



The Impact of Trade Openness on Economic Growth in Afghanistan: "An Empirical Analysis (1990–2020)"

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Abstract

This study investigates the complex relationship between trade openness and economic growth in Afghanistan—a landlocked and conflict-affected economy—during the volatile period from 1990 to 2020. While traditional economic theories often depict trade as an "engine of growth," this research explores whether Afghanistan's structural dependencies have led to a paradoxical outcome. Adopting a descriptive-analytical approach, the study employs the Autoregressive Distributed Lag (ARDL) model to capture short-term fluctuations and long-term equilibrium, supplemented by the Bounds Test for cointegration. Empirical results, validated through Jarque-Bera, Breusch-Godfrey, and Ramsey RESET diagnostic tests, reveal a significant and negative long-term coefficient of -1.38 for trade openness. This finding indicates that a 1% increase in trade openness is associated with a 1.38% decrease in Gross Domestic Product (GDP). Furthermore, the Error Correction Term (ECT) of -0.85 confirms a high speed of adjustment toward long-term equilibrium following external shocks. These results suggest that in the absence of a robust industrial base and institutional stability, trade openness has led to "Immiserizing Growth" and "premature deindustrialization," primarily driven by an over-reliance on consumer imports and deteriorating terms of trade. The study concludes that Afghanistan's trade policy requires a strategic shift toward "Smart Protectionism" and targeted capital import substitution. Policymakers must prioritize enhancing technological absorptive capacity and infrastructure to transform trade from a source of structural dependency into a sustainable driver of domestic productivity and economic resilience.

Keywords: ARDL Model, Cointegration, Economic Growth, Immiserizing Growth, Trade Openness.

Introduction

International trade is traditionally conceptualized in economic development literature as the "engine of growth." However, the transition from classical paradigms—such as Ricardo's comparative advantage—to the intricate realities of contemporary political economy reveals that the relationship between trade openness and economic growth is neither linear nor guaranteed (Almeida, 2023). While dominant economic theories emphasize the positive role of global market integration through technology transfer and knowledge spillovers, this relationship in developing and conflict-affected nations is heavily moderated by institutional quality, political stability, and the underlying production structure (Rodrik & Rodriguez, 2000). Theoretical evolution further suggests that the impact of trade is a function of a country's productive structure; while Classical and Neoclassical models like the Heckscher-Ohlin (H-O) framework assume efficient resource allocation, Endogenous Growth theories (Romer and Lucas) argue that trade only spurs growth if a nation possesses the "Absorptive Capacity" for technology transfer. In fragile economies, the Prebisch-Singer Hypothesis posits that primary commodity exporters face declining Terms of Trade (ToT), leading to wealth outflow, while "Dutch Disease" and "Immiserizing Growth" (Bhagwati, 1958) suggest that in rentier economies dependent on foreign aid, trade openness can lead to an artificial appreciation of the currency, stifling domestic manufacturing—a process known as "premature de-industrialization" (Bielschowsky, 2009).

Afghanistan, during the period from 1990 to 2020, traversed one of its most unique yet volatile historical epochs, encompassing three distinct governance patterns: the war economy of the 1990s, the aid-dependent liberalization post-2001, and the recent focus on transit corridors. The fundamental issue is that despite an increase in the trade openness index over these three decades, this trend has failed to catalyze sustainable and endogenous economic growth. Empirical research within Afghanistan indicates a significant relationship between foreign trade and growth, though results vary by trade components. Mehravol et al. (2014), utilizing a VECM model, demonstrated that exports drive growth in the short run, while Hemmat et al. (2014) confirmed a positive link between liberalization and growth in the ECO region. Conversely, Vani (2019), using the ARDL model, found that total trade volume and imports exhibit a negative correlation with growth, a finding echoed by Farahmand & Esn (2020) who identified bidirectional causality for exports. Internationally, while Balassa (1978) supports the "Export-Led Growth" hypothesis, critical perspectives from Rodrik & Rodriguez (2000) and Iyoha & Okim (2017) observe negative coefficients in developing regions due to "specialization in low-value-added goods." Recent studies in similar contexts, such as Somalia and ASEAN nations, indicate that excessive reduction of trade barriers can actually weaken GDP, with some models showing a 0.184% decline for every 1% increase in openness (Nam & Ryu, 2024).

Despite these studies, a significant research gap persists: the lack of a cohesive econometric analysis that evaluates both short-term and long-term effects of trade liberalization while accounting for political shocks and the asymmetrical trade structure of Afghanistan. The core challenge is that Afghan "trade openness" has predominantly functioned as a conduit for importing consumer goods rather than attracting productive capital, leading to a structural trade deficit and depletion of foreign reserves (Najib, 2023). Furthermore,

Afghanistan's geopolitical reality as a landlocked country significantly inflates transaction costs. This study seeks to bridge the existing gap by utilizing an ARDL framework to evaluate whether trade openness, in the absence of industrial infrastructure and institutional stability, has exerted any significant impact on Gross Domestic Product (GDP). Consequently, this research seeks to answer: How can the impact of trade openness on Afghanistan's economic growth be explained within the structural fluctuations of the 1990–2020 period, and has trade acted as a catalyst for growth or a driver of structural dependency? The principal conclusion suggests a negative long-term coefficient (-1.38), indicating that trade openness serves as a resource drain in the absence of technological capacity.

Material and Method

This study adopts an applied research design based on a quantitative approach, focusing on the extraction and analysis of numerical time-series data.

Descriptive-Analytical Phase

The methodology is descriptive-analytical. The descriptive phase monitors variable trends from 1990 to 2020, providing a contextual understanding of the link between trade openness and economic growth.

Econometric Framework

In the analytical phase, advanced econometric tools are utilized: ARDL Model: The Autoregressive Distributed Lag model is employed to measure both short-term fluctuations and long-term equilibrium relationships. This model is particularly effective for identifying asymmetric effects and responses to economic shocks. Stationarity & Cointegration: To ensure robust results, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were conducted for stationarity, followed by the Bounds Test for cointegration. Error Correction Model (ECM): The ECM was implemented to estimate the "Speed of Adjustment" – the rate at which variables return to equilibrium following a disturbance. Data Sources: Data were sourced from reputable international statistical databases (e.g., World Bank, IMF) to ensure the reliability and interpretability of the empirical findings.

Data and Variables

To perform a systematic and structured analysis of the links between macroeconomic variables, this study utilizes a data-driven approach based on time-series data covering the thirty-year period from 1990 to 2020 for the Afghan economy. The set of variables under investigation includes core indicators such as the Trade Openness Index, Gross Domestic Product (GDP), Exchange Rate Fluctuations, Inflation (Consumer Price Index), and Taxation Policies. Incorporating these variables simultaneously within an integrated modeling framework provides the necessary analytical platform to identify and explain the mechanisms through which trade openness impacts economic growth in both the short and long run. This framework further enables the empirical validation of the research hypotheses according to the specifications provided in Table 2.

Table 2: Definition of Variables and Data Sources

No.	Variable Name	Description	Symbol	Data Source
1	Trade Openness	Trade Openness Index	TO	World Bank
2	Exchange Rate	Exchange Rate Fluctuations	EXR	World Bank
3	Gross Domestic Product	Real Economic Output	GDP	World Bank
4	Taxation	Tax Revenue / Fiscal Policy	TAX	World Bank
5	Consumer Price Index	Inflation Rate	CPI	World Bank

Econometric Model Specification and Theoretical Framework

To systematically evaluate the causal relationship between trade openness and Afghanistan's real Gross Domestic Product (GDP) within a cohesive, empirically sound framework, this study constructs an augmented macroeconomic production function. Grounded in endogenous growth literature, the baseline aggregate functional form is specified as:

$$Y_t = f(\text{TO}, \text{EXR}, \text{CPI and TAX})$$

Where Y_t represents Real Gross Domestic Product (GDP), serving as the proxy for aggregate economic output, and TO_t denotes the Trade Openness Index, treated as the primary structural regressor of interest.

Theoretical Justification of Control Variables

To mitigate potential omitted variable bias and precisely isolate the net impact of trade openness on economic output, the model incorporates three essential macroeconomic control variables (EXR, CPI and TAX). The selection of these variables is deeply anchored in international trade theory and tailored to the unique economic architecture of a landlocked, aid-dependent, and conflict-affected state:

Exchange Rate (EXR): Informed by the Mundell-Fleming paradigm and real exchange rate misalignment theories, currency fluctuations directly dictate international price competitiveness (Obstfeld & Rogoff, 1996). In developing and aid-dependent contexts, large capital inflows and foreign assistance frequently induce artificial currency appreciation—triggering the "Dutch Disease" phenomenon, which erodes the competitiveness of domestic productive sectors (Corden & Neary, 1982). Controlling for EXR separates structural currency shocks from trade policy effects.

Consumer Price Index / Inflation (CPI): Price stability is a critical prerequisite for long-run capital accumulation and economic efficiency (Fischer, 1993). In fragile economies, high inflation distorts relative market price signals, reduces real domestic purchasing power, and raises investment risk premiums (Barro, 1995). Given Afghanistan's heavy structural reliance on consumer imports, CPI controls for imported inflation and domestic supply-side rigidities.

Taxation (TAX): Grounded in Neoclassical and Endogenous Growth models, fiscal policy plays a dual role in macroeconomic performance (Barro, 1990; Romer, 1990). While

tax revenues fund essential public goods, law enforcement, and infrastructure, distortionary taxation can disincentivize private investment. Incorporating TAX serves as a necessary proxy for domestic state capacity, fiscal policy orientation, and domestic revenue mobilization.

Mathematical and Empirical Model Formulation

To convert the general functional form into an estimable econometric model, the variables are specified in a double-logarithmic framework. The log-transformation linearizes non-linear relationships, reduces heteroscedasticity, and allows the estimated coefficients (β_1 to β_4) to be interpreted as constant. Table 3 outlines the progression from the aggregate functional form to the empirical log-log model specification.

Table 3. Mathematical Specification of the Research Model

No.	Model Description	Mathematical Formula
1	Functional Form	$Y_t = f(TO_t, EXR_t, CPI_t, TAX_t)$
2	Linear Specification	$Y_t = \beta_0 + \beta_1 TO_t + \beta_2 EXR_t + \beta_3 CPI_t + \beta_4 TAX_t + \mu_t$
3	Double-Log Model (Elasticity)	$\ln Y_t = \beta_0 + \beta_1 \ln TO_t + \beta_2 \ln EXR_t + \beta_3 \ln CPI_t + \beta_4 \ln TAX_t + \mu_t$

Findings

Stationarity and Unit Root Testing

In time-series analysis, examining the stationarity of variables before estimating econometric models is crucial, as the presence of a unit root can lead to spurious regression and incorrect inferences. This step is particularly vital within the Autoregressive Distributed Lag (ARDL) framework; while this method can estimate short-term and long-term relationships for a mix of $I(0)$ and $I(1)$ variables, the inclusion of $I(2)$ variables is unacceptable (Pesaran et al., 2001).

In this study, the Phillips-Perron (PP) test was employed to evaluate the stationarity of the variables. The test was executed under three specifications: None (neither intercept nor trend), Intercept, and Intercept and Trend. The results are presented in Tables 3 and 4. According to the results, all variables were non-stationary at their levels but became stationary after the first difference. Thus, all variables are integrated of order one, $I(1)$, providing a reliable basis for proceeding with the ARDL estimation.

Table 4: Phillips-Perron (PP) Unit Root Test Results at Level

Specification	Statistic	EXR	TO	GDP	CPI	TAX
None	t-test	2.0233	0.2157	0.7347	2.8622	-0.6631
	Prob.	0.9877	0.7412	0.8680	0.9983	0.2021

Specification	Statistic	EXR	TO	GDP	CPI	TAX
	Stationary?	No	No	No	No	No
Intercept	t-test	0.1255	-4.5989	-0.6631	0.1332	-1.3680
	Prob.	0.9625	0.0010	0.8412	0.9631	0.5843
	Stationary?	No	Yes	No	No	No
Intercept & Trend	t-test	-1.6545	-4.8542	-1.8744	-2.1884	-1.2983
	Prob.	0.7462	0.0026	0.6426	0.4785	0.8690
	Stationary?	No	Yes	No	No	No

Source: Research findings extracted from E-Views.

Table 5: Phillips-Perron (PP) Unit Root Test Results at First Difference - I(1)

Specification	Statistic	EXR	TO	GDP	CPI	TAX
None	t-test	-5.0121	-4.8552	-5.2202	-5.1730	-5.5753
	Prob.	0.0000	0.0000	0.0000	0.0000	0.0000
	Stationary?	Yes	Yes	Yes	Yes	Yes
Intercept	t-test	-5.6561	-4.7349	-5.2425	-6.7211	-5.6239
	Prob.	0.0001	0.0008	0.0002	0.0000	0.0001
	Stationary?	Yes	Yes	Yes	Yes	Yes
Intercept & Trend	t-test	-5.7275	-4.5760	-5.1765	-6.7634	-5.6647
	Prob.	0.0003	0.0071	0.0013	0.0000	0.0004
	Stationary?	Yes	Yes	Yes	Yes	Yes

Source: Research findings extracted from E-Views.

Evaluation of Classical Assumptions (Diagnostic Tests)

To ensure the validity and reliability of the results obtained from the Autoregressive Distributed Lag (ARDL) model, it is essential to test the classical assumptions regarding the residual terms. Adhering to these assumptions—including the normality of residuals, absence of serial correlation, and homoscedasticity—is a prerequisite for the valid

interpretation of estimated coefficients and related statistical tests (Gujarati & Porter, 2009; Greene, 2018).

The Jarque-Bera test is employed to assess the normality of the residual distribution (Jarque & Bera, 1980). To identify the presence or absence of serial correlation in the time series, the Breusch-Godfrey Serial Correlation LM test is conducted (Breusch, 1978). Furthermore, the Breusch-Pagan-Godfrey test is utilized to check for heteroscedasticity (Breusch & Pagan, 1979). These diagnostic tests allow for the detection of classical econometric issues; their absence confirms the robustness and credibility of the ARDL model results.

Residual Normality Test

One of the fundamental assumptions in regression models, including the Autoregressive Distributed Lag (ARDL) model, is the normality of the residual distribution (Gujarati & Porter, 2009; Greene, 2018). The validity and precision of statistical tests such as the t and F tests depend on the fulfillment of this assumption (Jarque & Bera, 1980).

Table 6: Results of the Normality Test (Jarque-Bera)

Skewness	Kurtosis	Jarque-Bera (JB)	Probability (p-value)
0.045474	4.475894	0.318329	0.852856

Source: Research findings extracted from E-Views.

As shown in Table 6, the probability of the Jarque-Bera statistic is 0.8528, which is significantly higher than the 5% significance level. Therefore, the null hypothesis (H_0) that residuals are normally distributed cannot be rejected. Furthermore, the absence of serial correlation was confirmed by the Breusch-Godfrey LM test (Breusch, 1978), where the p-value of 0.8528 indicates that the residuals are free from autocorrelation, ensuring the reliability of the estimated coefficients.

Heteroscedasticity Tests

In econometric analysis, residuals must possess a constant variance, a characteristic known as Homoscedasticity. If the variance of the errors changes across observations, the model suffers from Heteroscedasticity, which can lead to inefficient estimates (Gujarati & Porter, 2009).

Table 7. Results of the Breusch-Pagan-Godfrey and Harvey Heteroscedasticity Tests

Test Type	Statistic	Value	Distribution	Probability (p-value)
Breusch-Pagan-Godfrey	F-statistic	2.061777	F(4, 22)	0.2535
Harvey	F-statistic	0.022660	F(1, 24)	0.8816

Source: Research findings extracted from E-Views.

Based on the results presented in Table 7, heteroscedasticity tests were conducted to examine the homoscedasticity of the residuals. In the Breusch-Pagan-Godfrey test, the F-

statistic is 2.061777 with a p-value of 0.2535. Similarly, in the Harvey test, the F-statistic is recorded at 0.022660 with a p-value of 0.8816. Since all p-values are greater than the 5% significance level ($p > 0.05$), the null hypothesis (H_0), which assumes no heteroscedasticity, cannot be rejected.

In other words, the residuals exhibit homoscedasticity, indicating that the estimated model does not suffer from variance-related issues in the error terms. Therefore, it can be concluded that the model is free from heteroscedasticity, ensuring that the statistical analyses and inferences based on this model are reliable and robust (Gujarati & Porter, 2009; Greene, 2018).

Structural Stability Test (CUSUM and CUSUM of Squares)

To verify whether the estimated short-run and long-run parameters remain stable over time, this study applies the Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) tests introduced by Brown et al. (1975). In time-series macroeconomic modeling, structural changes—such as policy shifts, economic crises, or external shocks—can cause coefficient instability and lead to unreliable results. The CUSUM and CUSUMSQ tests evaluate parameter constancy by updating recursive residuals over the study period. If the statistics plot stays strictly within the 5% critical boundaries, the null hypothesis of parameter stability cannot be rejected, confirming that the model coefficients are structurally stable and dependable for policy analysis.

Figure 1: Model Stability Tests CUSUM Test

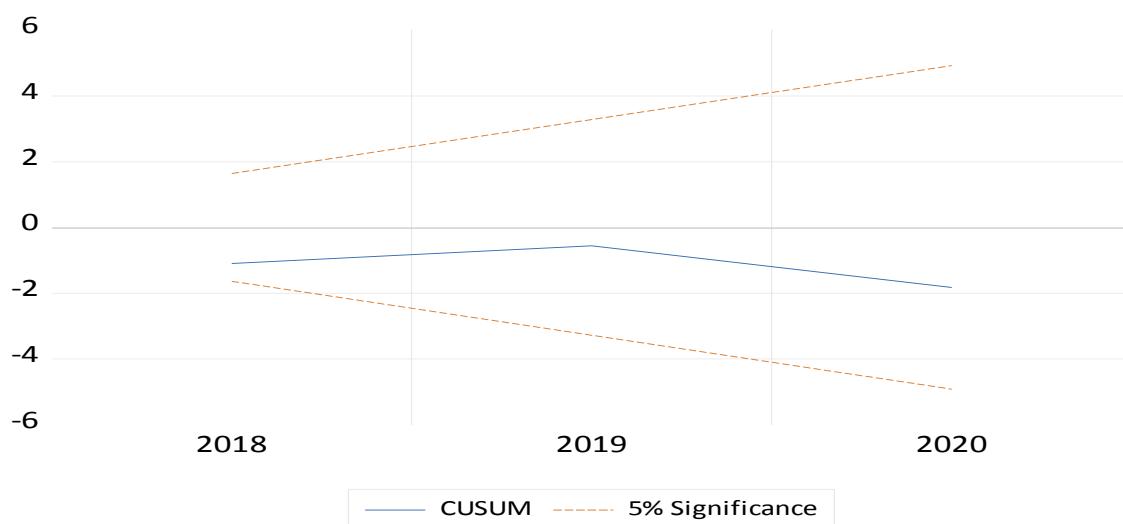
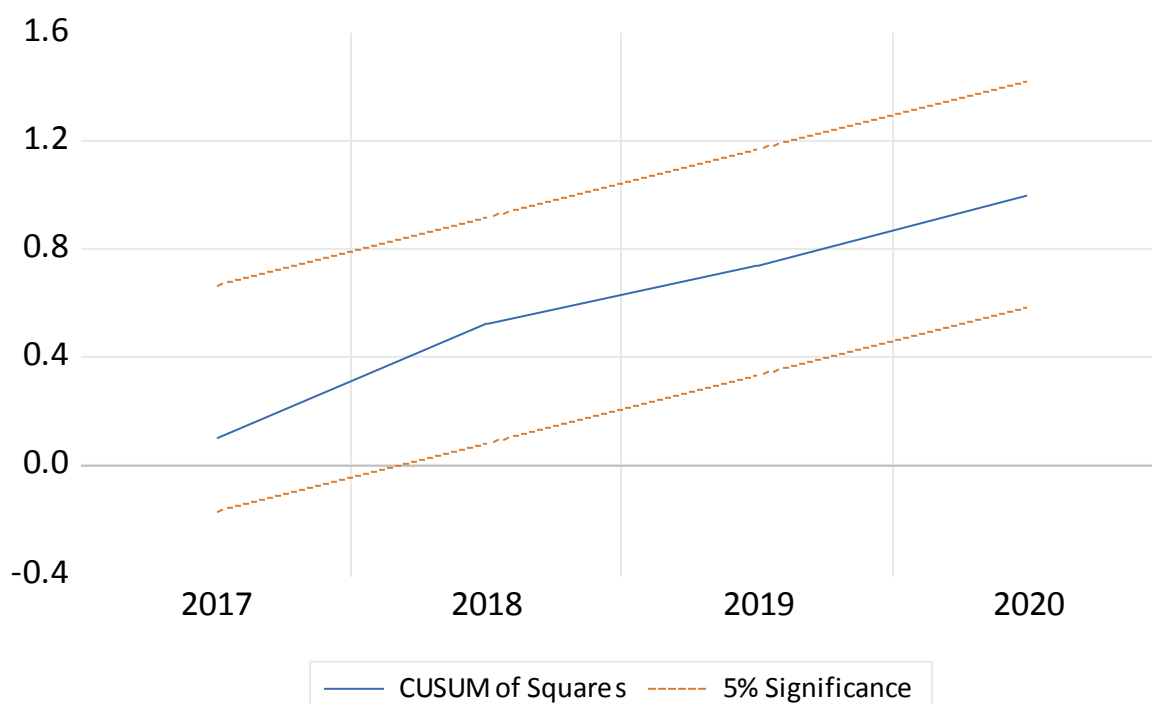


Figure 1: Model Stability Tests CUSUM Test



To confirm the robustness and parametric stability of the estimated ARDL model, the Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) tests proposed by Brown et al. (1975) were conducted.

As illustrated in **Figure 1** and **Figure 2**, the blue test statistic lines for both the CUSUM and CUSUMSQ tests remain strictly within the critical 5% significance bounds (represented by the dashed red lines) throughout the sample period. These results confirm that the short-run and long-run parameters are structurally stable over time and free from parameter instability, validating the econometric reliability of the estimated model.

Cointegration Analysis (ARDL Bounds Test)

Cointegration analysis in econometrics is based on the principle that a linear combination of non-stationary variables is typically non-stationary. However, as an exception, cointegration indicates that even if variables are individually non-stationary, a long-term equilibrium relationship may exist among them (Gujarati & Porter, 2009). Thus, cointegration tests are vital tools for identifying long-term economic stability and common equilibrium between variables (Suri, 2015).

In this study, the ARDL Bound Test and the F-statistic were employed to examine the existence of cointegration. Following the standard procedure (Pesaran et al., 2001), the results are interpreted as follows:

- If the F-statistic > Upper Bound $I(1)$, the null hypothesis of "no cointegration" is rejected, confirming a long-term relationship.
- If the F-statistic < Lower Bound $I(0)$, no cointegration exists.
- If the F-statistic falls between the bounds, the results are inconclusive.

Table 8. ARDL Bounds Test for Cointegration

Test Statistic	Value	Significance Level	Lower Bound I(0)	Upper Bound I(1)
F-statistic	14.15338	10%	2.20	3.09
k (regressors)	4	5%	2.56	3.49
		1%	2.88	3.87

Source: Research findings extracted from E-Views.

Based on the ARDL Bounds Test results presented in Table 8, the calculated F-statistic (14.15338) is significantly higher than the Upper Bound critical value I(1) at all conventional significance levels (10%, 5%, and 1%). Specifically, at the 1% significance level, the F-statistic of 14.15 exceeds the upper bound of 3.87. Therefore, the null hypothesis of "no cointegration" is rejected, providing strong empirical evidence of a long-term equilibrium relationship among the variables under study. This confirms that despite potential short-term fluctuations, the variables move together in the long run.

Long-run Estimation of the ARDL Model

The utilize of the Autoregressive Distributed Lag (ARDL) model facilitates the identification and examination of long-term relationships among variables, a phenomenon known in econometric literature as Cointegration. The presence of cointegration indicates that variables tend to move together in the long run, following a stable equilibrium path. This characteristic is particularly vital for macroeconomic analysis, as variables such as trade openness and economic growth are expected to reach a common equilibrium over time.

The findings in Table 9 reveal that the long-term coefficient of trade openness is negative and statistically significant. This indicates that, in the long run, increased trade openness is associated with a decline in economic growth. The t-statistic is negative and exceeds the critical value, with a p-value below 5%, leading to the rejection of the null hypothesis and confirming a stable long-term relationship.

Table 9: Long-run Coefficients Estimated via ARDL Model

Variable	Coefficient	Std. Error	t-Statistic	Probability (p-value)
ln(Trade Openness)	-1.381363	0.439564	-3.142575	0.0348

Source: Research findings extracted from E-Views.

In the theoretical and empirical literature on economic growth and trade policy, the relationship between trade openness and Gross Domestic Product (GDP) is viewed as a complex function dependent on institutional quality, productive structure, and the level of development. Contrary to the traditional trade hypothesis—which suggests trade is always an "engine of growth"—empirical evidence shows that in economies with a weak industrial base, openness can exert adverse effects. For instance, facilitating access to global markets without sufficient competitive capacity can lead to the displacement of

domestic industries by cheaper foreign products, ultimately reducing total GDP (Baldwin & Evenett, 2009; Rodrik, 2001).

Our econometric results align with these critical perspectives. The long-term coefficient for the logarithm of trade openness is -1.381363 with a t-statistic of -3.142575, which is statistically significant at the 95% confidence level. This estimate implies that a 1% increase in trade openness, on average, leads to an approximately 1.38% decrease in GDP.

A primary explanation for this negative relationship is the "consequences of unbridled competition" on domestic productive sectors. In the absence of effective support for infant industries and without the benefits of economies of scale, competition with imports can stifle domestic manufacturing and weaken overall economic growth (Rodrik, 2001). This stands in contrast to advanced economies with strong institutional frameworks, where trade openness typically enhances efficiency and growth by facilitating access to technology and larger markets (Winters, 2004). This duality emphasizes that the outcomes of trade policy are directly contingent upon the level of institutional development and the structural resilience of the productive sectors.

Error Correction Model (ECM)

Within the framework of the Autoregressive Distributed Lag (ARDL) model, the analysis of the Error Correction Model and the interpretation of its coefficient are of fundamental importance. This coefficient represents the speed and magnitude at which variables return from short-term disequilibrium to the long-term equilibrium state. The error correction mechanism is applied when a long-term cointegrated relationship exists among the variables, ensuring that deviations from the long-term equilibrium path are corrected in subsequent periods (Engle & Granger, 1987; Pesaran et al., 2001).

From a theoretical perspective, the Error Correction Term (ECT) must be negative and statistically significant to indicate the extent to which any deviation from the long-term equilibrium in the previous period is compensated for in the current period. This coefficient typically ranges between 0 and -1, where a value closer to -1 signifies a higher speed of adjustment toward long-term equilibrium (Enders, 2014).

Based on the empirical results presented in Table 10, the estimated error correction coefficient is both significant and negative. This indicates that following short-term shocks or deviations from the long-term path, the variables effectively return to the equilibrium trajectory, with a substantial correction occurring in each period. This finding confirms the stability of the model structure and its capacity to adjust short-term imbalances, thereby reinforcing the validity of the long-term estimates.

Table 10: Error Correction Model (ECM) Results

Variable	Coefficient	Std. Error	t-Statistic	Probability
CointEq(-1)	-0.854855	0.061844	-13.82283	0.0002

Source: Research findings extracted from E-Views.

The negative coefficient of -0.854855 within the ECM framework indicates that if a deviation from the long-term equilibrium occurred in the previous period, approximately

85% of this imbalance is corrected in the current period. In other words, this coefficient measures the speed of short-term adjustment and demonstrates how changes in the independent variables impact the dependent variable in the short run. The negative sign of the coefficient signifies the corrective nature of the relationship; if the deviation from equilibrium is positive, the changes in the independent variable in the current period will facilitate a reduction in that deviation, guiding the system back toward its long-term path.

Ramsey RESET Test for Functional Form

In econometric analysis, a regression model may appear statistically sound, yet fail to fully reflect the actual structure of the relationship between variables. Specifically, a model might be estimated in a linear form while the true underlying relationship is non-linear, or significant variables might have been omitted. Ignoring these structural characteristics can lead to misleading or biased results.

To ensure the correctness of the model's functional form and to capture the true dynamics between variables, empirical validation is essential. The Ramsey Regression Equation Specification Error Test (RESET), introduced by Ramsey (1969), is a widely recognized method for this purpose. This test incorporates higher-order powers of the fitted values of the dependent variable into the model; if these additional terms are statistically significant, it indicates that the original model suffers from functional form misspecification or omitted variable bias (Gujarati, 2009).

Table 11. Ramsey RESET Test Results

Statistic	Value	Probability (p-value)
F-statistic	0.528568	0.5198
t-statistic	0.727027	0.5198

Source: Research findings extracted from E-Views.

As shown in Table 11, the results of the Ramsey RESET test reveal that the p-values for both the F-statistic and t-statistic (0.5198) are significantly higher than the 0.05 threshold. Consequently, we fail to reject the null hypothesis (H_0), which posits that the model is correctly specified.

In other words, these results confirm that the functional form used in this study is appropriate and correctly specified as linear. There is no evidence of neglected non-linear relationships or significant omitted variables. Therefore, it can be concluded that the regression model is structurally stable and reliable, and the obtained estimates accurately reflect the real-world relationships between trade openness and economic growth in Afghanistan.

Discussion

The empirical results of this study, grounded in the ARDL model, reveal a long-term coefficient of -1.38, indicating that trade openness has a contractionary effect on Afghanistan's GDP. This finding challenges the classical "Engine of Growth" paradigm and necessitates a deep interpretation through the lens of existing literature and the specific

political economy of Afghanistan. While classical theories by Ricardo and the H-O model predict welfare gains, our results align with the skeptical perspectives of Rodrik & Rodriguez (2000), who argue that the benefits of liberalization are heavily contingent on institutional quality.

The negative correlation observed is consistent with the findings of Vani (2019) regarding the Afghan context, where total trade volume and imports were found to suppress growth. This can be interpreted through Thirlwall's Law; the high income-elasticity of demand for imports in Afghanistan has transformed open borders into a conduit for capital flight, leading to "Premature De-industrialization." Unlike the positive outcomes reported by Hemmat et al. (2014) for the broader ECO region, Afghanistan's experience suggests that in the absence of a productive base, trade leads to a "resource drain." This is further corroborated by the Prebisch-Singer Hypothesis, as seen in the work of Iyoha & Okim (2017), where nations exporting low-value primary commodities while importing high-value goods suffer a deterioration in their Terms of Trade (ToT).

Furthermore, the "Dutch Disease" effect, fueled by massive foreign aid, caused an artificial appreciation of the currency, making domestic products uncompetitive. This structural bottleneck aligns with the findings of Nam & Ryu (2024), where excessive reduction of trade barriers weakened GDP. Based on these findings, the following policy interventions are recommended to pivot trade into an expansionary force:

Transition to Smart Protectionism: Given the identified premature de-industrialization, Afghanistan must move from "Absolute Liberalization" to a graduated tariff structure. This involves imposing higher tariffs on final consumer goods that have domestic substitutes, while zeroing tariffs on capital goods (machinery) and intermediate inputs to transform trade into a vehicle for technological modernization.

Enhancing Absorptive Capacity and Trade-Industry Linkages: Since trade alone has not facilitated knowledge transfer, the government should mandate large-scale importers to invest in domestic supply chains. For instance, food importers should be incentivized to invest a portion of profits into local packaging and agricultural processing infrastructure to mitigate import elasticity.

Exchange Rate Management: To counter the "Dutch Disease," a competitive exchange rate policy for exporters is essential. Establishing export guarantee funds and providing currency subsidies to producers of high-value-added goods (e.g., processed gemstones or organic products) will help the economy escape the raw material export trap.

Infrastructure Development and Transit Diplomacy: As a landlocked nation, high transaction costs neutralize the gains from trade. Prioritizing "Transit Diplomacy" through strategic corridors like the Lapis Lazuli Route and the Wakhan Corridor, alongside digitalizing customs, will reduce production costs and enable trade openness to become expansionary. Future research should focus on the role of digital trade and the specific impact of these transit corridors on reducing transaction costs for landlocked economies.

Conclusion

This study investigated the impact of trade openness on Afghanistan's GDP, revealing a significant contractionary effect with a long-term coefficient of -1.38. The empirical evidence suggests that in the absence of a robust industrial base and effective institutional framework, "Absolute Liberalization" has triggered premature de-industrialization and a

"resource drain" rather than economic expansion. The findings corroborate that the high income-elasticity of imports, coupled with the "Dutch Disease" effect, has neutralized the classical gains from trade. To reverse this trend, Afghanistan must pivot toward "Smart Protectionism" by implementing a graduated tariff structure and enhancing trade-industry linkages through mandated investments in domestic supply chains. Strengthening transit diplomacy and managing exchange rates are also critical to lowering transaction costs and escaping the raw material export trap. In conclusion, trade openness can only serve as an "Engine of Growth" for Afghanistan if it is strategically synchronized with industrial policy and infrastructure development. Future policies should prioritize value-added exports to ensure that trade liberalization contributes to sustainable macroeconomic stability.

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Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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