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From Markets to Fields: The Impact of Vietnam's 1985 Dong Devaluation on Rice Exports

Abstract

Set against the backdrop of Vietnam's post-war economic stagnation and the eventual adoption of the Doi Moi reforms, the 1985 devaluation marked a pivotal policy shift away from central planning toward market-oriented growth. This study investigates the impact of Vietnam's 1985 currency devaluation on rice exports. Employing a Structural Vector Autoregressive (SVAR) model, the analysis reveals that exchange rate depreciation had a statistically significant, though transitory, positive effect on rice export volumes. These findings align with theoretical expectations that a weaker currency enhances export competitiveness, particularly in economies undergoing market liberalization. The findings carry important implications for policymakers in emerging economies: while devaluation can act as a catalyst for export growth, its effects are temporary and must be complemented by structural investments in productivity, infrastructure, and trade policy. For Vietnam, long-term export success has depended not only on currency realignment but also on sustained economic reform and strategic global integration.

I. Introduction

I.1. Historical Context

Emerging from nearly a century of political conflict and economic stagnation, Vietnam faced the daunting task of rebuilding its sovereignty at the end of the Vietnam War in 1975. In the post-war period, the country's monetary policy was characterized by rigid price controls and

an overvalued exchange rate leading to mounting macroeconomic imbalances (Cima & Library of Congress, 1989; Drabek, 1990; Minot & Goletti, 2000; Vu & Nguyen, 2021). The State Bank of Vietnam (SBV) issued new banknotes at a 10:1 exchange ratio for old banknotes and adjusted the official exchange rate from 1.20 VND per USD to 15 VND per USD (Cima & Library of Congress, 1989). While this devaluation aimed to stabilize the economy and reduce fiscal imbalances, it instead triggered hyperinflation and price volatility, forcing policymakers to introduce broader market-oriented reforms under Doi Moi in 1986 (Cima & Library of Congress, 1989; Drabek, 1990).

While the broader economy suffered under these conditions, the agricultural sector is expected to have faced distinct challenges, which makes it a crucial focus of this research. As the backbone of Vietnam's economy, agriculture accounted for 51 percent of Produced National Income (PNI) in 1985 (Cima & Library of Congress, 1989). Within this sector, rice is of particular significance due to its dominant role in Vietnam's agricultural production, consumption, and trade (Minot & Goletti, 2000). Given the heavy reliance on agriculture and the importance of rice in both domestic markets and international trade, the effect of the 1985 devaluation on rice exports warrants deeper examination.

I.2. Research Question

This research analyzes the impact of the 1985 dong devaluation on rice exports. In other words, the research will answer the question: "What was the impact of Vietnam's 1985 devaluation of the dong on its rice exports?" In theory, it is assumed that a currency devaluation or a weaker currency corresponds to cheaper exports or greater export competitiveness in the short run, holding all else constant. This study aims to examine this hypothesis within the historical and economic context of Vietnam.

Although there is a growing body of literature on emerging markets, Vietnam's unique economic trajectory remains underexplored, particularly regarding the 1985 devaluation. Most existing studies acknowledge this event as a precursor to the Doi Moi reforms but do not examine its independent economic consequences, particularly in agriculture. This study fills the outstanding gap by analyzing the impact of this particular currency devaluation on trade.

This research is relevant to the contemporary Vietnamese economy because it portrays a building block in Vietnam's journey from a country plagued by famine to one of the top rice exporters in the world (Cima & Library of Congress, 1989; USDA, 2025). Moreover, despite its transition to a market economy, Vietnam continues to operate under a managed floating exchange rate system, with the SBV under direct government oversight (SBV, n.d.). Given this structure, historical cases of state-managed, rather than market-driven, devaluations provide valuable insights into potential risks and trade-offs. Overall, the research will contribute to a more holistic understanding of Vietnam's economic history and guide policy decisions regarding currency regimes.

I.3. Research Outcome

This research employs the Structural Vector Autoregressive (SVAR) method in R to examine the dynamic relationship between Vietnam's foreign exchange rates and rice exports. The empirical results indicate a clear asymmetry in the transmission of shocks: exchange rate shocks exert a statistically significant short-run effect on rice export quantities, while export shocks have a limited and statistically insignificant influence on exchange rates. A depreciation in the exchange rate—interpreted as a positive shock—initially stimulates export volumes, consistent with theoretical expectations regarding price competitiveness in international markets.

However, the effect is transitory, diminishing within a few periods, which may reflect long-term price corrections and policy interventions, which still align with theoretical expectations.

The analysis is supported by historical trends in macroeconomic indicators. A sharp devaluation of the Vietnamese dong in 1985, implemented as part of broader reforms to eliminate a dual exchange rate system, marked a structural break in exchange rate policy. Prior to this, the exchange rate was artificially suppressed under central planning. The 1985 devaluation realigned the official rate with market fundamentals and preceded the launch of the Doi Moi reforms in 1986. These policy shifts laid the groundwork for liberalizing trade, encouraging agricultural output, and expanding Vietnam's participation in global markets.

Complementary time series evidence shows that rice exports remained negligible until the mid-1980s but increased significantly following the reforms. Vietnam rapidly emerged as a major rice exporter by the 1990s and 2000s, with export quantities rising sharply and sustaining high levels despite some volatility in later years. This historical trajectory reinforces the SVAR findings by illustrating how currency realignment and policy liberalization jointly enabled Vietnam's integration into international agricultural markets.

Collectively, these research outputs highlight the critical role of exchange rate policy in shaping export performance during transitional periods. The results underscore the effectiveness of macroeconomic reform—in particular, currency devaluation—as a catalyst for trade expansion in emerging economies.

II. Ethical Considerations

II.1. Data Use and Collection

The use of FAOSTAT data is granted through the CC BY 4.0 License and the FAOSTAT Statistical Database Terms of Use. The data is recorded as reported by member countries, which

are responsible for verifying its accuracy before submission. The FAO further validates the data by examining transmission errors, outliers, and consistency. To mitigate potential biases in the analysis, the study involves comparing the FAOSTAT data with supplementary data sources as needed. Importantly, the data retrieved for this research does not contain sensitive or personally identifiable information.

II.2. Stakeholder Impact

This research has direct ethical implications for Vietnam's rice farmers, policymakers, and international trade partners. Farmers, whose livelihoods depend on market conditions, may adjust their production or pricing strategies based on economic analyses. Policymakers rely on sound economic research to craft trade and agricultural policies, and any misleading conclusions could lead to ineffective or even harmful decisions that distort market dynamics. International trade partners, including rice importers and foreign investors, may also be influenced by this research when assessing Vietnam's trade competitiveness and economic stability. Their perceptions could shape trade agreements, investment decisions, and long-term commercial relationships. To mitigate these risks, the research must be conducted with methodological rigor and transparency. Moreover, ensuring that conclusions are framed within their proper economic and historical context is crucial for providing insights that are both accurate and responsible.

II.3. Methodological Rigor

The chosen SVAR model relies on key assumptions outlined in the Methods section. Violations of these assumptions can introduce biases, distort relationships, and lead to false conclusions. To mitigate these risks, rigorous data management and model validation techniques are employed. Any unaddressed weaknesses are clearly communicated. Beyond technical rigor, the research upholds standards of transparency and reproducibility to guarantee reliable findings.

II.4. Result Interpretation

The study focuses on Vietnam at the national level, specifically examining its rice sector in terms of production and trade over the period 1975–2023. Any broader inferences extending findings to other levels, countries, industries, or time periods must be made cautiously. There is also a risk of misinterpreting causality where only correlation exists, which could result in policy recommendations unjustified by robust evidence. Such misinterpretation might further reinforce overly simplistic narratives about the effects of currency devaluation on agriculture, undermining intricate policy debates. As the study upholds transparency regarding its scope and limitations, economic stakeholders and the academic community are advised to interpret the results in a nuanced manner.

II.5. Ethical Guidelines

The research ensures compliance with ethical soundness by engaging in peer reviews and seeking feedback from experts. Incorporating diverse perspectives in identifying potential biases or oversights further strengthens the study's credibility. Standards outlined by academic institutions and professional organizations in economics and data analytics are also followed to foster research that is both impactful and ethically sound.

III. Literature Review

III.1. Literature Review Approach

This literature review examines the economic consequences of the 1985 devaluation, with a particular focus on its impact on domestic agricultural prices and international exports. The review follows a thematic approach, first analyzing the broader effects of trade liberalization and currency devaluation on Vietnam's integration into global agricultural markets, tracing the country's shift from a net food importer to a major agricultural exporter. Finally, it identifies gaps

in the literature, particularly concerning the independent impact of the 1985 devaluation versus the broader Doi Moi reforms and regional disparities in economic benefits.

This topic is highly relevant to contemporary discussions on Vietnam's monetary policy. While the country has transitioned to a market economy from a centrally planned one prior to the 1990s, its currency remains under a managed floating exchange rate system, with the State Bank of Vietnam (SBV) maintaining direct government oversight (SBV, n.d.). Understanding the historical consequences of state-managed devaluations, as seen in 1985, provides valuable insights into the risks and trade-offs of government intervention in currency markets. More broadly, this research contributes to a deeper understanding of Vietnam's economic history and offers lessons for policymakers casting the country's economic trajectory.

III.2. Impact of the 1985 Dong Devaluation on Rice Exports

The 1985 devaluation of the Vietnam dong and the subsequent Doi Moi economic reforms marked a turning point in Vietnam's agricultural trade, transforming the country from a net food importer to a major agricultural exporter. Prior to these reforms, Vietnam faced chronic food shortages and state-imposed price controls, which restricted farmers' ability to trade and respond to market conditions (Minot & Goletti, 2000; Vu & Nguyen, 2021). However, by the late 1980s, Vietnam had shifted from a food-deficient nation to a key supplier of rice, coffee, and seafood on the global market. By 1989, rice exports reached 1.5 million tons, and by 1998, Vietnam was the world's third-largest rice exporter, shipping over 3.8 million tons (Minot & Goletti, 2000; Dang et al., 2006). This dramatic shift was largely due to exchange rate adjustments that enhanced price competitiveness, trade liberalization, and productivity improvements in the agricultural sector.

While the devaluation made Vietnamese agricultural products more competitive internationally, the transition to an export-oriented agricultural economy was not without challenges. In the early years of reform (1985–1988), inflation surged, leading to higher input costs for fertilizers, seeds, and machinery, which initially offset the benefits of export competitiveness (Drabek, 1990; Vu & Nguyen, 2021). Furthermore, the Vietnamese government maintained an overvalued exchange rate until 1989, effectively discouraging agricultural exports and reducing farmer earnings (Drabek, 1990). This delay in full trade liberalization meant that many farmers did not immediately benefit from the policy shifts, as foreign exchange shortages limited their ability to invest in better production techniques (Drabek, 1990). Thus, while the devaluation ultimately facilitated export growth, its short-term impact on agricultural investment and production was mixed.

One of the most significant obstacles to early export growth was government intervention in rice trade. Even as Vietnam emerged as a global rice exporter, the state imposed export quotas and trade restrictions, aiming to balance food security concerns with international trade opportunities (Minot & Goletti, 2000). These quotas effectively functioned as an implicit tax on farmers, limiting their ability to benefit from rising global rice prices. By the mid-1990s, the government gradually replaced these quotas with export taxes, which allowed for greater flexibility in trade policy while still ensuring revenue generation (Minot & Goletti, 2000). However, these policy restrictions delayed the full liberalization of Vietnam's agricultural markets, highlighting the tension between state control and market forces in the early years of reform.

The broader liberalization of agricultural trade played a crucial role in expanding Vietnam's foreign market presence beyond rice. The removal of state control over trade allowed

private traders and cooperatives to enter international markets, increasing the export of coffee, rubber, and seafood (Cima & Library of Congress, 1989; Vu & Nguyen, 2021). Between 1985 and 1999, rice exports rose from 109,900 tons to over 3.3 million tons, while coffee exports surged from 3,900 tons to 357,500 tons (Dang et al., 2006). This rapid growth of agricultural exports was supported by improvements in productivity, with total factor productivity (TFP) in agriculture growing at 3.44% per year between 1985 and 1990 (Vu & Nguyen, 2021). However, after 1990, TFP growth slowed, as capital investment in machinery and infrastructure replaced labor-driven productivity gains, raising questions about the sustainability of Vietnam's long-term agricultural export strategy.

Despite the overall success of Vietnam's export-driven agricultural growth, challenges remained in terms of trade competitiveness and price stability. While the removal of rice export quotas in the mid-1990s led to a 20-25% increase in domestic rice prices, it also contributed to a 2-4% decline in world rice prices, as Vietnam's rising exports expanded global supply (Minot & Goletti, 2000). This put pressure on Vietnam to enhance quality and adopt value-added processing to maintain its competitive edge in the international market. Furthermore, terms of trade became less favorable in the late 1990s, as global oversupply reduced export revenues, underscoring the risks associated with heavy reliance on commodity exports (Dang et al., 2006).

A key debate in the literature concerns the role of state intervention in shaping Vietnam's agricultural export success. While Minot & Goletti (2000) argue that government-imposed quotas initially restricted export growth, Drabek (1990) criticizes the slow pace of trade liberalization, noting that state-controlled trade mechanisms created inefficiencies that prevented farmers from fully benefiting from global price fluctuations. On the other hand, some scholars highlight the importance of phased liberalization in preventing food insecurity and economic

instability, suggesting that Vietnam's gradual transition to an export-driven model helped ensure long-term stability (Cima & Library of Congress, 1989). This ongoing debate underscores the complexity of balancing domestic food security with the demands of a competitive global market.

III.3. Gaps in Existing Literature

Many existing studies acknowledge the devaluation as a precursor to the broader Doi Moi reforms (Minot & Goletti, 2000; Cima & Library of Congress, 1989), but few examine its independent effects on agricultural markets. This lack of distinction limits the understanding of how monetary policy shocks influenced agriculture prior to the full-scale market liberalization of 1986. While studies such as Drabek (1990) and Nguyen and the General Statistics Office of Vietnam (2020) recognize the severe inflationary consequences of the devaluation, they primarily frame these effects within the broader transition to a market economy, rather than analyzing the specific causal mechanisms linking devaluation to agricultural price instability and farmer responses.

Beyond quantitatively analyzing the dynamic relationship between exchange rates and rice exports in Vietnam, this research provides empirical evidence on how currency devaluations shape agricultural markets. By bridging historical policy analysis with modern econometric methods, this research offers practical insights for policymakers seeking to balance economic growth and export competitiveness.

IV. Data

IV.1. Data Source and Access

All data in this research is sourced from the Statistics Division of the Food and Agriculture Organization of the United Nations (FAOSTAT). FAOSTAT datasets are freely

available under the Creative Commons Attribution 4.0 International (CC BY 4.0) License. This means that users are permitted to access, download, copy, adapt, and redistribute the data, provided proper attribution is given. The FAOSTAT Statistical Database Terms of Use confirm the right to use the data for research, statistical analysis, and evidence-based decision-making.

IV.2. Dataset and Variables

A dataset for each variable is retrieved from FAOSTAT then processed and merged. The overall dataset is a tabular time series covering Vietnam's rice sector and foreign exchange market from 1975 to 2023. Connected within the SVAR framework are the two key variables the annual VND per USD exchange rates, referred to as the Annual Exchange Rate variable, and the annual rice export quantities, referred to as the Export Quantity variable. In addition, the monthly VND per USD exchange rates, referred to as the Monthly Exchange Rate variable, from August to December 1985 are analyzed separately to amplify the devaluation.

Although the trade data includes various categories of rice-related products, "Rice, milled" meaning rice processed and ready for trade, is the focus of this research. It is also important to note that the research has yet to incorporate macroeconomic indicators such as Gross Domestic Product (GDP) and inflation in the model, which may have an underlying impact on the relationship between Exchange Rate and Export Quantity as well as the individual evolution of each variable.

Table 1: Variable Specifications

Variable	Description	Unit	Data Type
Year	Year	Year	Discrete
Monthly Exchange Rate	Monthly exchange rates in Local currency Units (LCU) per United States (US) dollar	LCU per USD	Monthly time series, continuous
Annual Exchange Rate	Annual exchange rates in Standard Local Currency Units (SLC) per United States (US) dollar	SLC per USD	Annual time series, continuous
Export Quantity	Amount of "Rice, milled" exports	Tons	Annual time series, continuous

V. Methods

V.1. Choice of SVAR Model

This study investigates how the 1985 devaluation of the Vietnam dong influenced the country's rice exports. The SVAR approach is appropriate given Vietnam's currency regime in which exchange rate devaluations are typically policy-driven and thus can be interpreted as exogenous structural shocks affecting exports. SVAR models extend traditional reduced-form VARs by incorporating structural restrictions grounded in theory or statistical properties of the data, which enable the isolation of economically interpretable shocks (Sims, 1980; Amisano &

Giannini, 1997). Loría et al. (2010) apply a cointegrated SVAR framework to assess the monetary approach to exchange rate determination in Mexico and demonstrate how the SVAR model captures both short-run and long-run effects of monetary fundamentals on exchange rates. This approach directly parallels the goals of the current study, where both short-term market dynamics and long-run price/export equilibria are of interest in evaluating the post-devaluation period. Mao et al. (2021) further support the SVAR approach by employing a panel SVAR to uncover heterogeneous quality responses to real exchange rate shocks in China's agricultural exports. Their work underscores the method's strength in identifying structurally meaningful and temporally dynamic responses to exchange rate changes across different market-product combinations—an insight especially relevant when examining Vietnam's rice sector, which shares structural similarities with Chinese agriculture in terms of product perishability and price sensitivity.

Additionally, the practical implementation of SVAR models is bolstered by the availability of robust statistical identification techniques. Lange et al. (2021) present the *svars* package in R, which provides a suite of data-driven identification methods including heteroskedasticity-based strategies such as Changes in Volatility (CV)—an approach particularly relevant in the context of structural breaks like the 1985 devaluation. This method, based on Rigobon (2003), allows the model to identify structural shocks through shifts in the variance of innovations, assuming that the volatility structure of the system differs before and after the event. This is ideal for the Vietnamese context, where the devaluation marks a clear structural regime shift. Thus, the SVAR approach is not only theoretically aligned with the research question but is also empirically robust and supported by recent applications in both international and agricultural economics literature.

V.2. SVAR Model Implementation in R

All estimation is conducted in R using the *svars* package, which is specifically built for statistically identified SVAR models (Lange et al., 2021).

The SVAR model assumes the following form:

$$A_0 Y_t = A_1 Y_{t-1} + A_2 Y_{t-2} + \ldots + A_p Y_{t-p} + \varepsilon_t.$$

In this model, Y_t is a vector of endogenous macroeconomic variables including Exchange Rate and Export Quantity. A_0 is the matrix that encodes contemporaneous structural relationships between the variables and is the primary object of identification. ε_t is a vector of orthogonal structural shocks such that $Cov(\varepsilon_t) = I$.

The model is rewritten in the following reduced form:

$$Y_t = B_1 Y_{t-1} + B_2 Y_{t-2} + \ldots + B_p Y_{t-p} + u_t.$$

In this form, $u_t = A_0^{-1} \varepsilon_t$ and $Cov(u_t) = \Sigma_u$. Estimating this model involves first fitting the reduced-form VAR to recover the residual covariance matrix Σ_u, followed by decomposing Σ_u to recover the structural innovations ε_t.

To identify the structural shocks, this study adopts a heteroskedasticity-based identification strategy, specifically the CV method developed by Rigobon (2003). This approach exploits exogenous shifts in the variance of the reduced-form residuals over known historical regimes—here, before and after the 1985 devaluation. Under this framework, the reduced-form error covariance matrix is allowed to differ across two volatility regimes, and the system is identified by assuming that the structural shocks have distinct relative variances in these periods. Compared to traditional theory-based restrictions, the CV method requires fewer subjective

assumptions and is particularly suited for macroeconomic settings where structural breaks are associated with identifiable policy events, such as currency devaluations. Recent applications of this method in SVAR analysis such as Lütkepohl & Netsunajev (2017) and Herwartz & Plödt (2016) confirm its practical value and econometric soundness.

The strengths of the CV approach include its ability to identify and interpret structural shocks using empirically verifiable changes in volatility, without heavily relying on theoretical exclusion restrictions. It is well-suited for historical macroeconomic policy analysis, particularly when examining the effects of large policy shifts such as exchange rate regime changes. Furthermore, because the identification hinges on observable regime shifts, it offers robustness in small samples, which is especially valuable given the annual frequency of the data. However, there are limitations to acknowledge. The method assumes that volatility changes are exogenous and sufficiently distinct across regimes; if this assumption is violated, the structural decomposition may be invalid. In addition, identification based on heteroskedasticity may be sensitive to model specification and regime definition. Nevertheless, the CV method offers a theoretically sound and empirically tractable approach for this study, aligning well with the research objective of uncovering the structural impact of exchange rate devaluation on Vietnam's rice economy.

V.3. Analytical Process or Methodological Implementation

The analysis begins with data preprocessing, where individual datasets corresponding to the relevant variables are loaded into R and merged based on common key characteristics. The overall dataset is then pivoted to facilitate analysis. The dataset is then explored through time-series visualizations, with line charts displaying trends in each variable and marking the 1985 devaluation to observe any shifts.

To ensure the robustness and validity of the model, the data is first examined for stationarity. Time-series plots, along with autocorrelation (ACF) and partial autocorrelation (PACF) functions, will be employed to detect any serial correlation. All variables are transformed into stationary time series by taking the first difference, such stationarity is confirmed using the Augmented Dickey-Fuller test (Sims, 1980). Ultimately, the individual time series are combined into a matrix for modeling.

The appropriate lag order is determined across information criteria such as Akaike information criterion (AIC), Hannan–Quinn criterion (HQ), Schwarz criterion (SC), and Final Prediction Error (FPE) to ensure that the dynamic structure of the system is accurately captured (R Econometrics, n.d.). Once the preparation is complete, the model will be estimated. The reduced-form VAR model is estimated with two lags, before the SVAR model is estimated with a specified structural break in 1985.

The model results are interpreted through a plot of its Impulse Response Function (IRF) (Pfaff, 2008). Further analyses such as forecast error variance decomposition (FEVD), historical decomposition, and counterfactual analysis are being studied and will potentially be included in the finalized paper.

VI. Results

VI.1. Data Visualization

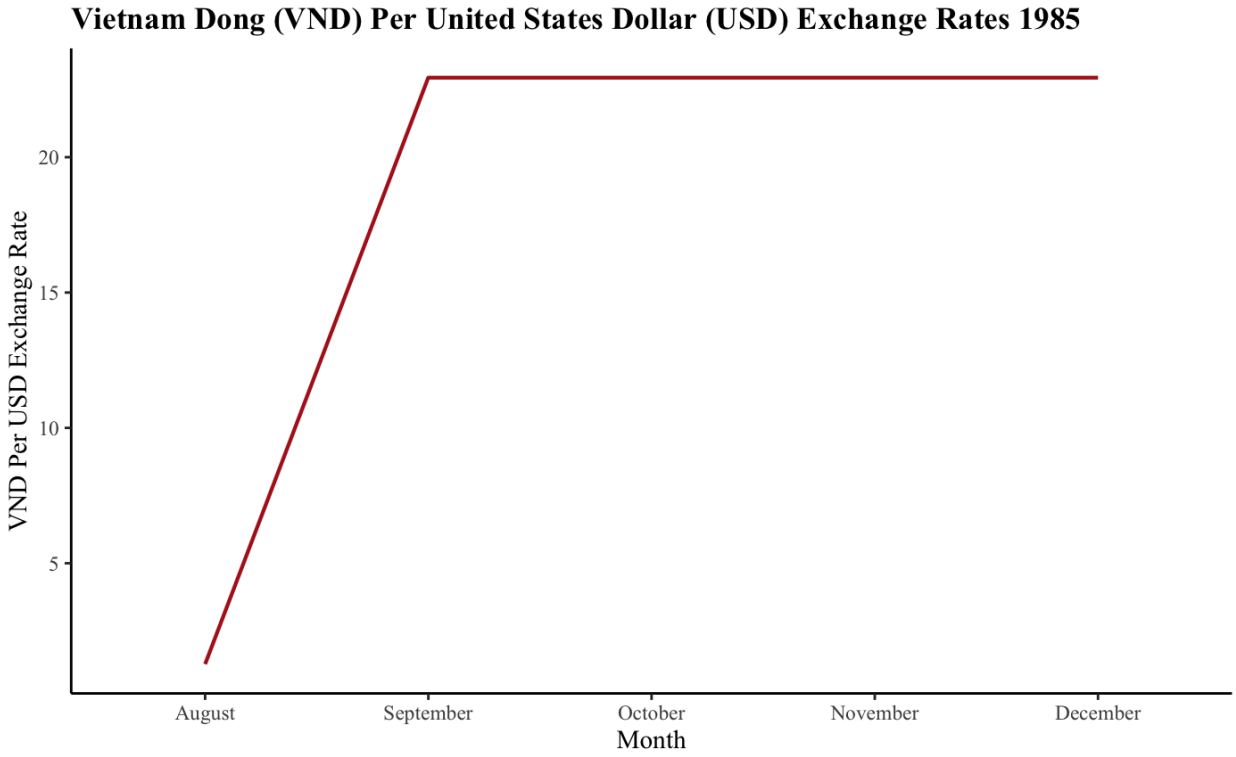


Figure 1: Vietnam Dong (VND) Per United States Dollar (USD) Exchange Rates 1985

The graph illustrates the monthly exchange rates of the Vietnam Dong (VND) per United States Dollar (USD) in 1985, highlighting a significant devaluation of the Vietnamese currency. In August 1985, the official exchange rate stood at approximately 1 VND per USD. By September, this rate had sharply increased to nearly 23 VND per USD, indicating a more than twenty-fold rise in the cost of acquiring one U.S. dollar. This abrupt adjustment reflects a deliberate and substantial devaluation of the Vietnamese dong by state authorities. The exchange rate remained fixed at this higher level from September through December 1985, suggesting that the devaluation was implemented as a one-time corrective measure rather than part of a gradual depreciation strategy.

This policy shift occurred in the context of growing macroeconomic imbalances, including persistent inflation, trade deficits, and distortions arising from a dual exchange rate system. The devaluation aimed to realign the official exchange rate with the prevailing black-market rate, restore export competitiveness, and prepare the economy for the broader structural reforms that would follow under the Doi Moi program initiated in 1986. By lowering the foreign currency price of Vietnamese goods, the devaluation was expected to stimulate exports, reduce reliance on imports, and improve the balance of payments. However, the weaker currency also raised the domestic cost of imported goods, likely intensifying inflationary pressures in the short run.

Overall, the graph captures a pivotal moment in Vietnam’s economic history, marking a shift toward market-oriented policy tools. The 1985 devaluation represented not only a technical correction of the exchange rate but also a symbolic break from prior central planning orthodoxy. It laid the groundwork for Vietnam's subsequent transition to a more liberalized and globally integrated economic framework.

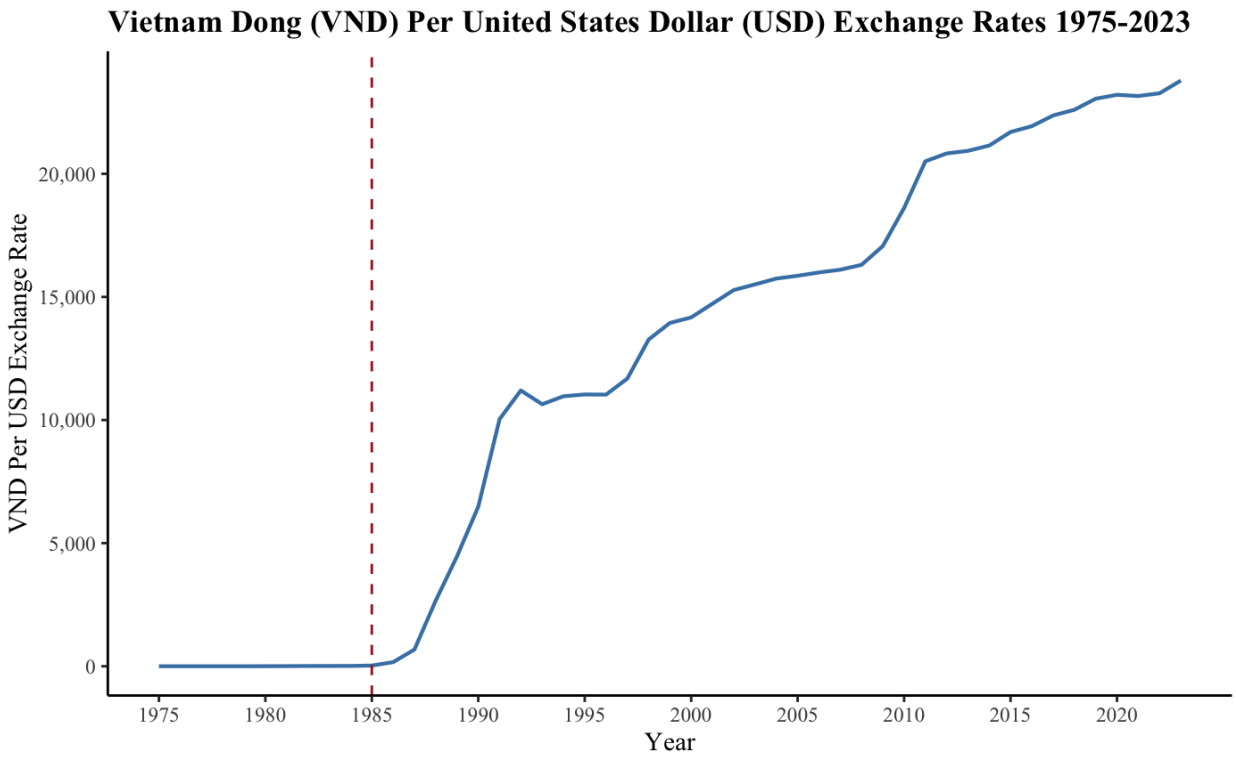


Figure 2: Vietnam Dong (VND) Per United States Dollar (USD) Exchange Rates 1975–2023

The graph displays the Vietnam Dong (VND) per United States Dollar (USD) exchange rates from 1975 to 2023, highlighting the long-term evolution of Vietnam's exchange rate regime. From 1975 until the mid-1980s, the exchange rate remained relatively stable and low, reflecting a fixed official rate consistent with Vietnam's centrally planned economic system. During this period, foreign exchange markets were heavily regulated, and multiple exchange rates operated simultaneously resulting in significant distortions.

A sharp structural break is observed in 1985, marked by the red vertical line in the graph. This year represents a pivotal moment in Vietnam's exchange rate history, as the government implemented a substantial devaluation of the dong in an effort to correct severe macroeconomic imbalances. In the late 1980s and early 1990s, the exchange rate continued to depreciate rapidly, indicating ongoing adjustments in response to market liberalization and structural reforms. The

adoption of a more flexible exchange rate system during this period allowed Vietnam to gradually phase out the dual exchange rate regime. By the mid-1990s, the rate of depreciation began to moderate, and from the 2000s onward, the exchange rate followed a more gradual and managed depreciation path. This pattern suggests the implementation of a managed float regime, wherein the State Bank of Vietnam intervenes to guide the currency within a specified range.

Overall, the graph illustrates the transformation of Vietnam's exchange rate regime from a rigid, centrally determined system to a more flexible and market-aligned framework. The sustained depreciation of the dong over this nearly five-decade period reflects a combination of structural reforms, inflation differentials, external account adjustments, and policy efforts aimed at maintaining export competitiveness. The devaluation in 1985 stands out as a turning point that not only corrected distortions in the exchange rate system but also marked the beginning of Vietnam's integration into the global economy.

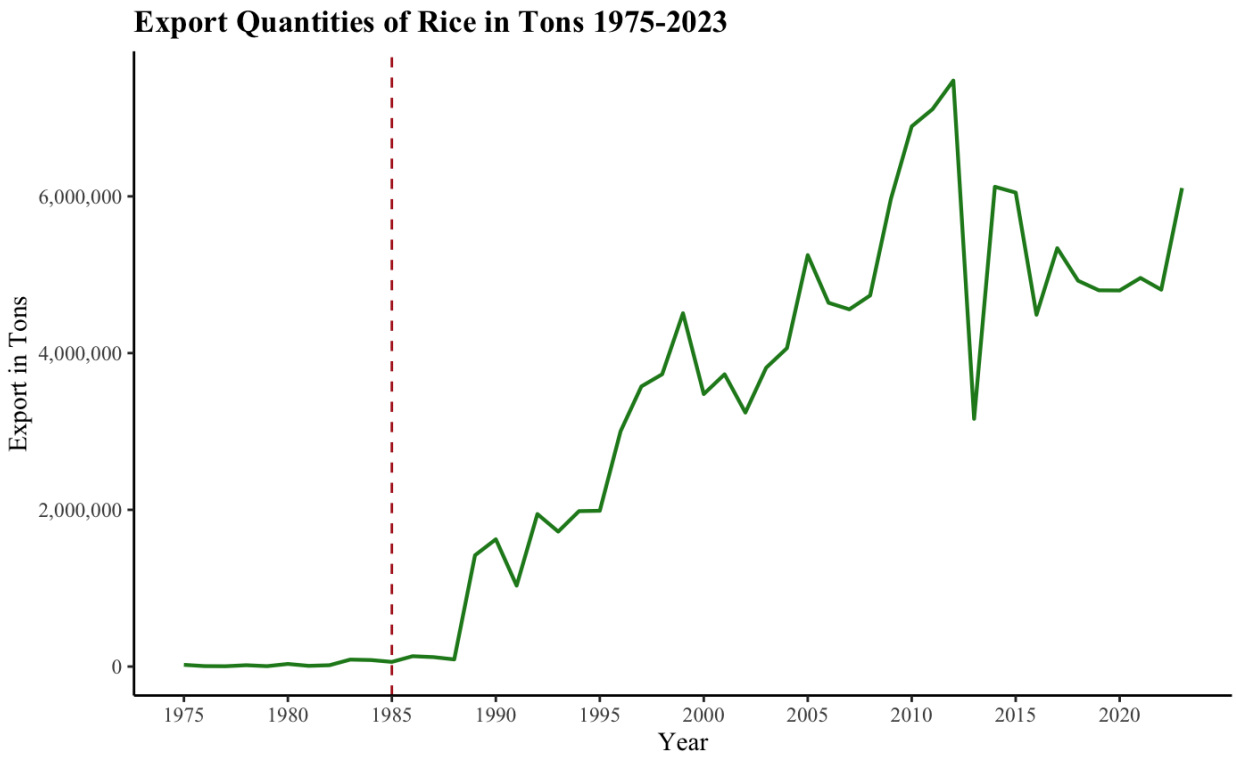


Figure 3: Export Quantities of Rice in Tons 1975–2023

The graph displays the quantity of rice exports from Vietnam, measured in tons, over the period 1975 to 2023. From 1975 through the mid-1980s, rice export volumes remained minimal and largely stagnant. This trend reflects the constraints of Vietnam's centrally planned economy during the post-reunification period, characterized by state control over agricultural production, collective farming, and restricted participation in international trade. Agricultural output during this period was primarily directed toward domestic consumption, and institutional limitations hindered Vietnam's ability to engage in competitive global export markets.

A pronounced shift occurs after 1985, as indicated by the red vertical line marking the year of Vietnam's major exchange rate devaluation. Following this structural break, rice exports began to rise significantly, coinciding with the initiation of the Doi Moi reforms in 1986. These reforms liberalized agricultural markets, allowed for private trade in rice, and reduced state

monopolies over export activity. The combination of price liberalization and greater exposure to world markets led to rapid gains in agricultural productivity and export capacity. As a result, rice exports increased substantially from the late 1980s onward, establishing Vietnam as one of the world's leading rice exporters by the 2000s.

From the 1990s through the early 2010s, rice exports exhibited a generally upward trajectory, although interspersed with fluctuations due to changing domestic policies, weather-related disruptions, and global market conditions. A peak in rice export volumes is observed in the early 2010s, after which a more volatile pattern emerges. This variation likely reflects increased sensitivity to international price movements, competition from other exporters, and adjustments in Vietnam's trade and agricultural strategies.

In sum, the graph underscores the transformative impact of the 1985 exchange rate devaluation and subsequent economic reforms on Vietnam's agricultural export performance. The shift from a stagnant, state-controlled trade regime to a market-oriented system enabled a sustained expansion in rice exports, contributing to broader economic growth and integration into global markets. This structural change highlights the critical role of macroeconomic liberalization in enhancing sectoral productivity and international competitiveness.

VI.2. IRF of SVAR Model

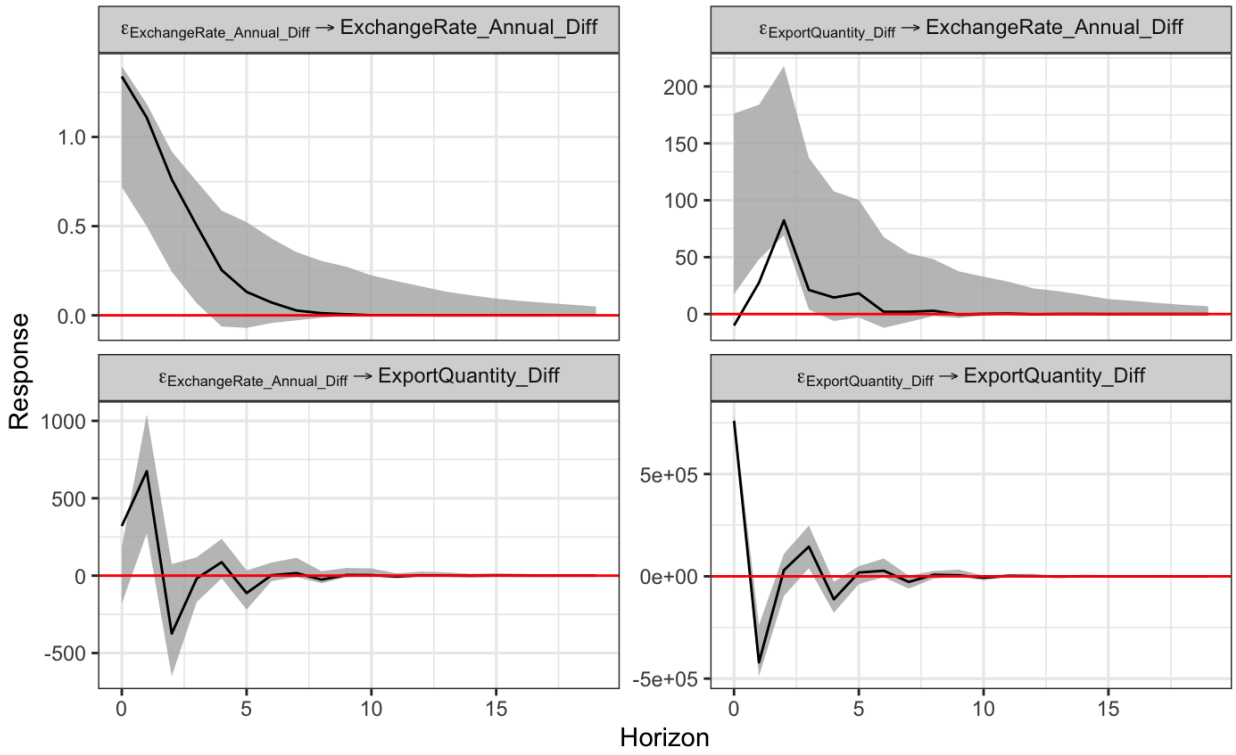


Figure 4: IRF of SVAR Model

In the top-left panel, the response of the first-differenced exchange rate to its own structural shock displays a sharp initial increase, followed by a gradual decline that dissipates by approximately the 10th period. The response is statistically significant in the early periods, as indicated by the narrow confidence bands. This behavior is consistent with theoretical expectations and confirms that the model captures the endogenous dynamics of the exchange rate variable accurately.

The top-right panel illustrates the response of the exchange rate to a structural shock in export quantities. A modest and short-lived appreciation occurs in the initial periods, suggesting a limited upward pressure on the exchange rate following a positive export shock. However, the effect quickly diminishes and becomes statistically insignificant, as reflected by the widening

confidence intervals that encompass zero. This result indicates that export quantity shocks exert minimal influence on the exchange rate, potentially due to the presence of exchange rate management policies or other institutional constraints in the Vietnamese context.

The bottom-left panel reveals a more economically significant relationship. A structural shock to the exchange rate—interpreted as a currency depreciation—induces a sharp increase in export quantities in the short run. The peak response occurs within the first two periods, supporting the standard theoretical proposition that depreciation enhances export competitiveness. Nonetheless, the effect is transient, with the response tapering off and losing statistical significance in the subsequent periods. This pattern may reflect short-run price adjustments, capacity constraints, or external demand limitations that curb the long-term effects of exchange rate movements on trade volumes.

The bottom-right panel confirms that export quantities respond strongly to their own structural shocks. The initial impact is substantial and statistically significant, followed by a gradual reversion toward the baseline. This behavior is indicative of momentum or persistence in export dynamics and serves as further validation of the SVAR model's internal consistency.

Overall, the findings imply that while currency devaluation can be an effective tool for stimulating export growth in the short term, the lack of persistent effects underscores the importance of complementary policies to sustain export performance.

VII. Conclusion

This study analyzes the dynamic relationship between Vietnam's exchange rate fluctuations and rice export performance using SVAR. The impulse response functions reveal a short-run but significant positive response of rice exports to exchange rate depreciation, confirming theoretical predictions that a weaker currency enhances price competitiveness in

international markets. In contrast, shocks to export quantities do not exert a significant influence on the exchange rate, indicating a largely exogenous treatment of trade performance within Vietnam's exchange rate regime. These findings suggest that exchange rate policy—particularly devaluation—can serve as an effective tool for stimulating export growth, especially in economies undergoing structural reform.

The historical context reinforces the empirical evidence. The 1985 devaluation of the Vietnamese dong represented a critical policy shift that helped correct distortions in the dual exchange rate system and signaled Vietnam's departure from rigid central planning. Combined with the broader Doi Moi economic reforms, this devaluation enabled the liberalization of agricultural trade, particularly rice. The long-term upward trajectory of rice exports following 1985 supports the argument that macroeconomic stabilization, currency alignment, and institutional reform are jointly necessary for unlocking a country's export potential. Vietnam's transformation into one of the world's leading rice exporters is a testament to the efficacy of this reform strategy.

However, several limitations must be acknowledged. First, the SVAR model, while well-suited to capture dynamic interdependencies, relies on structural identification assumptions that may be sensitive to specification choices. The analysis is also constrained by data frequency, as annual data may mask short-term adjustment dynamics that are observable with quarterly or monthly series. Furthermore, the model focuses primarily on bilateral exchange rate and export quantity dynamics, without incorporating complementary macroeconomic variables such as inflation, production costs, or foreign demand conditions. These factors likely play an important mediating role in determining the full effect of exchange rate movements on export outcomes.

The findings carry important policy implications, particularly for developing and emerging economies that are heavily reliant on commodity exports. In the context of Vietnam, the results underscore the importance of maintaining a flexible yet credible exchange rate framework that supports external competitiveness while safeguarding macroeconomic stability. Policymakers should also be cautious of relying exclusively on exchange rate depreciation to drive export growth, given the transitory nature of its effects. Structural investments in agricultural productivity, logistics infrastructure, and trade facilitation remain critical to sustaining long-term export performance.

These conclusions are especially relevant amid current global trade uncertainties. The international trading system is increasingly characterized by volatile trade dynamics, with proposed tariffs, retaliatory measures, and geopolitical tensions posing risks to open markets and price stability. For a country like Vietnam—deeply integrated into global agricultural and manufacturing supply chains—excessive reliance on a weak-currency strategy may backfire in a protectionist environment. Depreciation may invite trade countermeasures or reduce terms of trade if key partners impose restrictions on undervalued currencies. Moreover, trade sanctions and retaliatory tariffs can erode market access regardless of price competitiveness, suggesting that currency tools must be complemented by diplomatic and institutional efforts to preserve favorable trade relations.

Future research should build on this study by employing higher-frequency data and broader macroeconomic variables to uncover more nuanced interactions. Additionally, disaggregating export data by destination market could illuminate how exchange rate sensitivity varies across trade partners, especially under differing trade agreements or tariff structures. Investigating the role of global rice prices and input cost shocks would also help clarify the

transmission mechanisms underlying the observed dynamics. Finally, comparative studies across other agricultural exporters undergoing similar market transitions could shed light on the generalizability of Vietnam's experience.

In conclusion, this research confirms that exchange rate policy has played a significant, though temporary, role in promoting rice export growth in Vietnam. The country's broader reform strategy, however, remains the foundation of its export success. As Vietnam navigates an increasingly uncertain global trade landscape, sustained competitiveness will require not just currency management, but a resilient, diversified, and strategically governed export sector.

VIII. Appendices and GitHub Repository

IX.1. GitHub Repository

https://github.com/elysianguyen/Markets-to-Fields.

IX.2. Lag Order Selection Output

```
$selection
AIC(n)  HQ(n)  SC(n) FPE(n)
     2      2      1      2

$criteria
                 1            2            3
AIC(n) 4.045383e+01 4.035223e+01 4.040631e+01
HQ(n)  4.051369e+01 4.047197e+01 4.058591e+01
SC(n)  4.061442e+01 4.067342e+01 4.088809e+01
FPE(n) 3.706167e+17 3.350890e+17 3.545077e+17
```

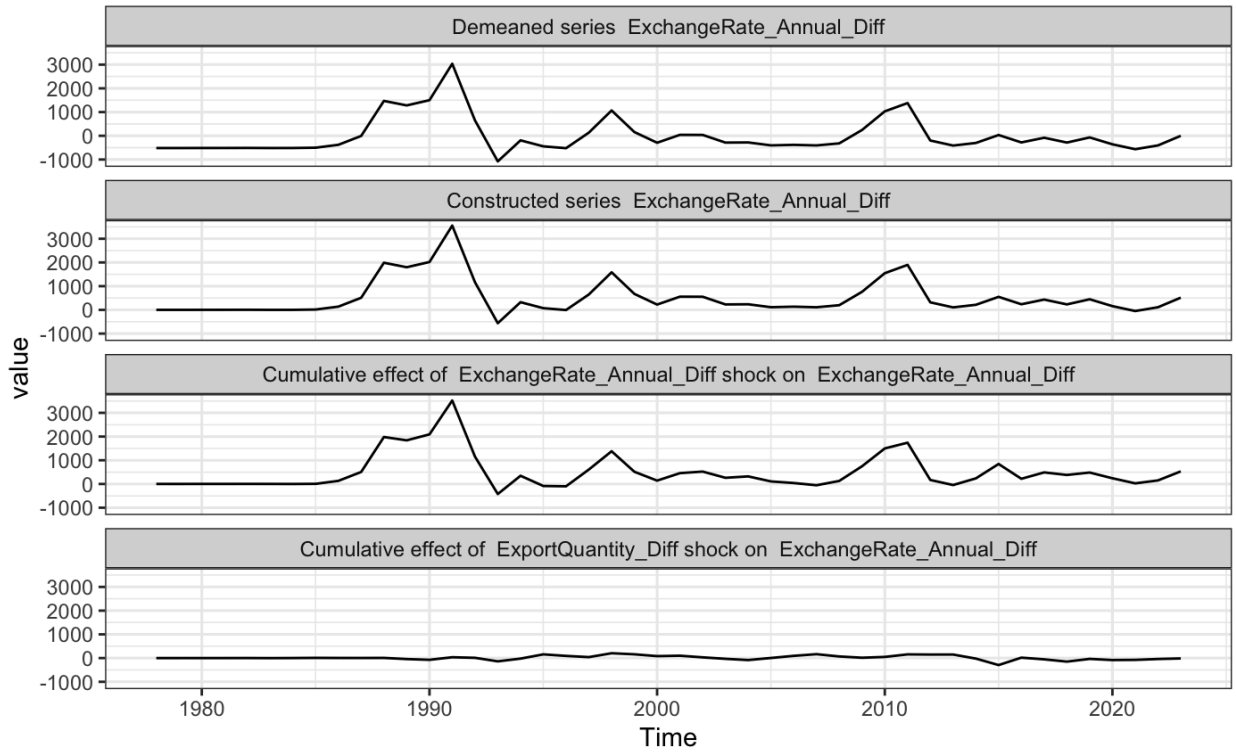
IX.3. SVAR Model Estimation Output

```
Identification Results
----------------------

Method: Changes in Volatility
Sample size: 46
Log-Likelihood: -1009.808
AIC: 2049.615
Structural Break: At Observation Number 10
Number of GLS estimations: 2
Number of Restrictions: 0

Estimated unconditional Heteroscedasticity Matrix (Lambda):
                              [,1]     [,2]
ExchangeRate_Annual_Diff 246287.9 0.000000
ExportQuantity_Diff           0.0 1.241438

Standard Errors of Lambda:
                              [,1]      [,2]
ExchangeRate_Annual_Diff 143169.7 0.0000000
ExportQuantity_Diff           0.0 0.8959542

Estimated B Matrix (unique decomposition of the covariance matrix):
                                [,1]         [,2]
ExchangeRate_Annual_Diff   1.339102    -10.09114
ExportQuantity_Diff      320.612972 759941.88240

Standard Errors of B:
                                  [,1]         [,2]
ExchangeRate_Annual_Diff   0.3584276     11.70572
ExportQuantity_Diff      288.3488401 287390.74895

Identification Wald Test of equal Eigenvalues:
[1] 2.462879e+05 1.241438e+00
                     Test statistic dof   p-value
lambda_ 1 =lambda_2         92.075   2 < 2.2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

IX.4. FEVD Output

```
Forecast error decomposition:
$ExchangeRate_Annual_Diff
   ExchangeRate_Annual_Diff ExportQuantity_Diff
1                1.73047465             98.26953
2                0.35036250             99.64964
3                0.04720323             99.95280
4                0.04771676             99.95228
5                0.04727831             99.95272
6                0.04566146             99.95434
7                0.04570110             99.95430
8                0.04568882             99.95431
9                0.04564795             99.95435
10               0.04564724             99.95435

$ExportQuantity_Diff
   ExchangeRate_Annual_Diff ExportQuantity_Diff
1              1.779924e-05             99.99998
2              7.399582e-05             99.99993
3              9.243231e-05             99.99991
4              8.996793e-05             99.99991
5              8.948814e-05             99.99991
6              9.105595e-05             99.99991
7              9.097029e-05             99.99991
8              9.091688e-05             99.99991
9              9.099392e-05             99.99991
10             9.099369e-05             99.99991
```

IX.5. Historical Decomposition Output



Works Cited

Amisano, G., & Giannini, C. (2012). *Topics in structural VAR econometrics*. Springer Science & Business Media.

Bagliano, F. C., & Favero, C. A. (1998). Measuring monetary policy with VAR models: An evaluation. *European Economic Review, 42*, 1069–1112. https://www.sciencedirect.com/science/article/pii/S0014292198000051.

Cima, R. J., & Library of Congress, Federal Research Division. (1989). *Vietnam: A country study*. Washington, D.C.: Federal Research Division, Library of Congress: For sale by the Supt. of Docs., U.S. G.P.O. [PDF]. Retrieved from https://www.loc.gov/item/88600482.

Cochrane, J. H. (1998). What do the VARs mean? Measuring the output effects of monetary policy. *Journal of Monetary Economics, 41*, 277–300. https://www.sciencedirect.com/science/article/pii/S0304393297000755.

Drabek, Z. (1990). *A case study of a gradual approach to economic reform: The Viet Nam experience of 1985-88* (World Bank Report No. 1). World Bank. Retrieved from https://documents1.worldbank.org/curated/en/109111468915703601/pdf/multi0page.pdf.

Dang, K. S., Nguyen, N. Q., Pham, Q. D., Truong, T. T. T., & Beresford, M. (2006). *Policy reform and the transformation of Vietnamese agriculture.* Food and Agriculture Organization. Retrieved from https://www.fao.org/4/ag089e/AG089E08.htm#ch3.

Food and Agriculture Organization of the United Nations. (n.d.). *FAOSTAT database*. Rome, Italy: FAO. Retrieved 2025 from https://www.fao.org/faostat/en.

Herwartz, H., & Plödt, M. (2016). Simulation evidence on theory-based and statistical identification under volatility breaks. *Oxford Bulletin of Economics and Statistics*, *78*(1), 94-112.

Lange, A., Dalheimer, B., Herwartz, H., & Maxand, S. (2021). svars: An R Package for Data-Driven Identification in Multivariate Time Series Analysis. *Journal of Statistical Software*, *97*(5), 1–34. https://doi.org/10.18637/jss.v097.i05.

Loría, E., Sánchez, A., & Salgado, U. (2010). New evidence on the monetary approach of exchange rate determination in Mexico 1994–2007: A cointegrated SVAR model. *Journal of International Money and Finance*, *29*(3), 540-554.

Lütkepohl, H., & Netšunajev, A. (2017). Structural vector autoregressions with heteroskedasticity: A review of different volatility models. *Econometrics and statistics*, *1*, 2-18.

Mao, R., Xing, M., & Yu, X. (2021). Quality response to real exchange rate shocks: A panel SVAR analysis on China's agricultural exports. *Agricultural Economics*, *52*(5), 719-731.

Minot, N., & Goletti, F. (2000). *Rice market liberalization and poverty in Viet Nam* (Vol. 114). International Food Policy Research Institute. Retrieved from https://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/125421/filename/125422.pdf.

Nguyen, T. H., & General Statistics Office of Vietnam. (2020). *Những dấu ấn quan trọng về kinh tế – xã hội trong hành trình 75 năm thành lập và phát triển đất nước qua số liệu thống kê* [Significant economic and social milestones in 75 years of national development through statistical data]. Retrieved from https://www.gso.gov.vn/su-kien/2020/09/23410.

Pfaff, B. (2008). VAR, SVAR and SVEC Models: Implementation within R package vars. *Journal of Statistical Software, 27*(4). https://www.jstatsoft.org/article/view/v027i04.

Rigobon, R. (2003). Identification through Heteroskedasticity. *The Review of Economics and Statistics*, *85*(4), 777–792. http://www.jstor.org/stable/3211805

Rudebusch, G. D. (1998). Do measures of monetary policy in a VAR make sense? *International Economic Review, 39*(4), 907–931. https://www.jstor.org/stable/2527344.

Sims, C. A. (1980). Macroeconomics and Reality. *Econometrica*, *48*(1), 1–48. https://doi.org/10.2307/1912017

U.S. Department of Agriculture, Economic Research Service. (n.d.). *Rice sector at a glance*. Retrieved January 26, 2025, from https://www.ers.usda.gov/topics/crops/rice/rice-sector-at-a-glance.

Vu, L. H., & Nguyen, L. Q. D. (2021). Agricultural productivity growth in Vietnam in the reform and post-reform period. *Cogent Economics & Finance, 9*(1). https://doi.org/10.1080/23322039.2021.1972524.