

The Economic Consequences of Sovereign International Economic Agreements for Pakistan

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Abstract

This study examines the impact of international economic agreements, specifically trade treaties and tax treaties, on Pakistan's RGDP from 1975-2023, through fiscal and macroeconomic channels, including tax revenue, FDI Inflow and trade openness. Understanding the role of such agreements is particularly important for developing economies, where policymakers increasingly rely on attracting investment, expanding trade and stimulating economic growth. Evaluating whether these agreements actually deliver the expected economic benefit is therefore essential for designing effective economic and fiscal policies. Using the ARDL model, we find that trade treaties negatively impact trade openness and have an insignificant positive effect on tax revenue, while double tax treaties reduce tax revenue and have little impact on trade openness. Both agreements, however, significantly boost FDI Inflow. These variables have a negligible direct effect on RGDP. Sobel test results reveal that trade treaties and double tax treaties indirectly influence RGDP through FDI Inflow. Overall, these agreements contribute little to RGDP directly or indirectly. The study recommends that Pakistan restructure the treaty framework to enhance transparency, align incentives with national interests, and ensure public access to relevant data.

Keywords: International Economic Agreements, Trade Treaties, Double Tax Treaties, ARDL Model, Mediation, Real GDP, Tax Revenue, Trade openness, FDI Inflow.

Introduction

Sovereign economic agreements are formal treaties between countries that facilitate trade, foreign direct investment (FDI), and cross-border corporate activity. For developing countries, these agreements are often adopted to integrate domestic economies into a global market and attract external capital. However, such agreements also constrain national tax sovereignty by reducing withholding tax rates on dividends, interest and royalties, potentially limiting domestic revenue mobilisation. While these arrangements are intended to generate mutual benefits, their distributional and fiscal consequences for developing economies remain contested. The world shifted to a global governance system with many such provisions to facilitate economic transactions. As noted by Ahmed et al. (2024), since the post-World War II period, the global economic system has increasingly relied on International Investment Agreements (IIAs), Double Taxation Treaties (DTTs), and International Trade Treaties (ITTs) to regulate cross-border economic activity. These frameworks are largely shaped by developed economies, and the aim is

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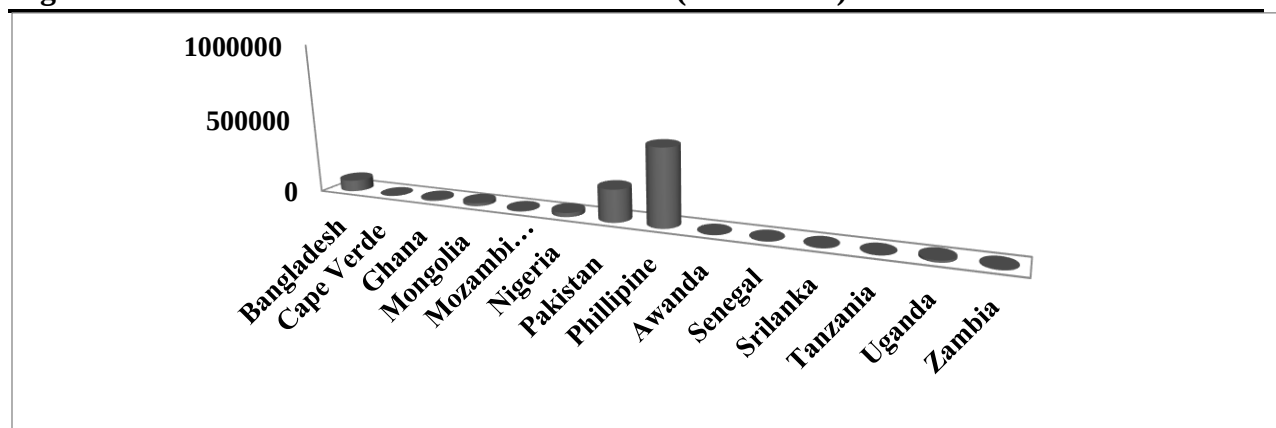
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to promote capital mobility, investment protection and trade liberalisation. So far there are over 2,500 International Investment Agreements (IIAs) which has been made worldwide, including more than 300 bilateral and plurilateral investment treaties and countries engage to adopt different policies to erode the illegal activities from gross root level and promote the legal flows into a country, however Gasparéniené et al., (2022) argue that by using tax treaties to encourage Foreign Direct Investment (FDI) but at the same time tax evasion should be taken into account. However, there may be difficulties striking a balance between the necessity of pulling in foreign investment and the possibility of revenue loss as a consequence of weak tax sovereignty and the 2021 IMF report highlights that Sub-Saharan African countries lose between \$470 million to \$730 million per year in corporate income tax revenue due to profit shifting by MNEs (Kinda & Tagem, 2024). Tax treaties play a significant role in shaping the fiscal landscape in developing countries by influencing investment incentives and cross-border profit allocation. Developing countries adopt tax incentives and treaty-based concessions to attract FDI, yet these policies may weaken domestic revenue collection and increase reliance on external borrowing. As Zolt (2018a) noted, developing countries can set tax rates for foreign investors. One approach is a uniform tax structure for both domestic and foreign businesses; the alternative is for the government to offer tax incentives, such as tax holidays, and a key strategy is to sign tax treaties with other countries. In global economy fiscal policy handle is tax exemption which play a critical role in trade and investment treaties, especially the developing countries sign treaties to manage their fiscal outcomes, offering tax incentives that help to improve fiscal results, Rolland (2020) all things taken into account, trade and investment agreements benefit developed nations' finances, have no effect on middle-income nations, and hurt deprived governments finances of developing countries. As stated, these incentives come with a cost for developing countries. Based on Janský and Šedivý's (2019) analysis, the Philippines and Pakistan face a large amount of fiscal loss, \$509 million and \$241 million, respectively, due to such treaties. That is shown as:

Figure 1: Tax Revenue Loss due to Tax Treaties (In Millions)



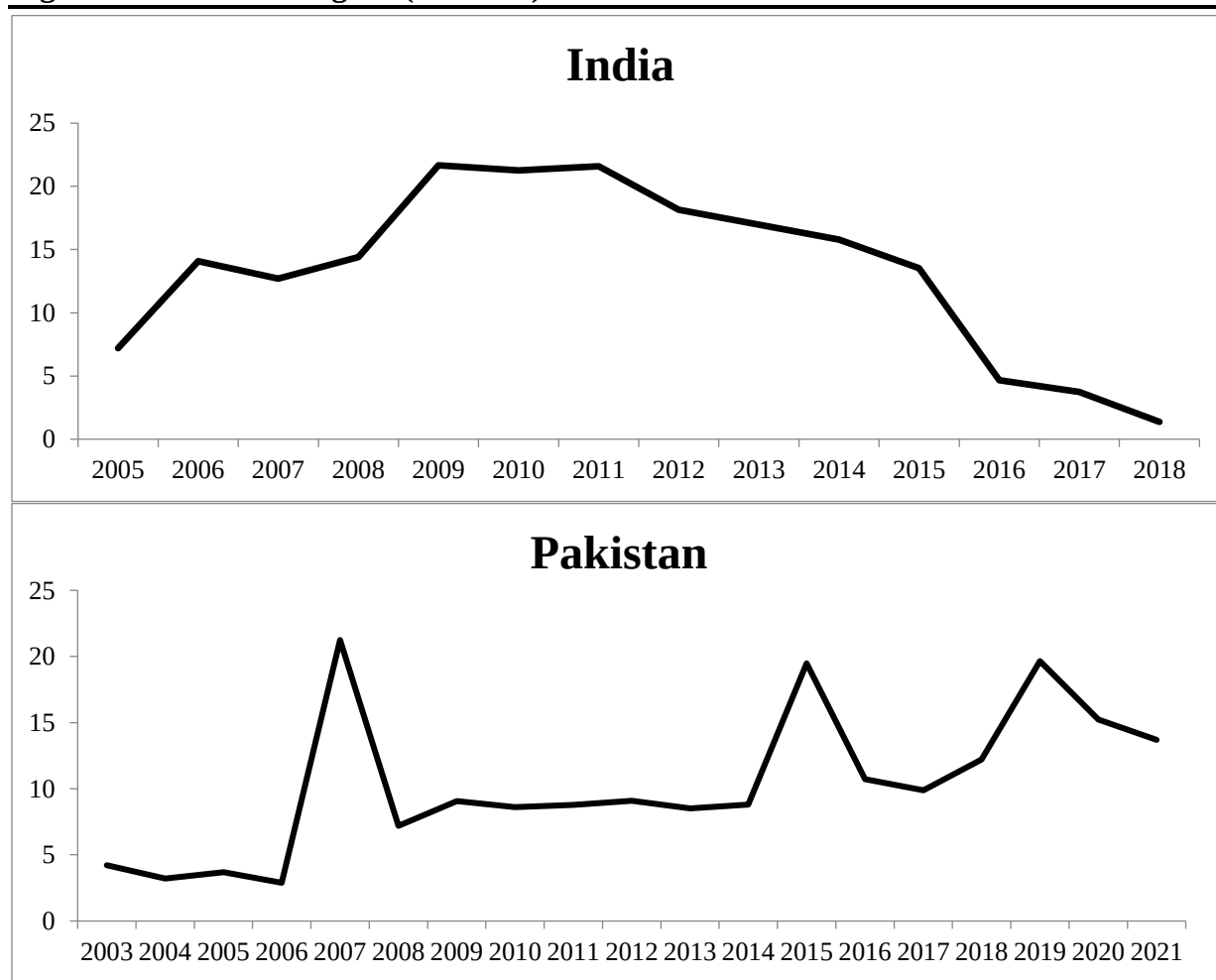
Source: (Janský & Šedivý, 2019).

However, the fiscal cost of tax exemption under such treaties leads to revenue loss by reducing government tax collection and such liberalization policies may favor developed economies with stronger industries while weak domestic industries in developing countries and multinational companies shift their profit to low tax jurisdiction to reducing their tax burden initiative of Base Erosion and Profit Shift (BEPS) and Mooij et al. (2021) suggest two reasons why the developing

countries suffer from the international tax regime first they have weak institutional set up where developing countries do not have a dedicated team and second limited experience in negotiation usually have fewer treaties and without training and base on past knowledge they may struggle when entering new treaty talks.

According to Global Tax Expenditure Database (GTED) 2022, the fiscal burden of tax incentives in Pakistan has been a consistent challenge, ratio of revenue forgone as percentage of tax revenue. Unlike India, has successfully reduced its resilience on tax expenditure through reforms, Pakistan policies remain costly rising concern about their efficiency and long-term economic impact which shown in below figure 2.

Figure 1: Revenue Foregone (% of TR)



Source: Retonda et al. (2025)

International trade and investment agreements play a crucial role in shaping capital flows, influencing both legitimate investment and illicit financial movement. As Mahmood (2013) states, net reverse capital flight in Pakistan increase during periods of trade and exchange liberalization, amounting to \$30 Billion between the years of 1972 to 2013. This capital later reinvested domestically, further exacerbating the country's foreign debt burden and concluded that

liberalization only happen when the economy is stable, as long as trade distortion exist, achieving this stability may remain difficult (Blejer, 1990).

This study sought to investigate fiscal impact of International Economic Agreements by Pakistan government with a focus on tax incentive and tariff reduction, using the secondary data from 1975 to 2023. To add to this pool of knowledge we assess the economic consequences of these treaties and mediated by tax revenue, trade performances and investment flows impact on Pakistan macroeconomic stability, including economic growth of the country.

Literature Review

Here, the literature review consists of two parts as theoretical and empirical literature.

Theoretical Literature Review

International economic agreements including trade liberalization and bilateral tax treaties are introduced to reduce the distortion between treaty partners. The liberalization policies developed in mid of 1970's aimed to remove major economic challenges faced by developing countries while macroeconomic and long run supply side policies were intended to encourage economic growth (Fischer, n.d.). From a growth perspectives, these agreements can be understood through endogenous growth theory was launched by Romer 1986 and Lucas 1988, emphasizes that government policies and institutional arrangements shape long term economic performances by influencing investment, productivity and resource allocation (Xu, 1994). By offering tax incentives and reducing trade barriers, governments attempt to stimulate investment, expand productive capacity and promote sustainable economic growth. The other foundation is the transaction cost theory (TCT) credited to the British economist Ronald Coase, introduces in 1930's, explained how policy-induced frictions influence cross border economic activity and refined after 1970 by Oliver Williamson and in recognition of their contribution both scholars were awarded the Nobel laureates in economics in 1991 and 2009. Lower transaction cost arises from trade and tax liberalization can improve market efficiency and encourage capital mobility while higher regulatory or tax burdens may discourage formal investment and divert transactions to alternative jurisdictions (Fiorini et al., 2018). According to Habermeier and Kirilenko (2003) taxing the financial transactions means friction in the price discovery process and reduces trading volume. In 1986, Sweden increased its transaction tax from 1 percent to 2 percent which led to 60 percent of the trading volume of the 11 most active trading partners with Swedish migrated to London. Economic liberalization theory advocates minimal government intervention in market and when countries promote economic liberalization, it often results in policies that encourage free trade and reduce taxes. The liberalization concept was first proposed by Adam Smith in 1700, emphasizing the reduction of trade related costs and the promotion of free trade, minimal taxation and privatization (Degroot, n/a). Levine (2001) stated that global financial integration can boost economic growth by fostering advancements in domestic financial sector policies which have a favorable impact on long term growth.

Empirical Insight between Tax Revenue and Economic Agreements

Kinda et al. (2023) examined the impact of international tax treaties on resource revenue mobilization using a panel of 83 resource rich countries from 2000-2019. Applying fixed effect and GMM estimations, the results reveals that the presence of tax treaties significantly reduces governments' ability to mobilize resource. Similarly, Beer and Loeprick (2018), using DID estimation for 1985-2015, find that DTTs with investment hub leads to a significant revenue losses

in sub-Saharan African economies around 22% for treaties with investment hub and 3% for treaties with non-investment hub, so the result confirms a negative effect on tax revenue. Dutt and Gallagher (2022) studied the impact of trade and investment treaties on fiscal stability using cross country regression analysis from the period 1985-2018 and their outcomes reveals that trade liberalization reduced tariff revenues and that the resulting tariff losses are not automatically compensated with domestic tax instruments. Baunsgaard and Keen (2005) analyzing panel data for 111 countries to cover 25 years, applied fixed effect (FEM) and GMM estimation to found that middle income countries can recover 45-60% lost trade tax revenue through domestic taxation while low income countries average recover less than 30%, indicating that liberalization policies weakens revenue mobilization capacity. Gnangnon (2019) finds that tax reforms enhanced tradeopeness but also contributes to a progressive erosion of trade tax revenue, particularly in low-income countries. however, a complementary study by Gnangnon & Brun (2019) using an unbalanced panel data of 95 developing countries and employing a fixed effect and random effect and two-step GMM, reports contrasting results reveal that tax reforms appears to positively influence total tax revenue, suggesting country specific effects.

Empirical Insight between Trade and Economic Agreements

Countries entered into trade agreements, include free trade agreements (FTAs) and preferential trade agreements (PTAs) have become dominant features of international economic relation. Despite their growing prevalence, empirical evidence on whether such agreements consistently enhanced trade volumes remain mixed, as noted by Kohl (2014) examines the relationship between the agreements design and impact on trade through gravity model. The study utilizes panel data covering 150 countries over the period 1950-2010, organized by country pairs and years. The results suggest that EIAs increase the trade up to 50% under favorable conditions, however more than half of agreements analyzed do not exhibits statistically impact on trade. Building on a broader literature on EIAs, several studies focused on regional trade agreements (RTAs) and their role in promoting trade economic corporation particularly among developing countries. For this instance, Larch & Yotov, (2024) provide a comprehensive empirical assessment of RTAs over period from 1980-2016 using a gravity model of trade and the estimates highlighted that RTAs are significantly boost the trade flows between member countries and contribute positively to regional economic corporation. The author emphasizes that beyond reducing policy barriers, many EIAs operate at regional or continental levels, amplifying their trade effects. Similarly, Baier et al., (2008) analyzing the impact of Economic Integration Agreements (EIA) stride and growth with a gravity equation using fixed effect and estimated that frequently discover that EIAs have statistically and economically negligible effects on trade. Bilateral FTA exerts an insignificant effect on the overall growth over a one-to-ten-year period post implementation. However, also detect that there is a significant increasing trend in GDP per capita rate is observed within a bilateral FTAs and the results are obtain by using panel data to run non parametric matching approach because it is free from functional form assumptions and suitable for diverse data structure (Hur & Park, 2012). Makun and Singh, (2025) analyzed the connection between deregulation of effective tariff rates and tax revenue for asset pacific island countries from 2010 to 2021. When countries direct tax revenue sources are deregulated over decades than domestic indirect taxes have increased. And the empirical finding reveals that the reduced tariff rates have a negative impact on government total tax revenue. Regarding the connection between trade liberalization and fiscal performances, the previous research conducted by K. Ahmad et al., (2018) in Pakistan by using data from 1972 to 2014 and ARDL model employed in the analysis. The empirical results reveal that trade

liberalization has a negative impact on the trade tax revenue and suggesting that we need to improve the volume of average tariff rate and increase the trade tax revenue in Pakistan short run as well in the long run.

Role of Investment treaties and their implications for Economic Growth

Investment treaties play a significant role in shaping the global economic landscape by influencing economic growth, particularly in developing countries as study done by Egbuna et al., (2013) explore globalization and capital account liberalization affected Nigeria's economic growth between 1975-2009, followed by co-integration analysis and error correction model (ECM), the results demonstrated that although capital account liberalization had a favorable influence on real GDP, these impacts were not statistically significant. Likewise, real GDP was not much impacted by trade openness. Further, GNANGNON (2020) examine the effect of tax reforms on economic growth of 92 developing countries over the period of 1985-2015 and GMM estimator is used and found that the tax reforms enhanced economic growth in developing countries with upper middle income countries significantly promoting their economic growth due to tax reforms and same as the growth is enhanced by lower middle income countries and low income countries. Sly and Weber (2017) are seek to access how the international fiscal policy agreements particularly BITs influence the comovement of GDP series by utilizing 30-year dataset of quarterly GDP variations from a wide range of nations and to adopt a Generalizing Estimating Equation (GEE) and DID approach to check the changes within countries pair in treaties status and before in treaty and the results found that GDP comovement increases significantly with the implementation of a new BTT, with an estimated half-standard deviation increase. This suggests an increased probability of timed economic cycles in nations having a BIT such relevant studies are no stop here further researcher take interest like Huchet-Bourdon et al. (2018) investigate the relationship between the trade openness as proxy of trade liberalization and economic growth and the empirical estimation was unbalanced panel data set of 169 countries for the period of 1988-2014 by using OLS and GMM estimator developed for dynamic panel data model and the empirical findings support recent findings in international economics about the connection between growth and trade openness deferent accords to the quality of products, if quality products are used in trade then they positively influence and vise-verse.

Research Gap

While international tax and trade agreements cause Pakistan to suffer fiscal losses and capital flight (Janský & Šedivý, 2019; Mahmood, 2013), this study investigates, how these agreements impact macroeconomic indicators such as tax revenue, FDI inflows and trade openness and how they affect Pakistan's overall economic stability.

Methodology

Data Description

The objective of the study is to examine the effect of international economic agreements (IEAs) on fiscal space and their economic consequences on economic stability which includes growth, trade performance and investment flows. Table 1 represents the summary of all of the study variables.

Table 1: Variables Description and Data Source

S.no	Variables	DV/ IDV	Definition	Source
1.	Real gdp	DV	GDP (constant LCU)	WDI
2.	Double tax treaties	IDV	Agreements sign each year	FBR
3.	Trade treaties	IDV	Agreements sign each year	MOC
4.	Tax Revenue	Mediator	% of GDP	PED
5.	FDI Inflow	Mediator	% of GDP	WDI
6.	Trade openness	Mediator	% of gross imports and exports value to GDP	PED
7.	Control of Corruption	Control	Corruption score 0 for high corrupt (worst) and 3 for low or no corruption (best).	ICRG
8.	Consumer Price Index	Control	Index basis	PED
9.	Gross Fixed Capital Formation	Control	% of GDP	WDI
10.	Real Effective Exchange rate	Control	REER Index (2010=100)	IMF
11.	Final consumption expenditure	Control	% of GDP	WDI
12.	Governance Stability	Control	Index score near to 10 reflect strong governance and 0 show weak governance.	ICRG
13.	GDP per capita	Control	Constant 2015 USD	WDI

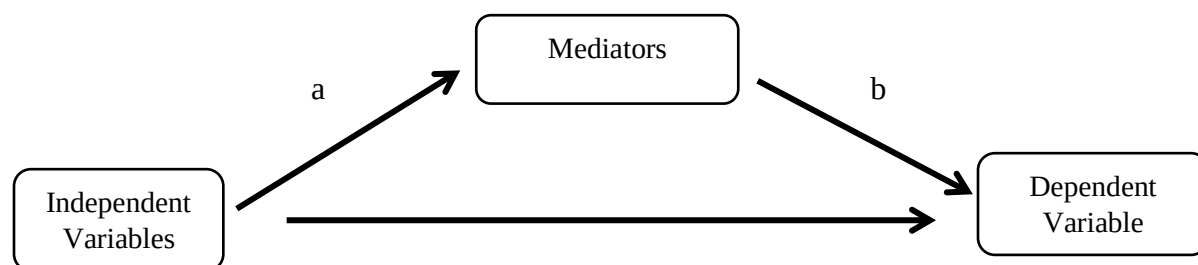
Note: Periods cover from 1975-2023. WDI: World Development Indicator, FBR: Federal Board of Revenue, MOC: Ministry of Finance, PED: Pakistan Economic Dashboard, IMF: International Monetary Fund, ICRG: International Country Risk Guide.

Table 2: Descriptive Statistics

Variables	Mean	Median	Maximum	Minimum	St. Dev	Observation
LRGDP	30.37	30.40	31.34	29.14	0.64	49
LTR	2.17	2.18	2.36	2.06	0.07	49
LTO	3.00	3.00	3.33	2.26	0.22	49
LFDI Inflow	-0.61	-0.55	1.11	-2.77	0.79	49
NO. TTs	0.16	0.00	2.00	0.00	0.42	49
NO. DTTs	1.34	1.00	1.00	0.00	1.29	49
LREER	4.85	4.76	5.47	4.51	0.29	49
LGS	1.77	1.83	2.38	0.77	0.37	49
LGFCF	2.73	2.76	2.95	2.51	0.11	49
LFCE	4.49	4.50	4.56	4.41	0.04	49
LCOC	0.60	0.69	1.09	0.00	0.22	49
LCPI	4.77	4.82	5.43	3.81	0.34	49
LGDPPC	6.96	6.95	7.40	6.46	0.26	49

Mediation Framework

The mediation model offers an explanation of how the independent variables affect the dependent variables both directly and indirectly through mediators.

Figure 3: Path Diagram Model

Data Limitation

A key limitation of this study is the unavailability of specific revenue data directly linked to trade and double tax treaties, so the number of agreements signed annually is used as a proxy.

Unit Root Tests

Unit root testing is essential to ensure the reliability of the analysis. Accordingly, the indicators used in the regression analysis are checked for unit root at levels and at first differences. However, the bound testing approach implies that all variables are either $I(0)$ or $I(1)$.

Table 3: ADF Unit Root Test

Variables	ADF Test p-value	Order of Integration
LRGDP	0.01**	$I(0)$
D(LTR)	0.00***	$I(1)$
LTO	0.00***	$I(0)$
LFDI Inflow	0.04**	$I(0)$
NO. TTs	0.00***	$I(0)$
NO. DTs	0.02**	$I(0)$
D(LCPI)	0.00***	$I(1)$
LCOC	0.01**	$I(0)$
D(LFCE)	0.00***	$I(1)$
D(LGOV)	0.00***	$I(1)$
LGFCF	0.04**	$I(0)$
D(LREER)	0.00***	$I(0)$
D(LGDPPC)	0.00***	$I(1)$

Significance level: ** indicates significance at 5% level and *** at 1% level.

Autoregressive Distributed Lag (ARDL) Cointegration Approach and Model Specification

To investigate the relationship between the selected indicators, the study employs ARDL suggested by (Pesaran et al., 2001). ARDL examines long run and short run impact of economic policies and other important influencing determinants on economic stability and macroeconomic indicators, because limited relevant studies exist in literature regarding Pakistan. ARDL approach enables us to simultaneously estimate long and short run relationships between time series variables. Before applying ARDL, an empirical version of the model based on the above basic equations is specified as follows:

ARDL model for Tax Revenue

$$\begin{aligned}\Delta \ln TR_t = & \beta_0 + \sum_{i=0}^n \beta_{1i} \Delta \ln TR_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta TTS_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta DTS_{t-i} \\ & + \sum_{i=0}^n \beta_i \Delta \ln cv_{t-i} + \lambda_1 \ln TR_{t-1} + \lambda_2 TTS_{t-1} + \lambda_3 DTS_{t-1} + \lambda_i cv_{t-1} \\ & + \varepsilon_t \dots \dots \dots 1\end{aligned}$$

ARDL model for FDI Inflow

$$\begin{aligned}\Delta \ln FDI_t = & \beta_0 + \sum_{i=0}^n \beta_{1i} \Delta \ln FDI \text{ Inflow}_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta TTS_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta DTS_{t-i} \\ & + \sum_{i=0}^n \beta_i \Delta \ln CV_{t-i} + \theta_1 \ln FDI \text{ Inflow}_{t-1} + \theta_2 TTS_{t-1} + \theta_3 DTS_{t-1} \\ & + \theta_i cv_{t-1} + \varepsilon_t \dots \dots \dots 2\end{aligned}$$

ARDL model for Trade openness

$$\begin{aligned}\Delta \ln TO_t = & \beta_0 + \sum_{i=0}^n \beta_{1i} \Delta \ln TO_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta TTS_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta DTS_{t-i} \\ & + \sum_{i=0}^n \beta_i \Delta \ln CV_{t-i} + \gamma_1 TO_{t-1} + \gamma_2 TTS_{t-1} + \gamma_3 DTS_{t-1} + \gamma_i cv_{t-1} \\ & + \varepsilon_t \dots \dots \dots 3\end{aligned}$$

ARDL model for Economic International Agreements and Mediators on Economic stability

$$\begin{aligned}\Delta \ln RGDP_t = & \beta_0 + \sum_{i=0}^n \beta_{1i} \Delta \ln RGDP_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta TTS_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta DTS_{t-i} \\ & + \sum_{i=0}^n \beta_{4i} \Delta \ln TR_{t-i} + \sum_{i=0}^n \beta_{5i} \Delta \ln FDI \text{ Inflow}_{t-i} + \sum_{i=0}^n \beta_{6i} \Delta \ln TO_{t-i} \\ & + \sum_{i=0}^n \beta_i \Delta \ln cv_{t-i} + \delta_1 \ln RGDP_{t-1} + \delta_2 TTS_{t-1} + \delta_3 DTS_{t-1} \\ & + \delta_4 \ln TR_{t-1} + \delta_5 \ln FDI \text{ Inflow}_{t-1} + \delta_6 \ln TO_{t-1} + \delta_i cv_{t-1} + \varepsilon_t \dots \dots \dots 4\end{aligned}$$

Here β_0 is the intercept, ε_t represent the error term and β 's and δ 's are the long run coefficient and short run coefficients respectively.

Error Correction Model (ECM)

In order to analyze the short run information of the ARDL model, utilize the error correction model (ECM). The ECM allows to testing the speed of adjustment, which indicates how quickly the short-term deviations are correct to restore the long-term equilibrium after change occur in the variables. The general short run ECM will be:

$$\Delta \ln Y_t = \beta_0 + \sum_{i=0}^n \beta_{1i} \Delta \ln Y_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta X_{t-i} + \varphi ECM_{t-1} \dots \dots \dots 5$$

Empirical Results and Discussion**Bound (Co-integration) Test**

The presence of long-term relationships between the variables in each of the four models are investigated using the ARDL bound testing method. The computed F-statistics for model 1 to model 4 exceeds the appropriate upper bound critical value at standard significance levels, shown below the table 4.1. In particular, the models of tax revenue, FDI Inflow, tradeopeness and

economic growth reject the null hypothesis of no cointegration, indication the existence of a stable long run equilibrium association with the variables in each specification.

Table 4: Cointegration Test Results

	Dependent Var.	F- Statistics	I(0)	I(1)	Outcome
Model 1	F _y (y/TTs, DTTs, LCOC, LCPI)	5.17	3.29	4.37	Co-integration
Model 2	F _y (y/TTs, DTTs, LREER, LGS, LCOC, LCPI)	3.14	1.99	2.94	Co-integration
Model 3	F _y (y/TTs, DTTs, LGFCF, LGS, LCOC, LCPI, LGDPPC, LFCE)	5.97s	3.15	4.43	Co-integration
Model 4	F _y (y/TTs, DTTs, LTR, LFDII, LTO, LGFCF, LREER, LCOC, LCPI, LGDPPC, LFCE)	254.89	2.41	3.61	Co-integration

The ARDL estimation method, which we employee in our econometric analysis, allows us to examine how long-term structural policies affect economic landscape. The long term and short-term effects are developed under the analysis. The results with the ARDL method are given:

Table 5: ARDL Results

Variables	Model (1)	Model (2)	Model (3)	Model (4)
Long-run Estimates				
No. TTs	-0.007	1.183**	-0.123*	-0.037
No. DTTs	-0.135***	0.189*	-0.022	0.007
LCPI	-0.079	-0.200	0.718***	0.056
LCOC	0.166**	0.531	-0.208	-0.132***
LREER	-	-0.999*	-	-0.244***
LGFCF	-	-	3.794**	0.158
LGDPPC	-	-	-4.729**	1.429*
LFCE	-	-	-4.562**	0.285
LGS	-	0.246	-0.068	-
LTR	-	-	-	-0.318***
LFDII	-	-	-	0.070*
LTO	-	-	-	0.161***
Short-run Estimates				
No. TTs	0.056***	-	-	-
No. DTTs	0.035***	0.364***	-	-
LCPI	0.088**	-	0.094**	-
LCOC	0.088***	-	-	-
LGFCF	-	-	-	-0.025*
LFCE	-	-	0.918**	-
LGS	-	-	0.135***	-
LFDII	-	-	-	-0.001**
LTO	-	-	-	-0.008**
R- Square	0.734	0.409	0.716	0.993
Adjusted R-Square	0.610	0.382	0.667	0.992
F-Statistics	11.697	15.990	14.451	234
Prob (F-Statistic)	0.000	0.000	0.000	0.000

Note: ***Significance if $p < 0.01$, ** $p < 0.05$, and * $p < 0.10$. TTs: Trade treaties, DTTs: Double tax treaties, TR: Tax revenue, FDII: Foreign direct investment inflow, TO: Trade openness, CPI: Consumer expenditure, GS: Governance stability, REER: Real effective exchange rate, GDPPC: GDP per-capita.

Discussion

The results in table 5, explores the combined long run and short run estimates for all four models. Using the ARDL approach, the results reveal that the coefficient of the number of trade agreements coefficients is negative and statistically insignificant in the long-run while it is positive in the short run. Initially, trade agreements may increase economic activity and trade volume, leading to a temporary boost in tax collection from tariffs but overtime, such treaties often involve tariff reduction amplify the long-term decline in government tax collection reflects the tradeoff between them. The finding conformity with that of (Ahmad et al., n.d.; Dutt & Gallagher, 2022) and Makun and Singh (2025) conduct same study in Pacific Island countries, the results reveal that trade deregulation decline government tax revenue. The coefficient of DTTs is negative and statistically significant in the long run, implying that Pakistan tax revenue is adversely impacted by double tax treaties. This results align with (Petkova et al., 2025; Quak & Timmis, 2018). Such agreements provide tax incentives in form of reduced taxes on royalties, dividends which encourage investment in brown field investment rather than Greenfield investment. In contrast, the coefficient of double tax treaties is positive significantly in the short run. Petkova et al., (2020) suggest that short run effect rise tax collection because double tax treaties can help and promote cross border transactions, thereby boost tax revenue temporarily. CPI has a negative and insignificant relationship with tax revenue in long run, suggesting that inflation may reduce actual tax collection, consistent with (Tanzi, 1989). In the short run, there is a positive and significant relation between the CPI and tax revenue, although these results contract with those reported by (M. Khan, 2019). In both short and long run, control of corruption is positive and significant, indicating that corruption control boost revenue collection, this finding is confirmed with (Arif & and Rawat, 2018; Simbachawene, 2018) and the respond of tax revenue depends on the direction of change in corruption control, the results reported by (Abu et al., 2022).

When trade and tax agreements are introduced in the FDI model, trade treaties exhibit significant positive coefficient in both long run and short run. Trade regimes reducing trade related barriers and facilitate ease of doing business in partner countries through lower tariff rates, the results are align with (Azhar, 2004; Zahid et al., 2021). Kox (2020) mention that signing PTAs is associated with approximately 30% increases in bilateral FDI, which is attribute to decrease in trade cost and improved market accessibility for international investment. The study evaluates the impact DTTs FDI inflows in Pakistan. In long run, the coefficient value of DTTs is positive and significant, supporting findings of (Atif & Siddiqui, 2019; Barthel et al., 2010). However, some studies report that DTTs have no effect on FDI flows in developing countries (Baker, 2014). DTTs encourage investors' confidence by elimination the double tax taxation burden and provide incentives, thereby encouraging FDI inflows. REER has negative and significant effect in the long run while its short run effect is positive and statistically insignificant. Pakistan has experience frequent exchange rate volatility and currency depreciation, which creates uncertainty for foreign investors regarding future return, as profits may shrink when convert it to a home currency and cost may rise if imports are expensive. The findings align with (Froot & Stein, 1991; Ibrahim & Raji, 2018). CPI has a negative and insignificant impact on FDI Inflow and from ECM evidences show that there is no short run relation exists among inflation and FDI Inflow. So our overall findings reveal that inflation has no impact on FDI Inflow and the results are consistent with Henry et al., (2020). The governance stability and control of corruption, both indicators positively and insignificantly impact FDI Inflow and the findings are consistent with (Nugraha, 2013; Rafidi et al., 2023). The long run coefficients of trade treaties is negative and marginally significant at 10% level, consistent with (Achterbosch et al., 2004). A possible explanation lies in the limited scope and

quality of Pakistan's trade treaties, majority of which are signed with developing nations⁴ offering little trade value. The relationship between tradeopenness and DTTs is negative and statistically insignificant with p-value of 0.37. This finding is consistent with (Pham et al., 2019) and similar evidence reported by IMF (Brumby et al., 2016). A plausible explanation is that DTTs primarily target investment facilitation and tax relief rather than promoting trade. Their effects are more pronounced for capital flows and FDI than for exports or imports, limiting their effect on trade openness. Gross fixed capital formation (GFCF) has a positive and significant effect on tradeopenness in long run, indicating that higher investment enhances trade flows. Similar study evidence from Pakistan (Qayyum & Zeeman, 2018) and global study (Landowska et al., 2025), which show that capital accumulation strengthens into global value chain and promote tradeopenness. In short run GFCF has no impact on trade openness. The coefficient of governance stability has a negative and insignificant impact on trade openness short run indicates a positive on trade flows and this study is consistent with (Obasanmi & Imasuen, 2024). Control of corruption has negatively and statistically insignificant impact on trade openness in long run and there is no effect of corruption on trade openness in short run. This study is in line with the study of (Abasimi et al., 2018) who report that freedom from corruption doesn't significantly influence trade flows in Ghana. This study reveals that CPI has a positive and significant impact on trade flows in short run as well in the long run and the study is in line with (Munir & Kiani, 2011). GDP per-capita, which shows a negative relationship with trade openness in short run and in long run. This study is consistent with (Osei et al., 2019) who found that in low income countries the economic growth on trade openness is nonlinear and inverted U shaped, which initially increases in real GDP per-capita promote openness, a certain income threshold further reduced trade flows. In short run the FCE affect positively the trade openness and in long run the indicator affect trade openness negatively and statistically significant. Although study by Kurul, (2021) finds that higher consumption to GDP ratio significantly reduce trade openness in developing economies.

In model 4, we investigate direct effect of tax and trade treaties on RGDP and mediators as well. In the long run, the ARDL results reveal that trade treaties and double tax treaties do not exhibit statistically significant effect on RGDP. Although, international trade agreements are generally expected to enhance national income, empirical evidences remain mixed and the results are consistent with (Hur & Park, 2012; Liu, 2016), found that trade liberalization has insignificantly impact on economic growth, suggesting that its growth enhancing potential may be limited. (Baker, 2014), shows that BTTs not have a significant impact on FDI inflow. Since FDI is a key transmission channel for growth, this concluded that economic benefits of BTTs may have limited or insignificant in term of GDP. These findings provide a contextual support for our results that DTTs have an insignificant relationship with GDP growth in our analysis. Overall, trade or tax treaties may not directly stimulate the growth in long run. Among the three mediating variables such TR, FDI Inflow and TO, the long run regression results provide that tax revenue has negative and statistically significant effect on RGDP. The results are confirmed with (S. Ahmad et al., 2020; Dackehag & Hansson, 2012; Shafiq et al., 2022) studies suggest taxation has a negative impact on the overall economic growth for Pakistan and different countries. FDI inflows positively and significantly influence the growth in long run but in short run it may leads to negative impact on the growth in Pakistan due to initial adjustment cost and import heavy investment projects, which strain the current account. This implies that the productivity capacity of the economy enhanced potentially through capital formation, technology transfer and employment generation, which in

⁴Nepal, Sri Lanka, Bangladesh, Afghanistan, Malaysia and Iran are developing trade treaty partners not beneficial in trade.

turn leads to raise the growth. Although, (Bagli & Adhikary, 2014; Behname, 2012; M. A. Khan & Khan, 2011) shows same results for different countries including Pakistan and strongly support my empirical evidences. The effect of trade openness on RGDP is positive and significant in the long run and opposite results finds in short run shows a negative relationship. The outcomes are aligning with expectations as reduced barriers and liberalize trade for the purpose is to improve the economic stability and integrate in international market. Trade openness boost growth by expanding market excess, encouraged export diversification and improve value added production (Musila & Mpekansambo, 2024), such studies support the finding and validate the results. GFCF and CPI coefficients are positive but statistically insignificant in the long run, indicating that capital formation does not have a significant impact in growth, possibly due to inefficiencies or misallocation in investment in poor countries and impact negative in short run. In case of Pakistan, CPI could reflect a relatively stable inflation environment where minor changes don't influence the growth. The analysis outcome are relevant with (Nasir & Saima, 2010) found that inflation effect economic growth positively but insignificantly and in short run it effect negatively the growth because of restrict the investment in some extent. COC and REER are negative and significant on RGDP in Pakistan. Empirical evidences by Abbasi et al., (2019) proof that in Pakistan the anticorruption efforts inversely impact the growth by reducing institutional leakages like reduced institutional practices too rapidly or impose compliances burden. (Siddique et al., 2020) REER appreciations significantly undermine Pakistan revealed comparative advantage and worsen the trade balance and an outcome aligns with our findings of a negative coefficient for REER in the growth model. GDP per-capita has strongly positive and highly significant impact on economic growth in long run as well in short run and confirm such results with (Ali, 2024) concluded that GDP per-capita significantly contribute the development trajectory of Pakistan and Hassan et al., (2011) identifies GDP per-capita as a significant predictor for subsequent growth, with higher per capita wealth link with living standard and faster long term growth. The final consumption expenditure (FCE) effect on RGDP is positive but statistically insignificant, suggesting that FCE in this model does not play a significant role in driving long term growth.

Diagnostic Test

For the confirmation of model reliability, used the diagnostic tests that indicates the model satisfy all key assumptions, there is no any evidence of heteroskedasticity, serial correlation and non-normality. Despite passing the serial correlation and heteroskedasticity, model 2 exhibits non-normality, as noted by (Lee et al., 2021), suggested that the results are generally acceptable and such violation is not critical in large sample. The evidences suggest that the model is statistically significant.

Table 6: Diagnostic Test Results

	Model 1	Model 2	Model 3	Model 4
Serial Correlation LM Test	0.721 [0.879]	0.132 [0.184]	0.370 [0.264]	0.975 [0.968]
Heteroskedasticity Test	0.199 [0.172]	0.860 [0.893]	0.566 [0.502]	0.141 [0.166]
JB Normality Test	[0.835]	[0.000]	[0.714]	[0.076]

Note: p-value is stated in [].

Sobel test for Indirect Effect Significance

In a mediation model, the significance of an indirect (mediated) effect is evaluated using the Sobel z-value test. In social science study, it is usually used to better understand the relationship between a mediator variable and dependent variable.

Overview of the Mediation model

- Independent Variable (X): The predictor
- Mediator (M): Indicator that explain the dependent and independent variable relationship.
- Dependent Variable (Y): The outcome

The Sobel test determines whether there is a statistically significant indirect influence of X on Y via the mediator M. the indirect effect is calculated as the product of coefficients:

- The path from X to M (a)
- The path from M to Y (b)

Thus, the Indirect Effect = $a \times b$

$$\text{Sobel Z-value formula: } Z = \frac{a*b}{\sqrt{b^2Sa^2+a^2Sb^2}}$$

Where: a and b are the coefficients and Sa and Sb are standard errors of a and b respectively.

Table 4: Indirect Effects via Sobel Test

Pathway	Indirect Effect	Z-Statistic	Result
TTs $\rightarrow$ TR $\rightarrow$ RGDP	0.002	0.14	Insignificant
TTs $\rightarrow$ FDII $\rightarrow$ RGDP	0.838**	2.76	Significant
TTs $\rightarrow$ TO $\rightarrow$ RGDP	-0.019	-1.81	Insignificant
DTTs $\rightarrow$ TR $\rightarrow$ RGDP	0.043***	1.43	Insignificant
DTTs $\rightarrow$ FDII $\rightarrow$ RGDP	0.133**	2.76	Significant
DTTs $\rightarrow$ TO $\rightarrow$ RGDP	-0.003	-1.81	Insignificant

Rule for interpretation (Sobel Z-Value)

- $Z > 1.96$: Indicate that the indirect effect is statistically significant at 5%.
- $Z > 2.58$: Indicate that the indirect effect is statistically significant at 1%.
- $Z < 1.96$: Indicate that the indirect effect is statistically insignificant.

Based on the Sobel Z-statistic indirect effect of trade treaties via tax revenue on RGDP is statistically insignificant, effective reduction in trade taxes remain limited as several taxes including excise and custom duties continue to impose at the import stages. Consequently, the tax burden on trade remains largely unchanged, weakening the ability of trade treaties to enhanced fiscal space or stimulates economic growth through tax revenue. In contrast, the indirect influence of trade treaties on economic growth via FDI inflow is positive and statistically significant, indicating that trade agreements foster an environment conducive for investment, which subsequently promote economic growth. Rising FDI inflows contribute capital, technology transfer, skills and employment opportunities, collectively support economic growth. The finding is consistent with Phoo (2024), who find a growth enhancing complementarity between trade liberalization and FDI inflow. However, the empirical findings present a more nuanced picture. The indirect effect of trade treaties on RGDP through trade openness carries a negative and statistically insignificant. This suggests that, in Pakistan, structural constraints are at play. Persistent balance of payments deficits has led the government to rely on indirect policy measures including export compression and taxation, which may dampen trade expansion and weaken trade openness to economic growth.

The indirect effect of DTTs on RGDP via tax revenue is positive but statistically insignificant, consistent with (Rolland, 2020). In Pakistan, tax incentives, treaty shopping and profit shifting weaken the domestic tax base. While weak administrative capacity and outdated treaty provision further constrain revenue mobilization. In contrast, the Sobel test results reveal that DTTs have a

positively and significantly indirect effect on RGDP through FDI inflow. This suggests that DTTs effectively contribute country's level of development. Increased FDI Inflow also helps the country participate in value chain, particularly in machinery and technology, further promoting economic growth. These agreements are largely design to facilitate cross border investment rather than trade. Therefore, they are conceptually as well as practically distinct from trade agreements. In this context, the Sobel test results are in line with theoretical expectations. Specifically, the indirect effect of DTTs negatively and statistically insignificant on real GDP through trade openness. This means that double tax agreements do not have a meaningful impact on RGDP via the trade channel in case of Pakistan. The overall mediated effect is not strong enough to draw any reliable policy interference. These results imply that the tradeopeness may not be the primary channel through DTTs influence economic growth, rather than other channels such as FDI.

Conclusion

Behind every treaty lies a tradeoff between attracting investment and preserving fiscal sovereignty. As noted by (Dutt & Gallagher, 2022; Janský & Šedivý, 2019) assert in their research that such treaties are costly for developing countries and tend to benefit developed nations. Building on this prospective, our study comprehensively evaluates the economic consequences of international economic agreements including trade agreements and double taxation agreements on Pakistan macroeconomic indicators such as tax revenue, FDI inflow and trade openness and ultimately on economic stability as real GDP. To achieve this, we also conduct a mediation analysis to examine how these economic agreements influence real GDP indirectly through the three indicators, each measured as a percentage of GDP. Furthermore, the trade treaties and double tax treaties are quantified by the number of agreements signed annually with foreign countries within Pakistan's investment treaty network. The results show that double tax treaties significantly influence tax revenue through often negatively, reflecting the fiscal cost of incentives provided to foreign investors. Both trade agreements and double tax treaties have a positive and significant effect on FDI inflow, conforming that such agreements improve investor confidence and attract capital. However, tradeopeness is constraint due to complex tariff structures and limited liberalization, resulting in a negative or weak impact from the treaties. Further, the mediation analysis address that the international economic agreements contribute to GDP growth through FDI inflows primarily, while the trade openness and tax revenue remain less effective. The overall findings justify that that the economic growth target is still low and tax to GDP ratio of target was 13% (IMF) and Pakistan projected to reach 10.6%, although it remains below the IMF target.

In conclusion, Pakistan reverse capital flight between 1972 to 2013 was estimated over \$30 billion primarily due to trade liberalized policies (Mahmood, 2013). Furthermore, illicit financial flows such as MNCs shift profit from higher tax countries to low or non-tax jurisdiction continue to eroding tax base of the developing countries. To address these challenges, the OECD initiated the BEPS framework, with the core aim of ensuring that profits are taxed where economic activities occur and where value is created (OECD, n/a). For developing countries like Pakistan, meaningful participation in international tax rule making and capacity building is essential to protect domestic revenues and foster sustainable economic growth.

Policy Recommendation

Based on the findings, Pakistan need significant tax and fiscal reforms to strengthen growth and tax revenue collection. The following recommendations are proposed;

Renegotiate bilateral investment treaty (BIT) model to limit MFN scope

Pakistan should update and renegotiate older BITs, especially those signed before the 2000's, which often include on most favor nation's (MFN) clauses that increase treaty shopping risk.

Shift to Performance Base Incentives

Instead of granting pre-investment tax concession, incentives should be tied to actual performance. Fiscal benefits should be offered only after investors successfully establish operations, create value addition and contribute to local productivity.

Ensure Transparency and Public Accountability

Currently, treaty negotiations and related fiscal data are kept largely confidential. The government should increase transparency by publishing treaty related tax expenditure in official government report and by making relevant data accessible to researchers, academia and policy makers. Broader stakeholder engagement through parliament, business chamber, civil society and provincial government should be institutionalized to ensure agreements are debated openly and design in the national interest.

References

- Abasimi, I., Li, X., & Khan, M. I. (2018). The impacts of institutions on international trade in Ghana's economic perspective. *International Journal of Academic Research in Economics and Management Sciences*, 7(4), Article 4. <https://knowledgewords.com/index.php/ijarems/article/view/1206>
- Abbas, S., & Waheed, A. (2021). Fiscal deficit and trade deficit nexus in Pakistan: An econometric inquiry. <https://elar.urfu.ru/handle/10995/111405>
- Abbasi, D. K., Jaral, E. U., & Saddaf, N. (2019). Impact of corruption on economic growth in Pakistan: A comparative approach. *Pakistan Journal of Economic Studies (PJES)*, 2(2), Article 2.
- Abu, N., Abd Karim, M. Z., David, J., Sakanko, M. A., Ben-Obi, O. A., & Mohammed Gamal, A. A. (2022). The behaviour of tax revenue amid corruption in Nigeria: Evidence from the non-linear ARDL approach. *Economic Studies*, 31(4). <https://www.cceol.com/search/article-detail?id=1040747>
- Achterbosch, T., Ben Hammouda, H., Osakwe, P. N., & van Tongeren, F. (2004). Consequences of the Doha Round trade reforms for Africa. *Conference Papers*, Article 331178. <https://ideas.repec.org/p/ags/pugtwp/331178.html>
- Agbeyegbe, T. D., Stotsky, J., & WoldeMariam, A. (2006). Trade liberalization, exchange rate changes, and tax revenue in Sub-Saharan Africa. *Journal of Asian Economics*, 17(2), 261–284. <https://doi.org/10.1016/j.asieco.2005.09.003>
- Ahmad, K., Ali, S., & Ali, A. (n.d.). Trade revenue implications of trade liberalization in Pakistan.
- Ahmad, R., Raza, K., & Saher, S. (2017). Impact of trade openness on economic growth: A case study of Pakistan. *Review of Economics and Development Studies*, 3(1), Article 1. <https://doi.org/10.26710/reads.v3i1.165>
- Ahmad, S., Ali, M., & Khan, S. (2020). The impact of taxation on economic growth using ARDL approach: A case study of Pakistan. *Journal of Finance and Economics Research*, 5(2), 89–95.
- Ahmed, M. A., Nawaz, N., & Awan, M. R. (2024). Surface-level analysis of international economic agreements and their strangulatory impact on Pakistan economy. *Journal of Asian Development Studies*, 13(2), Article 2. <https://doi.org/10.62345/jads.2024.13.2.4>
- Ali, H., & Najabat, H. (2022). Impact of foreign direct investment on the economic growth of Pakistan. *Global Journal of Humanities and Social Sciences Research*, 1(2), 15–27. <https://doi.org/10.59129/gjhssr/v1i2.2>
- Ali, I. (2024). Socioeconomic determinants of per capita GDP growth in Pakistan: An econometric analysis. *South Asian Journal of Finance*, 4(2). <https://doi.org/10.4038/sajf.v4i2.98>

- Arif, I., & Rawat, A. S. (2018). Corruption, governance, and tax revenue: Evidence from EAGLE countries. *Journal of Transnational Management*, 23(2–3), 119–133. <https://doi.org/10.1080/15475778.2018.1469912>
- Atif, M., & Siddiqui, D. A. (2019). The effect of double taxation treaties on tax relief and foreign firms' investment flows (FDI): Evidence from Pakistan. SSRN 3397474. https://www.researchgate.net/profile/Danish-Siddiqui-3/publication/333744315_The_Effect_of_Double_Taxation_Treaties_on_Tax_Relief_and_Foreign_Firms'_Investment_Flows_FDI_Evidence_from_Pakistan/links/5e42be66299bf1cdb91f9a8c/The-Effect-of-Double-Taxation-Treaties-on-Tax-Relief-and-Foreign-Firms-Investment-Flows-FDI-Evidence-from-Pakistan.pdf
- Azhar, U. (2004). The impact of FDI on economic growth under foreign trade regimes: A case study of Pakistan. https://www.academia.edu/68865653/The_Impact_of_FDI_on_Economic_Growth_under_Foreign_Trade_Regimes_A_Case_Study_of_Pakistan
- Bagli, S., & Adhikary, M. (2014). FDI inflow and economic growth in India: An empirical analysis. *Economic Affairs*, 59(1), 23–33.
- Baier, S. L., Bergstrand, J. H., Egger, P., & McLaughlin, P. A. (2008). Do economic integration agreements actually work? Issues in understanding the causes and consequences of the growth of regionalism. *The World Economy*, 31(4), 461–497. <https://doi.org/10.1111/j.1467-9701.2008.01092.x>
- Baker, P. L. (2014). An analysis of double taxation treaties and their effect on foreign direct investment. *International Journal of the Economics of Business*, 21(3), 341–377. <https://doi.org/10.1080/13571516.2014.968454>
- Bandelj, N., & Tester, A. (2020). Amplified decoupling in the global economy: The case of bilateral investment treaties. *Socius: Sociological Research for a Dynamic World*, 6, 2378023120969343. <https://doi.org/10.1177/2378023120969343>
- Barthel, F., Busse, M., & Neumayer, E. (2010). The impact of double taxation treaties on foreign direct investment: Evidence from large dyadic panel data. *Contemporary Economic Policy*, 28(3), 366–377. <https://doi.org/10.1111/j.1465-7287.2009.00185.x>
- Baunsgaard, T., & Keen, M. (2005). Tax revenue and (or?) trade liberalization (SSRN Scholarly Paper No. 887981). Social Science Research Network. <https://papers.ssrn.com/abstract=887981>
- Beer, S., & Loeprick, J. (2018). The cost and benefits of tax treaties with investment hubs: Findings from Sub-Saharan Africa. *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association*, 111, 1–36.
- Behname, M. (2012). Foreign direct investment and economic growth: Evidence from Southern Asia. *Economic Analysis Working Papers (2002–2010)*, 2, 1–1.
- Bevan, M. D. (1995). Fiscal implications of trade liberalization. *International Monetary Fund*. https://books.google.com/books?hl=en&lr=&id=rlIYEAAQBAJ&oi=fnd&pg=PP3&dq=Fiscal+Implications+of+Trade++Liberalization++Mario+I.+Blejer+and+Adrienne+Cheasty*&ots=mXiyRylRt5&sig=9NvpJouna-1IprigSYBg6gRPG_s
- Bibi, I. (2024). Tax treaty policy and foreign direct investment in Pakistan – PIDE thesis. <https://thesis.pide.org.pk/thesis/tax-treaty-policy-and-foreign-direct-investment-in-pakistan/>
- Blejer, M. I. (1990). Fiscal implications of trade liberalization. In *Fiscal policy in open developing economies*. International Monetary Fund. <https://www.elibrary.imf.org/view/book/9781557751713/ch006.xml>
- Cagé, J., & Gadenne, L. (2018). Tax revenues and the fiscal cost of trade liberalization, 1792–2006. *Explorations in Economic History*, 70, 1–24.
- Dackehag, M., & Hansson, Å. (2012). Taxation of income and economic growth: An empirical analysis of 25 rich OECD countries. <https://lup.lub.lu.se/search/publication/2539624>
- Degroot, N. (n.d.). Economic liberalization definition, theory & examples. *Study.com*. <https://study.com/academy/lesson/economic-liberalization-microeconomic-reform.html>

- Dutt, D., & Gallagher, K. P. (2022). The fiscal impacts of trade and investment treaties. *International Journal of Political Economy*, 51(3), 176–207. <https://doi.org/10.1080/08911916.2022.2145042>
- Egbuna, N. E., Oniwoduokit, E., Mansaray, K., Umo, M., & Adenekan, A. (2013). Capital account liberalization and growth in the WAMZ: An empirical analysis. *International Journal of Economics and Finance*, 5(12), 40. <https://doi.org/10.5539/ijef.v5n12p40>
- Fiorini, P. d. C., Seles, B. M. R. P., Jabbour, C. J. C., Mariano, E. B., & de Sousa Jabbour, A. B. L. (2018). Management theory and big data literature: From a review to a research agenda. *International Journal of Information Management*, 43, 112–129. <https://doi.org/10.1016/j.ijinfomgt.2018.07.005>
- Fischer, S. (n.d.). Economic growth and economic policy. <https://www.elibrary.imf.org/display/book/9781451970005/ch008.xml>
- Froot, K. A., & Stein, J. C. (1991). Exchange rates and foreign direct investment: An imperfect capital markets approach. *The Quarterly Journal of Economics*, 106(4), 1191–1217. <https://doi.org/10.2307/2937961>
- Gasparėnienė, L., Klietė, T., Šivickienė, R., Remeikienė, R., & Endrijaitis, M. (2022). Impact of foreign direct investment on tax revenue: The case of the European Union. *Journal of Competitiveness*, 14(1), 43–60.
- Gnanangnon, S. K. (2020). Tax reform and economic growth in developing countries: The trade openness and public revenue channels. *Research Square*. <https://doi.org/10.21203/rs.2.23798/v1>
- Gnanangnon, S. K., & Brun, J.-F. (2019). Trade openness, tax reform and tax revenue in developing countries. *The World Economy*, 42(12), 3515–3536. <https://doi.org/10.1111/twec.12858>
- Habermeier, K., & Kirilenko, A. A. (2003). Securities transaction taxes and financial markets. *IMF Staff Papers*, 50(1), 165–180. <https://doi.org/10.2307/4149921>
- Hassan, M. K., Sanchez, B., & Yu, J.-S. (2011). Financial development and economic growth: New evidence from panel data. *The Quarterly Review of Economics and Finance*, 51(1), 88–104. <https://doi.org/10.1016/j.qref.2010.09.001>
- Henry, A. S., Gwani, A. A., Simon, J., Ahmed, S. A., & Basiru, B. A. (2020). Investigating the impact of inflation on foreign direct investment in Nigeria: Evidence from a cointegration and vector error correction model (VECM) analysis. *International Research Journal of Modernisation in Engineering Technology and Science*, 2(10), 633–640.
- Huchet-Bourdon, M., Le Mouėl, C., & Vijil, M. (2018). The relationship between trade openness and economic growth: Some new insights on the openness measurement issue. *The World Economy*, 41(1), 59–76. <https://doi.org/10.1111/twec.12586>
- Hur, J., & Park, C. (2012). Do free trade agreements increase economic growth of the member countries? *World Development*, 40(7), 1283–1294.
- Ibrahim, Y., & Raji, J. O. (2018). Cross-border merger and acquisition activities in Asia: The role of macroeconomic factors. *Studies in Economics and Finance*, 35(2), 307–329.
- Immurana, M., Rahman, A. M. A., & Iddrisu, A.-A. (2013). The impact of trade liberalisation on tax revenue in Ghana: A co-integration analysis. *ADRRI Journal (Multidisciplinary)*, 3(3), Article 3. <https://doi.org/10.55058/adrri.v3i3.28>
- Janský, P., & Šedivý, M. (2019). Estimating the revenue costs of tax treaties in developing countries. *The World Economy*, 42(6), 1828–1849. <https://doi.org/10.1111/twec.12764>
- Khan, M. (2019). Evaluating the subsidy framework and its effect on economic growth: A case study of Pakistan. 19.
- Khan, M. A., & Khan, S. A. (2011). Foreign direct investment and economic growth in Pakistan: A sectoral analysis. *PIDE Working Papers*, 2011:67. <https://ideas.repec.org/p/pid/wpaper/201167.html>
- Kinda, H., & Tagem, A. (2024). Natural resource revenues and double taxation treaties in developing countries: Insights from a network centrality approach. *International Tax and Public Finance*. <https://doi.org/10.1007/s10797-024-09870-9>

- Kinda, H., Tagem, A. M. E., & UNU-WIDER. (2023). Double taxation treaties and resource revenue mobilization in developing countries: A neural network approach (WIDER Working Paper No. 2023; WIDER Working Paper, Vol. 2023). UNU-WIDER. <https://doi.org/10.35188/UNU-WIDER/2023/433-5>
- Kohl, T. (2014a). Do we really know that trade agreements increase trade? *Review of World Economics*, 150(3), 443–469. <https://doi.org/10.1007/s10290-014-0188-3>
- Kohl, T. (2014b). Do we really know that trade agreements increase trade? *Review of World Economics*, 150(3), 443–469. <https://doi.org/10.1007/s10290-014-0188-3>
- Kurul, Z. (2021). The effects of financial development on trade openness: Evidence from panel threshold regression models. *ResearchGate*. <https://doi.org/10.25229/beta.887369>
- Landowska, A., Kłopotek, R. A., Filip, D., & Raczowski, K. (2025). GDP-GFCF dynamics across global economies: A comparative study of panel regressions and random forest (No. arXiv:2504.20993). *arXiv*. <https://doi.org/10.48550/arXiv.2504.20993>
- Larch, M., & Yotov, Y. V. (2024). Estimating the effects of trade agreements: Lessons from 60 years of methods and data. *The World Economy*, 47(5), 1771–1799. <https://doi.org/10.1111/twec.13569>
- Lee, J.-Y., Hsiao, Y.-C., Bui, N., & Nguyen, T.-T. (2021). Inward foreign direct investment and trade openness in Vietnam: A nonlinear autoregressive distributed lag approach. *Economies*, 9(3), Article 3. <https://doi.org/10.3390/economies9030120>
- Liu, X. (2016). Trade agreements and economic growth: Trade agreements and economic growth. *Southern Economic Journal*, 82(4), 1374–1401. <https://doi.org/10.1002/soej.12113>
- Mahmood, Z. (2013). Reverse capital flight to Pakistan: Analysis of evidence. *The Pakistan Development Review*, 1–15.
- Makun, K., & Singh, B. (2025). Trade deregulation and fiscal revenue in selected Pacific Island countries. *PLOS ONE*, 20(1), e0315733. <https://doi.org/10.1371/journal.pone.0315733>
- Mooij, R. A. de, Klemm, M. A. D., & Perry, M. V. J. (2021). *Corporate income taxes under pressure: Why reform is needed and how it could be designed*. International Monetary Fund.
- Munir, S., & Kiani, A. K. (2011). Relationship between trade openness and inflation: Empirical evidences from Pakistan (1976–2010). *The Pakistan Development Review*, 853–876.
- Musila, J., & Mpekansambo, A. (2024). Trade openness and growth in a small economy: Evidence from Malawi. *The World Economy*, 47(11), 4331–4358. <https://doi.org/10.1111/twec.13622>
- Nasir, I., & Saima, N. (2010). Investment, inflation and economic growth nexus. *MPRA Paper*, Article 27163. <https://ideas.repec.org/p/pramprapa/27163.html>
- Neumayer, E. (2007). Do double taxation treaties increase foreign direct investment to developing countries? *The Journal of Development Studies*, 43(8), 1501–1519. <https://doi.org/10.1080/00220380701611535>
- Nugraha, I. W. Y. (2013). The impact of corruption and money laundering on foreign direct investment in ASEAN. *Jurnal Ekonomi Kuantitatif Terapan*, 6(2), 44284.
- Obasanmi, J. O., & Imasuen, F. O. (2024). The relationship between institutional framework and international trade: An application of the gravity model. *International Journal of Research and Innovation in Social Science*, 8(6), 2254–2263.
- Osei, D. B., Sare, Y. A., & Ibrahim, M. (2019). On the determinants of trade openness in low- and lower-middle-income countries in Africa: How important is economic growth? *Future Business Journal*, 5(1), 2. <https://doi.org/10.1186/s43093-019-0002-8>
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289–326.
- Petkova, K., Stasio, A., & Zagler, M. (2020). On the relevance of double tax treaties. *International Tax and Public Finance*, 27(3), 575–605. <https://doi.org/10.1007/s10797-019-09570-9>

- Petkova, K., Stasio, A., & Zagler, M. (2025). Bilateral tax competition in double tax treaties between developed and developing countries. *International Tax and Public Finance*. <https://doi.org/10.1007/s10797-025-09884-x>
- Pham, A. D., Pham, H., & Ly, K. C. (2019). Double taxation treaties as a catalyst for trade developments: A comparative study of Vietnam's relations with ASEAN and EU member states. *Journal of Risk and Financial Management*, 12(4), Article 4. <https://doi.org/10.3390/jrfm12040172>
- Phoo, W. H. (2024). Mediation effect of foreign direct investment through trade liberalization on economic growth in Asian countries. *Research Square*. <https://doi.org/10.21203/rs.3.rs-5712817/v1>
- Qayyum, A., & Zaman, K. (2018). Dynamic linkages between international trade, gross fixed capital formation, total labor force and economic growth: Empirical evidence from Pakistan. *Acta Universitatis Danubius. Œconomica*, 15(1), Article 1. <https://journals.univ-danubius.ro/index.php/oeconomica/article/view/5250>
- Raghutla, C. (2020). The effect of trade openness on economic growth: Some empirical evidence from emerging market economies. *Journal of Public Affairs*, 20(3), e2081. <https://doi.org/10.1002/pa.2081>
- Rigobon, R., & Rodrik, D. (2005). Rule of law, democracy, openness, and income. *Economics of Transition*, 13(3), 533–564. <https://doi.org/10.1111/j.1468-0351.2005.00226.x>
- Rodríguez, F., & Rodrik, D. (2000). Trade policy and economic growth: A skeptic's guide to the cross-national evidence. *NBER Macroeconomics Annual*, 15, 261–325. <https://doi.org/10.1086/654419>
- Rolland, S. (2020). The impact of trade and investment treaties on fiscal resources and taxation in developing countries. *Chicago Journal of International Law*, 21(1). <https://chicagounbound.uchicago.edu/cjil/vol21/iss1/3>
- Shafiq, M. N., Bhatti, M. A., Bashir, F., & Nawaz, M. A. (2022). Impact of taxation on economic growth: Empirical evidence from Pakistan. *Journal of Business and Social Review in Emerging Economies*, 8(2), Article 2. <https://doi.org/10.26710/jbsee.v8i2.2309>
- Siddique, M., Anwar, A., & Quddus, M. A. (2020). The impact of real effective exchange rate on revealed comparative advantage and trade balance of Pakistan. *Economic Journal of Emerging Markets*, 12(2), 193–207.
- Simbachawene, M. S. (2018). Improving tax revenue performance in Tanzania: Does potential tax determinants matter? *Journal of Finance and Economics*, 6(3), Article 3. <https://doi.org/10.12691/jfe-6-3-3>
- Sly, N., & Weber, C. (2017). Bilateral tax treaties and GDP comovement. *Review of International Economics*, 25(2), 292–319. <https://doi.org/10.1111/roie.12267>
- Utkulu, U., & Özdemir, D. (2004). Does trade liberalization cause a long run economic growth in Turkey? *Economics of Planning*, 37(3), 245–266. <https://doi.org/10.1007/s10644-005-8080-8>
- Xu, B. (1994). Tax policy implications in endogenous growth models (SSRN Scholarly Paper No. 883491). *Social Science Research Network*. <https://papers.ssrn.com/abstract=883491>
- Zafar, S., & Butt, M. S. (2008, June 23). Impact of trade liberalization on external debt burden: Econometric evidence from Pakistan [MPRA Paper]. <https://mpra.ub.uni-muenchen.de/9548/>
- Zolt, E. M. (2018a). Tax treaties and developing countries. *Tax Law Review*, 72, 111.
- Zolt, E. M. (2018b). Tax treaties and developing countries. *Tax Law Review*, 72, 111.