INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN ECONOMICS & MANAGEMENT SCIENCES

OPEN ACCESS JOURNAL

Vol 14, Issue 2, (2025) E-ISSN: 2226-3624

The Role of Special Economic Zones in Reducing the Jordanian Trade Deficit

Seif Nawaf Abu Rayyash*, Nor Asmat Binti Ismail

School of Social Sciences, Universiti Sains Malaysia, Gelugor 11800, Penang, Malaysia

Email: norasmat@usm.my

Corresponding Authors Email: seifnawaf@student.usm.my

To Link this Article: http://dx.doi.org/10.6007/IJAREMS/v14-i2/25280 DOI:10.6007/IJAREMS/v14-i2/25280

Published Online: 11 June 2025

Abstract

In the early 1960s, Jordan initiated a strategic plan to establish special economic zones (SEZs) with the aim of stimulating economic growth and addressing structural imbalances reflected in various economic indicators. This study seeks to evaluate the extent to which these zones, in their diverse forms, have contributed to reducing the trade deficit between 1975 and 2023, thereby offering an empirical reflection of Jordan's economic landscape. To achieve this objective, the study employs the Autoregressive Distributed Lag (ARDL) model, along with integration tests of the relevant variables, to assess the dynamic impact of SEZs on the trade balance. Given the heterogeneous timeline of zone operations and the lack of comprehensive quantitative data, a dummy variable approach was adopted to capture the effect of SEZs. The findings reveal that Jordan's SEZs have not been effective in alleviating the trade balance deficit. This outcome is consistent with the observed economic reality, wherein the deficit continued to widen despite the expansion of SEZs during the study period. Accordingly, the study recommends that policymakers reassess the incentive structures granted to investors, evaluate the efficiency of benefit allocation mechanisms, and reorient incentives toward high-performing investments based on measurable outcomes.

Keyword: Special Economic Zones, Trade Deficit, ARDL, Co-integration, Investment

Introduction

Special Economic Zones (SEZs) have been defined and interpreted in various ways by international organizations. According to the United Nations Industrial Development Organization (UNIDO, 2015), SEZs are physically delineated areas that provide specific advantages to investors operating within their boundaries. Similarly, the United Nations Conference on Trade and Development (UNCTAD, 2019) describes SEZs as geographically designated areas in which governments actively promote economic development through a combination of incentives and supportive policies. The World Investment Report (UNCTAD, 2019) further emphasizes the role of SEZs as industrial zones backed by a range of fiscal and non-fiscal benefits. In line with this perspective, the Asian Development Bank (2016) portrays SEZs as strategic economic tools characterized by an efficient industrial environment and access to advanced infrastructure aimed at enhancing industrial performance.

Anderson et al. (2009) assert that Special Economic Zones (SEZs) function as strategic economic instruments designed to attract investment—particularly foreign direct investment—through mutually beneficial arrangements. These zones yield numerous advantages for host countries, including increased employment opportunities, reduced unemployment rates, expanded export capacities, and stimulated domestic demand. From the investors' perspective, SEZs offer access to cost-effective labor and affordable production inputs, in addition to a variety of fiscal and non-fiscal incentives.

Building on this perspective, Aggarwal (2019) defines SEZs as geographically designated areas established by host governments that provide tax exemptions, customs advantages, and advanced infrastructure as part of a strategy to integrate into global investment networks and stimulate economic development. Similarly, Yunyuan (2017) emphasizes that SEZs are prioritized areas recognized for their effectiveness in implementing economic programs. He further argues that such zones serve as platforms that facilitate trade liberalization and promote international trade exchanges in the context of broader economic reforms.

Special Economic Zones (SEZs) have received varying degrees of attention from policymakers, who increasingly perceive them as strategic hubs for business incubation and as targeted mechanisms for attracting investment and sustaining high rates of economic growth. Their widespread adoption is largely attributed to the resource constraints faced by many economies, elevated production costs, and the absence of investment-friendly environments. From the perspective of investors, SEZs are often regarded as safe havens offering a range of incentives and exemptions that facilitate business operations and enhance profitability.

Numerous empirical studies have evaluated national experiences with SEZ implementation, with China frequently cited as a model of notable success. Inspired by this, several countries have attempted to replicate the Chinese model—some achieving significant outcomes, while others fell short of their economic objectives. Jordan, in a similar vein, has established multiple SEZs with the intent of attracting foreign investment, enhancing industrial productivity, and reducing the trade deficit by boosting export volumes, thereby contributing to national economic growth.

This study offers a unique contribution by assessing the long-term impact of Jordan's SEZs, particularly their role in addressing trade imbalances. Fifty years after their initial launch, the study critically examines the actual performance of these zones, aiming to provide valuable insights for both practitioners and economists interested in the field of development and trade policy.

Literature Review

The theoretical foundation of this study is rooted in classical trade theory, particularly the Marshall-Lerner condition, which links exchange rate movements to trade balance outcomes. According to Marshall's (1949) *pure theory of foreign trade*, a depreciation in a country's currency will lead to an improvement in its trade balance if the sum of the price elasticities of imports and exports exceeds one. This view is supported by Sohmen (1958), who notes that currency devaluation typically reduces export prices and increases import costs, thereby expanding exports and contracting imports.

By the final decade of the twentieth century, the concept of development had shifted from traditional macroeconomic priorities to a more integrated approach emphasizing infrastructure modernization, technological advancement, and capital accumulation. Within this evolving development paradigm, SEZs have emerged as critical policy tools aimed at enhancing international competitiveness, promoting exports, attracting foreign direct investment, and generating employment opportunities. They now take various forms—such as industrial, environmental, technological, and comprehensive zones—all driven by governments seeking to foster structural transformation and long-term economic growth (UNIDO, 2015).

A substantial body of empirical literature has examined the multifaceted effects of Special Economic Zones (SEZs) on economic development, investment attraction, and structural transformation. These zones have been recognized as platforms for promoting collaboration, technological innovation, and economic integration. Aggarwal (2004), Kim (2007), Mustafa (2007), and White (2011) emphasize the role of SEZs in facilitating economic reform through the dissemination of technology, enhancement of industrial processes, and encouragement of innovation.

Complementary findings by Rawashdeh (2004), Zeng (2012), Abdel-All (2013), and Zaldivar and Molina (2018) underscore the contribution of SEZs to economic growth by attracting foreign direct investment (FDI), diversifying exports, generating employment, and improving administrative efficiency. Moreover, Rawashdeh (2004), Mustafa (2007), Wang (2013), and Babita (2018) highlight the importance of SEZs in fostering economic clusters that enhance connectivity and significantly impact productivity levels.

Other studies have focused on the incentives provided within SEZs and their influence on investor behavior. Wang (2013), Lonarkar (2014), and Du et al. (2008) found that firms are motivated to operate within SEZs due to various incentives, such as tax exemptions, customs relief, subsidized land prices, and streamlined administrative procedures.

A comprehensive study by Alder et al. (2016) assessed the impact of China's industrial policy—particularly the establishment of SEZs—using a difference-in-difference approach across 276 cities between 1988 and 2010. The results indicated that the creation of state-level SEZs was associated with an approximate 20% increase in GDP levels, driven largely by physical capital accumulation, with moderate effects on productivity and human capital formation.

In the context of the United States, Seyoum (2017) investigated the determinants of import intensity in U.S. Foreign Trade Zones (FTZs). The findings revealed that over 90% of production within FTZs is consumed domestically. Import volumes were primarily influenced by the regulatory environment—particularly reverse tariff advantages—and the firm's strategic orientation.

Yiheyis and Musila (2018) examined Uganda's trade balance dynamics using bounds testing for co-integration. The analysis revealed that short-term fluctuations in the trade balance were significantly linked to real exchange rate movements and inflation, although long-term consumption and inflation changes had limited effects on trade outcomes.

Li et al. (2021) analyzed firm-level performance using the China Industrial Enterprises Database (1998–2007). The study employed a dummy-variable approach to distinguish SEZ-located firms from those outside the zones. Results showed that firms within SEZs demonstrated higher productivity, influenced by selection effects and industry-specific agglomeration benefits. These effects were stronger for firms clustering within the same industry.

Gallé et al. (2024) conducted a geo-referenced analysis of SEZs established in India between 2005 and 2013, combining census data with spatial data on SEZ locations. The findings showed significant positive employment effects, particularly in manufacturing and services, extending up to 10 kilometers beyond the SEZ boundaries. The policy also contributed to structural transformation by shifting labor from agriculture to higher productivity sectors, especially among women.

Overview of SEZs in Jordan

Over the course of its first century, Jordan has undertaken a series of economic reforms aimed at enhancing growth rates and responding to the country's unique geographic and geopolitical challenges. Trade plays a central role in Jordan's economy, prompting successive governments to optimize the use of available—particularly nonrenewable—resources, such as energy. Simultaneously, strategic efforts have been made to reduce reliance on costly imports by pursuing alternative policies and diversification strategies. However, the persistence of a widening trade deficit, compounded by increasing production costs, continues to hinder economic growth and delay the onset of a comprehensive industrial transformation. This structural constraint is reflected in the total volume of exports, a proxy for national production capacity, which signals both the robustness and resilience of the production base. As exports constitute a core component of the trade balance and influence the balance of payments, they remain a key indicator of national economic strength (CBJ, 2020).

To address these issues, the Jordanian government has enacted numerous laws to improve the investment climate and streamline the investment process. Most notably, Investment Commission Law No. 30 of 2014 granted expanded authority to the newly established Investment Commission—later institutionalized as the Ministry of Investment. This institution was tasked with attracting and promoting both domestic and foreign investments, supporting national exports, and enhancing the trade balance by cultivating a stable and investor-friendly environment (JIC, 2014).

In alignment with global trends, Jordan has increasingly viewed Special Economic Zones (SEZs) as a viable mechanism for stimulating investment-led growth. According to the World Investment Report by UNCTAD (2019), SEZs are an effective tool for attracting foreign direct investment, generating employment, and integrating national economies into global value chains. The report highlights the global proliferation of over 5,500 SEZs across more than 150 countries, underscoring the growing competition to attract foreign capital and accelerate development. SEZs vary in form and function, encompassing free zones, industrial zones, and private economic zones. They may be designed to promote manufacturing, trade liberalization, or innovation-led services—such as finance and technology (UNCTAD, 2019).

In Jordan, the establishment of SEZs has been integral to broader economic reform efforts. These zones are intended to simplify investment procedures, attract both local and international enterprises, and create a conducive environment for sustainable investment. The primary objectives include boosting trade activity, expanding export capacity, increasing foreign exchange inflows, and diversifying the national income base. Furthermore, Jordanian SEZs are envisioned as platforms for integrating modern production technologies and capitalizing on the country's comparative advantages. They are also expected to enhance regional development and promote a more equitable distribution of economic gains across governorates. In addition, SEZs serve as efficient channels for importing advanced technologies, thus reducing national manufacturing costs and strengthening investor confidence (JIC, 2014).

Trade Balance in Jordan

International trade is widely recognized as a fundamental driver of economic development. In line with this perspective, Jordan initiated trade liberalization efforts in the early 1990s by joining the World Trade Organization (WTO) and signing numerous free trade agreements with key trading partners. Despite the implementation of these agreements, the trade balance continued to register persistent deficits, reflecting deeper structural imbalances within the economy.

In 1975, Jordan recorded a trade deficit of USD 259.48 million, which steadily rose to USD 765.75 million by 1980. The deficit further widened to USD 1,256.38 million by 1983. During this period, multiple factors contributed to the deterioration of the trade balance, including limited access of Jordanian goods to international markets and the regional instability triggered by the Iran-Iraq war. These conditions led to a reduction in Jordanian exports to Iraq, while agricultural exports to Saudi Arabia and other Gulf countries also declined due to those countries' pursuit of self-sufficiency in food production.

By 1984, the trade deficit had slightly improved, falling to USD 1,097.25 million, and continued to decline to USD 834.11 million in 1986. However, it rose again in 1988 to USD 899.93 million. The situation worsened further in the early 1990s due to the domestic financial crisis marked by the devaluation of the Jordanian dinar and the collapse of financial institutions such as Petra Bank and Jordan Gulf Bank. As a result, the trade deficit surged to USD 1,421.56 million in 1990, compared to USD 824.95 million in 1989 (CBJ, 1990).

Following this period, the deficit continued on an upward trajectory. By 2008, it had escalated to USD 7,166.17 million, largely due to increased oil import bills and the repercussions of the 2003 U.S. invasion of Iraq. A temporary improvement occurred in 2009, with the deficit narrowing to USD 6,270.33 million amid declining global oil prices. Nevertheless, the 2008 global financial crisis severely impacted the Jordanian economy, and by 2014, the trade deficit had nearly doubled, reaching USD 11,974.07 million. This deterioration was compounded by the collapse of global markets, regional instability triggered by the Arab Spring, and the Syrian civil war.

A modest improvement occurred in 2016 when the deficit declined to USD 9,594.50 million due to lower oil imports and reduced imports from Saudi Arabia. However, the COVID-19 pandemic later caused a drop in exports, pushing the trade deficit back up to USD

10,663.14 million in 2018. This upward trend persisted, culminating in a record high trade deficit of approximately USD 14,594.53 million in 2022 (CBJ, 2022).

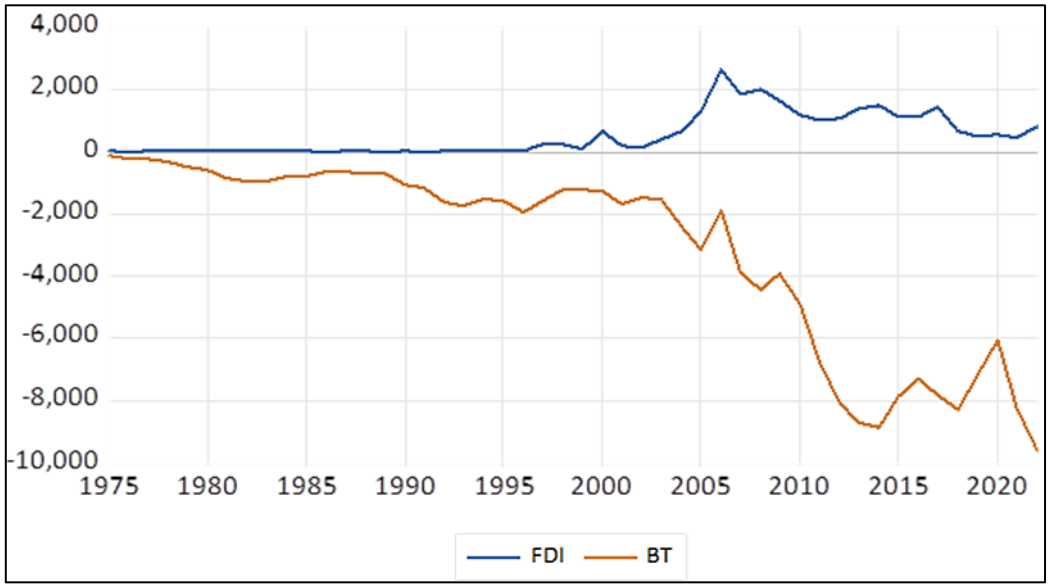

Figure **Error! No text of specified style in document.**. The Trend of Foreign Direct Investment (FDI), and the Trade Balance (TB).
Source: the World Bank database

Methods

This study employs an econometric model that positions the trade balance as a core indicator of economic performance in Jordan, with a particular focus on the impact of Special Economic Zones (SEZs) following the provision of various incentives aimed at boosting exports and reducing the persistent trade deficit. The Jordanian trade balance (GTB) has been influenced by multiple economic and structural factors, including the real exchange rate (RER), the number of open trade zones (TO), the inflation rate (INF), the minimum reserve requirement at the Central Bank of Jordan (RR), and three dummy variables (D1, D2, D3) representing the different types of SEZs operating within the country.

According to Hermes and Lensink (2003), the selection of explanatory variables in an econometric model should be grounded in the study's objectives, a review of relevant empirical literature, and the researcher's theoretical framework. In this context, the variables chosen for this study have been subjected to statistical testing to determine their significance and appropriateness in capturing the dynamics of the trade balance in Jordan.

A review of both classic and recent studies reveals the utility of dummy variables in evaluating the influence of SEZs across different national contexts. Studies by Wang (2013), Song et al. (2020), Brussevich (2024), and Gallé et al. (2024) have demonstrated the effectiveness of such variables in capturing the presence and impact of SEZs on macroeconomic performance. Similarly, Li et al. (2021) employed dummy variables to assess the contribution of SEZs to firm-level performance in China.

Given the intrinsic connection between the trade balance and a country's current account, the former is often used as a key indicator of economic stability. As Kehoe (2021)

emphasizes, persistent trade deficits are a serious concern for governments, signaling underlying vulnerabilities in national economic structures. The trade balance serves not only as a measure of external performance but also as a proxy for evaluating the efficacy of economic policy interventions.

This research incorporates both theoretical and empirical insights to identify the principal determinants of Jordan's trade balance. As noted by Zhou and Dube (2011), the magnitude and direction of these determinants may vary across countries depending on their production structures and economic characteristics. The selection of variables for the proposed model in this thesis is thus guided by existing literature and tailored to the Jordanian context. The regression equation and its constituent variables are detailed in the following section.

TB = ƒ (RER, INF, RR, TO, D1, D2, D3) (1)

The trade balance deficit growth rate (GTB) is the dependent variable. The real exchange rate (RER), inflation (INF), the growth rate of mandatory reserves (RR), trade openness (TO), and a dummy variable are the independent variables. D1: Development Zone, D2: Free Zone, D3: Qualified Industrial Zone. All variables were converted into a logarithmic model, with the exception of the mandatory reserve variable. The log-linear representation of Ln for the aforementioned equation is as follows:

$$GTB_t = \alpha_0 + \alpha_1 RER_t + \alpha_2 INF_t + \alpha_3 TO_t + \alpha_4 RR_t + \alpha_5 D1 + \alpha_6 D2 + \alpha_7 D3 + \varepsilon_t \quad (2)$$

Consequently, equation (3) was reformulated for this study to incorporate all variables of the model pertinent to the trade balance, as previously delineated in the specifications of the study models, as follows:

$$\Delta(GTB)_t = \beta_0 + \alpha_1(RER)_{t-1} + \alpha_2(INF)_{t-1} + \alpha_3(TO)_{t-1} + \alpha_4(RR)_{t-1} + \alpha_5(GTB)_{t-1} + \sum_{i=1}^{m} \lambda_1 \Delta(RER)_{t-1} + \sum_{i=0}^{m} \lambda_2 \Delta(INF)_{t-1} + \sum_{i=0}^{m} \lambda_3 \Delta(TO)_{t-1} + \sum_{i=0}^{m} \lambda_4 \Delta(RR)_{t-1} + \sum_{i=1}^{m} \lambda_5 \Delta(GTB)_{t-1} + \varepsilon_t \quad (3)$$

To determine if the variables are integrated in the co-integration analysis via ARDL, ordinary least squares (OLS) are estimated. Compute the F statistic to assess the joint significance of the variables. Ascertain the enduring relationship between variables. The null and alternative hypotheses for the test are formulated as follows:

$$H_0: \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = \alpha_5 = 0$$
$$H_1: \alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq \alpha_5 \neq 0$$

The computed F-statistical distribution suggests the presence of a long-term link between variables. Pesaran et al. (2001) provided essential numbers for the F-statistical distribution. Nevertheless, these critical values are inapplicable to a tiny data sample due to their original design, which caters to a huge data set (Narayan, 2005). The crucial values of the designated importance value, both with and without a trend, have been categorized into two groups. The initial group encompasses the essential minimum, supposing all variables remain constant at

level I (0). Conversely, the second group asserts that all variables must remain constant at me (1).

Upon confirming the presence of co-integration among the study variables, the subsequent step is to estimate long-term models for the equations pertaining to trade balance, incorporating dummy variables that represent the various types of SEZs in Jordan, as illustrated below:

$$\mathrm{GTB}_t = \beta_0 + \sum_{i=1}^{m} \beta_1 (GTB)_{t-i} + \sum_{i=0}^{m} \beta_2 ((RER)_{t-i} + \sum_{i=0}^{m} \beta_3 (INF)_{t-i} + + \sum_{i=0}^{m} \beta_4 ln(TO)_{t-i} + \sum_{i=0}^{m} \beta_5 (RR)_{t-i} + \sum_{i=0}^{m} \beta_6 (D1)_{t-i} + \sum_{i=0}^{m} \beta_7 (D2)_{t-i} + \sum_{i=0}^{m} \beta_8 (D3)_{t-i} + \varepsilon_t \quad (4)$$

Result and Desucssion

Table 1 shows the main statistical features of the time series for the study variables used in the third model. This model aims to show how special economic zones affect Jordan's trade balance and to check that the standard model construction is sound and that the right statistical method was chosen. We disclosed the central tendency measurements, and the normal distribution of the time series demonstrated effective outcomes.

Table 1
Descriptive Statistics for the Trade Balance model

	Variable	GTB	RR	TO	INF	RER
Absolute values	Mean	0.10	918.7	41.2	5.19	0.99
	Median	0.05	634.8	33.7	3.84	0.98
	Maximum	0.75	2336.1	91.4	25.7	1.12
	Minimum	-0.35	65.1	6.71	-0.87	0.89
	Stnd.Dev	0.23	797.9	25.3	5.17	0.05
	Skewness	0.70	0.55	0.28	1.74	0.57
	Kurtosis	3.16	1.75	1.72	6.68	2.45
	Jarque-Bera	4.04	5.56	4.00	52.5	3.27
	Prob.	0.13	0.06	0.13	0.00	0.19
	Obs.	49	49	49	49	49

Note: GTB, is growth rates, and RER, TO, and INF are in Percentage, and RR in million USD

Table 1 presents the results of the descriptive tests, indicating that the standard deviation was lower than the mean for all model variables, except for the variable of trade balance growth, which signifies data heterogeneity. The range, which shows the difference between the lowest and highest values, shows that variables like trade balance growth, mandatory reserves, and the rate of economic openness, inflation rates, and the moderation of the exchange rate change a lot. However, there is consistency in the data, as both the arithmetic mean and median reside within the established range of maximum and minimum values.

Stationarity Test

Below are the results of the Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. These tests check how stable the time series is and show if they are stationary at the first difference

I (1) or at level I (0), as we mentioned previously. We aim to identify the most efficient method for estimating the model parameters.

Table 2
Results of stationarity (Unit Root) Test.

The variables	PP Unit Root Test		ADF Unit Root Test		Status
	At Level	At First Difference	At Level	At First Difference	
GTB	-5.65***	-25.46***	-5.59***	-6.33***	I(0)
RR	-0.22	-7.30***	-0.27	-7.30***	I(1)
TO	-0.34	-6.33***	-0.38	-6.33***	I(1)
RER	-2.42	-7.01***	-2.42	-6.33***	I(1)
INF	-3.81***	-20.75***	-3.89***	-8.59***	I(0)

Notes: The Lag lengths selection based on SIC, and the critical values from Mackinnon (1996) compared with t-statistics, the signs *, ** and *** denotes significance level at 10%, 5% and 1% respectively.

Table 2 presents the outcomes of the stability test for time series variables of the second research model in relation to the first study model. The null hypothesis about the growth in the trade balance (GTB) and the inflation rate (INF) was thrown out because there was a unit root. This means that the variables' time series don't have a unit root and are stationary at level I. There is a unit root in the time series of the necessary reserve (RR), real exchange rate (RER), and trade openness (TO) variables, which shows that they are not stationary at level I. This means that the null hypothesis is correct. They remain stationary at the initial difference. However, the integration occurs at degree I (1). The results were a mix of variables that were integrated at level I (0) and degree I (1). To look at co-integration in the first study model, the ARDL method will be used. For scenarios involving integrated variables at varying levels and of the first degree, ARDL is considered the most appropriate method (Paseran et al., 2001).

Co-Integration Test

After finishing the ARDL method for evaluating the time series stability of the variables used in the study did the bounds test for co-integration, to find out if the model variables are long-term co-integrated. The results of the limits test after finding the best time period using the Schwartz Information Criterion (SIC) are shown in Table 3. For the second model of this research by Pesaran et al. (2001), ARDL (1, 3, 4, 1, and 3) was suggested.

Table 3
The bounds test for co-integration

F-Statistic	**8.41**	
Critical Bounds (k=4)		
Level of significance	**I (0)**	**I (1)**
10%	2.20	3.09
5%	2.56	3.49
2.5%	2.88	3.87
1%	3.29	4.37

Note: The computed critical values based on Pesaran et al. (2001), Case 2: Restricted Constant and No Trend.

Table 3 presents the outcomes of the boundary test for the co-integration of the model. The computed F-statistic exceeded the critical values established by Pesaran et al. (2001), even at the 1% significance level (8.41 > 4.37) of the upper critical threshold. This signifies that there is considerable statistical evidence of a long-term relationship between the variables in the first model, indicating that SEZs and trade balance determinants have achieved a balanced integration with trade balance over the long run.

Long-Run Analysis of SEZs and Trade Balance

There was a long-term study of how special economic zones affect trade balance growth, and the results are shown in Table 4. Development zones exert a negative, non-statistically significant influence on the expansion of trade balance. This outcome corroborates the study's findings indicating that these zones failed to meet the intended objectives. According to data bulletins from the Central Bank of Jordan, the trade deficit has grown because there are more special economic zones.

Table 4
ARDL Long-Run Estimation Results

Regressors	Coefficients	t-Statistics
RR	-0.00	-1.86
TO	0.020**	2.38
INF	0.016	1.87
RER	-1.24	-1.33
INTERCEPT	1.08	1.28
D1	-0.07	-0.54
D2	-0.17	-1.63
D3	-0.35	-1.69

Note: *, ** and *** denotes significance level at 10%, 5% and 1% respectively

The findings of this study align with growing concerns among economists regarding the limited effectiveness of the incentives and exemptions offered to investors within Jordan's Special Economic Zones (SEZs) in promoting exports and reducing the trade deficit. Despite the continuous expansion of SEZs across multiple regions in the country, the trade deficit has exhibited a persistent upward trajectory. This paradoxical trend underscores the growing pressure such zones place on the nation's financial resources and their adverse implications for overall economic performance.

As a result, policymakers have been compelled to reexamine the rationale for expanding SEZs without first evaluating their current impact and economic returns. The necessity for a comprehensive performance assessment of these zones has become evident. The continued inability to address investor challenges and export-related barriers reflects shortcomings in planning and governance. Consequently, some investors have diverted their goods into the domestic market, increasing competition with locally produced goods, suppressing export volumes, and further deepening the trade deficit.

This study's outcomes mirror the conclusions of Jin et al. (2024), who found that SEZs have not significantly contributed to industrial development and, in some cases, may have had adverse effects. The inability of these zones to attract meaningful foreign direct investment or restructure surrounding urban economies has led to negligible spillover

benefits, highlighting a misalignment between the economic objectives and political frameworks within which SEZs operate.

Similarly, Alkon (2018) examined SEZs in the Indian context and concluded that they failed to stimulate local economic development. The study attributes this to the use of state-owned development corporations by local officials as rent-generating mechanisms, coupled with weak political oversight. These conditions have diminished the developmental potential of SEZs, rendering them largely ineffective.

Statistical analysis within the present study revealed that the trade openness variable had a statistically significant and positive relationship with the trade deficit growth rate. Specifically, a 1% increase in trade openness was associated with a 0.02% increase in the trade deficit. This indicates that Jordan's trade agreements may have disproportionately facilitated import growth without a corresponding rise in exports. The surge in imports—partially driven by SEZ-linked trade privileges and tax exemptions—has substituted domestic production and hindered export performance, thereby accelerating the trade deficit.

On the contrary, other variables—including inflation rates, exchange rates, and required reserve ratios—did not yield statistically significant effects on the trade balance. These variables failed to stimulate investment, enhance export volumes, or mitigate the growing deficit. In particular, the mandatory reserve requirements, often intended to influence liquidity and credit availability, appeared ineffective in promoting productive economic activity.

Overall, these findings raise critical questions regarding the structural and operational design of Jordan's SEZs, the nature of incentives offered, and the broader trade policy framework in which these zones are embedded.

Diagnostic Test

The results of the diagnostic tests for the study model can be seen in Table 5. This model looks into how special economic zones affect Jordan's trade balance. The results validated the null hypothesis, indicating the absence of first-degree serial correlation, the distribution of residuals, and the absence of heteroscedasticity. The probability value of the F statistic exceeded 0.05, signifying the absence of serial correlation and heterogeneous variance in the model and confirming that the residuals were normally distributed. Also, Figure 5.6 shows the plots of both CUSUM and CUSUMSQ, which stayed below the important limits of 5%, proving that the model is stable. Consequently, the model's recognition was accurate. These findings showed that the model's predicted coefficients were stable, fair, and useful. Consequently, these findings can inform policy formulation and offer guidance to decision-makers.

Table **Error! No text of specified style in document.**
Diagnostic Tests

	F-statistics
Serial Correlation X^2 (Breusch-Godfrey LM)	0.92 {0.41}
Normality X^2 (Jarque-Bera)	2.34 {0.30}
Heteroscedasticity X^2 (Breusch-Pagan-Godfrey)	0.86 {0.62}

CUSUM	S
CUSUMSQ	S

Note: The selection of ARDL (1,3,4,1,3) is based on SIC, p-values are in parenthesis and S signifies stable model.

Conclusion

This paper examined the Jordanian experience in establishing Special Economic Zones (SEZs) and the extent to which these zones have achieved their intended policy objectives, objectives that align with international models of development and trade enhancement. Through an analysis of the structural attributes of SEZs and their investment environment, based on available data, the study concludes that these zones have not fulfilled their primary objective of improving Jordan's trade balance. More than fifty years since the introduction of SEZs, a critical gap has emerged between their theoretical promise and practical outcomes, reflecting significant operational deficiencies and strategic misalignments.

To assess the impact of these zones with precision, the study employed variables specific to each SEZ type, allowing for a detailed examination of their individual and collective effects. This methodological approach ensures alignment with Jordan's regulatory framework governing investment and maintains consistency with the evolving legislative landscape. While the establishment of SEZs was intended to serve as a catalyst for economic growth, their current role remains ambiguous, largely due to overlapping legislation and inconsistencies in policy implementation.

Ultimately, this research seeks to shed light on the persistent trade imbalance and its implications for economic growth, while evaluating the extent to which SEZs have contributed, or failed to contribute to mitigating this imbalance. By doing so, the study underscores the need for a comprehensive reassessment of SEZ policies and the institutional mechanisms through which they are implemented.

Theoretical and Contextual Contribution

Given the importance of special economic zones in stimulating economic performance indicators, such as attracting foreign capital and employing it within the Kingdom, and developing new fields through establishing investment projects and export industries, which works to support the trade balance, the importance of this study is evident from the theoretical aspect by providing precise recommendations to decision-makers in Jordan, evaluating the actual experience of special economic zones, and providing the research library with scientific content that enables researchers in the same field to rely on the theoretical aspect available in them. On the other hand, it uses the standard approach in studying this impact to reach its role in reducing the Jordanian trade balance deficit.

Limitation

This work, while contributing to the field, encountered numerous limitations. Even though the researchers tried to reach out to many developers, they couldn't get numerical data for more than 60 special economic zones or describe them with statistics during their operation because of several challenges. The study tried to get the export and import data from the Central Bank or the Department of Statistics. The researcher was surprised that no Jordanian organization could access this data, so they had to use placeholder variables while still trying to show how a 50-year experiment affected the Jordanian economy. This method

also sought to fill the long-standing research gap in Jordan caused by a lack of quantitative data.

References

Abdel-All, F. (2013). The impact of industrial zones on the development of Egyptian governorates: Applied to the governorates of the Suez Canal region. National Planning Institute, Planning and Development Issues Series

Aggarwal, A. (2019). SEZs and economic transformation: Towards a development approach. *Journal of Transnational Corporations Investment and Development*, 26(2), 27–47.

Agrawal, P. (2005). Foreign direct investment in South Asia: Impact on economic growth and local investment. In Multinationals and foreign investment in economic development (pp. 94–118). Palgrave Macmillan.

Alder, S., Lin, S., & Zilibotti, F. (2016). Economic reforms and industrial policy in a panel of Chinese cities. *Journal of Economic Growth*, 21, 305–347.

Alkon, M. (2018). Do SEZs induce developmental spillovers? Evidence from India's states. *World Development*, 107, 396–409.

Anderson, L., Curran, S., Cook, J., Hampton, K., Clark, C., & Yorgey, G., (2009). The impacts of SEZs. Washington University: Agricultural Policy and Statistics Division, Bill and Melinda Gates Foundation.

Asian Development Bank. (2016). the role of SEZs in improving effectiveness of GMS economic corridors. Asian Development Bank

Babita. (2018). Output and input efficiency of SEZs in India: A case of Visakhapatnam SEZs (VSEZs). *The Indian Economic Journal*, 65(1–4), 107–118.

Brussevich, M. (2024). The socioeconomic impact of SEZs: Evidence from Cambodia. *The World Economy*, 47(1), 362–387.

Central Bank of Jordan (CBJ). (1990). Annual report. https://www.cbj.gov.jo

Central Bank of Jordan (CBJ). (2020). Annual report. Retrieved from https://www.cbj.gov.jo

Central Bank of Jordan (CBJ). (2022). Annual report. Retrieved from https://www.cbj.gov.jo

Du, J., Lu, Y., & Tao, Z. (2008). Economic institutions and FDI location choice: Evidence from US multinationals in China. *Journal of Comparative Economics*, 36, 412–429.

Gallé, J., Overbeck, D., Riedel, N., & Seidel, T. (2024). Place-based policies, structural change, and female labor: Evidence from India's SEZs. *Journal of Public Economics*, 240(October).

Hermes, N., & Lensink, R. (2003). Foreign direct investment, financial development, and economic growth. *Journal of Development Studies*, 40(1), 142–163.

Jordan Investment Commission (JIC). (2014). Annual report. Retrieved from http://www.jic.gov

Kehoe, T. J., & Ruhl, K. J. (2008). Are shocks to the terms of trade shocks to productivity? Review of Economic Dynamics.

Kim, E. (2017). Case study: China's green SEZs policies – Development and implementation. Global Green Growth Institute, Seoul, Republic of Korea

Li, X., Wu, X., & Tan, Y. (2021). Impact of special economic zones on firm performance. *Research in International Business and Finance*, 58. Https: //doi.org/10.1016/j. ribaf.2021.101463. Article 101463.

Lonarkar, P. P. (2014). Export performance analysis of India's SEZ. *Journal of International Economics*, 5, 18.

Marshall, A. (1949). The pure theory of foreign trade: The pure theory of domestic values. London School of Economics and Political Science.

Mustafa, E. (2007). The role of free zones and SEZs in developing the Egyptian economy, with reference to the Chinese experience (Master's thesis). Commerce College, Zagazig University, Egypt.

Narayan, P. K. (2005). The saving and investment nexus for China: Evidence from co-integration tests. *Applied Economics*, 37(17), 1979–1990.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16, 289–326.

Seyoum, B. (2017). US foreign trade zones and import intensity: Examining determinants of import intensity in US foreign trade zones. *European Business Review*, 29(1), 103–122.

Sohmen, E. (1958). The effect of devaluation on the price level. *The Quarterly Journal of Economics*, 72(2), 273–283.

Song, Y., Deng, R., Liu, R., & Peng, Q. (2020). *Effects of SEZs on FDI in emerging economies: Does institutional quality matter? Sustainability*, 12(20), 1–21.

United Nations Conference on Trade and Development (UNCTAD). (2019). World investment report: SEZs. United Nations.

United Nations Industrial Development Organization (UNIDO). (2015). Economic zones in Asia: Industrial parks, SEZs, eco-industrial parks, innovation districts as strategies for industrial competitiveness.

Wang, J. (2013). The economic impact of SEZs: Evidence from Chinese municipalities. *Journal of Development Economics*, 101, 133–147.

White, J. (2011). Fostering innovation in developing economies through SEZs. In Farole, T., & Akinci, G. (Eds.), SEZs: Progress, emerging challenges, and future directions (pp. 183–205). World Bank Publications.

Yiheyis, Z., & Musila, J. (2018). The dynamics of inflation, exchange rates and the trade balance in a small economy: The case of Uganda. *International Journal of Development Issues*, 17(2), 246–264.

Yunyuan, Z. (2017). Selection of the direction of the development path for China's SEZs in the new period. In Yuan, Y. (Ed.), Studies on China's SEZs (pp. 115–127). Shenzhen University: Center for SEZs.

Zaldivar, F. G., & Molina, E. (2018). SEZs and their impact on regional development. *Problemas Del Desarrollo, Revista Latinoamericana de Economía*, 49(193), 11–32. Universidad Nacional Autónoma de México.

Zheng, G., & Zhang, Y. (2012). Research on the transition of national-level development zones in view of factor succession. *Economic Geography*, 12, 114–118

Zhou, J. (2010). Testing for co-integration between house prices and economic fundamentals. *Real Estate Economics*, 38(1), 599–632.