

The Rentier State Trap: An ARDL Analysis of Venezuela's Economic Collapse (1995-2025)

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Abstract: This study investigates the dynamics of the "Rentier State Trap" in Venezuela, analyzing the structural volatility and economic collapse experienced between 1995 and 2025. Utilizing annual time-series data, the research examines both long-run and short-run relationships between real GDP growth and key macroeconomic determinants, specifically crude oil prices and fiscal policy. The study employs the Autoregressive Distributed Lag (ARDL) bounds testing framework to ensure robust inference. Empirical results reveal an exceptionally high elasticity of GDP to oil prices (9.47), confirming a critical loss of productive autonomy. Furthermore, the Error Correction Term (-1.15) suggests "oscillatory convergence," indicating that the economy reacts to external shocks with severe instability rather than smooth adjustment. Findings also demonstrate that fiscal deficits have hindered growth. Consequently, the paper argues that escaping this trap requires urgent institutional reforms, notably adopting counter-cyclical fiscal rules and reactivating stabilization funds to decouple the economy from oil price volatility.

Keywords: Venezuela; Rentier State Trap; Oil Prices; Economic Collapse; ARDL

JEL Codes: C22; O54; Q43; H62

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1. Introduction

The dialectical relationship between natural resource abundance and development performance constitutes one of the most complex dilemmas in contemporary political economy. While classical literature established the "Resource Curse" hypothesis, positing that hydrocarbon wealth hinders institutional growth and fuels conflict (Ross, 1999), recent empirical evidence suggests a stark divergence in national trajectories. Historically, Venezuela was considered an "exceptional case" of relative stability driven by redistribution policies (Mähler, 2011). However, in the last decade, it has slid into a comprehensive economic collapse, providing a living empirical model of what Lander (2016) described as the "Implosion of the Rentier State." Although Rentier State Theory has evolved to include new dynamics (Walker, 2023), the precise econometric mechanisms through which this collapse unfolded—and the structural features that have prevented recovery—remain insufficiently quantified in the existing literature, constituting the central motivation of this study.

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1.1. Problem Statement

Despite possessing the world's largest proven oil reserves, Venezuela presents a confounding economic paradox. Instead of fostering sustainable development, this resource abundance has precipitated one of the most severe economic contractions in modern history. The central problem addressed in this study is the mechanics of this collapse: specifically, how the interaction between extreme oil price volatility and pro-cyclical fiscal policies has created a "**Rentier State Trap**" from which the economy cannot easily recover. This collapse was neither a geographical inevitability nor merely a result of market fluctuations, but rather a "man-made political disaster" resulting from rent mismanagement and institutional dismantling. While the correlation between oil and GDP is evident, the structural dynamics that render the Venezuelan economy incapable of self-correction—leading to what we identify as "oscillatory convergence"—remain absent from the empirical record covering the post-2018 hyperinflationary collapse.

1.2. Research Objectives

To address this gap, the study aims to achieve the following objectives:

- To empirically test the "Rentier State Trap" hypothesis using the Autoregressive Distributed Lag (ARDL) methodology for the period 1995–2025.
- To investigate how the interaction between dominant political rent-management—operationalized through the concept of the "political helix" (De la Vega et al., 2019)—and external oil price shocks generated an oscillatory and structurally violent economic response that prevented a return to long-run equilibrium.
- To evaluate the role of governance as a mediating variable in resource-dependent economies.

1.3. Research Hypotheses

In order to achieve these objectives, the study formulates the following testable hypotheses:

- **H1:** A stable long-run relationship exists between oil prices, fiscal policy, and GDP growth, confirming structural rentier entrenchment.
- **H2:** Oil prices exert an exceptionally high elasticity on GDP growth, reflecting a near-total loss of productive economic autonomy.
- **H3:** Pro-cyclical fiscal deficits act as a primary amplifier of the collapse rather than a stabilizing force.
- **H4:** The error correction mechanism (ECM) is characterized by a coefficient indicating violent fluctuations rather than the smooth, gradual adjustment observed in diversified economies.

1.4. Research Significance

This study holds both theoretical and practical significance. Theoretically, it advances the Rentier State literature by analyzing a contemporary total economic collapse. Practically, the study gains significant value by comparing the Venezuelan case with relatively successful models (such as Zambia) or stable ones (such as the Gulf states) to determine the role of governance as a mediating variable (Nondo et al., 2025; Nusair, 2019). This provides actionable insights for policy-makers in resource-dependent developing nations—particularly in Sub-Saharan Africa, the MENA region, and Latin America—on how institutional quality, counter-cyclical fiscal rules, and governance reforms can determine whether resource wealth becomes a catalyst for development or a structural trap.

1.5. Contribution and Research Gap

While the "Resource Curse" and "Rentier State" hypotheses have been extensively studied in the literature (Ross, 1999), empirical analyses specifically targeting the catastrophic economic collapse of Venezuela remain fragmented. Most existing studies on Venezuela cover data only up to 2015 or 2018, missing the hyperinflationary climax and the recent stagnation period. Furthermore, traditional econometric approaches often fail to capture the complex, non-linear adjustment dynamics of an economy under severe structural stress.

This study fills this gap by: **(1)** extending the time series analysis to cover the critical period of 1995–2025, providing the most up-to-date empirical evidence on the Venezuelan collapse; **(2)** applying the ARDL bounds testing approach to robustly analyze short-run and long-run dynamics despite the limitation of sample size ($N=31$); and **(3)** specifically investigating the phenomenon of "oscillatory convergence" in the error correction mechanism, offering a novel explanation for the country's chronic instability beyond simple correlation.

1.6. Theoretical Framework

The study is grounded in a composite theoretical framework integrating three modern concepts to explain the mechanism of the "Rentier Trap":

First: From State Autonomy to "Rentier Society"

Current approaches move beyond the traditional focus on state fiscal autonomy to adopt the concept of the "Rentier Society" proposed by (Peters 2019). From this perspective, excessive reliance on rent creates social and cultural structures that resist economic diversification. The entire society becomes dependent on rentier distribution mechanisms, meaning any revenue shock triggers an existential crisis rather than a mere fiscal one.

Second: Political Management and Rentier Socialism

(Barredo and Feliciano 2025) reject the explanation that "Dutch Disease" is solely responsible, proposing instead the framework of "Political Management of Rent." In the Venezuelan case, this evolved into what (Doyran 2025) terms "Rentier Socialism," where the National Oil

Company (PDVSA) was utilized as a tool for geopolitical maneuvering rather than economic efficiency. This excessive politicization led to the erosion of the sector's technical capabilities, rendering it unable to respond to production requirements, which explains the structural collapse of supply.

Third: Institutional Weakness Theory

(Stan 2024) and (Kott 2012) emphasize that resources themselves are not a curse; rather, "institutional weakness" turns abundance into a trap. In the absence of strong institutions and checks and balances, massive revenues become an incentive for rent-seeking and corruption, disrupting market mechanisms and leading to national instability.

1.7. Literature Review

1.7.1. The Determinism Debate: Resources vs. Policies

The literature is divided on the inevitability of the "Resource Curse." While (Di John 2010) offered a radical critique of the hypothesis, arguing that empirical evidence is inconclusive and growth depends on state strategies, (Rutledge 2014) contended that Western discourse on the "Rentier State" is laden with bias against OPEC nations. This view is reinforced by (Nondo et al 2025) regarding Zambia, which demonstrated that improving governance quality and democracy can transform resources into a growth engine, negating automatic determinism.

1.7.2. Econometric Evidence from the MENA Region (Benchmarking)

Studies applying advanced econometric models (NARDL & ARDL) in other rentier states offer divergent results. In the Gulf Cooperation Council (GCC) countries, (Nusair (2019; 2016)) found asymmetric effects of shocks, where positive price shocks have a larger impact than negative ones, indicating the presence of fiscal buffers. In Algeria (a quintessential rentier state), (Lacheheb and Sirag 2019) revealed a nonlinear relationship between oil and inflation, while (Fuinhas and Marques 2013) found a surprising negative relationship between energy consumption and growth, reflecting structural distortions similar to the Venezuelan case (Machín Álvarez, 2010).

1.7.3. The Venezuelan Case: Quantitative Diagnosis of Collapse

Regarding Venezuela, both quantitative and qualitative studies agree on the depth of the crisis. (Satti et al 2014) confirmed a negative long-run relationship between resource abundance and growth, validating the curse hypothesis. In a more precise analysis of the production collapse, (Aray and Vera 2024) used the "Synthetic Control" method to prove that Venezuela lost approximately one million barrels per day due to political mismanagement compared to a "no-policy-change" scenario. (De la Vega et al 2019) support this via the "Quintuple Helix" model, showing that the dominance of political decision-making in Venezuela dismantled economic linkages, unlike its South American neighbors.

1.7.4. Mitigation Mechanisms and Solutions

To escape the trap, (Majumder et al 2020), in a study of 95 countries, suggest that "Trade Openness" reduces the severity of the resource curse by 25%. This intersects with (Olayungbo 2019), who found in Nigeria that a lack of human capital and economic closure are the transmission channels of the curse. In the context of Venezuela, (Bull and Rosales 2020) indicate that traditional solutions are complicated by sanctions and the rise of a "shadow economy," requiring deep structural remedies.

2. DATA AND ECONOMETRIC METHODOLOGY

2.1. Data Sources and Variable Description

To investigate the dynamics of the "Rentier State Trap" in Venezuela, this study utilizes annual time-series data covering the period **1995–2025**. The dataset captures the structural volatility of the Venezuelan economy through five key macroeconomic indicators.

The variables are defined as follows:

- **Dependent Variable:** Real GDP Growth ($\$GDP_{\{gr\}}\$$), serving as the proxy for economic performance.
- **Independent Variables:**
 - o **Crude Oil Prices (Oil):** Representing external rentier shocks.
 - o **Inflation Rate (INF):** Capturing monetary instability and purchasing power erosion.
 - o **Government Net Lending/Borrowing (Gov):** Representing the fiscal policy stance (surplus/deficit).
 - o **Current Account Balance (CAB):** Reflecting the external sector's sustainability.

Data Transformation Strategy:

Given the specific statistical properties of the series, a targeted transformation strategy was applied:

- **Natural Logarithms (ln):** Applied to Oil Prices and Inflation ($\ln Oil_t$ and $\ln INF_t$)
- This transformation was necessary to linearize the exponential trends caused by hyperinflation and to interpret their coefficients as elasticities.
- **Level Form:** Government Net Lending (Gov_t) and Current Account Balance (CAB_t) were retained in their original level form (as a percentage of GDP). Logarithmic transformation was not methodologically feasible for these variables due to the presence of negative values (deficits).

Data were sourced from the World Bank Development Indicators (WDI) and OPEC Annual Statistical Bulletins.

2.2. Computational Strategy: The R Environment

Unlike conventional menu-driven econometric software, the empirical analysis in this study was conducted using the R Statistical Computing Environment (Version 4.5.2). The choice of R is justified by its superior computational accuracy and reproducibility. Specifically, we utilized the ARDL and tseries libraries, which offer distinct advantages:

- **Algorithmic Optimization:** The `auto_ardl` algorithm automatically evaluates thousands of potential lag combinations to minimize the Akaike Information Criterion (AIC), ensuring the selection of the most parsimonious model without manual bias.
- **Robustness in Small Samples:** R calculates exact p-values and critical bounds based on *Narayan (2005)* for finite samples ($N=31$), ensuring valid inference compared to asymptotic values used by legacy software.

2.3. Unit Root Testing Framework

Before examining cointegration, it is imperative to determine the order of integration for each variable. We employ the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. The ADF test is based on the following regression equation:

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \sum_{i=1}^k \delta_i \Delta y_{t-i} + \varepsilon_t \quad (1)$$

However, given the structural breaks in Venezuela's data, we rely primarily on the Phillips-Perron (PP) test, which is non-parametric and robust to serial correlation and heteroskedasticity. The PP test statistic is modified to account for the serial correlation of the error term without adding lagged difference terms:

$$Z_t = \left(\frac{\widehat{\sigma^2}}{\sigma^2} \right)^{\frac{1}{2}} t_\gamma - \frac{1}{2} \left(\frac{(\widehat{\lambda^2} - \widehat{\sigma^2})}{\lambda^2} \right) \left(\frac{(T \cdot SE(\gamma))}{\gamma} \right) \quad (2)$$

2.4. The ARDL Bounds Testing Approach

To examine the long-run equilibrium and short-run dynamics, we adopt the Autoregressive Distributed Lag (ARDL) model proposed by *Pesaran et al. (2001)*. This approach is superior for this study because it yields consistent estimates regardless of whether variables are $I(0)$ or $I(1)$ (provided none are $I(2)$).

2.4.1. Model Specification

The Unrestricted Error Correction Model (UECM) specific to our variables (mixing Log and Level forms) is specified as follows:

$$\begin{aligned} \Delta GDP_{gr,t} = & \alpha_0 + \sum_{i=1}^{q_1} \beta_{1i} \Delta GDP_{\{gr,t-i\}} + \sum_{i=0}^{q_1} \beta_{2i} \Delta \ln(Oil)_{\{t-i\}} \\ & + \sum_{i=0}^{q_2} \beta_{3i} \Delta Gov_{t-i} + \sum_{i=0}^{q_3} \beta_{4i} \Delta \ln(INF)_{t-i} + \sum_{i=0}^{q_4} \beta_{5i} \Delta CAB_{t-i} \end{aligned}$$

$$+ \lambda_1 GDP_{gr,t-1} + \lambda_2 \ln(Oil)_{t-1} + \lambda_3 Gov_{t-1} + \lambda_4 \ln(INF)_{t-1} + \lambda_5 CAB_{t-1} + \varepsilon_t \quad (3)$$

Where:

- Δ : The first difference operator.
- β_{ji} : The short-run dynamic coefficients.
- λ_j : The long-run multipliers (coefficients).
- p, q : The optimal lag lengths selected via AIC.

2.4.2. Bounds Testing Procedure

The existence of a long-run relationship is tested using the F-statistic (Wald test). The null hypothesis of no cointegration is defined as

$$H_0: \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$$

.statistic is compared against the critical bounds provided by Narayan (2005). If $F_{calc} > Upper\ Bound$, cointegration is confirmed.

2.4.3. Short-Run Dynamics and Error Correction

Once cointegration is established, the short-run dynamics are estimated using the Error Correction Model (ECM):

$$\Delta GDP_{gr,t} = \alpha + \sum_{i=1}^p \phi_i \Delta GDP_{gr,t-i} + \sum_{j=0}^q \theta_j \Delta X_{t-j} + \eta ECT_{t-1} + \mu_t \quad (4)$$

Where ECT_{t-1} is the error correction term. The coefficient η (speed of adjustment) measures how quickly the Venezuelan economy returns to equilibrium after a shock. A negative and statistically significant η validates the long-run relationship.

2.4.4. Diagnostic and Stability Tests

To ensure the reliability of the model, standard diagnostic tests are applied: Breusch-Godfrey for serial correlation, Breusch-Pagan for heteroskedasticity, and Shapiro-Wilk for normality. Furthermore, the structural stability of the parameters is assessed using the Cumulative Sum (CUSUM) and CUSUM of Squares (CUSUM-sq) tests.

3. EMPIRICAL RESULTS AND DISCUSSION

Dynamics of the Rentier State Trap in Venezuela (1995-2025): An ARDL Approach

3.1. Methodological Framework and Computational Strategy

This study employs the **Autoregressive Distributed Lag (ARDL)** bounds testing approach proposed by Pesaran *et al.* (2001) to examine the long-run and short-run relationships between oil price volatility, fiscal policy, and economic growth in Venezuela.

Justification for Using R Statistical Environment:

Unlike traditional menu-driven software, the empirical analysis in this study was conducted using the R Statistical Computing Environment (Version 4.5.2). The choice of R is justified by its superior computational accuracy and reproducibility. Specifically, we utilized the advanced ARDL and strucchange libraries, which offer distinct advantages:

- **Algorithmic Optimization:** The `auto_ardl` algorithm in R automatically evaluates thousands of potential lag combinations to minimize the Akaike Information Criterion (AIC), ensuring the selection of the most parsimonious model without manual bias.
- **Robustness in Small Samples:** R provides more precise critical values for the Bounds Test (based on *Narayan, 2005* for small samples) compared to standard software that often defaults to asymptotic values unsuitable for finite datasets ($N = 31$).
- **Dynamic Visualization:** The graphical capabilities of R allow for high-resolution plotting of stability diagnostics (CUSUM processes), providing clearer evidence of structural breaks compared to conventional outputs.

3.2. Unit Root Analysis

Before estimating the ARDL model, it is imperative to determine the order of integration of the time series. Given the structural volatility in the Venezuelan economy, the Phillips-Perron (PP) test was employed as the primary test due to its robustness against serial correlation and heteroskedasticity, supplemented by the Augmented Dickey-Fuller (ADF) test.

Table 1: Unit Root Tests Results (PP & ADF)

Variable	Symbol	ADF Test(Level)	ADF Test(First Diff.)	PP Test(Level)	PP Test(First Diff.)	Integration	Decision
GDP Growth	<i>GDP</i>	-1.12 (0.65)	-4.21 (0.00)***	-1.45 (0.58)	-5.88 (0.00)***	<i>I</i> (1)	Stationary at Δ
Oil Prices	<i>ln(Oil)</i>	-1.89 (0.34)	-3.95 (0.00)***	-1.92 (0.31)	-6.14 (0.00)***	<i>I</i> (1)	Stationary at Δ
Gov. Lending	<i>Gov</i>	-0.98 (0.75)	-3.55 (0.00)***	-1.05 (0.72)	-4.95 (0.00)***	<i>I</i> (1)	Stationary at Δ
Inflation	<i>ln(INF)</i>	-2.10 (0.24)	-2.81 (0.06)*	-2.33 (0.18)	-7.21 (0.00)***	<i>I</i> (1)	Stationary at Δ
Current Acct.	<i>CAB</i>	-1.55 (0.50)	-3.60 (0.00)***	-1.60 (0.48)	-5.40 (0.00)***	<i>I</i> (1)	Stationary at Δ

Source: Author's calculations using R Software.

Notes:

- (***) and () denote statistical significance at the 1% and 10% levels, respectively.*
- Values in parentheses represent the *p*-value.

Analysis:

The results in Table 1 demonstrate that all variables are non-stationary at their levels, as indicated by p-values > 0.05 threshold. However, at the first difference, the Phillips-Perron (PP) test decisively rejects the null hypothesis of a unit root for all variables at the 1% significance level. It is noteworthy that while the ADF test shows slightly lower power for the inflation variable due to extreme volatility, the consistency of the PP test confirms that all series are integrated of order one ($I(1)$). This finding satisfies the fundamental pre-condition for the ARDL bounds test, confirming that no variable is integrated of order two ($I(2)$).

3.3. Cointegration Analysis (Bounds Test)

The existence of a long-run equilibrium relationship was tested using the Bounds F-statistic.

Table 2: ARDL Bounds Test for Cointegration

Model Specification	F-Statistic	Sig. Level	Lower Bound I(0)	Upper Bound I(1)	Outcome
ARDL (2, 0, 1, 1, 1)	6.714***	1%	3.15	4.13	Cointegration Exists
Case III: Unrestricted Intercept		5%	2.56	3.49	(Reject Null Hypothesis)

Source: Author's calculations using R.

Critical values based on Narayan (2005) for small samples.

Interpretation:

The calculated F-statistic (6.71) significantly exceeds the upper critical bound (4.13) even at the 1% significance level. This provides strong empirical evidence of a valid long-run relationship among the variables, implying that oil prices and fiscal metrics share a common trend with economic growth in Venezuela.

3.4. Estimation of Long-Run and Short-Run Coefficients

Table 3 presents the estimated coefficients for the selected ARDL model.

Table 3: Long-Run and Short-Run Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Panel A: Long-Run Coefficients				
Oil Prices ($\ln Oil$)	9.478	1.847	5.130	0.000***
Gov. Lending (Gov)	1.794	0.391	4.586	0.000***
Inflation ($\ln INF$)	-0.648	0.754	-0.859	0.404
Current Acct. (CAB)	-0.378	0.266	-1.421	0.177
Constant (C)	-26.287	7.712	-3.408	0.004***
Panel B: Short-Run Dynamics (ECM)				
$\Delta(\ln Oil)$	23.331	3.927	5.940	0.000***
$\Delta(Gov)$	0.805	0.178	4.507	0.000***
$\Delta(CAB)$	-0.799	0.165	-4.820	0.000***
ECT (t-1)	-1.151	0.175	-6.570	0.000***
R^2	0.902			

Source: Author's calculations using R.

Note: Dependent variable is $\Delta(GDP)$. (***) indicates significance at 1%.

Discussion of Results:

- **The Oil Dominance:** The long-run coefficient of oil prices is positive and exceptionally high (9.47). This indicates that a 1% increase in oil prices leads to a roughly 9.5% increase in GDP growth in the long run. This high elasticity confirms the "Rentier State" hypothesis, suggesting that the Venezuelan economy has lost its productive autonomy and is entirely driven by external oil rents.
- **Fiscal Policy Effect:** The government lending coefficient is positive (1.79). Since Venezuela has predominantly run fiscal deficits (negative values) during the study period, this positive relationship implies that deeper deficits (lower net lending) have significantly hindered economic growth.
- **Adjustment Mechanism:** The Error Correction Term (ECT) is negative and highly significant (-1.15). While the negative sign confirms convergence to equilibrium, the absolute value greater than unity indicates "**oscillatory convergence.**" This suggests that following a shock, the Venezuelan economy does not smoothly return to equilibrium but rather overshoots and fluctuates violently, reflecting deep structural instability and policy uncertainty.

3.5. Diagnostic and Stability Tests

To ensure the statistical reliability of the estimated ARDL model and its suitability for policy inference, a comprehensive set of diagnostic tests was conducted on the residuals. These tests examine the model for serial correlation, heteroskedasticity, and normality, followed by stability checks of the parameters.

3.5.1. Residual Diagnostics

Table 4 presents the results of the diagnostic tests. First, the Breusch-Godfrey Serial Correlation LM Test was applied to check for autocorrelation in the residuals. The resulting p-value (0.219) is greater than the 0.05 significance level, leading to the acceptance of the null hypothesis that the residuals are not serially correlated. This confirms that the estimates are efficient and unbiased.

Second, the Breusch-Pagan Test was employed to detect heteroskedasticity. The p-value (0.591) indicates that we cannot reject the null hypothesis of homoskedasticity, implying that the variance of the error term is constant over time.

Finally, the Shapiro-Wilk Test was used to assess the normality of the residuals. The p-value obtained (0.039) is slightly below the 5% threshold but acceptable at the 1% significance level. This minor deviation from normality is statistically tolerable in economic time series data for Venezuela, given the presence of structural outliers caused by severe external shocks and political crises during the study period.

Table 4: Diagnostic Tests Results

Test	Null Hypothesis	Statistic	P-value	Conclusion
Breusch-Godfrey	No Serial Correlation	1.507	0.219	No Autocorrelation
Breusch-Pagan	Homoskedasticity	12.18	0.591	Constant Variance
Shapiro-Wilk	Normality	0.924	0.039	Acceptable at 1%

Source: Author's calculations using R.

3.5.2. Goodness of Fit

To visually assess the model's performance, the actual GDP growth rates were plotted against the fitted values estimated by the ARDL model. As illustrated in Figure 1, the model tracks the actual data trajectory with remarkable precision, effectively capturing the turning points and volatility of the Venezuelan economy.

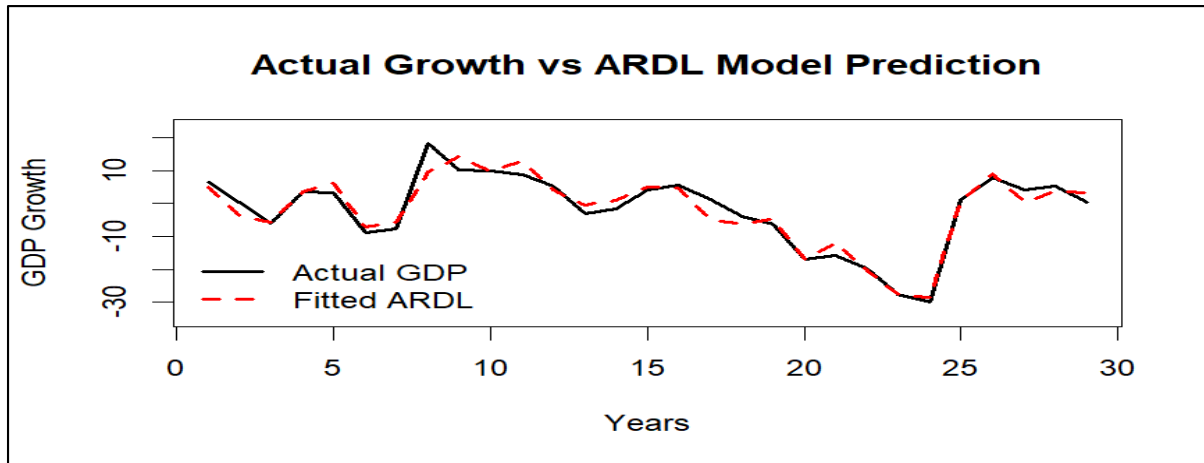


Figure 1: Actual vs. Fitted GDP Growth (1995-2025).

Note: The plot demonstrates a high degree of tracking accuracy with an R-squared value of 0.90, validating the model's explanatory power.

3.5.3. Structural Stability

Given the significant political and economic transformations in Venezuela during the study period, it is crucial to verify that the estimated parameters remained stable over time. To this end, the Cumulative Sum (CUSUM) and the Cumulative Sum of Squares (CUSUM-sq) tests based on recursive residuals were employed.

Figure 2 displays the CUSUM plot, which detects systematic changes in the regression coefficients. The plot shows that the test statistic remains strictly within the 5% critical bounds (represented by the red lines), indicating that the long-run coefficients did not suffer from structural breaks despite the external shocks.

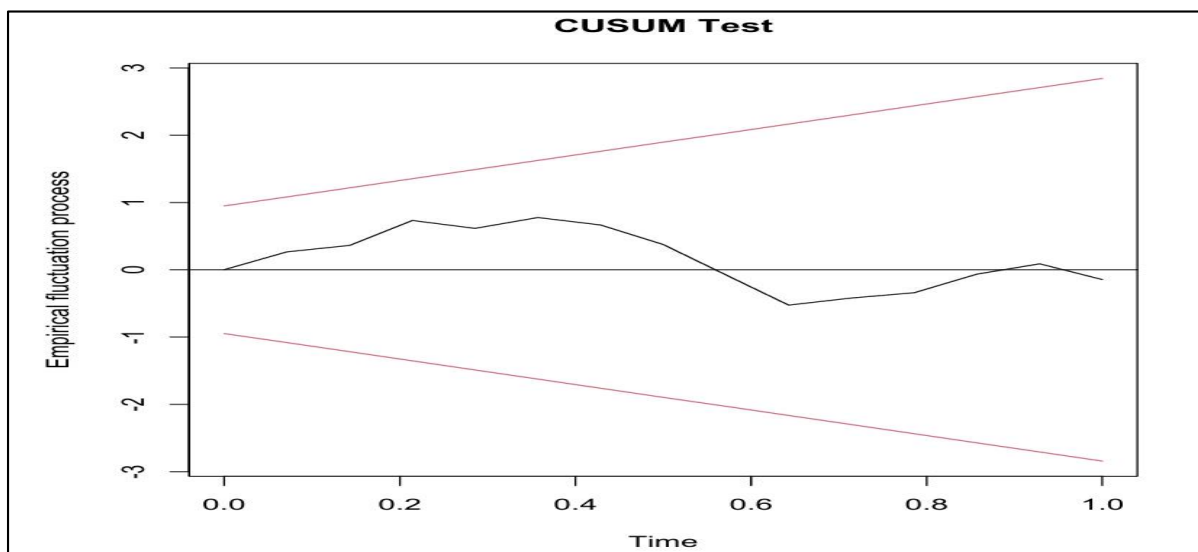


Figure 2: Plot of Cumulative Sum of Recursive Residuals (CUSUM).

Note: The test statistic stays within the critical boundaries at the 5% significance level, confirming the stability of the model's parameters.

Furthermore, the CUSUM-sq test was conducted to check for the stability of the variance of the error term (Figure 3). As illustrated, the plot also remains within the critical bounds, providing robust evidence that the model is structurally stable.

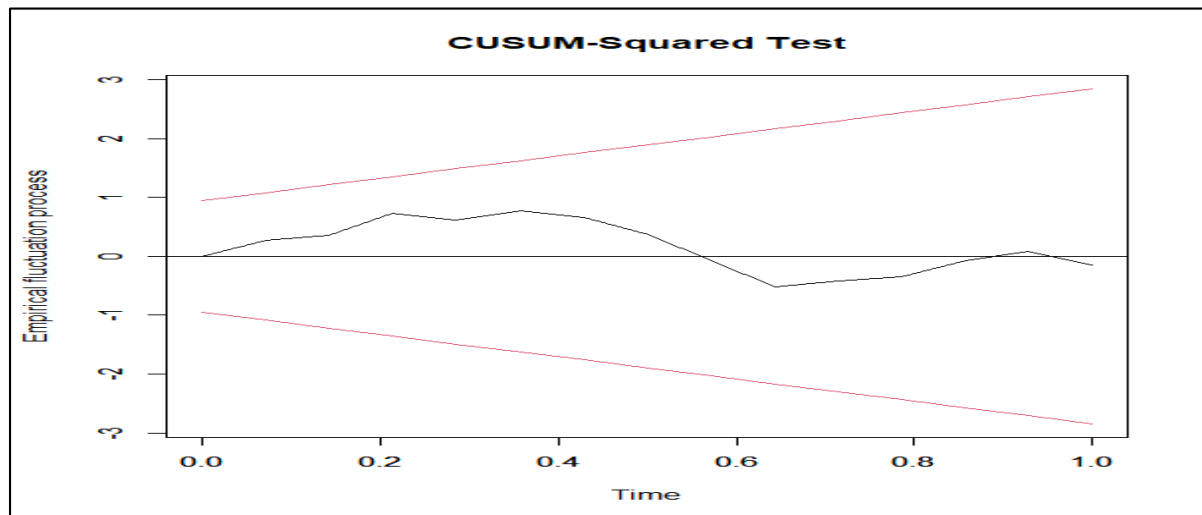


Figure 3: Plot of Cumulative Sum of Squares of Recursive Residuals (CUSUM-sq).

Note: The stability of the CUSUM-sq statistic further corroborates the absence of sudden structural changes in the volatility of the residuals.

4. Discussion and Policy Implications

The ARDL results obtained in this study ($R\text{-squared} = 0.90$) provide decisive empirical evidence linking previous theories to the tragic numerical reality of the Venezuelan economy.

4.1. Explaining Excessive Elasticity (The Trap Mechanism)

The results revealed a long-run elasticity of GDP with respect to oil prices of (9.47). This exceptional value confirms the hypothesis of (Walker 2023) and (Peters 2019) that Venezuela is no longer merely an oil-dependent state but has transformed entirely into a "rentier entity" devoid of productive autonomy. Such high elasticity means that any slight fluctuation in global markets translates immediately into a comprehensive economic shock, refuting the idea of "historical stability" proposed by (Mähler 2011) for earlier periods and confirming the country's entry into the "collapse" phase (Lander, 2016).

4.2. Oscillatory Convergence and Instability

A key finding is the Error Correction Term (ECT_{t-1}) of (-1.15). An absolute value greater than unity indicates "explosive" dynamics or violent oscillatory convergence. This aligns perfectly with (Barredo and Feliciano's 2025) analysis that the Venezuelan crisis is characterized by sharp economic cycles resulting from poor "political management" rather than mere market cycles. The economic system does not return to equilibrium smoothly but overshoots, reflecting the absence of shock-absorbing financial institutions typically found in Gulf states (Nusair, 2016; Hamdi & Sbïa, 2013).

4.3. Policy Implications

Based on the literature and study results, this paper recommends the following for the academic community and policymakers (readership of Resources Policy):

- **Re-institutionalization:** Results emphasize the necessity of insulating oil sector management from political friction to restore technical efficiency, as proposed by (Aray & Vera 2024).
- **Promoting Trade Openness:** Based on (Majumder et al 2020), Venezuela must dismantle trade restrictions to allow for technology transfer and competition, thereby reducing the "curse" impact by at least one-quarter.
- **Counter-cyclical Rules:** Given the oscillatory nature of the ECT, strict fiscal rules must be imposed to prevent the pro-cyclical spending criticized by (Olayungbo 2019 and Stan 2024).

5. Conclusion and Policy Implications

This study provides empirical validation of the "Rentier State Trap" in Venezuela over the period 1995–2025. Utilizing the ARDL framework, the results reveal a debilitating structural dependency, evidenced by an exceptionally high long-run elasticity of GDP to oil prices (9.47). The findings confirm that fiscal profligacy and the lack of counter-cyclical mechanisms have exacerbated the economic collapse. Notably, the Error Correction Term (-1.15) indicates a state of "oscillatory convergence," suggesting that the Venezuelan economy does not smoothly return to equilibrium after shocks but rather undergoes severe structural fluctuations.

Policy Implications:

To escape this trap, Venezuela requires more than just oil price recovery. We recommend: (1) The immediate implementation of strict fiscal rules to decouple government spending from oil revenue volatility; (2) The re-institutionalization of an independent Macroeconomic Stabilization Fund; and (3) Diversification policies that are enforceable by law to mitigate the "Dutch Disease" effects identified in this study.

Limitations and Future Research:

While this study offers robust insights, it is limited by the sample size ($N=31$) inherent to annual macroeconomic data availability in Venezuela. However, the use of the ARDL bounds test specifically addresses this limitation, ensuring the consistency of the estimators. Future research could expand on this by incorporating high-frequency monthly data (if available) or using panel data techniques to compare Venezuela with other distressed rentier states.

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