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The Relationship between Tourism Development and Economic Growth in Transition Economies: A Comparative Causality Analysis

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Abstract

The purpose of this study is to examine the relationship between tourism development and economic growth in transition economies. For this objective, the symmetric and asymmetric panel causality approach is employed to examine the relationship between economic growth and tourism development in eight EU member transition economies and six non-EU transition economies from 1995 to 2017. The symmetrical causality test results show no evidence of a causal relationship between tourism development and economic growth for both EU and non-EU country groups. The asymmetric causality test did not reveal any evidence of a causal relationship in non-EU transition economies. On the other hand, EU-member transition economies have identified a bidirectional causal relationship between negative components of tourism development and economic growth, and a unidirectional causal relationship between positive components of tourism development. Asymmetric causality test indicates a hidden cause-and-effect relationship for the EU member country group but not for the non-EU country group. Determination of the hidden causality relationship and measurement of positive and negative shocks between tourism development and economic growth significantly contributes in the existing literature. We also expect that the determination of this causality relationship enriches and expands tourism policies in the face of the reactions of positive and negative shocks, and it may guide the development of effective tourism policies that serve as a complement to economic growth and tourism development.

Keywords Economic growth · Tourism development · Transition economies · Asymmetric panel causality · Sustainable development

Extended author information available on the last page of the article

Introduction

The Industrial Revolution in the 18th century resulted in an increase in the economic growth difference between countries and the appearance of country classifications of upper, middle, and lower income groups throughout the world. This situation has highlighted the efforts for the countries in the lower groups in the economic growth classification to move to the upper groups and for the countries in the upper group to maintain their current status. Thus, it has become important to determine the factors that contribute to economic growth and to find solutions to macroeconomic problems such as high unemployment, inflation, the current account deficit, and income inequality, especially in low-income countries. From this perspective, the relationship between the global tourist industry's development and economic growth has received a lot of attention in recent years.

The tourism industry is growing all over the world as a result of technological advancements. travel movements, which are getting easier, especially in terms of time, comfort, and cost, cause people to move more around the world. Similarly, increasing leisure time due to technological developments positively affects people's decisions to travel, causing them to act for various purposes such as resting, learning, health, culture, belief, sports, new tastes and cultural discoveries, curiosity, personal development, etc. (Tandoğan, 2017: 526–527). The development of the tourism industry, one of the impetuses for economic growth, has been one of practically all country groups' key priorities in recent years (Nowak et al., 2007; Lee & Chang, 2008; Chou, 2013).

The tourism industry helps to meet the country's foreign exchange requirements by transforming its natural, cultural, geographical, climatic, and social assets into an attracting factor. The foreign exchange earning effect is one of the channels through which tourism development helps to promote economic growth (McKinnon, 1964; Nath, 1998; Lee ve Brahmasrene, 2013; Alhowaish, 2016; Balaguer ve Cantavella-Jorda, 2002). This effect contributes to the improvement of the tourism industry balance of payments and the financing of the import of investment capital goods used in production (McKinnon, 1964; Oh, 2005; Shahzad et al., 2017). On the other hand, the tourism industry is not only related to the entertainment and recreation markets but is seen as a high value-added sector in terms of its various connections with other sectors (Wong & Tang, 2010). Tourism-oriented activities also affect sectoral mobility, positively affecting employment and income growth and economic growth (Archer, 1995; Durbarry, 2004; Eugenio-Martin et al., 2004; Lee & Chang, 2008; Tang & Jang, 2009; Payne & Mervar, 2010; Brida et al., 2016a). Tourism development, on the other hand, increases productivity by increasing competition between local firms and international tourist firms and facilitating local firms to benefit from scale economies (Krueger, 1980; Helpman & Krugman, 1985; Balaguer & Cantavella-Jorda, 2002). This increase in productivity leads to economic growth. The positive effects of tourism development on economic growth cause countries to move towards increasing their share of the tourism industry in the international market.

However, numerous studies have demonstrated that tourism development not only positively impacts economic growth but also adversely impacts the environment, leading to a new topic of discussion. Due to the industry's high energy consumption from fossil fuels in recent years, tourism development is closely related to nature and the environment, which highlights the need to minimize or completely eliminate the adverse environmental impact of the sector (Tandoğan & Genç, 2019; Meramveliotakis & Manioudis, 2021; Richardson, 2021; Manioudis & Meramveliotakis, 2022; Destek & Aydın, 2022). As a result, it is important to evaluate the influence of tourism activities on sustainable economic development processes from both economic and environmental perspectives to support sustainable growth. Accordingly, research on the relationship between tourism development and economic growth is critical, as it will guide the policy formulation and implementation processes that will contribute to the tourism development of countries in all aspects. Moreover, the importance of including the environmental impacts of tourism development in planning processes in accordance with its contribution to sustainable economic growth becomes prominent. Figure 1 displays information on the development of tourism by continent worldwide.

International tourism had a slow start in 2021 as a result of the Omicron variation and travel restrictions in some locations. However, international tourism performed much better in 2022 and experienced a strong rebound in the first five months of 2022, with arrivals reaching nearly half (46%) of 2019 levels. Europe and the Americas continued to lead the recovery by region. Europe received more than four times the number of international visitors as it did in the first five months of 2021 (+350%) (World Tourism Organization, 2022). Figure 2 demonstrates the fluctuation in the number of tourists worldwide.

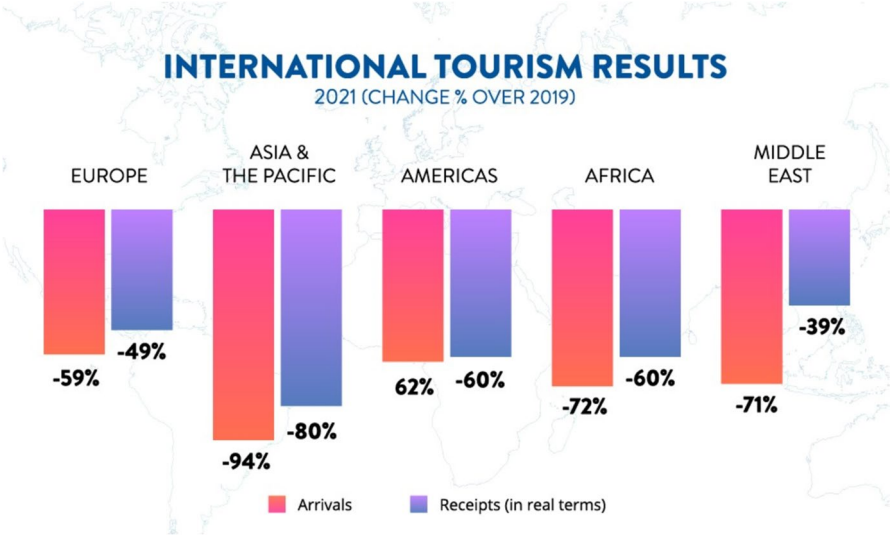

Fig. 1 Development of Tourism Over the past years Source: UNWTO (2022)

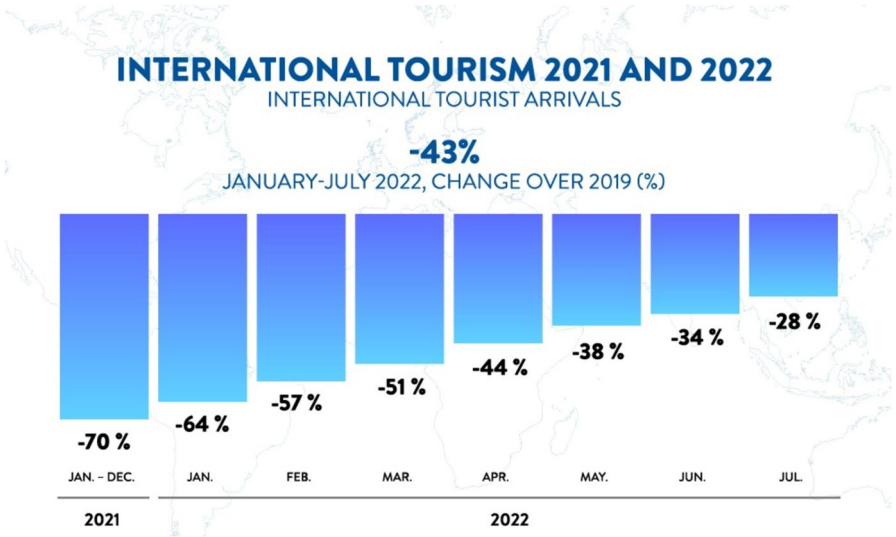

Fig. 2 Flactuation in number of tourists Source: UNWTO (2022)

In light of all of this information, the study's goal is to analyze the symmetric and asymmetric causal relationships between tourism development and economic growth in transition economies using two groups constructed based on European Union (EU) membership and non-EU membership criteria. These countries have embarked on an enormous economic change process since the 1990s, taking the same approach as in every other field by transitioning to a free market economy. In this regard, transition economies have emphasized sustainable economic growth and policies aimed at solving macroeconomic issues such as high inflation, unemployment, and the current account deficit. Previous studies have documented that tourism is an important component of economic growth, regardless of the direction of the relationship between tourism development and economic growth (e.g., Balaguer & Cantavella-Jorda, 2002; Durbary, 2004; Oh, 2005; Dritsakis, 2012; Chou, 2013). The positive effect of tourism on economic activities and economic growth has been the motivation for an important problem in this study by highlighting the importance of investigating this relationship for transition economies. The fact that few studies have examined this relationship for transition economies reveals the importance of this study in terms of contributing to the development of the literature in this field. Furthermore, another question in the study is whether EU membership in transition economies influences the relationship between tourism development and economic growth. In this regard, it is a common view that membership in the EU improves countries' welfare by improving macroeconomic performance (Henrekson et al., 1997; Crespo-Cauresma, 2011; Campos et al., 2014). the previous research revealed that the impact of the EU membership on the macroeconomic performance of Central and Eastern Europe (CEE) countries is higher compared to Commonwealth of Independent States (CIS) countries that are not members of the (Stiglitz, 1999; Havrylyshyn et al., 1998; Fischer & Sahay, 2000; Matkowski and

Prochniak, 2007; Rapacki & Prochniak, 2009; Hasanov & Omay, 2011). During the transition period, CEE countries were more determined and stable in liberalization, reform policy implementation, and legal and institutional structuring. The technical and financial support they received during the EU membership process contributed significantly to the successful performance of these countries by implementing the transition reforms quickly and decisively. In fact, these countries, which achieved the first positive economic growth and rapid recovery compared to the CIS countries after the transition period, were accepted into the EU and had the opportunity to benefit from the advantages of EU membership. The transition process has had significant effects on the tourism industries of these countries (Williams and Balaz, 2002). In conclusion, this study's important contribution is the question of whether the positive effects of EU membership make a difference in this relationship.

Examining the relationship between tourism development and economic growth in terms of causality is important for determining whether tourism encourages economic growth. In this regard, we expect that identifying this causal relationship will help policymakers decide which tourism-related initiatives to put into place. Moreover, this study makes an invaluable contribution to the literature by analyzing the relationship from both symmetric and asymmetric perspectives. To the best of the authors' knowledge, the causal relationship in transition economies has not been analyzed from an asymmetric perspective in the literature. We expect the study to fill this gap in the literature. Examining the causal relationship from symmetric and asymmetric perspectives is important for answering the question of whether the apparent or undetermined relationship between tourism development and economic growth is also asymmetric in terms of positive and negative components. Identifying hidden relationships allows policymakers to make more consistent decisions based on the direction of the relationship during times of increased or decreased tourism development. Moreover, when the studies in the literature are analyzed, analyses for a group of countries draw attention. Working on two country groups constitutes an important limitation in terms of finding the data range with a common period. This study's relative success in overcoming this problem appears to contribute to the gap in this field.

An Overview of Economic Growth and Tourism Sector in CEE and CIS Countries

CEE and CIS countries have experienced a gradual increase in macroeconomic performance after the transition process. However, these increases seem to be higher in the CEE countries. In Fig. 3, the per capita income in CEE and CIS countries is presented on the basis of country and period.

The performance of the CEE nations is superior to that of the CIS countries in all relevant periods, as can be shown in Fig. 3 when both country groupings are taken into account on a national basis. In other words, the optimum performance is found to be between $5000 and $10.000 for CIS nations and between $15.000 and $20.000 for CEE countries when typically analyzed on a period basis. On a nation basis, the values obtained by taking the group mean after taking the mean of all periods are also $11.813 per capita for CEE and $4007 for CIS. It may be concluded that

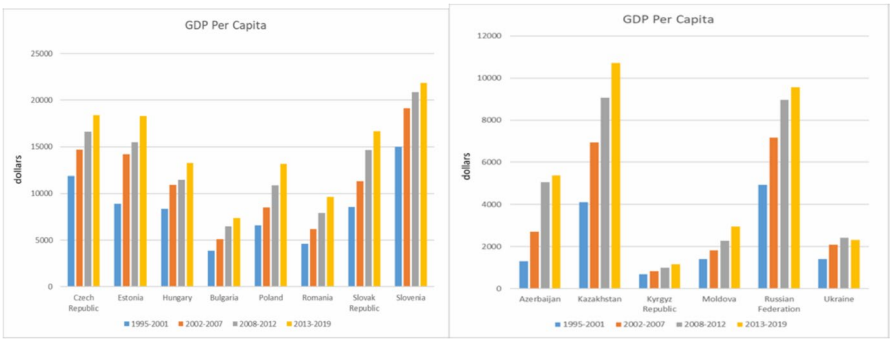

Fig. 3 Per Capita Income in CEE and CIS Countries ($) Source authors'calculation based on Worldbank (2022)

being a member of the EU significantly affects the promotion of economic growth. From these indicators, it can be concluded that EU membership has a significant impact on the promotion of economic growth. Figure 4 displays the tourism income received by CEE and CIS nations by country and time period.

While the average tourism revenue is at a level of $2 billion in CEE countries, it is below $2 million in CIS countries. On the other hand, the group mean results after taking the country and period means are determined as $3.982 billion for CEE countries and $1.13 billion for CIS countries except for Russia.

Overall, the results indicate that CEE countries are at a higher level of tourism development and economic growth compared to CIS countries. Thus, the aim of the study is to determine the causal relationship between tourism development and economic growth for CEE and CIS countries and to reveal the differences, if any.

The study's first contribution to the literature is its use of panel data analysis to examine the causal relationship between tourism development and economic growth in transition economies. Panel data analysis is important in terms of increasing the

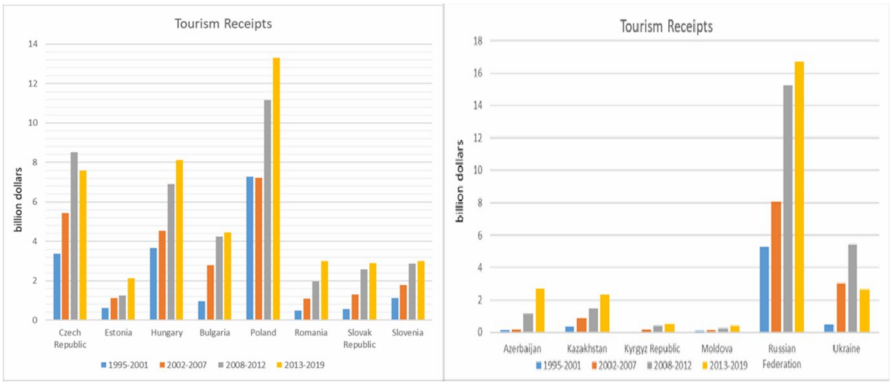

Fig. 4 Tourism Revenues in CEE and CIS Countries ($ Billion) Source authors'calculation based on Worldbank (2022)

sample size by accounted for both the time and unit dimension and evaluating more than one country at the same time as a whole, thus allowing the results to be reliable (Bulut & Çil, 2024). Second, the causal relationship between tourism development and economic growth is comparatively determined for CEE and CIS countries. This is important for determining whether EU membership makes a difference in the causality results.

Asymmetric causality, which separates the variables into positive and negative components, reveals the existence of a hidden relationship, whereas symmetric causality, which examines the relationship with the raw variables, reveals the existence of an apparent relationship. Therefore, another contribution is to investigate this relationship using both symmetric and asymmetric causal analysis. This can offer comprehensive information on the existence and direction of causal relationships, which can enhance the effectiveness of policies in accomplishing the intended goal. Furthermore, it is anticipated to improve understanding of the role of the tourism industry as a factor in the economic disparities between these two groups of countries undergoing similar economic processes, as well as the influence of EU membership on the relationship between tourism development and economic growth. Finally, the Dumitrescu and Hurlin (2012) panel causality test, which is employed to determine the causal relationship between tourism development and economic growth, produces effective results by accounting for cross-sectional dependence and heterogeneity.

The research is organized into six sections. In the second section following the introduction, previous research on the subject is reviewed. The third section introduces the data set. The fourth and fifth sections present the methodology and empirical results, respectively. Conclusions and policy implications are presented in the final section.

Literature Review

Many studies (e.g., Oh, 2005; Dritsakis, 2012; Lee & Brahmasrene, 2013; Shahzad et al., 2017; Wu et al., 2022) have analyzed the relationship between tourism development and economic growth for various countries or country groups and different periods by using time series or panel causality and/or regression methods. The transition process has had a significant impact on the region's tourism industry in transition economies. It is necessary to investigate how the transition from a centralized planning system to a market economy has affected the tourism industry. Early papers on tourism economies in these economies (e.g., Hall, 1991; Harrison, 1993) concentrated on the effects of border openings and privatization (Williams and Balaz, 2002). The tourism industry has a favorable impact on the economy both directly and indirectly through a number of channels (e.g., income growth, employment opportunities, foreign exchange earnings, productivity growth, competition, etc.). As a result, studying the economic aspects of the tourism industry in transition economies, which is changing as a result of the transition process, is expected to contribute to research in this field. Despite the significant increase in the tourism industry in the transition economies, the relationship between tourism development

and economic growth has only been investigated in a few studies for these economies (e.g., Payne & Mervar, 2010; Surugiu & Surugiu, 2013; Chou, 2013, Ozcan et al., 2017; Sağlam & Egeli, 2018). Thus, the relationship between tourism development and economic growth is investigated in 14 transition economies, namely, Azerbaijan, Kazakhstan, Kyrgyz Republic, Moldova, the Russian Federation, Ukraine, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Romania, the Slovak Republic, and Slovenia.

When the aforementioned studies are examined, it is determined that the studies that found a positive relationship between tourism and economic growth (e.g., Fayissa et al., 2008; Sequeira & Nunes, 2008; Narayan et al. (2010); Holzner, 2011; Akadiri et al., 2019; Paramati et al., 2017; Wu et al., 2023) are more numerous than those with different conclusions. In this regard, the studies that found a positive relationship state that the increase in tourism activities increases foreign exchange receipts and, hence, facilitates the financing of intermediate and capital goods and supports industrialization. Thus, tourism development positively contributes to economic growth. Previous research, on the other hand, has found a negative relationship between tourism development and economic growth (e.g., Ivanov & Webster, 2007; Pambudi et al., 2009). These studies suggest that the occurrence of a shocking event (adverse conditions such as epidemics, wars, and terrorist attacks) has an influence on the adverse effects emerging. Tourism policies that are not well planned also have adverse effects on meeting the increasing demand for the tourism industry. Moreover, the rising demand for tourism goods and services increases costs by causing an increase in the general level of prices and affects economic growth adversely.

Related research has shown that studies using different econometric methodologies, varying country groups, and/or data periods to examine the causal relationship between tourism development and economic growth yield conflicting results (e.g., Castro-Nuno et al., 2013; Pablo-Romero & Molina, 2013; Brida et al., 2016a; Brida et al., 2016a). The conflicting results from previous research highlight the important issue of heterogeneity, which is a particular issue in panel data literature. Therefore, in this research, we employ a modern empirical technique, the Dumitrescu and Hurlin (2012) panel causality test, which produces efficient results by taking cross-sectional dependence and heterogeneity in panel data into account.

When the studies in the previous research analyzing the relationship between tourism development and economic growth in terms of causality are examined, four valid hypotheses are discovered. These are the tourism-led growth hypothesis, the growth-led tourism hypothesis, the feedback hypothesis, and the neutrality hypothesis. In the tourism-led growth hypothesis, there is a unidirectional causal relationship from tourism development to economic growth (Balaguer and Cantavella-Jordá, 2002; Durbarry, 2004; Fayissa et al., 2008; Chen & Chiou-Wei, 2009; Brida et al., 2010; Kreishan, 2011; Dritsakis, 2012; Ivanov & Webster, 2013; Surugiu & Surugiu, 2013; Alhowaish, 2016, Ohlan, 2017). According to this hypothesis, the increases in touristic activities create spillover effects between sectors and cause economic growth (Marin, 1992; Payne & Mervar, 2010). The growth-led tourism hypothesis reveals a unidirectional causal relationship from economic growth to tourism development (Narayan, 2004; Oh, 2005; Payne & Mervar, 2010; Tang, 2011; Alhowaish, 2016; Ozcan et al., 2017). According to this hypothesis, industry development is achieved

through an increase in demand for tourism activities as per capita income rises. In the feedback hypothesis, there is a bidirectional causal relationship between tourism development and economic growth (Dristakis, 2004; Durbarry, 2004; Lee & Chang, 2008; Chen & Chiou-Wei, 2009; Seetanah, 2011; Apergis & Payne, 2012; Mallick et al., 2016; Shahbaz et al., 2016). The positive effects of the tourism industry on foreign exchange earnings, employment, and income growth, as well as its spillover effects on other sectors, promote economic growth. Economic growth and the increase in demand for tourism-related goods and services contribute to the improvement of the industry. Economic growth can also support the tourism industry through the development of facilities and infrastructures such as transportation, information and communication technology development, electronic money, hotels, restaurants, and other recreational services and facilities (Alhowaish, 2016: 2). Finally, in the neutrality hypothesis, it is suggested that there is no causal relationship between tourism development and economic growth (Po & Huang, 2008; Ozturk and Acaravcı, 2009; Katircioglu, 2009; Tang & Jang, 2009; Ekanayake & Long, 2012; Chou, 2013; Tugcu, 2014; Antonakakis et al., 2015; Alhowaish, 2016).

Studeis of Balaguer & Cantavella-Jorda, 2002, Durbary, 2004; Gündüz and Hatemi-J, 2005; Caglayan et al., 2012; Dritsakis, 2012; Chou, 2013; Lee & Brahmasrene, 2013; Surugiu & Surugiu, 2013, Hatemi-J et al., 2014; Tugcu, 2014; Ozcan et al., 2017; Eyuboglu & Eyuboglu, 2020; Belke et al., 2021 identified supporting the tourism-led growth hypothesis. Among others, studies that report the growth-led tourism hypothesis include Narayan, 2004; Oh, 2005; Payne & Mervar, 2010; Caglayan et al., 2012; Aslan, 2013; Chou, 2013; Hatemi-J et al., 2014; Tugcu, 2014; Ozcan et al., 2017; Sağlam & Egeli, 2018. Dritsakis, 2004; Demiroz & Ongan, 2005; Kim et al., 2006; Aslan, 2013; Chou, 2013; Tugcu, 2014; Bilen et al., 2017, and Dogru & Bulut, 2018, on the other hand, provide evidence supporting the feedback hypothesis. and Katircioglu, 2009 (Turkey); Ozturk & Acaravci, 2009; Aslan, 2013; Chou, 2013; Tugcu, 2014; Ozcan et al., 2017; Eyuboglu & Eyuboglu, 2020 are some of the studies that report evidence of no causal relationship between tourism development and economic growth.

At this part of the research, the previous studies examining the causal relationship between tourism development and economic growth by using the panel causality method in accordance with the methodology were analyzed. These studies are classified in terms of symmetric and asymmetric causality and causality results to support the four hypotheses and summarized by including author, period, country, and method information.

When the literature in Table 1 is examined, it has been determined that econometric techniques are mostly used to investigate the symmetrical relationship in studies examining the causality relationship between tourism development and economic growth with panel data analysis. However, it is determined that there are a limited number of studies (e.g., Hatemi-J et al., 2014; Hatemi-J et al., 2018; Eyupoglu and Eyupoglu, 2020, Belke et al., 2021; Pata, 2021; Wu and Legoherel, 2024) analyzing the asymmetrical causal relationship, which is important especially for identifying the hidden causal relationship between tourism development and economic growth and measuring the effects of positive and negative shocks. On the other hand, there are few studies examining transition economies, and to the best of our knowledge

Table 1 Literature Review of the Panel Causality Studies Examining the Relationship between Tourism and Economic Growth

A Symmetric Causality		
Tourism-Led Growth Hypothesis		
Writer/Period	Country	Country Group Results
Lee and Chang (2008)/1990–2002	OECD (14 European) countries and non-OECD (5 Asian, 11 Latin American, and 16 Sub-Saharan African) countries	T→Y (in OECD member countries)
Caglayan et al. (2012)/1995–2008	135 countries	T→Y (13 Eastern Asian, 6 Southern Asian, and 7 Oceanian countries)
Aslan (2013)/ 1995–2010	12 Mediterranean countries	T→Y
Chou (2013)/1988–2011	10 transition countries	T→Y (Cyprus, Latvia, and Slovakia)
Hatemi-J et al. (2014)/1995–2012	G7 countries	T→Y (Germany, France, and US)
Hatemi-J et al. (2018)/1995–2014	G7 countries	T→Y (Germany, France, and US)
Wu and Wu (2019a)/ 1995–2015	11 Asian countries	T→Y (Cambodia, China, and Malesia)
Growth-Led Tourism Hypothesis		
Caglayan et al. (2012)/1995–2008	135 countries	Y→T (30 American, 28 Latin American, and Caribbean countries, and the world)
Chou (2013)/1988–2011	10 transition countries	Y→T (The Czech Republic and Poland)
Hatemi-J et al. (2014)	G7 countries	Y→T (Canada and Germany)
Alhowaish (2016)/1995–2012	6 Gulf Cooperation Council (GCC) countries	Y→T
Ozcan et al. (2017)/1996–2012	17 transition economies	Y→T
Sağlam and Egeli (2018)/1995–2015	6 CIS countries	Y→T
Wu and Wu (2019a)/ 1995–2015	11 Asian countries	Y→T (Hong Kong, Indonesia, Philippines, and South Korea)
Feedback Hypothesis		
Lee and Chang (2008)/1990–2002	OECD member (14 European) and non-OECD member (5 Asian, 11 Latin American, and 16 Sub-Saharan African) countries	T↔Y (In non-OECD countries)
Nissan et al. (2011)/2000–2005	11 developed countries	T↔Y
Apergis and Payne (2012)/ 1995–2007	9 Caribbean countries	T↔Y

Table 1 (continued)

A Symmetric Causality		
Caglayan et al. (2012)/1995–2008	135 countries	T↔Y (37 European countries)
Chou (2013)/1988–2011	10 transition countries	T↔Y (Estonia and Hungary)
Tugcu (2014)/1998–2011	12 European countries that have a coastline on the Mediterranean sea, 4 Asian and 5 African countries	T↔Y (Asian and European countries)
Seghir et al. (2015)/1988–2012	49 countries	T↔Y
Bilen et al. (2017)	12 Mediterranean countries	T↔Y
Wu and Wu (2019a)/ 1995–2015	11 Asian countries	T↔Y (Macau and Singapore)
Neutrality Hypothesis		
Caglayan et al. (2012)/1995–2008	135 countries	T≠Y (34 Asian, 11 Middle-Eastern and North African, 5 Middle Asian and 24 Sub-Saharan African countries)
Ekanayake and Long (2012)/ 1995–2009	140 developing countries	T≠Y
Chou (2013)/1988–2011	10 transition countries	T≠Y (Bulgaria, Romania, and Slovenia)
Tugcu (2014)/1998–2011	12 European countries that have a coastline on the Mediterranean sea, 4 Asian and 5 African countries	T≠Y (African countries)
Eyuboglu ve Eyuboglu (2020)/1995–2016	9 Emerging countries	T≠Y
B Asymmetric Causality		
Tourism-Led Growth Hypothesis		
Hatemi-J et al. (2014)/1995–2012	G7 countries	T→Y (Italy)
Hatemi-J et al. (2018)/1995–2014	G7 countries	T→Y (UK and US)
Eyuboglu and Eyuboglu (2020)/1995–2016	9 emerging countries	T→Y (Turkey, Argentina and Philippines)
Belke et al. (2021)/1995–2017	14 Mediterranean countries	T→Y
Pata (2021)/1995–2017	G10 countries	T→Y (Canada, UK, US and The Netherlands)
Wu and Legoherel (2024)	China's 11 major provinces	T→Y (Fujian, Jiangsu, and Tianjin)

Table 1 (continued)

A Symmetric Causality		
Growth-Led Tourism Hypothesis		
Hatemi-J et al. (2014)	G7 countries	Y→T (Canada, Italy and Germany)
Feedback Hypothesis		
Pata (2021)/1995–2017	G10 countries	T↔Y (Japan and Sweden)
Wu and Legoherel (2024)	China's 11 major provinces	T↔Y (Hainan)

Y = Economic Growth, T = Tourism Development, →= The existence of a unidirectional causality relationship in the direction of the arrow, ↔= The existence of a bidirectional causality relationship, ≠= Indicates that there is no relationship between the variables

there is no study in the previous studies on whether the causal relationship between tourism development and economic growth makes a difference in terms of EU membership for transition economies. Therefore, this research aims to contribute to the literature by analyzing the causal relationship between tourism development and economic growth in transition economies. This research contributes to the literature in five ways. First, economic liberalization and the elimination of international trade barriers are part of the structural transformation process in transition economies.

Structural transformation in transition has led to high rates of growth in the tourism sector. However, some of these countries have experienced strong economic growth (Tung, 2021). Given the increase in international tourist activities in transition economies, estimating their contribution to economic growth is an important research topic. Second, analyzing the relationship in question by separating the transition economies as EU members and non-EU members may contribute to the literature from another aspect. Third, we employ panel data analysis to estimate the causal relationship between tourism development and economic growth. Panel data analysis allows the sample size to grow and the accuracy of the estimates to increase since it includes time series and cross-sectional information. Four, when the ever-increasing importance of the non-linear relationships between tourism development and economic growth is considered, this research also aims to contribute to the gap in the literature on this subject by analyzing the asymmetrical causal relationship, as well as the symmetrical causal relationship between tourism development and economic growth. The study uses the Dumitrescu and Hurlin Asymmetric Causality (2012) test. The impact of positive and negative shocks, as well as the hidden causality relationship, are estimated using this test. To the best of our knowledge, this is one of the first studies to examine the asymmetric causality relationship between tourism and economic growth in transition economies. We reveal the hidden causality relationship between the variables by analyzing their responses to both positive and negative economic shocks. Finally, in terms of the impact of tourism on economic growth, determining this causality relationship may provide useful information to policymakers for successful tourism policies. So, the research is able to address the questions of whether the relationship between tourism development and economic growth has symmetric or asymmetric causality, in which direction the causal relationship between the variables lies, and whether the causal relationship differs between CEE and CIS. In order to contribute to the literature on the subject, this study attempts to answer these questions.

Data Collection

The relationship between tourism development and economic growth for CIS[1] and CEE[2] countries was investigated with the panel symmetric and asymmetric causality method, using annual data from 1995 to 2017 according to the criteria of long-term

[1] Azerbaijan, Kazakhstan, Kyrgyz Republic, Moldova, Russian Federation, Ukraine.

[2] Czechia, Estonia, Hungary, Latvia, Lithuania, Romania, Slovakia, Slovenia.

Table 2 Explanations of Variables

Variables	Explanations	Source
lnreg	GDP (constant 2010 US$)	World Bank (WB)
lnrtr	International Real Tourism Receipts; rtr was calculated with this equation; rtr=(Tourism Revenue/Deflator)*100	World Bank (WB)

The terms ln, and r at the beginning of the variables represent logarithmic transformation and real value, respectively

data availability. The data set being created based on the long-term criteria was necessarily limited to six CIS and eight CEE countries. Table 2 provides the variables used in the analysis, their abbreviations, their explanations, and the source from which they came.

In the research, economic growth was represented by real GDP and tourism development by real tourism revenues. Tourism revenues were transformed into real terms with the GDP deflator[3]. Analyses were carried out with the help of Eviews 9 and Stata 14 package program.

Methodology

Cross Section Dependency and Homogeneity Test

In the first stage of the panel data analysis, it is investigated whether there is cross-sectional dependence among countries. It is expected that a shock occurring in one of the countries that have similar economic and political conditions and therefore are in the same group may affect the other countries in the group. Therefore, whether there is such a relationship between countries is investigated by the cross-section dependence test. If any cross-sectional dependence is detected between countries, tests that take this relationship into account are used. Thus, the predictions to be made by taking the cross section dependency into account will give consistent results.

In the study, the cross-section dependency test was investigated with the Breusch-Pagan LM (CDLM) test, which is widely used in the literature and can be used in T > N state and is included in (1).

$$CD_{LM} = \sqrt{\frac{1}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \left(TP_{ij}^2 - 1 \right) \sim N(0,1) \tag{1}$$

The null hypothesis of the test is that there is no horizontal cross-sectional dependence between units, while the alternative hypothesis is that there is.

However, despite the interdependence between countries, each country's economic dynamics are unique. Therefore, it is also necessary to control heterogeneity

[3] Deflator=(NGDP/RGDP)*100.

across countries (Chou, 2013). In panel data processes, the homogeneity test of variables affects the choice of tests to be used and ensures that the results are consistent. The homogeneity of the variables is tested with the Delta test developed by Pesaran and Yamagata (2008). Delta and adjusted delta test statistics are given in (2) and (3), respectively.

$$\widetilde{\triangle} = \sqrt{N}\frac{\widetilde{N}^{-1}\widetilde{s} - k}{\sqrt{2k}} \tag{2}$$

$$\widetilde{\triangle}_{adj} = \sqrt{N}\frac{\widetilde{N}^{-1}\widetilde{s} - k}{\sqrt{2k}} \tag{3}$$

The null hypothesis in the Delta test is that the slope coefficient is homogeneous, while the alternative hypothesis is that the slope coefficient is not homogeneous. As a result, if the test statistics obtained from (2) and (3) are greater than the table critical value, the variables are determined to be heterogeneous.

Panel Unit Root Test

Panel unit root test helps determine the method to be used in investigating the relationship between variables. Determining the cross-sectional dependency between units necessitates the use of second-generation panel unit root tests, which take into account the cross-sectional dependency in the investigation of the stabilities of the variables. On the other hand, it is appropriate to use first generation panel unit root tests when the cross-sectional dependency between units cannot be determined.

In the research, the stationarity levels of the variables were examined with the help of the Multivariate Augmented Dickey Fuller (MADF) unit root test, which is one of the second generation panel unit root tests used in the case of T > N and developed by Taylor and Sarno (1998). The basic hypothesis states that the variables carry a unit root, while the alternative hypothesis states that the variables do not have a unit root.

The causality test used in the research was carried out in two stages. In the first stage, the symmetrical causality test was applied by considering the raw states of the variables. Following this stage, the asymmetric causal relationship was determined by obtaining the positive and negative components to determine whether there was a hidden causal relationship between the variables.

The asymmetric causality relationship between variables is important in terms of revealing the responses to positive and negative shocks. The effects of the behavior of the variables in case of a positive shock and the behavior of the variables in case of a negative shock can be observed separately. To achieve this, it is important to separate the causality relationship for positive and negative shocks in terms of determining whether there is a different effect or not (Bulut ve Çil, 2024).

Dumitrescu and Hurlin (2012) Symmetric Causality Analysis

Dumitrescu and Hurlin (2012) panel causality test, which is based on the vector autoregressive model, can produce efficient estimators when cross-sectional dependence is taken into account and the time dimension is larger or smaller than the cross-sectional dimension (Dumitrescu & Hurlin, 2012: 1457). The test developed by Dumitrescu and Hurlin (2012) was analyzed through Eq. (4).

$$y_{i,t} = \alpha_i + \sum_{k=1}^{K} \gamma_i^{(k)} y_{i,t-k} + \sum_{k=1}^{K} \beta_i^{(k)} x_{i,t-k} + \varepsilon_{i,t} \tag{4}$$

Dumitrescu and Hurlin (2012) created a vector autoregressive model-based causality test. Among the important advantages of this test are that it takes into account the cross-sectional dependency and that it can produce effective predictors for T > N and T < N (Dumitrescu & Hurlin, 2012: 1457). It is assumed that the autoregressive parameter and the slope coefficient in Eq. (4) vary between units. In addition, the individual effect is constant, and the delay length K is common to all units that make up the panel. The null hypothesis of the test states that there is no causal relationship between the variables examined in all cross sections, and the alternative hypothesis indicates that there is a causal relationship between the variables examined in at least one cross section. Dumitrescu and Hurlin (2012) suggested that the null hypothesis in the case of T > N should be tested using the statistics in (5).

$$Z_{N,T}^{HNC} = \sqrt{\frac{N}{2K}(W_{N,T}^{HNC} - K)} \tag{5}$$

Dumitrescu and Hurlin Asymmetric Causality Analysis

Panel causality tests ignore the fact that there may be a hidden relationship between two apparently unrelated time series, and this relationship can be revealed by taking into account the asymmetry between the components of the series. This reveals the fact that symmetric panel causality tests that exist in the literature cannot give reliable results in cases where there is an implicit relationship. The implicit relationship means that the long-term relationship between the components of the variables that contain cumulative positive (+) and negative (-) values is explained by asymmetry (Hatemi-J & Irandoust, 2012: 371). In other words, when the variables that cannot be found in the symmetric causality test are analyzed by dividing them into (+) and (-) components, an implicit relationship can be detected. Therefore, the Dumitrescu and Hurlin (2012) test was also applied to the (+) and (-) components in order to determine whether there is an implicit relationship between variables. Equation (4) rearranged according to (+) and (-) components is included in Eqs. (6) and (7).

$$y_{i,t}^{+} = \alpha_i + \sum_{k=1}^{K} \gamma_i^{(k)} y_{i,t-k}^{+} + \sum_{k=1}^{K} \beta_i^{(k)} x_{i,t-k}^{+} + \epsilon_{i,t}^{+} \tag{6}$$

Table 3 Breusch-Pagan LM Test Cross Section Dependency Test Results

Country Groups	Variables	t-statistics	Country Groups	Variables	t-statistics
CIS	lnreg	260.1089***	CEE	lnreg	645.6182***
	lnrtr	75.77438***		lnrtr	176.3577***
	$lnreg^{+}$	253.4524***		$lnreg^{+}$	402.0286***
	$lnrtr^{+}$	229.3094***		$lnrtr^{+}$	490.6320***
	lnreg-	192.2355***		lnreg-	369.6833***
	$lnrtr^{-}$	244.3747***		$lnrtr^{-}$	462.8565***

***, statistically denotes 1% significance level

$$y_{i,t}^{-} = \alpha_i + \sum_{k=1}^{K} \gamma_i^{(k)} y_{i,t-k}^{-} + \sum_{k=1}^{K} \beta_i^{(k)} x_{i,t-k}^{-} + \epsilon_{i,t}^{-} \tag{7}$$

When Dumitrescu and Hurlin (2012) test is performed on Eqs. (6) and (7), the asymmetric relationship between variables is determined.

While (+) and (-) components are obtained, the positive and negative shocks of the variables are formed as in (8) and (9).

$$\epsilon_{1it}^{+} = \left(\epsilon_{1it}, 0\right) \quad \epsilon_{1it}^{-} = \left(\epsilon_{1it}, 0\right) \tag{8}$$

$$\epsilon_{2it}^{+} = \left(\epsilon_{2it}, 0\right), \quad \epsilon_{2it}^{-} = \left(\epsilon_{2it}, 0\right) \tag{9}$$

Cumulative states of variables are obtained by Eqs. (9) and (10).

$$\begin{aligned} y_{it}^{+} &= y_{i,0}^{+} + \epsilon_{1it}^{+} = y_{i,0} + \sum_{j=1}^{t} \epsilon_{1ij}^{+} \\ y_{it}^{-} &= y_{i,0}^{-} + \epsilon_{1it}^{-} = y_{i,0} + \sum_{j=1}^{t} \epsilon_{1ij}^{-} \end{aligned} \tag{10}$$

$$\begin{aligned} x_{it}^{+} &= x_{i,0}^{+} + \epsilon_{1it}^{+} = x_{i,0} + \sum_{j=1}^{t} \epsilon_{1ij}^{+} \\ x_{it}^{-} &= x_{i,0}^{-} + \epsilon_{1it}^{-} = x_{i,0} + \sum_{j=1}^{t} \epsilon_{1ij}^{-} \end{aligned} \tag{11}$$

Whether there is a causality relationship between the components is decided with the test statistics calculated over Eqs. (9) and (10) (Hatemi-J, 2011:4).

Findings

Cross Section Dependency Test Results

The cross-sectional dependency between the units is determined if the H_0 hypothesis is rejected as a result of the LM test statistic obtained from the cross-section analysis. This situation reveals that the shock occurring in one of the units forming the panel affects the other units to a different degree. The Breusch-Pagan LM cross-section dependency test results are shown in Table 3.

Table 3 shows that the H_0 hypothesis, which states no dependence between the horizontal sections for lnreg and lnrtr variables for CIS and CEE countries, was rejected and it was determined that there was a cross-section dependence. In other words, it has been found that a shock in one area has an effect on the other areas as well.

Table 4 shows the Delta homogeneity test results of the variables.

Table 4 shows that the main hypothesis, that the cross-sections that make up the panel all have the same characteristics, is statistically rejected at the 1% significance level. This means that the cross-sections that make up the panel all have different characteristics, or are heterogeneous.

Panel Unit Root Test Results

Table 5 shows the results of the MADF unit root test to find out how stable the variables are for CIS and CEE countries.

As can be seen from Table 4, lnreg at first difference and lnrtr level value were stationary for CIS and CEE countries. When the results of the negative and positive components were examined, it was determined that while the $lnreg^+$ level value was stationary for CIS and CEE, the other components were stationary at the first difference. In the model established to determine the causal relationship, all variables will be included in the analysis at the level at which they are stationary.

Dumitrescu and Hurlin (2012) Causality Analysis Results

Dumitrescu and Hurlin (2012) symmetric panel causality test results applied to determine the causality relationship between tourism and economic growth for CIS and CEE countries are included in Table 6.

Table 4 Delta Test Results

		Statistic
CIS	Delta (Δ)	11.549^{***}
	Adjusted delta (Δ_{adj})	12.312^{***}
CEE	Delta (Δ)	16.357^{***}
	Adjusted delta (Δ_{adj})	17.437^{***}

***, statistically denotes 1% significance level

Table 5 MADF Unit Root Test for CIS and CEE

Country Groups	Variables	MADF Test Statistics	Approx 5% CV	Country Groups	Variables	MADF Test Statistics	Approx 5% CV
CIS	lnreg	23.222	31.844	CEE	lnreg	21.821	31.844
	dlnreg	172.410	33.168		dlnreg	156.021	33.168
	lnrtr	72.065	31.844		lnrtr	68.761	31.844
	$lnreg^{+}$	63.595	31.844		$lnreg^{+}$	76.266	31.844
	$lnrtr^{+}$	21.462	31.844		$lnrtr^{+}$	20.525	31.844
	$dlnrtr^{+}$	83911.892	33.168		$dlnrtr^{+}$	176.392	33.168
	lnreg-	7.455	31.844		lnreg-	10.506	31.844
	$dlnreg^{-}$	153.270	33.168		dlnreg-	171.187	33.168
	$lnrtr^{-}$	11.467	31.844		$lnrtr^{-}$	16.186	31.844
	$dlnrtr^{-}$	98.359	33.168		$dlnrtr^{-}$	188.820	33.168

Table 6 Dumitrescu and Hurlin Symmetric Panel Causality Test Results

Country groups	Primary Hypothesis	$\tilde{Z}^{HNC}$ Test Statistics			Result	Decision
		K_1	K_2	K_3		
CIS	Ho = lnrtr↛lnreg	0.25671	2.23410[b]	1.06615	H_o not rejected	lnrtr↛lnreg
	Ho = lnreg↛lnrtr	-1.19832	-0.33353	-0.15169	Ho not rejected	lnreg↛lnrtr
CEE	Ho = lnrtr↛lnreg	1.77173[c]	-0.14771	0.05647	H_o not rejected	lnrtr↛lnreg
	Ho = lnreg↛lnrtr	1.41501	0.38527	-0.43343	Ho not rejected	lnreg↛lnrtr

b, c indicate 5% and 10% significance level, respectively;, indicates that there is no causality in the direction of the arrow

Table 6 shows that no causal relationship was found between the variables for CIS and CEE countries.

Dumitrescu and Hurlin (2012) asymmetric panel causality test results, which were applied to determine the hidden causality relationship between tourism development and economic growth in CIS and CEE countries, are given in Table 7.

As can be seen from Table 7, the causality test result for CIS to determine whether there is a hidden relationship between the asymmetric components could not reveal the existence of any relationship. However, when the results for CEE were examined, a unidirectional causality relationship was determined from lnreg + to lnrtr+. Furthermore, a bidirectional causality relationship was discovered between lnreg- and lnrtr-.

Conclusion and Policy Implications

For developed and developing countries, the tourism industry is an important sector that affects the economic growth process due to its effect on foreign exchange income. Developments in tourism occur as the number of foreign tourists and tourism revenue increase. Thus, countries endeavor to determine the elements that influence tourism development and establish policies for contributing to sectoral

Table 7 Dumitrescu and Hurlin Asymmetric Panel Causality Test Results

Country Groups	Null Hypothesis	$\tilde{Z}^{HNC}$ Test Statistics			Result	Decision
		K_1	K_2	K_3		
CIS	$H_0 = lnrtr^{+} \nrightarrow lnreg^{+}$	-0.61618	-0.39966	-0.50061	H_o not rejected	$lnrtr^{+} \nrightarrow lnreg^{+}$
	$H_0 = lnreg^{+} \nrightarrow lnrtr^{+}$	0.37705	1.90683[c]	0.36094	H_o not rejected	$lnreg^{+} \nrightarrow lnrtr^{+}$
	$H_0 = lnrtr^{-} \nrightarrow lnreg^{-}$	-0.72317	-0.30791	-1.47355	H_o not rejected	$lnrtr^{-} \nrightarrow lnreg^{-}$
	$H_0 = lnreg^{-} \nrightarrow lnrtr^{-}$	-1.09344	-1.48771	-1.71207[c]	H_o not rejected	$lnreg^{-} \nrightarrow lnrtr^{-}$
CEE	$H_0 = lnrtr^{+} \nrightarrow lnreg^{+}$	-1.03131	-1.04659	-0.23493	H_o not rejected	$lnrtr^{+} \nrightarrow lnreg^{+}$
	$H_0 = lnreg^{+} \nrightarrow lnrtr^{+}$	-0.33004	3157.82[a]	9292.84[a]	H_0 rejected	$lnreg^{+} \rightarrow lnrtr^{+}$
	$H_0 = lnrtr^{-} \nrightarrow lnreg^{-}$	-1.48288	21.4133[a]	411.994[a]	H_0 rejected	$lnrtr^{-} \rightarrow lnreg^{-}$
	$H_0 = lnreg^{-} \nrightarrow lnrtr^{-}$	21711.8[a]	16322.8[a]	14806.1[a]	H_0 rejected	$lnreg^{-} \rightarrow lnrtr^{-}$

a, c indicate 1% and 10% significance level, respectively. ↛ indicates that there is no causality in the direction of the arrow, and →indicates that there is causality in the direction of the arrow

improvement. In this study, the causal relationship between tourism development and economic growth in transition economies was investigated for EU member CEE countries and non-EU CIS countries. The determination of whether EU membership has a contribution to tourism development, in other words, whether it is an attraction factor or not, has been the source of inspiration for the research.

In the research, the relationship between tourism development and economic growth is analyzed for 14 transition economies, including 6 CIS countries that are non-EU members and 8 CEE countries that are EU members, for the 1995–2017 period by using the Dumitrescu and Hurlin (2012) symmetrical and asymmetrical panel causality testing approach. The determination of the hidden relations with the asymmetric method used in revealing the causality relations is noteworthy in this research. It is also significant in this study that it has never been used in previous research to determine the causal relationships between tourism development and economic growth in CEE and CIS countries. As a result, revealing a seemingly undetectable relationship in a hidden relationship may guide policy decisions.

This asymmetric method, which is used in the determination of hidden causality relationships, has not previously been used in the previous research to determine the causality relationship between tourism and economic growth in CEE and CIS countries, highlighting the significance of the research. As a result, revealing an apparently undetectable causality relationship in the hidden relationship is expected to guide policy implementation. Thus, we assume that the fact that the relationship between tourism development and economic growth in transition economies has generally been studied symmetrically and that few relationships have been identified may actually lead to effective implementation by highlighting the importance of investigating the existence of a hidden relationship between these variables.

According to the results of the Dumitrescu and Hurlin (2012) symmetrical panel causality test done with raw variables, there was no causal relationship between tourism development and economic growth both for the non-EU member CIS countries and the EU member CEE countries. This result is consistent with the results of Chou (2013) for 3 transition economies. Similarly, the results of Çağlayan et al. (2012), Ekanayake and Long (2012), Tuğcu (2014), Wu et al. (2018) for 5 China provinces, Wu and Wu (2019b), (2020) for 11 China regions, and Eyuboğlu and Eyuboğlu (2020), which study the same issue on other country samples, are also consistent with the results of. The lack of a symmetric causal relationship between the variables reveals the neutrality hypothesis. This result indicates that tourism development has not reached a level that contributes to economic growth. Importing the inputs used in the tourism industry may limit the income generated by the industry and thus limit its contribution to economic growth. In fact, the tourism industry can enhance economic growth by collaborating with other sectors of the economy, leveraging the multiplier effect, and utilizing domestic resources (Wu & Wu, 2019b). On the other hand, the symmetric results of the study are inconsistent with the results of Lee and Brahmasrene (2013), Bilen et al. (2017), and Saglam and Egeli (2018). This diference may be due to a diferent country, period, or methodology.

Therefore, the question arises whether the impact of tourism development, an important driver of economic growth, may have remained hidden. Thus, the existence of a suspected hidden relationship reveals the importance of using an asymmetric method in the study's application process.

The Dumitrescu and Hurlin (2012) panel asymmetric causality test results, which were applied to determine whether there was a hidden relationship between the variables, could not reveal evidence of any causal relationship for the CIS countries, similar to the symmetric results. This result is similar to that of Wu and Legoherel (2024). This may have revealed that tourism development is not sufficient to affect economic growth in these countries.

When the aforementioned results were analyzed for CEE countries, the causality relationship, which could not be determined symmetrically, was determined asymmetrically. In other words, a unidirectional causal relationship from tourism revenues to economic growth was found among the positive components. This finding is consistent with Hatemi-J et al. (2018) for UK and US, Eyuboglu and Eyuboglu (2020) for Argentina and Türkiye, Belke et al. (2021), Pata (2021) for Canada, UK, and US, and Wu and Legoherel (2024) for Fujian, Jiangsu, and Tianjin. For CEE, the unidirectional causal relationship between the positive components, from tourism development to economic growth, supports the tourism-led growth hypothesis. In fact, it can be stated that international tourism revenues contribute to economic growth in this group of countries, and therefore economic growth is positively affected by tourism. Thus, CEE countries should aim to attract more international tourists through incentive policies (e.g., increasing international promotion, improving travel and accommodation infrastructure investments, removing travel restrictions, improving transportation and accommodation safety, promoting sectoral training, supporting domestic tourism enterprises in various aspects, etc.) to increase tourism revenues.

When the results of the negative components were examined, a bidirectional causal relationship was determined between tourism revenues and economic growth. This result is consistent with Pata (2021) for Japan and Sweden. The bidirectional relationship between the variables demonstrates the effectiveness of the feedback relationship and their mutual influence. This result supports the feedback hypothesis. This situation, identified among the negative components, reveals that a negative tourism shock may suppress economic growth. Therefore, it emphasizes the importance of policymakers taking decisions to support and improve tourism development in order to prevent economic growth from being affected during periods of tourism decline.

When these results are evaluated as a whole, they are important in terms of revealing the evidence of a hidden causal relationship. This is because practices that contribute to tourism development are frequently the result of policy decisions. We expect that the existence of these relationships would serve as a guide for making appropriate decisions for implementations that will help the development of the economy.

The common feature of these two country groups is their transition to a market economy, while they were previously governed by the socialist system. In this research done to determine whether the EU membership created a difference

between tourism development and economic growth after the transition, the results revealed that there was not a difference in sight for the EU member CEE countries and non-EU member CIS countries, yet there was a hidden relationship when separating into positive and negative components, creating a difference in the results.

The fact that there is no apparent difference may indicate at first glance that EU membership does not have an effect. At this point, it can be stated that EU membership has not been a factor of attraction in tourism revenues and has not had an impact on reaching a sufficient level in terms of tourism revenues. Moreover, EU members should also need to focus on development of meal sharing economy and entrepreneurship, since it is the better way to develop the formal economy with the help of tourism and hospitality (Cifci et al., 2023; Kahraman et al., 2023; Tiwari et al., 2024).

When the asymmetric causality results were examined, it was determined that the tourism-led growth hypothesis is valid under the leadership of economic growth among the positive components for CEE countries. It is known that economically developed countries in the world attract more tourists. Therefore, as a result of the analysis to determine the confidential relationship, it can be stated that EU membership has turned into an attraction factor for CEE countries by supporting activities for economic growth and contributing to tourism development. When the results regarding the negative components were evaluated, the existence of a bidirectional causality relationship for the negative components for the CEE countries was evaluated in the direction of the presence of the spillover effect in negative developments with faster effects. In other words, EU membership may have revealed a more fragile structure through negative developments.

In addition, these results of the study may give policymakers an idea about the revision and, if necessary, renewal of policies by showing the existence of an unseen but hidden relationship in the implementation processes. Therefore, the need for more information in the implementation of the results of the research has revealed useful results in terms of indicating the importance of including advanced methods in the research processes for academic circles.

When all the results are evaluated as a whole, no apparent causal relationship can be determined for the CEE and CIS countries, while the results of the hidden relationship for the EU member CEE countries reveal the importance of EU membership. Therefore, we expect that setting policy targets according to the results of the hidden relationship will contribute to obtaining effective results in the implementation of targets for tourism development and economic growthce of EU membership. Therefore, we expect that setting policy targets according to the results of the hidden relationship will contribute to obtaining effective results in the implementation of targets for tourism development and economic growth. The development and implementation of effective tourism policies can strengthen the relationship between tourism development and economic growth.

CIS countries, which have a weaker macroeconomic performance than CEE countries, can contribute to their economic growth by diversifying their tourism policies. In fact, EU membership necessitates planning that will reveal policies that will lead to high development in the tourism sector. Thus, it can be expected to contribute to both economic growth and the development of the tourism industry.

Limitations and Future Directions

One of the main limitations of the study is the availability of common, gap-free, and long-run data for transition economies. Therefore, a significant limitation of the study is the inclusion of the period 1995–2017 in the common, gap-free, and long-run criteria for the transition economies of the CIS and CEE group. Therefore, we suggest that future studies examining this issue for transition economies should consider extending the period. Another limitation is the use of tourism revenues as a proxy for tourism development. Future researchers could include other variables to represent tourism development, such as the number of tourist arrivals and the share of tourism revenues in exports. In addition, future research could re-examine the causal relationship between tourism development and economic growth in transition economies using advanced econometric methods to obtain in-depth information.

Data Availability On request, Data will be made available via corresponding author.

Declarations

Competing interests The authors declare no competing interests.

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