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Drivers of Prosperity: Long-Term Impact of Tourism, Trade Liberalization, And Political Stability on Turkey's Economic Growth

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ABSTRACT

Purpose – The aim of this study is to explain the interactions between tourism, trade liberalization, political stability, and economic development in Turkey during 1995-2022. To examine long-term relationships, real output (GDP), physical capital investment (GFC), employment (EMP), human capital development (EDU), political stability (PS), and international tourist arrivals (TA) are analyzed using FMOLS and CCR estimation methods.

Design/methodology/approach - FMOLS and CCR methods were chosen to investigate long-term relationships. These methods help identify the contribution of tourism, capital investment, employment, and political stability to Turkey's growth dynamics over the study period. These methods are robust in addressing endogeneity issues, non-stationarity, and cross-sectional dependence, providing reliable insights into long-term economic relationships.

Findings – The FMOLS estimations show significant positive impacts on economic growth from capital investments (coefficient=0.645), employment (0.731), human capital development (0.381), international trade (0.744), and tourism inflows (0.140), highlighting these factors as critical drivers of Turkey's growth. However, political stability demonstrates a notable negative effect (coefficient=-0.136), indicating the detrimental impact of political instability. CCR estimations confirm these findings, with similar positive effects from capital investment (0.645), employment (0.737), education (0.373), trade liberalization (0.766), and tourism (0.139), alongside a persistent negative effect of political instability (coefficient=-0.141). These results underscore the necessity of stable governance and secure environments.

Discussion – The study concludes that for Turkey to fully leverage its economic potential on the global stage, challenges related to infrastructure, labor market, tourism, and political stability must be addressed directly. A holistic approach fostering inclusive growth, human capital development, and a business-friendly environment is recommended.

1. Introduction

The world economy is so changeable and unpredictable that countries should constantly reconsider their economic policies. Financial crises, international trade conflicts and pandemics are some of the challenges that test the adaptability and resilience of economies and necessitate a review of growth strategies by nations. As concerns emerging economies like Turkey, among the most rapidly growing ones, scholars have not yet exhausted exploring how much influence can be attributed to tourism considering such factors as political stability and trade liberalization. More so because of its specific geographical location and economic peculiarities.

Turkey has long been a popular travel destination, drawing millions of visitors each year. This industry generates foreign exchange revenues in addition to a large number of jobs, both of which are essential to any nation's efforts to develop. It is still necessary to conduct some additional research to completely comprehend the ways in which tourism might help achieve sustainable economic growth. This business is impacted by a number of variables, including the marketing tactics used by various states, the stability or instability of governments, the degree of quality assurance in the services provided in comparison to client expectations, and infrastructure improvements, among others. Effective intersectoral policies therefore need to consider every aspect of this sector's influence on overall output.

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Trade liberalization offers great opportunities for expanding Turkey's economy too. By increasing international trade it opens up new markets thereby raising export revenues for Turkish goods being sold abroad more especially when compared against what would have been earned if no moves toward liberalizing commerce were made at all. In addition to this businesses become better equipped to compete internationally following removals of barriers brought about when adopting free market systems which also attract foreign direct investments thus speeding up economic growth rates within nations concerned; however there is still need for deeper understanding concerning effects triggered by different types of policy measures aimed at enhancing greater openness in trading relations with rest world only then can we come up with stronger approaches.

Maintaining political stability is crucial in sustaining momentum behind economic growth processes. Political instability disrupts business activities leading to loss of jobs while at the same time eroding investor confidence thereby negatively affecting overall performance levels within an economy. Turkey has gone through several political crises some of which had significant impact on its development trajectory hence this calls for a critical assessment of how these events influenced or could have affected different sectors' contribution towards GDP. For instance, in recent years, the Turkish economy has faced significant economic challenges such as currency fluctuations, high inflation, and global supply chain disruptions (Bari, 2020). Although trade liberalization and export growth support economic growth, they also bring risks such as import dependency and current account deficit (Yıldırım & İvrendi, 2016). In particular, dependency on intermediate goods imports has made production processes vulnerable to exchange rate fluctuations. Inflation has increased even more after the 2021 economic crisis, which has negatively affected economic growth (Berk, 2023). Exchange rate volatility has increased import prices, triggering consumer inflation and limiting growth (Bari, 2017). Global supply chain disruptions after the pandemic have also made Türkiye's export and import processes difficult (Açık, 2024). Türkiye's foreign trade policies have been shaped within the framework of the Customs Union modernization and regional free trade agreements (Cergibozan & Ari, 2018). However, it is emphasized that the Customs Union should be revised due to the effects of exchange rate fluctuations on the trade balance (Tsang, 2023). While free trade policies have encouraged economic cooperation, they have made local industrial production more vulnerable to competition (Parikh & Stirbu, 2004). Additionally, in order to maximize returns on investments made in economic growth promotion, policy makers must have a better understanding of when and why stability matters most. Furthermore, stable governments foster social peace, which in turn produces highly productive labor.

In light of this, it is necessary to examine the events that occurred between 1995 and 2022 in relation to trade liberalization, political stability, and tourism as key contributors to Turkey's economic growth. This study aims to assess how these three variables have influenced critical indicators such as real output (GDP), physical capital investment (GFC), employment (EMP), human capital development (HCD), and international tourism arrivals (TA) within the Turkish context. The findings are expected to not only guide strategic actions for unlocking Turkey's full economic potential but also contribute valuable insights to the existing literature on this subject.

While previous research has explored the impact of tourism on economic growth and the long-term consequences of trade liberalization, there remains a significant gap in understanding how these two factors interact with political stability. Notably, a comprehensive analysis of how political fluctuations influence both the tourism sector and trade policies is lacking. Given Turkey's dynamic economic structure and strategic geopolitical position, understanding the interplay between these factors is crucial for formulating sustainable growth strategies. By uncovering the complex interactions between tourism, trade liberalization, and political stability, this study offers a fresh perspective on the economic growth dynamics of Turkey.

2. Literature Review

Theoretical Background

According to conventional wisdom, one of the most important aspects of growing economies is tourism. It is considered as a major source of foreign exchange earnings; besides this it also leads to development or creation of infrastructure facilities which in turn facilitate communication among different cultures as well as creating employment opportunities for many people especially those living within its vicinity (Tang & Tan, 2018). This relationship can be explained through Tourism-Led Growth Hypothesis (TLGH) which

postulates that there is positive correlation between number tourists arrivals and economic growth rates (Brida, et al,. 2015; Brida, Cortés-Jiménez & Pulina, M., 2016; Aistov & Nikolaeva, 2019). In fact not only does it act directly but also indirectly such as revenue generation through sales made by hotels or other tourist establishments where visitors spend their money during their stay plus benefits accrued from improved infrastructure like roads constructed linking various tourist attractions sites with rest part country thus enhancing mobility services among them (Balsalobre-Lorente & Leitão, 2020). Additionally when an area becomes more resilient against external shocks due diversification into different sectors like manufacturing industries then this will contribute greatly towards achieving sustainable long-term economic growth (Albaladejo et al., 2014; Phiri, 2022).

Another strategy that has been widely adopted by developing countries over time for driving their economies forward is trade liberation theory. Trade liberalization theory suggests that if each nation specializes in producing goods which they have comparative advantage in then world welfare can be significantly improved (Ezeani, E., 2018; Futagami et al., 2008; Selvarajan & Rossazana, 2021; Peasah & John, 2017). On the other hand Heckscher-Ohlin model assumes that countries will trade based on availability cheap factors production thereby promoting specialization and enhancing efficiency thus leading to higher levels of real income per capita (Heckscher, 1919; Ohlin, 1933). As argued by Purwono et al, trade policy should be used as one way to promote competitiveness among local producers while at same time attracting foreign direct investment inflows into country (Purwono et al., 2022; Liargovas & Skandalis, 2012). In addition it also helps transfer technology know-how from one place or sector economy to another thereby increasing productivity levels across all sectors this will result into faster economic growth rate for entire nation (Sikdar & Mukhopadhyay, 2019; Belderbos, Roy & Duvivier, 2010). Similarly another school of thought believes that through economic globalization process nations are able share experiences each other which eventually aid them attain political stability (Asongu, 2014; Kyaw et al., 2023; Crystal, 2004; Yu-guo, 2003).

There is no doubt that political stability plays crucial role in ensuring sustainable long-term planning within any given state since it creates favorable conditions for investors' confidence therefore stimulating overall national economic activity level (Georgiou, 2014; Khan et al., 2020; Khan, et al., 2021). Moreover stable political environment attracts FDI because such situations provide safe heavens both foreign domestic firms wishing make direct investments abroad can do so without fear losing their capital due political uncertainties (Kim, 2010; Borba & Pereira, 2020). This means that when there are peaceful elections held regularly coupled with smooth transition power from one government regime another then it becomes easier achieve set developmental goals within society at large (Roberts, 2018).

Empirical Studies

The subject matter of this research has been the object of multiple empirical studies that have generated significant outcomes. These inquiries take different methods and data sources to study this relationship. Here are summaries and findings from some key studies on these topics:

There have been several researches conducted on the correlation between trade liberalization and economic growth which come up with different conclusions based on the technique used or the situation under study. According to most literature, trade liberalization may lead to development in some cases although it may be followed by slow benefits realization. For instance, Narayan & Smyth (2005) found out that human capital was the most important element in their examination of how trade liberalisation affected Fiji's economic performance; they noted that skilled labor force emigration ensuing from political instability after 1987 coups significantly affected labor contributions. They also showed through their research using Cobb-Douglas production function that long run economic growth is positively influenced by human capital while negatively affected by political instability. Another finding made by them was that short term gains from 1984 IMF agreement were insignificant but had considerable positive impact on real GDP over time.

In a 2002 survey, Greenaway, Morgan & Wright analyzed what happens when you open up markets in developing countries, finding increasing returns over time – so-called J-curve effect (or response). Using various criteria and periods of observation confirms long term benefits as usual following initial adverse impacts. Still, other researchers like Rodriguez & Rodrik (1999) criticize methodological weaknesses in already published material. They point out the unclear relationship between lowering barriers to

international exchanges of goods and services, on the one hand, and fostering economic growth rates across nations at different levels of development or stages of industrialization, on the other. For example, they argue that there is a lack of information regarding the precision of measurements. They also note that some indicators show poor performance outcomes that are linked with restrictive policies supposedly intended to allow free trade.

Krueger (1997) observed that studies in economics played an important role during this time of change in trade policy, when inward-oriented strategies were replaced by outward-oriented ones. Rehman et al. (2021) highlighted the benefits of trade liberalization on economic growth if supported by strong institutional frameworks. They found out that it promotes economic growth especially in areas with sound institutional frameworks. Biwott, Moyi & Khainga (2013) established that better regulatory policies in Sub-Saharan Africa amplify the gains from trade liberalization which gives more weight to this argument.

Lajili & Gilles (2018) established that financial liberalization promotes economic growth through trade, investment and macroeconomic stability after studying the relationship between financial liberalization, political openness and economic growth. However, they did find out that political instability increases prices thereby reducing investments. Ali, Ahmad & Shahid (2020) discovered that agricultural sector benefited most from trade liberalization while political stability and financial development had positive effects on economic growth in Pakistan.

Greenaway, Leybourne & Sapsford (1997) discussed various complex paths through which growth can be affected by openness to international trade. According to them some studies showed a positive relationship while others demonstrated minimum or negative impacts after reviewing many publications. This suggests that depending on specific political and economic circumstances there may be significant heterogeneity in outcomes associated with opening up for trade.

According to Yang (2011)'s research, economic liberalization has a stabilizing effect while democratization has no influence on growth volatility. The study by Gui-su (2013) demonstrates how trade policy and urbanization are mutually dependent in fostering economic growth.

Tourism has been widely studied in relation to its effect on economic development. Albaladejo et al., (2014), Martinez-Garcia et al., (2014) both found positive relationship between tourism and Spain's long-term growth. Especially, Albaladejo et al. discover that high-quality tourism services have a positive effect on economic growth when they examine the relationship between domestic tourism and quality of service with sustainable Spanish GDP. In their findings, outlays targeted at improving the quality of tourism can support sustainable economic development. Tang & Tan (2018) find different results depending on income levels as well as institutional factors but overall show that there is an impact of tourism on economic growth.

Sheng, Li & Wang (2017) studied on tourism externalities and sustainable development. Theoretical predictions are supported by data from Macao and Hong Kong, which demonstrate that large tourist influxes in the face of increased tourism openness typically have different effects on the two cities based on their respective physical and socioeconomic circumstances. Zhong-cai (2007) found a long-term equilibrium between domestic tourism, economic growth, and tourist arrivals in her study on the relationship between tourism and economic growth in China. The research underscores the importance of domestic travel in achieving sustained economic development.

Lee & Chien (2007) investigated the long-run relationship between tourism development and economic growth in Taiwan over the period 1959–2003, while accounting for potential structural breaks. Using cointegration and causality analysis, the authors examined the link between real GDP, tourism development (measured by both international tourism receipts and tourist arrivals), and the real exchange rate. The findings reveal a bidirectional causality between tourism development and economic growth—meaning that tourism promotes economic growth, and economic growth, in turn, fosters tourism. The study also identifies structural breaks in the relationship, associated with major political changes (e.g., cross-strait relations with China), economic shocks, and shifts in tourism policies.

Schubert et al.'s (2011) research examined the impact of increasing international demand for travel on small economies reliant upon tourism for income generation purposes only, where he argues that given its labour-intensive nature; therefore relatively low-income countries should be able to benefit from increased visitor

numbers through employment creation opportunities arising out of this sector; thus contributing towards poverty reduction efforts being made within them already.

Kyaw et al.'s (2023) work considered how geopolitics may moderate the relationship between international tourism and economic growth in less globally connected countries; he established that there is a significant positive effect of foreign tourist arrivals on GDP for nations with low geopolitical risks but these effects become negative as risk levels rise among other things which are stated earlier.

Nowak, Sahli, & Cortes-Jimenez (2007) studied the indirect effects of tourism on economic growth through the importation of capital goods. They showed the positive effects of tourism on economic growth by demonstrating how it may increase capital goods demand, which may then encourage economic development.

A review of the existing literature reveals that although the effects of tourism, trade liberalization, and political stability on economic growth have been examined separately, there are still limited studies that explore the interactions of these factors, particularly in the Turkish context. While research on Turkey's tourism sector generally highlights its economic contributions (Ertuğrul & Mangir, 2015; Kızılgöl & Erbaykal, 2008; Furmolly & Kırkulak Uludağ, 2018), the effects of trade liberalization on foreign trade and economic growth have also been analyzed (Ghatak, Milner, & Utkulu, 1995; Kar, Peker, & Kaplan, 2008; Tufaner, 2022). Some studies argue that trade liberalization policies can lead to speculative growth and increase economic vulnerability, potentially triggering economic crises (Demez & Ustaoğlu, 2012). However, studies investigating the direct and indirect effects of political stability on economic growth in Turkey have been relatively scarce. An empirical study covering the period 1987–2014 found that political stability positively influenced economic growth (Diken et al., 2018).

Despite these individual analyses, the lack of comprehensive empirical studies examining the joint effects of tourism, trade liberalization, and political stability on economic growth highlights a significant gap in the literature. Understanding the interplay between these three factors is crucial, as their combined effects may provide deeper insights into the economic dynamics of Turkey. Additionally, recent studies have explored the role of geopolitical risks in the relationship between tourism and economic growth, emphasizing their significance in the Turkish context (Akadiri, Eluwole, Akadiri, & Avcı, 2020; Tütüncü, 2024). Furthermore, research on the relationship between tourism, trade openness, and environmental factors reinforces the need for integrated studies that examine these variables collectively (Gövdeli, 2019; Demirtaş, 2024).

From a methodological perspective, this study contributes to the literature by employing Fully Modified Ordinary Least Squares (FMOLS) and Canonical Cointegrating Regression (CCR) methods to analyze the long-term relationship between tourism, trade liberalization, political stability, and economic growth in Turkey. While previous studies have often relied on Ordinary Least Squares (OLS) (Krueger, 1997; Greenaway et al., 2002) or Vector Autoregression (VAR) models (Narayan & Smyth, 2005; Rehman et al., 2021) to examine similar economic relationships, these approaches may be sensitive to endogeneity and non-stationarity issues. In contrast, FMOLS and CCR provide robust coefficient estimates by addressing common econometric challenges such as serial correlation, endogeneity, and cross-sectional dependence (Phillips & Hansen, 1990; Park, 1992).

3. Empirical Analysis

Method

FMOLS method was chosen due to its capacity to measure cointegrating relationships and deal with biases related to endogeneity and serial correlation. This method is considered to be reliable for understanding long-term equilibrium among variables even when they are characterized by endogeneity and nonstationarity. Besides FMOLS, there exists CCR estimator which recognizes heterogeneity as well as cross-sectional dependence among diverse entities like Turkish provinces or regions.

Common factors that could affect the relationship between variables across many units are tested through CCR estimation thereby giving an indication about tourism development dynamics with respect to space as well as regional economic growth drivers. In order to increase the robustness of empirical analysis and get a better understanding into what influences Turkey's economic growth; CCR estimate allows for cross

sectional dependencies while at the same time providing more sophisticated view on these factors. The FMOLS and CCR estimator parameter estimates coincide, indicating that these techniques are even more viable; hence. The fact that most of the key variables have huge coefficients in both approaches underlies the robustness of our findings as well as the validity of our empirical model including employment, gross fixed capital formation (GFC), tourism and political stability among others.

Model Specification

Table 1 presents an overview of all necessary variables for this research where GDP is regarded as a dependent variable while other variables act as independent ones. Real GDP which is referred to as (abbreviated as) GDP measured in constant 2015 US dollars signifies a focal point in (of) analysis representing economic activity levels and overall performance within Turkey. Physical Capital (GFC) represents Gross Fixed Capital Formation in constant 2015 US dollars and thus shows physical capital accumulation levels; Labor (EMP) proxied by employment-to-population ratio for individuals aged 15 years old above reflects labor market dynamics and workforce utilization; Human Capital (EDU) taken as number of pupils enrolled secondary education level indicates investment human capital development skills enhancement programs while Political Stability (PS) represented by percentile rank political stability index absence violence terrorism measures peace within countries globally so does Tourism (TA) through international tourist arrivals denotes contribution made by tourism industry towards Turkish economy. These are some important factors which should be considered when looking at different economic indicators in relation to human capital development, political stability and tourism activities in Turkey with real GDP being used as dependent variable during empirical analysis.

Table 1. Variables

Variable	Abbrev.	Proxy
Real Output	GDP	GDP (constant 2015 US$)
Physical Capital	GFC	Gross fixed capital formation (constant 2015 US$)
Labor	EMP	Employment to population ratio, 15+, total (%) (national estimate)
Human capital	EDU	Secondary education, pupils
International Trade	TRD	Trade of goods and services (constant 2015 US$)
Political Stability	PS	Political Stability and Absence of Violence/Terrorism: Percentile Rank
Tourism	TA	International tourism, number of arrivals

Source: World Bank

This equation demonstrates a simple functional form where Gross Domestic Product (GDP) depends on Gross Fixed Capital Formation (GFC), Employment (EMP), Education (EDU), International Trade (TRD), Political Stability(PS); Tourist Arrivals(TA). It therefore implies that there are several independent variables affecting Turkey's GDP growth reflecting various economic social and political dimensions.

The empirical model is derived from the production function typically seen in the Solow-Swan model, which is expressed as follows:

$$Y_t = A_t.K_t^{\alpha}.(H_t.L_t)^{1-\alpha} \qquad (Eq.1)$$

In Equation 1, real output (Y_t) represents Gross Domestic Product (GDP) at time (t). Total Factor Productivity (TFP) includes technological advancements and other unobserved factors contributing to economic growth denoted as A_t. Physical capital (K_t) corresponds to Gross Fixed Capital (GFC) in this analysis representing stock of machinery infrastructure and equipment available for production. Human capital (H_t) proxied by educational attainment (EDU) indicates level of knowledge skill within workforce while Labor input L_t measured using Employment-to-Population Ratio EMP reflects quantity productive labor available for

economic activities; parameter a-output elasticity of capital usually between zero and one showing proportionate contribution physical capital to output growth relative labour. For the sole purpose of linearizing the production function, we make use of natural logarithms for both sides and introduce other factors such as international trade, political stability and tourism.

$$\ln(Y_t) = \ln(A_t) + a\ln(K_t) + (1-a)[ln(H_t) + ln(L_t)] + \varepsilon_t \qquad (Eq.2)$$

We have already defined our model (Eq.2). Now let us incorporate more variables into it namely international trade, political stability and tourism.

$$ln(GDP_t) = \alpha + \beta_1 ln(GFC_t) + \beta_2 ln(EMP_t) + \beta_3 ln(EDU_t) + \beta_4 ln(TRD_t) + \beta_5 ln(PS_t) + \beta_6 ln(TA_t) + \varepsilon_t \quad (Eq.3)$$

The equation 3 is a regression model where the natural logarithm of GDP is regressed on the natural logarithms of several key independent variables: GFC, EMP, EDU, TRD, PS, and TA. Within this equation (a) represents the intercept term which indicates what is the baseline level of real GDP when all independent variables are zero. The coefficients (β_1 to β_6) represent impacts caused by changes in GFC; EMP; EDU; TRD; PS and TA on Real GDP respectively. Variables have been log transformed so as to facilitate interpretation as well as deal with nonlinearity and heteroscedasticity issues during estimation process thereby making it possible for us to estimate elasticities which show percentage change in real GDP associated with one percent change in any given independent variable.

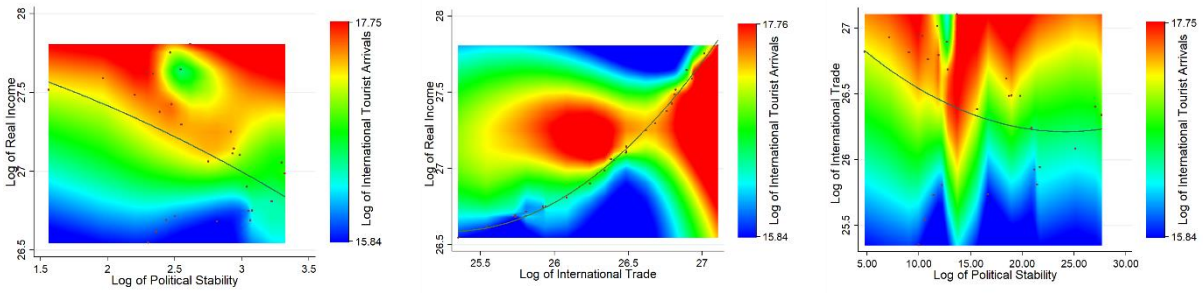

Figure 1. Three-dimensional illustration among key variables

a) GDP-PS-TA b) GDP-TRD-TA c) TRD-PS-TA

Figure 1(a) shows three dimensional graph illustrating correlations between real income (GDP); political stability (PS) and foreign tourist arrivals (TA). It can be observed that there exists negative correlation between real income and political instability. When political unrest deepens then not only does real national income decline but also visitor arrivals drops sharply which implies that this happens because weakens both GDP growth rates as well its association with stability indicators like peace index or even good governance index etc. Thus leading into negative relationship between them since less safe places are likely to attract more people who spend much while on holiday than insecure ones do. This suggests that countries should strive towards attaining higher levels of peace so that they may reap economic benefits thereof.

Foreign tourist arrivals relative to international trade vis-à-vis real income is presented on Figure 1(b). From the graph, it is evident that an increase in real income accompanies increased levels of international trade which can be justified by positive correlation existing between these two variables. Positive relationship between real income and international trade indicates significance attached to openness in international trade for fostering economic growth. Participants involved with foreign exchange usually have higher rates of business activity and revenue generation than those engaged purely in domestic transactions alone. More business leads specialization, raises efficiency hence making goods or services more accessible thereby impacting positively on levels of national earnings.

The third part of Figure 1(c) portrays complex interaction among global commerce; local tranquility plus overseas visitations. As depicted there exists strong inverse relationship linking politics with worldwide trading interactions i.e., as political unrest heightens so does world trade shrink thereby reducing number of foreign visitors coming into country. Conversely, foreign visitor arrivals are positively correlated with level of trading activities implying interdependence between tourism industry and international business community where one cannot thrive without another being vibrant or successful respectively. Because lack thereof may result into decline since people travel less when they find out that destination lacks opportunities brought about by internationalization process through engagement in commercial enterprises across borders etc.

These findings underscore significance attached to peace stability; openness for trade as well as growth based approach towards tourism development within any nation.

Findings

To verify that the variables in the model are stationary, we need to conduct some tests before estimating their parameters. Stationarity is an important assumption in time series analysis because if it is not met then regression results may be spurious and misleading. To address this issue, it has been checked whether or not the data possess unit roots by utilizing Phillips-Perron (PP) test as well as Augmented Dickey-Fuller (ADF) test. The following table displays the results of unit root tests which were performed on each variable under consideration:

Table 2. Unit root test

	ADF		*PP*		*%5 Critical Value*	*Decision*
Variable	Stat. I(0)	Stat. I(1)	Stat. I(0)	Stat. I(1)		
GDP	-1.706	-4.601*	-1.690	-4.623*	-2.997	I(1)
GFC	-1.199	-5.432*	-1.181	-5.426*	-2.997	I(1)
EMP	-1.694	-3.196*	-1.794	-3.155*	-2.997	I(1)
EDU	-0.844	-5.249*	-0.832	-5.251*	-2.997	I(1)
TRD	0.271	-4.724*	0.378	-4.691*	-2.994	I(0)
PS	-1.539	-4.986*	-1.566	-4.985*	-2.997	I(1)
TA	-1.544	-5.986*	-1.329	-6.409*	-2.997	I(1)

*Note: * p<.01, ** p<.05*

These tests determine whether or not a variable is stable at its levels, first differences or exhibits a unit root implying non-stationarity. It may also require further differencing so that all parameter estimations made thereafter are valid.

According to ADF and PP tests displayed in Table 2 none of these variables showed stationarity at levels. But they became stationary after being differenced once giving an integration order one (I(1)). That means initial displays of trends or patterns shown by variables were non-stationary since they changed over time. Such patterns disappear when computing first difference i.e., subtracting current value from previous period's value so that each variable has constant statistical properties throughout its sample range since our models depend on integration orders.

In this example, a value of 1 for integration means that one differencing step is required to make the variables stationary. This procedure ensures reliability in subsequent parameter estimations and improves the validity of our empirical analysis. We can undertake the parameter estimations after confirming

stationarity through first-order differencing because we know that the model reflects well enough on inter-variable relationships over time while taking into account their dynamic nature.

Table 3 presents results from co-integration rank test, which helps to decide how many co-integrating equations (CEs) should be included in our regression model.

Table 3. Co-integration rank test

$H_0: No.\ of\ CE(s)$	*Parms*	*LL*	*Eigenvalue*	*Trace Stat.*	*%5 Critical Value*
$r = 0$	42	77.63611	.	131.2887	94.15
$r \leq 1$	53	101.8525	0.84476	82.8559	68.52
$r \leq 2$	62	117.697	0.70442	51.1668	47.21
$r \leq 3$	69	127.7277	0.53772	31.1055	29.68
$r \leq 4$	74	135.7821	0.46182	14.9967*	15.41
$r \leq 5$	77	141.7749	0.36934	3.0111	3.76
$r \leq 6$	78	143.2804	0.10936		

Rows in Table 3 correspond each to a different null hypothesis (H0) about the number of co-integrating equations: H0: r=0, H0: r≤1, … , H0: r≤6. 'Parms' column shows number of estimated parameters in model while likelihood (LL) values rise gradually from 77.63611 for H0: r=0 to 143.2804 for H0: r≤6 suggesting better fitting properties of models when more cointegrating eqautions are allowed for.

Furthermore, stronger eigenvalues suggest stronger co-integration intensity under each hypothesis; thus larger ones indicate higher degree of it. Additionally, Trace Statistic compares likelihood ratio with crucial values at 5% significance level so as to determine whether tested hypotheses are statistically significant or not. In addition, 5% Critical Value at the same level denotes critical value beyond which null hypothesis must be rejected if lower than corresponding obtained p-value.

Higher LL values observed here could mean that adding extra cointegrating equation(s) would indeed improve fitting but they still do not provide any definite answer concerning this matter. Therefore such results confirm our assumption that long term relationship exists between these series and thus should be taken into consideration when performing regression analysis.

Co-integration rank test suggests long-term correlations between variables necessary for further calculations. After gaining this basic knowledge, parameter estimates are obtained using FMOLS and CCR approaches as shown in Table 4.

Table 4. Estimations

	FMOLS			CCR		
lnGDP	Coef.	Std. Err.	z-stat	Coef.	Std. Err.	z-stat
lnGFC	0.645***	0.0080	80.18	0.645***	0.0119	53.99
lnEMP	0.731***	0.1719	4.25	0.737 ***	0.2250	3.27
lnEDU	0.3812 ***	0.0309	12.32	0.3733 ***	0.0400	9.32
LnTRD	0.7436***	0.0662	11.23	0.7658***	0.0807	9.48
LnPS	-0.1357 ***	0.0100	-13.51	-0.1405 ***	0.01374	-10.23
lnTA	0.140***	0.0086	16.23	0.139***	0.0125	11.16
Const.	10.47***	0.3417	30.63	10.55***	0.4796	21.99
Obs.	27			27		
R-squared	0.95			0.96		

*** *p<0.01*, ** *p<0.05*, * *p<0.1*

FMOLS estimation findings from Table 4 reveal strong correlation of Turkey's real GDP with several independent variables. Firstly gross fixed capital formation (lnGFC) has positive significant relationship with real GDP at coefficient of 0.645 (p<0.01). This implies that whenever there is one percent increase in gross fixed capital formation; we expect 0.645 more units produced by our model. Additionaly it's worth

mentioning that this result supports economic theory which states that investment into machinery and infrastructure improves output levels.

In addition, employment (lnEMP) also exhibits statistically significant positive association with real GDP, where its value equals 0.731 ($p < 0.01$). Therefore, every 1% rise in employment should lead to $731 billion growth rate for national income. Finally, education (lnEDU) positively affects economic growth too, since it has positive correlation of about 0.381 ($p < 0.01$). Thus, under such situation, if secondary school enrolment goes up by 1%, then $381 billion will be added into Turkish economy each year. This shows how important labor market dynamics are for productivity gains and overall prosperity within Turkey.

The trade of goods and services (lnTRD) shows significant positive relationship with a coefficient of 0.744 ($p < 0.01$). Based on this, a growth in trade by 1% results in approximately 0.744% rise in real GDP. It also implies that there is a strong positive correlation between real GDP and trade of goods and services (lnTRD), which means that foreign exchange contributes significantly to the growth of Turkey's economy. This is not surprising, because according to economic theory, international commerce enables nations to take advantage of economies of scale, open up new markets, and exploit comparative advantages, thereby fostering productivity, efficiency, specialization, as well as promoting economic growth. When it comes to long-run development prospects for an economy such as Turkey — which has always been striving towards becoming one of the developed countries through its open and dynamic trading environment — this point is proven right by showing a positive relationship between trade and real GDP.

On the other side, political stability (lnPS) has a negative association, which is substantial given its value being -0.136 ($p < 0.01$). This suggests that for every 1% increase in political unrest, there will be about 0.136% decline in actual output or income levels of the country concerned. In terms of FMOLS estimation, the negative coefficient indicates that higher rates of economic growth are associated with more stable political environments over longer periods. This is because when investors have confidence, they can make long-term plans which require stable conditions. Moreover, their decisions are based on expected returns, so if there is uncertainty about future outcomes due to frequent changes, it might lead them to avoid investing altogether, hence adversely affecting overall economic performance.

Foreign tourism (lnTA) also has large effect size according to its coefficient value of magnitude 0.140 ($p<0.01$). This implies that each time international arrivals increases by one percent, real GDP goes up approximately by 0.140 or put differently this study demonstrates how vital is for Turkish economy regarding income generation employment creation foreign exchange earnings etc.

Moreover, there exists an intercept term (constant) that has strong statistical significance since it's coefficient is 10.47 ($p<0.01$). The entire model also has a high R-squared value of around 95 percent which means all included independent variables have shown together can explain almost 95% variation in the dependent variable(real GDP).

According to CCR estimates presented in Table 4 there are notable inter-correlations between independent variables and real gdp for Turkey. Gross fixed capital creation(lnGFC) is significantly positively correlated with economic output at both estimations having coefficients close to each other i.e., 0.645 ($p<0.01$); thus implying that investment in physical capital such as infrastructures leads to higher levels of production within the economy itself even though they represent different time periods; In other words when there is more spending on things like roads, bridges, airports etc. then this will cause an increase in aggregate demand as well employment opportunities because construction works require large number people.

Similarly, employment (lnEMP) exhibits robust positive relationship with growth rate, where this can be supported by two estimations having coefficients very similar or equal respectively 0.737 ($p<0.01$) and 0.731($p<0.01$). This therefore means that even a slight change in jobs created especially during periods marked by low levels could result into substantial changes realized over long run hence should never under-estimate role played by labor market dynamics towards enhancing overall performance.

Furthermore, secondary education (lnEDU) exerts significant positive impact on economic development given its coefficient values range from 0.3812 ($p<0.01$) up-to 0.3733($p<0.01$). Therefore, it implies that if

human capital development through enrolling more students secondary schools were to increase then corresponding positive growth rates would also be expected since higher skilled workforce leads increased productivity levels

Also, there is a very significant positive correlation in between trade of goods and services (lnTRD) with values 0.7436 ($p<0.01$) and 0.7658 ($p<0.01$) in two estimations, which means that trade grows by about three quarters for every percentage point increase in GDP; this shows how important international business is for driving economies.

On the other hand, political stability (lnPS) has been found to be negatively correlated with real income growth where Turkey's economic development appears to depend on its stability as shown through having negative coefficient of (-0.1405)($p<0.01$)

Equally important both estimates also reveal that foreign tourism arrivals (lnTA) were found to have significantly positive impacts on economic growth at levels 0.140 ($p< 1\%$). Thus, it can be seen from these findings that they are consistent with the view that international visitors play an important role as drivers for growth.

In all estimates, the constant term or intercept (Constant) which represents the predicted value of real GDP when all independent variables are equal to zero also shows an extremely significant relationship. With R-squared values of 0.95 across all models considered herein, about 95% of variations in real GDP can be explained by changes in independent variables employed in each estimate.

Model Validity and Diagnostics

Table 5 reports results from several diagnostic tests carried out to test model validity.

Table 5. Diagnostics for Model Validity

Test	Hypothesis	Statistics	Prob.
Breusch-Pagan/Cook-Weisberg	H_0: constant variance	$\chi2 = 5.15$	0.023
Cameron & Trivedi's IM-test	H_0: homoskedasticity	$\chi2 = 24.18$	0.235
Breusch-Godfrey LM test	H_0: no serial correlation	$\chi2 = 5.324$	0.021
Durbin's alternative test	H_0: no serial correlation	$\chi2 = 4.931$	0.026
Geary Non Normality LM Runs Test	H_0: res. norm. distributed	$\chi2 = -2.311$	0.315
Jarque-Bera Normality Test	H_0: res. norm. distributed	$\chi2 = 0.659$	0.719
Ramsey test	H_0: model has no omitted variables	$F(3, 19) = 2.05$	0.1405
Mean VIF	H_0: no multicollinearity	$3.35 < 10$	

Source: Author's calculation

As an instance, for this test statistic $\chi2 = 5.15$ with corresponding p-value being equal to 0.023 is used Breusch-Pagan/Cook-Weisberg Test. Such a test evaluates whether there is constant variance in residuals. Since p-value is less than usual significance level (0.05), we have evidence that heteroscedasticity may be present; on the other hand, as p-value exceeds such level (0.05), Cameron & Trivedi's IM-test for homoskedasticity does not provide any strong indication of heteroscedasticity given by its test statistic which equals $\chi2 = 24.18$ and p-value = 0.235.

Both Durbin's Alternative Test and Breusch-Godfrey LM Test show evidence serial correlation among residuals when it comes to serial correlation. While $\chi2 = 5.324$ and p-value=0.021 are obtained from Breusch-Godfrey LM Test as a test statistic, Durbin's Alternative Test yields $\chi2 = 4.931$ with a p-value=0.026.

Regarding residual normality, both Jarque-Bera Normalcy Test and Geary Non-Normality LM Runs Test indicate lack of statistically significant evidence for deviation from normalcy. Hence if one considers that $\chi2 = 0.659$ while achieving his goal through Jarque-Bera Normality Test, p-value= 0.719; but whereas $\chi2 = -2.311$ which has p-value= 0.315 whilst using Geary Non-Normality LM Runs Test.

The test statistic for the Ramsey Test for omitted variables is F(3, 19) = 2.05 with a p-value of 0.1405. Since the p-value exceeds the significance level, this implies that there are no omitted variables in the model.

Finally, since mean VIF (Variance Inflation Factor) value of 3.35 indicates moderate degree of multicollinearity among independent variables in regression model; then we can conclude that our regression model suffers from a little bit of multicollinearity problem because significant levels start at 10 and end with average VIF value which is equal to 3.35.

To conclude, this model demonstrates evidence of serial correlation and heteroscedasticity in residuals but does not show missing variables or deviations from normalcy at significant level. Diagnostic data were considered carefully when choosing right estimating technique.

4. Discussion

This study investigates the long-term impact of tourism, trade liberalization, and political stability on Turkey's economic growth by employing FMOLS and CCR estimation methods. The findings suggest that tourism, capital investments, employment, and human capital development significantly contribute to economic expansion, while political instability exerts a negative effect. These results align with previous literature emphasizing the role of trade openness (Greenaway et al., 2002; Purwono et al., 2022) and tourism-led growth (Brida et al., 2016; Tang & Tan, 2018). However, the study also highlights a less frequently addressed aspect—political stability—which appears to have a detrimental effect on long-term economic performance. This aligns with research by Ali, Ahmad, and Shahid (2020), who found that political uncertainty reduces investor confidence and disrupts growth trajectories.

A key implication of these findings is that policies promoting stability and fostering a resilient business environment are essential for maximizing the benefits of trade and tourism. Unlike studies that focus solely on sector-specific growth dynamics, this research integrates a broader political economy perspective, making it particularly relevant for countries with volatile political environments. Nevertheless, while the study establishes robust long-term relationships, it does not explore the short-term dynamics of these variables. Future research could use more dynamic econometric approaches, such as panel cointegration techniques, to capture short-term adjustments in economic behavior.

5. Conclusion and Policy Implications

The empirical results confirm that capital investment, employment, education, trade liberalization, and tourism are key drivers of Turkey's economic growth. These findings underscore the need for targeted policies that enhance infrastructure, human capital, and tourism competitiveness while addressing the destabilizing effects of political instability. Several policy recommendations emerge from the analysis:

Given the strong positive impact of gross fixed capital formation and education on GDP, policies should focus on improving infrastructure and investing in education and vocational training. Expanding digital infrastructure and modernizing transportation networks can further amplify economic benefits.

The positive but modest impact of tourism suggests that Turkey needs to enhance the quality and sustainability of its tourism sector. Policies should emphasize eco-tourism, cultural tourism, and high-value tourism services to attract higher-spending tourists.

While trade liberalization boosts economic growth, the study does not analyze its sectoral effects. Policymakers should ensure that trade openness benefits domestic industries by integrating policies that support technological upgrading, R&D incentives, and local production linkages.

The negative impact of political instability highlights the urgency of improving governance frameworks. Transparent regulatory environments, consistent policy implementation, and stable democratic institutions are crucial to fostering investor confidence and long-term economic stability.

This study opens several avenues for future research. First, while the long-term relationships are well-established using FMOLS and CCR methods, future studies could incorporate Structural Vector

Autoregression (SVAR) models to capture short-term policy shocks and dynamic responses. Second, a sectoral breakdown of tourism and trade liberalization could provide more granular insights into which industries benefit the most from openness and stability. Third, the role of technological innovation and digitalization in mitigating the adverse effects of political instability on economic performance remains an important research question. Finally, cross-country comparisons using similar methodologies could help identify whether the findings are unique to Turkey or if they hold across other emerging economies with similar structural characteristics.

Despite its contributions, the study has some limitations. First, it focuses on macro-level variables without disaggregating sector-specific effects, which could provide a more detailed understanding of economic drivers. Second, the study relies on aggregate indicators for political stability, which may not fully capture the nuances of governance quality and institutional effectiveness. Third, while FMOLS and CCR methods are robust for analyzing long-term relationships, they do not capture potential nonlinear effects or threshold dynamics, which could be explored in future research. Addressing these limitations would enhance the robustness of future studies in this domain.

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