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Abstract

The present study aims at highlighting the determinants and degree diversification of export in Pakistan. The index of export's diversification by the United Nations Conference on Trade and Development is used to calculate the degree of export diversification. Furthermore, using time series data from 1995 to 2022, present study examines the factors that influence export diversification. There are very few studies that address estimating and determinants in the context of Pakistan. To check the unit root problem Augmented Dickey Fuller test is used. The Auto Regressive Distributive Lag method is used in this study to observe long-term relationships in the underlying variables. The regression results indicate that official exchange rates, economic globalization, and foreign direct investment negatively affect export diversification in Pakistan. While, gross fixed capital formation, world GDP per capita, term of trade, and political stability positively affect diversification of exports in the case of Pakistan.

Keywords: Export diversification, official exchange rate, economic globalization, foreign direct investment, world GDP per capita, gross fixed capital formation, term of trade, political stability

1. Introduction

When it comes to national economies, the phenomena of international trade is a game-changer. The ever-increasing demand for goods and services in the modern day can only be satisfied through international trade. The classical concept of absolute advantage and the Ricardian notion of comparative advantage have both aided in the expansion of international trade and benefited all countries concerned. The available literature provides evidence that the distribution of commerce has exhibited disparities among various nations. Every nation aspires to increase its gains by potentially compromising the interests of other nations. Throughout different periods and in varying contexts, economists have proposed many trade policies with the aim of attaining economic benefits, enhancing trade volume, and addressing balance of payment issues. The concept of specialization, as introduced by Adam Smith, stimulated the discourse surrounding the merits of export-led growth in comparison to import substitution strategies. (Frankel and Romer, 1999) Subsequently, ideas pertaining to comparative advantage also emphasized the importance of specialization, entailing the concentration of production in a limited number of goods for the purpose of exportation. Comparative advantage refers to the strategic focus on a limited number of items, disregarding the concept of export diversification. Nowadays, monopolistic rivalry and intra-industry trade have become more crucial to international trade. (Krugman, 1989), which foster the exchange of exports and imports in comparable items and promote consumer preference for diversity. This issue raises uncertainty over the choice between pursuing comparative advantage, which promotes specialization in a limited number of items, or embracing export diversification, which emphasizes a broader range of products, inside a country. The purpose of this analysis is to determine if export diversification or concentration is Pakistan's strategy of choice. According to Kavoussi (1985), there are two main schools of thought among trade economists. We called the two camps "Trade Pessimists" and "Trade Optimists." Free trade and export promotion were key tenets of the first set of trade policies, which put an emphasis on reaching out to other markets. The second set of people sought import substitution programmes and other protectionist policies. The modern period has seen the triumph of business in positive values. Hence, the relevance of international organizations in relation to the promotion of trade liberalization is substantial. During the initial phases of development, nations would often engage in specialization and the utilization of their resource endowments for the sake of production and exportation. At the present time, (Hesse, 2009). there are a number of factors that lend credence to the idea of export diversification, which entails making a broader variety of products For countries with low incomes, diversifying their exports is crucial. The economic structure and dependence on natural resources of developing nations cause them to specialize or show little diversity, according to a large body of scholarship. It is well-known that countries can produce a wider range of goods through export diversification because they can take advantage of the different nature of imported goods and inputs (Parteka & Tamberi, 2013b; Ali, 2022). The existing literature suggests that increasing export diversification is a top priority for many industrialised nations around the world. Although a direct correlation between export diversification and per capita income cannot be shown, it can be argued that a more diverse export portfolio does help the economy thrive (Imbs and Wacziarg, 2003; Ali & Naeem, 2017).

Significant macroeconomic policy implications, particularly for the attainment of sustainable economic growth, arise from an analysis of export diversification in connection to resource endowment. As soon as their economies reach a certain level of development, most countries start to specialise in certain areas of industry. Nonetheless, they are increasing the variety of goods they produce in tandem with their growing economic success. When a country's economy is overly dependent on exporting a small number of items, its growth and productivity are vulnerable to fluctuations in trade terms. For small open economies, export diversification could help reduce the impact of external economic shocks on growth. Because of swings in foreign demand, pricing, and exchange rates, small open economies risk economic instability due to export concentration. (Parteka and Tamberi, 2013a).

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The study conducted by Krugman (1981) and Helpman and Krugman (1980) centered around the concepts of monopolistic competition and new trade theories, with a specific emphasis on the expansion and accessibility of product diversity. There are two primary methods by which product diversification can be evaluated empirically.

a) In terms of the concentration of economic activity

b) With respect to the degree to which respective nations' product specialisations differ from the worldwide average.

Numerous under developed nations have undertaken structural reforms during the past two to three decades with the aim of enhancing their overall economic performance, with a special emphasis on diversifying their exports.

Pakistan has consistently altered its trade policy in response to both internal requirements and the global landscape, ever since gaining independence. In the year 1950, Pakistan had an import substitution programme that involved intentionally overvaluing the currency to encourage the purchase of foreign machinery and equipment for the local industry. The goal was to boost the industry's performance. During the late 1950s, trade policies were developed to encourage farmers to purchase agricultural raw materials at prices lower than the prevailing world price. As a result, this particular time has been characterized as an era of heightened protectionism (Khan and Ali, 1998; Ali, 2011). The government of Pakistan implemented the export bonus plan in the 1950s with the aim of enhancing export activities. As a result, Pakistan experienced an average annual growth rate of 11.4% in its exports throughout the 1960s.

The empirical studies regarding export diversification, export structure, and structural changes in Pakistan's exports have yielded mixed results. The period from 1979 to 1985 witnessed a substantial surge in export diversification in Pakistan. However, starting from 1985, there was a notable decline in export diversification, leading to a regression to the levels experienced in 1979. The rationale behind this phenomenon is in the notable inclination of producers to focus on the creation of primary items using traditional methods, rather than diversifying their output to include a range of nontraditional manufactured goods. Between the eras of structural changes and trade liberalisation, and throughout the era of import substitution strategy, Pakistan's genuine comparative advantage was plainly visible. Caused by this, primary commodity production was up but manufactured products exports went down. (Akbar et al., 2000; Ahmad et al., 2018; Ali, 2022).

Over the past two decades, there has been a remarkable increase in export earnings. According to the State Bank of Pakistan (2010), there was a notable rise in Pakistan's export revenues, which escalated from US\$6.3 billion to US\$18.3 billion. The fluctuating export performance of several sectors in Pakistan in comparison to global exports is the underlying cause for this phenomenon. The sectoral export performance of Pakistan has exhibited a lackluster trend, with its proportion in global exports experiencing a drop during the 1990s. In the 1990s, Pakistan's contribution to global exports amounted to 0.18%. By 2008, this figure had decreased to 0.15%, and further declined to 0.139603 in 2013. Based on the historical growth of exports in Pakistan, it is not advisable to adopt a rigid stance when making projections about future export trends. The study conducted by Ahmad et al. (2010), and Ahmad et al. (2022) illustrates the annual fluctuations observed in Pakistan's export trend throughout history. In their study, Yiğit and Tür (2012) investigated the correlation between organizational success and the implementation of diversification strategies, employing the Herfindahl index as a measurement tool. Study by , Haddad et al. (2013) explored the impact of trade openness on growth volatility, employing export diversification as a measure. The study utilized panel data encompassing a sample of 77 nations, both developed and developing, spanning the time frame from 1976 to 2005. The empirical evidence demonstrated that the implementation of product diversity effectively mitigated the contrary effects of global shocks on growth instability.

Major objective of this study is to make a contribution to identifying the factors that influence export diversification in Pakistan. Additionally, this study will look at theories that have been tossed around in policy discussions but haven't been tested in Pakistani contexts yet. The rest of the paper is structured as follows: In Section 2, the current literature is thoroughly examined. In Section 3, the study's data and methodology are explained. Finally, in Section 4, the results and their interpretation are presented. Section (5) concludes the investigation and offers pertinent recommendations based on the included factors.

2. Literature Review

There is a substantial body of work on this problem at the global level. However, there is a dearth of empirical material specifically focused on Pakistan, particularly in relation to the estimation of export diversification and the examination of its causes in a comprehensive manner. This study examines a selection of literature that has been conducted both domestically and internationally around the topic of export diversification.

(Mora & Olabisi, 2023) conducted a comprehensive analysis on the subject matter of economic development and export diversification. Present study examined the phenomenon of export extension in low-income countries, which is commonly linked to an increase in export diversity, while high-income countries tend to observe a decrease in export diversification. Present study is conducted to examine the correlation between transport costs and diversification, taking into account the varying levels of economic growth. Furthermore, this study put out an original rationale for the discrepancies observed in export diversification trends. Transport costs have a major influence on developing nations' export diversification levels, according to an analysis of trade and trade cost data. Basically, high-income nations are unaffected by transportation cost increases in their capacity to create new export goods or strengthen the value of current trade relations. On the other hand, it should be noted that developing nations have adverse consequences in relation to these aspects because of elevated variable transportation expenses in comparison to their

high-income counterparts. The current investigation is relevant to and has implications for the continuing academic discussion regarding the importance of diversification for economic growth, as well as the most effective order in which to pursue diversification and growth.

What is the connection between OECD nations' export sophistication and diversification and the disaggregation of energy consumption, according to the study of Rehman et al. (2023)? An exhaustive analysis using a stringent panel model. In recent times, there has been an increasing global inclination among governments to achieve substantial economic progress by diversifying and augmenting the sophistication of their export expansion. The phenomenon of growth and ascent requires the utilization of energy. With the current climate in mind, this study looks at the relationship between energy consumption components—more especially renewable and non-renewable sources—and the promotion of export diversification and sophistication methods in OECD nations from 1990 to 2019. The study's main contribution is the creation and implementation of two new indices, export sophistication and export diversification. The indexes indicated before are then used as dependent variables in the research model. Furthermore, the CS-ARDL method reveals that OECD nations' export diversification and complexity are positively correlated with their disaggregated energy consumption. It is found that the impact of using non-renewable energy sources is far greater than that of renewable energy sources. There is strong evidence that the OECD member nations' export diversification and sophistication can be advanced through the integration of factors like foreign direct investment (FDI), human capital, and institutional quality. This study provides evidence that the CS-ARDL method's conclusions are sound by addressing the problem of endogeneity in panel data using the System GMM (SGMM) method. Important policy suggestions derived from the investigated data are presented in this study.

Hasini et al. (2023) looked at how export diversification could help with export upgrading. What data is accessible about a country's economy that is highly dependent on oil. Within the particular context of Brunei Darussalam, this paper analyses the association between export diversification and export upgrading from 1995 to 2019. Diversifying their production structure is a priority for numerous oil-dependent economies. The initial step is to build an index that prioritises export diversification, concentration, and upgrading. Using de-identified transaction data, this index is created. To successfully address the issues caused by endogeneity and simultaneity, an autoregressive distributed lag estimator is used. Our research shows that improved export activities over a long period of time are positively and statistically associated with export variety. In addition, the findings indicate that, in contrast to advanced exports that display higher levels of technological sophistication, export diversity positively and significantly impacts the lower stages of export upgrading. It may take some time for the benefits of increasing the variety of exported commodities to become apparent, according to the data. There is hope that this empirical study may shed light on the economic processes at work in resource-rich states and explain the contradictory results seen in earlier academic examinations.

The study conducted by Parteka et al. (2022) investigated the technological components associated with export diversification. This research study delivers original empirical findings about the technology-related mechanisms that contribute to the observed phenomena of export diversification throughout different stages of economic development. The present study employs an empirical approach that makes use of a vast dataset encompassing 160 nations from 1996 to 2018. This study utilizes six distinct taxonomies to categorize products, with a specific emphasis on HS6-digit classifications. These taxonomies enable academics to effectively assess the technology aspects of trade, encompassing both a broad perspective and a more focused approach. Through the process of disaggregating the weighted Theil index, analysis provides a comprehensive evaluation of diversification at different phases, specifically focusing on technical and non-technological components. This approach allows for a more technologically oriented analysis. The phenomenon of export diversification is shaped by the expanding array of non-technical exports. Nevertheless, the importance of technical diversity varies as nation's progress towards more sophisticated phases of development. The importance of the technological component becomes increasingly apparent with the increase in output per worker. The influence of digital technology on the process of diversification is rather limited; yet, there are observable discrepancies in diversification trends among various countries.

Ur Rehman et al. (2021) looked at how trade-related sectoral infrastructure affected the complexity and variety of China's exports. Worldwide Development Indicators (WDI) data from UNCTAD covering the years 1990–2019 are used in this study. Using the PRODY and EXPY indices, we can find the export sophistication measurement. To the existing literature on the topic of how economic development (ED) and environmental sustainability (ES) interact, the current study makes a substantial addition. To accomplish this, it examines the symmetric and asymmetric impacts of infrastructure on ES and ED. The study utilised the very advanced and dynamic simulation method known as Dynamically Simulated Autoregressive Distributed Lag (DYS-ARDL). Below you will see a method that is an expanded version of the NARDL and ARDL approaches. By focusing on both long- and short-term dynamics, the newly-proposed DYS-ARDL dynamic method aimed to circumvent the limitations of the traditional ARDL model. With all other regressors held constant, the newly developed dynamic DYS-ARDL model estimates, simulates, and graphically represents predictions of counterfactual changes in one explanatory variable and its effect on the dependent variable. Additionally, the innovative methodology employed by the DYS-ARDL model allows for the automated estimation, simulation, and graphical depiction of projected trends in both positive and negative fluctuations of variables. Furthermore, it enables the analysis of the immediate and prolonged associations between these factors. The study's findings provide evidence of a durable correlation between infrastructure and the concepts of economic sustainability (ES) and environmental degradation (ED) in the

context of China. This study provides evidence to support the notion that enhanced infrastructure will result in more substantial advantages for China's economic growth and environmental preservation.

The study conducted by Gnanngnon (2021) investigated the diversification of manufacturing exports and service exports. This scholarly study investigates the influence of manufacturing export performance (MEP) on the diversification of services exports (SED). The analysis uses the two-step approach Generalized Method of Moments (GMM) technique and comprises 138 nations from 1995 to 2014. Socioeconomic development (SED) and market economic potential (MEP) are positively correlated, according to the research. Moreover, this beneficial impact is more conspicuous in underdeveloped countries in contrast to moderately developed ones. Moreover, the influence of macroeconomic policy (MEP) on socioeconomic development (SED) is amplified in countries that have experienced heightened levels of trade liberalization, expanded financial growth, elevated educational attainment, larger inflows of foreign direct investment, and enhanced institutional and governance standards.

In emerging economies, Benli (2020) investigates how export diversification affects economic growth. This research aims to use panel cointegration methods to investigate the long-term connection between GDP growth, export diversification, and domestic investment. Also, using the causality test that Konyá (2006) devised, this study examines the 1995–2017 sample of 19 developing economies to determine whether or not the aforementioned factors are causally related. The panel cointegration test could not find any statistically significant evidence of a long-term relationship between the variables. However, results from the causation test performed by Konyá (2006) differ across different countries.

In a study conducted by Benli (2020), the focus was on examining the relationship between export diversification and economic growth in emerging economies. The importance of expanding exports as a crucial component in development initiatives is widely recognized. Nevertheless, the precise manner in which exports contribute to economic growth, along with the exact sorts of exports that have the most significant influence, are matters of continuous investigation. It is imperative to acknowledge that the pursuit of export promotion does not invariably provide economic growth. To obtain a precise understanding of the true influence, it is crucial to consider not only the broader economic conditions and market structure of the countries involved in exporting, but also the particular products and services they are involved in selling. The present study aims to investigate the long-term association between economic growth, export diversification, and domestic investment by employing panel co-integration approaches. Furthermore, this study examines the causal association between the aforementioned variables using the causality test developed by Konyá (2006) in a sample of 19 emerging economies within the time frame from 1995 to 2017. The findings indicate that the makeup of exported goods and services may significantly influence the relationship between diversity and economic growth.

The link between export product diversification and CO₂ emissions was studied by Shahzad et al. (2020) in both developing and developed countries. Diversifying export products, extended margins, and intensive margins all have different effects on CO₂ emissions, and this academic study looks at all three. The nations studied are developing and developed. By looking at variable data every year from 1971 to 2014, the authors perform an empirical analysis. They address the research subject using system GMM and unconstrained fixed effects methods. Available empirical evidence suggests that the three indicators of export diversification have a significant influence on the mitigation of carbon dioxide (CO₂) emissions within a global sample of 63 nations, encompassing both industrialized and developing economies. The results obtained from the fixed effect models demonstrate that in industrialized nations, there exists a statistically significant detrimental impact of both product diversification and the intense margin. The adverse consequences of product diversity underscore the necessity of economic sophistication as a strategy for mitigating emissions. Furthermore, the Chow test has yielded statistically significant evidence of a notable differentiation between industrialized nations and rising economies. As a result, this test offers valuable insights that can inform policy suggestions. This study aims to improve the effectiveness of policies in meeting the Sustainable Development Goals (SDGs) by proposing creative policy ideas based on empirical research that stimulate cleaner production and industrial manufacturing.

A study was carried out by Mania and Rieber in 2019 to investigate how emerging economies might diversify their exports to achieve sustainable economic growth. The export diversification trends of developing countries in Latin America, Sub-Saharan Africa, and Developing Asia are examined and compared in this paper using econometric estimations with panel data. The years 1995–2015 are the primary focus of the analysis. The study's results show that developing countries' economies benefit from export diversification.

Research by (Lectard & Rougier, 2018) indicates that developing countries have been actively working to diversify and advance their export businesses since the 1990s. Most of the success in the areas indicated above has come from luring in vertical FDI and helping to launch new businesses with factor content that differs from what the country can do right now. Using data collected from a wide range of nations between 1992 and 2012, this study aims to determine whether or not a more complex and varied array of exported commodities has emerged after the principle of comparative advantage was abandoned. The results suggest that emerging economies that diverge from their comparative advantage tend to have increased levels of exports in the domain of manufactured goods, particularly those that possess higher levels of complexity. The effects of export diversification exhibit variation throughout distinct stages of development. Countries with moderate incomes or abundant natural resources may be able to diversify their exports thanks to the principle of divergence from comparative advantage. But it does have the effect of making lower-income economies' exports more concentrated. In addition, the research shows that FDI holdings and specialisation in less value-added productive activities within global value chains (GVCs) significantly affect how close a country is to a comparative

advantage in terms of the productive transformation process. According to our research, there may be long-term issues if countries seek foreign direct investment (FDI) without considering their comparative advantage. An increase in manufactured exports but a decline in the manufacturing sector's substantive contribution characterise this method's limited and surface-level representation of industrialization.

Bouini et al. (2016) examined export diversification and complexity indices to understand North African export and product structures. Lack of diversity and sophistication are North African countries' (NACs) main export and manufacturing constraints. This study indicates that the export structure hinders economic development in Newly Industrialised Countries (NICs) and explores how diversity and sophistication affect growth. This study generates a growth model using panel data and Barro's regression. Drivers of export sophistication and diversification enable Non-Aligned Countries (NACs) diversify their exports to higher-value-added items and make their current products more complicated. PRODY and EXPY indexes measured export sophistication. This analysis used UNCTAD data from 1995 to 2011.

Cabral and Veiga (2010) examined sub-Saharan African export diversification and sophistication factors. It will investigate the political and economic climates of Sub-Saharan African (SSA) nations that have effectively implemented export diversification (ED) and export sophistication (ES) programmes. This research also examines how effective ED and ES techniques can enhance some MDGs. Economic Stability (ES) and Economic Development (ED) were assessed in two independent regression studies using 1960–2005 data from 48 SSA nations. The findings show that competent governance in Sub-Saharan Africa (SSA) strongly impacts diversification and sophistication projects. Corruption, openness, and accountability affect export diversity and sophistication. The findings suggest that SSA nations' human capital improvements aid ED and ES. This suggests a positive association between ES and ED and workforce education. Educational stratification (ES) is affected by higher education, especially postsecondary education. Lower levels of education, including primary curriculum, greatly influence educational inequalities (ED). The following discussion examines the links between ED and ES and provides field data to support the thesis that these two concepts are linked to consistent economic growth in Sub-Saharan Africa (SSA). The research shows that Sub-Saharan African states that have advanced their economies and educational systems have raised their inhabitants' standard of living. In this study, we examine the relationship between various indicators of infant mortality, a key Millennium Development Goal (MDG), and life expectancy. The results of our study suggest a significant association between educational attainment and economic position in Sub-Saharan Africa (SSA) and indicators of population health, specifically infant mortality rates and life expectancy. Presentation of statistically significant and favourable results, even when considering fixed effects and instrumental variables, or a large number of diverse control variables, demonstrates the robustness of this conclusion. Preliminary evidence points to Environmental Sustainability (ES) and Economic Development (ED) as critical determinants of Sub-Saharan Africa's (SSA) progress.

The study conducted by (Brenton et al., 2009) the phenomenon of export diversification within the context of emerging nations. This study explores different approaches to diversification, including geographic diversification, quality diversification, services diversification, and the introduction of new export products. These strategies aim to expand the market reach, improve product quality, explore non-merchandise exports, and introduce novel export offerings. The empirical analysis incorporates data collected between the years 1985 and 2005. Each of the aforementioned choices presents opportunities for the implementation of cost-effective policies pertaining to the incentive regime, backbone services, and export support institutions. The results show that countries' economic development can be greatly aided by implementing export diversification and export promotion methods.

(Agosin, 2008) looks at how emerging nations' economy expand when they diversify their exports.. This research paper introduces and assesses a growth model that emphasizes the importance of launching novel exports as the key catalyst for economic growth in countries that are considerably removed from the global technological frontier. These nations depend on the adaptation of pre-existing items to align with local economic conditions as a means to attain economic expansion. The objective of this study is to provide a comprehensive understanding of the distinctive characteristics associated with economic growth in nations that display notable variations. Korea, Taiwan, Mauritius, Finland, China, and Chile are nations that have predominantly relied on economies on around export activities. Diversification is a strategic approach that organizations utilize in order to facilitate their growth and progress. Hence, the proliferation of comparative advantage is regarded as the predominant determinant. The empirical growth model serves as a theoretical framework employed for the purpose of analyzing and comprehending the patterns of economic growth, relying on observed data and empirical evidence. When examining the impact of additional variables on economic growth, it is important to take into account the variable of exportation. The significance of diversification, both independently and in combination with the growth of per capita export volume, has been recognized. The variable being examined is of significant importance in understanding the trajectory of per capita GDP growth from 1980 to 2003.

3. Data and Methodology

The examination of export diversification and its patterns or drivers necessitates a meticulous and appropriate measurement methodology. There exist multiple measurements and indices that can be utilized to quantitatively assess the notion of export diversification. The majority of these indicators and measures have been designed with the purpose of evaluating the level of concentration and diversification in exports. Export diversification is commonly regarded as the inverse of export concentration. There exists a multitude of indices that are employed for the purpose of quantifying concentration or diversification. Certain indices

are employed as relative measures, while others are utilized as absolute measures. The indexes exhibit distinct characteristics, strengths, and limitations, so distinguishing them from one another. These indicators are employed to assess specialization both in relative and absolute terms, as well as to examine the presence of heterogeneity that arises from measuring these indices.

$$EDIV_t = F(OFEX_t, WGDP_t, KOFECGI_t, GFCFCON15US_t, FDINETIN_t, TOT_t, POLSTABL_t)$$

t = 1996,..... 2022

Where

OFEX is official exchange rate, WGDP is world GDP per capita, KOFECGI is economic globalization, GFCFCON15US gross fix capital formation constant US Dollar, FDINETIN foreign direct investment net inflows. TOT is term of trade and POLSTABL is political stability.

According to Granger and Newbold (1974), the presence of a time trend in a time series dataset poses a challenge of non-stationarity. The utilization of regression analysis on this particular dataset yields erroneous outcomes. The findings of Philips (1986) indicate that regression results are invalid when there is a lack of cointegration among the variables being analyzed. When variables exhibit stationarity and cointegration, the regression outcomes obtained by Ordinary Least Squares (OLS) are deemed satisfactory. Ng and Perron (2001) and Dickey and Fuller (1981) tests are commonly employed to address the issue of non-stationarity in time series data, specifically unit root testing. The ADF test is employed in this study to assess the stationarity of the data. The generally ADF can be written as follows:

$$\Delta Y_t = \alpha + \beta t + \delta Z_t - 1 + \sum \phi \Delta Z_t - 1 + \epsilon_t \dots\dots\dots$$

Ho: $\delta = 0$ Time series data is non-stationary.

Ha: $\delta < 0$ Time series data is stationary

If the value of the critical Dickey-Fuller τ is smaller than the computed Dickey-Fuller statistics, we can reject the null hypothesis (H0) and infer that there is no presence of a stationary problem in the chosen time series. The present study used the autoregressive distributed lag (ARDL) test, which adheres to the bound testing approach, in order to examine co-integration. In addition to previously established co-integration tests, the ARDL bound testing procedure examines the existence of a long-run equilibrium relationship among variables, irrespective of their order of integration (I(0), I(1), or mixed order of integration). In terms of statistical aspects, the ARDL test, also known as the unrestricted Vector-based approach, has superior performance when compared to the Engle-Granger test of co-integration.

3.1. Data Sources

This study uses the data of the Diversification index from the World Bank Data Source calculated by the United Nations Conference on Trade and Development (UNCTAD) to measure the degree of export diversification. Furthermore, using time series data from 1995 to 2022 determinants of export diversification are identified. Data for official exchange rate, foreign direct investment, world GDP per capita, gross fixed capital formation, and term of trade is taken from the World Development Indicator (WDI) by the World Bank. Data for globalization is taken from KOF Swiss Economic Institute. Data of political stability is taken as an indicator of institutions from Worldwide Governance Indicators.

4. Results and Discussion

Table 1: Regression Results

Dependent Variable: EDIV					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	0.582418	0.112074	5.196726	0.0001	
OFEX	-0.001000	0.000233	-4.290417	0.0006	
WGDP	4.42E-05	1.37E-05	3.234962	0.0056	
KOFECGI	-0.000599	0.001615	-0.371039	0.7158	
GFCFCON15US	7.03E-13	1.06E-12	0.662496	0.5177	
FDINETIN	-0.010276	0.004031	-2.549069	0.0222	
TOT	0.000152	0.000138	1.097721	0.2896	
POLSTABL	0.069625	0.010994	6.332743	0.0000	
R-squared	0.913628	Mean dependent var		0.754996	
Adjusted R-squared	0.873322	S.D. dependent var		0.032164	
S.E. of regression	0.011448	Akaike info criterion		-5.833813	
Sum squared resid	0.001966	Schwarz criterion		-5.438858	
Log likelihood	75.08884	Hannan-Quinn criter.		-5.734483	
F-statistic	22.66689	Durbin-Watson stat		1.638461	
Prob(F-statistic)	0.000001				

4.1. Regression results

According to this research, Pakistan's export diversification is severely hindered by the official exchange rate. Export diversification is positively impacted by global GDP per capita and negatively impacted by economic globalisation. The effect of

gross fix capital formation on export diversification is positive but small. The diversity of exports is severely and adversely impacted by FDI. It is worth noting that in Pakistan, export diversification is positively and significantly affected by political stability and terms of trade.

Table 2: ADF Unit Root Test

Variable Name	At Level					
	Intercept			Intercept and time trend		
	ADF test stat	p-value	lags	ADF test stat	p-value	lags
EDIV	-1.351373	0.5906	0	-1.490539	0.8078	0
OFEX	2.924465	1.0000	0	1.193765	0.9999	0
WGDP	-0.214986	0.9251	0	-4.051375	0.0189	0
KOFEGCI	-1.366133	0.5835	0	0.161595	0.9963	0
GFCFCON15US	-0.649258	0.8431	0	-2.037052	0.5558	0
FDINETIN	-1.552512	0.4924	0	-1.651018	0.7449	0
TOT	-1.712262	0.4140		0.305657	0.9976	0
POLSTAB	-1.366075	0.5776		-0.932625	0.9315	0
Variable Name	At 1st Difference					
	Intercept			Intercept and time trend		
	ADF test stat	p-value	lags	ADF test stat	p-value	lags
ΔEDIV	-5.069574	0.0004	0	-4.963657	0.0025	0
ΔOFEX	-2.279912	0.1857	0	-3.170311	0.1129	0
ΔWGDP	-6.275912	0.0000	0	-6.275912	0.0000	0
ΔKOFEGCI	-4.652344	0.0010	0	-5.795549	0.0004	0
ΔGFCFCON15US	-3.445207	0.0184	0	-3.388137	0.0749	0
ΔFDINETIN	-3.393275	0.0206	0	-3.325939	0.0842	0
ΔTOT	-2.858551	0.0641	0	-3.724949	0.0385	0
ΔPOLSTAB	-2.621107	0.1062	0	-3.326875	0.0920	0

Table 3: Descriptive Statistics

	EDIV	OFEX	WGDP	KOFEGCI	GFCFCON15US	FDINETIN	TOT	POLSTABL	C
Mean	0.754996	94.92703	9328.595	51.34287	3.40E+10	1.158915	127.8373	-2.090183	1.000000
Median	0.763300	86.34338	9309.046	53.19350	3.32E+10	0.772219	107.4252	-2.253885	1.000000
Maximum	0.811100	204.8672	11037.29	54.75850	4.87E+10	3.668323	273.0755	-1.104805	1.000000
Minimum	0.697900	41.11153	7197.880	42.74760	2.34E+10	0.375528	92.88670	-2.810035	1.000000
Std. Dev.	0.032164	41.91095	1125.006	3.844617	7.25E+09	0.932091	47.73909	0.547680	0.000000
Skewness	-0.185054	1.011180	-0.222038	-1.127698	0.164025	1.695534	1.990381	0.519898	NA
Kurtosis	1.888995	3.382316	2.033732	2.826025	2.095582	4.616052	5.896801	1.958205	NA
Jarque-Bera	1.314174	4.059600	1.083757	4.903868	0.887023	13.52300	23.22801	2.076240	NA
Probability	0.518359	0.131362	0.581655	0.086127	0.641779	0.001157	0.000009	0.354120	NA
Sum	17.36490	2183.322	214557.7	1180.886	7.82E+11	26.65505	2940.258	-48.07421	23.00000
Sum Sq. Dev.	0.022760	38643.60	27844062	325.1837	1.16E+21	19.11346	50138.46	6.598981	0.000000
Observations	23	23	23	23	23	23	23	23	23

4.2. Co-integration Wald -Test

This study gives the outcomes of cointegration analysis using the Wald-based F-statistic. The Wald-based F-statistic is employed to examine the null hypothesis that there is no cointegration among the variables. The Wald statistic is calculated to be 95.01761, above the upper bound test value of 3.21 at a significance level of five percent. This result provides confirmation of the presence of cointegration.

Table 4: Co-integration Wald -Test

Level of Significance	F-Statistic (Wald-Test) =95.01761	
	The Critical Value Bounds*	
	Lower Bound	Upper Bound
5%	2.17	3.21
10%	1.29	2.89

Table 5: Long Run Relationships for the Selected ARDL (1, 1, 1, 1, 1, 1, 1)

Variable	Coefficient	T-statistics	p-Value
OFEX	-0.001000	-4.290417	0.0006
WGDP	4.42E-05	3.234962	0.0056
KOFECGI	-0.000599	-0.371039	0.7158
GFCFCON15US	7.03E-13	0.662496	0.5177
FDINETIN	-0.010276	-2.549069	0.0222
TOT	0.000152	1.097721	0.2896
POLSTABL	0.069625	6.332743	0.0000
C	0.582418	5.196726	0.0001

According to this research, Pakistan's export diversification is severely hindered by the official exchange rate. Export diversification is positively impacted by global GDP per capita and negatively impacted by economic globalization. The effect of gross fix capital formation on export diversification is positive but small. The diversity of exports is severely and adversely impacted by FDI. It is worth noting that in Pakistan, export diversification is positively and significantly affected by political stability and terms of trade.

Table 6: Diagnostic Tests

<i>Normality Test</i> (Jarque-Bera Statistics)	Jarque-Bera Statistics = 1.684195	Probability = 0.4308096
<i>Serial Correlation</i> (Breusch- Godfrey Serial Correlation LM Test)	F-Statistics 0.042749	Probability = 0.8392
<i>Heteroskedasticity Test</i> (Based on the regression of squared residuals on squared fitted values)	F-Statistics 0.237018	Probability = 0.9690
<i>Model Specification Test</i> (Ramsey RESET Test)	Probability = 0.750414	Probability = 0.4009

The utilization of the cumulative sum of recursive residuals (CUSUM) is employed for the purpose of assessing the stability of the coefficients. Fig 1 and 2 depicts a visual representation of the Cumulative Sum (CUSUM) technique. The statistical findings of this study adhere to the stringent criteria of the 5% significance level. Furthermore, this finding provides confirmation that the model has been accurately stated.

Figure 1

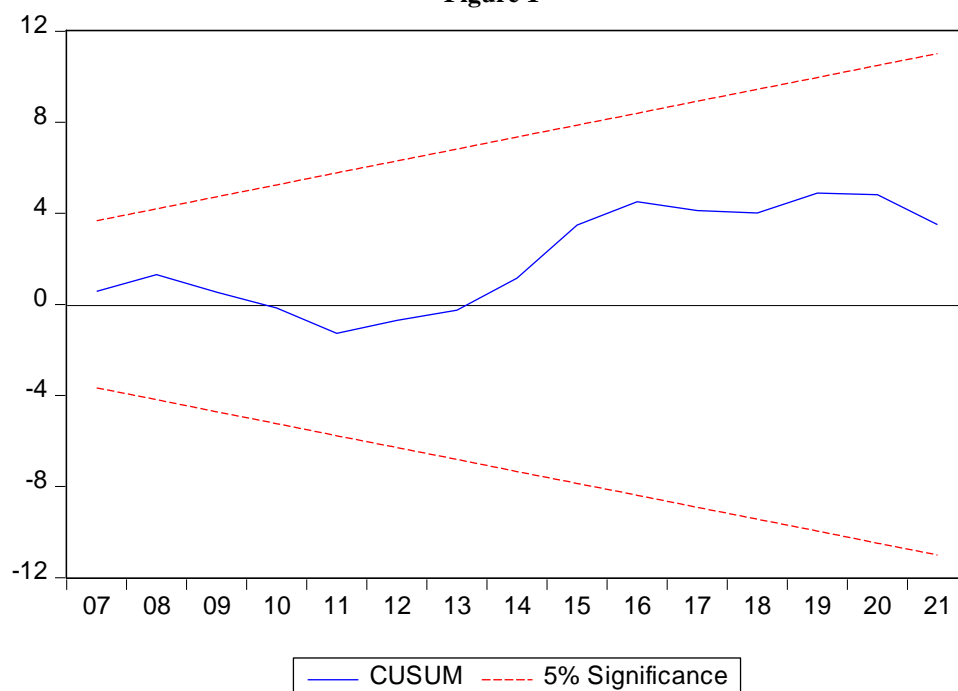


Figure 2

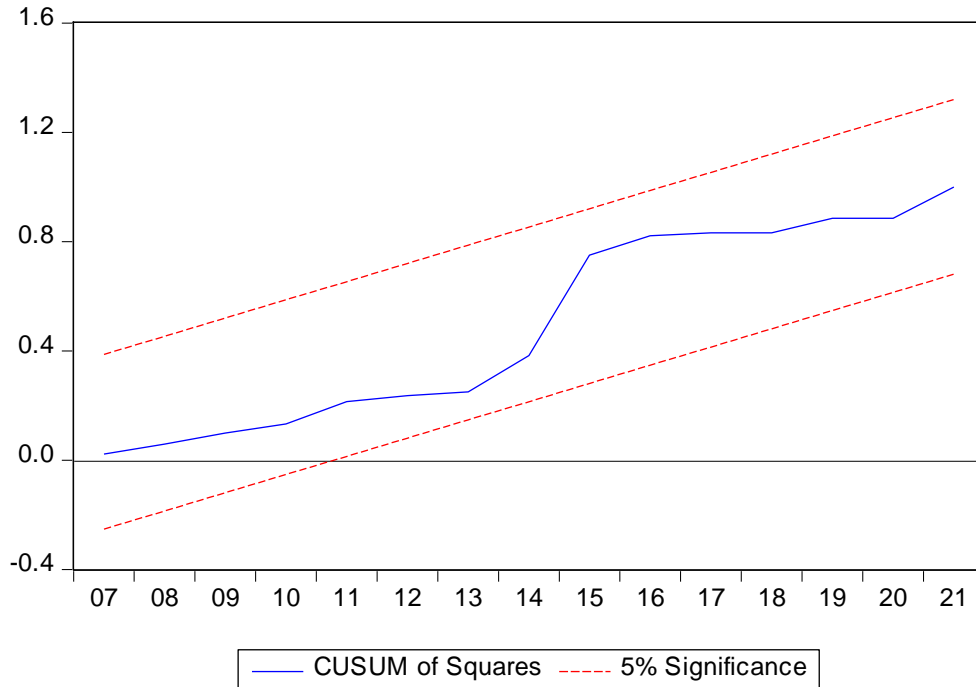
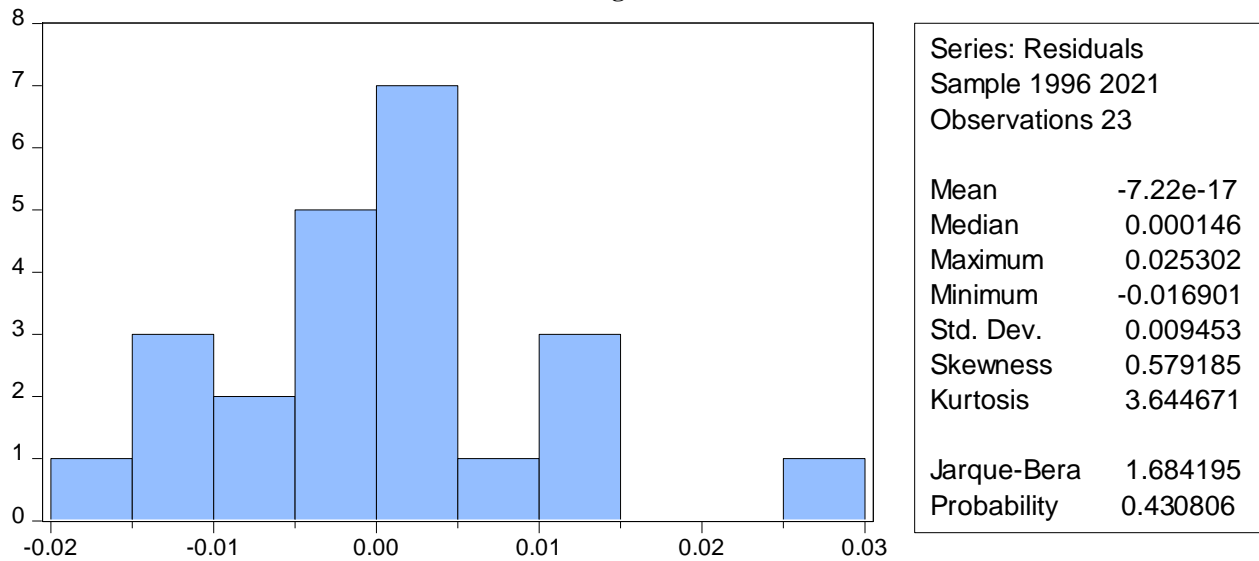


Figure 3



5. Conclusion and Policy Suggestions

The empirical results show that export diversification, official exchange rate, economic globalization, FDI, term of trade, political stability, gross fixed capital formation, world GDP per capita, and world economic integration all form an equilibrium relationship in the long run. There is a statistically significant lag of error correction term with the right negative sign, according to the estimates of the error correction model. If a short-term shock happens, the variables will converge towards their long-term equilibrium, according to the lag of error correction term's coefficient.

5.1. Policy Implications

Significant policy implications arise from the present study's findings, which should be carefully considered. The empirical evidence suggests that Pakistan can benefit from implementing exchange rate measures, which directly affect export prices, in order to promote export diversification. It is possible that a country's exports could increase if its currency were devalued. Therefore, Pakistani exporters could be able to tap into new markets that are renowned for being highly sensitive to changes in prices. Improvements in production efficiency and the attainment of economies of scale may result from domestic exporters engaging in price competition on the global market. According to the results, the amount of trade diversification is positively correlated with FDI. Because of this, it is critical for Pakistani officials to encourage and support international investment in export-

oriented sectors. Furthermore, this action may help local businesses become more efficient and narrow the savings-investment gap in Pakistan.

The policymakers in Pakistan should consider market diversification as a means to ensure and enhance a greater degree of product diversification in the export market, thereby promoting stability and improvement in the trade balance. In the context of Pakistan, the rise in trade openness and the improvement in the terms of trade have prompted producers to concentrate their efforts on products in which Pakistan possesses comparative advantages or those that generate significant money for producers.

The findings indicate that there is a positive relationship between world income, as measured by world gross domestic product per capita, and the level of trade diversification. This suggests that Pakistani policymakers should formulate and implement trade strategies that may effectively facilitate and incentivize domestic exporters to capitalize on global income growth. This measure could perhaps contribute to the augmentation of Pakistan's global trade participation and the amelioration of its trade balance.

Findings indicated that the government should increase in gross fixed capital formation that will improve the terms of trade and increase in productivity of exports and will gradually and positively contribute in diversifying exports. Long run results also suggested that political stability will ensure economic stability and that will be helpful in diversifying exports.

Pakistani officials should think about diversifying their markets to increase the variety of products they sell, which would help stabilise their economy and improve their trade balance. In Pakistan, producers are focusing on products where Pakistan has a comparative advantage or where they can make a lot of money because of the increase in trade openness and the improvement in the terms of trade.

The results show that the degree of trade diversity is positively correlated with global income, as evaluated by global gross domestic product per capita. For this reason, it is imperative that Pakistani officials work on trade policies that will allow and encourage local exporters to take advantage of rising global incomes. Improving Pakistan's trade balance and increasing its global trade involvement are two potential outcomes of this policy shift.

Research showed that if the government invested more in gross fixed capital creation, export productivity would rise, trade terms would improve, and export diversification would occur more seamlessly. Results over the long term also spoke to the fact that export diversification would benefit from politically stable economies.

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