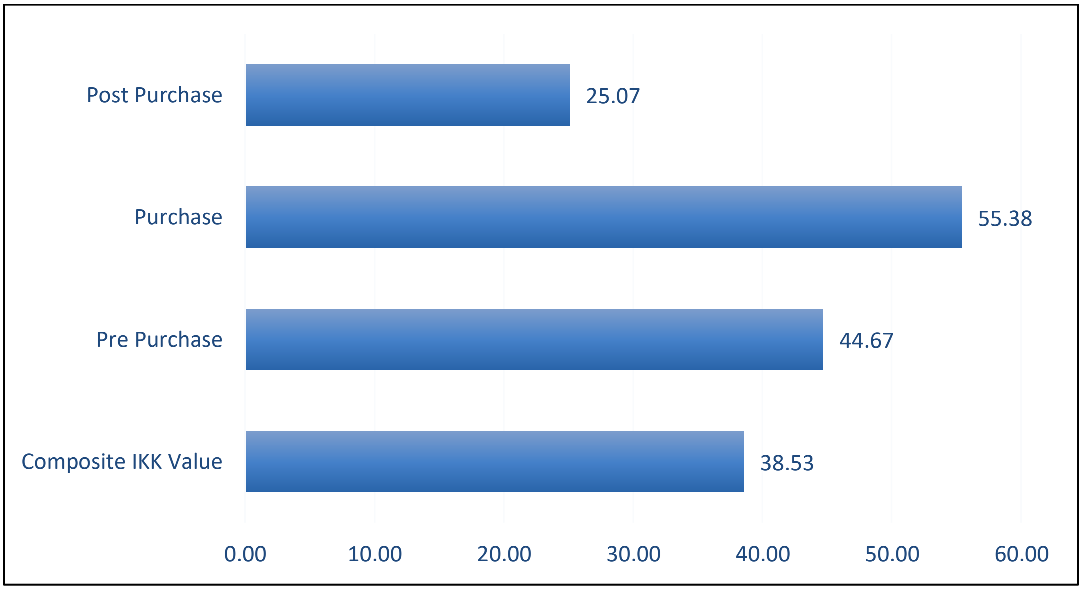


Figure 2. Dimensions of the average consumer empowerment index

Figure 2 illustrates the realization of the Consumer Empowerment Index (CEI) by dimension in Central Bangka Regency. As mentioned, consumers go through three dimensions when purchasing a product or service: pre-purchase, purchase, and post-purchase. The results reveal that the highest realization of the CEI value in the region is in the purchase dimension, accounting for 55.4 percent of the maximum value. Further examination indicates that the people of Central Bangka Regency excel in selecting and preferring local goods. However, the pre-purchase and post-purchase dimensions only reached 44.7 percent and 25.1 percent, respectively, suggesting that the community struggles to articulate their dissatisfaction with the service provided by producers. To delve deeper into each dimension of empowerment, policymakers and stakeholders must analyze the results to identify the strengths and weaknesses of consumer empowerment in the region and design targeted interventions to address them.

The Consumer Empowerment Index (CEI) survey results in Central Bangka Regency provide valuable insights into consumer behavior throughout the pre-purchase, purchase, and post-purchase phases. Further analysis of these dimensions can assist policymakers and stakeholders in better understanding the strengths and weaknesses of consumer empowerment in the area, allowing for targeted interventions to address any issues that may arise.

1. Pre-purchase (44.7): The relatively low CEI score in the pre-purchase dimension suggests that consumers in Central Bangka Regency may lack the necessary knowledge or skills to make informed decisions before purchasing goods or services. This could be due to a lack of awareness about product features, available alternatives, or market prices. The low score highlights the need for consumer education and awareness campaigns to ensure consumers can make well-informed decisions before purchasing goods or services. Possible interventions could include: a) Providing access to reliable and user-friendly information sources, such as consumer guides or product comparison websites; b) Organizing consumer education workshops or seminars on various topics, such as understanding product labels or comparing prices; c) Collaborating with local media and community organizations to disseminate consumer-related information and raise public awareness.

2. Purchase (55.4): The highest CEI realization in the purchase dimension indicates that consumers in Central Bangka Regency are relatively skilled at selecting goods and services and strongly prefer buying local products. This suggests that local consumers can make choices that benefit the regional economy and support local businesses. However, there is room for improvement, as the CEI has not reached its maximum value. Strategies to further enhance consumer empowerment in the purchase dimension may include: a) Encouraging local businesses to provide transparent information about their products and services, enabling consumers to make more informed choices; b) Promoting the benefits of buying local goods, such as supporting local economies, reducing environmental impacts, and preserving cultural heritage; c) Implementing initiatives to improve the quality and variety of locally-produced goods, ensuring that consumers can access high-quality products at competitive prices.
3. Post-purchase (25.1): The low CEI realization in the post-purchase dimension (25.1) indicates that consumers in Central Bangka Regency may not effectively express their dissatisfaction with products or services and seek redress when necessary. This could be due to limited knowledge of their rights as consumers or the absence of accessible mechanisms to lodge complaints or seek compensation. Addressing this gap requires interventions that empower consumers to voice their concerns and seek remedies, such as: a) Establishing accessible and efficient consumer complaint and redress mechanisms, such as consumer helplines, online complaint platforms, or consumer protection agencies; b) Conducting public awareness campaigns to inform consumers about their rights and responsibilities and available avenues for redress; c) Encouraging businesses to adopt transparent and responsive customer service practices to create an environment where consumers feel confident expressing their concerns and seeking assistance.

The analysis of the CEI in Central Bangka Regency based on demographic structures such as the location of residence, income level, and education level provides valuable insights into consumer empowerment trends in different groups. By examining these variables, policymakers and stakeholders can identify groups requiring specific interventions to improve consumer empowerment. For instance, the analysis may reveal that individuals in rural areas have lower CEI realizations than those in urban areas, indicating a need for targeted education and awareness campaigns in rural communities. Similarly, individuals with lower incomes or education levels may require more accessible, user-friendly information sources to make well-informed decisions.

Moreover, examining the CEI based on demographic structures can also help policymakers and stakeholders evaluate the effectiveness of existing policies and interventions. For example, suppose the CEI realization is higher among individuals with higher incomes. In that case, it may indicate that current policies and interventions are not adequately addressing the needs of low-income consumers. In this case, policymakers may need to reassess existing policies and implement new initiatives to improve consumer empowerment among low-income individuals.

Overall, analyzing the CEI based on demographic structures provides a more nuanced understanding of consumer empowerment trends in Central Bangka Regency and can guide targeted interventions and policies to enhance consumer welfare in the region.

Figure 3 illustrates the differences in the average Consumer Presence Index value based on respondents' residence, distinguishing between villages and cities. The results reveal that urban residents have a higher average index value (42.47) than rural residents (37.78), indicating that urban consumers are generally more empowered than their rural counterparts. Several factors could contribute to this discrepancy, including better infrastructure, greater awareness of consumer rights and obligations, and accessibility to various goods and services in urban areas. Notably, urban consumers exhibit more conscientious behavior during purchase by ensuring product safety and health implications.

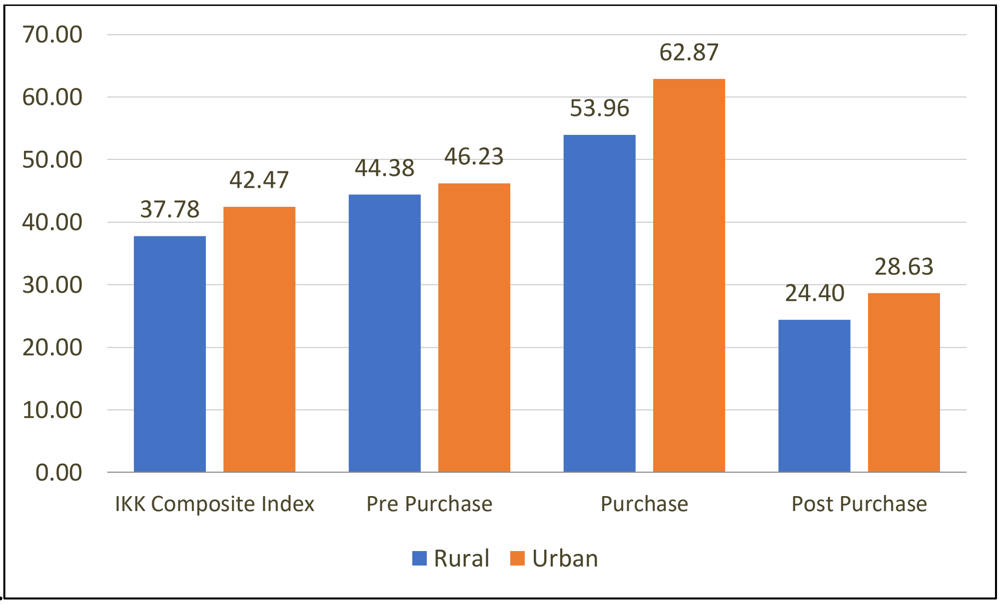


Figure 3. Rural/urban consumer empowerment index

To address the gap in consumer empowerment between rural and urban areas, policymakers and stakeholders can consider implementing the following strategies: 1) Enhance consumer education in rural areas to improve consumer rights and obligations awareness, focusing on product safety and health implications; 2) Invest in rural infrastructure, including transportation and communication systems, to facilitate access to diverse products and services; 3) Encourage local government and non-government organizations to conduct outreach programs in rural areas, promoting consumer empowerment and providing resources to make informed decisions.

By implementing these strategies, the gap in consumer empowerment between rural and urban consumers can be reduced, ensuring that both groups can confidently exercise their rights and responsibilities in the marketplace.

Figure 4 illustrates the differences in the average Consumer Empowerment Index value based on respondents' income level. The results show that respondents with an income of less than 1 million have a relatively high average index value across all dimensions, with a particularly high value in the purchase dimension (59.51 percent). This suggests that lower-income consumers in Central Bangka Regency are relatively empowered and prioritize purchasing products that meet their needs and support the local economy. However, there is room for improvement in addressing product defects and ensuring consumers can assert their rights effectively.

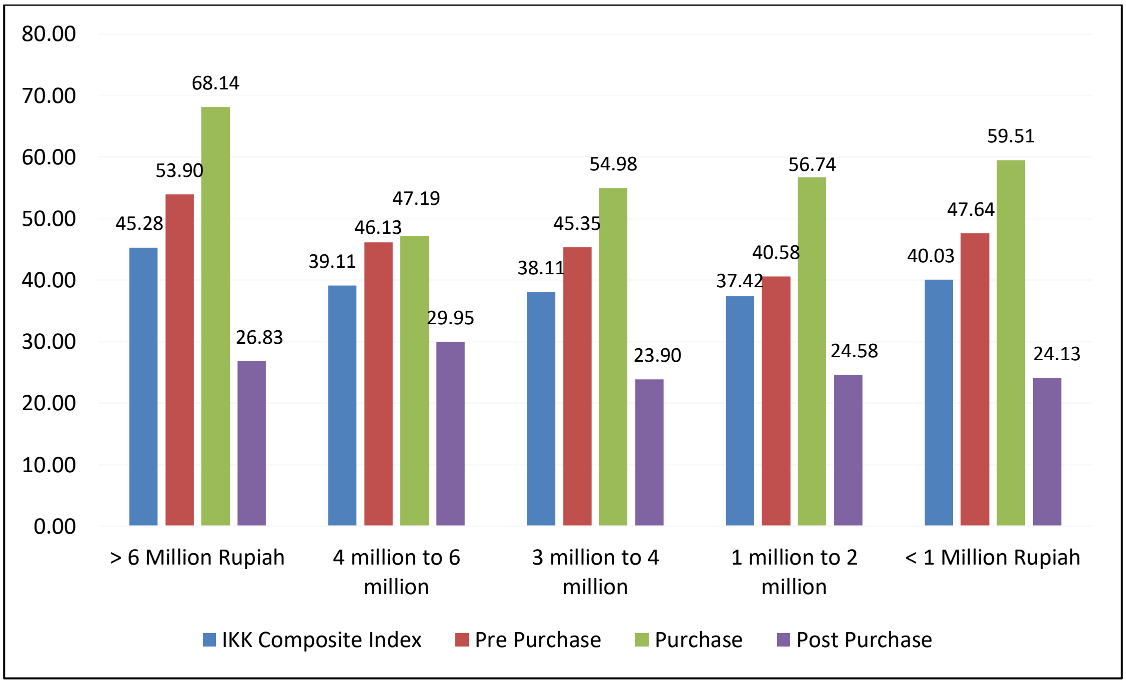


Figure 4. Consumer empowerment index by income group

To enhance consumer empowerment among lower-income groups, policymakers and stakeholders can consider implementing strategies such as: 1) Expanding consumer education programs and raising awareness about consumer rights and mechanisms for addressing product defects; 2) Encouraging businesses to adopt transparent and responsive customer service practices and return and refund policies that cater to lower-income consumers; 3) Establishing accessible and efficient consumer complaint and redress mechanisms that are accessible to all income levels.

By focusing on these strategies, policymakers and stakeholders can work to create a more informed and empowered consumer base, contributing to a more robust and equitable digital economy in Central Bangka Regency.

Consumer empowerment index by education level

The results presented in Figure 5 indicate that respondents with higher education levels tend to have higher Consumer Empowerment Index (CEI) values across all dimensions compared to those with lower education levels. Specifically, respondents with education levels of 13-16 years exhibit the highest average index value (51.68), followed by those with education levels of 10-12 years (47.93), 7-9 years (41.96), and 0-6 years (36.59). This trend suggests that higher education levels can contribute to greater awareness of consumer rights and obligations, better access to information and resources, and greater confidence in expressing complaints and seeking redress. However, it is worth noting that even respondents with lower education levels show relatively high CEI values, indicating that efforts to empower consumers of all education levels can be effective.

To further enhance consumer empowerment among all education groups, policymakers and stakeholders can consider: 1) Expanding consumer education programs targeting individuals with lower education levels, focusing on key consumer protection laws, product safety, and redress mechanisms; 2) Encouraging businesses to provide more accessible and transparent product information, particularly for those with lower education levels; 3) Facilitating access to consumer complaint and redress mechanisms, particularly for those with lower education levels who may not be aware of their options. By addressing these issues, policymakers and stakeholders can work towards creating a more empowered and informed consumer base, ultimately contributing to a more robust and equitable digital economy in Central Bangka Regency.

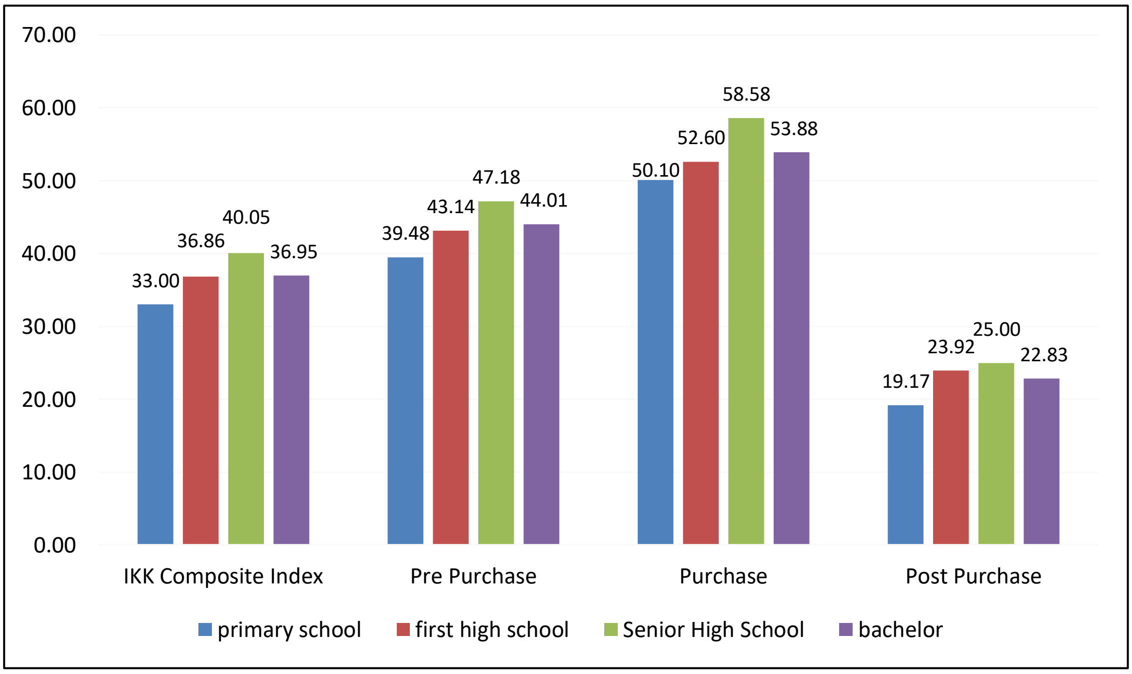


Figure 5. Consumer empowerment index by education group

Figure 5 illustrates the average consumer empowerment index based on education, which is relatively high. Respondents with a high school education have a higher average index value than other graduates. However, the result may not be statistically stable due to unequal sample sizes across education categories. As shown in the previous pie chart analysis, only six respondents have an undergraduate education.

From an educational standpoint, consumers have better access to goods and services. They demonstrate good skills in selecting and referencing products during the purchasing process. Moreover, they exhibit positive purchasing behavior and a preference for domestic products. However, despite being aware of applicable laws and regulations, consumers hesitate to express their criticisms, complaints, and suggestions to producers.

Increasing awareness of consumer rights and available mechanisms for lodging complaints and seeking redress is necessary to improve consumer empowerment. Policymakers can work towards providing accessible and efficient consumer complaint and redress mechanisms, conducting public awareness campaigns, and encouraging businesses to adopt transparent and responsive customer service practices.

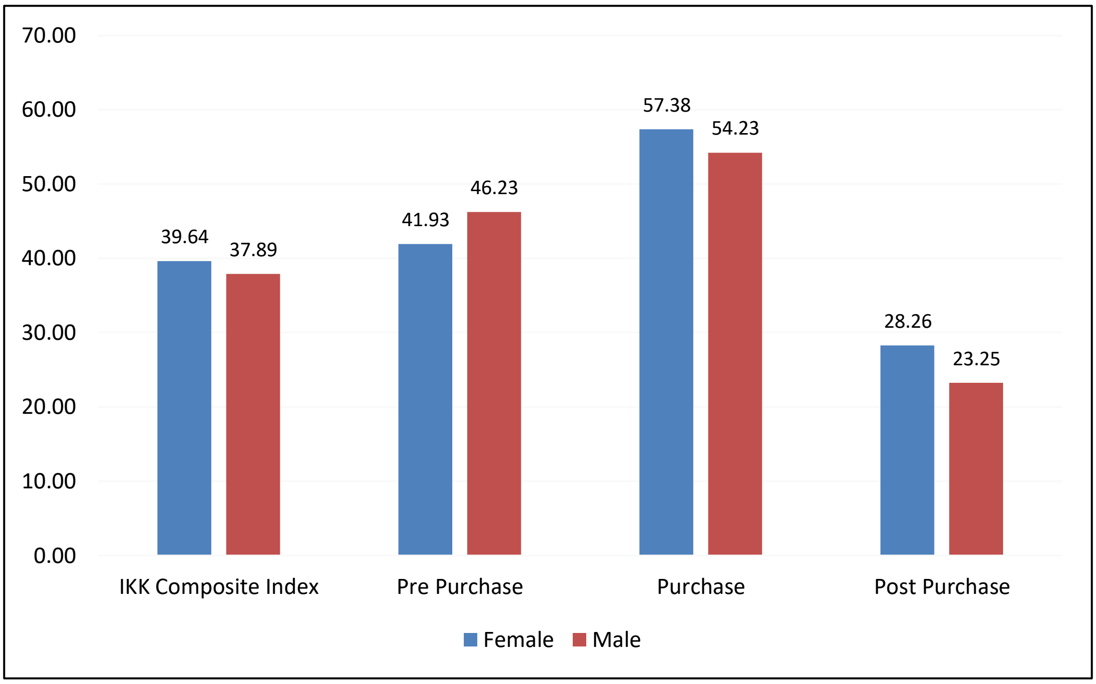
Consumer empowerment index by gender

The gender structure is also an indicator in determining consumer presence. Initially, the proportion of men and women selected as respondents for the consumer empowerment index is analyzed. Figure 6 illustrates the differences in consumer empowerment index values between male and female consumers in Central Bangka

Regency. Although the overall difference is insignificant, it is statistically significant and warrants further analysis.

Female consumers exhibit a slightly higher total empowerment index value (39.64) than male consumers (37.89), suggesting that women are generally more empowered in making purchasing decisions and navigating the marketplace. This trend is not observed in the pre-purchase phase, where male consumers have a higher empowerment index (46.23) than female consumers (41.93). This suggests that men are more proactive in seeking product information, understanding applicable laws, and being aware of consumer protection institutions before purchasing.

In contrast, female consumers outperform male consumers during the purchase (57.38 vs. 54.23) and post-purchase phases (28.26 vs. 23.25), suggesting that women are more attentive to product selection and have a broader range of references when considering goods and services. Additionally, female consumers are more likely to share their experiences with others and better utilize their rights and obligations to express criticism and complaints about their products



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share their experiences with others and better utilize their rights and obligations to express criticism and complaints about their products.

These findings suggest that gender-specific strategies may be beneficial in addressing consumer empowerment gaps. For instance, policymakers and businesses could encourage men to be more engaged during the purchase and post-purchase phases by promoting the importance of product selection and sharing experiences. Meanwhile, women's pre-purchase empowerment could be strengthened by enhancing their access to information about products, consumer rights, and protection institutions. Targeted educational campaigns and workshops could also be developed to focus on male and female consumers' unique needs and preferences to improve their overall consumer empowerment.

By adopting a gender-sensitive approach to consumer empowerment, policymakers and businesses can better address the unique needs and preferences of both male and female consumers, ultimately leading to a more empowered and informed consumer base in Central Bangka Regency.

Factors influencing consumer empowerment

Estimates of the factors that influence consumer empowerment in Central Bangka Regency are given in Table 2. The R-squared model of 0.1320 indicates that the included predictors can account for approximately 13.2% of the variation in the Consumer Empowerment Index. The adjusted R-squared value of 0.0791 considers the number of predictors in the model and provides a more conservative estimate of the model's explanatory power. The overall F-statistic of 22.49, with an associated p-value of 0.0374, demonstrates that the model is statistically significant at a 5% significance level.

Table 2. Consumer empowerment model

Predictor	Coefficient	Std. Error	t-value	p-value	95% CI Lower	95% CI Upper
LOC	3.0918	3.9872	0.78	0.44	-4.8399	11.023
SCH	1.6396	0.586	2.8	0.006	0.47377	2.8055
AGE	0.3397	0.122	2.78	0.007	0.0968	0.5826
GDR	1.0973	2.9548	0.37	0.711	-4.7808	6.9755
INC	0.7109	1.5033	0.47	0.638	-2.2796	3.7016
Intercept	7.1851	9.4168	0.76	0.448	-11.547	25.918
R-squared		0.1320				
Adjusted R-squared		0.0791				
F-statistics		22.49				
Prob(F-statistic)		0.0374				

The analysis indicates that the location of residence (LOC), either rural or urban, does not significantly influence the Consumer Empowerment Index (CEI). With a coefficient of 3.091842 and a p-value of 0.440, the impact of this factor is not substantiated by the data. In contrast, years of schooling (SCH) emerge as a significant predictor of the CEI. The analysis reveals a positive relationship between educational attainment and CEI, with a coefficient of 1.639663 and a p-value of 0.006. This result highlights the importance of education in fostering consumer empowerment.

The analysis demonstrates that gender (GDR) is not a significant determinant of the CEI. With a coefficient of 1.097329 and a p-value of 0.711, this finding suggests that both male and female consumers exhibit similar levels of empowerment.

The relationship between age and the CEI is statistically significant, as indicated by a coefficient of 0.3397792 and a p-value of 0.007. The positive coefficient suggests consumer empowerment increases with age, potentially due to accumulated experience and knowledge.

The income group variable (INC) does not exhibit a statistically significant effect on the CEI, as evidenced by a coefficient of 0.7109892 and a p-value of 0.638. This finding indicates that consumer empowerment is not primarily driven by individuals' financial resources within the studied population.

The research has found a positive and significant correlation between years of schooling and the Consumer Empowerment Index, indicating that consumers with higher education levels are more empowered in the digital market. This is likely because higher education leads to better decision-making, critical thinking, and problem-solving skills, which are crucial for navigating the complexities of digital markets. Furthermore, educated consumers are more likely to be aware of their rights, proficient in using digital tools, and better equipped to seek redress if their rights are violated. Therefore, policymakers should prioritize investing in education to enhance consumer empowerment and promote fair trade practices in the digital economy.

Similarly, the research has found a positive and significant correlation between age and the Consumer Empowerment Index, suggesting that older consumers in Central Bangka Regency are more empowered. This finding may be due to older individuals' greater life experience, which may give them more exposure to different market situations and a better understanding of their rights and responsibilities. As a result, older consumers may be more capable of making informed decisions and protecting themselves in digital markets.

These studies have examined various aspects of consumer empowerment, including the impact of consumer empowerment and its self-assessment on consumers' information search behavior and life satisfaction (Nam, 2021), as well as the complexities of consumer empowerment in the modern consumption environment (Martin, 2021). Another study analyzed the profile of consumer empowerment and the influence of demographic characteristics, socio-economic status affect consumer empowerment in rural and urban areas (Simanjuntak & Mubarokah, 2020). These studies provide valuable insights into the factors that influence consumer empowerment and can inform policy and business strategies to promote consumer rights and fair trade practices.

The study found that location of residence (rural or urban), gender, and income group did not significantly impact the Consumer Empowerment Index. This implies that consumer empowerment in Central Bangka Regency is more influenced by education and experience than demographic factors. This insight can help policymakers and stakeholders focus on improving education and raising awareness about consumer rights and responsibilities to enhance consumer empowerment in the region. In conclusion, the findings of this study underscore the importance of education and experience in fostering consumer empowerment in Central Bangka Regency. To further promote consumer welfare and fair trade practices in the digital economy, policymakers and stakeholders should invest in educational initiatives and raise public awareness about consumer rights. Also, fostering a lifelong learning culture will enable consumers to navigate the rapidly evolving digital landscape with confidence and competence.

Nam (2021) investigated the influence of consumer empowerment and its self-assessment on consumers' information search behavior and life satisfaction within the South Korean context. Simanjuntak and Mubarokah (2020) investigated the impact of consumer education and lifestyle on the Consumer Empowerment Index in rural and urban areas of Indonesia. They found significant disparities in consumer education, fulfilled lifestyle, believer lifestyle, and the Consumer Empowerment Index between these regions, with urban areas consistently outperforming rural areas. These findings emphasize the importance of education and experience in determining consumer empowerment across different countries and cultures. A study conducted by Song and Sun (2020) in China supports these conclusions. It revealed that education level, income, and online shopping experience significantly positively affected consumer empowerment, whereas gender and age did not.

In the modern consumption environment, Han and Broniarczyk (2022) examined the complexities of consumer empowerment across four domains: consumer choice, access to marketplace information, consumer voice, and consumer experience. The authors discuss how evolving marketplace offerings, technologies, communication platforms, and consumption trends can benefit and harm consumer empowerment. The impact depends on specific conditions and contexts, including sharing economy, consumer co-creation, product customization, artificial intelligence, augmented reality, virtual reality, user-generated content, social media, online word of mouth, and multitasking. These studies highlight the importance of understanding the multifaceted nature of consumer empowerment, its determinants, and the dynamic interplay of factors that shape it in various consumption environments.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Investigating the Consumer Empowerment Index (CEI) in Central Bangka Regency offers valuable insights into the region's consumer behavior. The study identifies key trends and potential areas for improvement by examining the index in relation to demographic factors such as income group, education, gender, and area of residence. The CEI value of 38.53, classified as "understand," suggests that Central Bangka consumers possess a fundamental grasp of their rights and obligations, but there remains room for growth in consumer empowerment.

The analysis reveals that consumers in Central Bangka exhibit higher empowerment during the purchase phase, demonstrating informed decision-making and support for local businesses. However, a notable weakness emerges in the post-purchase phase, with consumers less likely to voice their experiences or criticize unsatisfactory products. This lack of feedback may impede product quality and customer satisfaction. Consequently, stakeholders should focus on enhancing consumer awareness and engagement in the post-purchase phase through targeted educational campaigns, consumer rights workshops, and accessible complaint channels, ultimately bolstering the local economy.

The regression analysis reveals that only years of schooling and age significantly impact the CEI. At the same time, the location of residence, gender, and income group do not exhibit significant effects. However, the model's low R-squared value indicates the potential for refining its explanatory power through additional variables or research.

Although the study provides valuable insights, it is important to recognize that the observed associations do not imply causation.

Recommendations

In light of the research findings that underscore the relatively low consumer empowerment in Central Bangka Regency, several recommendations can be proposed to bolster consumer empowerment, promoting a more robust market system and improved regulatory environment:

1. Consumer education initiatives should be developed and implemented to raise awareness about consumer rights, responsibilities, and best practices, utilizing various channels such as schools, community centers, local media, and social media platforms. Capacity-building efforts can focus on organizing workshops and training programs for local consumer protection organizations, empowering them to advocate for consumer rights and support informed decision-making effectively.
2. Collaboration between local government, businesses, and consumer protection organizations is crucial for developing and enforcing consumer-friendly regulations and policies. Accessible complaint mechanisms, including online portals, mobile applications, and toll-free helplines, should be established to facilitate consumer reporting and feedback. Businesses should be encouraged to enhance transparency by providing clear information on pricing, quality, and terms and conditions, enabling consumers to make informed decisions and fostering a competitive market environment.
3. Support for local businesses adopting consumer-friendly practices is essential for building consumer trust and cultivating a culture of consumer empowerment.

A key limitation of this study lies in its relatively small sample size, potentially restricting the generalizability of findings to other populations. Additionally, the cross-sectional design only captures data at a single point, preventing examining changes in the Consumer Empowerment Index over time or establishing causal relationships. Furthermore, the model does not encompass all potential factors contributing to consumer empowerment, as variables such as trust in institutions, cultural norms, and psychological factors were not considered. Lastly, the reliance on self-reported data may introduce bias or measurement errors. These limitations necessitate a cautious interpretation of the findings and highlight the importance of future research employing larger, more diverse samples and comprehensive measurement approaches.

Further research is required to establish causal relationships and explore other factors contributing to consumer empowerment. Besides that, future research should delve deeper into the factors influencing consumer empowerment in Central Bangka Regency, examining the potential impact of socioeconomic factors, cultural norms, and market dynamics on consumer behavior and decision-making processes.

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Becoming a viewer again? Optimizing educational tour at *IKN Nusantara* to encourage community enthusiasm

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Abstract

The scenario of moving the national capital aims to equalize economic growth. In reality, the president of the Republic of Indonesia has chosen Penajam Paser Utara in East Kalimantan as the new national capital (known as IKN Nusantara). Substantively, this program is predicted to have an impact on community empowerment. To stimulate the success of capital city relocation, stakeholder participation is needed, especially local communities using a comprehensive alternative. The primary target of this paper is to channel and expose the culture of East Kalimantan via IKN Nusantara educational tourism. The mixed method approach combines quantitative techniques based on surveys and qualitative techniques through in-depth interviews. As a result, most local people in East Kalimantan are interested in taking part in the IKN Nusantara educational tour with relatively low prices and unique packaging of activities. In particular, the informants desired to be part of IKN Nusantara, including maintaining cleanliness, caring for the environment, promoting educational tours on their social accounts, and actualizing this activity as content creators. The main polemic is that even though they obtain information regarding the IKN Nusantara from various media, they are still confused about the role taken in developing the IKN Nusantara. Therefore, the government's commitment can guarantee local community access as IKN Nusantara partners. Optimism for the future agenda needs to be supported by popular and mutually-adhering policies toward holistic engagement of all stakeholders.

Keywords: *East Kalimantan, Educational tour, Empowering local communities, New national capital*

JEL Classification: A13, N95, Z31, Z32, N95

INTRODUCTION

The relocation of the national capital is not a new phenomenon for countries, with Indonesia being one example. The rationale behind moving the national capital is to support Indonesia's Vision 2045, which predicts the Indonesian economy to be among the top 5 in the world by 2045 (e.g., Bonita & Wadley, 2022; Oxford Analytica, 2022). Another factor cited is the intention to stimulate the regional economy outside Java, as Indonesia's economy has thus far been concentrated on the island of Java. Moreover, a logical reason is to alleviate the burden on Jakarta, which currently serves as the center of government (Ayundari, 2022). Indonesia's capital relocation was planned from Jakarta to Penajam Paser Utara (PPU) in East Kalimantan. The new national capital was IKN Nusantara (hereafter referred to as such in this paper). The area was selected due to its central location within Indonesia and its high accessibility. Figure 1 illustrates the mapping of the IKN Nusantara cluster in 2024.

Figure 1. New national capital location

The relocation of the national capital is expected to have a significant impact, particularly on the PPU community in East Kalimantan. The anticipated effect includes stimulating positive investments in the new region and its surroundings and increasing output for several tertiary sectors, such as services (Baharuddin et al., 2022; Sutoyo & Almaarif, 2020). One sector experiencing progress is the hospitality and tourism industry.

Tourism's contribution to macroeconomic growth in East Kalimantan has been relatively low compared to its potential (Ilmi et al., 2022). Both foreign and domestic tourist visits to East Kalimantan have been limited (Anggriawan, 2018). Simultaneously, relocating the national capital has negative consequences, such as climate change and cultural shifts (Salim & Negara, 2019; Shimamura & Mizunoya, 2020; Van de Vuurst & Escobar, 2020). Massive infrastructure development is responsible for these adverse effects. Additionally, cultural transformations will be brought about by incoming migrants.

Viewed from another perspective, this transfer challenges local institutions, ultimately creating opportunities for creativity and innovation to ensure the integration of the new national capital (de Vries, 2021). Consequently, efforts are needed to guarantee the success of the capital relocation, including the introduction of tourism initiatives and the engagement of the local community in exploring and leveraging the natural environment of East Kalimantan through an Educational Tour IKN Nusantara development program.

An educational tour, also known as "educational tourism," is a tourism program that merges a tourism framework with education. Within a sustainable context, educational tours create and deliver educational values integrated into tour packages, fostering an enjoyable educational atmosphere with informative content related to various knowledge domains, such as nature, society, culture, and imaginative learning (PASEBAN, 2022). Rodger (1998) describes an educational tour as an experience that involves tourists directly engaging with attractions. Despite being a distinctive concept, educational tours have not been widely adopted (Matthews, 1993).

Technically, educational tours are not a novel concept; this idea has been implemented internationally in various forms, such as numerous educational training camps held during the summer (Majid, 2015). Educational tours are designed to connect tourism with the environment. Four main components work together synergistically, one of which is understanding the natural environment as the foundation for a marketable tourist attraction offering diverse product options (Buckley, 1994).

Educational tours are frequently conducted in emerging markets, including Indonesia (Dabamona & Cater, 2019; Hendijani, 2016; Wijayanti et al., 2017). In the economic cycle, Indonesia, an archipelagic nation with cultural diversity and natural beauty, plays a strategic role in educational tours (Rahmawati et al., 2022). Given this context, Indonesia is considered well-suited for implementing educational tours. In Indonesia, managed educational tour practices that have garnered public interest include services such as Tiara Mas under the authority of Bali. In East Kalimantan, a notable example is the educational tour in the Derawan Islands. As demonstrated in Figure 2, the beauty of Derawan Islands is one of the priority tourist destinations in East Kalimantan. Furthermore, the figure highlights the untapped tourism potential of places like Derawan, which has not yet been extensively explored (Suharto et al., 2019).

Figure 2. Derawan Islands

Management of educational tours aims to encourage community involvement in promoting natural and cultural tourism in PPU. Ideally, local residents can capitalize on this opportunity and become an essential network. They must support one another, appreciate, and strengthen the existence of educational tours.

Publications that discuss cross-educational tours in East Kalimantan include a study by Cahyani et al. (2022). They examine ecotourism in Muara Enggelam Village, which offers visitors the chance to experience biotic elements such as birds, plants, and fish. The exploration also includes the area's physical potential, featuring residential buildings and other facilities designed and adapted to the local landscape. Tour activities tourists enjoy include trekking, boating, fishing, photography, and culinary experiences. Another study by Nala & Indriani (2020) suggests that Pela Tourism

Village needs to establish mechanisms for developing tourism integrated with village institutions, tourism businesses, community networks, and a marketing environment.

Moreover, the approach prioritizes welfare without neglecting environmental sustainability (Ekins & Zenghelis, 2021; Martin et al., 2016; Mihelcic et al., 2017; Otto & Gugushvili, 2020). In another instance, Sanjaya (2019) explained that the government promoted the concept of ecotourism in the mangrove forest conservation area in East Kalimantan. This was followed by the initiation of NGOs, local communities, and private parties who proposed several productive applications to restore the natural environment, such as mangrove forests. Social welfare issues can be addressed through superior instruments based on institutional regulations.

Interestingly, public opinions regarding the tendencies and risks of IKN Nusantara can potentially trigger multidimensional conflicts. Contrary to the three studies described above, this paper aims to introduce and educate local people about the cultural and natural aspects of East Kalimantan through a more adaptive educational tour. There is a challenge in addressing the lack of public awareness and understanding of natural and cultural corridors. The expected outcome is to advocate for an educational tour supported by various stakeholders, including the public, tourists, businesses, and the government, in a constructive, cultural, and natural consistency. In this context, the prospect of educational tourism is directed towards a more productive phase.

METHODS

To achieve the objectives of the paper, several approaches are implemented. The data analysis phase employs mixed methods, which combine qualitative and quantitative techniques. Qualitative techniques are used to obtain in-depth, authentic information and a foundational understanding of the observed phenomena (Austin & Sutton, 2014). On the one hand, qualitative techniques focus on surveys or in-depth interviews with samples (Rahmawati et al., 2021).

Substantively, population standards are determined by local participation. The sample comprises 118 young community members in East Kalimantan as resource persons to be surveyed. The basis for selecting the sample is framed using a purposive pattern that relates to the characteristics, traits, and types of informants based on their understanding of tourism education. In practice, data collected from respondents include: age, profession, background that initiated the formation of IKN Nusantara, environmental elements, sectoral dynamics, and their involvement in organizing IKN Nusantara. Additionally, a quantitative approach is employed to explain the empirical state of the studied points using annual secondary publication data.

From a tourism research perspective, mixed methods describe, depict status, and verify to gain comprehensive knowledge (e.g., Kotus & Rzeszewski, 2015; Molina-Azorin & Font, 2015; Truong et al., 2020). This method is structured to plan, systematize, and measure in order to highlight the advantages and anticipate the shortcomings of the quantitative and qualitative approaches (Putra & Hendarman, 2013). Furthermore, the complexity of the method is also designed for accurate and complete social studies.

RESULTS AND DISCUSSION

Respondent profile

The most dominant characteristics of the informants were found in the age group of under 18 years, accounting for 54.3%. Out of the 114 informants, the least represented were those aged over 29 years (1.8%). The rest were quite varied; generally, these respondents belonged to the millennial generation (Gen Z). Figure 3 provides an overview of the age and profession characteristics of the respondents.

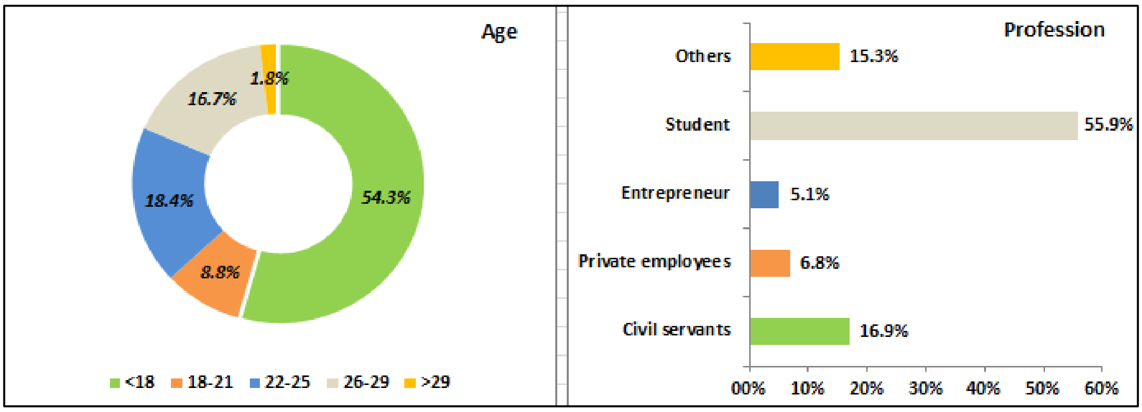

Figure 3. Age group and respondent's profession

The most common backgrounds were school and university students, representing 55.9%. Out of 118 informants, the least common were those working as entrepreneurs (5.1%). The remaining informants were employed as private employees (6.8%), civil servants (16.9%), and other types (15.3%).

Preferences of tourists and local communities

The location of East Kalimantan is at the central point of Indonesia. In addition to that, the accessibility of trade from Eastern Indonesia and the West through IKN Nusantara is advantageous. As previously discussed, to move towards a more balanced IKN Nusantara arrangement, parties from East Kalimantan need to adopt an educational tour program.

Many people are interested in being part of the program. Generally, besides enjoying the tour routine, they are enthusiastic about education, which is part of the educational tour package. They mentioned that they hope for an educational tour program at a relatively affordable price. In 2019, BPS Kalimantan Timur (2020) reported that the agricultural and fishing sectors dominate the average profession in East Kalimantan. Due to substandard wage levels, government intervention is needed to regulate educational tour rates to make them accessible to tourists and the local community.

Apart from the cost aspect, other factors that need to be considered in educational tours are the availability of tour package options, comfortable facilities, and the organization of engaging activities to introduce local cultural customs. Tourists will be hesitant to participate in activities if they are charged a high fee.

The local community will participate in the educational tour by restoring environmental cleanliness. Implementing this program also has the potential to change the economy, including creating new job opportunities. With the creation of job opportunities, the level of prosperity is also likely to increase (Roy et al., 2022). Local people working as entrepreneurs may also experience progress. Not only that, but they can also help spread knowledge and document educational tours on social media.

Practically, a new type of job emerging after the educational tour empowerment is a content creator. According to Barnes (2002) and Mileros et al. (2019), content creators are individuals or groups who create digital material, such as video, sound, images, text, or a combination thereof, all subject to copyright rules. Through the foundation of this educational tour, the community can disseminate local culture to tourists. If the educational tour trend is positive, tourists will be encouraged to maintain environmental cleanliness and care for educational tour sites. In the future, tourists will also protect the forest. If tourists can respect the wishes of local people, they are happy to welcome them.

For now, the impact of the IKN Nusantara has not fundamentally involved local communities in the development process. They will only be able to experience its benefits in 2024. However, local people are also not indifferent to understanding Nusantara Nationalism. They can find information about IKN Nusantara, for example, via Instagram, Facebook, Twitter, newspapers, and news broadcasts on TV. Not only through electronic media, but local people can also get news from family, friends, or parties related to the development process of the IKN Nusantara.

Behind all this, there is still a need to strengthen insights into the IKN Nusantara, including the location, types of destinations to be developed, and the impact of the IKN Nusantara on the social, economic, and environmental fields. The government should consider this seriously by using outreach to the people in East Kalimantan to provide awareness and understanding of IKN Nusantara.

The performance of educational tours, such as in Northern–Cyprus, has been successful for several decades. Harazneh et al. (2018) analyzed factors that influence student interest in studying abroad compared to their home country. After evaluation, it was found that factors such as professional qualifications, academics, personal reasons, and the university's academic reputation were indicators that influenced domestic students' interest. From a more implicit perspective, Quezada (2004) concluded that there is a link between student motivation and educational tours, where their learning experience while participating in study abroad increases sensitivity to other people, themselves, and others. Another article discussing the relationship between cultural tourism and education is Kabanova et al. (2016), who argue that the impediment hindering the growth of educational tours in the Russian Federation is the lack of cooperation between local authorities and economic entities.

Next is the educational tour practice from Shekhawati and Hadauti in India. The exclusive part of learning is turned into an educational tour in the long term. While this strategy initially attracted highly skilled urban youth to rural areas, it increased skilled labor. However, the longer it exists, the more the cultural heritage seems to decline (Sharma, 2015).

Conceptually, an educational tour is a tourism activity that takes place in untouched natural environments not contaminated by human routines, with a special focus on learning, admiring, and enjoying nature, animals, plants, and cultures (Jafari, 2000). Educational tours are designed to harmonize tourism with the environment in the theoretical landscape. There are four main pillars connecting tourism with the environment, and one of them is promoting the natural environment as a tourist attraction that can be developed (Buckley, 1994). Educational tours are suitable to be marketed in developing countries.

The assumption is that the educational tour will support the government's plan to move the national capital from Jakarta (Java Island) to PPU Regency (East Kalimantan), which spans 3,333 km2 with a total population of 178,681. As of 2020, the population density in PPU is spread over 24 sub-districts and 30 villages. These four districts are Penajam, Babulu, Waru, and Sepaku. Part of the new national capital was also designed at Loa Janan in Kutai Kartanegara Regency. This district has an area of 27,263 km2 consisting of 18 sub-districts and 193 villages/neighborhoods, inhabited by 734,485 people as of 2021 (Farida, 2021).

Local community and government initiatives

Developing the national capital is still considered unfamiliar to the local community (Kodir et al., 2021; Sugihartati et al., 2020). Most people believe that the government determines their participation in the development process of the IKN Nusantara. In the contemporary duration, regulations and wise compromises are needed so that local communities can take various steps, for example: being empowered as workers in certain fields, learning about the national capital and information channels, and providing educational facilities. They have projections about such things to get equal distribution of welfare.

In diplomatic planning, local communities can also be empowered to grow entrepreneurship, protect the environment, and support the smooth development of the national capital. Local people in East Kalimantan are optimistic that IKN Nusantara can be sustainable. To support the sustainable development of the IKN Nusantara, management of local cultural aspects needs to be strengthened without ignoring government regulations and introducing local culture to newcomers. Regarding concept maturity, the government must prepare an IKN Nusantara plan that does not damage natural preservation for nature conservation, respects local communities' local customs and culture, and aspirations, and supports the quality of human resources.

Ultimately, the output of the interviews looked at the non-smoothness of the IKN Nusantara. Still, the informants revealed supporting and inhibiting factors in the development of the IKN Nusantara. Supporting factors were skilled human resources, adequate technology, harmony between the government's and local communities' wishes, and public awareness of government regulations. Surprisingly, the investigation into the negative factors includes: the lack of public awareness and participation, low fiscal injections, traditional community thinking, and the isolation of public understanding of the IKN Nusantara. This statement aligns with several publications, such as Hardiani et al. (2021), who examined community participation in the Jambi Province Quality Family Village (KB) program. Based on the hypothesis proposed, it is claimed that the community participation level is considered moderate. This enthusiasm is influenced by the distance from home, length of domicile, and education certificate.

Views about capital city relocation from various countries are contained in the publication Rachmawati (2021), which sees the problem of capital city relocation as arising from the hegemony faced in Indonesia. Equally important is infrastructure guarantees in the development of IKN Nusantara that cover information technology, communications, modes of transportation, and green open spaces. For example, relocating the capital center from Yangon to Naypyidaw in Myanmar or Kuala Lumpur to Putrajaya in Malaysia is the best solution for encouraging urban expansion. In the case of Myanmar, it shows the role of infrastructure in urban penetration. Kuala Lumpur's function is to re-organize urban areas through a new government center (Abd Manan & Suprayitno, 2020 Gomà, 2010).

Relocating the national capital is crucial now, considering that Java is overpopulated and is occupied by more than 50% of Indonesia's total population. This causes many problems, ranging from overcrowding, unemployment, unavailability of clean water, and crime to environmental problems. Jakarta, with a population of 10.56 million, is very dense and has acute problems such as traffic jams, flooding, accumulated waste, poor water and air quality, land subsidence, and rising sea levels (Sumantri, 2022).

The concrete evidence shows that Jakarta, the capital city of Indonesia, is currently the most densely populated, and the environmental situation threatens the population's health (Ward et al., 2013). This condition also affects the economy, biodiversity, land disputes, and social aspects (Measey, 2010). Another impact is that people living below the poverty line are more vulnerable to infections with infectious diseases (Thiede & Gray, 2017). In response to these challenges, the Indonesian government took the initiative to move the center of the capital to alleviate the problems and prevent them from becoming more complicated. By relocating the capital, the government aims to address issues such as overcrowding, unemployment, unavailability of clean water, crime, and environmental problems, thus promoting a more sustainable and balanced development in Indonesia.

Expectations for the new national capital

As a development actor, the national capital's development can interact positively rather than negatively, affecting the future (Berawi, 2022; Teo et al., 2020). The root of the problem is that people are unsure about how much the positive impact will increase since the planning is still in the initial review stage. Some have already felt a positive impact from road repairs, job creation, increased economic activity, synergized education, and more investors.

To achieve maximum impact, open-minded efforts from local communities based on change are needed, such as educational equity. From a regulatory standpoint, the government actively prepares human resources creates mutually beneficial regulations, evaluates regulations, cooperates with local communities, and responds fairly. Although there are concerns about negative impacts like traffic jams and overcrowding, these can be minimized. The closer an area is to the country's center, the easier the activity. The most visible effect is the increasing flow of transmigration, which can lead to more traffic jams.

Big cities like Jakarta are known for high crime rates, so the new national capital may also experience an increase in crime. Another concern is environmental degradation, with many trees being cut down in the forest for land for government offices, buildings, and other physical structures during development. The local community in East Kalimantan is concerned that this may damage the labor market because they cannot compete with migrants. They acknowledge that migrants have competent skills with an educational background required by the labor market, so they must also prepare through training and proper skill development.

This transfer is unavoidable and also supports food security. A recent study discussed Indonesian agricultural politics adapting to disruptive innovations. With a large profit margin, food security competitiveness can align with improving the agricultural industry (Mustapa et al., 2022). By transferring the new national capital, agricultural land can be moved effectively, creating a conducive ecosystem that stimulates new companies and empowering new millennial farmers. Private sector involvement can balance the government's role, such as optimizing banking.

Despite the diverse background of moving the new national capital, it still reaps pros and cons among the public. Nugraha & Siregar (2021) reviewed 5,356 Twitter data, revealing that 71.7% reacted negatively, while 28.3% viewed the decision to move the Indonesian capital to PPU positively. There are four phases in moving to the new capital city: 2020-2024, 2025-2035, 2035-2045, and 2045 onwards (Chrysna, 2022). In its development, the construction of the national capital is still in its first stage, targeting the main government infrastructure, the initial transfer of government employees, and the provision of basic infrastructure. The preparatory phase (first flow) will be completed by the end of 2022 (CNBC, 2022).

Dynamics in elements of the IKN Nusantara

The data suggests that a significant portion of informants (34.7%) do not see the transfer of the national capital as urgent (Figure 4). This perception might be due to the ongoing construction of the IKN Nusantara, which is still in progress and has not yet materialized in East Kalimantan. Furthermore, the essence of the IKN Nusantara aims to bring about equitable development in the long term. Still, the local population's trust and understanding of this goal may not be comprehensive, especially in the short term. As a result, many people do not view the transfer as an urgent priority. This perspective aligns with projections made by researchers such as Hadi & Ristawati (2020), Indrawati et al. (2022), and Theresia et al. (2020).

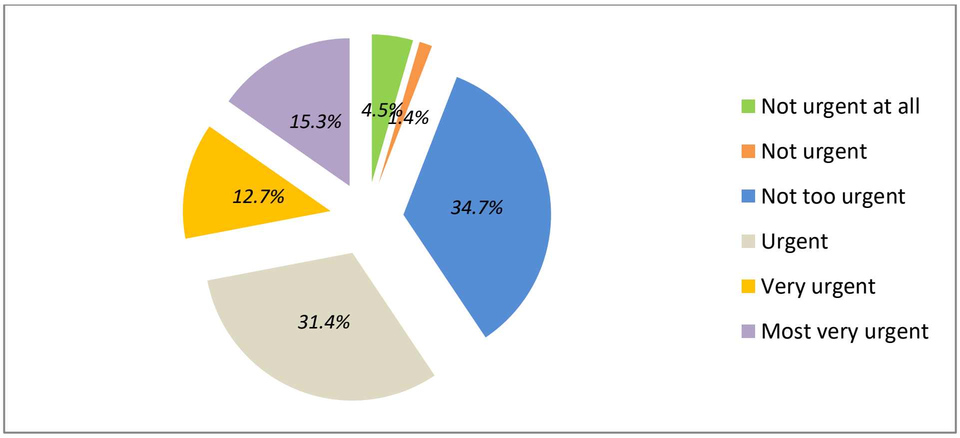

Figure 4. The urgency of the respondent's knowledge

According to Figure 5, most informants (71.2%) believe that environmental changes will result from the IKN Nusantara's development. This shows a high level of awareness among informants about the project's potential impacts. Meanwhile, 16.9% of informants think there's a possibility of changes to the IKN Nusantara, and only 0.8% believe they have the least relation to post-IKN Nusantara changes.

Researchers such as Adinugroho et al. (2021), Fristikawati & Adipradana (2022), and Jauchar et al. (2022) have also indicated concerns about environmental degradation due to the massive development of the IKN Nusantara. These concerns include ignoring important concepts like reducing emissions, land cover, agricultural productivity, and waste and pollution control in environmentally friendly indicators. Additionally, poor evaluations of these aspects can potentially create uncertainty in environmental management.

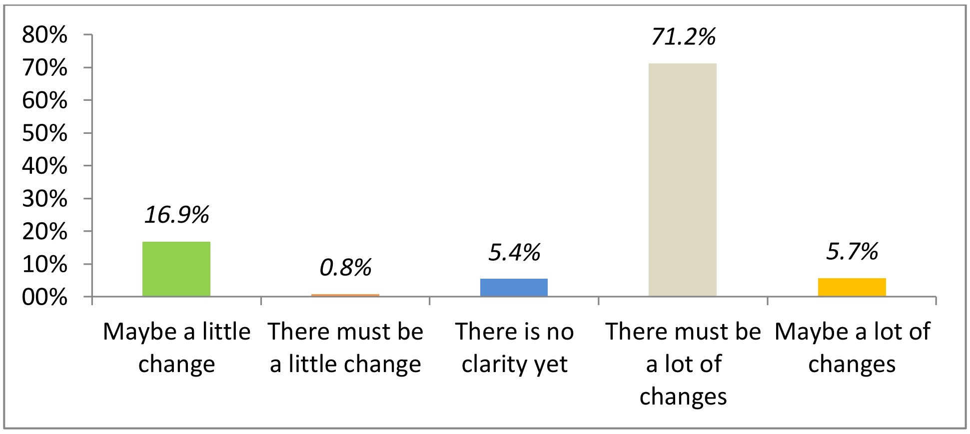

Figure 5. Environmental change

Internal and external effects when the construction of the IKN Nusantara in East Kalimantan Province are assumed to have a positive impact (39%). They believe the plan to move the Indonesian capital will positively impact internal or external changes. The two things expected are economic equality and human resources in eastern Indonesia. Meanwhile, the percentage of the development of the IKN Nusantara association for East Kalimantan is at least more pessimistic, with a percentage of 2.6% (see Figure 6). Reciprocity claimed to bring about impressive progress after the appointment of a new IKN Nusantara is also mentioned in the scientific works of Kamal (2022) and Salya (2022).

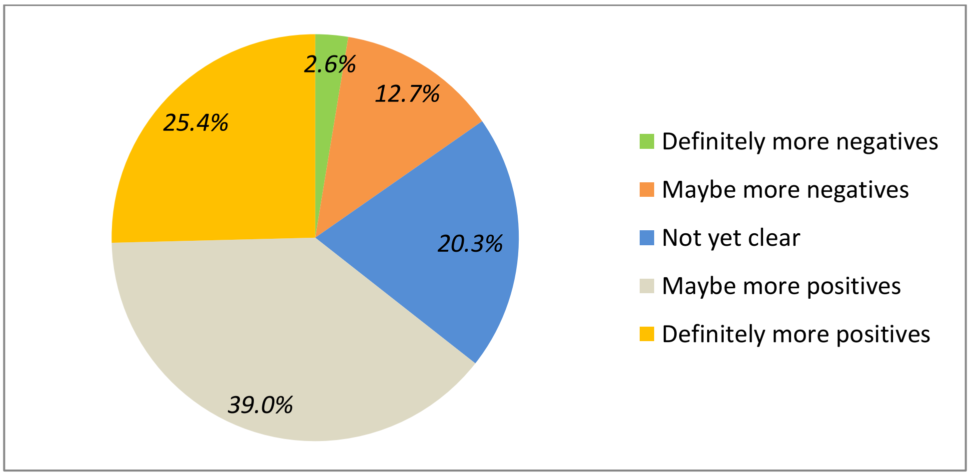

Figure 6. Cross-sectoral changes

The results from Figure 7 indicate that a significant portion of the people of East Kalimantan feel that they have a lot of control over the development of the IKN Nusantara, with 39% of respondents expressing this view. Of these respondents, 21.2% felt they had much control, while 13.6% felt they had little control. In contrast, only 0.7% of respondents felt they had the least involvement in developing the IKN Nusantara. However, 25.4% of respondents did not know or were neutral about their control over developing the new national capital. The concept of development control is important in ensuring that local residents are viewed as assets and subjects in the new national capital and that their input and participation are valued.

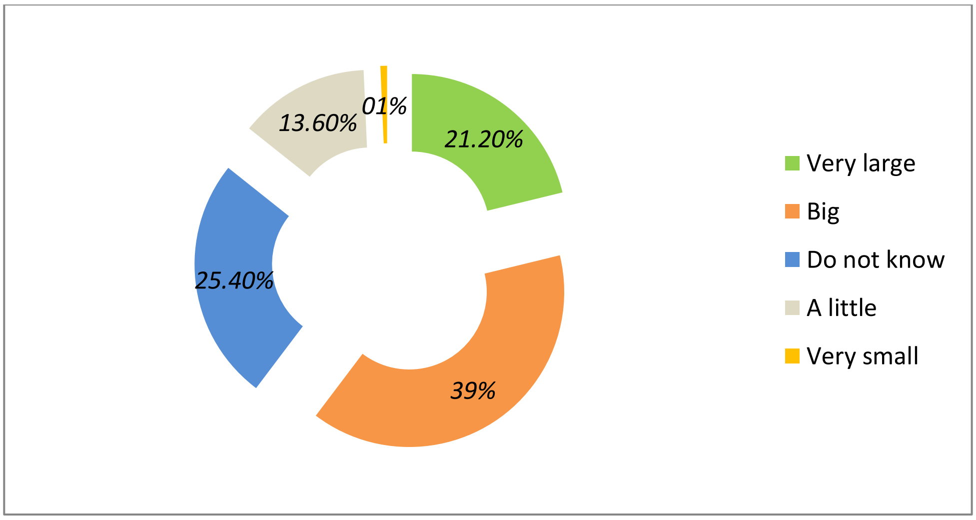

Figure 7. Community control over IKN

Arguments that guarantee to supervise, supporting, and being part of the IKN Nusantara align with the paper proposed by Hamdani (2020). Besides that, collective causality between development progress and authority must co-exist with community empowerment.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This paper aims to support the successful relocation of the new capital city by combining tourism and education with a focus on the people of East Kalimantan. Through an educational tour program, the objective is to educate, introduce, and utilize nature while attracting locals as participants in the IKN Nusantara educational tour at affordable rates. The quantitative-qualitative approach used in this study concludes that the choice of East Kalimantan as the transfer area for the new Indonesian capital has attracted the attention of various groups. However, informants from local communities in East Kalimantan have different assumptions regarding the automatic positive or negative changes the new national capital would bring, which could trigger multidimensional rifts and impact their lives. It is also evident that there are assumptions unfamiliar to the sources from a cross-sectoral perspective. The aspect of participation in the involvement of the IKN Nusantara development is considered minimal, raising concerns for the project's future.

To advance academic directions, future research should consider a model that can review the disparities in the development of the IKN Nusantara after the first stage. Addressing the weaknesses in analytical techniques is also crucial, including adding more diverse sources, taking a more modern approach, or limiting concentrated and relevant samples according to population representation in the stages of developing the new national capital.

Recommendations

Based on the findings of this study, it is recommended that local residents should let go of their regional ego and begin to see themselves as part of the IKN Nusantara, even if it is not yet urgent. Tourism stakeholders are advised to offer alternative tour packages, employ knowledgeable guides, and promote educational tours during festivals. The government needs to provide information to local communities, especially those living at the border of East Kalimantan, as this has implications for their understanding of the integrated transfer of the national capital. This paper serves as a timely opportunity to distribute practical recommendations and reaffirm alternative principles, arrangements, and standards that ensure development in an environmentally friendly manner. In the future, further research should address existing weaknesses and facilitate a universal evaluation without neglecting the quality of the environment, tourism education, and human resources. Lastly, a modern tourism arrangement is necessary for accurately understanding and rethinking scenarios in the IKN Nusantara modeling.

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