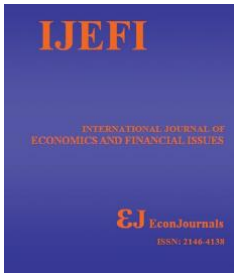

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Foreign Direct Investment, Economic Growth, and Governance in China: An Empirical Study

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ABSTRACT

In this study, the direct and indirect effect of FDI on governance was analyzed using the ARDL model with data spanning from 1990 to 2023. The analysis looked at FDI interaction with economic growth and financial openness. An analytical framework was constructed, including macroeconomic factors like trade openness, real GDP per capita, and financial development. Based on the analysis, governance can be impacted by FDI in a complex and non-linear manner. In the short-run perspective, the degree of impact of FDO on governance seemed to be mixed. However, in the long-run view, the impact leaned more positively, although not always statistically significant. Governance benefits from economic growth and vice versa. Thus, these two factors have a mutual positive relationship. However, trade openness seemed to hinder governance growth, marked by institutional pressures and regulatory challenges of deeper integration into global markets. Financial development, while theoretically expected to improve governance through greater transparency and market discipline, does not show significant long-term effects, suggesting that financial governance reform in China remains incomplete. The findings highlight the importance of optimising the quality of FDI, strengthening institutional capacity, and combining economic openness with governance reforms. This study not only contributes to the academic literature on FDI and governance but also provides practical policy implications for China to continue to attract high-quality FDI, improve its governance capacity, and achieve high-quality development in the context of globalisation and sustainable development.

Keywords: Foreign Direct Investment, Economic Growth, Governance, ARDL, China
JEL Classifications: C32, C33, F21, F43, F62

1. INTRODUCTION

This paper examined the link between foreign direct investment (FDI), economic growth, and governance in China for data from 1990 to 2023. Also, the paper looked at the short- and long-term dynamic effects of FDI on governance quality. As a critical driver of economic development, FDI plays a particularly important role in developing countries by addressing capital shortages, introducing advanced technologies, and promoting industrial upgrading (Sinha and Sengupta, 2019). Between 2010 and 2020, China attracted more than $1.4 trillion in FDI, mainly in manufacturing, high-tech industries, and services, with FDI accounting for nearly 20% of China's total industrial output by 2021 (Norehan et al., 2022c). In addition to accelerating China's economic growth, FDI influences

governance reforms by promoting better regulation, administrative efficiency, and market transparency to attract and retain global investment (Emako et al., 2010).

FDI also influences governance in China by driving regulatory reform, improving administrative efficiency, and increasing market transparency to attract global investors (Emako et al., 2023). A good example is the establishment of the Shanghai Free Trade Zone (SFTZ), which has attracted more than $50 billion in FDI since 2013 and improved the local governance framework (Yu et al., 2023). However, the impact of FDI on governance is complex. Governance can promote better regulation in some sectors, but it can also exacerbate environmental pollution, income inequality, and regulatory capture in areas with weaker governance (Pata and Kumar, 2021). This dual effect highlights the importance of effective governance both to maximize the benefits of FDI and to minimize its negative externalities (Gallucci et al., 2022).

Despite improvements in governance, China still faces a number of governance challenges, including uneven regional development, regulatory inconsistencies, and the ongoing fight against corruption. As FDI remains largely concentrated in coastal provinces, the development gap between eastern and inland regions continues to widen (Renmin University of China, 2022). In some resource-intensive industries, weak environmental regulation has allowed foreign-owned firms to circumvent environmental standards and cause pollution (Norehan et al., 2022a). In addition, corruption continues to hamper effective governance, as embezzlement of funds and collusion between government and business reduce the regulation (Zeng et al., 2012). These issues highlight the need to strengthen governance mechanisms to ensure that FDI makes a sustainable contribution to social and economic growth in China.

Numerous studies have covered issues like economic growth and FDI, environmental protection and FDI, and how FDI impacts social responsibility. However, analyzing the systematic effect of FDI on governance, especially the mechanism of how FDI is transmitted to the governance level through macro factors like trade openness, financial development, and economic growth, remains unexplored. Also, most analyses and literature will apply cross-sectional data or short-term panel data, resulting in a surface understanding of how FDI affects governance in the long term. This oversight has caused a lack of knowledge on the cumulative and time-lagged effects of FDI on governance. In addition, studies on China, the world's largest FDI inflow country, mostly focus on the governance effects of FDI at specific stages or under specific policy contexts, lack systematic excavation of long time series data from 1990 to 2023, and neglect the stage-by-stage characteristics and evolutionary patterns of the FDI-governance relationship in the historical process of economic system transformation, deepening globalisation and environmental policy tightening. Based on the existing literature, this study constructs an analytical framework that integrates economic growth, financial development and trade openness, and combines long-period data and the ARDL model to fill the research gap on the evolution path and time effect of FDI-governance dynamics, and to provide a new academic perspective to improve the theoretical system of FDI and the path of China's governance modernisation.

This study is highly significant as it enriches the empirical research on the FDI-governance relationship by systematically assessing the dynamic impact of FDI on governance in China. This relationship was viewed by looking at the link among FDI, economic growth, and governance, and the analysis looks at the short-term impact, the long-term effect. This not only helps to deepen the understanding of how FDI shapes the process of China's governance modernization but also provides empirical evidence and policy guidance for optimising foreign investment policies, improving governance structure, and achieving quality development.

Meanwhile, in the context of China's comprehensive promotion to a massive global opening-up phase and modernization of the national governance system, this study, based on the 1990-2023 long time series data and combined with the ARDL model, re-examines the path of FDI impact on governance level from the perspective of macroeconomic factors (economic growth, financial development and trade openness), which helps to reveal the stage-by-stage characteristics of FDI impact on China's governance. It provides a scientific basis for the government to further enhance the efficiency of FDI utilisation, build a market-oriented, rule-of-law, and internationalised business environment, and improve the governance structure and institutional supply in the new period, which has important policy value and practical significance.

2. LITERATURE REVIEW

2.1. Theoretical Review and Institutional Quality

Institutional quality refers to the effectiveness, transparency, and fairness of the political, legal, economy, and social systems of a country. Institutional quality is usually viewed at the level of governance, the soundness of the legal system, the control of corruption, the transparency and efficiency of policy implementation, and the protection of property rights. High-quality institutions contribute to economic growth and social welfare by helping to create a favorable investment climate and ensuring a level playing field of market rules and legal predictability. Institutional quality is closely linked to economic growth, attracting foreign investment, reducing income inequality, and protecting the environment. Countries with high-quality institutions are more likely to attract foreign investment, and investors in those countries have greater confidence that their investments will be effectively protected and generate long-term returns (De Lucia et al., 2020).

FDI can be attracted by increasing the quality of institutions. When a country is equipped with high-quality institutions, it signals that they offer legal certainty and policy transparency, reduce the risk of FDI entry, and increase investor confidence in the host market. A good institutional framework helps to attract more FDI, ensures its long-term local sustainability, and promotes technology transfer, employment, and economic growth. Conversely, poor institutions, such as high levels of corruption and non-transparent policies, tend to discourage FDI, as foreign firms face higher investment risks and costs.

2.2. Empirical Research on FDI and Governance (G)

The literature suggests that FDI and GDP are mutually reinforcing, with FDI bringing in capital and technology to boost GDP growth, and higher economic growth increases the attractiveness of FDI (Khan et al., 2023). A good governance environment, one with lower levels of corruption and GOV, helps attract more FDI inflows (Aloui et al., 2024). FDI can improve the level of governance, creating a two-way relationship (Rehman et al., 2021). Institutional quality and good governance are considered important in attracting FDI (Khan et al., 2023). Good governance signals how effectively a government performs its duties and promotes the public interest, which is broadly defined as enforcing law and order, collecting taxes, allocating resources to meet specific needs, providing infrastructure, and promoting human rights. However, when a country has a socio-political instability environment, it can result in economic deterioration and an inhospitable environment that deters investment.

Any international capital that flows without good governance measures (control of corruption, political stability, sound regulatory quality, clear rights, government efficiency, voice, and accountability) will adversely affect economic activity and create more inequality of opportunity, especially in low-income countries (Aloui et al., 2024) Weak governance policies and poor institutional frameworks fail to protect investment, thereby reducing FDI inflows (Khan et al., 2023). The institutional regulation of a country's laws and legal environment is identified as a key indicator of FDI inflows (Khan et al., 2023), and poor governance is responsible for the persistence of poverty and underdevelopment in most countries in Africa, Asia, and Latin America (Aloui et al., 2024). Huang et al. (2022) used the FGLS methodology to examine the impact of FDI inflows on carbon emissions using panel data of G20 economies from 1996 to 2018 and further examined the channels through which FDI inflows affect carbon emissions through the moderating role of the level of economic development and the quality of regulation. The results show that FDI inflows have a positive link with carbon emissions. However, FDI inflows and carbon emissions are negatively linked with economic development and the quality of regulation enforcement.

Aloui et al. (2024) citations using simultaneous equations models for sub-Saharan African, Asian, Latin American, and Eastern European countries over the period 1996-2017. It is found that how the host country enforced their governance will influence the degree of FDI inflows of the country. Khan et al. (2023) examined the impact of institutional quality on FDI in a global panel of developed, developing, and Asian countries from 2002 to 2019 using a two-step system GMM model. The results show that only when governance is governed in constant quality, FDI inflows will increase. However, other institutional indicators in the institutional quality index.

In China, the relationship between FDI and governance is believed to be two-way. Good governance allows businesses to thrive in a stable and fair environment that will generate more FDI. Simultaneously, when FDI is introduced, the government will be enticed to enforce better governance to regulate both multinational and local firms. Thus, measures such as controlling corruption, political stability, sound regulatory quality, clear rights, government effectiveness, voice, and accountability will be adopted, completing the two-way relationship.

Academics believe a unidirectional relationship exists between FDI and governance. It means that good governance can attract more FDI and advocates that host countries should adopt good economic policies and regulatory mechanisms to ensure that the market and social remain stable to generate FDI. Cao et al.(2022) examined the impact of financial development, stock markets, globalization, institutional quality, economic growth, electricity, and renewable energy consumption on carbon dioxide emissions in 36 OECD countries from 1985 to 2018, and the results of the study show that renewable energy consumption, globalization and institutional quality contribute to reducing carbon dioxide emissions and improving the environment, while financial development, the stock markets, electricity consumption and economic growth lead to increased carbon dioxide emissions in OECD countries in the long and short term.

In terms of governance, a good governance environment attracts more FDI, and FDI inflows contribute to improved governance (Rehman et al., 2021; Khan et al., 2023). The introduction of FDI forces the government to improve governance and promotes institutional improvement and corruption control.

Existing research on FDI in China focuses on its contribution to economic growth, technology transfer, and regional development, but systematic studies of how FDI affects the quality of governance at the national level - especially in the long term - remain scarce. Most studies either analyse the impact of FDI on governance through case studies or focus on short-term cross-sectional data, lacking a comprehensive time-series perspective.

To fill this gap, this study conducts a macro-level empirical analysis using data from 1990 to 2023 to examine how FDI affects the quality of governance in China over time. By constructing a framework that integrates FDI, economic growth, financial development, and trade openness and utilizing the ARDL model, this study provides dynamic and time-sensitive knowledge pertaining to the relationship between FDI and governance. This research can contribute to academic theory development and policy formulation, providing new insights into how China can optimise the use of FDI to improve governance while pursuing sustainable development.

3. METHODOLOGY

3.1. Data and Source

Based on the objectives and literature, this paper selected the Corruption Perceptions Index (CPI) as a proxy variable for governance level (GOV), and takes real GDP per capita (GDP), foreign direct investment inflows as a share of GDP (FDI), trade openness (TO), and financial development level (FD) as core explanatory variables. These variables were then used to develop a model to look at how FDI affects China's governance level, using annual Chinese data from 1990 to 2023 for the analysis.

These data were obtained from different sources. The sources of data are presented in Table 1 below:

CPI is a key indicator of a country's level of governance and corruption that is widely used internationally and is particularly useful for cross-country comparisons and long-term trend analysis, as it captures a comprehensive public and business assessment of government transparency and integrity (Transparency International, 2023). Economic growth (GDP) is a critical macro factor that can influence governance level. Economic growth not only brings an increase in financial resources but also promotes the construction of the rule of law and administrative transparency, thus contributing to the improvement of the level of governance (Zhang and So, 2023). FDI is a significant element in the global economy, and it can exert some influence on the level of governance in host countries. High-quality FDI is often accompanied by strict compliance standards and transparent governance requirements, thus promoting the improvement of market rules and regulatory systems in host countries; however, in regions with weak regulation, FDI may also exacerbate corruption through political and business collusion and rent-seeking behavior (Yu et al., 2023). Trade openness (TO) measures the degree to which a country is connected to the international market. An open economy not only promotes trade growth but also promotes transparency and standardization of national governance systems through the mechanisms of "rule alignment" and "institutional push" (Wen et al., 2022). Next, financial development (FD) is a window that can be used to gauge financial deepening efficiency, credit resource allocation, and the transparency and governance capacity of financial regulation. A sound financial system and strong financial regulation can help improve governance and reduce the risk of financial corruption (Aloui et al., 2023).

3.2. Research Methods

The ARDL (Autoregressive Distributed Lag) model, proposed by Pesaran and Shin in 1995 and further developed by Pesaran, Shin, and Smith in 2001 (Rehman et al., 2021). This technique has been widely used to study dynamic relationships between variables by introducing lagged terms, making it suitable for analysing both short-run fluctuations and long-run equilibrium relationships. He et al. (2021), Saqib et al. (2023), Ghazali et al. (2023a), Ridzuan et al. (2024), and Handayani et al. (2022b) are among the many scholars who have used the ARDL and its extended models to study the links between FDI, economic growth and governance.

3.3. Procedures Analysis

This study is an empirical analysis that follows a standardized time series analysis process. First, smoothness tests were performed on all variables to ensure the applicability of the data and to avoid pseudo-regression issues. Firstly, the Dickey-Fuller (DF) with augmented Dickey-Fuller (ADF) test was used, and next, the data was cross-validated for smoothness and single integer order. This procedure was carried out with the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test. The result of these tests can show the characteristics of the variables and provide the information of which subsequent model and estimation method. After confirming the smoothness and the single integer order of the variables, the Bounds Test (BT) was applied to check any cointegration relationship between the variables (Aloui et al., 2023).

Table 1: Sources of data

Model	Description	Sources
Model of governance		
GOV	Corruption Perceptions Index (CPI)	ICRG-PRS
GDP	Real GDP per capita, constant (2015)	WDI
FDI	FDI inflows as % of GDP	WDI
TO	Sum of export and import as % of GDP	WDI
FD	Monetary Sector credit to private sector (% GDP)	IMF

WDI: World Development Indicator 2023, ICRG-PRS: International Country Risk Guide by Political Risk Services, NBS: National Bureau of Statistics, IEA: International Energy Agency, IMF: International Monetary Fund

3.4. Model of Governance

Using the governance estimation model (Khan et al., 2023), only regulatory quality significantly increases FDI inflows in the global panel, while the other institutional indicators in the institutional quality index are negatively associated with FDI inflows:

$$GOV_t = \delta_0 + \beta_1 GDP_t + \beta_2 FDI_t + \beta_3 FD_t + \beta_4 TO_t + \varepsilon \quad (1)$$

ε is a residual term and it is inserted in the model to denote the ignored effects that is assumed as white noise. Then, the variables were converted into log-linear specification to measure elasticities. The conversion produces consistent and efficient results, better results than the ones generated in the linear model. Additionally, Chang, Fong, and Wan (2001) stated that the model is converted into natural logs in order to generate stationarity in the variance–covariance matrix. Thus, the model was reconstructed as:

$$LNGOV_t = LN\,\delta_0 + LN\beta_1 GDP_t + LN\beta_2 FDI_t + LN\beta_3 FD_t + LN\,\beta_4 TO_t \quad (2)$$

The advantage of the ARDL model lies in its ability to handle both short-term and long-term dynamic relationships, making it ideal for time series data analysis. Equation 3 is reconstructed as follows:

$$\Delta LNGOV_t = \beta_0 + \theta_1 LNGDP_{t-1} + \theta_2 LNFDI_{t-1} + \theta_3 LNFD_{t-1} + \theta_4 LNTO_{t-1} + \sum_{i=1}^{a} \gamma_i \Delta LNGDP_{t-i} + \sum_{i=1}^{a} \mu_i \Delta LNFDI_{t-i} + \sum_{i=1}^{a} \rho_i \Delta LNFD_{t-i} + \sum_{i=1}^{a} \sigma_i \Delta LNTO_{t-i} + \vartheta_t \quad (3)$$

4. RESULTS AND THEIR INTERPRETATION

In estimating the ADRL model, the first step is to determine the robustness. To generate robustness, a series of tests such as unit root tests (ADF, PP tests), ARDL bounds tests, long-run and short-run impact analyses, and error correction models (ECMs) are needed. The unit root tests can determine the smoothness of the variables, and it checks whether the variables are either I(0) or I(1). To satisfy the applicability of the ARDL method. The variables cannot be I(2). Then, the ARDL bounds test determines if a long-run cointegration relationship exists between the variables. Here, it determines that in the long run, does FDI has a stable effect on governance quality. If the cointegration relationship was

upheld, the analysis of the long-run and short-run effects of FDI on governance could be carried out. The analysis determines if the long-run effect of FDI has improved or weakened FDI the level of governance through macroeconomic factors (GDP, financial development, trade openness, etc.). The short-run analysis looked at how FDI short-run fluctuation affects governance. The next test, the Error Correction Model (ECM), measures the speed of adjustment of governance quality and sees how it can return to the long-run equilibrium after experiencing short-term shocks. If the analysis produces negative and significant ECM results, the governance is believed to be gradually returned to the steady long-run condition after short-term deviations.

4.1. Testing Unit Root Test

Two tests, called the Augmented Dickey-Fuller (ADF) unit root test and the Phillips-Perron (PP) unit root test, determine the smoothness of the variables, as shown in Table 2:

From Table 2, it can be seen that in the case of the level value (I(0)) of the ADF and PP tests, most of the variables could not reject the initial hypothesis at the 1%, 5%, or 10% level of significance. At the first order (I(1)), the ADF and PP test statistics for all variables were found at significantly below the critical values. Thus, the original hypothesis was rejected at the 1%, 5%, or 10% level of significance, showing that all variables became smooth after being differenced to the first order. The test results meet the requirements of the ARDL method, and ARDL can be used to look at how FDI affects China's governance level.

4.2. Testing the Presence of Long Run Cointegration Based on F Statistic

This paper used the ARDL bounds test proposed by Pesaran et al. (2001) to test whether there is a long-run cointegration relationship between FDI and the level of governance (GOV). Table 3 reports the F-statistic and its corresponding critical value.

For this analysis, the F-statistic is 7.213, significantly higher than the already determined upper critical values at the 1%, 5%, and 10% significance levels (4.37, 3.49, and 3.09, respectively). According to the cointegration discrimination criterion of Pesaran et al. (2001), when the F-statistic is greater than the upper critical value of I(1), the initial hypothesis of no cointegration is rejected (H_0: no cointegration exists), indicating that there is a long-run equilibrium relationship between the variables. Therefore, this study confirms that a cointegrating relationship exists between FDI, GDP, financial development (FD), trade openness (TO), and governance level (GOV). This result suggests that FDI exerted a significant effect on governance through macroeconomic factors and the effect is stable and persistent in the long run.

4.3. Diagnostic Tests

The robustness of the ARDL model was determined by running diagnostic tests, like residual serial correlation, functional form of the model, normality, and heteroskedasticity, and the results are seen in Table 4. The P-value of the Lagrange Multiplier (LM) test was valued at 0.1406, meaning that no serious serial correlation was present in the model. Next, the P-value of Ramsey's RESET test is 0.1097, showing that the model has the correct functional form and is free from omitted variables or nonlinear misspecification. For the normality test, the P-value was found at 0.687, and thus, the residuals have a normal distribution. Finally, the heteroscedasticity test has a P-value of 0.4175, indicating that the model does not have a significant heteroscedasticity problem. Therefore, none of the tests rejected the initial hypothesis. In conclusion, all the classical regression assumptions were satisfied, and serial correlation, functional form, residual normality, and heteroscedasticity have no major issues. This model has established its robustness and can serve as an empirical basis for the subsequent analyses.

4.4. Short-run Elasticities

To understand FDI on the level of governance (GOV) for short-run analysis, an error correction model (ECM) was constructed to estimate the short-run elasticities. The results are shown in Table 5.

The ECM results show that the impact of FDI on the level of governance in the short term is volatile. The impact of FDI seemed positive when the previous period was positive. However, the lagged period was found to be significant at the 5% level, and this can be

Table 2: Unit root test for CHINA

Level I (0)	ADF Unit Root		PP Unit Root	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
LNGOV	−0.724 (0)	−2.178 (0)	−0.690 (2)	−2.178 (0)
LNGDP	−1.636 (2)	−0.391 (2)	−3.397 (4)**	0.337 (3)
LNFDI	−0.034 (0)	−1.562 (0)	−0.034 (0)	−1.432 (4)
LNFD	−2.256 (1)	−3.571 (1)*	−1.857 (1)	−2.374 (1)
LNTO	−2.522 (1)	−5.202 (0)***	−3.056 (6)**	−5.300 (2)***
First difference I (1)	**ADF Unit Root**		**PP Unit Root**	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend
LNGOV	−5.614 (0)***	−5.526 (0)***	−5.628 (3)***	−5.544 (4)***
LNGDP	−1.175 (1)	−1.991 (1)	−2.009 (2)	−3.986 (3)**
LNFDI	−2.068 (0)	−2.850 (0)	−1.755 (3)	−2.738 (3)
LNFD	−3.560 (0)**	−3.480 (0)*	−3.190 (6)*	−3.068 (6)*
LNTO	−8.980 (0)***	−9.347 (0)***	−10.365 (7)***	−18.375 (19)***

1. ***, ** and * are 1%, 5%, and 10% of significant levels, respectively. 2. The optimal lag length was selected automatically using the Schwarz Info Criteria (SIC) for the ADF test, and the bandwidth was selected by using the Newey–West and user-specified method for the PP unit root test

Table 3: Detecting the presence of long run cointegration based on F stat for China

Model	Max Lag	Lag order	F statistics China	
LNGOV=F (LNGDP, LNFDI, LNFD, LNTO)	(4,4)	4,4,4,4,4	7.213***	
Critical Values for F stat,			Lower I (0)	Upper (1)
10%			2.2	3.09
5%			2.56	3.49
1%			3.29	4.37

1. # The critical values are based on Pesaran *et al*. (2001), case III: unrestricted intercept and no trend. 2. k is several variables, and it is equivalent to 7. 3. *** represent 10%, 5%, and 1% level of significance, respectively

Table 4: Diagnostic tests for China

Model	(A) Serial Correlation [P-value]	(B) Functional Form [P-value]	(C) Normality [P-value]	(D) Heteroscedasticity [P-value]
China	4.048 [0.1406]	4.203 [0.1097]	0.749 [0.687]	1.303 [0.4175]

** represent 5% significant levels. 2. The diagnostic test performed as follows: A. Lagrange multiplier test for residual serial correlation; B. Ramsey's RESET test using the square of the fitted values; C. Based on a test of skewness kurtosis of residuals; D. Based on the regression of squared fitted values. 2

attributed to the short-term instability in the governance as a result of FDI influence. Thus, at this time, the short-term effect of economic growth on governance is negative, with both the current and lagged periods significant at the 1% and 5% levels, suggesting that rapid economic growth may bring short-term governance pressures. The effect of trade openness is also negative and significant at the 1% level, but its lagged term gradually becomes positive, suggesting that trade liberalisation may pose a challenge to governance in the short run but will benefit later in the long run. The error correction term (ECM) was found to be −0.3824, significant at the 1% level, suggesting that about 38.24% of the short-term deviations in each period are adjusted back to the long-term equilibrium, reflecting that the governance level has a relatively fast recovery ability after short-term shocks. Overall, the effects of FDI, economic growth, and trade openness seemed to be more complex on governance in the short run. However, looking at the significance of the error correction term, it indicates that governance can return to the long-run equilibrium relatively quickly after short-term shocks.

4.5. Long-Run Elasticities

This paper conducts a long-run estimation based on an extended endogenous growth model to examine the long-run impact of FDI on the level of governance. The results are presented in Table 6.

The results of the long-run elasticity estimation show that economic growth has a significant positive effect on the level of governance, and the long-run coefficient of LNGDP is 5.5191, which is significant at the 10% significance level (P = 0.0594), suggesting that the quality of governance improves as the economy develops. The long-term effect of FDI is also positive (coefficient 6.5559) but does not reach the significance level (P = 0.1714), suggesting that there is some uncertainty about the long-term effect of FDI on governance, which may be influenced by the

Table 5: Short-run elasticities and error correction model (based on present lag) for Malaysia

Variables	Coefficient	t-stat	Prob
D (INGOV(−1))	−0.055	−0.782	0.469
D (INGOV(−2))	−0.130	−1.902	0.115
D (INGOV(−3))	−0.282	−3.959	0.010**
D (INGDP)	−7.320	−2.867	0.035**
D (INGDP(−1))	−14.806	−5.127	0.003
D (INGDP(−2))	3.428	1.108	0.318
D (INGDP(−3))	−8.743	−2.120	0.087
D (INFDI)	0.319	2.145	0.084
D (INFDI(−1))	−1.287	−5.184	0.003
D (INFDI(−2))	0.414	2.318	0.068
D (INFDI(−3))	−1.070	−5.228	0.003
D (LNFD)	−4.101	−4.106	0.009**
D (LNFD(−1))	1.698	2.292	0.070
D (LNFD(−2))	−1.780	−2.727	0.041**
D (LNFD(−3))	2.481	3.736	0.013**
D (LNTO)	−0.576	−4.907	0.004
D (LNTO(−1))	0.630	6.613	0.001
D (LNTO(−2))	0.316	4.593	0.005
D (LNTO(−3))	0.255	3.508	0.017**
CointEq(−1)*	−0.382	−9.303	0.000

1. ***, ** and * are 1%, 5% and 10% of significant levels, respectively

Table 6: Long run estimation based on extended endogenous growth model for China

Variables	Coefficient	t-stat	Prob
INGDP	5.519*	2.430	0.059
INFDI	6.555	1.595	0.171
LNFD	−7.902	−1.039	0.346
LNTO	−3.360*	−2.429	0.059
C	−118.216*	−2.390	0.062

***, ** and * are 1%, 5% and 10% of significant levels, respectively

quality of investments and the regulatory environment. Financial development (LNFD) shows a negative effect. However, it fails the significance test (P = 0.3464), suggesting that its long-term effect on governance is not significant enough. At the same time, trade openness (LNTO) is significantly negative at the 10% level (P = 0.0594), suggesting that trade liberalization may pose a challenge to the level of governance, which may be related to regulatory pressure in the market or increased capital liquidity. In addition, the constant term is significantly negative, suggesting that structural factors may influence the long-run equilibrium state of the level of governance. Overall, economic growth promotes the quality of governance in the long run, trade openness may put pressure on governance, and the long-term role of FDI and financial development on governance needs to be further explored.

5. CONCLUSION AND POLICY RECOMMENDATIONS

Based on the empirical results of the unit root test, the ARDL boundary test, the short-run and long-run elasticity analyses, and the error correction model (ECM), this study draws the following main conclusions:

In the short run, FDI has a positive effect on governance in the current period, but the negative effect of the lagged term suggests

that FDI may cause instability in governance in the short run, possibly due to market adjustment problems or institutional regulatory challenges in the initial stage of foreign capital inflows. In the long run, the direction of the impact of FDI is positive but does not reach statistical significance, suggesting that whether FDI can improve governance sustainably may depend on the type of investment, the quality of institutions, and the degree of sophistication of foreign investment regulatory policies.

Economic growth significantly contributes to the level of governance in the long run. In the short run, the effect of economic growth on governance is volatile, while the long-run estimation results show that economic growth is significantly positive at the 10 percent significance level, suggesting that as the economy develops, institution building and governance capacity contribute to improving the level of governance.

Trade openness may have some negative effects on governance levels in both the short and long run. In the short run, trade liberalisation has a larger impact on the level of governance, but its lagged effect shows some tendency to recover. In the long run, trade openness is significantly negative at the 10% level, suggesting that free trade may pose governance challenges, such as increased regulatory pressure and market order problems due to increased cross-border capital mobility.

The impact of financial development on governance is more volatile in the short run, and the long-run effect is not significant. The lagged terms on the level of governance are significant in the short run. However, the long-run coefficients do not reach statistical significance, suggesting that financial deepening on governance is likely to be more complex and influenced by the quality of institutions, financial regulatory policies, and market maturity.

The error correction term (ECM) is negative. Thus, governance is believed to recover quickly after a short-term shock and gradually return to the long-run equilibrium. This means that the level of governance does not deviate from equilibrium in the long run due to short-term fluctuations, reflecting a certain degree of stability in the governance system.

Based on empirical analyses of Chinese data from 1990 to 2023, this study examined the relationship between FDI, economic growth, and the level of governance. The long-run effect of FDI on governance was found to be positive but insignificant, that economic growth significantly improves the quality of governance, and that trade openness may pose certain governance challenges in both times. This paper proposes the following policy recommendations to optimise the quality of FDI to grow economic growth while improving governance and mitigating the governance risks that trade openness may pose.

Optimise the structure and quality of FDI, focusing on directing foreign investment with high value-added and high-tech content and enhancing the positive impact of FDI on upgrading local industries and governance levels. Strengthen governance regulation of foreign-funded enterprises, improve market transparency, and prevent potential governance risks.

While promoting economic growth, policymakers should strengthen the rule of law, enhance market regulatory capacity, and promote the integration of the digital economy and smart governance so that economic development can be enhanced in tandem with governance capacity and the stability and adaptability of the state governance system can be further strengthened.

They should improve market regulatory mechanisms, strengthen the control of cross-border capital flows, reduce the impact of trade liberalization on the stability of the domestic system, and promote green finance and sustainable investment to achieve the coordinated development of economic openness and the optimization of governance.

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