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Research article

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Trade factors affecting economic growth in Ho Chi Minh City: Evidence from ARDL modeling

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ABSTRACT

This study aims to investigate the impact of international trade and foreign direct investment (FDI) on the economic growth of Ho Chi Minh City, addressing the lack of empirical research at the local level in Vietnam. While numerous studies have examined trade-growth dynamic at the national scale, little attention has been paid to how these relationships manifest within a metropolitan economy that serves as the country's commercial hub. Using the Autoregressive Distributed Lag (ARDL) model with annual data from 2001 to 2023, the study evaluates both short- and long-term relationships between Gross Regional Domestic Product (GRDP) and key trade variables, including exports, imports, FDI inflows, and exchange rates. The empirical results reveal a complex pattern of relationships. While exports negatively influence GRDP in the long run, suggesting potential structural challenges such as limited domestic value added or dependency on imported inputs. By contrast, imports and exchange rates have a significant positive effects, indicating that imported goods and favorable currency conditions may support industrial production and consumption. FDI shows no long-term impact, implying that foreign capital inflows may take longer to translate into measurable economic gains or are concentrated in sectors with limited spillover effects. In the short run, the results shift that exports contribute positively to economic growth, whereas imports have an adverse impact. This divergence between short and long-run effects underscores the asymmetric nature of trade variables and their time dependent influence on local economic performance. Overall, these findings highlight the asymmetrical effects of trade variables over time and underscore the importance of tailored trade and investment policies for sustainable growth. The study contributes valuable empirical evidence for policymakers in HCM City and provides guidance for designing strategies to foster sustainable growth in Vietnam's largest economic market.

Key words: ARDL, economic growth, export, import, foreign direct investment.

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INTRODUCTION

Over the past three decades, trade liberalization has gained popularity, particularly among developing and transitioning economies. This is because import substitution-based development strategies have limitations, and international financial institutions like the World Bank and the International Monetary Fund favor trade liberalization as a condition of their support. The underlying rationale for this degree of dedication to the trade reform agenda is the unmistakable conviction that liberalization is necessary to go from comparatively closed to comparatively open economies. Economists generally agree that open economies grow faster than their closed counterparts [1].

Ho Chi Minh City serves as a principal economic center of Vietnam, functioning as a vibrant hub and spearheading the nation's economic progress. Since 2001, Ho Chi Minh City has consistently maintained a development rate that exceeds the national average, which is indicative of its status as a prominent economic engine. Nevertheless, the Covid-19 pandemic had a profound impact on the city's socio-economic conditions in 2021, resulting in a 6.78% contraction in the GRDP-the largest decline in the nation. As a result of the COVID-19 epidemic, the city's export turnover amounted to 44.9 billion USD, reflecting a 1% rise from 2020. The majority of the City's primary export markets experienced a decrease in turnover, including China with a dip of 8.7%, the United States with a reduction of 2.3%, Japan with a drop of 14.7%, and the EU with a decrease of 0.8%. Consequently, during the era of renewal and global economic integration, the import and export of goods and services in Ho Chi Minh City significantly contribute to the city's economic development. Enhancing exports is a fundamental component of sustained economic growth in Ho Chi Minh City; thus, it is imperative to increase value-added, prioritize investment in competitively advantageous export products, and secure a substantial market share through engagement in the

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global value chain. Limited empirical research has been conducted to investigate the influence of international trade on the economic development of Ho Chi Minh City. In order to rectify this deficiency, this investigation assembles annual data from 20001 to 2023 on trade flows, exchange rates, and FDI. It then employs the ARDL model to assess the short and long-term impacts on GRDP. The study also suggests strategic recommendations for promoting the city's development by increasing its involvement in international trade, in accordance with the results.

LITERATURE REVIEW AND EMPIRICAL STUDIES

Literature review

Classical trade theories such as absolute advantage[2] and comparative advantage[3] play a fundamental role in explaining the impact of international trade on economic growth. When countries specialize in industries with comparative advantage, they will achieve higher production efficiency and increase productivity. As a result, trade not only expands the scale of production but also facilitates the increase of national income[3]. These publications demonstrated the progression of trade theory from classical to modern representative-agent models to contemporary assessment that incorporate firm heterogeneity, policy interventions, and real-world complexities. Caliendo et al.[4] presented empirical evidence for welfare improvements resulting from trade liberalization, influenced by firm specific reactions, whereas Gandolfo[5] supplied the overarching theoretical and policy framework for these empirical investigations.

According to the Heckscher–Ohlin model, trade between countries is determined by differences in factors of production, in which countries with advantages in capital or labor will export goods that use those factors intensively[5]. In the context of Ho Chi Minh City, advantages in labor and service infrastructure have promoted the export of light industrial products, processing services and logistics. These advantages have allowed the city to concentrate on exporting labour-intensive goods and services, particularly in the areas of light manufacturing, textile and garment production, electronics assembly, food processing, and outsourced processing services. Furthermore, Ho Chi Minh City has evolved as an important logistics and warehousing hub in the southern area, owing to its extensive port network, transportation connectivity, and trade-related services ecosystem. These qualities are consistent with the Heckscher–Ohlin prediction, as the city uses its comparative advantages to integrate deeper into global value chains. As trade liberalization continues and demand for efficient supply chain services rises, Ho Chi Minh City's status as a hub for labour-intensive exports and trade-related services is projected to grow even more.

Ho Chi Minh City is the largest commercial center in the country with export, import and FDI activities playing an essential role in economic development. The city makes a substantial contribution to the national economy as the primary gateway for international trade and investment. Empirical research on the quantitative relationship between trade variables and the city's gross regional domestic product remains limited, despite its strategic significance. More specifically, there are few studies that have utilized sophisticated econometric models, such as the ARDL model, to capture the short and long-term dynamics of this relationship. The capacity of policymakers to develop data-driven strategies that are consistent with the economic realities of the city is restricted by this lacuna in the literature. Consequently, this investigation endeavours to resolve both theoretical and empirical deficiencies by employing the ARDL framework to evaluate the influence of trade components on GRDP. Consequently, it will establish an evidence-based foundation for more effective and targeted local economic policies[6,7].

In this context, it is essential to comprehend the impact of trade variables on economic growth. Exports play a positive role in GDP growth through job creation and revenue generation[8] . Imports support technological innovation but if imbalanced, they put pressure on growth[9]. FDI is an important channel to improve production capacity, but over-reliance can lead to a decline in growth if it exceeds the efficiency threshold[10]. Futhermore, the cost structure of imports and exports is indirectly influenced by exchange rates, which in turn affect the trade balance and FDI inflows. These multidimensional effects emphasise the necessity of analyzing trade variables within an integrated framework, such as ARDL, to inform policy decisions that are predicated on local economic realities.

Although traditional trade economics theories such as absolute advantage[2], comparative advantage[11], and the Heckscher–Ohlin model[5] have clarified the important role of international trade in economic growth, most of these studies focus on the national level or compare countries. Meanwhile, few studies apply these theories at the local level, especially in dynamic economic centers such as Ho Chi Minh City - which has the highest level of trade integration and FDI attraction in the country. In addition, many

previous empirical studies have verified the relationship between exports, imports, FDI and GDP growth at the national level[10], however, the specific socio-economic factors in Ho Chi Minh City have not been fully exploited in quantitative models. The city has special advantages in human resources, service infrastructure and market size, leading to the impact mechanism of international trade and FDI that can be significantly different from other localities.

Notably, there have been few studies applying the ARDL model to test the relationship between trade variables and GRDP of Ho Chi Minh City. The ARDL model allows for the assessment of both short-term and long-term impacts, which is particularly useful in the context of limited local time series data. The lack of full use of this quantitative tool in local economic analysis creates a clear empirical gap.

Therefore, the topic "Trade factors affecting economic growth in Ho Chi Minh City: Evidence from ARDL modelling" is both in theory and practice. Firstly, the study contributes to filling the theoretical gap when extending the classic models of international trade and economic growth – which are mainly applied at the national level – to the local level, in the context of a central city like Ho Chi Minh City. Secondly, the topic provides empirical evidence by applying the ARDL model, helping to analyze the short-term and long-term impacts of trade factors on regional economic growth. Finally, this study brings practical value in supporting the planning of effective and sustainable economic and trade development policies, suitable for the specific conditions and international integration orientation of Ho Chi Minh City.

Empirical studies

Anwar and Nguyen[12] researched FDI and economic growth in Vietnam. This study analyzes the relationship between FDI and economic growth across 61 Vietnamese provinces from 1996 to 2005. Their findings reveal a mutually reinforcing two-way linkage between FDI and economic growth in Vietnam. However, the impact varies across regions, suggesting that the benefits of FDI are more pronounced in provinces with better human capital and financial market development.

Building on this, Su, Nguyen, and Schinckus[11] studied impact of foreign direct investment, trade openness and economic institutions on growth in emerging countries: The case of Vietnam. This article investigates the role of economic institutions and openness in Vietnam's growth from 2005 to 2015. Analyzing data from 63 provinces, they found that both FDI and trade openness individually have positive impacts on economic growth, but when combined, their effects can substitute for each other. Furthermore, the study highlights the pivotal role that quality of economic institutions significantly influences these effects.

In a broader context, Dinh, Vo, Vo, and Nguyen[13] investigated FDI and economic growth in the short run and long run in developing countries. This paper examines the impact of FDI on economic growth in developing countries, including Vietnam, from 2000 to 2014. Utilizing a range of econometric techniques, their research demonstrates that while FDI fosters long-term economic growth, it may exert a negative effect in the short run.

More recently, Nguyễn et al.[14] employed the ARDL bounds testing approach to investigate the influence of foreign capital flows, trade openness, and human capital on economic growth in Vietnam between 1989 and 2019. Their results indicated that Official Development Assistance (ODA), trade openness, and human capital have considerably favorable long-run benefits on economic growth, whereas foreign debt has little influence on growth. Interestingly, FDI has a significant negative effect in the long run; nonetheless, it is one of the primary predictors of growth in the short run, both directly and indirectly, due to Granger causality between FDI and GDP, trade openness, and human capital.

Hypothesis development

The lag of GRDP

The lag of GRDP that is, the time-lagged impact of economic variables on the growth of gross domestic product in the area – plays an important role in analyzing the economic development dynamics in Ho Chi Minh City. In the context of the city's economy being influenced by both endogenous and exogenous factors such as public investment, import and export, and FDI capital flows, the lag shows that economic policies or shocks often do not take effect immediately but need a certain amount of time to affect GDP. According to the study of Pesaran et al.[15], macroeconomic variables such as investment and consumption can take 1–3 quarters to have a significant impact on GDP. In Ho Chi Minh City, which has a large economic openness and dependence on the global market, this lag can be longer due to administrative regulation and the central budget allocation mechanism. Capturing and modeling GRDP lags – through ARDL **or VAR (Vector Autoregression Model)** – will help local policymakers develop

appropriate economic management strategies, avoiding policy responses that are too early or too late, causing macroeconomic instability [16,17].

From the above discussions, this study proposes the hypothesis:

H1: The lag in the impact of GRDP has a positive effect on Ho Chi Minh City's GRDP growth.

Export affects GRDP

Export is one of the key drivers of economic growth in Ho Chi Minh City - the largest economic and financial center of the country. In the city's GRDP structure, the industrial and export service sector accounts for a high proportion, especially the processing, manufacturing and logistics industries. According to A. T. Nguyen & Poczta-Wajda [16], export activities in Ho Chi Minh City not only generate foreign currency revenue but also stimulate production, increase employment and attract foreign investment. In addition, Cung [17] and Su et al. [11] pointed out that export growth is closely correlated with the city's GRDP growth in the long term, especially in the context of Vietnam's deep integration into free trade agreements such as EVFTA and RCEP. However, due to high trade openness, exports in Ho Chi Minh City are also vulnerable to external shocks such as global recession or supply chain disruptions. This requires the city to increase its competitiveness, diversify its export markets and increase the added value of its products. Econometric models such as ARDL or VAR can be used to assess the impact of exports on GRDP in both the short and long run, thereby supporting more effective trade policy making [18].

From the above discussions, this study proposes the hypothesis:

H2: Export has a positive effect on Ho Chi Minh City's GRDP growth.

Imports affect GRDP

Imports play an important role in driving economic growth in HCMC, the largest economic hub in Vietnam. Imports of raw materials, machinery and advanced technology not only support domestic production but also improve productivity and product quality, thereby contributing to GDP growth [19]. According to research by Krugman et al. [6], fluctuations in exchange rates and money supply have a significant impact on Vietnam's import patterns, in which HCMC plays a key role in the national supply chain. Specifically, the real exchange rate and money supply are important factors shaping the import pattern, with the central exchange rate mechanism helping to increase export volume by about 0.14% compared to the fixed anchor system.

However, the city's reliance on imports also exposes it to external shocks, such as exchange rate fluctuations or disruptions to global supply chains. This vulnerability highlights the importance of diversifying supply sources and strengthening domestic production capabilities to mitigate potential economic risks.

From the above discussions, this study proposes the following hypothesis:

H3: Import has a positive effect on Ho Chi Minh City's GRDP growth.

FDI affects GRDP

Foreign direct investment plays an important role in promoting economic growth in developing countries, especially in dynamic economies like Vietnam. FDI inflows not only supplement financial resources for the economy, but also brings modern technology, management knowledge, and expands export markets through global networks [20,21]. In Vietnam, many empirical studies have shown that FDI has a close and positive relationship with GDP growth, especially in the long term [22]. Attracting FDI into high-tech, manufacturing, and infrastructure sectors not only contributes to job creation but also improves labor productivity and increases the competitiveness of the economy [17,23]. In the context of deep integration with free trade agreements such as EVFTA or RCEP, FDI also plays a key role in upgrading the domestic value chain. From the above analysis, the study proposes the following hypothesis:

H4: FDI has a positive effect on Ho Chi Minh City's GRDP growth.

Exchange rate affects GRDP

Exchange rates are one of the important macroeconomic tools, which can directly and indirectly affect GDP through international trade, investment and consumption channels. When the domestic currency depreciates, export goods become cheaper in the international market, thereby promoting exports, supporting domestic production and contributing to GDP growth [24,25]. However, strong exchange rate fluctuations can also increase import costs, leading to inflation and negatively affecting domestic consumption as well as investment efficiency. In Vietnam, some studies show that exchange rate has a close relationship with trade activities and economic growth, especially in the context of the economy heavily dependent on exports and FDI inflows [21]. Therefore, flexible and stable exchange rate management is

considered a key factor in supporting the economic growth target. From the above analysis, the study proposes the hypothesis: Exchange rate has an impact on Vietnam's GDP.

METHODOLOGY AND RESEARCH MODEL

Research model

According to the ARDL model equation [15]:

$$\triangle Y_t = \alpha_0 + \sum_{i=1}^{p} \alpha_i \triangle Y_{t-i} + \sum_{j=0}^{q} \beta_i \triangle X_{t-j} + \lambda_1 Y_{t-1} + \lambda_2 X_{t-1} + \varepsilon_t \quad (1)$$

Where:

Y_t : Dependent variable

X_t: All of independent variables

$\triangle$: First difference operator

p,q: Optimal lags of the variables, determined based on criteria such as AIC or BIC

λ_1, λ_2 : Coefficients representing the long-run relationship among variables

ε_t : Random error term

The Equation (1) illustrating the correlation between international commerce and economic growth is shown in the study model as follows:

$$GDP_t = \alpha_0 + \sum_{t=1}^{p} \beta_i GDP_{t-i} + \sum_{j=0}^{q} \delta_j EXP_{t-j} + \sum_{k=0}^{r} \gamma_k IMP_{t-k} + \sum_{m=0}^{s} \theta_m FDI_{t-m} + \sum_{n=0}^{v} \mu_n EXR_{t-n} + \varepsilon_t \quad (2)$$

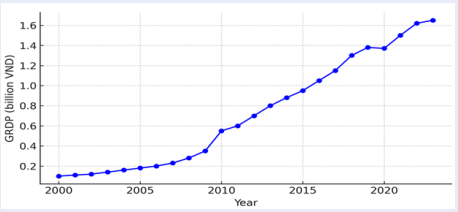

Figure 1: Gross Regional Domestic Product (GRDP) in Ho Chi Minh City, 2000-2023[a]

[a] *Source: Authors' calculation and illustration*

In the period 2000–2023, Ho Chi Minh City's GRDP (Figure 1) showed a strong and stable growth trend, reflecting the city's role as an economic leader. The growth rate accelerated, especially after 2010, despite a slowdown during the Covid-19 pandemic (2020–2021). Import-export developments (Figure 2) also showed a clear upward trend, with imports consistently higher than exports, indicating significant dependence on raw materials and intermediate goods from abroad to serve domestic production and consumption. However, the parallel growth in exports

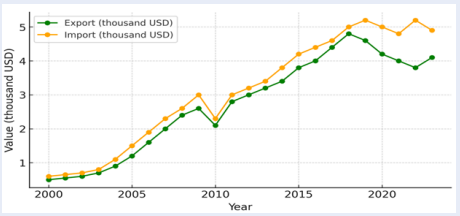

Figure 2: Export and Import in Ho Chi Minh City, 2000-2023[a]

[a] *Source: Authors' calculation and illustration*

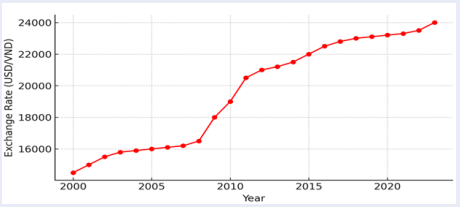

Figure 3: Exchange rate (USD/VND) in Ho Chi Minh City, 2000-2023[a]

[a] *Authors' calculation and illustration*

indicates the city's ability to expand into international markets. The USD/VND exchange rate (Figure 3) gradually increased, with a significant adjustment particularly during the 2008–2011 period, reflecting the impact of the global financial crisis and monetary policy management. The exchange rate remained high after that, contributing to increased import costs but also facilitating export promotion. Overall, these three indicators pointed out that Ho Chi Minh City's economic growth was closely linked to international trade activities and macroeconomic fluctuations, with GRDP growth being closely related to export-import dynamics and exchange rate adjustments.

Methodology research

The research applied the ARDL approach to examine the short-term and long-term effects of foreign trade and FDI on the city's economic growth. The study employs the ARDL methodology established by Pesaran, Shin, and Smith, as the ARDL model is a prevalent econometric technique for examining time series data, especially when variables exhibit varying degrees of stationarity, with some being stationary at level [I(0)] and others requiring differencing to achieve stationarity [I(1)]. In contrast to conventional cointegration techniques, ARDL accommodates mixed integration orders, rendering it appropriate for empirical data. The ARDL model's primary

Table 1: Variables in model

Variable	Explanations	Measurement
GRDP	Gross Regional Domestic Product	Denotes the aggregate economic output of HCMC, assessing the region's overall economic performance and growth.
EX	Export	Denotes the aggregate value of goods and services exported by HCMC to worldwide markets, reflecting the city's trade efficacy and global integration.
IM	Import	Denotes the aggregate value of goods and services acquired by HCMC from global markets, illustrating the city's reliance on foreign products and resources
FDI	Foreign Direct Investment	Assesses foreign investment in HCMC, which fosters economic development, infrastructural expansion, and job creation.
ER	Exchange Rate	Denotes the value of the domestic currency (Vietnamese Dong) relative to foreign currencies (USD), influencing export, import and FDI stability.

Source: Authors' compilation from empirical studies

advantage is in its capacity to predict short-run dynamics and long-run linkages within a unified framework through the Bounds Testing Approach. This obviates the necessity for preliminary unit root testing, sometimes mandated in alternative time series models. Additionally, ARDL is particularly effective in small sample sizes, when other cointegration approaches may struggle to give trustworthy results. The utilization of ordinary least squares (OLS) facilitates straightforward estimation and interpretation. Moreover, ARDL models can incorporate structural breaks and be expanded into Nonlinear ARDL (NARDL) to identify asymmetric links in economic and financial data.

Research sample

This study employs the ARDL distributed lag approach, utilizing time series data from HCMC from 2001 to 2023. The research variables are explicitly delineated in Table 1. These variables have been assessed for their influence on the economic growth rate of HCMC. The data were sourced from the Statistical Yearbook of the Ho Chi Minh City Statistics Office, with the exception of exchange rate data obtained from the IMF, and the variables were utilized in their natural logarithmic form for analysis.

RESEARCH RESULTS AND DISCUSSIONS

Research results

In the first section, the author considers whether the variables are stationary. Augmented Dickey-Fuller (ADF), Unit root tests is used to check the stationarity in the time series of variables (Table 1).

Based on the results of the ADF test (Table 2), all variables have p-values less than 0.05 at the first-difference level, indicating that the time series become stationary after differencing. This implies that the variables are integrated of order one (I(1)), making them suitable for econometric models such as ARDL or VECM.

Table 3 presents the results of various statistical criteria used to determine the optimal lag length for the time series model. These include the Final Prediction Error (FPE), Akaike Information Criterion (AIC), Hannan–Quinn Information Criterion (HQIC), and Schwarz Bayesian Information Criterion (SBIC). According to the results, the FPE suggests an optimal lag of 3. While AIC, HQIC, and SBIC all indicate an optimal lag of 4, as denoted by the asterisks (*).

Among these, SBIC is often considered more conservative and preferable in small samples due to its penalty for model complexity. Therefore, although FPE suggests lag 3, the majority of criteria, especially the information criteria, supports lag 4.

Table 4 presents descriptive statistics of the research variables, showing that GRDP has an average value of 0.1464 and a standard deviation of 0.1021, while FDI has greater volatility with a standard deviation of 0.2241. This suggests that the dispersion of FDI data is higher than that of the other variables, reflecting the instability of foreign capital flows in Ho Chi Minh City.

From Table 5, in the long run, the ARDL model results show that exports (ex) have a statistically significant negative effect on GRDP (coefficient = -0.623; $p < 0.01$). This suggests that, in the context of the studied region, export growth may not contribute positively to sustainable economic growth, possibly due to low

Table 2: Unit Root Test

Variable	p-value	Stationary
grdp	p < 0.001	Yes
ex	p < 0.001	Yes
imp	p < 0.001	Yes
fdi	p < 0.001	Yes
er	0.0037	Yes

Source: Stata 17 [26], authors' calculation
Note: p-value < 0.001 indicates strong statistical significance. All variables are stationary at the first difference.

Table 3: Optimal Lag Length Selection Criteria

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	98.7889				3.60E-11	-9.87251	-9.83045	-9.62397
1	129.581	61.584	25	p < 0.001	2.20E-11	-10.4822	-10.2298	-8.99099
2	185.604	112.05	25	p < 0.001	1.70E-12	-13.7478	-13.2851	-11.0139
3	909.991	1448.8	25	p < 0.001	3.7e-43*	-87.3675	-86.6945	-83.3909
4	3235.33	4650.7*	25	p < 0.001	-	-330.561*	-329.762*	-325.839*

Source: Stata 17 [26], authors' calculation
Notes: An asterisk (*) indicates the optimallag length suggested by each criterion.
p<0.001 indicates strong statistical significance.
'-' means not available

Table 4: Descriptive Statistics

Variables	Obs	Mean	Std.dev	Min	Max
grdp	23	0.1464	0.1021	-0.0242	0.5207
fdi	23	0.0964	0.2241	-0.5256	0.4728
ex	23	0.0729	0.1298	-0.1662	0.3360
imp	23	0.0919	0.1244	-0.1778	0.2864
exr	23	0.0232	0.0260	-0.0021	0.1020

Source: Stata 17 [26] , authors' calculation

value-added exports or weak links to the local economy. In contrast, imports (imp) exert a positive and significant effect (coefficient = 0.352; p < 0.05), indicating that access to foreign raw materials, machinery, or technology may support economic expansion. FDI does not show a statistically significant long-run effect (p = 0.494), implying that FDI inflows may not yet be deeply integrated or influential in core sectors of the regional economy. Meanwhile, the exchange rate (er) has a strong and significant positive effect (coefficient = 2.259; p < 0.01), suggesting that exchange rate adjustments can stimulate production and exports over time.

In the short run, several variables significantly influence GRDP. Exports (D.ex) have a positive and statistically significant impact (coefficient = 0.326; p < 0.01), implying that changes in export levels can quickly translate into economic gains. Conversely, imports (D.imp) have a negative short-run effect (coefficient = -0.267; p < 0.01), possibly indicating that rising imports may create competitive pressure or trade imbalances in the short term. The lagged value of GRDP (LD.grdp) is positively associated with current GRDP growth (coefficient = 0.501; p < 0.01), confirming the presence of inertia in economic growth patterns. FDI and exchange rate changes (D.fdi, D.er) do not exhibit immediate statistically significant effects (p > 0.05), except for the lagged exchange rate (LD.er), which shows a significant negative effect (coefficient = -1.012; p < 0.05). This suggests that exchange rate volatility may adversely affect economic performance with a delay.

Table 5: Estimated Short-run and Long-run Coefficients

Effect	Variable	Coefficient	p-value	Significance
Long-run	ex	-0.6235	p < 0.001	***
	imp	0.3517	0.0340	**
	fdi	0.0482	0.4940	
	er	2.2593	p < 0.001	***
Short-run	LD.grdp	0.5009	0.0060	**
	D.ex	0.3265	0.0040	**
	D.imp	-0.2666	0.0070	**
	D.fdi	-0.0090	0.8830	
	D.er	-0.4495	0.2270	
	LD.er	-1.0121	0.0290	**

Source: Stata 17 [26], authors' calculation
Notes: D. denotes the first difference of therespective variable; LD. denotes the lagged first difference.
*, **, and *** indicate statistical significance at the 10%, 5% and 1% levels, respectively.

The next section provides the Bounds Test for cointegration is a crucial step in the ARDL modeling approach, as it determines whether a long-run equilibrium relationship exists between the dependent variable (grdp) and the set of independent variables. Nevertheless, due to the limited sample size (23 observations), a conventional Bounds Test could not be performed using estates test. A joint F-test was performed on the long-run level terms (ex, imp, fdi, er) to evaluate the presence of a cointegrating relationship. This approach aligns with recommendations in small-sample settings, where cointegration can be verified using joint significance testing when conventional Bounds critical values may be unreliable or unavailable [15,27]. Hence, despite the limited sample, the results provide credible statistical evidence of cointegration, allowing us to proceed with interpreting the long-run coefficients of the ARDL model.

The result of Table 6 showed an F-statistic = 16.32 with a p-value = 0.0004, which is statistically significant at the 1% level. This allows us to reject the null hypothesis that all long-run coefficients are simultaneously equal to zero, thus confirming the presence of a stable long-run relationship between GRDP and the explanatory variables.

Following the estimation results, the model undergoes further evaluation through Diagnostics Tests. Table 6 presents the outcomes of these two crucial assessments, which help validate the robustness and reliability of the model.

Table 7 presents the results of diagnostic tests to assess the validity of the regression model. Specifically, the Breusch-Godfrey LM test reports a chi^2 value of 3.715 with a p-value of 0.0539, which is greater than the 5% significance level. Therefore, the null hypothesis cannot be rejected, indicating no evidence of serial correlation in the residuals. Similarly, the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity yields a chi^2 value of 1.000 with a p-value of 0.3172, also exceeding the 5% threshold. This result suggests that the null hypothesis of constant variance cannot be rejected, indicating the absence of heteroskedasticity. Overall, the model does not violate the fundamental assumptions of regression, confirming its stability and reliability.

The results of the Ramsey RESET test (Table 8) show an F-value of 0.59 with a p-value of 0.6497, which is higher than the conventional significance level of 5%. Therefore, the null hypothesis cannot be rejected, indicating no statistical evidence of omitted variables or incorrect functional form. This suggests that the model is correctly specified and structurally stable. In other words, the independent variables included in the ARDL model reasonably explain the dependent variable GRDP within the research context.

Discussions

The ARDL model reveals a complex relationship between international trade factors and economic growth in Ho Chi Minh City. In the long run, exports exhibit a significantly negative impact on GRDP (coefficient = -0.623, p < 0.01). This finding contrasts with classical trade theories, such as Ricardo's (1817) [3] comparative advantage theory, and previous empirical studies by Nguyen and Poczta-Wajda [16] or Su et

Table 6: Cointegration Test Summary

Tested Variables	Null Hypothesis	Joint F-statistic	p-value	Conclusion
ex	ex = 0	16.32	0.0004	Reject H0 – Cointegration exists
imp	imp = 0			
fdi	fdi = 0			
er	er = 0			

Source: Stata 17 [26], authors' calculation

Table 7: Diagnostics Tests

Test name	chi^2	p-value	Conclusion
Breusch-Godfrey LM test for autocorrelation	3.715	0.0539	Accept H0 – no serial correlation
Breusch-Pagan/ Cook-Weisberg test for heteroskedasticity	1.000	0.3172	Accept H0 – Constant variance

Source: Stata 17 [26], authors' calculation

Table 8: Ramsey RESET test

Ramsey RESET test using powers of the fitted values of grdp
Ho: model has no omitted variables
F(3, 5) = 0.59
Prob > F = 0.6497

Source: Stata 17 [26], authors' calculation

al. [11], which typically emphasize the positive contributions of exports to economic growth. The negative effect observed in this study may stem from the city's export structure, which is dominated by low value-added goods, limited technological integration, and weak linkages to local industries. Therefore, enhancing the added value of export products and strengthening domestic industry linkages should be a policy priority.

In contrast, imports show a positive and statistically significant effect in the long term (coefficient = 0.3517, $p < 0.05$), supporting studies like Ha et al. [21] and Tran & Tran [24], which highlight the role of imports in facilitating access to foreign technology, equipment, and inputs that enhance productivity. This finding also aligns with the Heckscher–Ohlin model [5], suggesting that Ho Chi Minh City effectively leverages external resources to boost domestic production. Hence, import liberalization, particularly in technology-intensive sectors, can stimulate sustained economic growth.

Although FDI is often seen as a key driver of growth [10,20] it shows no statistically significant long-run effect on GRDP in this model ($p = 0.494$). This result suggests that, despite substantial inflows, FDI may lack effective integration into key economic sectors, potentially limiting its long-term benefits. Policymakers should thus shift from quantity-driven FDI strategies toward quality-driven investments that generate robust technological spillovers and strengthen local business linkages.

Regarding the exchange rate, the long-run results show a strong positive effect (coefficient = 2.2593, $p < 0.01$), consistent with the Marshall–Lerner condition and studies such as Bahmani [19] , which suggest that exchange rate flexibility enhances trade competitiveness and investment. However, in the short run, exchange rate changes do not have an immediate significant effect, and the lagged exchange rate (LD.er) even has a negative effect (coefficient = -1.012, $p < 0.05$), underscoring the need for careful management of exchange rate fluctuations to mitigate macroeconomic instability.

The lagged value of GRDP (LD.grdp) is positively and significantly associated with current GRDP (coefficient = 0.501, $p < 0.01$), supporting the dynamic growth theory [28] which posits that economic responses to policy interventions are inherently time-lagged.

Overall, the empirical findings substantiate the proposed hypotheses while highlighting the complexity

and asymmetry in trade-growth relationships. Policymakers should, therefore, adopt integrated and strategic approaches focusing on enhancing export quality, promoting productive imports, optimizing the benefits from FDI, and ensuring stable exchange rate policies tailored specifically to the socio-economic conditions of Ho Chi Minh City.

CONCLUSIONS AND POLICY IMPLICATION

Conclusions

This study employed the ARDL model to examine the short- run and long-run impacts of international trade and FDI on the economic growth of Ho Chi Minh City from 2001 to 2023. The main objective was to fill the empirical gap in local-level trade-growth studies and to assess whether trade variables such as exports, imports, FDI, and exchange rates significantly affect GRDP. Based on the estimation results, the research objectives were achieved. The findings revealed that in the long run, exports negatively affect economic growth, while imports and exchange rates exert a positive influence. FDI, however, did not show a significant long-term effect. In the short run, exports boost GRDP, but imports have a negative impact. These results confirm the existence of asymmetric short-run and long-run effects and provide practical insights for developing localized trade and investment policies tailored to Ho Chi Minh City's economic dynamics.

Policy implications

The findings of this study yield several important policy implications for promoting sustainable economic growth in Ho Chi Minh City. First of all, the negative long-run effect of exports highlights the need to restructure export activities by shifting toward high value-added sectors, enhancing domestic value chains, and reducing reliance on low-tech, labor-intensive products. Policies should prioritize support for innovation, digital transformation, and quality certification to improve competitiveness in international markets.

Secondly, the positive role of imports suggests that import liberalization, particularly in capital goods and technology, can stimulate local production capacity. However, short-term negative effects require careful monitoring of trade imbalances, emphasizing the importance of strengthening domestic industries to reduce vulnerability to external shocks.

Thirdly, the insignificant impact of FDI in the long term indicates that FDI attraction alone is not sufficient. The city should focus on quality over quantity in FDI, targeting projects that offer strong technological spillovers, human capital development, and linkages with local enterprises.

Finally, the significant influence of the exchange rate underscores the importance of macroeconomic stability and exchange rate management. Authorities should maintain a flexible yet stable exchange rate regime to support exports while minimizing the risks of inflation and short-term volatility. These findings collectively emphasize the importance of coherent trade, investment, and monetary policies tailored to the unique socio-economic context of Ho Chi Minh City.

Limitations

Although the study attempted to comprehensively analyze the impact of trade factors on Ho Chi Minh City's economic growth from 2001 to 2023, there are some limitations related to the quality and completeness of the data, the scope of the research sample, and methodological assumptions that may affect the generalizability of the findings.

Firstly, the limitation of sample size: The study uses time-series data from 2001 to 2023, yielding only 23 observations. This relatively small sample size may limit the reliability and generalizability of the ARDL model estimations, particularly in testing for cointegration and assessing model stability.

Secondly, omission of additional macroeconomic control variables: The model focuses primarily on trade-related variables exports, imports, FDI, and exchange rate, while other important macroeconomic factors such as public investment, government spending, inflation, or labor productivity are not included. This omission may lead to biased estimates and an incomplete understanding of the key drivers of economic growth in Ho Chi Minh City.

ABBREVIATIONS

ARDL: Autoregressive Distributed Lag

EVFTA: EU- Vietnam free trade agreement

FDI: Foreign direct investment

GRDP: Gross regional domestic product

HCMC: Ho Chi Minh City

ODA: Officia Development Assistance

RCEP: Regional Comprehensive Economic Partnership

COMPETING INTERESTS

The authors assure that there are no conflicts of interest in the publication of this article.

AUTHORS' CONTRIBUTIONS

Nguyen Thi Anh is responsible for the content: Initiating research ideas, overview of studies, building develop research methods, analyze results, run quantitative models, analyzing model results, and conclusion, contact the journal to submit the article, revise the article during the process of peer review of the article.
Pham Thanh Van is responsible for the content: Collecting documents, data, information, analyzing results, and proposing solutions.
Nguyen Thi Lai is responsible for the content: Collecting documents, data, and information.

REFERENCES

1. Guarini G. Innovation and growth in the Grossman–Helpman's 1991 model with increasing returns: a note. Econ Bull. 2011;31(1):147–55.
2. Smith A. The wealth of nations. Penguin Classics; 2002.
3. Ricardo D. Principles of political economy and taxation. London: John Murray; 1817.
4. Caliendo L, Feenstra RC, Romalis J, Taylor AM. Tariff reductions, heterogeneous firms, and welfare: theory and evidence for 1990–2010. IMF Econ Rev. 2023;71(4):817–94. Available from: https://doi.org/10.1057/s41308-022-00194-4.
5. Gandolfo G. International Trade Theory and Policy. Springer; 2014.
6. Krugman PR, Obstfeld M, Melitz MJ. International Economics: Theory and Policy. Pearson; 2024.
7. Do TT, Nguyen VC. Impact of exchange rate shocks, inward FDI and import on export performance: a cointegration analysis. J Asian Finance Econ Bus. 2020;7(4):163–71. Available from: https://doi.org/10.13106/jafeb.2020.vol7.no4.163.
8. Khoi NV, Chaudhary SK. An empirical analysis of export-led growth of Vietnam: trade in value added (TiVA) approach. J Bus Manag. 2018;5:27383.
9. Anoruo E, Ahmad Y. Openness and economic growth: evidence from selected ASEAN countries. Indian Econ J. 2000;47(3):110–7. Available from: https://doi.org/10.1177/0019466220000313.
10. Anwar S, Nguyen LP. Is foreign direct investment productive? A case study of the regions of Vietnam [Working paper]. 2013;Available from: https://doi.org/10.2139/ssrn.2318212;https://doi.org/10.2139/ssrn.2318212.
11. Su DT, Nguyen PC, Schinckus C. Impact of foreign direct investment, trade openness and economic institutions on growth in emerging countries: the case of Vietnam. J Int Stud. 2019;12(3):243–56.
12. Anwar S, Nguyen LP. Foreign direct investment and economic growth in Vietnam. Asia Pac Bus Rev. 2010;16(1-2):183–202. Available from: https://doi.org/10.1080/10438590802511031.
13. Dinh TH, Vo DH, Vo A, Nguyen TC. Foreign direct investment and economic growth in the short run and long run: empirical evidence from developing countries. J Risk Financ Manag. 2019;12(4):176. Available from: https://doi.org/10.3390/jrfm12040176.
14. Nguyen HY, Nguyen NC, Pham XH, Le NM, Duong TT. The impact of foreign capital flows, trade openness and human capital on economic growth in Vietnam. Hue Univ J Econ Dev. 2022;131:39–56.
15. Pesaran MH, Shin Y, Smith RJ. Bounds testing approaches to the analysis of level relationships. J Appl Econ. 2001;16(3):289–326. Available from: https://doi.org/10.1002/jae.616.
16. Nguyen AT, Poczta-Wajda A. The relationship between foreign direct investment, trade openness, exchange rate, and gross domestic product per capita in Vietnam. J Econ Manag. 2024;46(1):189–212. Available from: https://doi.org/10.22367/jem.2024.46.08.
17. Cung NH. Impact of foreign direct investment on economic growth in Vietnam. Adv Manage Appl Econ. 2020;10(2):1–6.
18. Edwards S. Openness, outward orientation, trade liberalization, and economic performance in developing countries. NBER Working Paper No. 2908; 1989. Available from: https://doi.org/10.3386/w2908.
19. Bahmani-Oskooee M, Harvey H, Hegerty SW. The effects of exchange-rate volatility on commodity trade between the U.S. and Brazil. N Am J Econ Finance. 2013;25:70–93. Available from: https://doi.org/10.1016/j.najef.2013.03.002.
20. Borensztein E, De Gregorio J, Lee JW. How does foreign direct investment affect economic growth? J Int Econ. 1998;45(1):115–35. Available from: https://doi.org/10.1016/S0022-1996(97)00033-0.
21. Ha TC, Wang YZ, Hu XJ, Than TS. The impact of foreign direct investment on economic growth: a case study in Vietnam 1990–2015. Ind Eng Lett. 2017;7(4):1–7.
22. Anh NT, Tung HT, Quoc DK, Luan MK. The relationship among foreign direct investment, trade openness, and economic growth in Vietnam from 1991 to 2023. Multidiscip Sci J. 2025;7(5). Available from: https://doi.org/10.31893/multiscience.2025203.
23. Arif-Ur-Rahman M, Inaba K. Foreign direct investment and productivity spillovers: a firm-level analysis of Bangladesh in comparison with Vietnam. J Econ Struct. 2021;10(1):1–23. Available from: https://doi.org/10.1186/s40008-021-00248-2.
24. Tran QK, Tran TN. The impact of imports on economic performance: evidence from Vietnam. Econ Res J. 2023;15(2):45–59.
25. Condition ML. International Trade Theory. Oxford Economic Papers. 2020;.
26. StataCorp. Stata Statistical Software: Release 17. College Station (TX): StataCorp LLC; 2021.
27. Narayan P. The Saving and Investment Nexus for China: Evidence From Cointegration Tests. Applied Economics. 2005;37:1979–1990. Available from: https://doi.org/10.1080/00036840500278103.
28. Dynamic Growth Theory. World Development Studies. Routledge; 2015.

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Bài nghiên cứu

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Các yếu tố thương mại ảnh hưởng tới tăng trưởng kinh tế thành phố Hồ Chí Minh: minh chứng thực nghiệm từ mô hình ARDL

Nguyễn Thị Anh[1,*], Phạm Thanh Vân[2], Nguyễn Thị Lài [3]

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TÓM TẮT

Bài nghiên cứu đánh giá tác động của thương mại quốc tế và đầu tư trực tiếp nước ngoài (FDI) đến tăng trưởng kinh tế của Thành phố Hồ Chí Minh, nhằm chỉ ra sự thiếu hụt nghiên cứu thực nghiệm ở cấp độ địa phương. Nghiên cứu sử dụng mô hình tự hồi quy phân phối trễ (ARDL) với dữ liệu hàng năm từ năm 2001 đến năm 2023, nghiên cứu đánh giá cả mối quan hệ ngắn hạn và dài hạn giữa GRDP và các biến thương mại chính, bao gồm xuất khẩu, nhập khẩu, FDI và tỷ giá hối đoái. Kết quả nghiên cứu cho thấy rằng trong khi xuất khẩu ảnh hưởng tiêu cực đến GRDP trong dài hạn, thì nhập khẩu và tỷ giá hối đoái lại có tác động tích cực đáng kể. còn FDI không có tác động lâu dài. Trong ngắn hạn, xuất khẩu đóng góp tích cực vào tăng trưởng kinh tế, trong khi nhập khẩu có tác động tiêu cực. Những phát hiện này nhấn mạnh các tác động không đối xứng của các biến thương mại theo thời gian và nhấn mạnh tầm quan trọng của các chính sách thương mại và đầu tư được điều chỉnh cho sự phát triển bền vững của địa phương. Bài nghiên cứu đã đưa ra bằng chứng có giá trị để hỗ trợ cho việc hoạch định chính sách kinh tế địa phương lớn nhất của Việt Nam.

Từ khoá: ARDL, tăng trưởng kinh tế, xuất khẩu, nhập khẩu, đầu tư trực tiếp nước ngoài

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