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## Article

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# Economic freedom and growth dynamics in Indonesia: an empirical analysis of indicators driving sustainable development

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## ABSTRACT

This study investigates the contributions of economic freedom indicators to Indonesia's economic growth from 1995 to 2022, applying the Solow growth model within both static and dynamic frameworks. Using Robust Least Squares (RLS) and dynamic methods – such as Dynamic Ordinary Least Squares (DOLS) and Fully Modified Ordinary Least Squares (FMOLS) – and conducting robustness checks with Canonical Cointegration Regression (CCR), the analysis confirms that eight out of nine indicators – particularly business freedom, monetary freedom, trade freedom, property rights, government integrity, tax burden, investment freedom, and financial freedom – positively influence Indonesia's economic growth. These findings underscore the importance of policies that enhance property rights, minimize government intervention, promote investment, and encourage competitive markets. The study's insights aim to guide Indonesian policymakers in leveraging economic freedom to foster sustainable, long-term growth.

## IMPACT STATEMENT

While previous research in Indonesia has assessed the composite impact of the economic freedom index on economic growth, this study stands out by adopting a decomposing approach that evaluates each economic freedom indicator separately. The results provide more comprehensive, evidence-based insights for policymakers seeking to foster sustainable economic growth through enhanced economic freedom.

## ARTICLE HISTORY

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Statistics for Business, Finance & Economics; Macroeconomics; Development Economics

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## 1. Introduction

In an increasingly globalized world, the pursuit of sustainable development has become a key challenge for governments, international organizations, and civil society (Halkos & Gkampoura, 2021; Holmberg & Sandbrook, 2019). Central to this effort is a critical debate: Can economic freedom act as a driver for achieving sustainable development and promoting long-term prosperity? While the core principles of economic freedom – including market liberalization, protection of property rights, and limited government intervention – are widely acknowledged for fostering economic growth and efficiency, their role in supporting sustainability and inclusive development remains the subject of ongoing debate.

Economic freedom promises higher levels of prosperity, greater per capita income, and improved standards of living for citizens (Al-Gasaymeh et al., 2020; Cebula et al., 2016; Ciftci & Durusu-Ciftci, 2022; Gwartney et al., 2023; Hardi, Afjal, et al., 2024; Yevdokimov et al., 2018). Conversely, restricted economic freedom limits opportunities for entrepreneurs, discourages innovation, and hampers market efficiency. It reduces incentives for individuals to start businesses, expand operations, and take risks (Friedman,

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2016; Georgescu et al., 2018; Hardi, Ray, et al., 2024; Henri & Mveng, 2024). Without the freedom to engage in free trade, protect property rights, and compete fairly, economies will struggle to reach their full potential (Bjørnskov, 2016; Hardi, Ringga, et al., 2023; Idroes, Rahman, Uddin, et al., 2024; Lach & Malaga, 2023; Miletzki, 2017).

As one of the significant countries in the global democratic landscape, Indonesia has implemented comprehensive changes to tackle various inherent flaws in the economy and boost its competitiveness. These efforts have focused on improving regulatory efficiency, eradicating corruption practices, bolstering regional competitiveness, and fostering a dynamic private sector through decentralization (Hardi, Saputra, et al., 2023; Lim, 2017; Marshall, 2018; Tapsell, 2015). However, even though Indonesia ranks 10th in the 2022 Economic Freedom Index among 39 countries in the Asia-Pacific region (60th globally), a recent report indicates that the country's overall rule of law remains relatively weak. The country's property rights, judicial effectiveness, and government integrity scores are still below the world average. Moreover, despite efforts to simplify licensing requirements, regulatory efficiency in Indonesia still needs to improve. Additionally, in contrast to other economies in the region, Indonesia's inflexible labor market leads to regulatory expenses associated with establishing and ending employment arrangements (Heritage Foundation, 2023).

On a positive note, the Indonesian government's proactive measures to remove previous barriers to foreign investment have ushered in a transformative era, significantly enhancing the efficiency of the financial system (Idroes, Hardi, Hilal, et al., 2024; Li, 2017; Ullah & Khan, 2017). This strategic shift, marked by streamlined bureaucratic processes and reduced red tape, has not only attracted a surge in foreign direct investment across diverse sectors but also generated a multitude of job opportunities, fortifying the socio-economic landscape (Agustinus, 2022; Hardi, Idroes, et al., 2024; Prakasa, 2023). This newfound confidence among domestic and international investors has catalyzed innovative ventures, fostering a culture of competition and innovation among financial institutions. The array of sophisticated financial products and services has further fueled economic growth, solidifying Indonesia's position as an enticing destination for global investors (Hartono & Kusumawardhani, 2019; Idroes, Hardi, Rahman, et al., 2024; Maulidar et al., 2024; Novi et al., 2020; Warburton, 2018).

Despite Indonesia's progress in economic reforms, specific barriers – such as regulatory bottlenecks, limited property rights protections, and labor market inflexibility – continue to impede growth. These challenges underscore the importance of understanding how each economic freedom indicator uniquely impacts growth, enabling a targeted policy approach. Rather than relying solely on composite scores, this study's decomposition of economic freedom indicators provides nuanced insights, showing how specific areas like trade freedom, government integrity, and investment freedom directly relate to economic performance. This focus equips policymakers with a clearer roadmap to enhance Indonesia's economic resilience and competitiveness by refining policies in areas with the highest growth impact potential.

This study lays the groundwork for understanding the relationship between economic freedom and economic growth, relying on three well-established theories: Supply-Side Economics, Institutional Economics, and Human Capital Theory. Supply-side economics emphasizes stimulating economic growth through incentives for production, primarily via tax cuts and deregulation. Central to this theory is the belief that by making it easier and more beneficial for companies and entrepreneurs to produce goods and services, the overall economy will be strengthened (Alvord, 2020; Badulescu et al., 2015). Similarly, institutional economics emphasizes the role of institutions in shaping economic outcomes. Institutions, such as laws, social norms, government policies, and business practices, influence economic behavior and performance (Acs et al., 2018; North, 2016; Tamanaha, 2015).

Furthermore, Human Capital Theory views individuals' skills, knowledge, and attributes as valuable assets contributing to their economic productivity and income potential. It posits that investments in education, training, and skill development enhance human capital, leading to increased productivity and higher earnings in the labor market. This theory emphasizes the importance of freedom in lifelong learning, as well as the role of human capital in fostering economic growth at both individual and societal levels (Holden & Biddle, 2017; Marginson, 2019). It also addresses issues of inequality by highlighting the impact of disparities in access to education and training on income inequality, underscoring the need for policies promoting equal opportunities for skill development (Adom & Asare-Yeboah, 2016; Fix, 2018; Nadezhina & Avduevskaia, 2021). Based on this foundational theory, the main hypothesis of this study is

that the Economic Freedom Index and its indicators are expected to have a positive influence on economic growth.

While economic freedom is often linked to growth, income gains, and innovation, it can also present drawbacks, particularly in developing countries. Some scholars argue that deregulation may disproportionately benefit large corporations and wealthier individuals, potentially increasing inequality and leaving smaller businesses and lower-income populations disadvantaged (Alvarez-Cuadrado & Japardize, 2017; Rodríguez-Pose & Storper, 2020). Reduced government intervention may also lead to inadequate labor protections, environmental degradation, and underfunded public services as business interests are prioritized over welfare (W.Li & Wu, 2023; Shao et al., 2015; Wei et al., 2022). In Indonesia, high economic freedom scores in trade and investment have been met with concerns over increased income inequality, resource exploitation, and a reliance on foreign investment, which critics suggest may crowd out local businesses and heighten economic vulnerability (Ahmad, 2017; Szczepaniak et al., 2022; Warburton, 2017). This study incorporates these critical perspectives to underscore the complexity of economic freedom's impact, highlighting the need for policies that balance growth with equity, sustainability, and social welfare considerations.

Earlier study offers concrete evidence regarding the connection between economic freedom and economic growth. For instance, Ahmed and Ahmad (2020) examined 34 Asian countries and found that economic freedom significantly enhances economic growth. Similarly, Azman-Saini et al. (2010), in a study spanning 85 countries, demonstrated that economic freedom plays a crucial role in supporting long-term economic growth. Brkić et al. (2020) also confirmed this positive relationship in European countries. Additionally, Bashir and Xu (2014), using panel data from 117 countries, identified a statistically robust positive impact of economic freedom on economic growth. Expanding this analysis further, Alola et al. (2022) explored G-20 economies, finding that economic freedom serves as a key driver of energy sustainability and clean economic growth. Together, these findings underscore the pivotal role of economic freedom in fostering sustainable and resilient economic growth across diverse regions.

Regarding the decomposition approach, researchers have explored specific economic freedom measures that are significant for economic growth. The robustness of the findings has been carefully analyzed, considering the potential issue of multicollinearity, which may arise when breaking down an index (Carlsson & Lundström, 2002). The study that investigates how the Composite Economic Freedom Index and various subcomponents of economic freedom impact the economic growth of four South Asian economies reveals that the majority of economic freedom indicators exert a positive, robust, and substantial influence on economic growth (Ahmed et al., 2023). Furthermore, the study concentrates on a similar, though not identical, potential influence of higher levels of economic freedom on the 30 member nations of the Organisation for Economic Co-operation and Development (OECD), uncovering that the level of real income per capita is a rising factor linked to freedom in business, absence of corruption, freedom in investment, monetary liberty, government size flexibility, trade openness, and protection of property rights (Cebula, 2013). Based on the decomposition approach, researchers have explored specific economic freedom measures that are significant for economic growth. Decomposing economic freedom into its subcomponents offers a more nuanced understanding, enhancing the precision in assessing its varied impacts on economic growth.

However, despite numerous studies conducted worldwide on the relationship between economic freedom and economic growth, research on this topic in Indonesia remains limited in scope. One study suggests that economic freedom positively affects Indonesia's economic growth, but the findings are based solely on a single composite indicator of economic freedom (Wulandari, 2015). Another study reviews the development of economic freedom indicators in Indonesia but does not employ specific econometric methods or approaches (Thalo, 2007). Additionally, a separate study reveals that enhancing institutional factors, including economic freedom, during Indonesia's reform era significantly reduced income inequality; however, this study did not examine the impact on economic growth (Szczepaniak et al., 2022). Filling this gap by examining specific components of economic freedom with rigorous methods is essential for understanding their distinct impacts on Indonesia's economic growth and informing targeted policy decisions.

Therefore, the primary focus of this study is to address the identified gap that still exists in the Indonesian literature by exploring not only a single measure of economic freedom but also its nine indicators concerning Indonesia's economic growth. By using a decomposition approach that splits the single measure of economic freedom into various indicators, this study will provide a more comprehensive perspective on the significance of freedom in influencing economic activity. Moreover, the various

advanced econometric methods employed – such as Robust Least Squares (RLS), Dynamic Ordinary Least Squares (DOLS), Fully Modified Ordinary Least Squares (FMOLS), and Canonical Cointegrating Regressions (CCR) – will provide robust evidence confirming economic freedom as a positive driver of economic growth. This research offers a thorough understanding of these dynamics, providing insights that can guide Indonesian policymakers in crafting policies that enhance targeted dimensions of economic freedom to foster sustainable growth.

## 2. Materials and methods

### 2.1. Data and variables

The data of all variables are in the form of yearly time series spanning the period from 1995 to 2022 and were sourced from the Heritage Foundation (Heritage Foundation, 2023) and World Development Indicators (WDI) (World Bank, 2023). Details regarding the data and variables utilized in this study can be found in Table 1.

The Economic Freedom Index used in this study evaluates the freedom of economic activities by analyzing 12 indicators (Heritage Foundation, 2023). These indicators include property rights, government integrity, judicial effectiveness, tax burden, government spending, fiscal health, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom. The scores for

**Table 1.** Variable synopsis.

Variable	Description	Units (Sources)	Variable's detail
<i>Dependent</i>			
GDP	Gross domestic product	Constant local currency unit (WDI)	The sum of gross value added by all resident producers in the economy (World Bank, 2023).
<i>Control</i>			
K	Gross fixed capital formation	Constant local currency unit (WDI)	The sum of gross value added by land improvements; plant, machinery, and equipment purchases; and the construction of public goods (World Bank, 2023).
L	Labor force	Person (WDI)	Comprises people ages 15 and older who supply labor for the production of goods and services during a specified period (World Bank, 2023).
<i>Independent</i>			
EF	Economic Freedom	Scale of 0–100 (HF)	Refers to the degree to which individuals and businesses can operate in an economic system free from government intervention and restrictions (Heritage Foundation, 2023).
PR	Property rights	Scale of 0–100 (HF)	Refers to the legal and social rights individuals and entities have to own, use, transfer, and benefit from property (Heritage Foundation, 2023).
GI	Government integrity	Scale of 0–100 (HF)	Refers to the ethical behavior, transparency, and accountability of government institutions and officials in their decision-making and governance processes (Heritage Foundation, 2023).
TB	Tax burden	Scale of 0–100 (HF)	Refers to the proportion of income or wealth that individuals and businesses are required to pay in taxes to the government (Heritage Foundation, 2023).
GS	Government spending	Scale of 0–100 (HF)	Refers to the amount of money the government allocates to various public expenditures (Heritage Foundation, 2023).
BF	Business freedom	Scale of 0–100 (HF)	Refers to the ability of individuals and businesses to operate, compete, and engage in economic activities with minimal government interference and regulation (Heritage Foundation, 2023).
MF	Monetary freedom	Scale of 0–100 (HF)	Refers to the degree to which individuals and businesses can conduct transactions and hold assets without undue interference from the government or other external forces (Heritage Foundation, 2023).
TF	Trade freedom	Scale of 0–100 (HF)	Refers to the ability of individuals and businesses to engage in international trade with minimal restrictions and barriers (Heritage Foundation, 2023).
IF	Investment freedom	Scale of 0–100 (HF)	Refers to the ability of individuals and businesses to make investments in various assets and industries with minimal government interference or restrictions (Heritage Foundation, 2023).
FF	Financial freedom	Scale of 0–100 (HF)	Refers to the ability of individuals and businesses to manage their financial affairs with minimal restrictions and government intervention (Heritage Foundation, 2023).



these 12 indicators are weighted and combined to generate an overall economic freedom score for each economy. Each aspect is assessed on a scale of 0–100, with higher scores indicating greater freedom and lower scores indicating less freedom. However, this study was unable to include data for three components – judicial effectiveness, fiscal health, and labor freedom – due to a lack of availability during the study period for conducting sufficient long-term analysis.

## 2.2. Mathematical function and econometric model

This study employs the Solow growth model to demonstrate a robust effect of economic freedom on economic growth. Since the Solow growth model considers economic conditions, which refer to the state of macroeconomic variables, it provides a solid framework for analysis. The Solow growth model incorporates a practical Cobb-Douglas production function that considers both capital and labor as significant contributors to production. It places particular emphasis on the role of saving and investment in economic growth. The capital stock rises by increasing saving and investment, leading to higher full-employment national income and product. Consequently, the Solow growth model offers an advantage in analyzing the long-term determinant factors influencing economic growth (Boyko et al., 2020; Hardi, Ringga, et al., 2023; Li & Zhang, 2015).

This article describes GDP as a function of gross fixed capital formation, labor force, and economic freedom. Therefore, the GDP function can be written as:

$$GDP_t = f(K_t, L_t, X_t) \quad (1)$$

where GDP is the gross domestic product, K is the gross fixed capital formation, L is the labor, and X is the Economic Freedom Index and its indicators.

Furthermore, the composed econometric model representing the relationship is given in Equation (2).

$$GDP_t = \beta_0 + \beta_1 K_t + \beta_2 L_t + \beta_3 EF_t + \varepsilon_t \quad (2)$$

Additionally, the decomposed econometric model that depicts the correlation between GDP and the nine indicators of economic freedom is presented in Equations (3)–(11).

$$GDP_t = \beta_0 + \beta_1 K_t + \beta_2 L_t + \beta_3 \begin{bmatrix} PR_t \\ GI_t \\ TB_t \\ GS_t \\ BF_t \\ MF_t \\ TF_t \\ IF_t \\ FF_t \end{bmatrix} + \varepsilon_t \quad (3-11)$$

Moreover, this study transforms  $GDP$ ,  $K$ , and  $L$  into natural logarithmic form primarily to address issues related to non-linearity, heteroscedasticity, and the interpretation of coefficients. The final composed econometric model is shown in Equation (12).

$$\ln GDP_t = \beta_0 + \beta_1 \ln K_t + \beta_2 \ln L_t + \beta_3 EF_t + \varepsilon_t \quad (12)$$

Additionally, the final decomposed econometric model the nine indicators of economic freedom Equations (13)–(21).

$$\ln GDP_t = \beta_0 + \beta_1 \ln K_t + \beta_2 \ln L_t + \beta_3 \begin{bmatrix} PR_t \\ GI_t \\ TB_t \\ GS_t \\ BF_t \\ MF_t \\ TF_t \\ IF_t \\ FF_t \end{bmatrix} + \varepsilon_t \quad (13-21)$$

Where  $\beta_0$  is an intercept,  $\beta_1$ ,  $\beta_2$ , and  $\beta_3$  are the coefficients,  $\varepsilon_t$  represents the error term.

## 2.3. Methods

### 2.3.1. Robust Least Squares (RLS)

The main objective of the RLS approach is to minimize the impact of outliers on the regression coefficients. The traditional ordinary least squares (OLS) method can be susceptible to outliers, data points that deviate significantly from the overall data pattern. Outliers can strongly influence the estimated coefficients and the model's predictive performance. RLS aims to mitigate the influence of outliers by assigning less weight to points far from the expected model. It achieves this by incorporating robust statistical techniques that provide more resistance to the impact of extreme data points (Bhatia et al., 2015; McWilliams et al., 2014).

The RLS method enhances the accuracy of our results by reducing the impact of outliers, which might otherwise distort findings. By assigning less weight to extreme data points, RLS provides a reliable snapshot of how economic freedom influences growth while remaining unaffected by anomalies. This technique is particularly well-suited for achieving stable, static estimations, ensuring that the immediate influences of economic freedom are depicted accurately and without bias.

Three RLS methods known are M-estimation (Huber, 1973), S-estimation (Rousseeuw & Yohai, 1984), and MM-estimation (Yohai, 1987). M-estimation targets dependent variable outliers, where values markedly differ from the regression model norm (large residuals). In contrast, S-estimation is computationally intensive and focuses on outliers in regressor variables (high leverages). MM-estimation combines S-estimation and M-estimation, initiating with S-estimation and using its estimates as the starting point for M-estimation. As RLS approach addresses outliers in dependent and independent variables, this study employs all three methods to ensure comprehensive and robust static econometric results.

### 2.3.2. Dynamic Ordinary Least Squares (DOLS)

DOLS serves as an extension of the traditional OLS, specifically designed to handle situations where variables are non-stationary. A regular OLS regression assumes that the variables are stationary, meaning their mean and variance do not change over time. However, many variables are non-stationary in economic data, leading to spurious regression results and misleading interpretations. The key idea behind DOLS is to transform the original non-stationary time series into stationary ones while preserving the underlying long-term relationships between the variables. By doing this, DOLS provides consistent and efficient estimates of the regression coefficients, even when dealing with non-stationary data (Hardi, Idroes, et al., 2023; Idroes et al., 2023; van Ledden et al., 2024; Yahyaoui & Bouchoucha, 2021).

Economic data often show evolving trends and shifting patterns, making it essential to account for these changes over time. The DOLS method enables us to capture these long-term relationships by stabilizing the data, effectively smoothing out any short-term fluctuations. By addressing non-stationarity – where trends change over time – DOLS allows for a more accurate view of how economic freedom impacts economic growth in the long run. This technique is invaluable for providing a reliable and consistent perspective on economic influences beyond immediate effects.

### 2.3.3. Fully-Modified Ordinary Least Squares (FMOLS)

FMOLS is an advanced regression technique compared to the traditional OLS used to address endogeneity in econometric models. Endogeneity arises when the explanatory variables within a regression model are correlated with the error term, leading to biased and inconsistent coefficient estimates. FMOLS is designed to tackle this issue by simultaneously considering instrumental variables and performing generalized instrumental variable regression. By incorporating instrumental variables and modifying the structural equation, FMOLS can provide consistent and unbiased estimates of the regression coefficients, even in the presence of endogeneity (Hardi, Idroes, et al., 2023; Idroes et al., 2023; Khan et al., 2019; van Hek et al., 2024).

The FMOLS method adds depth by resolving endogeneity – a challenge when variables within a model influence each other. In this study, economic freedom and growth may have complex, reciprocal interactions. FMOLS addresses these interdependencies, providing an unbiased view of how each economic freedom indicator distinctly impacts economic growth in the long run. By isolating the effects of



individual variables, FMOLS adds rigor to our analysis, ensuring the results remain valid despite potential interconnectedness among variables.

#### **2.3.4. Canonical cointegration regression (CCR)**

CCR is a method commonly employed to explore the existence and nature of cointegration among a set of integrated variables. The method works by estimating the canonical cointegrating vectors. Canonical cointegrating vectors are obtained through a linear combination of the variables, indicating how the variables move together in the long run. Once the canonical cointegrating vectors are identified, a regression model is constructed to represent the long-term relationship among the variables. Therefore, it is an excellent choice for conducting robustness checks on DOLS and FMOLS results (Hardi, Idroes, et al., 2023; Idroes et al., 2023; Merlin & Chen, 2021).

The CCR technique verifies the stability of our results by testing for cointegration, ensuring that economic freedom and growth maintain a consistent relationship over time. Cointegration implies that these variables are interconnected in the long term, signaling a stable, non-random connection. By applying CCR, we validate the robustness of our DOLS and FMOLS findings, confirming that the long-term trends identified are reliable and not due to chance.

### **2.4. Flow analysis**

The analytical process of this study, as illustrated in Figure 1, is a methodical flow comprising several interconnected stages. The analysis begins with the careful selection of variables and data periods. It progresses to explaining descriptive statistics, followed by testing for unit roots and cointegration to facilitate dynamic estimation. Subsequently, static analysis is conducted using the RLS method, while dynamic analysis employs DOLS and FMOLS methodologies. The robustness of results obtained from DOLS and FMOLS is further examined using the CCR method. The study then transitions to the discussion section, culminating in the conclusion, and at the end suggests policy recommendations.

## **3. Results and discussion**

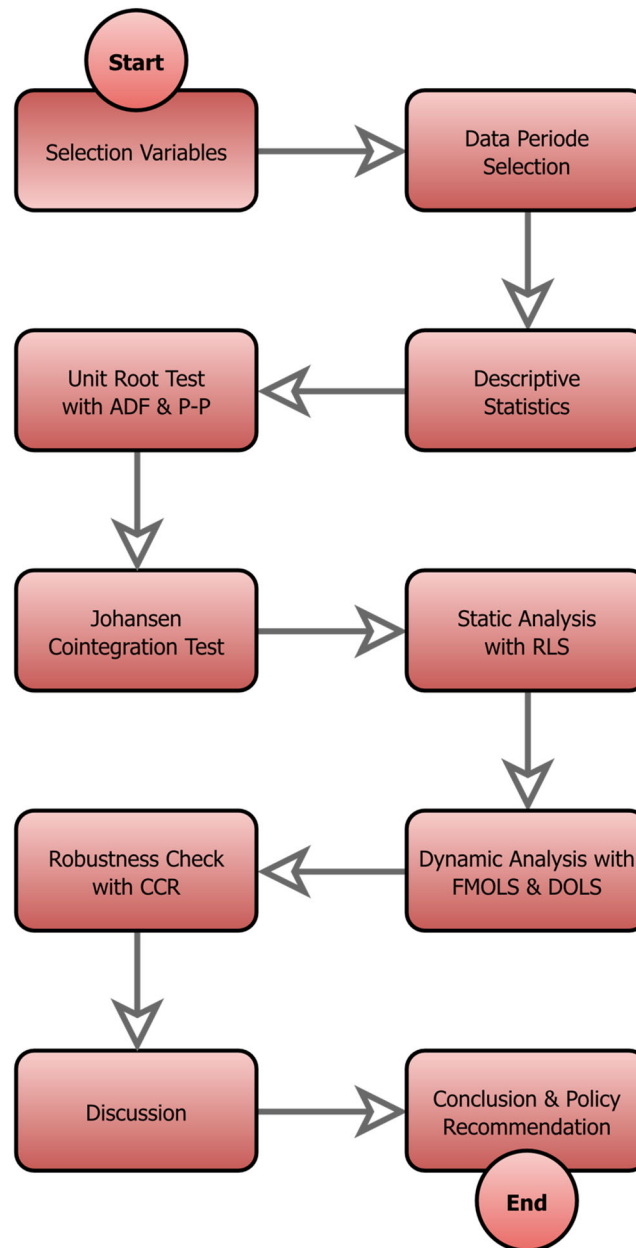
### **3.1. Descriptive statistics**

As shown in Table 2, it's noticeable that some variables such as government spending, monetary freedom, and trade freedom have relatively high skewness and kurtosis, indicating that their distribution is not symmetric and may have outliers or extreme values. For instance, the trade freedom variable has a skewness of  $-2.91$  and a kurtosis of  $13.36$ , which is quite high, suggesting a significant departure from a normal distribution. This is also reflected in the Jarque-Bera test statistic being very high ( $164.89$ ) for trade freedom, confirming that the distribution is likely not normal.

Other variables like the  $\ln GDP$ ,  $\ln K$ , and  $\ln L$  have lower skewness and kurtosis values, indicating distributions closer to normal. This is also supported by smaller Jarque-Bera statistics. Furthermore, the standard deviation varies widely among the variables. For example, the  $\ln GDP$  has a very low standard deviation ( $0.38$ ), indicating that the values are tightly clustered around the mean. In contrast, Investment freedom has a standard deviation of  $13.94$ , indicating more dispersion from the mean. Each variable's statistics provide insights into its distribution, variability, and how closely it follows a normal distribution.

### **3.2. Unit root test**

The purpose of a unit root test is to determine whether a variable exhibits a unit root, implying that the variable is non-stationary. This test is particularly important for time-series data and dynamic estimations, as stationarity refers to the statistical properties of a variable – such as its mean and variance – not changing over time and remaining stable. As seen in Table 3, based on two chosen unit root tests, Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP), there is no indication of a unit root problem. In the first difference ( $I(1)$ ), all variables' probability values are below  $0.05$ . These test results conclude that dynamic estimations of DOLS, FMOLS, and CCR can be conducted.



**Figure 1.** Flowchart of analysis.

### 3.3. Cointegration test

In addition to performing unit root tests, conducting a cointegration test is also crucial for studies employing a dynamic approach, as it signifies the existence of a long-term relationship between the variables. As shown in Table 4, the Johansen cointegration test shows that all models indicates a strong cointegration, where the trace statistics value is higher that critical value, as well as probability value below 0.05. These findings affirm the reliability of the estimation results for DOLS, FMOLS, and CCR, underscoring the stability of the long-term relationship.

### 3.4. Static analysis

#### 3.4.1. RLS estimation for Composite Economic Freedom Index

As shown in Table 5, the estimation results of three RLS methods regarding the impact of the composite index of economic freedom on GDP indicate that two out of three methods, namely M-Estimation and MM-Estimation, demonstrate statistically significant results at the 5% level. Additionally, both methods'

**Table 2.** Descriptive statistics.

Variable	Mean	Median	Max	Min	Std. Dev	Skewness	Kurtosis	Jarque-Bera
lnGDP	36.41	36.38	37.00	35.90	0.38	0.13	1.55	2.53
lnK	34.68	34.97	36.28	32.49	1.29	-0.28	1.55	2.80
lnL	18.54	18.55	18.74	18.30	0.14	-0.15	1.80	1.79
EF	58.18	56.65	67.20	51.90	4.83	0.44	1.90	2.30
PR	38.84	30.00	59.80	30.00	10.95	0.56	1.64	3.62
GI	26.51	26.50	44.70	10.00	9.42	0.26	2.26	0.94
TB	80.72	80.25	85.30	73.10	3.00	-0.50	2.50	1.48
GS	89.31	89.75	95.40	76.50	3.39	-1.82	8.71	53.40
BF	55.36	55.00	71.30	46.60	6.52	1.19	3.91	7.61
MF	72.41	73.45	81.60	49.40	6.50	-1.99	7.85	45.95
TF	74.17	74.60	80.80	45.00	6.79	-2.91	13.36	164.89
IF	45.00	40.00	70.00	30.00	13.94	0.74	2.35	3.05
FF	45.36	45.00	60.00	30.00	12.32	-0.02	1.44	2.82

**Table 3.** Results of unit root test.

Variable	ADF		PP	
	I(0)	I(1)	I(0)	I(1)
lnGDP	0.9837	0.0033*	0.9822	0.0033*
lnK	0.3715	0.0039*	0.2962	0.0034*
lnL	0.4259	0.0015*	0.2196	0.0031*
EF	0.7387	0.0034*	0.6525	0.0034*
PR	0.3674	0.0104**	0.3674	0.0103**
GI	0.6021	0.0053*	0.6021	0.0052*
TB	0.1430	0.0000*	0.1241	0.0000*
GS	0.2598	0.0001*	0.0004*	—
BF	0.6288	0.0002*	0.5693	0.0002*
MF	0.5712	0.0002*	0.1072	0.0000*
TF	0.0000*	—	0.0000*	—
IF	0.6081	0.0001*	0.5890	0.0001*
FF	0.8132	0.0027*	0.7792	0.0027*

Note. Significant.

\*(1%).

\*\* (5%).

**Table 4.** Results of Johansen cointegration test.

Model	Hypothesized No. of CE(s)	Trace Statistic	0.05 Critical Value	Prob
$GDP_t = f(K_t, L_t, EF_t)$	At most 1	44.6582*	35.0109	0.0035
$GDP_t = f(K_t, L_t, PR_t)$	At most 1	38.3807**	35.0109	0.0210
$GDP_t = f(K_t, L_t, GI_t)$	At most 2	19.7549**	18.3977	0.0322
$GDP_t = f(K_t, L_t, TB_t)$	At most 1	42.4491*	35.0109	0.0068
$GDP_t = f(K_t, L_t, GS_t)$	At most 1	42.5786*	35.0109	0.0065
$GDP_t = f(K_t, L_t, BF_t)$	None	68.3666*	55.2458	0.0023
$GDP_t = f(K_t, L_t, MF_t)$	At most 1	47.6859*	35.0109	0.0014
$GDP_t = f(K_t, L_t, TF_t)$	At most 1	50.1013*	35.0109	0.0006
$GDP_t = f(K_t, L_t, IF_t)$	At most 1	36.4216**	35.0109	0.0351
$GDP_t = f(K_t, L_t, FF_t)$	None	75.9263*	55.2458	0.0003

Note. Significant.

\*(1%).

\*\* (5%).

**Table 5.** Results of RLS Estimation for Composite Economic Freedom Index.

Dependent = lnGDP				
Variable		M-Estimation	S-Estimation	MM-Estimation
C	Coeff. (z-Stat.)	-4.8656 (-5.74)*	-4.9478 (-5.47)*	-4.8682 (-6.02)*
lnK		0.4235 (14.75)*	0.4591 (14.98)*	0.4245 (15.48)*
lnL		1.4126 (16.11)*	1.3548 (14.46)*	1.4110 (16.84)*
EF		0.0028 (2.33)**	0.0009 (0.73)	0.0027 (2.39)**
Adj. R <sup>2</sup>		0.8399	0.9505	0.8850
Adj. Rw <sup>2</sup>		0.9973	—	0.9972
Rn <sup>2</sup> Stat.		6191.9*	5516.9*	6788.8*

Note. Significant.

\*(1%).

\*\* (5%).

R-squared and Rw-squared values indicate a strong correlation, suggesting that approximately 99% of the variation in the dependent variable can be explained by the independent variables. The Rn-stat also provides robustness to the model, reaching a significance level of 1%. Based on these indication, in static estimation, this study concludes that the Composite Economic Freedom Index significantly impacts economic growth as proxied by GDP.

The empirical findings show that both RLS M-estimation and MM-estimation indicate a positive impact of economic freedom on GDP, in line with the theory and the study's hypotheses. Specifically, every 1-point increase in the Economic Freedom Index can result in a GDP increase of 0.0028%, based on M-estimation. Similarly, every 1-point increase in the Economic Freedom Index can lead to a GDP increase of 0.0027%, based on MM-estimation. Despite the relatively small impact percentage, the dependent variable is the country's GDP, which, for Indonesia, means that a 0.002% increase is equivalent to about USD 2 billion. Based on this, the positive impact of economic freedom on GDP is considered significant.

### **3.4.2. RLS estimation for Decompose Economic Freedom Index**

Exploring the decomposed form of the Economic Freedom Index, the static empirical findings are intriguing. In Table 6, RLS M-estimation reveals that four of the nine economic freedom indicators significantly impact GDP. The monetary freedom indicator is statistically significant at a good 5% level, while property rights, business freedom, and financial freedom are significant at an acceptable 10% level. However, all four indicator models have a satisfactory R-squared percentage level, exceeding 80%, and the Rn-squared statistic value demonstrates the strong significance of the model at the 1% level.

On the other hand, RLS S-estimation in Table 7 found that only two of the nine economic freedom indicators, namely trade freedom and financial freedom, have a significant impact on GDP. Both indicators show a good significance level of 5%. The models also have a commendable R-squared percentage level, indicating that the independent variables can explain approximately 95% of the variation in the dependent variable. Additionally, the Rn-squared statistic value indicates a strong significance of the model at the 1% level.

Lastly, RLS MM-estimation in Table 8 reveals that five out of the nine indicators of economic freedom significantly impact GDP. Property rights, government integrity, business freedom, and financial freedom exhibit an acceptable significance level of 10%, while monetary freedom indicates a good significance level of 5%. Similar to M-estimation, all five indicator models in MM-estimation also demonstrate a satisfactory R-squared percentage level, exceeding 80%, and the Rn-squared statistic values indicate the strong significance of the model at the 1% level.

Based on the outcomes obtained from three RLS estimations, this study's static approach arrives at a conclusive finding that six out of the nine economic freedom indicators exert a significant influence on economic growth, as proxied by GDP. These pivotal indicators encompass property rights, government integrity, business freedom, monetary freedom, trade freedom, and financial freedom. The noteworthy aspect lies in the fact that all the identified significant variables consistently demonstrate a positive impact on GDP. This alignment with positive effects substantiates the empirical findings and resonates with the underlying theoretical framework and the hypotheses posited in this study.

Specifically, the property rights indicator suggests a 1-point increase correlates with a 0.0009% rise in GDP. Similarly, the government integrity indicator reveals that each 1-point increase is associated with a 0.0018% boost in GDP. The business freedom indicator indicates that a 1-point increase can contribute to a substantial 0.0014% increase in GDP. Likewise, the monetary freedom indicator demonstrates that a 1-point increase is linked to a 0.0019% rise in GDP. In the case of the trade freedom indicator, a 1-point increase is shown to contribute to a GDP increase of 0.0021%. Lastly, the financial freedom indicator highlights that a 1-point increase is connected to a 0.0029% uptick in GDP.

## **3.5. Dynamic analysis**

### **3.5.1. DOLS and FMOLS estimations for Composite Economic Freedom Index**

The primary goal of dynamic estimation is to delve more deeply into the intricate correlation between dependent and independent variables, integrating the temporal dimension. In addition to

**Table 6.** Results of RLS M-Estimation for Decompose Economic Freedom Index.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
C	-5.2737 (-6.09)*	-2.9371 (-1.79)***	-5.1091 (-4.92)*	-5.1608 (-5.81)*	-4.6739 (-5.37)*	-4.6379 (-5.68)*	-4.9231 (-4.19)*	-5.7549 (-5.97)*	-4.6210 (-5.19)*
lnK	0.4360 (15.61)*	0.4513 (15.26)*	0.4628 (16.48)*	0.4421 (15.58)*	0.4531 (16.84)*	0.4249 (15.29)*	0.4681 (15.46)*	0.4464 (16.53)*	0.3971 (8.85)*
lnL	1.4178 (15.68)*	1.2619 (10.44)*	1.3652 (14.19)*	1.3931 (15.33)*	1.3507 (15.42)*	1.3985 (16.89)*	1.3403 (12.19)*	1.4243 (15.44)*	1.4549 (13.47)*
PR	0.0009 (1.86)***								
GI		0.0017 (1.43)							
TB			-0.0012 (-0.45)						
GS				0.0019 (1.22)					
BF					0.0014 (1.68)***				
MF						0.0019 (2.14)**			
TF							-0.0002 (-0.18)		
IF								0.0007 (1.63)	
FF									0.0014 (1.66)***
Adj. R <sup>2</sup>	0.8659	0.7939	0.8445	0.8644	0.8527	0.8973	0.7709	0.8822	0.8195
Adj. R <sub>w</sub> <sup>2</sup>	0.9970	0.9971	0.9969	0.9968	0.9971	0.9971	0.9973	0.9969	0.9971
R <sup>2</sup> Stat.	6183.5*	4969.4*	5701.3*	5764.6*	6135.5*	6881.9*	4931.7*	6061.1*	5653.7*

Note. Significant.

\*(1%).

\*\*(5%).

\*\*\* (10%).

**Table 7.** Results of RLS S-Estimation for Decompose Economic Freedom Index.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
C	-4.7827 (-4.64)*	-4.3138 (-2.71)*	-4.9601 (-4.34)*	-4.6393 (-4.69)*	-4.4984 (-4.53)*	-4.6825 (-4.55)*	-4.6218 (-4.28)*	-5.1802 (-5.13)*	-3.8676 (-7.32)*
lnK	0.4704 (14.15)*	0.4757 (16.58)*	0.4844 (15.68)*	0.4829 (15.31)*	0.4746 (15.47)*	0.4705 (13.43)*	0.4531 (16.26)*	0.4707 (16.64)*	0.3608 (13.55)*
lnL	1.3266 (12.33)*	1.2916 (11.02)*	1.3215 (12.49)*	1.2979 (12.85)*	1.3022 (13.04)	1.3209 (12.66)*	1.3435 (13.29)*	1.3478 (13.95)*	1.4792 (23.08)*
PR	0.0004 (0.69)								
GI		0.0004 (0.36)							
TB			-0.0025 (-0.85)						
GS				-0.0004 (-0.23)					
BF					0.0006 (0.69)				
MF						0.0003 (0.23)			
TF							0.0021 (2.06)**		
IF								0.0002 (0.49)	
FF									0.0029 (5.81)*
Adj. R <sup>2</sup>	0.9513	0.9498	0.9505	0.9495	0.9509	0.9495	0.9521	0.9497	0.9619
Rn <sup>2</sup> Stat.	4424.4*	5388.1*	4725.1*	4746.6*	4738.9*	4389.6*	5932.1*	5619.3*	16161.6*

Note. Significant.

\*(1%).

\*\*(5%).

\*\*\* (10%).



**Table 8.** Results of RLS MM-Estimation for Decompose Economic Freedom Index.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
C	-5.2828 (-6.15)*	-2.9294 (-1.97)**	-5.1043 (-4.95)*	-5.1647 (-5.86)*	-4.6787 (-5.46)*	-4.6341 (-5.63)*	-4.9389 (-4.49)*	-5.7536 (-5.94)*	-4.5927 (-5.08)*
lnK	0.4358 (15.73)*	0.4499 (16.79)*	0.4605 (16.52)*	0.4419 (15.69)*	0.4513 (17.06)*	0.4251 (15.18)*	0.4579 (16.14)*	0.4465 (16.45)*	0.3971 (8.71)*
lnL	1.4188 (15.82)*	1.2643 (11.55)*	1.3685 (14.34)*	1.3934 (15.45)*	1.3544 (15.72)*	1.3981 (16.76)*	1.3599 (13.21)*	1.4240 (15.37)*	1.4532 (13.25)*
PR	0.0009 (1.88)***								
GI		0.0018 (1.65)***							
TB			-0.0011 (-0.39)						
GS				0.0019 (1.23)					
BF					0.0014 (1.73)***				
MF						0.0019 (2.11)**			
TF							0.0001 (-0.04)		
IF								0.0006 (1.62)	
FF									0.0014 (1.66)***
Adj. R <sup>2</sup>	0.8751	0.8774	0.8622	0.8732	0.8746	0.8873	0.8534	0.8773	0.8036
Adj. Rw <sup>2</sup>	0.9970	0.9969	0.9967	0.9968	0.9971	0.9971	0.9967	0.9969	0.9972
Rn <sup>2</sup> Stat.	6289.8*	6067.7*	5782.3*	5855.1*	6333.2*	6777.2*	5577.6*	6005.7*	5478.1*

Note. Significant.

\*(1%).

\*\*(5%).

\*\*\* (10%).

**Table 9.** Results of DOLS and FMOLS Estimation for Composite Economic Freedom Index.

<i>Dependent = lnGDP</i>			
Variable		DOLS	FMOLS
@TREND	Coeff. (t-Stat.)	0.0211 (6.49)*	0.0189 (5.74)*
C		17.479 (5.03)*	14.928 (4.19)*
lnK		0.3809 (22.81)*	0.3853 (21.66)*
lnL		0.2755 (1.52)	0.4059 (2.15)**
EF		0.0019 (3.10)*	0.0022 (3.39)*
Adj. R <sup>2</sup>		0.9987	0.9987
S.E. of Regression		0.0139	0.0135
Long-run Variance		0.0002	0.0002

Note. Significant.

\*(1%).

\*\* (5%).

static estimation, the dynamic investigation of the long-term impact of the Economic Freedom Index and its indicators on economic growth in this study will deliver more nuanced and significant insights. In the context of a composite index, both DOLS and FMOLS dynamic estimation results, as shown in Table 9, are similar to the static findings, indicating that the Composite Economic Freedom Index significantly impacts long-term economic growth, as proxied by GDP. The model's stability further supports the reliability of the results, with a @TREND statistics value significant at the 1% level, an R-squared percentage reaching 99%, a low standard error of regression value, and a long-run variance value below 0.1.

Both DOLS and FMOLS methods yield the same positive coefficients, indicating that the Economic Freedom Index can contribute positively to the GDP level. Specifically, according to DOLS results, a 1-point increase in the Composite Economic Freedom Index can result in a GDP increase of up to 0.0019%, and according to FMOLS results, the increase can be as much as 0.0022%. When translated into the GDP value for Indonesia, the positive impact of the Economic Freedom Index can lead to an approximate USD 2 billion increase in GDP. These findings underscore the significant impact of freedom on economic activity in driving national economic growth.

### 3.5.2. DOLS and FMOLS estimations for Decompose Economic Freedom Index

The combined DOLS and FMOLS results for the dynamic impact of the Decomposed Economic Freedom Index reveal that five out of nine indicators have a long-term impact on GDP. As shown in Tables 10 and 11, the significant indicators are property rights, government integrity, tax burden, investment freedom, and financial freedom. The indicators of government integrity, investment freedom, and financial freedom indicate a very strong significance at the 1% level, the property rights indicator is significant at a good 5% level, while the tax burden indicator is significant at an acceptable 5% level. Simultaneous signs for all five models of the indicators also support the reliability of the findings, with @TREND statistics value significant at 1% level, an R-squared value reaching 99%, and both the standard error of regression and the long-run variance value being very low.

The five indicators exert a positive influence on GDP, aligning with both the underlying theory and the hypotheses of this study. Some indicators are also consistent with the findings from the static approach. To be more specific, a 1-point increase in property rights is associated with a long-term GDP growth of approximately 0.0007% in both DOLS and FMOLS results. Similarly, a 1-point improvement in government integrity correlates with a long-term GDP increase of around 0.0016% based on DOLS results and 0.0019% based on FMOLS results.

Furthermore, a 1-point increase in tax burden is linked to a long-term GDP growth of approximately 0.0036% in FMOLS results. Additionally, a 1-point rise in investment freedom is associated with a long-term GDP growth of about 0.0007% in both DOLS and FMOLS results, while a corresponding increase of 1 point in financial freedom is associated with a long-term GDP boost of roughly 0.0013% based on DOLS results and 0.0016% based on FMOLS results.

**Table 10.** Results of DOLS Estimation for Decompose Economic Freedom Index.

<i>Dependent = lnGDP</i>									
Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
@TREND	0.0215 (5.78)*	0.0222 (6.87)*	0.0243 (5.71)*	0.0220 (4.42)*	0.0215 (4.39)*	0.0209 (3.72)*	0.0229 (4.53)*	0.0226 (7.23)*	0.0226 (8.60)*
C	17.496 (4.39)*	20.299 (5.85)*	21.203 (4.56)*	18.198 (3.40)*	17.837 (3.45)*	17.254 (2.90)*	19.079 (3.54)*	18.179 (5.43)*	19.139 (6.81)*
lnK	0.3861 (20.54)*	0.3956 (24.61)*	0.3875 (18.27)*	0.3919 (15.76)*	0.3966 (17.18)*	0.3899 (14.59)*	0.3932 (15.35)*	0.3908 (24.98)*	0.3419 (17.44)*
lnL	0.2695 (1.29)	0.0989 (0.55)	0.0557 (0.23)	0.2161 (0.78)	0.2311 (0.87)	0.2741 (0.88)	0.1723 (0.62)	0.2228 (1.29)	0.2622 (1.78)***
PR	0.0007 (2.29)**								
GI		0.0016 (2.83)*							
TB			0.0024 (1.35)						
GS				0.0011 (0.92)					
BF					0.0005 (0.78)				
MF						0.0008 (0.85)			
TF							-0.0004 (-0.44)		
IF								0.0007 (3.24)*	
FF									0.0013 (3.67)*
Adj. R <sup>2</sup>	0.9985	0.9986	0.9983	0.9982	0.9982	0.9982	0.9982	0.9987	0.9986
S.E. of Regression	0.0146	0.0143	0.0156	0.0158	0.0159	0.0158	0.0162	0.0138	0.0140
Long-run Variance	0.0002	0.0002	0.0003	0.0004	0.0004	0.0005	0.0004	0.0002	0.0001

Note. Significant.

\*(1%).

\*\*(5%).

\*\*\* (10%).

**Table 11.** Results of FMOLS Estimation for Decompose Economic Freedom Index.

<i>Dependent = lnGDP</i>									
Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
@TREND	0.0198 (5.63)*	0.0205 (6.92)*	0.0239 (6.66)*	0.0206 (4.87)*	0.0198 (4.72)*	0.0200 (4.29)*	0.0208 (4.56)*	0.0207 (6.62)*	0.0211 (8.67)*
C	15.672 (4.11)*	18.949 (5.89)*	21.061 (5.35)*	16.703 (3.64)*	16.057 (3.59)*	16.239 (3.26)*	16.751 (3.49)*	15.939 (4.68)*	17.486 (6.65)*
lnK	0.3924 (21.25)*	0.4068 (26.45)*	0.3994 (19.92)*	0.4039 (18.35)*	0.4086 (19.71)*	0.4029 (17.42)*	0.4031 (18.69)*	0.3997 (24.30)*	0.3412 (18.74)*
lnL	0.3571 (1.78)***	0.1509 (0.89)	0.0361 (0.18)	0.2748 (1.14)	0.3052 (1.31)*	0.3054 (1.15)	0.2785 (1.09)***	0.3277 (1.83)***	0.3567 (2.57)**
PR	0.0007 (2.49)**								
GI		0.0019 (3.71)*							
TB			0.0036 (2.05)***						
GS				0.0012 (1.12)					
BF					0.0006 (1.08)				
MF						0.0006 (0.75)			
TF							0.0001 (0.09)		
IF								0.0007 (3.52)*	
FF									0.0016 (4.89)*
Adj. R <sup>2</sup>	0.9984	0.9985	0.9983	0.9981	0.9981	0.9981	0.9981	0.9987	0.9985
S.E. of Regression	0.0148	0.0144	0.0154	0.0161	0.0163	0.0161	0.0165	0.0135	0.0146
Long-run Variance	0.0002	0.0001	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0001

Note. Significant.

\*(1%).

\*\*(5%).

\*\*\* (10%).

### 3.6. Robustness check for dynamic analysis

#### 3.6.1. CCR estimations for Composite Economic Freedom Index

In addition to employing DOLS and FMOLS as the chosen dynamic approaches, this study also utilizes the CCR method to conduct a robustness check on the estimation results obtained from DOLS and FMOLS. As depicted in Table 12, the substantial long-term impact of the Composite Economic Freedom Index on GDP, as indicated by DOLS and FMOLS results, is confirmed by the CCR method, with the significant effect also reaching a high 1% level. All reliability indicators are equally strong, with the @TREND statistics value being significant at the 1% level, an R-squared value of 99%, and both the standard error of regression and long-run variance values being low. Based on this examination, the significant impact of Composite Economic Freedom Index on GDP in the long term is robust.

The coefficient value obtained by CCR for the impact of the Composite Economic Freedom Index on long-term GDP is also positive, consistent with DOLS and FMOLS. According to the CCR results, every 1-point increase in the Composite Economic Freedom Index can contribute to long-term economic growth, proxied by GDP, for about 0.0021%. Similar to DOLS and FMOLS, when converted into the actual GDP value for Indonesia, the positive impact of the Economic Freedom Index from CCR results can lead to an approximately USD 2 billion increase in GDP in the long term.

#### 3.6.2. CCR estimations for Decompose Economic Freedom Index

Regarding the long-term impact of the Decomposed Economic Freedom Index on GDP, the DOLS and FMOLS results are also confirmed to be robust. As shown in Table 13, the CCR estimation also identifies the same five out of nine indicators that significantly impact GDP: property rights, government integrity, tax burden, investment freedom, and financial freedom. Indicators of government integrity, investment freedom, and financial freedom are found to be significant at the high 1% level, while property rights and tax burden are significant at the good 5% level.

All signs of model reliability also contribute to the robustness of the dynamic results from DOLS and FMOLS, with the value of the @TREND statistic being at the 1% significant level, the R-squared value reaching 99%, and both the standard error of the regression and long-run variance values being low. This CCR investigation concludes that the significant impact of property rights, government integrity, tax burden, investment freedom, and financial freedom on GDP in the long term is robust.

Consistent with DOLS and FMOLS, the obtained coefficient value by CCR for the impact of the significant economic freedom indicators on long-term GDP is also positive. Based on CCR results, a 1-point increase in the property rights indicator corresponds to a long-term GDP increase of approximately 0.0007%. Similarly, a 1-point uptick in the government integrity indicator can elevate long-term GDP by as much as 0.0021%. Additionally, a 1-point increase in the tax burden indicator is associated with a long-term GDP rise of about 0.0033%, while a 1-point increase in the investment freedom indicator can contribute to an increase of approximately 0.0007%. Furthermore, every 1-point increase in the tax burden indicator is linked to a long-term GDP increase of about 0.0016%.

**Table 12.** Results of CCR Estimation for Composite Economic Freedom Index.

<i>Dependent = lnGDP</i>		
Variable		CCR
@TREND	Coeff. (t-Stat.)	0.0189 (5.16)*
C		14.9854 (3.92)*
lnK		0.3899 (19.28)*
lnL		0.3942 (2.02)***
EF		0.0021 (3.07)*
Adj. R <sup>2</sup>		0.9987
S.E. of Regression		0.0136
Long-run Variance		0.0002

Note. Significant.

\*(1%).

\*\*(5%).

**Table 13.** Results of CCR Estimation for Decompose Economic Freedom Index Impact on GDP.

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
@TREND	0.0195 (4.95)*	0.0206 (6.26)*	0.0246 (5.79)*	0.0208 (4.48)*	0.0194 (3.98)*	0.0206 (3.96)*	0.0218 (4.81)*	0.0209 (5.94)*	0.0213 (7.94)*
C	15.3581 (3.69)*	19.1447 (5.34)*	21.7486 (4.71)*	16.8548 (3.43)*	15.5905 (3.05)*	16.7937 (3.09)*	17.6644 (3.75)*	16.2124 (4.41)*	17.6995 (6.29)*
lnK	0.3937 (22.14)*	0.4072 (27.26)*	0.3992 (22.07)*	0.4057 (17.59)*	0.4088 (21.01)*	0.4057 (17.92)*	0.4039 (19.60)*	0.4017 (25.04)*	0.3348 (15.13)*
lnL	0.3718 (1.74)***	0.1396 (0.75)	-0.0003 (-0.01)	0.2648 (1.04)	0.3299 (1.26)	0.2709 (0.94)	0.2295 (0.95)	0.3092 (1.64)	0.3534 (2.42)**
PR	0.0007 (2.53)**								
GI		0.0021 (3.31)*							
TB			0.0033 (2.13)**						
GS				0.0008 (0.42)					
BF					0.0007 (1.05)				
MF						0.0003 (0.27)			
TF							-0.0004 (-0.61)		
IF								0.0007 (3.34)*	
FF									0.0016 (4.23)*
Adj. R <sup>2</sup>	0.9984	0.9985	0.9983	0.9981	0.9981	0.9981	0.9979	0.9987	0.9985
S.E. of Regression	0.0148	0.0144	0.0154	0.0162	0.0163	0.0163	0.0168	0.0135	0.0146
Long-run Variance	0.0002	0.0001	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0001

Note. Significant.

\*(1%).

\*\*(5%).

\*\*\* (10%).



### 3.7. Discussion

As economic freedom is believed to have a crucial impact on a country's economic growth, this study provides robust empirical evidence of this claim for Indonesia's economic landscape. Both static and dynamic approaches yield consistently significant positive impacts of economic freedom on economic growth, especially from a long-term perspective. These findings align with previous worldwide studies that emphasize the importance of freedom in economic activity, driving a country's economy towards growth (Ahmed et al., 2023; Ahmed & Ahmad, 2020; Al-Gasaymeh et al., 2020; Brkić et al., 2020; Ciftci & Durusu-Ciftci, 2022; Henri & Mveng, 2024; Tunçsiper, 2023; Wulandari, 2015).

The study found that every 1-point increase in the Economic Freedom Index can potentially increase economic growth by up to 0.0022%. When converted to actual GDP value, this can push Indonesia's GDP by approximately USD 2 billion. Such a notable growth impact underscores how fostering economic freedom can enhance investment opportunities, stimulate job creation, and strengthen Indonesia's global competitiveness. By creating a stable environment for both domestic and foreign investments, Indonesia can harness economic freedom as a driving force for sustained development. These insights suggest that policies prioritizing economic freedom have the potential to lay a foundation for both immediate economic improvements and long-term growth benefits.

Moving to the decomposition analysis, the empirical findings of economic freedom indicators through various estimation approaches also offer a nuanced understanding of their distinct impacts on overall economic growth. As shown in Figure 2, eight out of nine economic freedom indicators index have a significant role with a positive impact. These indicators index include property rights, government integrity, tax burden, business freedom, monetary freedom, trade freedom, investment freedom, and financial freedom. These findings highlight the multifaceted contributions of specific economic freedoms,

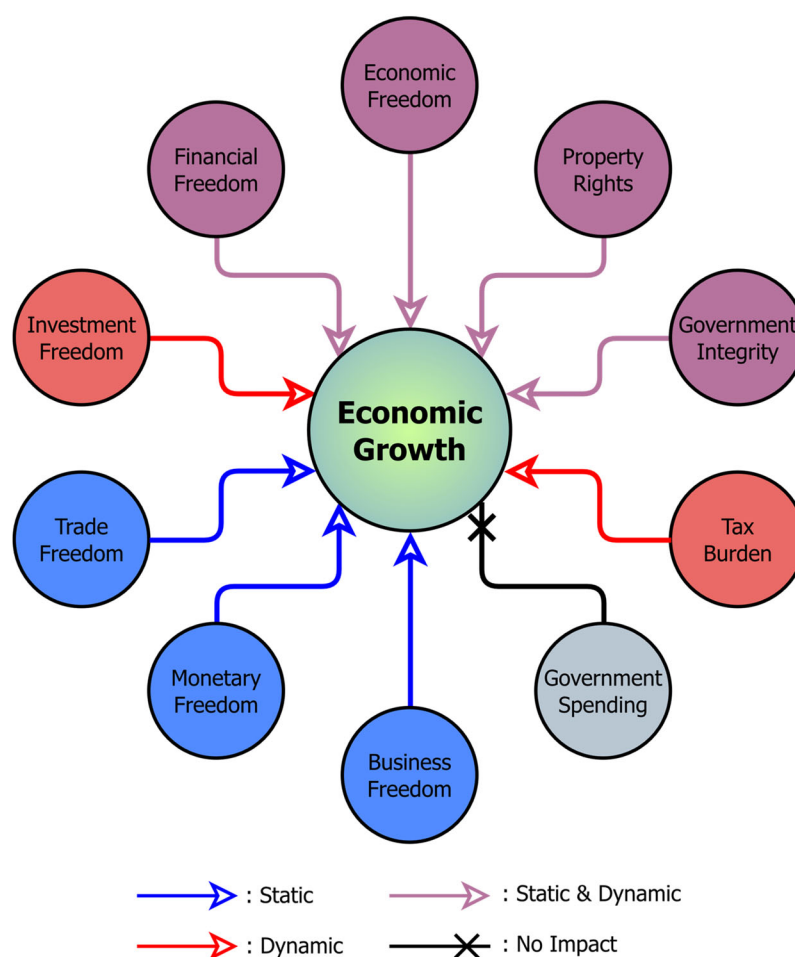


Figure 2. Overview of study findings.

underscoring the potential for targeted policy enhancements to amplify Indonesia's economic resilience and sustainable growth.

Starting with the property rights index, the observed up to 0.0007% increase in economic growth, approximately a USD 700 million rise in GDP for each 1-point increase, underscores the important role that a secure and well-defined system of property rights plays in fostering long-term economic growth. This connection implies that a strengthened legal framework around property rights can positively influence investment and economic activities (Ha & Phuong, 2017; Lawry et al., 2017; Sweet & Eterovic Maggio, 2015). Similarly, the government integrity index's correlation, indicating up to 0.0021% long-term economic growth boost for each 1-point increase (approximately a USD 2.1 billion rise in GDP), suggests that a transparent and corruption-free government can contribute to economic prosperity. This finding highlights the importance of accountable governance in creating an environment conducive to sustained economic development (Adriana Florina et al., 2022; Aziz et al., 2015; Castro & Martins, 2021; Huberts, 2018; Khurana et al., 2022; Sullivan, 2018).

The Tax Burden Index indicates that for every 1-point reduction in the burden of tax, long-term economic growth can be pushed by about 0.0033%. In terms of actual GDP, it can lead to an approximate USD 3.3 billion increase. Lower taxes can incentivize businesses to invest in capital goods, research and development, and other productivity-enhancing activities. Additionally, they contribute to increased consumer confidence, as people feel they have more control over their finances (Boardman et al., 2020; Brys et al., 2016; Stoilova, 2017). Furthermore, the Business Freedom Index shows a substantial 0.0014% increase in economic growth (approximately a USD 1.4 billion rise in GDP) for a 1-point increase. This emphasizes the significance of fostering a business-friendly environment. Streamlined regulations, reduced bureaucratic hurdles, and enhanced ease of doing business are crucial factors in promoting entrepreneurial activities, job creation, and, ultimately, economic growth (Aslan et al., 2020; Van Lam, 2022).

In the aspect of Monetary Freedom Index, the potential 0.0019% increase in economic growth for each 1-point rise indicates that policies promoting stable and sound monetary systems positively impact economic performance. This push can lead to an approximate USD 1.9 billion increase in GDP. Sound monetary policies contribute to price stability, which, in turn, encourages investment and financial confidence (Mehar, 2023; Taskinsoy, 2019). The Trade Freedom Index, as indicated by a 0.0021% increase in economic growth for a 1-point rise (approximately a USD 2.1 billion increase in GDP), highlights the importance of open and liberalized trade policies. Facilitating international trade can lead to increased market access, fostering economic efficiency and specialization, thereby boosting overall economic output (Seyoum & Ramirez, 2019; Sokolovska, 2016).

Lastly, the Investment Freedom Index shows that for every 1-point increase, long-term economic growth can be boosted by about 0.0007%. In terms of actual GDP, this increase can lead to approximately USD 700 million. Investment freedom allows businesses and individuals to allocate capital more efficiently. When there is freedom for investors to choose where and how to invest, it leads to the creation of new businesses, expansion of existing ones, and the development of infrastructure – all of which contribute to economic growth (Chen et al., 2015; Hayrdaroglu, 2016; Imtiaz & Bashir, 2017). Similarly, the Financial Freedom Index, with a significant 0.029% uptick in economic growth for a 1-point increase, underscores the crucial role of a well-regulated and competitive financial sector in driving economic growth. With the potential increase of approximately USD 2.9 billion in GDP, a financially free environment can encourage investment, innovation, and efficient allocation of resources (Brüggen et al., 2017; Laeven et al., 2015; Valickova et al., 2015).

When comparing the impact of various economic freedom indicators on economic growth, it becomes evident that some factors, like tax burden and financial freedom, exert a particularly strong influence. A 1-point reduction in the tax burden correlates with a 0.0033% growth increase (roughly USD 3.3 billion), making it the most impactful factor, likely due to the immediate incentives it provides for business investment and consumer confidence. Similarly, financial freedom shows a 0.0029% growth boost (approximately USD 2.9 billion), as a competitive, well-regulated financial environment supports investment and resource allocation efficiency. Other indicators, such as government integrity and business, monetary, and trade freedom, also contribute significantly, with each ranging from a 0.0014% to 0.0021% impact on economic growth, underlining the critical role of transparency and open trade

policies in fostering a stable, growth-oriented economy. By comparison, indicators like property rights and investment freedom, though influential, show more modest impacts of 0.0007%, suggesting that while foundational, their effects are more gradual and often depend on stable institutional frameworks and long-term confidence.

Collectively, this comprehensive study sheds light on the profound impact of economic freedom on Indonesia's economic growth. The robust empirical evidence, employing both static and dynamic approaches, consistently affirms the positive relationship between economic freedom and long-term national economic growth. The findings not only corroborate global studies emphasizing the pivotal role of freedom in economic activities but also provide nuanced insights into the distinct contributions of various economic freedom indicators. From property rights to financial freedom, each indicator plays a significant role with tangible implications for the country's GDP. As Indonesia charts its course for sustained development, the impact of this study underscores the imperative for policy frameworks that prioritize and enhance economic freedom across these crucial dimensions.

#### 4. Conclusions

This study addresses a critical gap in the literature on the role of economic freedom in driving economic growth within Indonesia, offering a comprehensive analysis that combines decomposition with static and dynamic econometric methods. By disaggregating the economic freedom index into specific indicators, this research provides meaningful perspectives on the unique contributions of each component. The results reveal that eight out of nine economic freedom indicators – including business freedom, monetary freedom, trade freedom, property rights, government integrity, tax burden, investment freedom, and financial freedom – positively and significantly influence Indonesia's economic growth. These indicators demonstrate consistent positive impacts across multiple analytical approaches, with property rights, government integrity, tax burden, investment freedom, and financial freedom showing particularly strong effects from a long-term perspective. This study contributes to a deeper empirical understanding of economic freedom's growth impact in emerging markets, offering policymakers targeted guidance for enhancing Indonesia's economic resilience and sustainable development.

#### 5. Policy recommendations

Based on the study's findings, policymakers should prioritize initiatives that enhance key indicators of economic freedom to drive economic growth in Indonesia. Efforts should focus on promoting business freedom by reducing entry barriers, such as simplifying licensing requirements and streamlining registration processes. Additionally, regulatory reforms should aim to improve the overall ease of doing business. Maintaining stable monetary policies is crucial, including implementing inflation targeting and making necessary adjustments to interest rates. Policymakers should also foster free and fair trade practices through specific policies, such as negotiating trade agreements and reducing tariffs, to enhance trade freedom.

Furthermore, protecting property rights and enhancing government integrity are essential components of a comprehensive growth strategy. This can be achieved through legal reforms that simplify land registration processes and strengthen enforcement mechanisms against expropriation. Additionally, implementing transparency measures, anti-corruption initiatives, and mechanisms for accountability will help build trust in government institutions. Strengthening tax policies is also vital for encouraging investment; this may include reducing corporate tax rates and broadening the tax base to ensure sustainable revenue generation.

Finally, a long-term perspective is necessary for effective policymaking, which includes regularly monitoring and evaluating the effectiveness of these measures. Specific indicators and metrics, such as GDP growth rates linked to economic freedom indices, should be utilized for this purpose. Capacity-building initiatives, including vocational training and entrepreneurship programs, are essential for fostering a skilled workforce. Policymakers should also encourage collaboration between government, the private sector, and civil society by establishing multi-stakeholder task forces and public-private partnerships for

specific projects. By implementing these targeted recommendations, Indonesia can create a robust environment conducive to sustainable economic growth.

## 6. Limitation of the study

Considering the critical role of promoting economic freedom for a country's growth, it is vital to acknowledge the limitations of this study to enhance future research in this field. First, since this study is based on data from a single country, subsequent research should incorporate data from multiple countries or focus on regional analyses to facilitate a broader cross-country comparison. Furthermore, employing advanced econometric methods such as the Generalized Method of Moments (GMM), Autoregressive Distributed Lag (ARDL), and Vector Error Correction Model (VECM) is recommended for a more thorough examination. Finally, this study suggests including additional control variables that may have interrelated effects on economic freedom and economic growth. Potential factors to consider are the inflation rate, unemployment rate, education level, and political stability, as these can significantly impact the efficacy of economic policies and the growth path. These recommendations aim to provide more robust empirical evidence regarding the crucial influence of economic freedom on economic growth.

## Author contributions

Irsan Hardi led the conceptualization, methodology development, and writing of the original draft, in addition to overseeing the project. Mohd Afjal managed the project administration, curated data, and conducted the formal analysis. Mohsin Khan focused on investigation and resource gathering, also assisting in data curation. Ghalieb Mutig Idroes and Resty Tamara Utami developed software, validated results, and revised the manuscript. Teuku Rizky Noviandy was involved in manuscript editing and visualization. All authors approved the final manuscript, with Mohd Afjal as the corresponding author.

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## Data availability statement

The data will be made available upon reasonable request from the corresponding author.

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