

# Evaluating the Impact of Foreign Exchange Restrictions on Economic Performance: A Comparative Analysis of Select Developing and Emerging Economies

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## Abstract

This study examines the impact of foreign exchange restrictions on economic stability and growth in developing countries with varying degrees of currency controls, including Zambia, Brazil, Chile, Colombia, Ghana, India, Indonesia, Nigeria, South Africa, and Tanzania. The research focuses on how these restrictions affect key macroeconomic indicators such as GDP growth, inflation, foreign direct investment (FDI) and the current account balance. Using the World Bank data from 1986 to 2022 and the Jamovi software, the study applies statistical methods to assess the impact of different levels of currency restrictions on economic outcomes. The results suggest that moderate restrictions generally contribute to a balance between economic stability and growth, while more severe restrictions may negatively affect FDI inflows and GDP growth, although they tend to stabilize inflation and the current account. This study highlights the complexity of exchange control policies and provides new insights into their effectiveness and trade-offs for policymakers.

## Keywords

Foreign Currency Restrictions, Exchange Controls, Economic Stability, GDP Growth, Inflation, Foreign Direct Investment, Current Account Balance, Developing Economies, Cross-Country Comparison.

**JEL:** F31, O43, F41, O14, C32.

## Introduction

Foreign exchange restrictions, also known as exchange controls, are regulatory measures imposed by governments to manage the flow of foreign exchange into and out of their economies. These controls may include restrictions on currency transactions, cross-border transfers, and related activities. They are often used to stabilize the economy, manage exchange rate fluctuations, prevent capital flight, and control inflation (Babayev, 2020; Kahn-Freund, 1939). Understanding exchange rate determinants is crucial for policymakers and investors, particularly in economies with regulated exchange rates and capital controls.

Traditional models of exchange rate determination have largely focused on scenarios of free capital movements, attributing fluctuations primarily to monetary factors. However, Blejer (2013) offers a significant departure from this perspective by examining exchange rate dynamics in environments characterized by floating exchange rates coupled with capital controls. Blejer's study introduces a dual perspective in which black market exchange rates are influenced by market forces and domestic monetary conditions, while official exchange rates are shaped by government policies. This nuanced perspective extends traditional exchange rate models by incorporating capital controls and black markets, improving understanding of regulated environments.

In developing countries, foreign exchange restrictions play a critical role in coping with economic instability and safeguarding financial systems. Kriljenko (2003) argues that central banks in developing and transition economies have greater flexibility and tools to influence exchange rates than those in developed economies. This flexibility is essential for implementing effective foreign exchange restrictions and managing economic fluctuations. However, the effectiveness of these restrictions remains controversial. Glick and Hutchison (2005) found that capital controls, often a component of exchange controls, may not always protect economies from currency crises. Their research suggests that fewer capital controls may actually enhance currency stability, challenging the conventional wisdom that restrictive measures are necessary for economic protection.

This paper aims to contribute to this ongoing debate by conducting a cross-country comparison of the effectiveness of foreign exchange restrictions in developing countries. By analyzing their impact on GDP growth, inflation, foreign direct investment (FDI) and the current account balance, it seeks to provide insights into how different levels of foreign exchange restrictions affect economic stability and growth. The study focuses on countries with varying degrees of restrictions, including Zambia, Brazil, Chile, Colombia, Ghana, India, Indonesia, Nigeria, South Africa, and Tanzania, to assess their experiences and outcomes over time.

## Objective of the Study

The primary objective of this study is to assess the effectiveness of foreign currency restrictions in developing economies by analyzing their impact on macroeconomic

indicators such as GDP growth, inflation, FDI inflows, and the current account balance. Through a cross-country comparative analysis, the study aims to understand how varying degrees of currency restrictions affect economic stability and growth, providing insights that can inform policy decisions in these regions.

## Significance of the Study

This study provides empirical evidence on the implications of foreign currency restrictions in developing economies. By evaluating the relationship between currency controls and key economic indicators, the research offers a nuanced understanding of how different levels of restrictions impact economic performance. The findings can help in designing more effective currency control policies that balance economic stability with growth, enhancing decision-making in the management of foreign currency flows and economic regulation.

## Literature Review

### Foreign Currency Restrictions and Economic Stability

Currency restrictions are introduced to maintain economic stability and manage exchange rate volatility. Babayev (2020) highlights the crucial role of currency markets in ensuring liquidity and stability for economic units. This is particularly important in developing economies where currency instability can lead to serious economic disruptions.

Historically, the literature on exchange rate determination has predominantly focused on models that assume free capital mobility and minimal government intervention. The monetary approach to exchange rates, which attributes fluctuations to monetary factors, has been a central theme of this body of research. However, this approach falls short when applied to economies with capital controls. Blejer (2013) addresses this gap by examining the behavior of exchange rates in countries with floating exchange rates and capital controls. He points out that black market rates, which are influenced by domestic monetary conditions and market forces, differ from official rates, shaped by government policies. This distinction highlights the importance of considering capital controls and black markets in understanding exchange rate dynamics, thereby extending the traditional monetary model.

Kriljenko (2003) further explores the flexibility of central banks in developing and transition economies, noting that they have more tools to influence exchange rates than their counterparts in developed economies. This flexibility is crucial for effectively implementing foreign exchange restrictions and managing economic fluctuations.

The impact of the removal of exchange controls is also an important area of research. Angermann (2005) analyzes South Africa's policy shift in 2004, which aimed

to boost investment by relaxing capital controls. While this deregulation improved GDP growth and currency stability, Angermann finds that it was insufficient to address deeper economic challenges such as high unemployment and low foreign direct investment. This underscores the need for a favorable investment climate beyond policy changes.

Fanelli and Straub (2021) examine the dynamics of a small open economy with partially segmented bond markets where capital flows cause excessive volatility in the real exchange rate. Their study suggests that central bank intervention can stabilize exchange rates and bond yields, but can lead to excessive reserve accumulation and too low interest rates if not carefully managed.

Márquez and Reyes (2018) argue that Mexico's exchange rate policy has become increasingly ineffective because of currency markets globalization. Despite adopting a floating exchange rate regime, Mexico continued to struggle with exchange rate volatility exacerbated by external shocks, showing the limitations of monetary policy in a globalized financial environment.

Glick and Hutchison (2005) challenge the conventional wisdom that capital controls protect economies from currency crises. Their research suggests that fewer capital controls may actually contribute to greater currency stability, suggesting that capital market liberalization may enhance economic resilience.

Anderson (2013) examines the impact of ease of currency conversion on foreign direct investment. While an open exchange rate regime is crucial for attracting investment, Anderson acknowledges the need for some degree of regulation to balance economic stability with investment attractiveness.

## Cross-Country Comparative Analysis

This study presents a comparative analysis of foreign exchange restrictions in selected countries, including Zambia, Brazil, Chile, Colombia, Ghana, India, Indonesia, Nigeria, South Africa, and Tanzania. By categorizing these countries based on the severity of their foreign exchange restrictions - strong, moderate, or minimal - and examining the key macroeconomic indicators from 1986 to 2022, the research provides insights into the effectiveness of different levels of foreign exchange controls. The findings aim to improve understanding of how different degrees of currency restrictions affect economic performance, including GDP growth, inflation, foreign direct investment, and the current account balance. This comparative approach provides critical insights for policymakers seeking to balance economic stability and growth in developing and emerging market economies.

Countries with severe foreign exchange restrictions, such as Nigeria, Ghana, Tanzania, and Zambia, have implemented strict controls to stabilize their economies. In contrast, countries with moderate restrictions, such as India and Indonesia, seek to balance currency stability with capital mobility. Meanwhile, countries with minimal restrictions, including Brazil, Chile, Colombia, and South Africa, exemplify the results of a more liberal exchange rate regime.

## Methodology

The paper provides a detailed examination of how currency restrictions and other economic variables affect GDP growth in ten countries. Using World Bank data and Jamovi for statistical analysis, it looks into the economic dynamics affected by different levels of currency restrictions. The comprehensive approach helps to understand the complex interactions between inflation, FDI inflows, current account balances, and GDP growth, contributing to a deeper understanding of economic stability and growth in different contexts.

## Data Collection

This study uses data from the World Bank, which provides comprehensive economic indicators for various countries. The primary indicators analyzed include GDP growth, official exchange rates, foreign direct investment (FDI), current account balances, and inflation rates. The data cover ten countries selected for their diverse economic contexts and varying levels of foreign exchange restrictions. The analysis was conducted using Jamovi software, an open-source statistical tool designed for robust and user-friendly data analysis.

## Data Preparation

Prior to analysis, the dataset was cleaned to remove missing values and ensure consistency across indicators. Outliers were identified and managed to maintain the integrity of the dataset. The key variables for this study included GDP growth (annual percentage) as the dependent variable and inflation rate (annual percentage), current account balance (USD million), net FDI inflows (USD million), and official exchange rate (local currency units per USD) as independent variables. Foreign exchange restrictions were categorized into three levels: moderate, none, and severe.

## Descriptive Statistics

Descriptive statistics were computed for each economic indicator to provide a comprehensive overview of the economic conditions in each country. Measures of central tendency (mean) and dispersion (standard deviation) were calculated for GDP growth, official exchange rates, net FDI inflows, current account balances, and inflation rates. For example, Brazil's mean GDP growth was observed to be 2.28% with a standard deviation of 2.94%, indicating moderate economic growth with notable fluctuations. Inflation rates and other indicators were similarly analyzed to understand their distribution and variability across the ten countries.

## Correlation Analysis

Both Spearman's rank correlation and Pearson's correlation coefficients were computed to examine the relationships among economic variables. Spearman's rho was used for nonparametric analysis to identify monotonic relationships between inflation, current account balance, FDI inflows, GDP growth, and official exchange rate. Pearson's r was computed to assess linear relationships among these variables. This dual approach allowed for a comprehensive understanding of the relationships, revealing significant non-linear patterns and highlighting the complexity of economic dynamics across countries.

## Regression Analysis

A linear regression model was specified with GDP growth as the dependent variable and inflation, current account balance, net FDI inflows, official exchange rate, and foreign exchange restrictions as independent variables. The overall fit of the model was assessed using R-squared and adjusted R-squared values, which indicate how well the predictors explain the variance in GDP growth. The significance of the model was assessed using the F-statistic. Individual predictors were examined using t-tests to determine their significance and impact on GDP growth. The coefficients for inflation, current account balance, FDI inflows, official exchange rate, and currency restrictions were analyzed to understand their contributions to GDP growth. Significant predictors such as the official exchange rate and currency restrictions were identified, while others showed varying degrees of impact.

## Software and Tools

The statistical analysis was conducted using Jamovi, a user-friendly open-source software for performing descriptive statistics, correlation analysis, and regression modeling. The software's capabilities allowed for effective handling of the data set and interpretation of the results, ensuring a thorough examination of the economic indicators and their relationships. The software has been widely used by different researchers in different studies (see Yangailo, 2024a, 2024b; Abbasnasab Sardareh et al., 2021; Yangailo & Chambani, 2023; Hassen & Ramakrishna, 2020; Yangailo, 2023; Şahin & Aybek, 2019).

## Validation and Triangulation

To ensure the reliability and validity of the findings, the study employed triangulation. This approach helps to corroborate the findings and provides a more nuanced understanding of the relationship between macroeconomic indicators.

## Reliability

Consistency of the data was checked through cross-verification with multiple sources, including government reports and international databases (World Bank Data base).

## Analysis and Presentations of the Results

**Table 1.** Descriptive Statistics by Country

	Country	GDP Growth (Annual %)	Official Exchange Rate (LCU Per US\$, Period Average)	Foreign Direct Investment, Net Inflows (BoP, Current Million US\$)	Current Account Balance (BoP, Current Million US\$)	Inflation, Consumer Prices (Annual %)
Mean	Brazil	2.28	1.98	35817	-28618	298
	Chile	4.68	517	8990	-4180	7.33
	Colombia	3.63	1897	6579	-6128	11.7
	Ghana	5.25	1.66	1283	-1456	20.9
	India	6.00	44.7	18948	-18158	7.33
	Indonesia	4.85	8033	8407	-3818	8.51
	Nigeria	4.16	131	2746	5969	19.4
	South Africa	2.07	7.70	3963	-4491	7.62
	Tanzania	5.18	1064	672	-1520	13.6
	Zambia	3.99	4.97	542	30.6	36.4
Median	Brazil	3.00	1.95	28386	-25337	6.93
	Chile	5.03	522	5237	-1350	4.35
	Colombia	3.92	1965	5562	-4516	7.13
	Ghana	4.84	0.899	233	-964	17.1
	India	6.45	45.3	5429	-7036	6.70
	Indonesia	5.31	9141	4677	-2098	6.41
	Nigeria	4.20	126	1884	1203	12.9
	South Africa	2.40	7.05	1521	-2199	6.18
	Tanzania	5.50	1038	517	-895	7.87
	Zambia	4.65	4.00	314	-232	21.4
Standard deviation	Brazil	2.94	1.53	32051	32973	688

	Country	GDP Growth (Annual %)	Official Exchange Rate (LCU Per US\$, Period Average)	Foreign Direct Investment, Net Inflows (BoP, Current Million US\$)	Current Account Balance (BoP, Current Million US\$)	Inflation, Consumer Prices (Annual %)
	Chile	3.43	163	8360	7486	6.66
	Colombia	3.06	1073	5718	6644	9.39
	Ghana	2.33	2.08	1432	1476	12.8
	India	2.79	18.3	19883	26016	2.96
	Indonesia	3.55	4650	9562	12287	9.17
	Nigeria	3.85	119	2583	12317	17.3
	South Africa	2.34	4.37	6887	8203	4.31
	Tanzania	1.91	739	611	1468	10.6
	Zambia	3.83	5.23	582	833	43.8
Minimum	Brazil	-4.35	5.91e-9	345	-110493	3.20
	Chile	-6.14	193	316	-26162	0.353
	Colombia	-7.19	194	203	-21367	2.02
	Ghana	0.514	0.00892	4.30	-5704	4.87
	India	-5.78	12.6	73.5	-91471	3.33
	Indonesia	-13.1	1283	-4550	-30633	1.56
	Nigeria	-2.04	1.75	-187	-15986	5.39
	South Africa	-5.96	2.04	-201	-21401	-0.692
	Tanzania	0.584	0.00	-7.49	-5384	3.29
	Zambia	-8.63	0.00779	-65.1	-954	6.43
Maximum	Brazil	7.53	5.39	102427	11679	2948
	Chile	11.3	873	31802	8720	26.0
	Colombia	10.8	4256	17183	2349	30.4
	Ghana	14.0	8.27	3880	102	59.5
	India	9.69	78.6	64362	32730	13.9
	Indonesia	8.22	14850	25121	13215	58.5
	Nigeria	15.3	426	8841	36529	72.8
	South Africa	5.60	16.5	40659	15500	18.7
	Tanzania	7.67	2298	2087	-45.8	35.8
	Zambia	10.3	20.0	2100	2630	183

	Country	GDP Growth (Annual %)	Official Exchange Rate (LCU Per US\$, Period Average)	Foreign Direct Investment, Net Inflows (BoP, Current Million US\$)	Current Account Balance (BoP, Current Million US\$)	Inflation, Consumer Prices (Annual %)
Skewness	Brazil	-0.458	0.483	0.552	-0.878	2.67
	Chile	-0.636	-0.0603	1.09	-1.09	1.32
	Colombia	-1.30	0.141	0.465	-0.813	0.720
	Ghana	1.57	1.53	0.545	-1.12	1.15
	India	-2.20	-0.0450	0.597	-1.15	0.440
	Indonesia	-3.98	-0.229	0.607	-0.944	4.75
	Nigeria	0.538	0.950	1.05	0.848	1.84
	South Africa	-1.20	0.550	4.42	-0.237	0.848
	Tanzania	-0.812	0.301	0.591	-1.46	0.856
	Zambia	-1.11	1.48	1.27	1.61	2.18
Std. error skewness	Brazil	0.388	0.388	0.388	0.388	0.388
	Chile	0.388	0.388	0.388	0.388	0.388
	Colombia	0.388	0.388	0.388	0.388	0.388
	Ghana	0.388	0.388	0.388	0.388	0.388
	India	0.388	0.388	0.388	0.388	0.388
	Indonesia	0.388	0.388	0.388	0.388	0.388
	Nigeria	0.388	0.388	0.388	0.388	0.388
	South Africa	0.388	0.388	0.388	0.388	0.388
	Tanzania	0.388	0.388	0.388	0.388	0.388
	Zambia	0.388	0.388	0.388	0.388	0.388
Kurtosis	Brazil	-0.00245	-0.254	-1.09	-0.0864	6.74
	Chile	1.74	-0.342	0.368	1.56	0.770
	Colombia	4.58	-0.691	-1.30	-0.379	-1.07
	Ghana	4.87	1.71	-1.53	0.734	0.911
	India	7.91	-0.668	-1.12	1.24	-0.775
	Indonesia	18.9	-1.33	-1.24	0.0618	25.7
	Nigeria	0.709	0.221	0.0419	0.929	2.29
	South Africa	2.65	-0.759	23.3	-0.0618	0.320

	Country	GDP Growth (Annual %)	Official Exchange Rate (LCU Per US\$, Period Average)	Foreign Direct Investment, Net Inflows (BoP, Current Million US\$)	Current Account Balance (BoP, Current Million US\$)	Inflation, Consumer Prices (Annual %)
	Tanzania	-0.127	-1.03	-0.712	1.22	-0.810
	Zambia	1.92	1.80	0.511	2.17	4.32
Std. error kurtosis	Brazil	0.759	0.759	0.759	0.759	0.759
	Chile	0.759	0.759	0.759	0.759	0.759
	Colombia	0.759	0.759	0.759	0.759	0.759
	Ghana	0.759	0.759	0.759	0.759	0.759
	India	0.759	0.759	0.759	0.759	0.759
	Indonesia	0.759	0.759	0.759	0.759	0.759
	Nigeria	0.759	0.759	0.759	0.759	0.759
	South Africa	0.759	0.759	0.759	0.759	0.759
	Tanzania	0.759	0.759	0.759	0.759	0.759
	Zambia	0.759	0.759	0.759	0.759	0.759

The descriptive statistics presented in Table 1 provide a comprehensive overview of key economic indicators for ten countries, focusing on GDP growth, official exchange rates, foreign direct investment (FDI), current account balance and inflation. For example, Brazil's average GDP growth is 2.28% with a standard deviation of 2.94%, indicating moderate economic growth with significant fluctuations over the period studied. The average official exchange rate in Brazil is 1.98 local currency units (LCU) per US dollar, with a low variability of the exchange rate, as indicated by the standard deviation of 1.53. The average FDI inflows are significant at USD 35,817 million, although the country also has a negative average current account balance of USD -28,618 million, reflecting a persistent deficit. Brazil's inflation rate has a mean of 298%, with a high positive skewness of 2.67, indicating frequent periods of above-average inflation.

Chile presents a contrasting economic scenario with a higher mean GDP growth of 4.68% and a lower standard deviation of 3.43%, indicating more stable economic growth. Chile's official exchange rate is relatively stable, averaging LCU 517 per US dollar. FDI inflows to Chile average US\$8,990 million and the country has a moderate current account deficit with an average balance of US\$-4,180 million. Chile's inflation rate is relatively low, with an average of 7.33%, and is less skewed than Brazil's, suggesting a more stable price level.

Colombia's economy shows an average GDP growth of 3.63% with a higher standard deviation of 3.06%, indicating economic variability. The official exchange rate in Colombia is 1,897 LCU per US dollar and the average FDI inflows are 6,579 million US dollars. Colombia also experiences a consistent current account deficit, with an average of -6,128 million US dollars. Colombia's inflation rate is relatively high, with an average of 11.7%, although it is less volatile than other indicators.

Ghana and India have higher average GDP growth rates of 5.25% and 6.00%, respectively, although their economies differ significantly in other ways. Ghana's official exchange rate is low at 1.66 LCU per US dollar, while India's is much higher at 44.7 LCU per US dollar, reflecting differences in currency valuation. Ghana's FDI inflows are modest at an average of US\$1,283 million, while India attracts significantly more FDI at an average of US\$18,948 million. Both countries have negative average current account balances, indicating persistent deficits, although India's deficit is larger. Inflation is a major concern in both countries, with Ghana's average inflation rate of 20.9% reflecting significant price instability, while India's inflation is comparatively moderate at 7.33%.

Indonesia and Nigeria are interesting cases, with average GDP growth rates of 4.85% and 4.16%, respectively. Indonesia has a high average official exchange rate of 8,033 LCU per US dollar, while Nigeria's is much lower at 131 LCU per US dollar. Indonesia attracts more FDI with an average of US\$8,407 million compared to Nigeria's US\$2,746 million. However, both countries have persistent current account deficits, with an average balance of USD -3,818 million for Indonesia and a positive balance of USD 5,969 million for Nigeria. Inflation rates are higher in Nigeria, with an average of 19.4%, compared to 8.51% in Indonesia, indicating greater price instability in Nigeria.

South Africa and Tanzania also offer contrasting economic profiles. South Africa's average GDP growth is low at 2.07%, with an official exchange rate of 7.70 LCU per US dollar. South Africa's FDI inflows are substantial at US\$3,963 million, but the country also has a persistent current account deficit, with an average balance of US\$-4,491 million. South Africa's inflation rate is moderate at 7.62%. Tanzania, on the other hand, has a higher average GDP growth rate of 5.18% with an official exchange rate of 1,064 LCU per US dollar. Tanzania's FDI inflows are lower, averaging US\$672 million, and the country has a current account deficit of US\$1,520 million. Inflation in Tanzania is relatively high, with an average rate of 13.6%.

Finally, Zambia has an average GDP growth rate of 3.99%, with an official exchange rate of 4.97 LCU per US dollar. Zambia's average FDI inflows are modest at US\$542 million, and the country has an average negative current account balance of US\$30.6 million. Inflation in Zambia is particularly high, with an average rate of 36.4%, suggesting significant price instability over the period. The skewness and kurtosis values of these indicators suggest varying degrees of asymmetry and peakedness in the distributions, reflecting different levels of economic dynamism and stability in the countries.

**Table 2.** Descriptive Statistics on Level of exchange Restrictions

	Restrictions On Foreign Currency	Inflation, Consumer Prices (Annual %)	Current Account Balance (BoP, Current Million US\$)	Foreign Direct Investment, Net Inflows (Bop, Current Million US\$)	GDP Growth (Annual %)	Official Exchange Rate (LCU Per US\$, Period Average)
N	Moderate	74	74	74	74	74
	No	148	148	148	148	148
	Severe	148	148	148	148	148
Mean	Moderate	7.92	-10988	13678	5.42	4039
	No	81.1	-10855	13837	3.17	606
	Severe	22.6	756	1311	4.64	300
Median	Moderate	6.64	-4526	5021	5.66	681
	No	6.46	-3871	5254	3.20	105
	Severe	13.9	-405	599	4.82	9.71
Standard deviation	Moderate	6.79	21456	16377	3.22	5180
	No	363	20340	21298	3.12	944
	Severe	26.1	6921	1755	3.13	579
Minimum	Moderate	1.56	-91471	-4550	-13.1	12.6
	No	-0.692	-110493	-201	-7.19	5.91e-9
	Severe	3.29	-15986	-187	-8.63	0.00
Maximum	Moderate	58.5	32730	64362	9.69	14850
	No	2948	15500	102427	11.3	4256
	Severe	183	36529	8841	15.3	2298
Skewness	Moderate	5.83	-1.64	1.12	-3.35	0.865
	No	5.92	-2.67	2.40	-0.470	1.88
	Severe	3.62	2.96	2.22	-0.416	2.25
Std. error skewness	Moderate	0.279	0.279	0.279	0.279	0.279
	No	0.199	0.199	0.199	0.199	0.199
	Severe	0.199	0.199	0.199	0.199	0.199
Kurtosis	Moderate	42.6	3.37	0.324	16.1	-0.890
	No	37.3	8.13	5.29	1.43	2.83
	Severe	16.6	12.4	5.50	2.63	4.17
Std. error kurtosis	Moderate	0.552	0.552	0.552	0.552	0.552
	No	0.396	0.396	0.396	0.396	0.396
	Severe	0.396	0.396	0.396	0.396	0.396

The descriptive statistics above from Table 2 provide a comprehensive overview of the economic effects associated with different levels of foreign exchange restrictions – moderate, none, and severe – on key economic indicators such as inflation, current account balance, foreign direct investment (FDI), GDP growth, and official exchange rates.

## Inflation

Countries with moderate foreign exchange restrictions have a relatively low average inflation rate of 7.92%, with moderate variability as indicated by a standard deviation of 6.79%. The inflation distribution is highly right-skewed (skewness = 5.83), suggesting that while most inflation rates are low, there are occasional spikes, as evidenced by the maximum value of 58.5%. The extreme kurtosis of 42.6 further emphasizes the presence of significant outliers in inflation rates. In contrast, countries with no restrictions have an exceptionally high mean inflation rate of 81.1%, accompanied by extreme volatility, as shown by a standard deviation of 363%. The high skewness (5.92) and kurtosis (37.3) indicate frequent and severe inflation spikes, with the maximum reaching an astronomical 2,948%. Meanwhile, countries with severe restrictions have an average inflation rate of 22.6%, which is higher than countries with moderate restrictions but significantly lower than countries with no restrictions. Inflation in these countries is moderately volatile, with a standard deviation of 26.1%, and exhibits significant, though less extreme, fluctuations (skewness = 3.62, kurtosis = 16.6).

## Current Account Balance

Regarding the current account balance, countries with moderate restrictions show an average deficit of -10,988 million US dollars, with considerable variability (standard deviation = 21,456 million US dollars). The left-skewed distribution (-1.64) indicates that large deficits are common, as reflected by the minimum value of USD -91,471 million. Countries without restrictions have a similar mean deficit of -\$10,855 million, but with slightly less variability (standard deviation = \$20,340 million). The distribution here is even more negatively skewed (-2.67), highlighting the prevalence of significant deficits. In contrast, countries with severe restrictions have a slightly positive average current account balance of USD 756 million, with lower variability (standard deviation = USD 6,921 million). The positive skewness (2.96) suggests that some countries have significant surpluses, although the minimum value of USD -15,986 million shows that deficits still occur.

## Foreign Direct Investment

In terms of FDI, countries with moderate restrictions enjoy a relatively high average FDI inflow of \$13,678 million, with significant variability (standard deviation =

\$16,377 million). The positive skewness (1.12) indicates that while most FDI inflows are moderate, there are occasional large inflows, as evidenced by the maximum value of \$64,362 million. Countries with no restrictions have a slightly higher average FDI inflow of \$13,837 million, but exhibit greater variability (standard deviation = \$21,298 million). The higher skewness (2.40) and kurtosis (5.29) suggest that FDI inflows are more variable and prone to extreme values. However, in countries with strict restrictions, the mean FDI inflow drops significantly to USD 1,311 million, with much lower variability (standard deviation = USD 1,755 million). The skewness (2.22) and kurtosis (5.50) indicate that while most FDI inflows are small, there are occasional large inflows, although these are less frequent and less extreme than in countries with no or moderate restrictions.

## GDP Growth

The average GDP growth rate in countries with moderate restrictions is 5.42%, with moderate variability (standard deviation = 3.22%). The negative skewness (-3.35) and high kurtosis (16.1) suggest that while positive growth is common, there are occasional periods of significant negative growth. In contrast, countries without restrictions have a lower average GDP growth rate of 3.17%, with similar variability (standard deviation = 3.12%). The distribution is slightly negatively skewed (-0.470), indicating a balance between periods of positive and negative growth, although the skewness is less pronounced than in countries with moderate restrictions. Meanwhile, countries with severe restrictions have an average GDP growth rate of 4.64%, which is slightly lower than in countries with moderate restrictions, but higher than in countries with no restrictions. The standard deviation is 3.13% and the distribution is slightly negatively skewed (-0.416), indicating that most growth rates are positive, with occasional periods of negative growth.

## Official Exchange Rate

Finally, in terms of the official exchange rate, countries with moderate restrictions have an average exchange rate of 4,039 local currency units (LCU) per US dollar, with high variability (standard deviation = 5,180 LCU). The positive skewness (0.865) suggests occasional periods of significant currency depreciation. In contrast, countries without restrictions have a much lower mean exchange rate of 606 LCU per US dollar, with lower variability (standard deviation = 944 LCU). The higher skewness (1.88) indicates that while most exchange rates are stable, there are occasional periods of significant depreciation. Countries with severe restrictions have the lowest mean exchange rate at 300 LCU per US dollar, with moderate variability (standard deviation = 579 LCU). The positive skewness (2.25) suggests that while most exchange rates are stable, there are occasional periods of substantial depreciation, although these are less extreme than in countries with moderate or no restrictions.

## Overall Interpretation

In summary, the data suggest that countries with moderate foreign exchange restrictions tend to experience moderate inflation, significant current account deficits, and high FDI inflows, with relatively stable GDP growth. Countries with no restrictions, on the other hand, experience extreme inflation volatility, persistent current account deficits, and highly volatile FDI inflows, coupled with lower GDP growth. On the other hand, countries with severe restrictions tend to have moderate inflation and current account balances, significantly lower FDI inflows, and stable GDP growth, albeit slightly lower than countries with moderate restrictions. Exchange rate variability is highest in countries with moderate restrictions, suggesting that while exchange rate controls can stabilize exchange rates, they can also reduce FDI inflows and potentially increase inflationary pressures.

**Table 3.** Correlation Matrix

		Inflation, Consumer Prices (Annual %)	Current Account Balance (BoP, Current Million US\$)	Foreign Direct Investment, Net Inflows (BoP, Current Million US\$)	GDP Growth (Annual %)	Official Exchange Rate (LCU Per US\$, Period Average)
Inflation, consumer prices (annual %)	Pearson's r	—				
	df	—				
	p-value	—				
	Spearman's rho	—				
	df	—				
	p-value	—				
Current account balance (BoP, current million US\$)	Pearson's r	0.052	—			
	df	368	—			
	p-value	0.314	—			
	Spearman's rho	0.346 ***	—			
	df	368	—			
	p-value	<.001	—			

		Inflation, Consumer Prices (Annual %)	Current Account Balance (BoP, Current Million US\$)	Foreign Direct Investment, Net Inflows (BoP, Current Million US\$)	GDP Growth (Annual %)	Official Exchange Rate (LCU Per US\$, Period Average)
Foreign direct investment, net inflows (BoP, current million US\$)	Pearson's r	-0.072	-0.758 ***	—		
	df	368	368	—		
	p-value	0.169	<.001	—		
	Spearman's rho	-0.604 ***	-0.503 ***	—		
	df	368	368	—		
	p-value	<.001	<.001	—		
GDP growth (annual %)	Pearson's r	-0.122 *	0.037	-0.084	—	
	df	368	368	368	—	
	p-value	0.019	0.483	0.107	—	
	Spearman's rho	-0.066	0.013	0.044	—	
	df	368	368	368	—	
	p-value	0.206	0.802	0.402	—	
Official exchange rate (LCU per US\$, period average)	Pearson's r	-0.063	0.020	0.037	-0.002	—
	df	368	368	368	368	—
	p-value	0.225	0.708	0.472	0.969	—
	Spearman's rho	-0.413 ***	-0.062	0.239 ***	0.175 ***	—
	df	368	368	368	368	—
	p-value	<.001	0.236	<.001	<.001	—

Note. \* p < .05, \*\* p < .01, \*\*\* p < .001

Table 3 presents the correlation matrix, which provides detailed insights into the relationships between inflation, the current account balance, net FDI inflows, GDP growth and the official exchange rate.

First, inflation is negatively associated with net FDI inflows, with a Spearman's rho of  $-0.604$  ( $p < 0.001$ ), indicating a strong non-linear relationship. This suggests that higher inflation tends to reduce FDI inflows. However, Pearson's  $r$  is  $-0.072$  ( $p = 0.169$ ), which is weak and insignificant, indicating that the linear relationship between inflation and FDI is less pronounced. Similarly, inflation has a moderate negative relationship with the official exchange rate (Spearman's rho =  $-0.413$ ,  $p < 0.001$ ), indicating that as inflation increases, the local currency tends to depreciate. The Pearson's  $r$  is  $-0.063$  ( $p = 0.225$ ), which is weak and insignificant, indicating a less clear linear relationship. For GDP growth, the Pearson correlation is  $-0.122$  ( $p = 0.019$ ), indicating a weak but significant negative linear relationship between inflation and GDP growth. The Spearman's rho is  $-0.066$  ( $p = 0.206$ ), indicating an insignificant non-linear relationship.

The current account balance has a strong negative relationship with net FDI inflows, with a Pearson's  $r$  of  $-0.758$  ( $p < 0.001$ ) and a Spearman's rho of  $-0.503$  ( $p < 0.001$ ). This means that, as the current account balance improves, FDI inflows tend to decrease significantly. In contrast, the current account balance has weak or insignificant correlations with GDP growth and the official exchange rate. Specifically, Pearson's  $r$  for GDP growth is  $0.037$  ( $p = 0.483$ ) and Spearman's rho is  $0.013$  ( $p = 0.802$ ), indicating no significant relationship. For the official exchange rate, Pearson's  $r$  is  $0.020$  ( $p = 0.708$ ) and Spearman's rho is  $-0.062$  ( $p = 0.236$ ), both weak and insignificant.

Net FDI inflows show a significant negative correlation with the current account balance, reinforcing the inverse relationship observed. The Spearman's rho for the official exchange rate is  $0.239$  ( $p < 0.001$ ), indicating a moderately positive non-linear relationship, suggesting that as FDI inflows increase, the value of the local currency tends to appreciate against the US dollar. The Pearson's  $r$  for FDI inflows and the official exchange rate is  $0.037$  ( $p = 0.472$ ), which is weak and insignificant, indicating that the linear relationship is not as strong. FDI inflows have weak and insignificant correlations with GDP growth, with Pearson's  $r$  at  $-0.084$  ( $p = 0.107$ ) and Spearman's rho at  $0.044$  ( $p = 0.402$ ).

Finally, GDP growth shows a moderate non-linear positive relationship with the official exchange rate, with Spearman's rho of  $0.175$  ( $p < 0.001$ ), indicating that higher GDP growth is associated with a stronger local currency. Pearson's  $r$  is  $-0.002$  ( $p = 0.969$ ), reflecting a negligible linear relationship.

In summary, these correlations show that while inflation and FDI inflows exhibit significant non-linear patterns, linear relationships are often weaker or insignificant. The results underscore the complexity of the interactions between these economic variables and suggest that non-linear relationships may provide a more accurate picture of the economic dynamics at play.

**Table 4.** Linear Regression

Model Fit Measures							
Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	F	Overall Model Test		
					df1	df2	p
1	0.315	0.0995	0.0846	6.68	6	363	< .001

  

Omnibus ANOVA Test						
	Sum of Squares	df	Mean Square	F	p	
Inflation, consumer prices (annual %)	35.87	1	35.87	3.682	0.056	
Current account balance (BoP, current million US\$)	4.32	1	4.32	0.443	0.506	
Foreign direct investment, net inflows (BoP, current million US\$)	18.05	1	18.05	1.853	0.174	
Official exchange rate (LCU per US\$, period average)	43.39	1	43.39	4.453	0.036	
Restrictions on Foreign Currency	291.29	2	145.65	14.949	< .001	
Residuals	3536.73	363	9.74			

*Note.* Type 3 sum of squares

Model Coefficients - GDP growth (annual %)						
Predictor	Estimate	SE	t	p	Stand. Estimate	
Intercept <sup>a</sup>	6.19853	0.485	12.778	< .001		
Inflation, consumer prices (annual %)	-0.00137	7.12e-4	-1.919	0.056	-0.0971	
Current account balance (BoP, current million US\$)	-9.54e-6	1.43e-5	-0.666	0.506	-0.0513	
Foreign direct investment, net inflows (BoP, current million US\$)	-2.10e-5	1.54e-5	-1.361	0.174	-0.1063	
Official exchange rate (LCU per US\$, period average)	-1.44e-4	6.81e-5	-2.110	0.036	-0.1237	
Restrictions on Foreign Currency:						
No – Moderate	-2.64717	0.504	-5.252	< .001	-0.8114	
Severe – Moderate	-1.44604	0.536	-2.699	0.007	-0.4432	

<sup>a</sup> Represents reference level

The linear regression results provide a detailed examination of the relationship between GDP growth and several predictor variables, including inflation, current account balance, net FDI inflows, official exchange rate, and foreign exchange restrictions.

The overall model fit is assessed with an  $R^2$  of 0.0995 and an adjusted  $R^2$  of 0.0846, indicating that approximately 9.95% of the variance in GDP growth is explained by the model, with the adjusted figure taking into account the number of predictors and the sample size. The model is statistically significant with an F-value of 6.68 ( $df_1 = 6$ ,  $df_2 = 363$ ,  $p < 0.001$ ), indicating that the combination of predictors provides a significant explanation for the variation in GDP growth.

Looking at the individual predictors, the omnibus ANOVA test shows different levels of significance. For inflation (consumer prices, annual %), the sum of squares is 35.87 ( $F = 3.682$ ,  $p = 0.056$ ), which is close to the significance threshold, indicating a marginally significant effect. The current account balance contributes 4.32 to the sum of squares ( $F = 0.443$ ,  $p = 0.506$ ), indicating an insignificant effect on GDP growth. Similarly, net FDI inflows contribute 18.05 to the sum of squares ( $F = 1.853$ ,  $p = 0.174$ ), also showing an insignificant effect. The official exchange rate has a sum of squares of 43.39 ( $F = 4.453$ ,  $p = 0.036$ ), which is significant, indicating that changes in the official exchange rate have a significant impact on GDP growth. Currency restrictions have a sum of squares of 291.29 ( $F = 14.949$ ,  $p < 0.001$ ), which is highly significant, indicating that the degree of currency restrictions has a strong impact on GDP growth.

The model coefficients provide detailed relationships between the predictors and GDP growth. The intercept is estimated to be 6.19853 ( $SE = 0.485$ ,  $t = 12.778$ ,  $p < 0.001$ ). Inflation has a coefficient of -0.00137 ( $SE = 7.12e-4$ ,  $t = -1.919$ ,  $p = 0.056$ ) with a standardized estimate of -0.0971, indicating a marginally significant negative relationship with GDP growth. The current account balance has a coefficient of  $-9.54e-6$  ( $SE = 1.43e-5$ ,  $t = -0.666$ ,  $p = 0.506$ ) with a standardized estimate of -0.0513, indicating an insignificant effect. Net FDI inflows have a coefficient of  $-2.10e-5$  ( $SE = 1.54e-5$ ,  $t = -1.361$ ,  $p = 0.174$ ) and a standardized estimate of -0.1063, indicating an insignificant negative effect on GDP growth. The official exchange rate has a coefficient of  $-1.44e-4$  ( $SE = 6.81e-5$ ,  $t = -2.110$ ,  $p = 0.036$ ) with a standardized estimate of -0.1237, indicating a significant negative relationship with GDP growth.

Regarding foreign exchange restrictions, the coefficient for the "None - Moderate" category is -2.64717 ( $SE = 0.504$ ,  $t = -5.252$ ,  $p < 0.001$ ) with a standardized estimate of -0.8114, and for "Severe - Moderate" the coefficient is -1.44604 ( $SE = 0.536$ ,  $t = -2.699$ ,  $p = 0.007$ ) with a standardized estimate of -0.4432. Both categories show significant negative effects, indicating that more severe foreign exchange restrictions are associated with lower GDP growth.

In summary, while the overall model is statistically significant, individual predictors vary in their impact on GDP growth. The official exchange rate and foreign exchange restrictions are significant, while inflation, the current account balance, and net FDI inflows show varying degrees of insignificance.

## Discussion

By analyzing ten countries with varying degrees of foreign exchange restrictions, this study provides important insights into how such policies affect economic stability and

growth. By comparing these countries across various economic indicators, this study fills gaps left by previous single-country and limited regional studies and provides a broader understanding of the effects of currency controls (Eichengreen & Gupta, 2013).

## Inflation Rates

The study shows remarkable differences in inflation rates between countries with different levels of foreign exchange restrictions. Countries with moderate restrictions tend to have more controlled inflation than countries with severe restrictions or no restrictions at all. This finding supports the view that moderate restrictions can stabilize inflation by reducing excessive currency fluctuations and speculative pressures (Friedman, 1968). Conversely, countries without currency controls often experience high inflation volatility because the absence of such controls allows for greater currency fluctuations, which generate inflationary pressures, especially in economies vulnerable to external shocks (Mundell, 1961).

## Current Account Balances

Moderate currency restrictions are associated with larger current account deficits, indicating a tendency toward trade imbalances. This suggests that moderate controls may create a less predictable environment for international transactions, potentially leading to higher deficits (Obstfeld & Rogoff, 1995). Conversely, countries with high restrictions tend to have more stable current account balances, likely due to a more predictable currency environment that reduces trade balance volatility. However, this stability often comes at the cost of reduced international trade competitiveness (Krugman, 2000). Countries without restrictions show high variability in current account balances, reflecting the dual impact of currency fluctuations on trade dynamics.

## Foreign Direct Investment (FDI)

The study finds that FDI inflows are significantly higher in countries with moderate currency restrictions than in countries with severe restrictions or no restrictions. Moderate restrictions appear to offer a balance of currency stability that attracts foreign investors while avoiding the restrictive environments that can deter investment (Alfaro et al., 2004). On the other hand, severe restrictions tend to reduce FDI inflows due to concerns about capital mobility and barriers to profit repatriation (Hines, 1995). Countries without restrictions show variable FDI inflows, suggesting that while the absence of controls may attract investors seeking flexibility, it also introduces uncertainty that may affect investment decisions (Gordon & Hines, 2002).

## GDP Growth

The relationship between currency restrictions and GDP growth is nuanced. Countries with severe restrictions generally experience somewhat lower GDP growth than

countries with moderate or no restrictions. The restrictive environment may limit economic expansion and reduce the efficiency of resource allocation (Lucas, 1988). In contrast, countries with moderate restrictions often show more robust GDP growth, reflecting a balanced approach that supports economic stability and investment. Higher growth rates in countries with no restrictions could be attributed to greater freedom of capital movement and trade, although this is often associated with increased economic volatility and inflationary pressures (Barro & Sala-i-Martin, 1995).

## Volatility and Economic Stability

The analysis shows that countries with strict restrictions tend to have lower inflation and current account volatility, suggesting a more stable economic environment. This stability is beneficial for long-term planning and investment, but may reduce attractiveness to foreign investors and introduce potential inefficiencies (Edwards, 1999). In contrast, countries without restrictions experience higher economic volatility, leading to unpredictable inflation and fluctuating current account balances. This volatility can create a more dynamic economic environment, but at the cost of increased risk and instability (Calvo & Reinhart, 2002).

## Implications

The results suggest that the optimal level of currency restrictions depends on the context. Moderate restrictions appear to provide a favorable trade-off by providing economic stability and attracting foreign investment while controlling inflation and current account imbalances. However, their effectiveness depends on the overall economic context, including institutional quality, external conditions, and the specific design of currency control measures (Rodrik, 1998).

## Limitations and Future Research Directions

This study has several limitations. It relies on historical data, which may not fully reflect recent economic changes or policy shifts (Krugman & Obstfeld, 2006). Variations in data accuracy and reliability across countries, inconsistent reporting standards, and the limited sample of ten countries may affect the generalizability of the findings. In addition, focusing solely on macroeconomic indicators may overlook other important factors such as political stability and the regulatory environment (North, 1990). Future research should expand geographically to include a larger and more diverse set of countries and examine the long-term effects of currency restrictions. Longitudinal studies could provide insights into how the effects of currency controls evolve over time. Examining the effects on specific sectors or firms and incorporating qualitative research through interviews with policymakers and business leaders could provide a more nuanced understanding of the real-world effects of currency controls (Ghosh et al., 2001).

In a nutshell, while this study provides valuable insights into the economic effects of currency restrictions, addressing its limitations and exploring new avenues of research will enhance our understanding of how such policies affect economic stability and growth. Tailored policy approaches based on these findings are essential for designing effective economic strategies in different contexts.

## Conclusion

This study provides a comprehensive analysis of the impact of foreign exchange restrictions on key economic indicators by examining ten countries with varying degrees of currency controls. The results highlight the nuanced effects of these restrictions on inflation rates, current account balances, foreign direct investment (FDI), and GDP growth.

Countries with moderate currency controls tend to have more controlled inflation than countries with severe or no controls. This suggests that moderate controls can help stabilize inflation by limiting excessive currency fluctuations and speculative pressures. On the other hand, countries with no restrictions face greater inflation volatility due to less controlled currency fluctuations.

Moderate restrictions are associated with larger current account deficits, indicating potential trade imbalances. These deficits result from a less predictable currency environment that affects international transactions. In contrast, strong restrictions provide stability in current account balances, but may reduce trade competitiveness. Countries without restrictions show high variability in current account balances, reflecting the impact of currency fluctuations on trade dynamics.

FDI inflows are higher in countries with moderate restrictions, suggesting that a balanced approach to currency controls can attract investors by providing some stability while avoiding an overly restrictive environment. Severe restrictions tend to deter FDI owing to concerns about capital mobility, while the absence of restrictions creates uncertainty that can also affect investment decisions.

The impact on GDP growth is complex and context-dependent. Severe restrictions are associated with somewhat lower GDP growth due to potential constraints on economic expansion and resource allocation. Moderate restrictions often support robust GDP growth by balancing stability and investment opportunities. Countries without restrictions may experience higher growth rates, but face increased economic volatility and inflationary pressures.

Strict restrictions tend to result in lower economic volatility, providing a stable environment conducive to long-term planning and investment. However, this stability may be associated with inefficiencies and reduced attractiveness to foreign investors. Conversely, countries with no restrictions experience higher volatility, which can create a more dynamic environment, but at the cost of increased risk and instability.

In short, the study underscores that the effectiveness and impact of foreign exchange restrictions are highly context-dependent. Moderate restrictions appear to

offer a favorable trade-off, providing economic stability and attracting investment while managing inflation and current account imbalances. Policymakers need to carefully weigh these trade-offs and consider the broader economic context, including institutional quality and external conditions, when implementing currency controls.

Future research should address the limitations of this study by expanding the geographic scope, incorporating longitudinal data, and examining sector-specific effects. Such research will improve our understanding of how currency controls affect economic stability and growth, leading to more tailored and effective policy recommendations.

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