Trade, Foreign Direct Investment and Economic Growth in Albania. Evidence from Time Series

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Abstract: - Trade and Foreign Direct Investment has been treated as crucial factors underlying the relative growth rates experienced by the Albanian Economy, especially during the late years, thus, boosting economic growth in the country and improving the degree of integration of the Albanian economy into the World markets. The paper aims to provide an empirical assessment of the relationship between Trade, Foreign Direct Investment, and Economic Growth in Albania, by examining Trade and FDI nexus growth interactions using yearly time series data for a time span of 1993-2018. For this purpose, we employed cointegration analysis and Granger causality analysis. The co-integration tests, based on Vector Error Correction Mechanism (VECM), confirm the presence of a long-run relationship between the variables. VECM results support a negative relationship between trade and GDP in the long-run and a positive relationship between trade and FDI. Granger Causality tests support the causality evidence of one-directional reinforcement of GDP on trade in Albania and changes in GDP and trade are causing changes in FDI. The VAR analysis confirms that changes in GDP and FDI are encouraging changes in trade. The paper outlines policy implications with respect to promoting relevant institutional policies for the enhancement of trade and FDI activities in the country, which potentially could enhance economic growth in the country.

Key-Words: - Albania, FDI, Trade, Growth, Cointegration analysis, time series

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1 Introduction

The role of trade and foreign direct investment in economic growth in transition countries is considered a crucial ingredient of the globalization process, involving the principal channel through which the liberalization process can affect the output level and therefore the growth prospects of the economy. The expansion of trade increases productivity by offering greater economies of scale, and greater access of the national economy to international markets, [17], [13], [18], [10]. Foreign Direct Investment, on the other hand, is perceived as an important catalyst of economic growth in transition countries, by producing positive spillover effects on domestic firms, [4], [11]. The empirical evidence, which examines a causal relationship between trade, FDI, and economic growth is ambiguous, supporting the positive and reverse association. Trade and FDI are simulative to growth,

and on the other hand, there are cases where growth induces trade and FDI. However, causality analysis often imposes misrepresentations in the final inference process, [10]. Therefore, the paper, relying on yearly time series data for a time span of 1993-2018, in addition to examining the nature of the causal relationship between trade, FDI, and economic growth, employs suitable techniques regardless of the integration (co-integration) of the data in the multivariate model. The main motivation of the study is to empirically investigate the relationship between trade, GDP, and FDI in Albania. The research question addressed in the study is: What is the nature of the causal relations between trade, GDP, and FDI in Albania in the long and short term. The Vector Error Correction Mechanism is used to capture the long-run relationship between trade, FDI, and GDP. The result of the paper finds that trade is positively associated with FDI potentials, supporting the vertical nature of FDI and the complementary relationship between trade and FDI, at both short-run and long-run models, implying that Albania's trade potential is highly impacted by FDIs which are based on a geographically fragmented production process by stages, [8]. The VECM results are supporting a negative relationship between trade and GDP, which is evident due to trade deficits that occurred in the country in the long term and the high dependency ratio of Albania's economy from imports. The Granger–Causality analysis implies that trade performance in Albania is associated with changes in past values of trade and GDP and changes in trade and GDP are reinforcing changes in FDI. In addition, the results from VAR analysis confirm that Albania's trade flow is reinforced by the changes in GDP, FDI levels, and the lagged value of trade. Furthermore, the VAR analysis confirms that the variation in Albania's GDP level is motivated by the agglomeration factor of GDP in a one-time lag and variations of trade at a three-time lag. In addition, the same results find that changes in FDI level are triggered by changes in trade performance and GDP. The coming section of the paper focuses on the literature review. Section three outlines the descriptive nature of the data employed in the empirical part of the study. Section four describes the methodology used, econometric techniques, and estimation results. Section five discusses the results and section six concludes the study and gives policy recommendations.

2 Literature Review

Trade for developing countries, such as the case of Albania as a small and open economy, may induce the progression of skills through imports of advanced technology and expertise, through international markets, hence, reinforcing capital-intensive production facilities, [14]. Trade openness typically utilizes encouraging economic growth due to the enhanced accumulation of physical capital, sustained technological transfer, and improvement of the country's macroeconomic conditions, thus creating a suitable economic environment for boosting FDI performance, [6], [7]. Inward FDI enhances the positive spillover effect by promoting sustained domestic productivity, thus endorsing capital formation in the host country, [4]. Inward FDI can stimulate domestic investment through links in the supply chain where foreign firms operate internationally by buying locally made inputs and selling intermediate inputs to local firms, [8]. Therefore, Trade and FDI generally have been widely accepted as an important catalyst of the economic growth process, in the literature on FDI and Trade nexus growth interactions, [8]. Both, FDI – growth nexus and Trade – growth nexus literature have concluded FDI and trade enhance economic growth, [20]. FDI has a significant impact on the growth prospects of transition countries by improving the host country's economic conditions with respect to the employment situation, incomes, exports, and economic welfare, [10]. [10], by employing co-integration analysis, investigating the relationship between trade, FDI, and economic growth in Greece, over a yearly time span from 1960-2002, found a long-run relationship between the three factors. Some other late empirical studies on the relationship between trade, FDI, and economic growth in transition countries are presented in the tables below. Having regard to the summarized empirical studies in Table 1, it is evident the outlined impact of Trade and FDI on a country's economic growth. However, due to the heterogeneous nature of different countries in terms of macroeconomic performance, it is suggestive that such analysis, which involves the relationship between different economic variables, should be considered at the country level. The main objective of this paper is to evaluate the relationship between FDI, trade, and economic growth in Albania. The study will add value to the knowledge of the existing body of literature. We use annual data over the yearly period: 1993-2018 and employ co-integration technique to estimate the long-run relationship between the variables as well as Granger causality analysis and VAR analysis to check for the direction of the causal impact between Trade, FDI, and economic growth in Albania.

Table 1. Presented empirical studies on the relationship between Trade, FDI, and economic growth

Author Investigation	Sample and period	Methodology	Findings
[1]	Sample: Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia Period: Quarterly data from 1994 to 2008.	ADRL and Granger causality test	The three variables have long-term co-integration in four countries (the Czech Republic, Slovakia, Poland, and Latvia). Foreign Direct Investment seemed to be a more important factor in driving economic growth than export in these countries.
[2]	Period: 1980–2012 Sample: Turkey.	Time series techniques, Granger Causality.	There is no long-term relationship between foreign direct investment and economic growth in Turkey.
[3]	Sample countries: BRIC countries, period: 1989–2012.	Co-integration analysis	FDI and economic growth are cointegrated at the panel level and the long-run relationship between FDI and economic growth is present.
[44] Has the Foreign Direct Investment Boosted Economic Growth in the European Union Countries.	Sample: EU countries, period: 1987–2012.	Feasible GLS (FGLS), and General Method of Moments (GMM).	The higher foreign direct investment (FDI) and portfolio investment (FPI) triggered by the European Monetary Union (EMU) have not contributed to growth.

Notes: Summary papers with empirical studies.

3 Data and Stylized Facts

Table 2. Relationship between Trade, FDI, and GDP in Albania

Year	Trade	Absolute change	Percentage change	FDI	Absolute change	Percentage change	GDP	Absolute change	Percentage change
2000	63.45			4			6.95		
2001	66.49	3.04	4.79	5	1.18	28.64	8.29	1.34	19.28
2002	68.53	2.03	3.06	3	-2.18	-41.26	4.54	-3.75	-45.24
2003	67.02	-1.52	-2.23	3	0.07	2.19	5.53	0.99	21.81
2004	67.05	0.03	0.04	5	1.58	49.72	5.51	-0.02	-0.36
2005	64.27	7.22	10.77	4	-1.1	-23.06	5.9	0.39	7.08
2006	83.21	8.93	12.03	6	2.45	67.15	5.98	0.08	1.35
2007	77.45	-5.75	-6.91	10	3.57	58.49	7.52	1.52	25.42
2008	75.09	-2.36	-3.04	11	1.49	15.37	3.35	-4.15	-55.33
2009	76.54	1.45	1.93	9.14	-2.03	-18.2	3.71	0.36	10.65
2010	81.22	4.68	6.11	8.14	-1.07	-10.97	2.55	-1.16	-31.34
2011	76.51	-4.71	-5.81	7.45	-0.68	-8.41	1.42	-1.13	-44.31
2012	75.87	-0.64	-0.83	9.82	2.36	31.74	1.08	-0.42	-29.31
2013	75.41	-0.47	-0.61	8.69	-1.12	-11.44	1.77	0.77	77.14
2014	71.83	-3.61	-4.78	8.69	0,05	-0.03	2.22	0.44	25.04
2015	74.81	3.01	4.19	8.81	0.11	1.32	3.31	1.15	49.46
2016	78.19	3.38	4.52	7.86	-0.95	-10.78	3.84	0.49	14.77
2017	76.86	-1.34	-1.71	7.95	0.12	1.22	4.07	0.27	7.08
2018	76.89	0.04	0.05	7.86	-0.09	-1.14	2.24	-1.83	-44.98
Average 2000-10	72.76	n.a	n.a	6.21	n.a	n.a	5.44	n.a	n.a
Average 2011-18	75.79	3.04	4.17	8.39	2.18	35.11	2.48	-2.96	-54.38
2017	76.86	-1.34	-1.71	7.95	0.1	1.22	4.07	0.27	7.08

Notes: Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product. Foreign direct investment, net inflows (percentage of GDP). The value of foreign direct investment refers to direct investment equity flows in an economy. GDP is calculated without making deductions for the depreciation of fabricated assets or for the depletion and degradation of natural resources.
Source: World Bank: World Development Indicators and author's calculations.

The data set contains information for Albania, based on aggregate level data (GDP growth, Trade, and FDI). The following table outlines the descriptive relationship between the data. Here, we illustrate the

dynamics of GDP growth in relation to the dynamics of FDI inflow and Trade flow, during the period 2000-2018. The data presented in Table 2 outlines a positive correlation between trade and foreign direct investment. The increase of trade as a share of GDP between two periods (2000-2010) and (2011-2018) by 3.04 percentage points, was followed by the increase of FDI by 2.18 percentage points. However, following the increase of both FDI and Trade, the output level decreased marginally by 2.96 percentage points, a result, which can be attributed to other specific factors affecting the determining factor of GDP growth, which is beyond the scope of this research.

4 Methodology and Econometric Framework

4.1 Unit Root Test

This study tests the relationship between Trade, FDI, and GDP in Albania. The used methodology in this paper is based on the Vector Error Correction Model (VECM) analysis and Granger Causality analysis. The so-called "co-integration analysis", which has provided further support for the vector error correction model (VECM thereafter), and has greatly enhanced the approach to non-stationary time series is employed additionally to capture the long-run relationship between variables. The Granger Causality analysis is applied to the study to capture the nature of the causal relationship between the variables. The potential causality patterns can be represented by bi-variate VARs for Albania as follows:

$$lnTR_{jt} = lnGDP_{jt} + lnFDI_{jt} + u_t \quad (1)$$

Where *TRjt* denotes trade level estimated as the sum of exports and imports of goods and services, in millions of US dollars, FDI_{jt} is the Foreign Direct Investment, net inflows in millions of US dollars, and $GDP_{jt,}$ is the real GDP estimated with the price level of 2010, u_t is the standard error. All values are in the logarithm**.** Testing for unit root is the first step in macroeconomic time series and essential to confirm the process by which data could have been generated is a stochastic one, [19]. For this purpose, we apply the Augmented Dickey-Fuller test (ADF) to determine whether the various time series are integrated at the order of zero $I(0)$, [9]. Co-integration refers to the fact that two or more series share a stochastic trend, [21]. [12], suggested a two-step process to test for cointegration (an OLS regression and a unit root test), the EG-ADF test. If the residuals of the OLS regression will be stationary, the co-integrating regression is considered as a long-run relationship and we proceed to the second step, where an Error Correction Model (ECM), including those lagged residuals as an error-correction term, is postulated in order to consider the long-run dynamics. The starting point in the unit root test is:

$$Y_{jt} = aY_{it-1} + \varepsilon_t; -1 \le a \le 1 \quad (2)$$

The null hypothesis in the Augmented Dickey-Fuller test is that the underlying process that generated the time series is non-stationary. This will be tested against the alternative hypothesis that the time-series information of interest is stationary. If the null hypothesis is rejected, it means that the series is stationary i.e., it is integrated to order zero. If, on the other hand, the series is non-stationary, it is integrated to a higher order and must be differenced until it becomes stationary, [5]. When testing for unit root we want to find out whether a equation (2) is equal to one. If a is smaller than one, the series is stationary. If, on the other hand, a is greater than one, than it would be an explosive series. Subtracting Y_{jt-1} from both sides in equation (2), we get equation (3), which is estimated by the Dickey–Fuller and Augmented Dickey–Fuller test.

$$\Delta Y_{jt} = \beta Y_{jt-1} + \varepsilon_t ; \quad (3)$$

In addition, constant – testing for a random walk with drift, and time trend – testing for a deterministic feature, are incorporated. Since the null hypothesis in equation (2) is that a is equal to one, in equation (3) it must be that β is equal to zero. Hence, when β is zero, there is a unit root, and we have insufficient evidence to reject the null hypothesis of non -stationary. The Augmented DF Test is performed on each variable separately, on the following regression.

$$\Delta X_{jt} = \delta_0 + \delta_1 + \delta_3 X_{t-1} + \sum_{i=1}^{k} a_i \Delta X_{jt-1} + u_t \quad (4)$$

The variable ΔX_{jt-1} equation (4) expresses the first differences with k lags and the final u_t is the variable that adjusts the errors of autocorrelation. The coefficients $\delta_0, \delta_1, \delta_3$ and a_i are estimated. In order to test for the stationary of time series, we have to lag the variables.

4.2 Augmented Dickey-Fuller Test

When comparing the *t statistics* with their critical values as shown in Table 3, we notice that the variables of Trade, FDI, and GDP are becoming stationary on their first difference. This means that the null hypothesis that a given series (Trade, FDI, or GDP data), contain a unit root and is non-stationary, was rejected at the first difference of the respective variables of Trade, FDI, and GDP. The MacKinnon approximate p-value for *Z(t)*, of 0, as shown in Table 3, suggests that the null hypothesis of a unit root and is non-stationary is rejected when the ADF test is applied to the first difference for all variables at 1, 5 and 10 percent level of significance. Hence, in the first difference, all the variables are becoming stationary and we have sufficient evidence to reject Ho of unit root presence in our data. This means that all the variables are integrated to order *I (1).*

Table 3. Augmented Dickey-Fuller test of the selected variables in levels

Dickey-Fuller, Log of Trade (Levels)						
Lag limit	Absence/Presence of trend	Test statistic	1% critical value	5% critical value	10% critical value	MacKinnon approximate p-value for Z(t)
0	Without trend	-1.207	-3.730	-2.992	-2.626	0.6704
0	With trend	-3.165	-4.352	-3.588	-3.233	0.0916
1	Without trend	-1.750	-3.736	-2.994	-2.628	0.4056
1	With trend	-2.408	-4.362	-3.592	-3.235	0.3755
2	Without trend	0.039	-3.743	-2.997	-2.629	0.9617
2	With trend	-2.256	-4.371	-3.596	-3.238	0.4583
Dickey-Fuller, Log of FDI (Level)						
0	Without trend	-1.571	-3.730	-2.992	-2.626	0.4979
0	With trend	-1.858	-4.352	-3.588	-3.233	0.6760
1	Without trend	-1.547	-3.736	-2.994	-2.628	0.5103
1	With trend	-1.864	-4.362	-3.592	-3.235	0.6729
Dickey-Fuller, Log of GDP real (Level)						
0	Without trend	0.006	-3.730	-2.992	-2.626	0.9590
0	With trend	-4.309	-4.352	-3.588	-3.233	0.0030
1	Without trend	-1.673	-3.736	-2.994	-2.628	0.4450
1	With trend	-1.977	-4.362	-3.592	-3.235	0.6141
Dickey-Fuller, Log of differenced TRADE (difference)						
1	Without trend	-7.771	-3.736	-2.994	-2.628	0.0000
1	With trend	-7.804	-4.362	-3.592	-3.235	0.0000
Dickey-Fuller, Log of differenced FDI (difference)						
1	Without trend	-5.169	-3.736	-2.994	-2.628	0.0000
1	With trend	-5.261	-4.362	-3.592	-3.235	0.0000
Dickey-Fuller, Log of differenced GDP real (difference)						
1	Without trend	-7.166	-3.736	-2.994	-2.628	0.0000
1	With trend	-6.904	-4.362	-3.592	-3.235	0.0000

4.3 Cointegration Analysis

Co-integration refers to the fact that two or more series share a stochastic trend, [21]. [12], suggested a two-step process to test for cointegration (an OLS regression and a unit root test), the EG-ADF test. First, we run the OLS regression on differenced variables suggested by the stationary test and check for the presence of unit roots on the residuals obtained after running the OLS regression. The stationary test suggests that the regression model should be estimated in different terms for one-time lag (Equation:5). Hence, here we can only look at a short-run relationship among these variables, [5].

The final short-run models estimated have the following form:

$$\Delta_1 lnTR_{jt} = a_0 + \Delta_1 lnGDP_{jt} + \Delta_1 lnFDI_{jt} + u_t \quad (5)$$

Following, [12], we estimate by OLS regression equation (1), and the obtained residuals from this regression we test for the presence of unit root (Table 4).

Table 4. Augmented Dickey-Fuller test of the obtained residuals after estimating OLS regression

Dependent variable LNTRADE: Explanatory variables: LNGDP and LNFDI						
Variable	Lag *limit	Test statistic	1% critical value	5% critical value	10% critical value	MacKinnon approximate p-value for Z(t)
Residual (e)	1	-5.068	-3.736	-2.994	-2.628	0.0000

Notes: **Lag limit of one is suggested by the HQIC test*

If the residuals were found to be stationary, the co-integrating regression might be taken as a long-run relationship and we could then proceed to the second step, where an Error Correction Model (ECM), including those lagged residuals as an error-correction term, would be postulated in order to consider the long-run dynamics. When we test for the presence of unit root on the residuals obtained, after the OLS estimation of equation (1), as shown in Table 4, we find that the residuals are stationary. We conclude that the test statistics exceed the critical values, suggesting no unit root presence on the obtained residuals (Table 4). The residuals are stationary, thus confirming the presence of a long-run relationship between variables. The series are co-integrated and we continue with the second step, by analysing the Error Correction Mechanism (ECM) model. To consider the formal analysis we regard the postulation of the lagged residuals as an error correction term, obtained from the OLS estimation of equation (1). The final ECM model, capturing the long-run relationship among variables, has the following form.

$$\Delta_1 lnTR_{jt} = a_0 + \Delta_1 lnGDP_{jt} + \Delta_1 lnFDI_{jt} + u_{t-1} \quad (6)$$

The results from the ECM regression output (equation 6: column 3), are suggesting that the error correction mechanism which implies a long-run equilibrium relationship is statistically significant. This coefficient of u_{t-1} shows us how fast the trade level in Albania changes to disequilibrium changes in the explanatory variables. Hence, a 1 percent increase in the speediness of disequilibrium changes in the GDP and FDI is associated, with average faster changes in trade level in Albania, at about 0.2 percent. The results are also suggesting that GDP and FDI are statistically significant in short-run and long-run models. Focusing on the long-run results (equation 6: model 3), a negative relationship between trade and GDP is found, whereas, trade is positively associated with FDI. Hence, a 1 percent increase in GDP will affect the average decrease of trade flow by 2.5 percent in the long-run, whereas, a 1 percent increase in FDI will increase trade flow by 0.6 percent, on average, ceteris paribus. Focusing on the results which capture short-run relationships among variables (equation 5: column 2), we outline that GDP and FDI are positively associated with trade level. Hence, a 1 percent increase in GDP and FDI, in the short-run, is associated with the average increase of Albania's trade level by 0.5 percent and 0.2 percent, respectively, ceteris paribus. The results of the macroeconomic factors affecting trade in Albania are presented in Table 5.

Table 5. Results of macroeconomic factors affecting trade in Albania

Dependent variable is log of TRADE	(1) OLS in levels Equation (2)	(2) OLS in differenced Equation (5)	(3) Error Correction Mechanism (Equation 6)
Log of GDP	.5960***	.5784**	-2.569***
	[2.07]	[1.92]	[5.52]
Log of FDI	.2117***	.2149 ***	.5978**
	[-2.70]	[2.66]	[1.79]
Lagged residuals (u_{t-1})			.2017***
			[2.24]
Constant	4.722426	5.06131	-52.792
	[0.91]	[0.93]	[-11.72]
Observations	29	28	28
R-squared	0.89	0.89	0.94

Notes: Dependent variable is log of the TRADE level. t-statistics in brackets, ***, **, and * indicate the significance of coefficients at 1, 5, and 10 percent, respectively. Model 1 shows the results of the OLS equation in levels (specified in equation 1), Model 2 shows the results of the OLS equation in differenced terms (specified as in equation 5), Model 3 shows the results of the Error Correction Mechanism (ECM) as specified in equation 6.

4.4 Formal Analysis of Granger Causality Test

According to [15], Y is said to "Granger-cause" X if and only if X is better predicted by using the past values of Y than by not doing so with the past values of X being used in either case. Essentially, Granger's definition of causality is motivated in terms of predictability. With the regression analysis, we want to estimate whether trade promotes GDP and FDI in Albania and whether the GDP and FDI can encourage the level of Trade. Namely, we want to find out if the changes in the level of Trade will respond to changes in the level of FDI and GDP and vice versa. The Granger causality test applied for the relationship between trade, FDI, and GDP is as follows:

$$TR_{jt} = \varphi + \sum_{j=1}^{k} \beta_j \, TR_{jt-1} + \sum_{j=1}^{k} \alpha_j \, FDI_{jt-1} + \sum_{j=1}^{k} \delta_j \, GDP_{jt-1} + \varepsilon_t \quad (7)$$

$$GDP_{jt} = \gamma + \sum_{j=1}^{k} c_j \, GDP_{jt-1} + \sum_{j=1}^{k} \alpha_j \, FDI_{jt-1} + \sum_{j=1}^{k} \beta_j \, TR_{jt-1} + \mu_t \quad (8)$$

$$FDI_{jt} = \vartheta + \sum_{j=1}^{k} \alpha_j \, FDI_{jt-1} + \sum_{j=1}^{k} c_j \, GDP_{jt-1} + \sum_{j=1}^{k} \beta_j \, TR_{jt-1} + v_t \quad (9)$$

Where TR_{jt} GDP_{jt} and FDI_{jt} are stationary time series sequences, φ, γ and ϑ are the respective intercepts, ε_t, μ_t and v_t are white noise error terms, and k is the maximum lag length used in each time series. The optimum lag length is based on Granger's definition of causality and Akaike's minimum final prediction error criterion, [15], [16]. If in equation (7), $\sum_{j=1}^{k} \alpha_j$and $\sum_{j=1}^{k} \delta_j$are significantly different from zero, then we may conclude that FDI and GDP granger cause trade. If in equation (8), $\sum_{j=1}^{k} \alpha_j$and $\sum_{j=1}^{k} \beta_j$ are significantly different from zero, then we may conclude that FDI and trade granger cause GDP. Similarly, if in equation (9), $\sum_{j=1}^{k} c_j$and $\sum_{j=1}^{k} \beta_j$ are significantly different from zero, then we conclude that GDP and Trade Granger cause FDI.

4.4.1 Results from Granger Causality Test

For example, the low p-value of 0.000 in the first row is evidence that the coefficients on the lags of Gross Domestic Product (LNGDP) are jointly different from zero in the equation for Trade. This result indicates that there is sufficient evidence to reject the null hypothesis of Granger Causality, that Gross Domestic Product (LNGDP) does not Granger cause Trade (LNTRADE). On the other hand, the relatively large p-value of 0.075 in the second row, favours the conclusion that the coefficients on the lags of Foreign Direct Investment (LNFDI) are jointly zero in the equation for Trade. This result indicates that there is insufficient evidence to reject the null hypothesis of Granger Causality, that Foreign Direct Investment (LNFDI) does not Granger cause Trade. In other words, the tests show that changes in Albania's past values of GDP are causing changes in the trade performance of Albania, whereas, Albania's past values of FDI level are not causing changes in Trade. Following the same logic, focusing on rows 7 and 8, changes in trade and GDP are causing changes in FDI. To define the influence of explanatory variables on the dependent variable, we employed a Granger causality analysis, which should point out which occurrence precedes the other, i.e., whether the trade follows the changes of the explanatory variables or vice versa, the explanatory variables follow up the changes in trade. A Wald test is commonly used to test Granger

Causality. The Wald table, reports a Wald test that the coefficients on the lags of the variable in the "excluded" column are zero for the variable in the "equation" column. The results from the causality analysis using the Granger methodology are presented in Table 6.

Table 6. Results from the causality analysis using Granger methodology

VAR Granger Causality result					
Sample		Yearly time span: 1993-2018			
Row	Equation	Excluded	chi2	df	Prob > chi2
1	LNTRADE	LNGDP	34.517	3	0.000
2	LTRADE	LNFDI	6.916	3	0.075
3	LTRADE	ALL	38.116	6	0.000
4	LNGDP	LNTRr	7.7415	3	0.052
5	LNGDP	LNFDI	6.6118	3	0.085
6	LNGDP	ALL	8.7145	6	0.190
7	LNFDI	LNTRADE	35.633	3	0.000
8	LNFDI	LNGDP	17.469	3	0.001
9	LNFDI	ALL	56.611	6	0.000

4.4.2 Results from Vector and Auto Regression Model (VAR) Model

Table 7. Estimation results from VAR analysis

	Sample:	1993 - 2018	Nr of obs	26
	Log likelihood	102.0095	AIC	-5.539195
			HQIC	-5.121172
			SBIC	-4.087545
	Equation	R-sq.	chi2	P>chi2
	LNTRADE	0.9813	1367.846	0.0000
	LNGDP	0.9909	2827.241	0.0000
	LNFDI	0.9717	892.5728	0.0000
		Dependent variables		
		(1)	(2)	(3)
	VARIABLES	LNTRADE	LNGDP	LNFDI
Independent variables	L.LNTRADE	0.719***	-0.0188	2.338***
		(0.155)	(0.0761)	(0.460)
	L2.LNTRADE	-0.149	0.0752	-0.399
		(0.103)	(0.0505)	(0.305)
	L3.LNTRADE	0.0791	0.101**	0.769***
		(0.0926)	(0.0454)	(0.274)
	L.LNGDP	0.977***	0.933***	0.473
		(0.364)	(0.179)	(1.079)
	L2.LNGDP	0.276	0.0455	1.835
		(0.479)	(0.235)	(1.420)
	L3.LNGDP	-0.133	0.0655	-3.213***
		(0.318)	(0.156)	(0.941)
	L.LNFDI	0.103*	-0.0279	0.158
		(0.0567)	(0.0278)	(0.168)
	L2.LNFDI	-0.000733	-0.0475	-0.252
		(0.0603)	(0.0296)	(0.179)
	L3.LNFDI	-0.0748	-0.0128	0.217
		(0.0479)	(0.0235)	(0.142)
	Constant	-14.25***	-2.786	-23.07*
		(4.280)	(2.098)	(12.68)
	Observations	26	26	26

Notes: t-statistics in brackets, ***, **, and * indicate the significance of coefficients at 1, 5, and 10 percent, respectively (*** p<0.01, ** p<0.05, * p<0.1), standard errors in the brackets (Standard errors in parentheses).

To make a more formal analysis of the influence of FDI and GDP on Trade and the influence of the lagged value of Trade on further trade flow, we apply the methodology of Vector Autoregression (VAR), as shown in Table 7, [22]. In the specification of the model, when we consider Trade as a dependent variable, (equation 7), the results showed that statistically significant are the changes in the first-time lag of trade, Gross Domestic Product, and FDI. The model set in this manner gives a satisfactory explanation for the relation between the changes in Trade, Gross Domestic Product, and the changes in Foreign Direct Investment at the first lag, which is evident from the R square from 0.9813. The first-time lag of the coefficient of GDP (0.977) in the equation of trade is highly significant at a 1% level of significance, (indicated by a low p-value of 0.000), with regard to the changes in trade, (which points to high trade flow motivated by the increase of Albania's GDP). The coefficient of the first-time lag of Trade (0.719), in the equation of Trade, is also highly significant at a 1% level of significance. In addition, the first-time lag of the coefficient of FDI (0.103), in the equation of trade is significant at 10 percent of significance. Thus, according to the VAR model, the increase of GDP and FDI in the current year by 1 percent will act on an average increase of trade in the forthcoming period by 0.9 and 0.1 percent respectively. In addition, the current increase of trade by 1 percent will impulse the forthcoming increase of trade flow in the next period by 0.7 percent. When applying VAR analysis to equation 8 (considering GDP as a dependent variable), we see that the influence of the lagged value of GDP on the current value of GDP is based on only a one-time lag, with an estimated impact of 0.933 percent. In addition, in the equation of GDP, the influence of the lagged value of trade on the current value of GDP is based on three-time lags, with an estimated impact of 0.101 percent. The high explanatory power of the model of 0.99 gives a satisfactory explanation for the variation of the explanatory variables ($GDP_{t-1,}$ $TRADE_{t-3}$), per unit variation of the dependent variable (GDP). In the model, the coefficient of FDI is statistically insignificant, pointing to the low dependency level of economic development from the foreign sources of capital, while the coefficient of TRADE at the third lag is statistically significant at a 5% level of significance. Applying VAR analysis to equation 9 (Considering FDI as a dependent variable), we outline the significant impact of the first- and third-time lag of trade on FDI, at one percent level of significance, with an estimated coefficient of 2.338 and 0.769 percent, respectively and the third time lag of GDP on FDI, with an estimated coefficient of 3.213. Based on these results, the increase of trade in the current year by 1 percent will act on an average increase of FDI in the coming first and third years by 2.3 and 0.7 percent, respectively. In addition, the increase of GDP by 1 percent in the current year, will act on an average increase of FDI in the coming third year by 3.2 percent. The high explanatory power of the model of 0.97 gives a satisfactory explanation for the variation of the explanatory variables ($TRADE_{t-1,}$ $TRADE_{t-3}$ and GDP_{t-3}), per unit variation of the dependent variable (FDI).

5 Discussion of the Results

The results of the study outline that Albania's trade is subject to disequilibrium changes in GDP and FDI, in the long-run. The VECM results in the long-run, confirm the deteriorating effect of GDP on trade, probably due to the fact that trade deficits are likely to occur in the long-run, owing to the high dependency ratio of Albania's economy from imports. In the short-run, both FDI and GDP enhance trade. The positive relationship between FDI and trade, in both the short and long-run, supports the vertical nature of FDI in Albania, thus, making the FDIs in Albania to be in a complementary relationship with trade, [8]. On the grounds of causality analysis, the results of the study outline that changes in the trade performance of the country are subject to changes in past values of GDP, and not to changes in past values of FDI. On the other way around, changes in FDI are subject to changes in trade and GDP. The VECM model proved that there is a long-run relationship between GDP, FDI, and Trade. Due to the existence of the long-run relationship between these variables, we advocate that it is very important for Albania to create trade promotion policies and FDI-friendly policies to boost economic growth. In addition, the same conclusion is reached from the Granger - Causality test, which points out that the changes in trade prospects are triggered by the changes in the past values of trade and GDP and variations in trade and GDP are triggering changes in FDI. The results from the VAR analysis are suggesting that the forthcoming increase in trade is subject to the agglomeration factor of trade, as well the increase of GDP and FDI in the current period. When applying VAR analysis to GDP, the results outline a significant impact of the one-time lag of GDP and three-time lag of trade, to the current level of GDP, whereas, the VAR analysis to FDI confirms the

significant impact of the first and third-time lag of trade on FDI and third-time lag of GDP on FDI. In general, the VAR results applied to trade, GDP, and FDI, confirm reasonable clarification for the high variation of the explanatory variables on the dependent variable in the three cases, respectively.

6 Conclusions and Recommendations

In this paper, we have estimated the short-run and long-run relationship between macroeconomic variables of Trade, Gross Domestic Product, and FDI, using yearly data for the period 1993-2018, as well as causality analysis between the three macroeconomic indicators. i.e. whether the changes in trade performance are caused by the other macroeconomic factors associated with FDI and GDP, and vice versa, considering a bivariate analysis, whether the changes in GDP and FDI are caused by the changes on the right-hand side factors in the second and third equation, respectively. The vector error correction mechanism results suggest that the inward stock of FDI is statistically significant and positively influences the trade potentials, hence supporting the vertical nature of FDI in the country. However, the VECM results outlined the negative impact of GDP on trade, in the long-run, whereas in the short-run the impact was found to be positive. The VAR results confirm that Albania's trade performance, in addition to GDP and past values of trade, is also caused by the changes in FDI. On the other hand, variations in Albania's GDP are reinforced by agglomeration factors of GDP and trade variations. In addition, changes in FDI level are driven by changes in trade and GDP. The results of this paper suggest that Albania's GDP level is largely dependent upon trade potentials and agglomeration factors. Therefore, FDI and trade promotion policies are expected to play a significant role in the long-term economic growth of Albania's economy. One trade promotion policy for Albania, which could be applied, is securing tariff-free access to the markets of developed countries, an analysis that is beyond the scope of this paper. Albania's government could do much better in terms of FDI promotion policies with respect to fiscal preferences that potential foreign investors could benefit in case they locate their investment potential to the country's economic sectors which contain competitive advantage, in relation to other surrounding countries, for example in the tourism sector. Since FDI and trade are verified as important catalysts for Albania's economic growth, especially in the long-run, it is almost of utmost need for the country to build relevant policy frameworks that will promote economic growth, which will mainly be FDI-led growth policies. Another institutionally related factor that could lead to growth prospects for Albania, is political stability, generally promoted through good governance policies, for instance, improvements in the rule of law and government effectiveness, which is encouraged through positive developments in terms of civil, criminal and informal justice and private sector developments, respectively. The institutional-related factors are of crucial importance for Albania's EU approximation path, which on the other hand are referring to the limitations of this study. However, the objective of this study was to estimate the long-run relationship of the factors that contribute to the trade prospects of Albania, like FDI and GDP, and not to provide an indication of determinants of trade, therefore, these issues are not critical, but could serve as a milestone for future economic research for Albania's trade performance.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy).

-Bardhyl Dauti carried out the econometric assessment, methodology development, and design of the hypothesis and estimations.

-Ardi Bezo carried out the conceptualization of the study.

-Ismet Voka was responsible for the investigation process, the execution of the literature review part, and the conclusion part.

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