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The Impact of Institutional Quality and Chinese FDI in GDP Growth in COMESA

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Abstract: **Nowadays, foreign direct investment (FDI) has become an important engine for economic development in developing countries. This study examines the mediating effect of institutional quality on the relationship between China's FDI and the economic growth of the Common Market for Eastern and Southern Africa (COMESA) countries. As the world's second-largest economy, China is a major driving force behind global economic growth. This research is significant for the strategic alliances advocated by the "Belt and Road" initiative, as well as for investments that enhance global trade and economic integration.**

Chinese FDI inflow to COMESA has rapidly grown in recent years. COMESA serves as a strategic hub for maritime trade routes, providing access to both the Indian Ocean and the Red Sea. The study used random effects model and annual data from 11 COMESA countries for the period 2003-2021.

The study found that Chinese FDI positively impacts GDP growth in COMESA countries at a 1% significance level. Access to electricity was also positively correlated with GDP growth. Trade exhibited a negative impact on GDP growth at a 10% significance level. Inflation had a strong significant negative effect at the 1% level, underscoring the detrimental impact of high inflation on economic stability and growth. Institutional quality independently was positive and significant at the 10% level, indicating that higher institutional quality generally enhances GDP growth. In contrast, the interaction term between Chinese FDI and institutional quality was negative and significant at the 10% level. This highlights the complexity of the relationship and suggests that while strong institutions are beneficial on their own, their interaction with FDI requires careful management.

Keywords: **Chinese Foreign direct investment (FDI); Economic Growth; Institutional Quality; COMESA; Random Effects Model.**

1. INTRODUCTION

According to the United Nations Conference on Trade and Development (UNCTAD), FDI is defined as "an investment involving a long-term relationship and reflecting a lasting interest and control by a resident entity in one economy (foreign direct investor or parent enterprise) in an enterprise resident in an economy other than that of the foreign direct investor" (UNCTAD, 2020). This definition underscores the importance of lasting interest and control in foreign investments.

Institutional quality refers to the effectiveness, accountability, and transparency of a nation’s institutions in creating a favorable investment environment. These institutions include the rule of law, governance structures, regulatory agencies, and legal frameworks. Strong institutions provide a predictable and stable economic environment, boosting investor confidence and ensuring that the benefits of FDI are fully realized. Host countries can maximize the benefits of FDI to promote fair and sustainable development by identifying institutional problems and actively improving the investment climate.

The role of institutional quality in the FDI-growth nexus has been a focal point in several studies, including those by Jude and Levieuge (2016), Sabir et al. (2019), Jonathan (2021), Miao et al. (2021), Adegboye et al. (2020), Franz et al. (2022), Ketteni and Kottaridi (2019), and Zhang and Kim (2022). These studies consistently highlight the significance of institutional quality in influencing the effectiveness and benefits of FDI on economic growth.

This study focuses on the Common Market for Eastern and Southern Africa (COMESA) region, where Chinese FDI inflow has rapidly grown in recent years. The Common Market for Eastern and Southern Africa (COMESA), established in December 1994, comprises 21 African Member States: Burundi, Comoros, the Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Eswatini, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Sudan, Seychelles, Somalia, Tunisia, Uganda, Zambia, and Zimbabwe. These countries united to foster regional integration by promoting trade and developing natural and human resources for the collective benefit of the region's populace.

The study examines the mediating effect of domestic institutional quality on the relationship between Chinese FDI and GDP growth in COMESA countries. By positioning the current study within this broader context, it aims to provide deeper insights into the mechanisms through which Chinese FDI influences economic growth in COMESA countries, with a particular focus on the mediating role of domestic institutional quality. The evolving landscape of FDI in Africa, characterized by regional disparities, macroeconomic influences, and technological advancements, sets the stage for a thorough examination of the determinants and impacts of FDI across the continent. This research will build on the existing body of knowledge to propose strategic recommendations for enhancing FDI inflows, thereby supporting sustainable economic growth and development in COMESA. The study proposes the following research questions.

1) What is the impact of Chinese FDI on the GDP growth in COMESA?

2) To what extent does institutional quality explain the outcomes of FDI in economic growth and development in COMESA member states?

3) What kind of policy changes could be advocated to increase the benefits of foreign direct investment (FDI) on economic growth while reducing the risks associated with institutional weaknesses?

2. LITERATURE REVIEW

Ali et al. (2010) is one of the earliest studies conducted on how institutions affect FDI location. Ali et al. (2010) used panel data for a large sample of countries from 1981 to 2005, to examine FDI attraction under the condition of host country institutional quality. They found that good institutional quality (characterized by a strong legal system and adherence to property rights) is an important determinant of FDI. Later, a complementary study was done by Zhang and Kim (2022) using a threshold model to test the role of institutional quality in determining FDI location. They also found evidence to support that while labor costs are traditional determinants of FDI location, a better-quality institution tends to reduce country-related costs for FDI location thus undermining the negative relationship between labor costs and FDI location.

There is no consensus on the role of institution quality in FDI-growth nexus. While some studies find institution quality to be the favorable condition needful for FDI to enhance economic growth, other studies have found that institution quality plays no significant role in influencing FDI. A group of studies conducted to examine the interrelationship between institutional quality, FDI, and economic growth found institutional quality to be a necessary but not sufficient condition for FDI to enhance economic growth. For instance, Jude and Levieuge (2016) using a panel smooth regression model on a large sample of developing countries tested whether the institutional quality is the mediating factor for FDI-economic growth nexus. Theoretically, they argued that mixed results of previous empirical studies could be attributed to the institutional heterogeneity of the sampled host countries. They found evidence to support that only after institutional quality has improved beyond a certain level does FDI flow have a significant positive effect on economic growth. Therefore, institutional reforms are imperative for countries that intend to use FDI as an instrument for economic growth. Additionally, if the goal is to pursue long-term economic growth and sustainability, then institutional reform policies ensuring enduring economic prosperity should take precedence over reforms advocating for faster marginal effects of FDI.

In addition, Ketteni and Kottaridi (2019) used the institution-based approach to examine the FDI-growth nexus under different formal institutions, especially credit and labor market regulatory systems in both advanced and developing countries. They found strong evidence to support that institutions shape the macro environment where MNEs operate thus institutions have a great influence on MNEs' activities which in turn affect the economic growth of the host countries.

Furthermore, Adegboye et al (2020), analyzed how challenges faced by institutions in sub-Saharan Africa impact how FDI affects the economic development of the sampled countries. Analysis of pooled data for 30 SSA countries for the period between the years 2000 and 2018 using a fixed and random effect regression model revealed that foreign capital inflow is important for economic development in sub-Saharan Africa. They also found that the inward flow of FDI is determined by quality institutions whereas poor quality institutions resulted in the underutilization of domestic resources and hence thwarted the development of domestic investment.

To test the impact of institutional quality relative to other determinants of FDI, other studies controlled for factors such as physical capital, human capital, trade openness, resources, and financial market quality. For instance, to empirically examine the role of institutions as an interactive factor in the FDI, trade, and growth nexus in sub-Saharan Africa (SSA), Asamoah et al (2019) used the Structural Equation Modelling (SEM) technique with data from 34 SSA countries covering the period 1996–2016. They found that while the FDI effect on economic growth is negative, the FDI growth-enhancing effect increases monotonically without institutions. They found a positive effect of institutions on trade openness on the trade-growth nexus. Furthermore, institutional quality has a positive effect on growth. Human capital development, financial development, and resource rent are equally found to exhibit positive effects on economic growth in SSA.

Miao et al (2020) conducted a study to analyze the role of institutional quality on China-FDI and China-Africa trade on the economic growth of African countries. They used the governance quality index as a measure of institutional quality. The following governance indicators were used, control of corruption, absence of violence and instability, government effectiveness, regulatory quality, rule of law, voice, and accountability. They found that physical capital and institutional quality were significant and positively correlated with growth. They concluded that the accumulation of physical capital is crucial for economic growth in African countries. Furthermore, they found that Chinese FDI is significant and negatively correlated with GDP per capita. This seems to reinforce what has been argued by other scholars that FDI benefits are more evident when backed by the host country's factors that are conducive to trade and investment. That is, African countries can only enjoy benefits from FDI if certain factors that attract FDI exist while those that repel FDI are absent. In addition, the mediating effect of China–Africa trade on the Chinese FDI-growth nexus was found to be positive. This shows that trade openness can enhance FDI benefits to the host country. This is consistent with findings from the study by Nobakht and Madani (2014) who found that FDI and trade openness can accelerate economic growth and that countries should adopt policies that promote trade to benefit from FDI spillovers.

The study by Agbloyor E.K et al (2016) on the inter-relationship among foreign direct investment (FDI), institutions, and economic growth in sub-Saharan Africa found no evidence that FDI promotes growth. The study also found that there is no significant relationship between institutions and economic growth. They found no concrete evidence for the mediating effect of institutions on the relationship between FDI and economic growth. In the subsample that excluded countries with developed financial markets, they also found no significant link between FDI and economic growth. However, evidence was found suggesting that institutions can directly accelerate economic growth. Furthermore, the quality of institutions seems to be a favorable condition for FDI to promote economic growth. Excluding countries with abundant natural resources from the sample yielded results showing a direct and positive relationship between FDI and economic growth as well as a direct relationship between institutions and economic growth. This means that there should be careful consideration of the economic realities of the host countries before implementing any policies to benefit from FDI-growth-enhancing effects.

Asongu et al.'s (2018) study uses panel data econometric approaches to examine how governance and globalization affect economic growth in Africa. According to the findings, GDP growth is positively impacted by improved governance, as indicated by metrics like regulatory quality, rule of law, government effectiveness, and corruption control. Higher levels of FDI inflows are related to improved governance and these FDI inflows promote economic growth and development.

Case studies of the impact of Chinese FDI in COMESA region

Ethiopia has been a major recipient of Chinese FDI, particularly in the manufacturing and infrastructure sectors. The establishment of the Eastern Industrial Zone and the construction of the Addis Ababa-Djibouti Railway are notable examples. These projects have significantly improved transportation efficiency and industrial capacity, fostering economic growth and job creation.

Chinese investments in Zambia have largely focused on the mining sector, given the country's rich mineral resources. The Chambishi Copper Smelter, financed and constructed by Chinese firms, is one of the largest Chinese investments in Zambia. This project has boosted the country's copper production capacity and generated numerous employment opportunities.

In Kenya, Chinese FDI has played a crucial role in infrastructure development. The construction of the Standard Gauge Railway (SGR) from Mombasa to Nairobi, funded by Chinese loans and built by Chinese companies, has been a game-changer for the country's logistics and transportation sectors. This project has improved trade efficiency and stimulated economic activities along the railway corridor.

Chinese FDI in Sudan has primarily targeted the oil sector. The development of oil extraction and processing facilities by Chinese companies has been pivotal in increasing Sudan's oil production. These investments have significantly contributed to the country's GDP and overall economic development.

The overall impact of Chinese FDI on Africa's economic growth is largely positive. The strategic and significant influx of Chinese capital has the potential to transform African economies by addressing critical infrastructure gaps, creating jobs, and promoting industrial diversification. The effective management of these investments can maximize benefits, ensuring that Chinese FDI contributes to sustainable and inclusive economic development.

In summary, Chinese FDI has a multifaceted impact on Africa's GDP growth, driven by infrastructure development, job creation, and economic diversification. Specific cases in COMESA countries like Ethiopia, Zambia, Kenya, and Sudan underscore the significant benefits of Chinese investments. As Chinese investments continue to grow, it is imperative for African countries to harness these opportunities effectively. This section aims to explore the mechanisms through which Chinese FDI influences GDP growth in Africa, providing a comprehensive analysis of its benefits and transformative potential.

3. METHODOLOGY

This chapter outlines the methodology employed to examine the impact of domestic institutional quality and Chinese Foreign Direct Investment (FDI) on the GDP growth of COMESA countries. The analysis focuses on the intricate relationships between FDI, institutional quality, and various economic indicators to provide a comprehensive understanding of their collective influence on economic performance. The methodology includes the selection of relevant variables, data collection procedures, and the analytical techniques used to test the hypotheses and derive meaningful insights. The chapter employs a random effects model to analyze panel data from 2003 to 2021, addressing potential endogeneity issues and enhancing the reliability of the results. Additionally, a robustness check is conducted by altering the sample range to ensure the stability of the findings over different periods.

Selection of Variables and Data Collection

Data for these variables are sourced from reliable and comprehensive databases. Real GDP per capita growth and the control variables are sourced from the World Development Indicators, ensuring consistency and accuracy. Chinese FDI stock data is obtained from the China Africa Research Initiative, providing specific and detailed information on Chinese investments in COMESA. Data on institutional quality is sourced from the Fraser Institute, which offers a well-regarded and comprehensive measure of economic freedom.

Table 1: Definitions of variables and data source

	Definition of variables and data source		
	Variable	Definition	Data Source
Dependent Variable	GDP	GDP per capita growth (annual %)	World development indicators
Independent Variable	FDIchina	Chinese FDI Stock in African Countries (COMESA)	China Africa Research Initiative
Control Variable	GFCF	Gross fixed capital formation (% of GDP)	World development indicators
	INFRA1	Mobile cellular subscriptions (per 100 people)	
	GOVexp	General government final consumption expenditure (% of GDP)	
	Trade	Trade (% of GDP)	
	INFL	Consumer price index (2010 = 100)	

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	DOC	Domestic credit to private sector by banks (% of GDP)	
	INFRA2	Access to electricity (% of the population)	
	LAB	Labor force participation rate, total (% of total population ages 15-64) (modeled ILO estimate)	
Moderator Variable	ISI	Institutional quality measure by degree of economic freedom of five areas	Fraser institute
	Five areas degree of economic freedom		
	Variable	definition	data source
	GOVsize	Size of Government	Fraser institute
	Leg	Legal System and Property Rights	Fraser institute
	Mon	Sound Money	Fraser institute
	Fred	Freedom to Trade Internationally	Fraser institute
	Reg	Regulation	Fraser institute

Sample Data Description

The sampled data includes annual observations from 11 countries within COMESA from 2003 to 2021. These countries (Burundi, Congo, Egypt, Kenya, Madagascar, Mauritius, Rwanda, Tunisia, Uganda, Zambia, and Zimbabwe) were selected primarily due to the availability of consistent and reliable data over the study period. Although COMESA consists of 21 member states, the study was limited to these 11 countries to ensure data completeness and accuracy, which is critical for robust analysis. Figure 1 presents the GDP and FDI data for these 11 countries. The graph shows the trends of GDP growth and Chinese FDI stock across these nations.

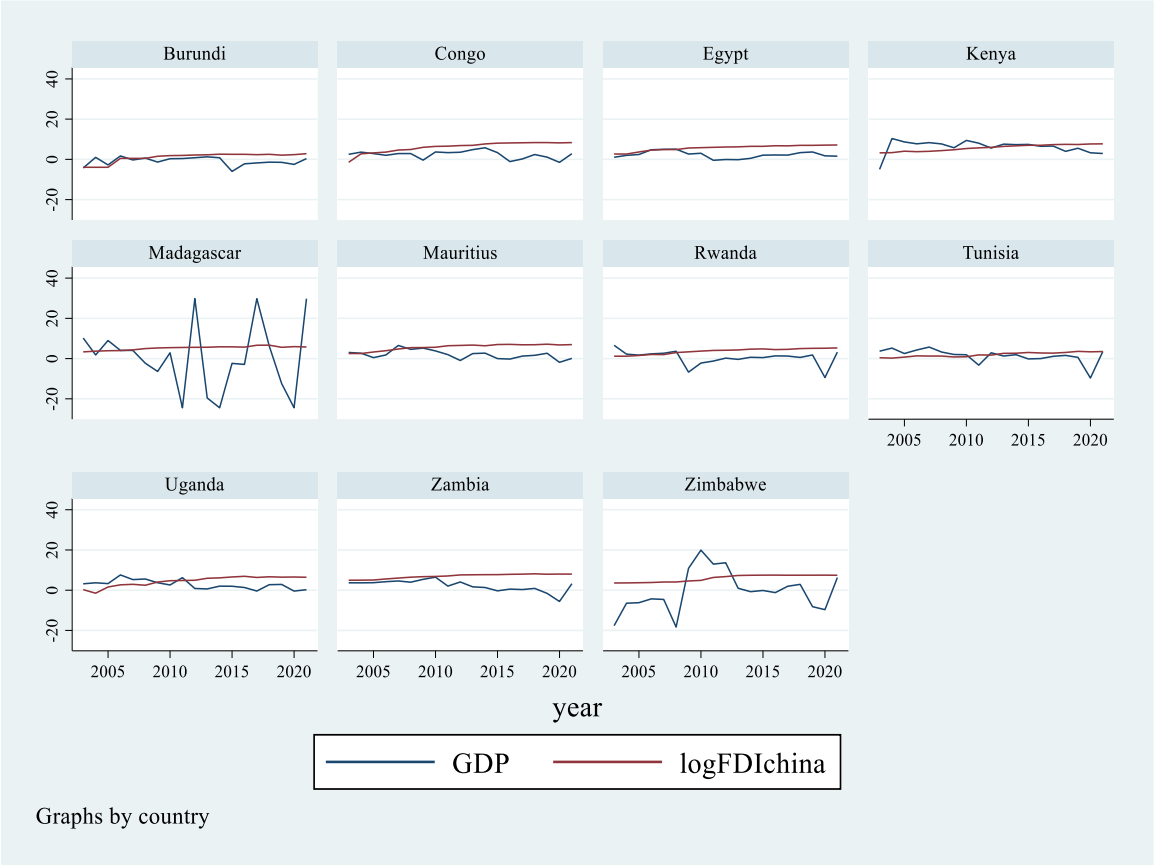

Figure 1: GDP and FDI data for these 11 countries

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Model Specification

Institutional quality is incorporated as a moderator in this relationship. To investigate the mediating effect of institutional quality on the FDI-GDP growth nexus, the following interaction term is added:

Where ( ) is the measure of institutional quality in the country( ) at time( ), proxied by economic freedom. The interaction term ( ) captures the combined effect of FDI and institutional quality on GDP growth. The expected signs of the coefficients are as follows: ( ) (Chinese FDI) is expected to be positive, indicating that higher Chinese FDI leads to higher GDP growth.

The coefficients for the control variables ( ) vary depending on the specific variable and its hypothesized impact on GDP growth. The coefficient of the interaction term ( ) is expected to be positive, suggesting that better institutional quality enhances the positive impact of Chinese FDI on GDP growth. This model allows for a comprehensive analysis of how Chinese FDI, in conjunction with institutional quality and other control variables, influences economic growth in COMESA countries. The inclusion of interaction terms helps to understand the moderating role of institutional quality in the FDI-economic growth relationship.

1) Descriptive Statistics

The descriptive statistical results of each variable are shown in Table 2. According to the table, there are a total of 209 observations. The average GDP growth rate is 1.727 with a standard deviation of 6.584, indicating significant variability in GDP growth rates among the sampled countries. This high standard deviation suggests a wide range of economic performance, reflecting the diverse economic conditions within the COMESA region.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP	209	1.727	6.584	-24.463	29.786
FDIchina	209	630.536	942.331	0.02	4259.36
GFCF	209	19.916	6.647	3.286	37.791
INFRA1	209	56.176	39.442	1.526	147.392
GOVexp	209	14.009	4.639	4.946	27.245
Trade	209	61.811	24.73	23.044	120.876
INFL	209	144.177	130.578	46.422	739.215
DOC	209	26.581	23.999	1.201	98.954
INFRA2	209	45.007	35.887	3.401	100
LAB	209	66.538	11.082	45.556	87.807
logFDIchina	209	4.784	2.448	-3.912	8.357
logGFCF	209	2.924	0.402	1.19	3.632
logINFRA1	209	3.577	1.188	0.422	4.993
logGOVexp	209	2.58	0.359	1.599	3.305
logTrade	209	4.045	0.402	3.137	4.795
logINFL	209	4.774	0.554	3.838	6.606
logDOC	209	2.91	0.885	0.183	4.595
logINFRA2	209	3.424	0.941	1.224	4.605
logLAB	209	4.184	0.17	3.819	4.475

The mean value of Chinese FDI (FDIchina) is 630.536, with a substantial standard deviation of 942.331. This high standard deviation indicates considerable variation in Chinese FDI inflows across the sampled countries, suggesting that some countries receive significantly more investment than others.The control variables also exhibit notable means and standard deviations.

Correlation analysis

The study conducts a correlation analysis on various variables to preliminarily determine the relationships between them and to provide a basis for subsequent empirical research. Using Stata16.0, the relationships between various variables were analyzed, and the specific results are shown in Table 3.

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Table 3: Correlation Analysis

	GDP	logFDIchina	logGFCF	logINFRA1	logGOVexp	logTrade	logINFL
GDP	1						
logFDIchina	0.0490	1					
logGFCF	0.199***	0.227***	1				
logINFRA1	0.0130	0.578***	0.259***	1			
logGOVexp	-0.0100	-0.368***	0.00600	0.0240	1		
logTrade	0.0250	0.149**	0.190***	0.268***	-0.0340	1	
logINFL	-0.297***	0.389***	-0.351***	0.404***	-0.118*	-0.0160	1
logDOC	-0.00300	-0.0750	0.0640	0.490***	0.446***	0.347***	0.0840
logINFRA2	0.0570	0.362***	0.113	0.655***	-0.0300	0.522***	0.261***
logLAB	-0.0320	-0.0430	-0.104	-0.332***	0.129*	-0.314***	-0.0430

	logDOC	logINFRA2	logLAB
logDOC	1		
logINFRA2	0.686***	1	
logLAB	-0.404***	-0.649***	1

2) Collinearity test

The study uses the variance inflation factor (VIF) to test for collinearity among the independent variables. Collinearity, or multicollinearity, occurs when two or more predictor variables in a regression model are highly correlated, making it difficult to assess the individual effect of each predictor. A commonly accepted rule is that a VIF value less than 10 indicates no serious multicollinearity, suggesting that the regression results will be reliable.

Table 4: Variance inflation factor

	VIF	1/VIF
logINFRA2	5.749	0.174
logDOC	3.995	0.25
logINFRA1	3.162	0.316
logFDIchina	2.821	0.354
logLAB	2.113	0.473
logINFL	1.818	0.55
logGOVexp	1.815	0.551
logGFCF	1.609	0.622
logTrade	1.466	0.682
Mean VIF	2.728	.

From the results of the VIF analysis shown in Table 4, it can be observed that all variables have VIF values less than 6, with a mean VIF of 2.728. Since all VIF values are below the threshold of 10, it indicates that there is no serious multicollinearity problem among the independent variables in this study.

This implies that the subsequent regression results will be relatively reliable, as the potential distortions caused by multicollinearity are minimal.

Verification of Model Selection

In this study, the results of the Hausman test indicate a P-value of 0.3697. Since this P-value is greater than the significance level of 0.05, we fail to reject the null hypothesis. This suggests that the random effects model is appropriate for analyzing the data.

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Table 5: Hausman test results

Hausman test results	conclusion
chi2(9) = 9.77 Prob>chi2 = 0.3697	random effects models

Principal Component Analysis of Institutional Quality

To determine whether the collected data meets the conditions for factor analysis, the KMO test and Bartlett's sphere test are employed. The KMO (Kaiser-Meyer-Olkin) value is a crucial indicator for assessing the suitability of data for factor analysis. The KMO test results range from 0 to 1, where values closer to 1 indicate better suitability for factor analysis. Generally, a KMO value higher than 0.8 suggests high feasibility for factor analysis; a value between 0.7 and 0.8 indicates good feasibility; a value between 0.5 and 0.7 suggests that factor analysis can be performed; and a value below 0.5 indicates that factor analysis is not suitable.

Table 6: Principal Component Analysis for ISI

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	2.99427	2.02926	0.5989	0.5989
Comp2	0.965008	0.492541	0.193	0.7919
Comp3	0.472467	0.150684	0.0945	0.8863
Comp4	0.321783	0.0753063	0.0644	0.9507
Comp5	0.246476	.	0.0493	1
Chi-square= 456.842			Degrees of freedom = 10	
p-value=0.000			KMO=0.762	

In this study, the KMO value is 0.762, as shown in Table 6, indicating a high feasibility for factor analysis. This supports the use of factor analysis to examine the data.

Regression analysis

The results from the Model, where the moderator term FDIchina*ISI is added, provide insights into the hypotheses concerning the impact of Chinese FDI, institutional quality, and their interaction on GDP growth. The regression results are shown in Table 7.

Table 7: Institutional Quality Effect for GDP and FDIchina

	(1) GDP	(2) GDP
logFDIchina	13.047***	12.740***
	(3.298)	(3.564)
ISI	13.891*	7.484*
	(1.942)	(1.672)
logFDIchina*ISI	-18.761*	-11.625*
	(-1.759)	(-1.814)
GFCF		-0.057
		(-0.819)
INFRA1		0.021
		(0.883)
GOVexp		0.071
		(1.128)
Trade		-0.014
		(-0.454)
INFL		-0.016***
		(-6.693)
DOC		-0.038
		(-0.831)

INFRA2		0.022
		(0.796)
LAB		0.016
		(0.194)
_cons	-6.437	-2.886
	(-1.366)	(-0.395)
year	Yes	Yes
N	209	209
adj. R2	0.1668	0.2507

For Hypothesis 1 (H1), which posits that Chinese FDI has a positive impact on GDP growth in COMESA countries, the coefficient for logFDIchina is positive and highly significant (13.047*** and 12.740*** in columns 1 and 2, respectively). This confirms that Chinese FDI significantly contributes to economic growth in the region. This result is in line with literature such as Doku and Akuma (2017), Miao et al. (2021), Debongo et al. (2022), Franz et al. (2022), and Gloria et al. (2021), which also found a positive link between Chinese FDI and economic growth in African countries.

For Hypothesis 2 (H2), which suggests that the positive impact of Chinese FDI on GDP growth is mediated by the domestic institutional quality, the coefficient for ISI is positive and significant (13.891* and 7.484*). This indicates that higher institutional quality enhances the positive effects of Chinese FDI on GDP growth. This result is in line with literature such as Jude and Levieuge (2016), Samina et al. (2019), Jonathan (2021), Miao et al. (2021), Adegboye et al. (2020), Franz et al. (2022), Ketteni and Kottaridi (2019), and Zhang and Kim (2022), which also found that institutional quality plays a crucial role in enhancing the benefits of FDI on economic growth.

For Hypothesis 3 (H3), which proposes that the interaction between Chinese FDI and institutional quality has a positive impact on GDP growth, the coefficient for the interaction term logFDIchina*ISI is negative and marginally significant (-18.761* and -11.625*). This result suggests that while both FDI and institutional quality independently promote growth, their interaction might have a complex or potentially adverse effect when combined. This finding contradicts the literature that highlights the positive moderating role of institutional quality on FDI's impact on economic growth, such as Abuduwali et al. (2019), Miao et al. (2020), Chengchun et al. (2023), and Van et al. (2023). However, it resonates with the threshold effect discussed by Jude and Levieuge (2016) and Mohamed (2021), emphasizing that the benefits of FDI are contingent upon reaching a certain level of institutional quality.

In addition, the interaction between FDI and institutional quality may be more complex than a simple additive effect. High-quality institutions might set stringent standards and regulations that could slow down the immediate benefits of FDI, even though they ensure long-term sustainability and stability. Conversely, in countries with lower institutional quality, FDI might have a more significant immediate impact by addressing gaps in infrastructure, technology, and capital.

Institutional quality might moderate the impact of FDI on GDP in a non-linear manner. While good institutions generally enhance economic outcomes, their interaction with FDI might involve complex mechanisms that aren't captured by linear models. For instance, high institutional quality could mean stricter regulatory environments that, while beneficial in the long run, could initially slow down the pace of growth due to compliance costs.

Additionally, the coefficients for most control variables are not statistically significant, except for inflation (INFL), which has a significant negative impact on GDP growth (-0.016***), consistent with expectations that high inflation hampers economic growth.

The adjusted R-squared values for the models are 0.1668 and 0.2507, respectively. These values indicate that the models explain approximately 17% and 25% of the variance in GDP growth, suggesting a moderate level of explanatory power.

4. RESULT INTERPRETATION

The empirical findings highlight the significant role of institutional quality in moderating the relationship between Chinese Foreign Direct Investment (FDI) and GDP growth in COMESA countries. Economic freedom, defined by the five distinct areas of size of government, legal system and property rights, sound money, freedom to trade internationally, and regulation, serves as a proxy for institutional quality. The KMO value of 0.762 from Principal Component Analysis indicates a good measure of sampling adequacy, meaning the economic freedom components effectively captured institutional quality. By combining these factors into an index, the analysis provides a comprehensive view of how economic freedom, or the lack thereof affects the relationship between FDI and economic growth.

The regression results demonstrate that the coefficient for Chinese FDI (logFDIchina) is positive and significant at the 1% level (13.047*** and 12.740***), indicating that Chinese FDI contributes positively to GDP growth in COMESA countries. The coefficient for institutional quality is positive and significant (13.891* and 7.484*). This indicates that higher institutional quality enhances the positive effects of Chinese FDI on GDP growth. However, the interaction term (logFDIchina*ISI) shows a negative and significant impact (-18.761* and -11.625*). This result suggests that while both FDI and institutional quality independently promote growth, their interaction might have a complex or potentially adverse effect when combined.

Specifically, the negative coefficients indicate that the marginal effect of FDI on GDP growth decreases as the level of institutional quality increases. This suggests that beyond a certain threshold, the combined impact of high levels of Chinese FDI and strong institutional quality might not yield the expected positive results, possibly due to challenges in harmonizing foreign investment practices with local governance frameworks.

One reason for this negative interaction could be a mismatch in implementation and governance practices. The introduction of new practices and standards from Chinese investments might require adjustments in local governance frameworks to ensure smooth integration. This process can sometimes lead to initial inefficiencies or conflicts that might temporarily impact economic growth.

Another factor is the potential short-term disruptions caused by large-scale investments. While these investments bring long-term benefits, they can initially disrupt local markets by creating shifts in labor and capital allocation. For instance, large infrastructure projects may temporarily draw resources away from other economic activities, causing short-term economic adjustments.

Despite the negative interaction term, it is important to highlight the positive aspects of Chinese FDI. Chinese investments have been instrumental in developing critical infrastructure in COMESA countries. For example, the Addis Ababa-Djibouti Railway, funded by Chinese investment, has significantly improved trade logistics and connectivity in the region. Additionally, Chinese firms often bring advanced technologies and management practices, which lead to technology transfer and skill development, enhancing the productivity and capabilities of the local workforce over time. In countries like Angola, Chinese FDI has helped diversify the economy beyond oil by investing in sectors such as agriculture and manufacturing. This diversification is crucial for sustainable economic growth and resilience against commodity price shocks.

Several case studies in COMESA illustrates these dynamics. In Ethiopia, Chinese investments in industrial parks have spurred manufacturing growth, creating jobs and boosting exports. The Eastern Industrial Zone is a significant hub for

Chinese manufacturing firms, contributing to Ethiopia's economic transformation. In Kenya, the Mombasa-Nairobi Standard Gauge Railway, funded by Chinese FDI, has improved transportation efficiency and stimulated local businesses by enhancing market access. This project has had a ripple effect on the economy, promoting growth in various sectors. In Zambia, Chinese FDI in the mining sector has led to significant investments in infrastructure and technology, boosting productivity and exports. However, it also underscores the need for strong institutional frameworks to maximize the benefits of such investments.

The negative interaction between Chinese FDI and institutional quality highlights the complexity of integrating foreign investments into local economies. While Chinese FDI brings substantial benefits in terms of infrastructure, technology, and diversification, its positive impact is contingent upon the quality of local institutions. For COMESA countries to fully leverage the benefits of Chinese FDI, it is essential to strengthening institutional frameworks, align regulatory practices, and ensure equitable distribution of economic gains. Addressing these challenges will create an environment where Chinese FDI and institutional quality together foster robust and sustainable economic growth.

The negative interaction term between Chinese FDI and institutional quality can also be interpreted through the lens of endogenous growth theory. In the context of endogenous growth theory, the negative interaction term suggests diminishing returns when both Chinese FDI and institutional quality are high. This could imply that beyond a certain point, the benefits of additional FDI may be reduced in countries with very high institutional quality. According to endogenous growth theory, continuous investment in knowledge, innovation, and human capital is crucial for sustaining growth. However, if these investments lead to market saturation or inefficiencies in utilizing foreign investments, the growth benefits may taper off. This aligns with the theory's assertion that merely increasing physical capital without corresponding improvements in other growth drivers can lead to diminishing returns.

Policymakers should consider the balance between attracting FDI and improving institutional quality. While both are important, their combined effects need to be managed to avoid potential negative impacts. Policies should aim to attract FDI in sectors where the interaction with high institutional quality can be maximized, such as high-tech industries or sectors requiring stringent regulatory oversight. Continuous improvement of institutional frameworks is necessary to ensure that they adapt to the evolving dynamics of FDI and economic growth. This includes simplifying regulations and ensuring that institutions facilitate rather than hinder economic activities. By understanding the nuanced relationship between FDI, institutional quality, and economic growth, policymakers can better design strategies that leverage the strengths of both domestic institutions and foreign investments.

5. CONCLUSION

This study aimed to investigate the mediating effect of domestic institutional quality on the relationship between Chinese foreign direct investment (FDI) and economic growth in COMESA (Common Market for Eastern and Southern Africa) countries. By providing a comprehensive review and critique of existing literature, the study positioned itself within academic discussions and aimed to offer broader insights into China-COMESA economic relations through the lens of FDI. Grounded in endogenous growth theory, the study emphasized the critical role of institutional quality in economic development.

Utilizing a random effects model and annual time series data from 11 COMESA countries (Burundi, Congo, Egypt, Kenya, Madagascar, Mauritius, Rwanda, Tunisia, Uganda, Zambia, and Zimbabwe) for the period 2003-2021, the study effectively addressed potential endogeneity issues by incorporating robust control variables and performing mediation analysis. The independent variable, Chinese FDI stock in African countries, was sourced from the China Africa Research Initiative, while the dependent variable, GDP per capita growth, was sourced from World Development Indicators. Control variables included gross fixed capital formation, mobile cellular subscriptions, government final consumption expenditure, trade, consumer price index, domestic credit to the private sector by banks, access to electricity, and labor force participation rate, also sourced from World Development Indicators. Institutional quality, used as a moderator and proxied by economic freedom, was sourced from the Fraser Institute, encompassing five distinct areas: the size of government, legal system and property rights, sound money, freedom to trade internationally, and regulation.

The study found that Chinese FDI positively impacts GDP growth in COMESA countries at a 1% significance level, suggesting that investments from China contribute to economic expansion in the region. This indicates that Chinese FDI

brings capital, technology, and management expertise that can enhance economic activities and productivity in COMESA countries.

The significant negative effect of inflation on GDP growth, at the 1% level, indicates that high inflation is detrimental to economic stability and growth. Inflation erodes purchasing power, increases uncertainty, and can lead to economic distortions, all of which hinder growth.

Other factors such as mobile cellular subscriptions, gross fixed capital formation, domestic credit to the private sector by banks, and government final consumption expenditure were found to be statistically insignificant in influencing GDP growth. This could be due to various reasons, including data limitations, the maturity of these sectors, or other overriding economic conditions. Additionally, the interaction between Chinese FDI and institutional quality showed a negative impact on GDP growth in COMESA. This implies that while Chinese FDI alone is beneficial, its positive effects are undermined in the presence of poor institutional quality.

To enhance GDP growth in COMESA, the study proposes several policy recommendations. Firstly, the government should strengthen institutional quality by improving legal and regulatory frameworks, ensuring property rights, and implementing anti-corruption measures. Secondly, investing in infrastructure, particularly in expanding and improving the electricity grid, is crucial for supporting industrialization and economic activities. Thirdly, maintaining macroeconomic stability by controlling inflation through sound monetary and fiscal policies will ensure economic stability and predictability for investors. Lastly, liberalizing trade policies to optimize the benefits of international trade while addressing the observed negative impacts is essential for enhancing economic growth.

Overall, these findings emphasize the importance of creating a conducive economic environment with strong institutional frameworks, reliable infrastructure, and stable macroeconomic policies to maximize the benefits of foreign investment and promote sustainable economic growth in COMESA. The study underscores the necessity for policymakers, investors, and other stakeholders to focus on enhancing institutional quality and infrastructure to fully harness the potential of FDI for long-term economic development in the region.

Limitations and suggestions for future research

Despite the valuable insights provided by this study, some areas warrant further exploration to build on these findings. While economic freedom was used as a proxy for institutional quality, future studies could explore additional indicators such as governance indices or measures of political stability to encompass all dimensions of institutional effectiveness. Additionally, future research could also conduct a sectoral analysis of FDI impacts, investigating which sectors benefit most from Chinese FDI to tailor policy recommendations more precisely. Employing different methodological approaches, such as dynamic panel data models or structural equation modeling, could further validate and extend the findings of this study. Moreover, while this study focused on the role of institutional quality as a moderator, future research could examine other potential mediators or moderators, such as technological readiness, human capital development, or environmental sustainability, to gain a deeper understanding of the mechanisms through which FDI influences economic growth. By addressing these areas and exploring new avenues, future research can further elucidate the complex interplay between FDI, institutional quality, and economic development in COMESA and beyond.

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