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Re-Assessing the Role of Trade Policy and Import Substitution Industrialization: Empirical Evidence from Pakistan

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Abstract

Researchers and policymakers are re-examining the idea of import substitution industrialization (ISI). Consequently, trade policy has emerged as an essential instrument for promoting ISI. This research looks at the effect of trade policy on ISI, breaking down how tariff rates impact domestic industry by utilizing information from Pakistan in the range of 1998 and 2022. To empirically examine the impact that tariff rates have on ISI, the current research and makes use of Granger Causality, the vector autoregressive (VAR), and the autoregressive distributed lag model (ARDL), as well as the unit root with structural break technique in EViews. The findings show a conclusive two-way connection between tariff rates and ISI. In addition, although an initial increase in tariff rates increases ISI, a subsequent decrease in ISI quickly offsets this effect. Additionally, ISI suffers short-term and long-term consequences from rising tariff rates. These findings highlight the necessity of gradual integration into global markets for long-term sustainability, despite the initial industrial development fostered by trade protectionism.

Keywords: Import substitution industrialization, trade policy, tariff rate, real effective exchange rate, political stability, foreign direct investment.

1. Introduction

Trade and investment have strengthened national ties after globalization, which has led to a significant increase in FDI and trade between developed and developing nations. However, the advantages are slanted toward rich nations. Due to the underdeveloped industrial sectors, developing nations import more and export less, primarily shipping primary or raw goods. They are exposed to risks from the outside because they rely on imports. Import substitution industrialization (ISI) expected to create products locally that were recently imported, slowly moving to more advanced products and ultimately sending out these merchandises, subsequently encouraging modern development (Bussell, 2023; Todaro, 2000). Theoretically, ISI opposes the idea of an international division of labor, which forces less developed economies to import expensive finished goods from Europe and the United States while exporting primary goods (Bussell, 2023).

According to the J-Curve economics concept (Bahmani-Oskooee and Ratha, 2004; Magee, 1973), primary producers had to export more to make up for trade deficits while also having to pay more for imported goods (Bahmani-Oskooee and Ratha, 2004). ISI's success in Latin America and Asia suggests that it can help weak economies, particularly in Africa and parts of Asia, to become self-sufficient in the production of basic consumer goods. The strategy instruments for agreement with modern business ventures utilized by the Asian Tigers and Latin American economies are like those in African economies (Nissanke, 2001). However, profits were frequently distributed among elites and there was a lack of transparency in the management of rent-seeking opportunities by African governments (Akyüz et al., 1998; Akyüz and Gore, 2001; Jackson, 2016, 2017, 2019). The Structural Adjustment Program (SAP) and the 1980s debt crisis are linked to the failure of ISI policies in Africa (World Bank, 1994).

According to Ogujiuba et al. (2011) and Saffa and Jabbie (2017), countries that implemented ISI, such as Japan, Malaysia, Thailand, and Indonesia, saw increases in income and welfare as a result of incorporating job creation and productivity enhancement into their industrial policies. According to Ogujiuba et al. (2011), unproductive entrepreneurship and reliance on primary commodity exports are to blame for Africa's ISI failure. To support industrialization and diversify production, effective ISI strategies require proper planning and support from the public sector, particularly the Department of Trade and Industry (Williams, 2015; Jackson, 2020). To withstand competition from established foreign businesses, state intervention and support for local industries are essential (Hirschman, 1983).

The interpretation of previous experiences plays a crucial role in the revived debate regarding using industrial policies to accelerate development, defend, or regain

technological supremacy. The Asian miracles of Korea and Taiwan, which achieved high and sustained growth using activist policies such as high tariffs and other protectionist policies and managed to move from low-income status to high-income status within a generation, are frequently cited by those in favor of state intervention to promote specific sectors (Cherif and Hasanov, 2019b, 2019c). Others would point to the failures of numerous developing nations in the 1950s and 1970s to establish new industries through protectionism and subsidies, frequently beyond their capabilities. In the 1980s and 1990s, during financial crises, most of these experiments were abandoned, and they have remained the epitome of failure ever since. The industrial policy narrative's association with these policies' past failures is not surprising in retrospect.

According to Cherif and Hasanov (2019b), the success of the Asian True Industrial Policy (TIP) is based on three key principles: ensuring intense competition and accountability for the support received; export orientation; and state intervention to channel resources toward sophisticated industries (such as electronics). They argue that the Asian miracles were able to achieve high-income status within a few generations thanks to the vigorous application of these principles to support the development of domestically developed technology by domestic businesses. Although the Asian miracles protected domestic markets with the full arsenal of state intervention tools, including high tariffs (Wade, 1990; Hauge, 2020), the primary focus of their strategy was to target export markets, particularly advanced markets, move into more sophisticated industries, enforce competition and accountability, and so on.

However, in the absence of the above-mentioned objective and targets implementation of protectionism through high tariff rates could create a devasting effect for domestic industry. Consequently, the economy may suffer from a high trade deficit which further intensifies the problems faced by the domestic industry in the way of costly loans and heavy taxation as a result of tight monetary and fiscal policies as most of the time trade deficit leads to budge deficit because of surge in current account deficit (Abel et al. 2004).

Pakistan is a developing country and it is renowned for its twin deficit phenomenon and poor industrial growth in recent decades. One of the primary factors behind the current account deficit is the huge difference between imports and exports of Pakistan. In fiscal year 2023-2024, the country’s trade balance has been recorded at a deficit of $24.09 billion. Pakistan has had to repeatedly request financial assistance from the IMF as a result of its persistently high trade deficit and the unfavorable position of its foreign reserves over the past several decades. Pakistan has sought IMF bailouts 23 times in 75 years since joining the IMF in 1950, demonstrating its economy's extreme unpredictability.

The gap between exports and imports does not significantly narrow annually, despite a clear shift in trade policy from import substitution (IS) industrialization and protectionism to liberalization and export-oriented trade after joining the WTO in 1995. The trends of Pakistan's trade policy and trade deficit are very similar. As a result, Pakistan's trade policy can be blamed for the variation in its trade deficit. Trade progression, demonstrated by the

decrease in tariff, could have at first harmed industrialization. Domestic manufacturers may have been more vulnerable to foreign competitors as a result of the reduction in protective tariffs, which could have decreased the manufacturing share of GDP. Beginning in 2020, Pakistan began raising its tariff rate once more to address the problem of rapidly rising imports but sluggish export growth.

The current study aims to explore the nexus between trade policy and import substitution industrialization (ISI) in Pakistan. To measure trade policy and ISI this study uses the data of tariff rate and real effective exchange rate respectively from 1998 to 2022 based on the availability of the data. In the lite of the unit root test with a structural break, the present research applied the vector autoregressive (VAR) model and the Autoregressive distributed lag model (ARDL).

The contribution of this study is two-fold; First, it provides a piece of new and robust evidence on the role of trade policy in determining the level of ISI in Pakistan; Secondly, it measures ISI with the real effective exchange rate (REER) which reflects the trade orientation of a country in a better way. Because a rise in the value of REER implies a decrease in the price of imports, and vice versa. A decrease in import prices creates a surplus of goods in the economy, the other way around, which hurts the domestic industry and subsequently creates damages for ISI.

2. Literature Review and Hypotheses Development

2.1. The Dynamic of Import Substitution Industrialization (ISI)

During the 1950s, key financial experts like Prebisch, Myrdal, Lewis, Hirschman, and Nurkse raised question marks on standard economic theories, contending they didn't make a difference to non-industrial nations. They thought these nations would not benefit from free trade based on perfect competition models. Instead, it frequently kept them poor by forcing them to import manufactured goods and export raw materials. These economists called for government intervention and industrialization to break this cycle. They introduced the concept of import substitution, in which developing nations would substitute domestic production for imported manufactured goods. Focusing on importing essential capital goods necessary for development rather than consumer goods was the goal of this strategy. After World War II, there was a shortage of foreign currency, so this strategy was deemed necessary. A prominent economist named Raul Prebisch was instrumental in spreading these concepts. He contended that the global trade setup inclined toward developing nations, prompting declining terms of trade for emerging countries. Prebisch (1950) accentuated the requirement for agricultural nations to acquire foreign trade yet focused on the significance of utilizing it admirably for capital merchandise instead of consumer products. He recognized possible disadvantages of protectionist arrangements yet accepted some degree of tariff was vital for industrialization (Prebisch, 1954). Other development economists, like Prebisch, held conflicting opinions regarding import

substitution and free trade. Free trade, according to Myrdal (1956), hindered economic development in developing nations, according to his opinion. Myrdal (1968) opposed the use of import quotas due to corruption and inefficiency, but he was in favor of export promotion to assist nations in earning foreign exchange for essential imports. He acknowledged, despite his reservations, that developing nations might still require quantitative import controls and because government intervention in trade was required for economic advancement (Myrdal and Sitohang, 1957).

Conversely, Ragnar Nurkse had serious doubts about import substitution since it didn't resolve the main pressing concern of expanding investment funds, which he considered to be pivotal for improvement. According to Nurske (1953), he was skeptical that import restrictions would effectively encourage domestic manufacturing, particularly in small markets. According to Nurkse (1952), tariff protection alone was ineffective for economic growth because it did not address the issue of capital supply. Nurkse (1953) additionally accepted that import limitations could prompt wasteful creation and decrease genuine pay and domestic investment funds.

Lewis's "dual" economy model, which describes an agricultural economy with "unlimited supplies of labor," (Lewis,1954). Lewis (1954) argued for protectionist policies in case of higher real earnings in manufacturing than in agriculture. He advocated for general protection for up to 20 years if there were external economies of scale in manufacturing and for limited subsidies or protection for industries that benefited from "learning by doing." Even though he did not employ the term "import-substitution industrialization," his ideas were consistent with that strategy. Regardless of this, Lewis (1954) likewise recognized the significance of exports and featured their advantages.

Albert Hirschman condemned import substitution during the 1950s. Hirschman (1983) thought that many nations erroneously imposed excessive import restrictions, which stifled their industrial expansion. Additionally, he emphasized the significance of exports and argued that promoting exports might be a more efficient strategy for industrialization than substituting imports.

Industrial policy has recently been brought back into public discussion (Cherif et al. 2024a; Cherif and Hasanov 2019a, 2019b; Irwin, 2021). Many advanced nations have always had some kind of industrial policy, usually in the name of innovation or national security (Mazzucato, 2011; Tucker, 2019). Industrial policy proponents like (Chang et al. 2002, Amsden 2003, Ocampo et al. 2009), Rosenberg and LE Jr (2008), and Wade (1990) were once overlooked in mainstream economics, but more empirical and theoretical research is bringing them into the spotlight (Lane, 2021). The United States, the European Union, and China are the three largest economic blocs in the world, and this resurgence of industrial policy has resulted in significant policy announcements (Cherif and Hasanov, 2024b).

2.2 Tariff Rate and Import Substitution Industrialization

In developing nations, Prebisch and Singer (1950) were among the first to advocate for ISI, arguing that it would help reduce dependence on imported goods and encourage local industries. They set that high levies on imported products would shield early ventures from foreign rivalry, permitting them to develop and accomplish economies of scale. However, Nurkse (1953) was skeptical of ISI using high tariffs as its primary tool. He contended that while tariffs could safeguard newborn enterprises, they frequently prompted wasteful asset portions and didn't resolve the basic issue of low domestic investment funds, which was significant for capital arrangement and modern development.

A comprehensive analysis of the ISI experience in Latin America and other developing regions is provided by Bruton (1998). His examination uncovers that while high duties at first safeguarded nearby businesses, they frequently brought about high creation costs and uncompetitive enterprises. According to Bruton's conclusion, although tariffs played a role in the early stages of industrialization, inefficiencies and a lack of innovation made their long-term impact less favorable.

Similarly, the impact of government intervention, including tariffs, on the economic development of East Asian nations is investigated by Rodrik (1995). He discovers that these nations emphasized export promotion and competitive exchange rates in addition to employing ISI policies like high tariffs. Rodrik suggests that a combination of policies that encouraged both import substitution and exports is a source of the success of East Asian economies rather than ISI alone. The impact of tariffs on industrialization is the primary focus of Edwards' (1993) investigation of the ISI's experience in Latin America. He finds that while tariffs at first advanced modern development, they in the long run prompted financial distortions, like strict monetary policy etc. Edwards argues that high tariffs cannot be sustained over the long term and advocates for more open trade policies. Greenaway (1993) looked at how tariffs affected specific industries in developing nations. Their research demonstrates that industries heavily dependent on government protection developed as a result of high tariffs frequently becoming uncompetitive. They argue that tariffs should be gradually reduced to encourage efficiency and competitiveness, even though they can provide temporary protection.

Likely, the impact of trade policies in Turkey, including tariffs, on industrial development is examined by Krueger (1997). She concludes that a substantial but inefficient industrial sector was established as a result of high tariffs. According to Krueger's conclusion, although ISI policies like tariffs can initially encourage industrial growth, they frequently lead to economic inefficiencies and stagnation without policies that encourage competition and innovation. Cherif and Hasanov (2019) return to the ISI banter about present-day creating economies. They argue that, even though high tariffs can safeguard emerging industries, they must be integrated into a broader strategy that also includes investments in

innovation, education, and infrastructure. Cherif and Hasanov underscore the requirement for a reasonable methodology that joins insurance with measures to upgrade seriousness.

A meta-analysis of the effects of trade policies on economic growth is provided by Harrison and Rodriguez-Clare (2010). They discover that economic distortions and inefficiencies have a negative long-term impact on tariffs' ability to support industrial growth in the short term. Harrison and Rodriguez-Clare advocate focusing on policies that boost innovation and productivity as well as a gradual reduction in tariffs. The writing on the effect of tariff rates on ISI presents a nuanced view. Due to economic inefficiencies and a lack of competitiveness, high tariffs frequently have a less favorable long-term impact, even though they can protect emerging industries and encourage initial industrial growth. Most of the time, successful ISI strategies combine tariffs with other policies that increase export competitiveness, efficiency, and innovation. Various nations' experiences suggest that for long-term industrialization and economic growth, a balanced strategy is more important than relying solely on high tariffs.

In conclusion, in the literature on international trade, there is a disagreement on the role of tariff rate as a tool of trade policy for ISI. In addition, the effect of tariff rates varied among different nations based on the structures and other sectors of their economies. Therefore, there is a need of a comprehensive analysis to empirically examine the nexus between tariff rates and ISI by controlling other factors such as political stability, foreign direct investment, and natural resource endowments.

3. Methodology and Theoretical Framework

3.1 Theoretical Framework

3.1.1 Tariff Rate and Import Substitution Industrialization

Trade strategy is crucial in deciding the achievement and direction of Import Substitution Industrialization (ISI). It includes tariffs, quotas, trade agreements, export incentives, and a wide range of other instruments. The essential execution of these instruments can either work with or block the improvement of domestic enterprises under an ISI structure. The current investigation focuses on the potential effects that the use of tariff rates as a tool for trade policy could have on ISI under the umbrella of classical trade theory namely mercantilism which advocates the use of tariff to curb trade deficit.

Tariff rates are a significant device in Import substitution industrialization (ISI). State-run administrations use tariffs to secure and assist domestic firms' growth without confronting rivalry from foreign organizations (Chang et al. 2002). According to Corden (1997), tariffs also provide revenue for developing nations to invest in infrastructure and education, resulting in domestic industrialization. According to Rodrik (2004) and Hausmann and Rodrik (2003), tariffs can also support local businesses in innovating without immediate international competition. According to Balassa (1982), sustained economic growth frequently necessitates a shift toward promoting exports, even though high tariffs initially assist ISI by reducing imports and encouraging local production. Tariffs help local

businesses, but they can also harm them. Because they won't have to compete, they might make local industries lazy and less innovative (Krueger, 1997). Additionally, tariffs can prompt greater costs for purchasers, marked-down motivators for nearby makers to bring down costs, and conceivable retaliatory duties from different nations (Dornbusch and Edwards, 1991; Sachs and Warner, 1995). Likewise, high tariff rates can set open doors for rent-seeking, possibly sabotaging the general productivity and decency of the financial framework (Krueger, 2008). According to Amsden (1989), historical evidence demonstrates that while some nations successfully utilized tariffs to develop their industries, they also encountered issues such as inefficiency and reliance on protection. In conclusion, when it comes to ISI, tariffs have both benefits and drawbacks. They offer vital help for rising enterprises and income for the public authority however can likewise prompt market distortions, higher buyer costs, and a lack of innovative activities in the industrial sector. The viability of tariffs in advancing ISI relies upon their plan, execution, and arrangement with more extensive economic approaches, including the possible progress toward export advancement and worldwide integration.

Based on the above discussion the benchmark equation to empirically analyze the effect of trade policy measured by tariff rate on import substitution industrialization in Pakistan is below:

$$ISI_t = \beta_0 + \beta_1 TP_t + \beta_2 NR_t + \beta_3 PS_t + \beta_4 FDI_t + \beta_5 D_t + \varepsilon_t \quad (1)$$

Where ISI is import substitution industrialization, TP is trade policy, NR represents natural resources, PS shows political stability, FDI is foreign direct investment, D is a dummy variable (Dummy=1 for years 2019 and 0 otherwise), ε is an error term, and t denotes time.

3.2 Sample size and measurement of Variables

The primary objective of this research is to empirically examine Pakistan's import substitution industrialization about its trade policy. Trade policy instruments like tariff rates, quotas, and subsidies can all be measured using available literature. But Myrdal (1956) says the tariff rate is a better way to measure trade policy than any other instrument. Additionally, although the data for different instruments are unavailable, the tariff rate data are easily accessible for Pakistan. As a result, tariff rates are used as a proxy in this study to measure Pakistan's trade policy. However, this study uses the real effective exchange rate (REER) to measure ISI because a decrease in the REER value indicates an increase in import prices and the other way around. As a result, industrialization through import substitution can be measured by the REER. A falling REER indicates an increase in import costs, which may result in a shortage of domestic goods. Industrial expansion is encouraged by this shortage, which ultimately reduces reliance on imported goods.

Similarly, a rising REER implies a decrease in import prices, resulting in an oversupply of domestic goods and an increase in import dependence and deindustrialization. This study uses this indicator as a proxy for ISI for empirical analysis because a rise in REER indicates

a decline in ISI and vice versa. From 1998 to 2022, WDI provides data for both the variables of interest and other control variables.

3.3 Econometric Methodology

Equation 1 can be estimated using the ordinary least squares (OLS) estimator if all of the series in the equation are stationary. There are several reasons why OLS estimators are not suitable for non-stationary data. When OLS is applied to non-stationary data, the results can show a relationship even if there isn't one. This is known as spurious regression. In addition, when the data is non-stationary, this indicates that hypothesis tests and confidence intervals derived from OLS estimates are not reliable (Green, 2008; Phillips and Perron, 1988). Thus, the current study will initially employ the unit root test, which is used to identify a series' non-stationarity. However, shifts in the mean, variance, or other properties of the time series at specific points in time are examples of structural breaks. Standard unit root tests can be affected by these breaks, which can lead to incorrect conclusions regarding the series' stationarity. According to Zivot et al. (1992), Perron (1989) and Lutkepohl and Kratzig (2004), a statistical method known as a unit root test with a structural break is used to determine whether a time series is non-stationary due to the presence of a unit root while taking into account the series' structural changes. Therefore, to identify the possibility of a structural break, this study performs a graphic analysis of each series in Equation 1. Although the natural log of the real effective exchange rate used to measure ISI from 1998 to 2022 has numerous ups and downs, but the value of REER experienced a sudden downward shift in 2019. However, the historical trend of tariff rates used to measure trade policy does not show any sudden rise or fall suggesting no structural break. In contrast, the value of the political stability index has changed, and a structural break can be observed in 2011. Likely, the structural break in 2009 and 2016 can also be observed in the value of natural resource rent. Similarly, the values of FDI also suffer from a sudden fall indicating a structural break in 2007 possibly due to global financial crisis of 2007-08. As a result, the standard Augmented Dickey-Fuller test proposed by Dickey and Fuller (1979) is applied on the tariff rate and the structural break Augmented Dickey-Fuller test is applied on the rest of the series of equation 1 by this current study.

3.3.1 Zivot-Andrews Test

The possibility of a structural change in the time series, such as a change in the level or trend at an unknown point in time, is taken into account by the Augmented Dickey-Fuller (ADF) test with a structural break. The Zivot and Andrew's test, which was proposed by Zivot and Andrew (1992) allows for a one-time structural break in either the trend or the intercept.

3.3.2 VAR model and Auto regressive Distributed Lag Model

A statistical model called a Vector Autoregressive (VAR) model is used to capture the linear interdependencies between multiple time series. The VAR model is made up of multiple equations, one for each system variable. In each equation, the variable is modeled

as a linear function of its own and all other system variables' past values. However, the data in the series ought to be stationary (Enders, 2008).

3.3.3 Auto Regressive Distributed Lag (ARDL) Model

In time series econometrics, the Autoregressive Distributed Lag (ARDL) model is used to estimate the relationship between variables when the data are non-stationary. However, the model can be re-parameterized into a form that is suitable for estimation. Modeling the dynamics between a dependent variable's past values (autoregressive component) and the values of other explanatory variables' past and current values (distributed lag component) is particularly beneficial. Both short-term and long-term relationships between variables are captured by the ARDL model. The short-run dynamics are represented by the autoregressive component, while the long-run equilibrium relationship is represented by the distributed lag component. Pesaran et al. (2001) propose bound test to check the existence of long run relationship among dependent and independent variables of the model.

3.3.4 Post estimation Diagnostic Tests

To check the stability of the ARDL model, Pesaran et al. (2001) suggest the use of cumulative sum (CUSUM) and cumulative sum of square (CUSUMSQ) test introduced by Brown et al. (1975). Moreover, this study also uses Breusch-Godfrey serial correlation LM test to check the presence of serial correlation under the null hypothesis of there is no serial correlation at up to lags k. Furthermore, this study also applies Ramsey Reset test and Jaurque Berra test to check the correct functional form of the model and normality of the data respectively.

4. Data Analysis and Results

4.1 Data

The table 1 contains summary statistics for five different series: LNREER, TRW, LNTNRR, PI, and FDI. The real effective exchange rate (LNREER) is measured in logarithmic form. The central tendency (mean), dispersion (standard deviation), and range (maximum and minimum values) of each series are highlighted in the table, which provides a summary of the most important statistics for that series. Understanding the general trends and variability of each economic indicator can benefit from this data. The real effective exchange rate and natural resource rent do not have significant variation from 1998 to 2022. However, tariff rate, FDI and political stability have relatively large value of rang and standard deviation indicating that the patron of these series doesn’t show consistency within the period covered by the current study. Tariff rate is the most volatile variable among all series in this sample reflecting the regime shifts in trade policy of Pakistan.

Table 1: Summary and Description of the Data

Series	Definition	Mean	Std. Dev.	Max.	Min.
LNREER	Natural log of real effective exchange rate	4.644	0.074	4.801	4.569
TRW	Tariff rate, applied, weighted mean, all products (%)	13.296	7.268	40.69	8.670
LNTNRR	Natural log of ratio of natural resource rent to GDP	-4.044	0.343	-3.544	-4.640
PI	Political Stability and Absence of Violence/Terrorism: Estimate	-2.053	0.546	-1.105	-2.810
FDI	Foreign direct investment, net inflows (% of GDP)	0.951	0.775	3.036	0.310

The series LNREER, TRW, LNTNRR, PI, and FDI appear to be represented by a correlation matrix in Table 2. The correlation coefficients between two variables can be seen in correlation matrices. These coefficients range from -1 to 1, where 1 denotes a perfect positive linear relationship between two variables, -1 denotes a perfect negative linear relationship between two variables, and 0 denotes no linear relationship at all. Tariff rate has a positive and moderate level of linear association with real effective exchange rate indicating that protectionism and ISI move in opposite direction in Pakistan. However, this is simple correlation which does accounts for the effect of other variables while calculating the correlation of degree zero.

Table 2: Correlation Matrix

Series	LNREER	TRW	LNTNRR	PI	FDI
LNREER	1.000				
TRW	0.333	1.000			
LNTNRR	-0.498	-0.118	1.000		
PI	0.035	0.741	-0.148	1.000	
FDI	-0.148	-0.082	0.388	-0.213	1.000

4.2 Results

4.2.1 Results of Unit Root Test

The table 3 presents the p-values for unit root tests, which are used to determine if a time series is non-stationary and possesses a unit root. According to probability value of ADF

test, all variables are integrated of order 1, I(1), except TRW which is integrated of order zero , I(0). Because the probability value accepts (rejects) the null hypothesis of unit root for (TRW) LNREER, LNTNRR, PI, and FDI at level. However, at first difference the null hypothesis for all non-stationary series at level has been rejected which implies after taking first difference all has become stationary.

Table 3: Results of Unit Root Test

Series	With intercept and trend (At level)	With intercept and trend (At first difference)
LNREER	0.265	0.0152
TRW	0	N.A
LNTNRR	0.4124	0.0156
PI	0.9656	0.0443
FDI	0.1132	0.0274

Note: Probability values of ADF test are presented in above table. The standard ADF test is applied on TRW and ADF with structural break is applied on rest of the series.

4.2.2 Results of VAR Model

This study employs the VAR (3) model chosen by AIC to examine the ISI's response to a shock in trade policy measured by tariff rates in light of the results of the unit root test. Because VAR works with stationary data, we took the first difference of all the variables that are I(1) before estimating the VAR model. Table 4 provides the values of different criterion used to choose order of the VAR. Both AIC and SIC have minimum values in VAR (3) indicating by asterisk.

Table 4: Lag Selection Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
1	-15.26	NA	6.85e-06	2.3	2.79	2.41
2	27.89	58.85	1.47e-06	0.64	3.34	1.05
3	55.96	25.51	1.93e-06	0.38*	2.38*	1.068

Note: *Indicates lag selected by the criterion. LR: sequential modified LR statistics (each test at 5 %).
FPE: Final prediction error. AIC: Akaike Information criterion. SIC: Schwarz information criterion.
HQ: Hannan-Quinn information criterion.

The coefficients of the VAR model cannot be interpreted, so to examine the impact of trade policy on ISI this study computes the impulse response function of the real effective exchange rate (LNREER) to Cholesky one standard deviation innovation in tariff rate,

TRW. The response of LNREER to TRW Cholesky's one standard deviation innovation is depicted in Figure 1. The LNREER (ISI) decrease (increase) immediately following the shock at the beginning. This suggests that the shock had a negative (positive) initial effect on the LNREER (ISI). However, the LNREER (ISI) experiences a significant increase (decrease) following the initial decrease (increase). This indicates a quick and positive adjustment to the shock or response. The continued rise (decline) of the LNREER (ISI) indicates that the shock's benefits (damages) outweigh its initial drawbacks (fruits) for import substitution industrialization. However, the LNREER (ISI) reaches a new equilibrium level higher (lower) than the initial value as the upward (downward) trend stabilizes. The ISI exhibits a slight upward trend or stabilizes toward the end of the observed period, indicating that the shock's effect may be diminishing or that the ISI is stabilizing at a new level. In conclusion, import substitution industrialization (ISI) experiences a positive initial response to the shock, but it quickly adjusts and experiences a sustained negative impact before eventually stabilizing. However, a shock in TRW has a significant and immediate positive impact on the ISI, accumulating rapidly at first before stabilizing.

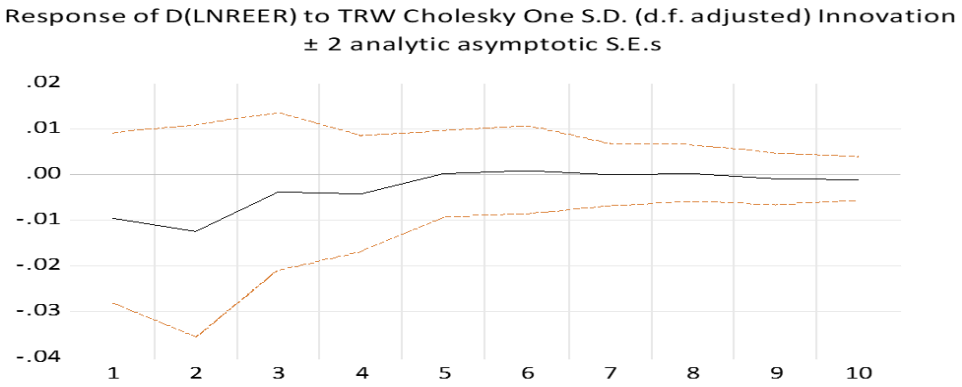

Figure 1: Impulse Response Function of Import Substitution Industrialization

Table 6 contains the information on the LM test for detecting serial correlation at lag 1, 2, and 3. In addition, this table also provides information about the normality of the residuals of the model in the lite of the Jarque-Bera test. The probability values of the LM Test for detecting serial correlation at lag 1, 2, and 3 accept the null hypothesis of no serial correlation at lag 1, 2, and 3 respectively. Furthermore, the probability value of the Jarque-Bera test also accepts the null hypothesis of normality. It implies that the results of the estimated VAR model do not suffer from serial correlation and the absence of normality of the data.

Table 6: LM Test of Serial Correlation and Jarque-Bera Test of Normality

Test	Null Hypothesis	P-Value
VAR Residuals Serial Correlation LM Test	No serial correlation at Lag 1	0.8277
VAR Residuals Serial Correlation LM Test	No serial correlation at Lag 2	0.8582
VAR Residuals Serial Correlation LM Test	No serial correlation at Lag 3	0.6767
VAR Residuals Normality Test	Residuals are multivariate normal	0.8621

4.2.3 Results of ARDL

The variables of the model have a mixed order of integration therefore to retrieve the short-run and long-run parameters of equation 1, this study estimates equation 1 with ARDL estimator. Table 8 shows the results of the bound test used to determine the cointegration between ISI and independent variables of equation 1 under the hypothesis of no level correlation in other words series do not have long-run relationships or they don't cointegrated. According to the values of Table 7, the value of the F-statistic is greater than the upper bound, I(1), value at all significance levels given in Table 7. Therefore, this study rejects the null hypothesis of no cointegration and exists the alternative hypothesis that series are cointegrated and have a long-run relationship.

Table 7: Bound Test (H_0: No Level Correlation)

Test Statistic	Value	Sig. Level	I(0)	I(1)
F-statistic	10.754	10%	2.45	3.52
		5%	2.86	4.01
		1%	3.25	4.49

After the confirmation of the existence of the long-run relationship, this study reports the long-run coefficients of equation 1 estimated with ARDL (1 0 2 2 0) based on AIC. Table 8 provides the long-run coefficients of variables included in Equation 1. For easy interpretation in terms of elasticity, this study applied natural log on tariff value and took the growth rate of natural resource revenue. According to the coefficient of trade policy, a 1 percent increase in tariff value significantly increases the value of the real effective exchange rate in terms of the natural log by 0.09119 percent. It means that in the long run trade policy significantly affects import substitution industrialization and a 1 percent surge in the value of tariff hampers the import substitution industrialization by 0.09%. Similarly, a 1 percentage increase in the value of natural resource rent significantly enhances import substitution industrialization by 0.44% in the long run. Likely, when FDI as a percentage

of GDP increases by 1% then ISI also increases by 0.05%. Similarly, a 1 unit increase in the value of the political stability index enhances ISI by 0.08 percent.

Table 8: Long Run Estimates of ARDL

Variable	Coefficient	Std. Error	t-Statistic	P-value
LNTRW	0.091	0.0463	1.97	0.075
TNRR	-0.445	0.0930	-4.78	0.001
FDI	-0.054	0.0150	-3.57	0.004
PI	-0.083	0.0297	-2.79	0.018

Note: Natural log of real effective exchange rate is dependent variable. LNTRW is natural log of the weighted tariff value. TNRR is the growth rate of natural resource rent. FDI is the foreign direct invest as a percentage of GDP. PI is the index of political stability.

Table 9 provides the short-run dynamics of the Real Effective Exchange Rate (REER) using an Autoregressive Distributed Lag (ARDL) model. In the short run, the effect of the tariff rate on ISI is similar to its long-run effect, however; both the magnitude and significance level of the impact are lower than they were in the long run. It is interesting to note that, in contrast to the first lag of natural resources, the second lag of resources has a significant negative impact on ISI in the short term. According to the probability value of both lags of FDI, FDI does not matter for ISI in the short run. Unlikely, political stability enhances ISI in the short run just like in the long run. The significance of the error correction term also indicates that approximately 73.5 percent of the disequilibrium caused by the shock from the previous period returns to long-run equilibrium in the current period. Additionally, the existence of a long-term relationship between the variables is confirmed by this significant ECT. The value of adjusted R^2 is high indicating high goodness of fit of the model. The value of Durbin's alternative test for serial correlation accepts the null hypothesis of no serial correlation. Similarly, the null hypothesis of constant variance also has been accepted. In addition, the value of VIF is also within the tolerance range and shows a moderate level of linear association among variables of the model. Furthermore, the CUSUM and CUSUM square determine the stability of the mean and variance of the parameters respectively and the plots of both CUSUM and CUSUM square confirm the stability of the parameters of the ARDL model because the graph of CUSUM and CUSUM square are within the5% confidence interval and plotted points are fluctuating randomly around the zero line. Figure 2 and 3 are the plots of CUSUM and CUSUM square respectively. In sum, all diagnostic tests are assuring the reliability and robustness of short-run and long-run estimates of the ARDL model.

Table 9: Short Run Estimates of ARDL Estimator

Variable	Coefficient	Std. Error	t-Statistic	P-Value
C	3.461	0.5632	6.15	0.0000
ΔLNTRW (-1)	0.067	0.0368	1.82	0.096
ΔTNRR (-1)	-0.050	0.0360	-1.4	0.189
ΔTNRR (-2)	0.151	0.0480	3.15	0.009
ΔFD (-1)	0.029	0.0186	1.58	0.142
ΔFD (-2)	0.024	0.0185	1.31	0.218
ΔPI	-0.061	0.0225	-2.69	0.021
DUMMY	-0.040	0.0306	-1.31	0.218
ECT	-0.734	0.1159	-6.34	0.0000
Adjusted R-Square	0.7501			
VIF	4.34			
Durbin's alternative test for serial correlation (H_0: No serial correlation)	0.1581			
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity H_0: Constant Variance)	0.5175			

Note: Natural log of real effective exchange rate is dependent variable. Δ shows change and (-p) represents lag p. LNTRW is natural log of the weighted tariff value. TNRR is the growth rate of natural resource rent. FDI is the foreign direct invest as a percentage of GDP. PI is the index of political stability. ECT is error correction term. Dummy is a time dummy (1 for year 2019 and zero for others).

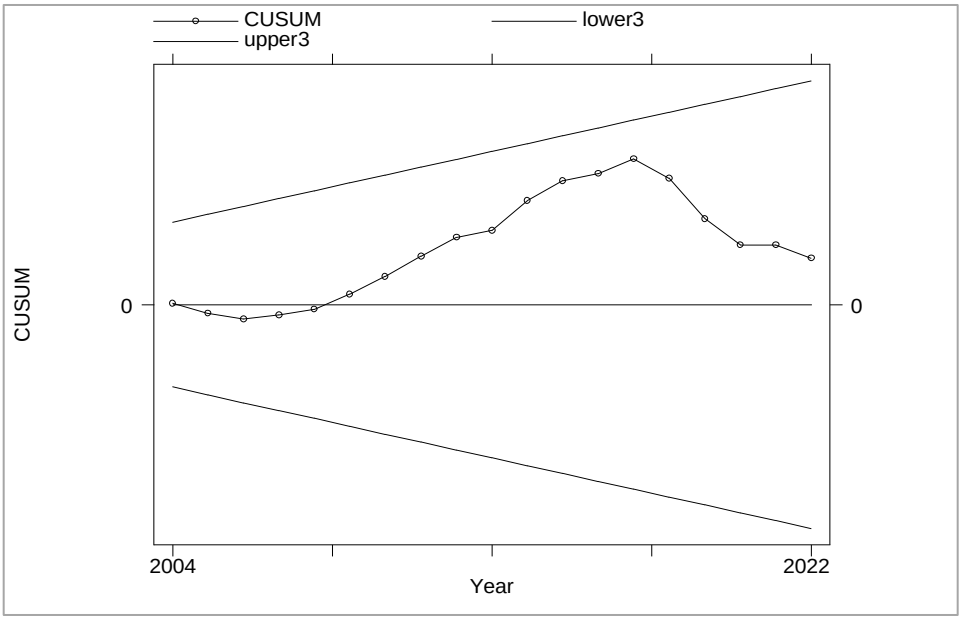

Figure 2. Plot of CUSUM

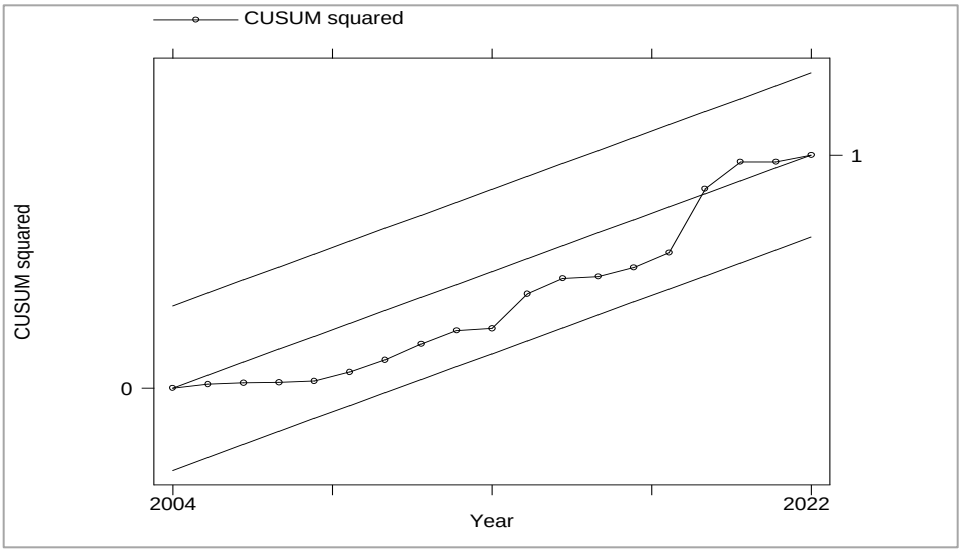

Figure 3: Plot of CUSUSM Square

4.3 Discussion on Results

There are a number of reasons why an increase in tariff rates can hurt import substitution industrialization (ISI) over the short and long term. Imported goods become more expensive as a result of increased tariffs, which can shield emerging domestic industries from competition from abroad. However, domestic industries may lack the competitive pressure to innovate and increase productivity, which can result in inefficiency. Over time, these industries may become complacent and less efficient without having to compete globally. Additionally, trade imbalances may develop over time as a result of high tariffs. Countries that practice ISI may experience persistent trade deficits as a result of protected industries' inability to successfully export. High tariffs also raise the cost of imported goods, which can result in higher prices for consumers. These results are consistent with the findings of Cherif and Hasanov (2024) and Cardoso and Faletto (2024). Additionally, maintaining high tariffs and subsidies can put pressure on government budgets, resulting in persistent fiscal deficits. Because consumers may reduce their spending as a result of higher prices, this may result in a decrease in overall demand for goods, including those manufactured domestically. This can have a short-term negative impact on economic activity and industrial expansion. Additionally, rent-seeking behavior, in which businesses prioritize obtaining government favors and subsidies over increasing their competitiveness, can result from protectionist policies. Corruption and misallocation of resources are two possible outcomes of this, which further impedes industrialization and economic expansion. These findings are in line with the arguments of Jackson and Jabbie (2021). Also, countries that do export-oriented industrialization (EOI) tend to do better in the long run than those that do ISI. EOI urges enterprises to be cutthroat on a worldwide scale, prompting development, proficiency, and financial development. According to Aguilar (1986) and Rodrik (1995), the failures of ISI in Latin America and other regions contrast sharply with the success of the Asian Tigers (Hong Kong, Singapore, South Korea, and Taiwan) with EOI policies. A recent study by Uddin (2023) highlights the lagging effect of ISI and emphasizes on the need to encourage the imports of capital goods to boost industrial growth in developing nations. Similarly, Surendaranath (2024) argues that ISI has devasting effect for Pakistani economy because it adversely affects competitive environment and surge inefficiencies. Likely, Chakraborty and Prabirjit (2020) conclude that although a theoretical support exists for ISI but empirical trends does not align with this idea of trade policy regarding the deterioration of terms of trade of primary goods.

In conclusion, even though ISI policies aim to protect domestic industries and promote self-sufficiency, the negative effects of high tariffs and protectionism frequently outweigh the benefits, resulting in inefficiencies, higher consumer prices, and economic stagnation in both the short-term and the long-term. Therefore, the findings of this study are in line with the theory of trades presented by classical economists such as Ricardian model of trade that support division of labor and free trade.

5. Conclusion and Recommendations

This study explores the effect of trade policy on import substitution industrialization (ISI) in Pakistan by following the classical trade theory namely mercantilism. The relationship between the above-said variables varies from nation to nation because of their productive capacity, fundamental endowments, role of institutions, and business environment. The present study uses the data of the Pakistani economy covering the span of 1998-2022 based on the availability of the data. To measure ISI and trade policy the current research uses the data of real effective exchange rate and tariff rate respectively as the former reflects a shortage or surplus of foreign goods in the domestic economy and the latter shows restrictive or free trade policy depending on the increase or decrease in their values. This research applied a unit root test on variables of the empirical model of this study to check their stationarity. According to the results of ADF test with structural break, tariff rate is stationary at level, however; all other variables of the empirical model are stationary at their first difference. Then to know the effect of tariff rate on ISI the current study uses the autoregressive var (VAR) model after ensuring the stationarity of all variables of the empirical model. According to the impulse response function of the real effective exchange rate to one standard deviation shock in tariff rate, ISI improves immediately but this improvement is offset after a rapid decline in ISI in following years. Finally, to examine the short and long-run relationship between trade policy and ISI, this research effort estimates its empirical model with an autoregressive distributed lag (ARDL) estimator. According to the findings of the ARDL estimator and the bound test, trade policy and import substitution industrialization (ISI) have short-run and long-run relationships, and an increase in tariff rate hurts ISI both in the short run and long run.

Based on the results of this study, the following recommendations while imposing policies in Pakistan are recommended to effectively manage trade strategy and upgrade import substitution industrialization (ISI):

Although tariff rates can surge industrial activities in Pakistan, they should be adjusted step by step to keep away from long-run adverse consequences on ISI. A phased reduction strategy can assist industries in becoming competitive without exposing them all at once to global competition. Because it encourages both short-term and long-term ISI. In addition, it is essential to improve political stability and governance. This includes making sure policies are the same, lowering risks from politics, and making sure business is stable. Moreover, fosters arrangements that empower the practical use of natural resources and draw in foreign direct investment (FDI) that includes providing incentives for investments in key sectors, enhancing infrastructure, and ensuring transparent regulatory frameworks.

5.1. Limitations and Future Research

The current study uses the limited data of Pakistani economy because the availability of the data starts from 1998. Consequently, this study could not compare the effects of the policy regime before and after its implementation on ISI. For future research, this study suggests researchers to examine this relationship among countries that provide the

extensive data of tariff rate. In addition, the investigation of nonlinear type of relationship based on the threshold value of tariff rate and mediating and moderating effects of potential variables such as political stability, export competitiveness, and economic structure etc. may also be conducted for a group of economies.

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