THE LINKAGE BETWEEN INTERNATIONAL TRADE AND ECONOMIC GROWTH IN KAZAKHSTAN

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ABSTRACT

Increased international trade flows and reduced trade restrictions have sparked ongoing debate and discussion about the influence of international trade on economic progress. Based on the empirical evaluation, the paper investigates the impact of trade openness on Kazakhstan's economic growth in a multivariate framework. It includes investment, international trade, labour force, human capital, and natural resource as explanatory constructs when gross domestic product per capita is the regressand variable. This research aims to assess the long-term relationship between trade and income development in Kazakhstan from 1992 to 2020. The Phillips and Perron (1988) and augmented Dickey and Fuller (1981) tests are used to check data stationarity. Because the data is stationary of orders I(0) and I(1), an autoregressive distributed lag model appears feasible. The bound test shows that the concerned variables have a long-term relationship. The results conclude that trade negatively impacts growth in the short and long run. While capital formation, labour quantity, quality, and natural resources positively affect the development of Kazakhstan's economy. This negative impact of trade on growth could be attributed to the country's shortage of good institutions and inefficient management, economic structure, and development policies. Also, it could be due to the substantial negative impact of imports countering the positive effect of exports.

Keywords: International trade; economic growth; Kazakhstan; stationarity; Auto–Regressive Distributed Lag(ARDL) Model

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INTRODUCTION

The term international trade pertains to buying and selling that takes place across national borders. Discussion and analysis about the effects of international trade on economic growth have been sparked due to the expansion of global communication and the reduction of trade barriers. As a source of economic growth, international trade has received significant investigation from classical and neoclassical economists.

Sustaining and achieving a high economic growth rate over a significant period enables a country to improve the living standards and quality of life for most of the population. A high economic growth rate helps reduce poverty and unemployment levels in a given country (Ajmairet al., 2018). Growth economists have long debated the theories of economic growth and the determinants responsible for it. Identifying the sources of economic growth seems more pertinent for developing countries, particularly for the newly created Central Asian country, Kazakhstan, which faces all kinds of socio-economic problems. International trade as the determinant of economic growth has long been a subject of research interest. The literature has supported the view that international trade contributes significantly to economic growth by transfer through knowledge and technology, capital flows, and improvements in productivity in resource utilization, comparative advantage, increased scale economies, and exposure to competition. According to the empirical literature, countries with a substantial share of trade in their GDP are more productive than countries that primarily produce for domestic consumption. (Grossman & Helpman, 1990). Based on the literature, research into the effects of international trade on economic growth is becoming increasingly relevant.

Following the breakup of the Soviet Union, the Kazakh economy went through a dismal period of growth performance. However, in the late 1990s, the country registered a dramatic recovery with a high growth rate of 9% in GDP per capita (ADBI, 2014), which decreased to 3.6% in 2019 (World Bank, 2019). The current research concentrates on the role of trade in Kazakhstan's economic performance, as international trade (exports and imports) accounts for a substantial share of about 56.2% of GDP (World Bank, 2020). While studying the role of trade on the economic growth rate in Central Asian countries, Mogilevskii (2012) deducted that trade is one of the most important predictors of economic development.

Concerning the macroeconomic environment, the declared goals of Kazakhstan's economic reform strategy after the disintegration of the USSR in 1991 were to achieve a significant shift in the export growth direction and captivate large inflows of foreign capital. Following the transition, Kazakhstan experienced slow and negative growth and increased poverty rates. Nevertheless, it appears to have turned a corner in later years. High commodity prices, particularly oil and natural gas, and rising demand, as well as more inward investment, improved macroeconomic management, and infrastructure development, have all fuelled economic expansion to previously unheard-of heights (Dowling & Wignaraja, 2006). On this basis, the study investigates the link between Kazakhstan's foreign trade and economic growth. Kazakhstan's export and import growth have been outstanding in both monetary and physical terms since 2000. Exports of more complex manufactured products and services are not significant.

On the other hand, they have been concentrated on a small number of primary commodities (oil products, natural gas, and crude oil). Kazakhstan's foreign trade grew at a breakneck pace from 2000 to 2008, with exports and imports more than doubling at current USD exchange rates and prices or doubling at 2010 USD exchange rates and fees (Mogilevskii, 2012). Kazakhstan's economy benefited considerably from increased energy exports. The massive export increase was mainly attributable to higher export volumes and rising oil and oil product prices. Following the export boom, Kazakhstan attracted large amounts of foreign direct investment (FDI), which boosted the country's growth. (Jenish, 2013).

Only a few research studies have looked into the economic and growth links in Kazakhstan that also generalizes the results with the help of panel data analysis. For example, a study conducted by Çetintaş & Barisik, 2009 shows that the growth-led export hypothesis holds in the 13 nations studied and that growth is shaped more by rising import demand by a country. As far as existing literature is concerned, no study has been conducted utilizing the ARDL model to examine the interrelation between Kazakhstan's economic growth and trade.

The paper is structured as follows: Section 2 is devoted to a review of the literature; Section 3 discusses the study's theoretical underpinnings; Section 4 contains the data source and a description of the variables used in the study. In Section 5, the study's methodology and findings

are given. Section 6 brings the research to a close.

LITERATURE REVIEW

The interaction between trade and economic growth has been empirically examined across many economies using diverse approaches. Many empirical studies on trade and economic growth have concluded that trade nurtures growth, although some studies have found the opposite to be true.

A panel analysis of 13 transition economies, including Kazakhstan, Çetintaş&Barisik(2009) received a somewhat different result of the import-led growth and growth-led exports hypotheses for 1995-2006. The analysis concludes that the increase in production (quantity) and productivity (quality) in these countries led to the rise in competitive powers, thus increasing international demand for the product and raising exports. Export and import relationships showed that exports could have affected growth indirectly through imports.

Kim and Lin (2009) examine (neoclassical view) differential effects of trade on economic growth according to the level of development for 61 countries from 1960 to 2000 through an instrument variable threshold regression approach. The evidence shows that there exists a significant ($780-$820) threshold income level below which the effect of trade on growth is negative and above which it is positive. Daumal and Ozyurt (2010), in their sub-national level analysis, apply the Generalised Method of the Moments model to investigate the interaction between trade openness, economic growth, and regional inequality in Brazil's states. The study suggests that trade has a greater favorable impact on the development of industrialised, wealthier states (with human capital) than poorer states, thus increasing regional inequities.

Singh (2013) uses the ARDL technique to discover that trade had no substantial impact on India's economic growth from 1970 to 2012. Abubakar and Shehu (2015) affirm the positive and significant link between exports and investment with growth in India, using the same methodology, sample area, and virtually the same time period. Thus, give credit to international trade for enhancing economic growth. The literature turns out to be ambiguous about the influence of trade on economic growth. According to Ali and Abdullah (2015), the contribution of trade to economic growth in Pakistan from 1980 to 2010 is negative in the long period but favourable in the short period. They employ the Vector Error Correction Model analysis to predict the association and impact. Other elements that influence economic growth include labour quality, financial development, public investment, and private investment. All of these components, which appear to be the primary factors, have a beneficial effect on growth (GDP) in both the long and short run. Some studies support trade openness, such as Ahmad's (2018) study, which finds a beneficial influence on the economic growth of trade openness in Bangladesh's economy from 2008 to 2017. From 1995 to 2016, Irkisi and Cyhan (2019) show that trade liberalization has a bidirectional and constructive influence on growth in 13 European transition economies in the short- and long-run. Also, Bhat et al. (2022) applied the ARDL bounds testing approach, which has been incorporated into their research to assess the impact of various macroeconomic determinants evaluating the Kazakh economic development.

When talking specifically about the development of the regional economy, according to Yasmin et al. (2020), in Kazakhstan, most of the export-oriented sectors consist of minerals, oil, and gas, neglecting the more sustainable growth of non-resource tradable industries. As a result, these countries have a considerable export share, mainly as natural resources. Economic diversification, which is based on sectoral value added, indicates that these countries are showing some signs of diversity. However, still, there is a need to have structural reforms and policy instruments to diversify their revenue stream.

Thus, it is pertinent to mention from the above literature that international trade has a mixed effect on growth depending on the development level, composition of trade, and other factors. Therefore, conclusions drawn from literature (from different periods and samples) may not apply to Kazakhstan's economy. It is clear that a comprehensive review is focusing on the impact of trade on Kazakhstan's economic expansion, particularly in recent years, is lacking. There is a need for the current study, which is an attempt to fill this research gap.

THEORETICAL FRAMEWORK

A simple multivariate framework explores the association between economic growth and trade openness, including investment, the labour force, human capital, and natural resources as independent regressors. It is well known that the theory behind the model assumes that international trade is a function of economic growth, known as Gross Domestic Product (GDP). The regression analysis is done on the following double-log econometric model:

$$LGDP = \beta_o + \beta_1 LGCF_t + \beta_2 LF_t + \beta_3 LT_t + \beta_4 LN_t + \beta_5 HC_t + \mu_t \quad (1)$$

Where LGDP is the Log per capita Real Gross Domestic Product, that operates as a proxy for economic growth, LGCF is the Gross Capital Formation, LF stands for the Labour Force, T is the Trade Openness, N is the Natural Resource, and HC represents the Human Capital at time t. μ_t is the error or disturbance term for those factors not included in the model. All variables are taken in logs.

Source of Data and Description of Variables

The study on the connection between international trade and economic growth in the economy of Kazakhstan uses annual or yearly time series data on various variables from 1992 to 2020. The World Bank Database and The Penn World Table are used to compile the data for the variables.

Many factors contribute to the growth process in a country. The variables used in the analyses are selected according to their importance or contribution to growth (as per literature) and data availability. The values of all variables are taken as natural logarithms. The exponential pattern of a series is effectively linearized, or if the series is non-linear in its parameters, the natural logarithm of a series is used to rectify it (Asteriou & Hall, 2015).

Real gross domestic product (RGDP) per capita is used as a proxy for economic growth. The market value of all final goods and services produced or generated within an economy's domestic area over some time, usually a year, is referred to as GDP (Ahuja, 2011). With 2015 as the base year, GDP is calculated at a constant dollar price. The GDP per capita is computed by dividing a country's population by its GDP (World Bank, 2022).

Both neoclassical and endogenous growth models acknowledge capital or investment as the basic determinant of economic growth (Petrakos et al., 2007). Gross capital formation, which is measured as a proportion of GDP, is a proxy for capital.

The labor force participation rate refers to the population aged 15 and up out of a country's total population that provides labour for producing goods and services (GDP) over a given period. The Penn World Table (PWT) describes a person engaged as anyone aged 15 and above who worked during the benchmark week, even just for one hour a week, or had a job or business but was temporarily absent.

The human capital per person index derived from the year of schooling and educational outcomes is the proxy for human capital. It is generated by Barro and Lee (2013) and used in the Penn World Table databases. The probability value of the human capital coefficient is positive since this factor is assumed to affect economic growth positively. The investment in human capital enhances technological support for economic growth.

The entire sum of exports and imports as a percentage of GDP is known as trade. It is used as a proxy for openness to trade. Natural resource rent (% of GDP) is the proxy for natural resources. Oil rents, natural gas rentals, coal rents, mineral rents, and forest rents make up total natural resource rents.

METHODOLOGY AND EMPIRICAL RESULTS

This work investigates the long-run relationship between economic growth variables using the recently developed Autoregressive Distributive Lag Model (ARDL) bounds testing approach. Pesaran and Shin (1999) developed the ARDL modelling approach, later modified by Pesaran*et al.*, 2001. The justification for using the ARDL methodology in the analysis is given by the fact that comparing previous cointegration strategies of Engle & Granger (1987) residual-based procedure and the Johansen & Juselius (1988 & 1990) system-based reduced rank regression approach, the ARDL cointegration strategy has a multitude of advantages. It is appropriate when variables are integrated of different orders, I (0) or I (1), or both; that is free of the restriction of being

integrated into the same sequence. Also, it is easy to execute and comprehend because this is just a single equation model, giving it an edge over other models. In the case of non-stationary series, the ARDL model considerably reduces the likelihood of spurious regression. This implies that spurious regression as a result of missing variables can be prevented by incorporating missing lags (Ghouse, Khan, & Rehman, 2018). As variables enter the model, they are given varied lag lengths. The test is more efficient with small sample sizes, such as the one utilised in this study (Mohapatra et al., 2016). Even though a few explanatory variables are endogenous, the ARDL approach yields appropriate t-statistics and long-run estimates without bias (Odhiambo, 2009). There are numerous studies, among others, that have employed the ARDL cointegration technique to study the relationship between trade and economic growth, which include: the study by Abubakar & Shehu (2015) for India; Md Reza et al. (2019) for Bangladesh; Alsamara*et al.* (2019) for Turkey; Kong (2021) & Hye (2012) for China; Narayan & Smyth (2005) for Fiji, Sari et al. (2008) employ the autoregressive distributed lag method to investigate the connection between energy use and industrial output in the United States. Sari et al. (2008) employ the autoregressive distributed lag (ARDL) method to investigate the connection between energy use and industrial output in the United States. Another study by Ageli (2022) uses the ARDL approach to study how unemployment, inflation, and economic growth are related in the UK. Also, Sulaiman and Abdul-Rahim (2018) use the ARDL model to examine the relationship between population increase and CO_2 emissions in Nigeria. The ARDL cointegration technique incorporates the Wald Test, Long Run OLS estimation test, Error Correction term, and Short run relation estimation tests.

Descriptive Statistics

Before any regression analysis, it is essential to have a feel of the dataset that conveys the information sample. Table 1 presents the descriptive statistics of the data used. The mean gives the average values of each variable in the table's second column. The standard deviation describes how far each variable deviates significantly from the sample mean. The skewness and kurtosis of the data series are compared to the normal distribution using the Jarque–Bera test statistic. In the data given in Table 1, the probability values of Jarque-Bera test statistics are greater than 0.05 at the 5 percent level of significance for almost all variables. For this test, the null hypothesis (H_o) is that the distribution is normal. As a result, H_o cannot be rejected; in other words, H_o is accepted, implying that all variables have a normal distribution. Log transformation of data is done to achieve normality and less volatility.

Table 1: Descriptive Statistics of Variables

Variables	Mean	Std. Dev.	Jarque-Bera	Probability
PGDP	7288.120	2747.761	2.854550	0.23
GCF	25.33767	5.177345	0.666	0.71
LF	7.330104	0.958411	2.435	0.29
HC	3.080981	0.190230	4.136	0.12
N	18.03682	8.469704	1.959	0.37
TRD	81.21129	19.36339	23.76	0.00

Source: Author's computation.

Note: H_o = distribution is normal, which is accepted.

Unit Root Tests

Since time series data is used, the series must first be evaluated to check the stationarity of variables in order to prevent spurious regression. Non-stationary time series deviate from their mean over time (Gujrati *et al.,* 2012; p. 784). Therefore, the standard classical estimation of variables with this connection frequently results in erroneous inferences or spurious regression (Nkoro & Uko, 2016). Unit root tests are used before empirical calculations to identify the order in which the variables are integrated. To check data

stationarity at specific level, as well as at the first difference against each variable, the augmented Dickey-Fuller (ADF) (Dickey and Fuller, 1981) and Phillips and Perron (1988) tests have been applied. Because of its popularity and wide application, the ADF test is deemed superior (Nkoro & Uko, 2016). Variables with a probability value of less or equal to 0.05 are significant and reject the null hypothesis of non-stationarity. Table 2 shows the results of the tests. Overall, the results demonstrate that the variable, namely trade openness, is stationary at the level, i.e., integrated of order zero [I(0)].

In contrast, most variables are stationary at the first difference, i.e., integrated of order one [I(1)], as their probability values are less than 0.05 or equal to it at their first differences. In this circumstance, the Autoregressive Distributive Lag Model (ARDL) published by Pesaran et al. (2001) is the most suitable estimation method. Unlike the Engle-Granger and Johansen cointegration tests, which require all variables to be integrated in the same order, either I(1) or I(0), the test is versatile. It can be applied regardless of whether regressors are strictly I (1), I (0), or have both orders present. Even though the ARDL cointegration method does not call for pre-testing for unit roots, it is nevertheless necessary to do so to prevent the crash of the ARDL model in the case of the existence of I (2) variables (Nkoro&Uko 2016). Evidently, the present dataset does not contain any I (2) variables.

Table 2: Unit Root Test Results

Variable	Levels		First difference		Order
	ADF	PP	ADF	PP	
LGDP	-2.011162 (0.2805)	-0.193774 (0.9277)	-3.635825 (0.0511)	-3.614365 (0.05)	I(1)
LGCF	-2.359829 (0.1616)	-2.236074 (0.1991)	-6.68234 (0.000)*	-6.64054 (0.000)*	I(1)
LLF	0.4145 - (0.9800)	-0.072478 (0.9433)	-3.787393 (0.0081)*	-3.787393 (0.0081)*	I(1)
LT	-3.100673 (0.038)	-3.170947 (0.0327)	-	-	I(0)
LN	-2.08556 (0.251)	-1.938279 (.3109)	-5.4179 (0.0002)*	-6.7561 (0.000)*	I(1)
LHC	-0.902837 (0.7687)	-4.571919 (0.0013)*	-3.046460 (0.0453)	-11.02600 (0.0000)*	I(1)

Source: Author's computation

Note: * shows rejecting H_o at a 1% level of significance

Probability values are shown in parenthesis

ARDL MODEL

When applying the ARDL bound test to analyse the long-term relationship between the variables, estimating the first difference Unrestricted Error Correction Model (UECM) (Khobai et al., 2016) is necessary. The Error Correction Model (ECM) can be created from the ARDL model through a basic linear transformation. Without compromising long-run details, it integrates short-run modifications with long-run equilibrium (Nkoro & Uko 2016). Now that ECM is specified, the long-run and the short-run information are considered. The error correction model comes with a different operator for the dependent variable. It is the re-parameterized ARDL model. The following UECM are used in the research.

$$\Delta LGDP_t = \beta_o + \beta_{GDP}L(GDP_{t-1}) + \beta_T L(T_{t-1}) + \beta_{GCF}L(GCF_{t-1}) + \beta_L L(LF_{t-1}) + \beta_N L(N_{t-1}) + \beta_{HC}L(HC_{t-1}) + \sum \beta_{1i}\Delta LGDP_{t-i} + \sum \beta_{2i}\Delta LT_{t-i} + \sum \beta_{3i}\Delta LGCF_{t-i} + \sum \beta_{4i}\Delta LLF_{t-i} + \sum \beta_{5i}\Delta LN_{t-i} + \sum \beta_{6i}\Delta HC_{t-i} + \varepsilon_{1t} \quad (2)$$

Where: LGDP is the log of GDP, T is the log of trade; LGCF is a log of gross capital formation;

LLF is the log of the labour force; LN is a log of natural resources; and LHC is the log of human capital. $\varepsilon_{1t}$is assumed to be a white noise error term normally distributed. Δ is the first difference, and L is the logarithmic operator.

Bounds Cointegration Test

Cointegration is a powerful tool for detecting the presence of steady-state equilibrium between variables. Cointegration has become a must-have for any economic model that uses non-stationary time series data. If the variables do not co-integrate, we will have spurious regression difficulties, and the findings will be almost worthless. Cointegration, on the other hand, occurs when the variables co-integrate. The ARDL Model's first step is the Co integration bounds test. The limits test is based on the joint F-statistic, which rests on no cointegration null hypothesis.

Table 3: Bounds Cointegration Test Results

F-statistic	Critical values					
	1%		5%		10%	
6.306417	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
	3.06	4.15	2.39	3.38	2.08	3

Source: author's computation.

Note: H_o: no long-run relationship exists.

When the F-statistic value exceeds the upper critical bounds value, I(1), the null hypothesis of no cointegration is rejected. At the same time, it is accepted when the F-statistic value is less than the value of the lower critical bound. The value between the two crucial limits is inconclusive. Even at the 1% level, the estimated test statistics (6.306417) are greater than the critical values, showing that the null hypothesis of no long-run connection is rejected. After determining the presence of a relationship, the long and short-run interactions between the variables are estimated. The Akaike information criterion (AIC) is applied to select the optimal lag lengths in the model, which are 2, 0, 0, 1, 1, 1 for the variables LGDP, LGCF, LLF, HC, LN, and LT, respectively. After determining the cointegration of variables, the long-run coefficients are computed next in this technique.

Long Run Estimates

When the cointegration is certified in the variables, the conditional ARDL long-run model is established as:

$$LGDP_t = \beta_o + \sum \beta_{1i} L(GDP_{t-i}) + \sum \beta_{2i} L(GCF_{t-i}) + \sum \beta_{3i} L(LF_{t-i}) + \sum \beta_{4i} L(N_{t-i}) + \sum \beta_{5i} (HC_{t-i}) + \sum \beta_{6i} L(T_{t-i}) + \varepsilon_{1t} \quad (3)$$

The following ARDL (2, 0, 0, 1, 1, 1) specification is used to estimate Equation (3) according to AIC information criterion. The results are reported in Table 4.

Table 4: Long Run Coefficients

Variable	Coefficient	*t*-statistic	Probability value
LGCF	0.152791	2.073	0.05
LLF	1.304634	2.717	0. 01*
LHC	1.912527	4.43	0.00*
LNR	0.172925	1.78	0.09
LTR	-0.612165	-2.08	0.05

Source: Author's computation.

Note: * indicates a 1% level of significance

Investment in physical and human capital favors growth as gross capital formation, and human capital variables have positive and significant coefficients. Also, the labour force and natural resources have a positive and significant impact on the GDP per capita, although the natural resources coefficient is significant at a 10% significance level. Trade seems to impact growth negatively. This result is in line with the work done byIshnazarov (2015). The relationship between human capital and labour force and GDP per capita is strongly positive, with a 1% increase in these resulting in a 1% increase in GDP per capita. This shows that the quantity and quality of labour contribute to the economic growth of Kazakhstan.

Short Run Results

As established by the long-run relationship between the variables and the F-statistic, there is Granger causality in at least one direction. The ARDL approach's last step entails evaluating the error correction term and short-run computing coefficients. The accompanying ECM model introduces a sufficient amount of lags to

represent the general data generation process to particular modelling accurately. An error-correction term when the no cointegration null hypothesis is used to estimate the Equation below:

$$\Delta LGDP_t = \beta_o + \sum \beta_{1i}\Delta LGDP_{t-i} + \sum\beta_{2i}\Delta LGCF_{t-i} + \sum\beta_{3i}\Delta LLF_{t-i} + \sum\beta_{4i}\Delta LHC_{t-i} + \sum \beta_{5i}\Delta LN_{t-i} + \sum\beta_{5i}\Delta IN_{t-i} + \sum \beta_{2i}\Delta LT_{t-i}\alpha ECT_{t-1} + \varepsilon_{1t} \quad (4)$$

Table 5: Short Run Coefficient Results and ECT, ARDL (2, 0, 0, 1, 1, 1)

Variable	Coefficient	*t*-statistics	Probability
LPGDP(-1)	-0.53812	-4.31735	0.0005
D(LPGDP(-1))	0.250608	1.442248	0.1685
LGCF	0.08222	1.90067	0.0755***
LLF	0.702052	1.855346	0.0821***
LHC(-1)	1.029172	3.886135	0.0013
LN(-1)	0.093055	2.211434	0.0419
LT(-1)	-0.32942	-2.4919	0.0241
D(HC)	-0.53187	-0.5478	0.5914
D(N)	0.055063	2.413508	0.0282
D(LT)	-0.08797	-1.04849	0.31
C	1.35748	3.868257	0.0014
CointEq(-1)	-0.538	-7.79	0.000
R^2	0.9989		

Source: Author's computation

Note: *** indicates 10 % level of significance

The substantial error correction term (ECT), which is negative (-0.538) and significant at the 1% level, adds to the finding of a steady long-term relationship. The ECT coefficient denotes the rate of adjustment or correction; for example, 53 percent of the adjustment to long-run equilibrium is usually completed in one year after a disturbance in the economy. The findings show that trade has a negative influence on growth in the short run as well as in the long run. But the gross capital formation, labour force, human capital, and natural resources have a significant and beneficial impact on Kazakhstan's economic growth, as evidenced by the long-run results. Growth is also driven by the lagged values of GDP per capita and natural resources in the short run. The R-squared value indicates that the independent variables have high explanatory power; the study variables in this model manage 99%of the impact on growth, and the F-statistics indicate that the model is overall significant.

Diagnostic Tests

Residual diagnostic tests for the presence or absence of serial correlation, heteroskedasticity, and model misspecification are run on the estimated model. The null hypothesis of no serial correlation is accepted as the p-value (0.0.086) is greater than 0.05 in the Breusch-Godfrey Serial Correlation LM Test. The Breusch-Pagan-Godfrey test is also used to determine whether a series is heteroskedastic. It supports the null hypothesis of no heteroskedasticity, which states that the error term's variance is constant. The Ramsey (1969) test is done to determine that the model is quite well stated. The null indicates that the model has been appropriately explained, and the statement of the null hypothesis is accepted in the model. Table 6 shows the diagnostic test results, which revealed that the model survived all of the tests with no indication of serial correlation, heteroskedasticity, or misspecification of the model.

Table 6: Results of Diagnostic Tests.

	Serial correlation	Heteroscedasticity	Ramsey's RESET test
Test statistic	2.936	1.1245	0.1477
Probability	(0.086)	(0.402)	(0.8845)

Source: Researchers computation.

Note: Values in parenthesis are p-values. Null hypothesis = no serial correlation, no heteroscedasticity, and well specification of the model.

Temporal incidents or constructional phenomena (model misspecification, omitted variables, measurement error) may cause this instability. The stability of the coefficients is verified using the cumulative sum of recursive residuals (CUSUM) test and the CUSUM of squares test. As shown in Figure 1 and figure 2 of the CUSUM graph and CUSUM of squares graph, the plots of the CUSUM statistics fit within the critical bands of the 5 percent confidence interval of parameter stability, indicating that the coefficients are not unstable. According to Hansen (1991), the CUSUM test is for instability within the intercept, while the CUSUM of squares test is for instability in the regression error variance (Hansen, 1991).

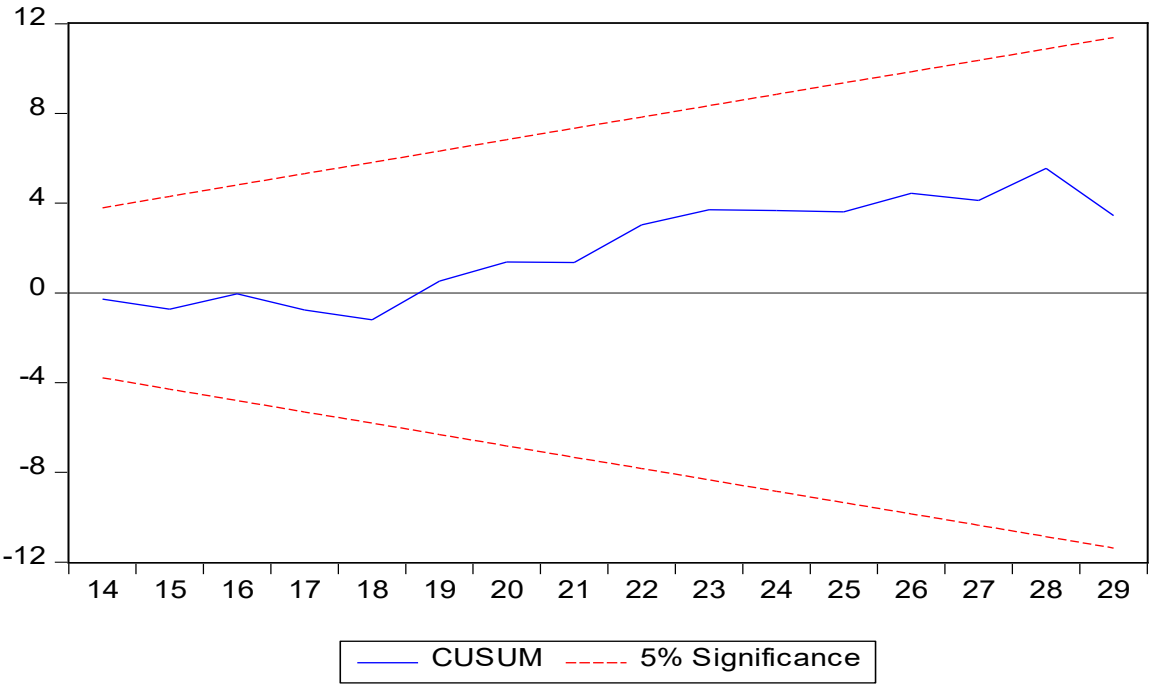

Figure 1: CUSUM stability test

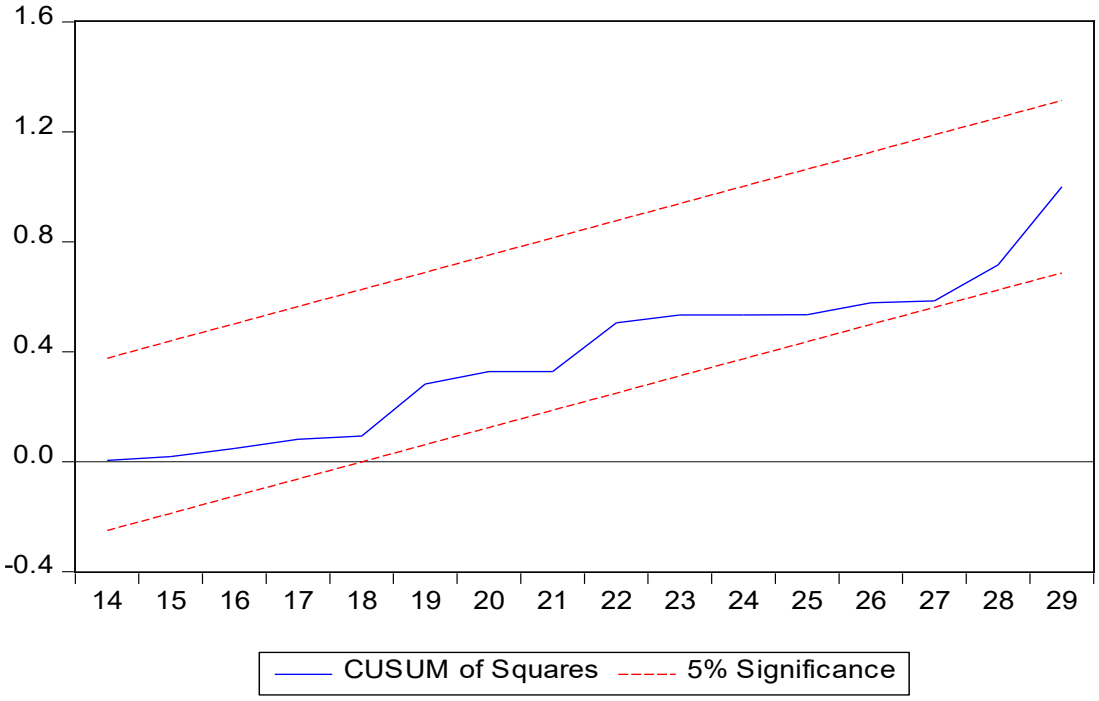

Figure 2: CUSUM of squares stability test

CONCLUSION

This study uses ARDL cointegration and error correction model techniques to investigate the effects of trade on Kazakhstan's economic growth over a reasonably long period, from 1992 to 2020. The ADF and PP unit root tests are used to determine the stationarity and order of the variables. The findings show that the data is stationary at the level and first difference. This mixed order of integration makes it imperative to use ARDL, which fits well in this study, unlike conventional methods. Long-run and short-run coefficients show that capital, labour (qualitatively and quantitatively), and natural resources are dominant contributors to economic growth in Kazakhstan. At the same time, trade harms economic progress. The majority of studies believe that overseas trade has a beneficial effect on economic growth. However, many studies conclude that trade might negatively impact economic growth. A study by Kim and Lin (2009) shows below the threshold level of income in a country. Trade impacts economic growth negatively. They argue that trade benefits a country when specific criteria for growth and development have already been met. When a country has not reached a mature level of development, a trade might negatively influence the economic growth of a country. This negative influence can be traced back to the country's lack of good institutions and deficient administration, economic structure, and development strategies. The country's poor business environment, insufficient competition in key sectors, and large distances from global markets remain major roadblocks. It is also feasible that the negative impact is caused by exporting raw materials and consumer goods rather than capital goods. Exports of more complex, manufactured, or intense competitive items and services have been concentrated on a small number of fundamental or primary commodities (crude oil, natural gas, and oil products). According to the national income accounting, exports contribute positively, while imports have a negative impact on GDP (Y = C + I + G + X- M). It implies that the positive impact of exports on GDP could possibly be traded off against the negative contribution of imports. According to this research, more global trade may slow down less advanced nations' productivity and investment growth. This outcome could be attributed to poor institutional quality or highly flawed state policies. From a policy standpoint, it is crucial to understand exactly how and by what channels international trade will impact

econo-mic growth. It can explain why trade reform is a priority for many nations and is routinely discussed in policy recommendation programs by international organizations like WTO, World Bank, and IMF. As a result, this research significantly impacts the necessary policy improvements. That is, while exposing their economies to the outside world through trade, nations like Kazakhstan should implement necessary policy changes that support investment, permit smooth conflict management, and foster human capital accumulation. Kazakhstan's decision-makers should consider these circumstances when drafting its trade policy rather than jumping to conclusions based on the more general assumption that trade always positively impacts growth because trade affects economies differently depending on the other conditions. The diversification of trade and economic structures is also among the policy ideas because Kazakhstan has resolved issues with competitiveness, economic and trade diversification, and its excessive reliance on the extractive industry. For example, more than 70% of Kazakhstan's exports are mineral products whose prices and demand are volatile and quick to respond to global changes. The paper contributes by outlining the importance of emphasising domestic production and encouraging local investment, much like how India recently got on the bandwagon of 'Atmanirbhar', or self-sufficiency, to avoid becoming overly dependent on the outside world.

Capital formation has a strong positive impact on the economy of Kazakhstan. It can be attributed to an increase in productive capacity, domestic expenditure, lower production costs, increased labour productivity through job cuts, production of new and high-quality products, and closing of the technological gap with the advanced world, thereby increasing the growth process. The increase in the labour force and its education contribute splendidly to the growth process. As a result, since their contribution to economic growth is so significant, the government should increase its investment in traditional elements like labour, physical capital, and human capital. It may produce an environment conducive to trade, aiding the growth process. However, as a recommendation for policy, trade restrictions are not advocated in this globalised era. Natural resources also contribute to the rapid growth process in Kazakhstan especially hydrocarbons.

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