The Role of Higher Education and Financial Development on Economic Growth: Evidence on North Cyprus

Yüksek Öğrenim ve Finansal Gelişmenin Ekonomik Büyüme Üzerindeki Rolü: Kuzey Kıbrıs Üzerine Kanıtlar

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ABSTRACT

This research aims to examine the effects of the development in the higher education and financial sector on economic growth in the case of North Cyprus. Findings of time series data show that there is a long-term equilibrium relationship between real income and its elements such as labor, capital, higher education, and financial growth. Results show that both capital and labor have a statistically significant effect on economic growth. Additionally, development in the financial sector is a significant contributor to economic growth, however, higher education shows evidence of greater contribution to economic growth in North Cyprus. It draws attention that the higher education sector has a greater impact on economic development than the financial sector. In this context, government authorities should support both the financial and higher education sectors in order to accelerate their contribution to economic development. Policymakers needed to concentrate more on the higher education sector in Northern Cyprus.

JEL Codes: C51; E44; I23; O11

Keywords: Financial Development; Higher Education; Economic Growth; ARDL Approach; North Cyprus

ÖZ

Bu araştırmanın amacı, yükseköğretim ve finans sektöründeki gelişmelerin ekonomik büyüme üzerindeki etkilerini Kuzey Kıbrıs örneğinde incelemektir. Zaman serisi verilerinin bulguları, reel gelir ile emek, sermaye, yüksek öğrenim ve finansal büyüme gibi unsurları arasında uzun dönemli bir denge ilişkisi olduğunu göstermektedir. Sonuçlar, hem sermayenin hem de emeğin ekonomik büyüme üzerinde istatistiksel olarak anlamlı bir etkiye sahip olduğunu göstermektedir. Ek olarak, finans sektöründeki gelişme, ekonomik büyümeye önemli bir katkıda bulunur, ancak yüksek öğrenim, Kuzey Kıbrıs'ta ekonomik büyümeye daha fazla katkı sağladığına dair kanıtlar göstermektedir. Yükseköğretim sektörünün ekonomik kalkınma üzerinde finans sektöründen daha büyük bir etkiye sahip olduğuna dikkat çekmektedir. Bu bağlamda hükümet yetkilileri, ekonomik kalkınmaya katkılarını hızlandırmak için hem finansal hem de yükseköğretim sektörlerini desteklemelidir. Politika yapıcıların Kuzey Kıbrıs'taki yüksek öğretim sektörüne daha fazla odaklanması gerekmektedir.

JEL Kodları: C51; E44; I23; O11

Anahtar Kelimeler: Finansal Gelişme; Yüksek Öğrenim; Ekonomik Büyüme, ARDL Yaklaşımı, Kuzey Kıbrıs

Introduction

The link between economic and financial development has been explored by many scholars. Schumpeter (1911) and McKinnon (1973) are the pioneering studies followed by Gregorio and Guidotti (1995), Levine (1999), and among many others. Meanwhile, the relationship between higher education and economic growth has begun to draw into consideration in the last two decades. The nexus has been examined by Lin (2004), Gyimah-Brempong, et al. (2006), Resnik (2006), Keller (2006), and Hanushek (2016), among many others.

The relationship between economic and financial growth for the TRNC was investigated by Jenkins and Katircioglu (2010) and Fethi et al. (2013), and Tursoy and Faisal (2018). Jenkins and Katircioglu (2010) confirmed the long-run equilibrium relationship between financial development and economic growth, additionally, the outcomes of the Granger Causality test showed that a rise in real income improves the growth of the money supply, which has been used as a measure of financial progress. According to Fethi et al. (2013), both in the long and short-term investments in the finance and banking sectors are significant drivers of economic development in the Northern Cyprus economy. However, empirical evidence in their study indicates that private credit in the financial sector does not induce production growth in the short or long-run. Tursoy and Faisal (2018) investigated the impact of financial deepening and its rate of inflation on economic growth in TRNC, in their study, the findings show the increasing effect of depth and the reducing impact of inflation on financial growth. Additionally, evidence is presented that there is a bi-directional causation running from inflation rate and total deposits to economic growth.

The effect of higher education on monetary growth in North Cyprus has been investigated by Katircioglu (2002), Katircioglu (2010), Katircioglu (2009), Katircioglu et al. (2010), and Katircioglu et al. (2014). Although, Katirciglu (2002, p. 127) provides evidence of positive and inelastic effects of higher education on economic growth by employing the error correction model, however, in the short-run dynamic model, the effect of students on economic growth is both inelastic and nonsignificant. Katırcıoğlu's (2009, p.11) study ensures that there is a long-run equilibrium relation between higher education growth and economic growth in Northern Cyprus and provides evidence of uni-directional causality from higher education growth to economic growth in TRNC. Katircioglu (2010) put forward the evidence of higher education-led growth hypotheses for North Cyprus, in the study examines the long-run equilibrium relationship between global tourism, higher education development, economic growth, and the bearing of causality between these factors for Northern Cyprus. Moreover, Katircioglu et al. (2010) emprasized tourism and higher education sectors enhance economic development. The growth spurred by higher education for the Turkish Cypriot economy, the HELG hypothesis can be inferred (see Katircioglu et al., 2014).

Northern Cyprus is an interesting case to explore for the aforementioned link, as it has suffered from political disrecognition and embargoes since 1974. Despite this fact, there are 21 international universities and all are under the coordination of YÖDAK (YÖDAK, 2021). YÖDAK is responsible for the Planning, Evaluation, Accreditation, and Coordination of Higher Education in North Cyprus. North Cyprus universities are ranked in QS (Quacquarelli Symond) World University Rankings and THE (Times Higher Education) World University Rankings. University programs have accreditations from ABET, AHPGS, AQAS, ASIIN, FIBAA, ICE, NAAB, TEDQUAL, MIAK, MUDEK, EPDAD, FEDEK, ILEDAK. In the 2019-2020 academic year, there is a total of 104,318 students in North Cyprus universes: 12,271 students are from North Cyprus, 50,213 are from Turkey, and 41,834 students are from other countries. North Cyprus universities programs have accreditation from international accreditation agencies

This research aimed to examine the impacts of development in the financial industry and higher education on economic growth in the example of Northern Cyprus. Literature provides evidence of both financial sector development and higher education has a significant influence on the economic growth in North Cyprus. It is quite interesting to observe which variables have a stronger impact on economic growth. This highlights the significance of adopting successful strategies to achieve sustainable growth in the economy. This paper will be the first to examine such an effect in the relevant literature to identify the strongest determinant of economic growth in Northern Cyprus. The rest of this paper proceeds as: Chapter 2 introduces the theoretical context; Chapter 3 describes the data and methodology; Chapter 4 discusses the findings; and finally, Chapter 5 concludes.

Theoretical Settings

The Cobb-Douglas output feature serves as the theoretical foundation for this research. The Cobb-Douglas production function is extensively used to show the amount of physical capital and labor on the amount of output that can be produced by the amount of physical capital and labor. In addition to physical capital and labor, this present study intended to examine the effects of higher education and financial sector development on economic growth in the example of TRNC. The frameworks suggested by Fethi et al. (2013, p. 547) are adapted in this study to look into the role of higher education and financial development in economic growth. The following is a representation of the model:

$$GDP_t = f\left(GFCF_t^{\beta_1}, EMP_t^{\beta_2}, HE_t^{\beta_3}, FD_t^{\beta_4}\right) \quad (1)$$

GFCF stands for gross fixed capital formation and GDP stands for gross domestic product, EMP stands for total employment, HE total number of higher education, and finally, FD for financial development. Besides, betas are the coefficients of regressors.

The following model explores the long-term impact of higher education and financial sector development on economic growth;

$$\ln GDP_t = \beta_0 + \beta_1 \ln GFCF_t + \beta_2 EMP_t + \beta_3 \ln HE_t + \beta_4 \ln FD_t + \varepsilon_t \quad (2)$$

where $\ln GDP_t$ refers to the gross domestic product as an indicator of economic growth in year t; $\ln GFCF_t$ as a measure of physical capital in a given year t, refers to gross fixed capital formation. $\ln EMP_t$ refers to the total number of employees as an indicator of labor in year t; $\ln HE_t$ is the total number of higher education in year t; finally $\ln FD_t$ is the financial development in year t. ln stands for the natural logarithm and ε_t represents the error term.

In this paper error correction model (ECM) has been used to determine the rapidity of change among the short and long-run levels for the regressand variable:

$$\Delta \ln GDP_t = \beta_0 + \sum_{i=1}^{n} \beta_1 \Delta \ln GDP_{t-j} + \sum_{i=1}^{n} \beta_2 \Delta \ln GFCF_{t-j} + \sum_{i=1}^{n} \beta_3 \Delta \ln EMP_{t-j} + \sum_{i=1}^{n} \beta_4 \Delta \ln HE_{t-j} + \sum_{i=1}^{n} \beta_5 \Delta \ln FD_{t-j} + \beta_6 \varepsilon_{t-1} + u_t \quad (3)$$

where Δ stands for the change in GDP, GFCF, EMP, HE, and FD, and ε_{t-1} refers to one period-lagged error correction term (ECT). ECT is calculated to determine the time it takes to resolve the imbalance among the short and long-term values of the regression variable (GDP).

Data and Methodology
Data

Annual data were used in this paper covering the period 1977-2016. In the empirical study, five different variables were used: real GDP (GDP: constant 1977 Turkish Lira prices) (GDP), Gross fixed capital formation to GDP (GFCF), employment (EMP), higher education (HE), and financial development (FD). The data were collected by the Northern Cyprus State Planning Organization in 2016.

In this analysis, commonly used financial development proxies such as the percentage of the money supply to GDP, the ratio of loans delivered by financial intermediaries to the private sector to GDP, and the ratio of investments are used to create a financial development index in the financial sector to GDP. The financial development index is generated from those important proxies by using the variance decomposition technique of factor analysis of SPSS statistical software (Chen et al., 2010).

Firstly, Table 1 shows descriptive statistics for all of the series under consideration.

Table 1: *Descriptive Statistics of Variables*

	GDP	GFCF	EMP	HE	FD
Mean	9.009366	7.269979	11.24869	8.601018	8.830883
Median	8.961995	7.153783	11.31137	8.634252	8.694221
Maximum	9.760279	8.22839	11.68171	9.097731	9.760279
Minimum	8.236288	6.136214	10.70985	8.15737	8.078955
Std. Dev.	0.488006	0.540577	0.243718	0.289032	0.588371
Skewness	0.009171	0.002503	0.52518	0.12068	0.343965
Kurtosis	1.727094	2.038851	2.464113	1.806859	1.539906
Jarque-Bera	2.701041	1.53972	2.317381	2.469738	4.341871
Probability	0.259105	0.463078	0.313897	0.290873	0.114071
Sum	360.3747	290.7992	449.9477	344.0407	353.2353
Sum Sq. Dev.	9.28786	11.39673	2.316544	3.258037	13.50103
Observations	40	40	40	40	40

Notes: [i]GDP is stands for gross domestic product, GFCF is stand for gross fixed capital formation, EMP stands for energy employment, HE stands for higher education, and finally FD is stands for financial development.

Methodology

First of all stationarity test will be employed to detect strong influences on its behavior and characteristics. In this respect, the unit root test will be implemented to test the stationarity nature of the variables of interest. The Augmented Dickey-Fuller (ADF), Phillips–Perron (PP), and Dickey-Fuller GLS (DF-GLS) unit root tests are used to determine the degree of integration and the possible long-run association among the variables. Specified unit root tests have the null hypothesis of the variable having a unit root. Data in a time series are believed to be fixed, otherwise, we may encounter a major problem in econometric methodology (see Fethi et al., 2013, p.548). As a known fact, nonstationarity may cause important problems such as spurious results in regressions. Therefore, it is important to separate an arrangement progressively until stationarity is accomplished.

Second, the cointegration test will be used in this analysis; cointegration is a key concept in empirical modeling in time-series analyses. Cointegration is based on the idea that a sequence should have a constant unconditional mean and variance over time. However, covariance is solely dependent on the time difference.

Cointegration analysis is a technique in order to find out a possible correlation between time series processes in the long term. In this paper, the long-term association among pairs of variables was investigated by using the boundary test for level relationship within the framework of ARDL (autoregressive distributed lag) modeling introduced by Pesaran et al. (2010). The ARDL modeling approach comprises estimating the ensuant error correction model:

$$\Delta \ln Y_t = a_{0_\gamma} + \sum_{i=1}^{n} b_{i_\gamma} \Delta \ln Y_{t-i} + \sum_{i=1}^{n} c_{i_\gamma} \Delta \ln X_{t-i} +$$

$$\sum_{i=1}^{n} d_{i_\gamma} \Delta \ln Z_{t-i} + \sigma_{1_\gamma} lnY_{t-1} + \sigma_{2_\gamma} lnX_{t-i} + \sigma_{3_\gamma} lnZ_{t-i} + \varepsilon_{1t} \quad (4)$$

In Equation 4 an, Δ is the difference operator, lnY_t is the natural logarithm of the regressand, lnX_t and, lnZ_t is the natural logarithm of the regressors, and ε_t is serially independent random errors with mean zero and finite covariance matrix.

In Equation 4, the F test is used to detect the existence of the cointegration vector, therefore the long-term relationship between the variables of interest. F tests have the null hypothesis of no cointegration.

The current research employs a conditional ECM with the ARDL method to estimate Equation 3 in the case of a level relationship. As Pesaran et al., (2001) recommend that the time-series properties of the main variables in the conditional ECMs of the current paper can also be approximated by double-log EC (p) models under the ARDL method, supplemented with sufficient deterministic such as trends (Katircioglu, 2010, p.1963). Using the ARDL approach, the conditional ECM of interest can then be written as:

$$\Delta \ln Y_t = \Delta\beta_0 + \sum_{i=1}^{p-1} \varphi_j \Delta \ln Y_{t-i} + \sum_{i=0}^{k} \beta_{i0} \Delta \ln X_{it} +$$

$$+ \sum_{i=1}^{k} \sum_{j=1}^{q-1} \beta_{ij} \Delta \ X_{i,t-j} + \phi\Delta Z_t + \gamma(1,p)ECT_{t-1} + u_t \quad (5)$$

where ϕ_j, β_{ij}, ϕ are the coefficients for the short-run dynamics of the model's convergence to equilibrium. The coefficient of γ (1, p) represents the speed of adjustment and is expected to be nonpositive.

Results and Discussion

Table 2 presents the unit root test results. ADF, PP, and DF-GLS unit root test outcomes for the variables of the study. According to the Dickey-Fuller GLS measures, economic growth and gross fixed capital formation (GFCF) seem to be stationary at their current levels, although this is not supported by the ADF and PP tests. Furthermore, the ADF and PP tests indicate that HE is stationary at their stage, but the Dickey-Fuller GLS test does not confirm this. According to the ADF, PP, and Dickey-Fuller GLS measures, EMP and FD are stationary at their first gap. The PP method will be considered for the current study in the cases of GDP, GFCF, EMP, HE, and FD because the PP method calculates a residual variance that is auto-correlation-resistant, it can be used to test for unit roots instead of the ADF and Dickey-Fuller GLS unit root tests previously mentioned. As a consequence, in the current analysis, GDP, GFCF, EMP, and FD are said to be integrated into the first difference, I (1), while HE is integrated at level, I (0).

Table 2: *Unit Root Test*

		GDP	GFCF	EMP	HE	FD
				LEVEL		
ADF						
τ_T		-3.14	-2.91	-2.43	-3.67**	-2.24
τ_μ		-0.42	-1.30	-1.53	-0.58	0.26
τ		2.77	1.37	4.53	1.69	3.96
PP						
τ_T		-2.42	-2.70	-2.42	-3.80*	-1.98
τ_μ		-0.46	-1.21	-1.56	-0.23	0.14
τ		4.29	1.95	4.28	2.60	3.49
DF-GLS						
τ_T		-3.17*	-3.02*	-1.75	-2.71	-1.95
τ_μ		0.56	-0.46	1.13	0.04	0.58
				FIRST DIFFERENCE		
		GDP	GFCF	EMP	HE	FD
ADF						
τ_T		-4.59***	-5.64***	-5.63***	-5.42***	-4.79***
τ_μ		-4.65***	-5.70***	-5.63***	-5.50***	-4.80***
τ		-3.40***	-5.50***	-4.02***	-5.16***	-3.78***
PP						
τ_T		-4.58***	-6.12***	-5.60***	-6.24***	-4.70***
τ_μ		-4.64***	-6.02***	-5.62***	-6.43***	-4.73***
τ		-3.41***	-5.47***	-4.12***	-5.08***	-3.73***
DF-GLS						
τ_T		-4.70***	-5.80***	-5.77***	-5.44***	-4.92***
τ_μ		-4.65***	-5.74***	-5.48	-5.24***	-4.87***

Note: i GDP is stands for gross domestic product, GFCF is stand for gross fixed capital formation, EMP stands for energy employment, HE stands for higher education, and finally FD is stands for financial development. ii τ_T represents the most general model with a drift and trend; τ_μ is the model with a drift and without trend; τ is the most restricted model without a drift and trend. iii *,** and *** denote rejection of the null hypothesis at the 1, 5 and 10% levels respectively. Tests for unit roots have been carried out in E-VIEWS 10.0.

The findings of unit root tests have been mixed. As a result, in the current analysis, bounds tests will be run to examine the long-term relationship among GDP and its regressors; GFCF, EMP, HE, and FD. Cointegration experiments may be carried out using several approaches. There are miscellaneous cointegration tests are available to detect the existence of a cointegration vector. Since the low power, limitations, and several problems related to others, in the present study, the ARDL modeling approach will be conducted. Due to several advantages, the ARDL modeling approach would be the preferred econometric modeling to conduct in the present study. ARDL modeling can be implemented, nevertheless of whether regressors are I(0) or I(1),

therefore it avoids the problems faced by traditional cointegration analysis, which allows the variables to be categorized into I(0) and I(1). The method also has the benefit of capturing the data-generating process in the general-to-specific modeling context by using enough lags. This also gives us the opportunity to use an ARDL dynamic ECM. The ARDL method preserves long-term data while preventing problems created by nonstationary time-series data. Both F statistics and W statistics test results rejects the null hypothesis of no cointegration, that concludes the existence of long-run relationship between variables of interest. The bount test results are presented in Table 3.

Table 3. *F-statistics and W-statistic results for ARDL Models*

		F column			W column	
		95%			95%	
F-statistics Variables	F-stat	I (0)	I (1)	W-stat	I (0)	I (1)
F (GFCF, EMP, HE, FD)	16.9189	4.4847	5.6587	67.6757	17.9388	22.6349
F (GFCF, EMP, HE, FD)	16.9189	4.4847	5.6587	67.6757	17.9388	22.6349
F (GFCF, EMP, HE, FD)	16.9189	4.4847	5.6587	67.6757	17.9388	22.6349

Table 4. *Long-run Estimation*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnGDP$_{t-1}$	0.556***	0.158	3.522	0.001
lnGDP$_{t-2}$	0.328***	0.108	3.039	0.005
lnGFCF	0.003	0.003	1.270	0.214
lnGFCF$_{t-1}$	0.006**	0.003	2.092	0.045
lnEMP	0.024***	0.008	3.101	0.004
lnHE	0.009**	0.007	2.072	0.047
lnFD	0.005***	0.007	7.180	0.000
C	0.0788	0.789	0.998	0.921

R-squared	0.754	Mean dependent var		9.439
Adjusted R-squared	0.696	S.D. dependent var		4.287
S.E. of regression	0.282	Akaike info criterion		-9.327
Sum squared resid	2.385	Schwarz criterion		-15.878
Log likelihood	-1.327	Durbin-Watson stat		1.936
F-statistic	1217.3			
Prob(F-statistic)	0.000			

Notes: i***Significant at 1% values,** Significant at 5% values,* Significant at 10% values. ii GDP is stands for gross domestic product, GFCF is stand for gross fixed capital formation, EMP stands for energy employment, HE stands for higher education, and finally FD is stands for financial development.

The long-run estimation results have been provided in Table 4. R-square (0.754) is a statistical tool that provides the quantity of the variance for a gross domestic product (GDP) which is revealed by gross fixed capital formation, employment, higher education, and financial development in a regression model. The long-run coefficients strongly prove the significant impact of gross fixed capital formation, employment, higher education, and financial enlargement on economic growth. Gross fixed capital formation of the first lag has a positive and highly important effect on economic growth. Moreover, in addition to higher education, employment, and financial development show a highly important and positive effect on economic progress. On the contrary, intercept does not provide statistically important results in long-run estimations. It can be observed that financial progress is an important contributor to economic development, however, higher education shows evidence of a greater contribution to economic growth in North Cyprus.

Table 5: *Short-run estimations and Conditional Error Correction Models through the ARDL Approach*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔlnGDP$_{t-1}$	0.328***	0.108	3.039	0.005
ΔlnGFCF	0.003***	0.003	2.770	0.005
ΔlnEMP	0.024***	0.008	3.101	0.004
ΔlnHE	0.009**	0.007	2.092	0.045
ΔlnFD	0.005***	0.007	7.180	0.000
ECMT(-1)	-0.771***	0.102	-7.553	0.000

R-squared	0.754	Mean dependent var		0.351
Adjusted R-squared	0.696	S.D. dependent var		0.512
S.E. of regression	0.282	Akaike info criterion		-9.327
Sum squared resid	2.385	Schwarz criterion		-15.878
Log likelihood	-1.327	Durbin-Watson stat		1.936
F-statistic	15.346			
Prob(F-statistic)	0.000			

Notes: i ***Significant at 1% values,** Significant at 5% values,* Significant at 10% values. ii GDP is stands for gross domestic product, GFCF is stand for gross fixed capital formation, EMP stands for energy employment, HE stands for higher education, and finally FD is stands for financial development."

Table 5 displays the ARDL approach's short-run estimation and conditional error correction model. Parallel to previous findings, in addition to higher education, gross fixed capital formation, employment, and financial development show highly significant and positive impacts on economic growth. Also, the short-run estimation results provide evidence that higher education is a much greater contributor to economic growth than financial development. Finally, The ECT term for equation 3 is −0.771, statistically significant and negative (β = −0.771, p < 0.01). This means that economic growth converges to the long-term equilibrium path with an adjustable rate of 77.1% through channels of gross fixed capital formation, employment, higher education, and financial development.

Conclusions

This paper examines the impacts of the financial sector development and higher education on economic development in the example of TRNC. The bound test outcomes revealed the long-run equilibrium association among the variables of interest. Outcomes show that both capital and labor have a statistically significant effect on economic development. The main results of this paper are that financial development is a significant provider of economic growth, however, higher education shows evidence of greater contribution to economic development in TRNC. According to the conditional error correction model, economic growth covers its long-term equilibrium level at a 77.1 percent rate of change across the channels of gross fixed capital production, jobs, higher education, and financial development. These findings draw very crucial implications for policymakers, although, no doubt financial development is a significant influencer of economic development, the most important driving force of economic development in the case of North Cyprus is the development in the education sector. In light of this fact, authorities should give more attention to the education sector because it's the most important locomotive of the economy. In light of the fact that many universities in the Mediterranean have recently opened, North Cyprus universities and authorities must focus on improving educational quality and maintaining competitiveness by ensuring student satisfaction, international accreditations, recognition, and rankings. Only then, sustainability in the educational sector can be established and attract more overseas students to North Cyprus. Further research can be undertaken in order to investigate a similar relationship to pointing out other determinants of economic development in TRNC for comparison with the results of this study.

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Genişletilmiş Özet

Hem gelişmiş hem de gelişmekte olan ülkelerde ekonomik büyümeyi etkileyen faktörlerin incelenmesi bilim adamları tarafından büyük ilgi görmektedir. Bu nedenle literatürde hatrı sayılır bir yere sahiptir. Doğrudan yabancı yatırım, istihdam düzeyi, sermaye oluşumu, finansal gelişme, yüksek öğrenim, turizm gelişimi, ticari açıklık, sanayileşmenin ekonomik büyüme üzerindeki etkileri tek tek incelenmiştir. Bu çalışmaların amacı ülkelerin ileri ve sürdürülebilir bir ekonomik düzeye ulaşabilmeleri için politika yapıcılara ve otoritelere ışık tutmaktır. Bu çalışma dış dünyadan izole bir ada ülkesi olan Kuzey Kıbrıs'a odaklanmaktadır. Ülke ekonomisinin iki temel ekonomik lokomotifi turizm ve eğitim sektöründen oluşmaktadır. Bu nedenle hem turizm hem de eğitim sektörlerinin ekonomik büyümeye etkileri dikkatle incelenmiştir. Öte yandan finansal gelişmenin ekonomik büyüme üzerindeki tartışılmaz etkisi dikkate alınarak, ilgili bağlantı Kuzey Kıbrıs örneğinde de araştırılmıştır. İlgili literatür, hem finansal sektörün gelişiminin hem de yüksek öğrenim sektörünün Kuzey Kıbrıs ekonomisindeki büyüme üzerinde önemli bir etkiye sahip olduğuna dair kanıtlar sunmaktadır. Ancak tüm bu belirleyicilerin etkileri ayrı ayrı incelenmişken, hangi değişkenlerin ekonomik büyüme üzerinde daha güçlü bir etkiye sahip olduğunu gözlemlemek oldukça ilgi çekicidir. Bu çalışma, Kuzey Kıbrıs ekonomisinde sürdürülebilir büyümeyi sağlamak için başarılı stratejilerin benimsenmesinin önemini vurgulamaktadır. Bu araştırma, yükseköğretim ve finans sektöründeki gelişmelerin ekonomik büyümeye etkilerini Kuzey Kıbrıs örneğinde incelemeyi amaçlamaktadır. Bu çalışmada 1977-2016 yılları arasındaki veriler kullanılarak zaman serisi analizi yapılmıştır. Öncelikle Artırılmış Dickey Fuller (ADF), Phillips Perron (PP), Dickey Fuller Genelleştirilmiş En Küçük Kareler (DF-GLS) birim kök testleri serilerinin durağanlık düzeylerini ölçmek amacıyla yapılmıştır. İkinci olarak, eşbütünleşme vektörünün varlığını doğrulamak için Bound eşbütünleşme testi kullanılmış, böylece ilgili değişkenler arasında uzun vadeli bir ilişkinin varlığı ortaya koymaya çalışılmıştır. Üçüncü olarak, hata düzeltme süresinin yanı sıra kısa ve uzun vadeli tahminleri belirlemek etmek için Otomatik Regresyonlu Dağıtılmış Gecikme (ARDL) modelleme yaklaşımı benimsenmiştir. Zaman serisi analizinin ampirik bulguları, reel gelir ile emek, sermaye, yüksek öğrenim ve finansal gelişme gibi unsurları arasında uzun vadeli bir denge ilişkisinin olduğunu göstermektedir. Belirleyiciler hem kısa hem de uzun vadede istatistiksel olarak anlamlı ve artırıcı etkiler göstermektedir. Kuzey Kıbrıs'ta ekonomik büyüme, gayri safi sabit sermaye oluşumu, istihdam, yüksek öğrenim ve finansal gelişme kanalları aracılığıyla %77,1'lik, oldukça hızlı bir uyumlanma hızıyla uzun vadeli denge yoluna yaklaşmaktadır. Sonuçlar, hem sermayenin hem de emeğin ekonomik büyüme üzerinde istatistiksel olarak anlamlı bir etkiye sahip olduğunu göstermektedir. Ek olarak, finans sektöründeki gelişme ekonomik büyümeye önemli bir katkı sağlamaktadır, ancak yüksek öğrenim sektörü Kuzey Kıbrıs'ta ekonomik büyümeye daha fazla katkı sağladığının kanıtını ortaya koymaktadır. Yükseköğretim sektörünün ekonomik büyüme üzerinde finansal sektördeki gelişmeden daha büyük bir etkiye sahip olduğu dikkat çekmektedir. Bu bağlamda, hükümet yetkililerinin ekonomik kalkınmayı hızlandırmak için hem finansal hem de yüksek öğretim sektörlerini desteklemesi gerekmektedir. Politika yapıcıların Kuzey Kıbrıs'taki yüksek öğretim sektörüne daha fazla odaklanması gerekiyordu. Yapıcı ve iyileştirici etkiler yaratarak eğitim kalitesinin artırılması için yetkililerin üniversitelere ve meslek yüksekokullarına daha fazla ağırlık vermesi gerekiyor. Bu noktada uluslararası tanınırlık ve sıralamalarda öne çıkmayı hedeflemeliler. Bu sayede öğrenci memnuniyetini artıracak ve rekabet ortamında varlıklarını sürdürülebilir hale getireceklerdir. Dolayısıyla eğitim sektöründe artan talebin ülke ekonomisi üzerinde olumlu etkileri olacaktır.