



Financial Development, Trade Openness, and Economic Growth in Tunisia

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Abstract

The finance trade nexus reveals the importance of finance for trading and economic growth. This study used both Johansen Co-integration and Granger causality approaches to investigate the presence of the linkages among financial development (FD), trade openness (TO), and economic growth (GDP) and the causalities between the variables (in Tunisia over the period 1980-2020). According to the co-integration test results, there is a long-run stable relationship between domestic credit to the private sector, aggregate exports and imports of goods and services, and GDP. The findings indicate that domestic credit to the private sector has the strongest effect on economic growth compared to the sum of exports and imports of goods and services in Tunisia. In addition, the direction of causality followed mixed. Thereby, FD and TO can be deployed to boost growth: The Tunisian government should try to contribute to the financial development to construct a durable financial system and to trigger the Gross Domestic Product. Furthermore, for the Tunisian economies to obtain benefits from trade liberalization, policies and institutional reforms toward investment, production efficiency, and financial development should be carried out abreast with the liberalization.

Keywords: Financial Development, Trade Openness, Economic Growth, Co-Integration, Tunisia.

JEL Classification: G15, F10, O11.

1. Introduction

In the last few years, most developing countries have introduced liberalization policies of both financial and trade systems to increase economic growth. The trade sectors have focused on the barriers imposed on exchanging goods between countries to reduce them. However, the financial sector's policy is considered as a measure trying to transform the financial system by reducing costs and the inefficiency in the production processes and then increasing the economic growth.

Theoretical and empirical literature argues that financial development can accelerate economic growth (Levine et al., 2000; Chortareas et al., 2015; Muhammad et al., 2016). At the same time, their strong evidence of a positive

relationship between trade openness and economic performance Balassa (1985), Sala-i-Martin, and Roubini (1991), and Frankel and Romer (1996).

Recently, theoretical and empirical evidence has supported a link between financial development and trade openness, and economic growth. The theoretical model of Blackburn and Hung (1998) predicts that both financial development and international trade liberalization enhance economic growth. Furthermore, Beck (2003), and Svaleryd and Vlachos (2005) also found that there is a positive interdependence between financial development and liberal trade policies, which was strongly confirmed by Shahbaz et al. (2013). Essentially, there is a positive relationship between the finance-growth nexus, the trade-growth nexus, and the finance-trade nexus.

This article studies the linkages among financial development (FD), trade openness (TO), and economic growth (GDP). It tries to find an answer to the question of whether financial development leads to trade liberalization or whether trade liberalization leads to financial development in Tunisia in a trivariate framework by including economic growth. We want to go further than a "theoretical" debate on these interdependences to look at empirical interactions between finance trade and growth. We find a positive relationship between financial development, trade openness, and the joint impact on economic growth. Thereby, this supports the idea that finance and trade led to growth hypotheses for Tunisia. We intend, also, to know what policy instruments need to be manipulated to achieve economic growth.

This document contains four sections. Section 2 presents a review of the theoretical literature. Section 3 presents the empirical literature on financial development, trade openness, and economic growth. The econometric approach, empirical results, and findings will be presented in the fourth section. The last section concludes the document with policy recommendations.

2. The Theoretical Foundations

The abundance of theoretical as well as empirical research has strongly argued a link between financial development, trade openness, and economic growth, particularly in the case of developing countries.

There has been theoretical literature that emphasizes the joint impact of these issues on economic growth. Roubini and Sala-i Martin's (1991) model has presented the joint impact of both variables on economic growth. Their model was extended by Barro's (1991) growth model, which incorporates both factors. The insertion of both trade and financial variables in the Barro (1991) model showed that financial and trade variables may play a very important role in economic growth. Recently, Blackburn and Hung (1998) have presented a theoretical analysis of the joint impact of both financial development and trade liberalization on economic growth. Their model predicts that economic growth rates in the presence of financial intermediation tend to be higher than those under direct

lending and borrowing. The model also considers that both financial development and trade liberalization jointly facilitate the rate of economic growth by decreasing redundant research efforts and increasing markets for new products.

3. Empirical Literature

The findings of the empirical literature on the finance growth nexus, trade-growth nexus, and finance-trade nexus are mixed, conflicting, and inconclusive. However, economists argue that an efficient financial system has a positive and significant impact on economic growth and allows countries to grow faster (Baltagi et al., 2009; Fung, 2009). These authors, among others, also prove that these countries show better economic performance than those whose financial systems are less developed. In the same vein, Ndulu et al. (2007) note that inadequate financial development and poor international trade negatively affect the economic performance of most African developing countries.

Numerous empirical investigations conclude that a long-term relationship exists between financial development, trade openness, and economic growth. Yucel (2009) considered the relationship between financial development, economic growth, and trade openness using the Johansen and Juselius for co-integration and Granger causality approach with time series data spanning 1987 to 2007 in Turkey. The study revealed that a combination of financial development and trade openness had a statistically significant influence on economic growth in Turkey.

Tash and Sheidaei (2012) used endogenous growth theory and analyzed the joint impact of trade liberalization and financial development on economic growth in Iran. They employed annual data between 1966 and 2010. In this study, principal component analysis is applied to make better indexes for trade liberalization, financial development, and the joint effects of both. The Johansen co-integration procedure denotes a positive relationship between trade liberalization, financial development, and the joint impact on economic growth in Iran.

Polat et al. (2015) examined the relationship between trade openness, economic growth, and financial development. They used a co-integration test approach with time series annual data covering the period from 1971 to 2011 in South Africa. A long-run relationship was found between trade openness, financial development, and economic growth in South Africa.

Kizito et al. (2017) examined the three-way links between financial development, trade openness, and economic growth in three African countries (Ghana, Nigeria, and South Africa) between 1980 and 2014. They found that there were long-term causal relationships between financial development, trade openness, and economic growth, thereby supporting the finance and trade-led growth hypothesis for Ghana, Nigeria, and South Africa.

To study the interdependence between financial development (FD), economic growth (GDP), and trade (TO) in Argentina, Tsauerai (2017) used a

Vector Error Correction Model (VECM) with 21-year annual time series data (1994-2014). He established a positive and significant uni-directional causality running from FD to GDP and from TO to FD in the long run. He also confirmed the presence of a positive but weak uni-directional causality running from FD to TO, TO to GDP, and from GDP to TO in the long run. Results, also, revealed a causality relationship running from financial development to economic growth, from trade openness to economic growth, and feedback effects between trade openness and financial development in the short run in Argentina. For that reason, the author encourages Argentinean policymakers to accelerate the implementation of financial development and trade openness policies to achieve sustainable growth.

Chandrashekar et al. (2018) examined the relationship between financial development, trade openness, and, economic growth. Both Johansen co-integration and Granger causality methodologies were applied for a long-run relationship and the direction of the Causality between the variables. The authors approve that there exists a long-run relationship between financial development, trade openness, and growth. In addition, the direction of the causality results followed mixed. Finally, they conclude that changes in financial development precede changes in trade openness and this leads to an increase in economic growth.

Salih Kalaycia and Cihan Özden (2020) supported the existence of a long-run stable relationship among GDP, domestic credit to the private sector, and aggregate exports and imports of goods and services (international trade), according to co-integration test results. The empirical results showed that domestic credit to the private sector has the strongest effect on economic growth (GDP) compared with the sum of exports and imports of goods and services in South Korea.

Other empirical studies are of the view that there is no or negligible impact of financial development and trade openness on economic growth. Gries et al. (2009) analyzed financial development, economic growth, and trade openness interrelationships in the Sub-Saharan African (SSA) countries using the Hsiao Granger approach. Their study supported that a combination of financial development and trade openness negligibly influenced economic growth in SSA countries.

Gries et al (2011) considered the interrelationship between financial development, economic growth, and trade openness in the Caribbean and Latin American countries. Their analysis could not find any direct or indirect link between trade openness, financial development, and economic growth. In addition, economic growth was found not to have depended on either trade openness or financial development.

Alajekwu et al. (2013) employed the panel bootstrapped approach and Granger causality with data ranging from 1965 to 2008. They noted that a

combination of financial development and trade openness did not influence economic growth in Nigeria.

Menyah et al. (2014) investigated the relationship between economic growth, trade openness, and financial development in African countries. Both trade-led growth and finance-led growth hypotheses failed to get support from the empirical results of their study. Financial development and trade openness had a minimal impact on economic growth in African countries; just like the findings by Gries et al. (2009). Additionally, the direct relationship between trade openness and financial development in whichever direction was found to be very negligible in the African countries studied.

Ayad et al. (2017) observed the causal relationship between financial development (measured as the Kaopen index and Line and Milesi-Ferreti index), trade openness, and economic growth for 16 MENA countries. They used panel co-integration techniques: panel VAR model and TYDL (Toda, Yamamoto, Dolado and Lutkepohl) Granger causality (1996). Their finding supported that both of finance-led growth and trade-led growth hypothesis seem to be rejected for the group as a whole. The results denoted that financial development and trade liberalization do not seem to have made a significant impulse on economic growth for the period 1980-2014.

4. Empirical Investigation

4.1 Data Description

The main objective of our empirical investigation is to examine if financial development plays an important role in boosting trade openness and economic growth in Tunisia. This study uses annual time series data from 1980 to 2020. The period is long enough to establish whether there exists a relationship between the three variables being studied. Credit to the private sector (% GDP) (FD), Exports + imports (% of GDP) (TO), and real GDP (GDP) were used as measures for financial development trade openness, and economic growth respectively. The data was extracted from the World Bank Indicators (WDI, 2021). This source of data was preferred because it provides a long data set, which is required when testing long multi-variant finance-growth nexuses. In line with the majority of literature, this study expects financial development and trade openness to have a positive and significant impact on economic growth in line with existing literature.

5. Methodology and Data Analysis

We adopt a primary model showing the relationship between financial development, trade openness, and economic growth in Tunisia, which we can write as follows:

$$GDP_t = f(TO_t, FD_t)$$

We can also write the model under its log-linear econometric format:

$$\ln(GDP_t) = \beta_0 + \beta_1 \ln(TO_t) + \beta_2 \ln(FD_t) + \varepsilon_t$$

where GDP represents economic growth, FD is financial development, TO is trade openness, β_0 is the constant term, t is the time trend and ε is the random error term.

To proceed with the co-integration analysis, we have to implement the test of stationary proprieties of our series since many macroeconomic and financial time series are characterized as non-stationary. This non-stationary series implies that the variable has no clear tendency to return to a constant value or a linear trend. The stationary propriety of the used variables is examined by carrying out the test of Augmented Dickey-Fuller. The findings show that the GDP, TO, and FD are not stationary at their level (Table 1). On the other hand, Figure 1 shows that all variables are not normally distributed over the period between 1985 and 2020.

Table 1. Unit Root Test Results at I(0)

	t-statistic	Crit-val (5%)	p-value
GDP	1.741609	-2.941145	0.9995
TO	-1.253543	-2.941145	0.6409
FD	-2.504382	-2.941145	0.1224

Source: Research finding.

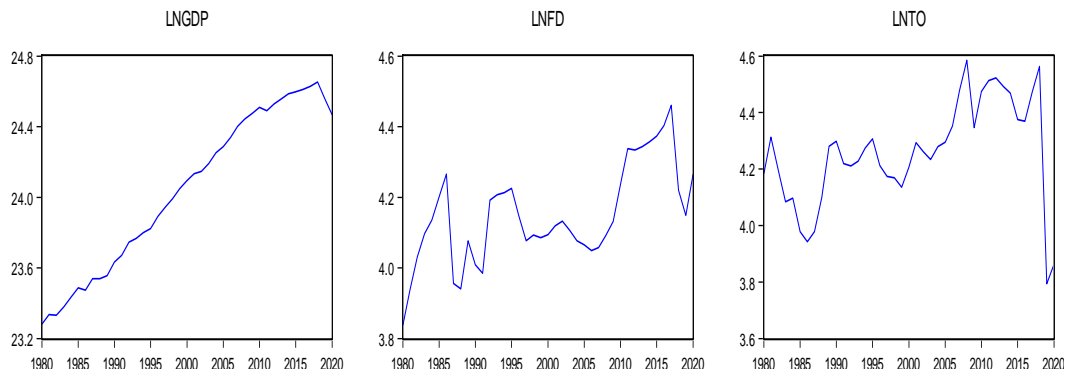


Figure 1. GDP, FD, and TO at I(0)

Source: Research finding.

The non-stationarity at I (0) implies that the series should be transformed to I (1). Indeed, after this transformation from I(0) to I(1) all series becomes stationary at first difference indicating that all series are integrated of order one I (1) (Table2).

Table 2. Unit Root Test Results at I(1)

	t-statistic	Crit-val (5%)	p-value
GDP	-5.045022	2.943427	0.0002
TO	-2.943427	-6.114084	0.0000
FD	-5.105446	-2.943427	0.0002

Source: Research finding.

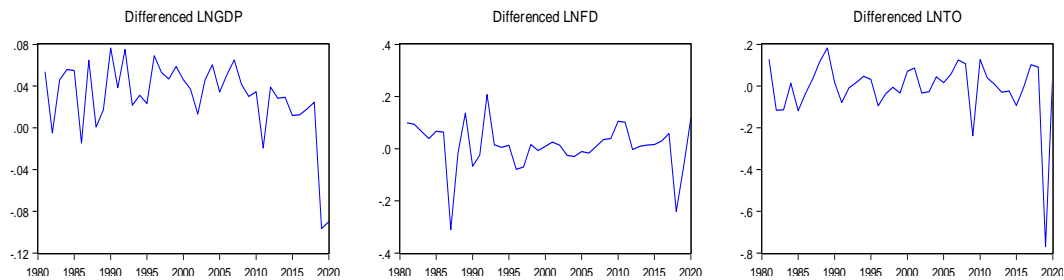


Figure 2. GDP, FD, and TO at I(1)

Source: Research finding.

In the next step, we should proceed to examine the issue of cointegration among the variables. Theoretically, economic growth, trade openness, and financial development are co-integrated if they share a common trend and long-run equilibrium. In addition, these variables have a symmetrical distribution from 1980 to 2020 (Figure 2). Using the test of Johansen and Juselius multivariate cointegration test, we examine the long-run relationships among the variables and we start with the null hypothesis of no co-integration.

Table 3 notes that long-run relationships exist between economic growth, trade openness, and financial development for Tunisia over the period 1980-2020. According to the results, we can accept the alternative hypothesis of cointegration at 5% and reject the null hypothesis of the no-co-integration vector.

Table 3. Johansen Co-Integration Test Results

Hypothesized No. of CE(s)	None *	At most 1	At most 2
Trace test			
Eigenvalue	0.485003	0.262941	0.037332
Trace Statistic	39.26235	13.38221	1.483821
0.05 Critical Value	29.79707	15.49471	3.841466
Prob.**	0.0030	0.1015	0.2232
Maximum Eigenvalue test			
	None *	At most 1	At most 2
Eigenvalue	0.485003	0.262941	0.037332
Max-Eigen Statistic	25.88014	11.89839	1.483821
0.05 Critical Value	25.88014	11.89839	1.483821

Source: Research finding.

Note: * denotes rejection of the hypothesis at the 0.05 level.

Theoretically, it is well known that the lag length determines considerably the cointegration tests. For this reason, we should specify the relevant order of lag of the VAR model before implementing the cointegration test. The results in the table below indicate that the optimal lag order is 1.

Table 4. Lag Order Selection Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-963.5718	NA	2.43e+23	62.35947	62.49825	62.40471
1	-855.7284	187.8563*	4.14e+20*	55.98248*	56.53757*	56.16342*
2	-848.2196	11.62651	4.65e+20	56.07868	57.05010	56.39534
3	-842.1335	8.245761	5.89e+20	56.26667	57.65440	56.71904
4	-834.2022	9.210526	6.93e+20	56.33562	58.13967	56.92370
5	-827.2179	6.758940	9.30e+20	56.46567	58.68604	57.18946

Note: * indicates lag order selected by the criterion.

Source: Research finding.

In the next step, we employ the forecast error variance decomposition and impulse response function to capture the relative strength of the causal relationship between the variables beyond the selected period. Using the variance decomposition, we can measure the response of a selected variable to its shock and the shock of other variables. Therefore, we implement the impulse response to trace out the responsiveness of the dependent variable to shocks to other independent variables over a certain period.

Regarding the results of the impulse response reported in Figure 3 below, we found that economic growth responds negatively to one standard deviation in trade openness and up to the 10th time horizon. In addition, we can note that the response in economic growth due to forecast error stemming from financial development is initially positive but it becomes negative after the 8th time horizon. Finally, the economic growth responds positively to its shock till the 10th time horizon.

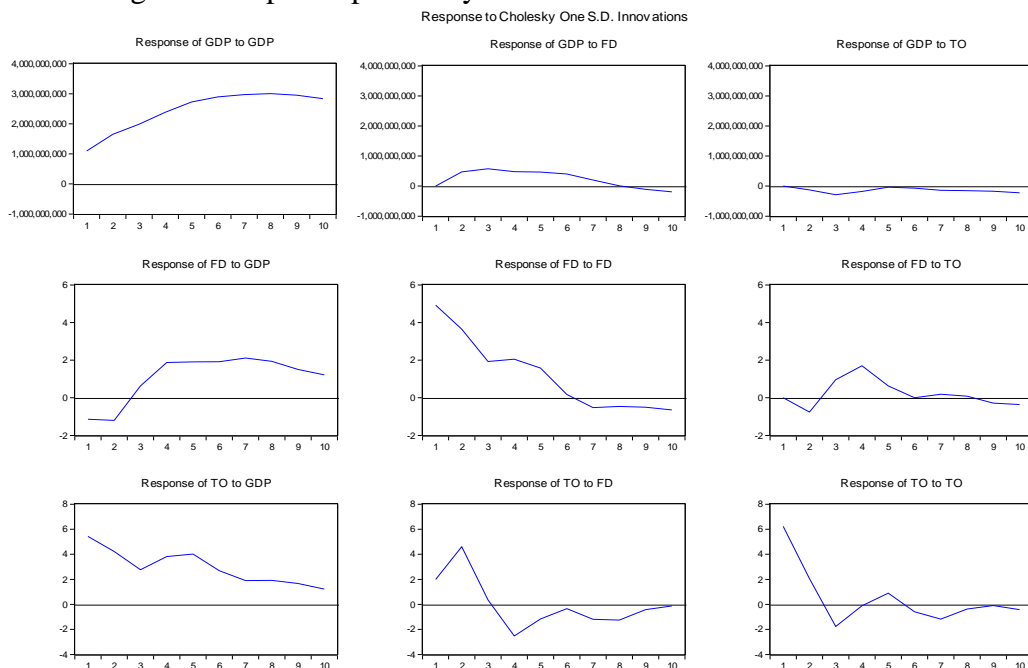


Figure 3. Impulse Response Analysis

Source: Research finding.

Table 5 below contains the results of the variance decomposition. The findings allow us to calculate and analyze the effect of random shocks of economic

growth upon itself and trade openness and financial development. According to the results, we note that 97.71% of economic growth is explained by its shocks while financial development and trade openness explain only 1.88% and 0.39% respectively.

Table 5. Variance Decomposition

Period	S.E.	GDP	FD	TO
1	1.10E+09	100.0000	0.000000	0.000000
2	2.04E+09	94.34175	5.281175	0.377071
3	2.92E+09	92.39652	6.426841	1.176642
4	3.81E+09	93.73698	5.351341	0.911679
5	4.71E+09	94.92953	4.468753	0.601721
6	5.54E+09	95.80896	3.742949	0.448087
7	6.29E+09	96.60039	3.004225	0.395388
8	6.98E+09	97.18524	2.446275	0.368483
9	7.58E+09	97.54440	2.092905	0.362693
10	8.10E+09	97.71645	1.889888	0.393658

Source: Research finding.

Once we verify the co-integration among variables, we should determine the long-run elasticities through co-integration estimators. Pedroni (2004) developed the ordinary least squares (OLS), fully modified ordinary least squares (FMOLS), and dynamic ordinary least squares (DOLS) to investigate the long-run relationships among co-integrated variables. Using the OLS, the estimated cointegrated vector and asymptotically biased distribution are super convergent for time series as well as for panel data. To solve the problem of endogeneity among serial correlations and regressors in the error terms, the FMOLS and DOLS are used. Using non-parametric approach, the fully modified least squares estimators examine the problem of autocorrelation and endogeneity, whereas, the dynamic ordinary least squares method includes lags and leads of the explanatory variables to correct the endogeneity in regressors (Kao and Chiang, 2000). These authors among others argue that in the case of small samples, the DOLS estimators are more efficient in producing unbiased, efficient, and consistent estimates. They also indicate that the weighted criteria of DOLS and FMOLS methods control heterogeneity in the long-run variance and cointegrated panel.

In the present empirical study, the Full-Modified Ordinary Least Squares (FMOLS), Dynamic Ordinary Least Squares (DOLS), and canonical co-integration regression (CCR) estimators are implemented in the long-run linkages between EG, FD, and TO in Tunisia between 1980 and 2020.

Table 6. FMOLS, DOLS, and CCR Results

	FMOLS		DOLS		CCR	
	T-Statistics	P-value	T-Statistics	P-value	T-Statistics	P-value
LNFD	2.001061	0.0043	0.552498	0.3814	1.851356	0.0049
LNTO	1.233836	0.0103	2.588589	0.0000	1.301184	0.0155
C	10.50083	0.0006	10.73009	0.0000	10.83345	0.0001

Source: Research finding.

The results of the three tests given in Table 6 above confirm strongly the results of the Johansen co-integration test. They prove that economic growth, financial development, and trade liberalization impact each other in the long term. Starting with the FMOLS test, the statistics prove that financial development affects significantly the economic growth in Tunisia. A magnitude of 2.001 implies that a 1% increase in financial development augments the economic growth by 2.001% each period. This impact is positive and statistically significant at a 1% level. On the other hand, we found that TO affects positively Tunisian economic growth. The economic growth augments by 1.233% if the trade openness in Tunisia increases by 1%.

Concerning the dynamic ordinary least squares, the findings are different. Financial development affects positively economic development but the effect is statistically insignificant. A coefficient of 0.552 means that if the financial development increases by 1% the Tunisian GDP augments by 0.552%. However, a positive and statistically significant impact was found for trade openness. Indeed, an increase of 2.588% in the GDP is possible if the trade openness augments by 1%. Finally, according to the results of the canonical co-integration regression (CCR), the impact of financial development and trade openness on economic growth are positive and significant at 1% and 5 % respectively. These statistics prove that financial development can increase economic growth by 1.851% if it augments by 1%. On the contrary, trade openness can boost the economic development in Tunisia by 1.301% if it augments by 1%.

Economists and researchers often use econometric modeling to study and analyze the various links between different economic aggregates. They have found these techniques very useful in explaining long-term and short-term links between macroeconomic factors. Among these techniques, we found the ARDL model developed by Shin and Smith (2001). This method provides appropriate results with more information in the sample even if we use stationary series at the level or the first difference. In Table 6, the results prove that financial development and trade openness affect significantly the economic growth in Tunisia. To confirm these findings, we implement the ARDL model. The ARDL equation is demonstrated as econometric symbols where the FD and TO be investigated as follows:

$$\Delta \ln GDP_t = \alpha_0 + \sum_{i=1}^{m_1} \sigma_{it} \Delta \ln GDP_{t-1} + \sum_{i=0}^{m_2} \beta_{it} \Delta \ln FD_{i,t-1} + \sum_{i=0}^{m_3} \theta_{it} \ln TO_{i,t-1} + \delta_{1i} \ln GDP_{t-1} + \delta_{2i} \ln FD_{t-1} + \delta_{3i} \ln TO_{t-1} + \varepsilon_{it}$$

The long-term linkages between GDP, FD, and TO were examined through the F-bounds test considering the zero hypothesis as follows:

$$H_0 : \delta_1 = \delta_2 = \delta_3 = 0$$

$$H_1 : \delta_1 \neq \delta_2 \neq \delta_3 \neq 0$$

Under the null hypothesis, the ARDL F-bound test assumes the absence of any cointegrating vector between the variables. The statistics for this test presented in Table 7 indicate that the value of the F statistic is greater than the I (1) value. From these results, we can confirm the existence of a cointegration relationship between financial development, trade openness, and economic growth, which confirms the result of the previously applied Johansen cointegration test.

Table 7. ARDL Bound Test Results

Model	Optimal lag length	F-Statistics	Bounds test critical value	
			I(0)	I(1)
LnGDP; FD; TO	(1, 0, 0)	18.37783*	3.1	3.87

Source: Research finding.

According to the results of the long-run ARDL results given in Table 8, trade liberalization has a positive and statistically significant effect on economic growth. Indeed, a coefficient of 0.040 means that economic growth increases by 0.040% if the trade openness augments by 1% each period. On the contrary, the same statistics show that a negative impact was attributed to the financial development on economic growth. The magnitude of -0.021 implies that the economic growth decreases by 0.021% if the financial development increases by 1%. The effect is negative and statistically insignificant.

Table 8. Long-Term ARDL Estimation Results

Dependent Variable: LnGDP				
Variables	Coefficient	Standard error	t-statistic	p-value
FD	-0.021552	0.018278	-1.179156	0.2461
TO	0.040014	0.011514	3.475177	0.0013*
C	23.17489	0.921863	25.13919	0.0000*

Source: Research finding.

The results of the long-term ARDL in terms of relationships between dependent and independent variables are consistent with those of the short-term ARDL test. The results of the ARDL short-term estimation indicate that the main determinants of short-term GDP were significantly affected by trade openness. The impact is positive and significant at the 1% level. Likewise, the results of the long-term ARDL estimation prove that the impact of financial development remains negative and statistically insignificant.

In addition, the results of the error correction model can be shown in Table 9. According to these results, the error correction model works to achieve short-term equilibrium. From the results of the error correction model, it can be concluded that a negative and significant value of the variable “coinEq” confirms the phenomenon of return to equilibrium in the long term and the system re-established in the long term.

Table 9. Short-Term ARDL Estimation Results and Error Correction Model

Dependent Variable : LnGDP				
Variables	Coefficient	Standard error	t-statistic	p-value
LnGDP(-1)	0.953881	0.013797	69.13526	0.0000*
FD	-0.000994	0.000653	-1.521984	0.1367
TO	0.001845	0.000411	4.491597	0.0001*
C	1.068814	0.300051	3.562104	0.0011*
CointEq(-1)	-0.046119	0.005168	-8.923972	0.0000*

Source: Research finding.

To ameliorate the quality of our results and findings, we should ensure consistency in the outcomes that transmissions and feedback occur between the variables. For this reason, the Granger causality test was applied to determine the nature and direction of different relationships among the main series.

Table 10. Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
TO does not Granger Cause GDP	39	0.05021	0.9511
GDP does not Granger Cause TO	39	1.56231	0.2243
FD does not Granger Cause GDP	39	5.29311	0.0100**
GDP does not Granger Cause FD	39	2.89847	0.0688***
FD does not Granger Cause TO	39	3.55554	0.0396**
TO does not Granger Cause FD	39	5.66937	0.0075*

Note: *, **, *** denotes rejection of the null hypothesis at the 1%, 5%, and 10% threshold.

Source: Research finding.

According to the results of the causality test recorded in Table 10 above, we note that there are no long-run causalities among EG and TO. Thereby, the Granger causality analysis provides weak evidence of the validity of the export-led growth hypothesis¹. By contrast, the results note that the causality between financial development and economic growth is bidirectional. The supply-leading and demand-following hypotheses were supported. Similarly, feedback causality exists between financial development and trade openness providing support for the complementarity hypothesis for Tunisia.

¹. There are reasons to believe that increased international competition could hinder growth if the economy is not well prepared for competition (infant industry argument). This indicate greater trade openness has an adverse effect on real income for Tunisia, supporting the hypothesis that a country behind the technology frontier may be driven by trade to specialize in traditional goods and experience a reduction in its long-run real income.

6. Conclusion

A well-developed financial sector and international trade are generally considered essential contributory factors for economic growth. However, the existing literature provides us with inconclusive results; mainly because of country-specific factors and different methods of study. Hence, a country-specific study supported by well-developed methods is worth pursuing.

Therefore, this paper deals with the long-run linkages between FD, TO, and GDP in the case of Tunisia over the period 1980-2020. The major goal of this study is to expose the long-term equilibrium linkage among domestic credit to the private sector (financial development), the sum of exports and imports of goods and services / GDP, and GDP. ADF unit root test is employed to perform FMOLS, DOLS, and CCR analysis. According to the results of the ADF unit root test, all variables relating to GDP, domestic credit to the private sector and the sum of exports and imports of goods and services (international trade) were not stationary. Afterward, taking the first difference of the three variables, the ADF unit root test was done once again to confirm the stationarity structure of the series. According to the findings of the ADF unit root test, three variables become stationary. Therefore, according to the results of FMOLS, DOLS, and CCR models, there is a long-run stable relationship between the variables and financial development (domestic credit to the private sector) that affects economic growth, which is consistent with the Johansen co-integration test and ARDL model.

Furthermore, the direction of causal relationships was investigated by applying the Granger causality test. The results show that there is no causal relationship between economic growth and trade openness. By contrast, the results note that the causality between financial development and economic growth is bidirectional. Similarly, feedback causality exists between financial development and trade openness in Tunisia.

Based on the results revealed by this research, the following policy prescriptions may be suggested: Tunisia should continue to support the development of the financial sector. This sector should be as open, competitive, and efficient as possible to improve access to capital and consequently finance economic growth. In retrospect, one important policy implication is that Tunisia's trade policy should be strongly incorporated into the process of growth stimulus initiatives. Such measures should also address encouraging the financial sector development (reducing capital constraints), enticing foreign direct investment as well as increasing the size of investment ratio in the real sector of the economy.

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