Public Administration and Policy

143

Effectiveness of public policies in preventing terrorism in ten fast-growing countries

Ahmet Keser
Department of Political Science and International Relations, Hasan Kalyoncu University, Gaziantep, Türkiye
Mehmet Vahit Eren
Department of Economics, Kilis 7 Aralik University, Kilis, Türkiye, and
Ibrahim Cutcu
Department of Banking and Insurance, Hasan Kalyoncu University, Gaziantep, Türkiye

Received 22 July 2025
Revised 30 November 2025
1 February 2026
22 March 2026
16 June 2026
Accepted 27 June 2026

Abstract

Purpose – This study aims to assess the effectiveness of public policies implemented to prevent terrorism in the ten fast-growing countries.

Design/methodology/approach – The analysis utilizes annual data (2002-2021) from ten countries: Argentina, Brazil, China, India, Indonesia, Mexico, Poland, South Africa, South Korea, and Türkiye. It employs unit root tests to scrutinize whether the impacts of anti-terrorism policies are permanent or transient.

Findings – The terrorism variable is largely stationary in the ten fast-growing countries. Analyzing the CADF test results for the Global Terrorism Index (GTI) variable reveals distinct stationarity patterns across the panel. (1) In the constant-only model, the GTI variable is stationary at the 5% significance level for Indonesia, Mexico, and South Africa, and at the 10% significance level for China and Poland. The panel stationarity result as a whole is significant at the 1 percent significance level. (2) In the constant-and-trend model, Indonesia, Mexico, and Poland show stationarity at the 10% significance level, while the full panel result is stationary at the 5% significance level. These findings suggest that the impact of shocks from terrorist incidents is temporary which may indicate effective implementation of anti-terrorism policies in these high-growth countries.

Originality/value – The study addresses a literature gap by examining the stationarity of the terrorism variable. Its recommendations emphasize consistent policy implementation, enhanced international cooperation, and coordinated efforts.

Keywords Public policy, Terrorism, Political violence, Effectiveness of counterterrorism policies, Stationary analysis

Paper type Research article

Introduction

Terrorism refers to the use or threat of violence, typically orchestrated by illegal and covert political, ideological, revolutionary, religious, or separatist organizations, to instill "psychological fear" within society. Their primary objective is to induce short-term disruptions in the economy and/or politics (Mohamed *et al.*, 2019).

Interest in insurgent (armed) groups and terrorism has quite a long history and various roots in political science and international relations (Keser and Fakhoury, 2025). Terrorism targets the secure environment established and safeguarded by governments and authorities, which

Public Administration and Policy
Vol. 29 No. 2, 2026
pp. 143-157
Emerald Publishing Limited
e-ISSN: 2517-679X
p-ISSN: 1727-2645
DOI 10.1108/PAP-06-2025-0095

directly addresses the physiological needs of individuals. Three prominent reasons for terrorism emerge: economic, socio-cultural, and psychological (Tavares, 2004).

Despite various aims, acts of terrorism can be categorized into three main types:

- *Propaganda:* Terrorism serves as a method for conveying private aims to the public, with attacks in rural areas proving more effective in garnering media attention.
- *To destabilize the administration:* Terrorist organizations challenge constitutional systems to achieve their objectives.
- *Damage to the economic sphere:* Terrorist organizations inflict harm on material goods to oppress society.

Understanding the economic impact of terrorism is crucial for policymakers, particularly given the heightened attention following global terrorist events. Economic considerations intersect with terrorism through efforts to prevent terrorist financing, allocate government resources for counterterrorism, and examine the link between poverty and terrorism (Takay *et al.*, 2009).

In academic research, the effectiveness of public policies is often assessed through stationarity analyses. Despite extensive literature on terrorism, studies examining the stationarity of terrorism prevention policies are scarce. This study addresses this gap by evaluating the effectiveness of policies against terrorism in the ten fast-growing countries. Stationarity analyses assess policy outcomes over time, rather than the policies themselves.

This paper specifically evaluates whether counterterrorism policies in Argentina, Brazil, China, India, Indonesia, Mexico, Poland, South Africa, South Korea, and Türkiye have been effective. These countries were selected based on their growing share of global production —from about 10 percent in 1990 to 30 percent in 2021 — indicating rapid development. The study explores whether effective anti-terrorism policies contribute to sustained economic growth, tested via stationarity analysis. By examining this link, the research investigates whether the policies in these countries reflect effectiveness in countering terrorism. The hypothesis is: Effective counterterrorism policies are implemented in the ten fast-growing countries.

Literature review

Studies on terrorism generally fall into two categories: (1) applied research using the terrorism variable and (2) theoretical research examining conceptual, social, and political dimensions. The former typically relies on econometric and statistical analyses, while the latter employs case studies, comparative approaches, and theoretical exploration.

In this study, research using stationarity analysis across various variables was first reviewed, followed by studies focused specifically on terrorism. The review revealed that stationarity analyses have rarely addressed terrorism directly, often concentrating on other fields, while terrorism studies have yet to apply stationarity methods.

The key contribution of this study lies in its novel use of stationarity tests to analyze the terrorism variable — a method largely unexplored in existing scholarships. While prior research has focused on relationships between terrorism and socio-economic factors across countries, the effectiveness of terrorism-related policies has rarely been examined. By applying stationarity tests to the terrorism variable, this study introduces a fresh perspective to literature.

The applied literature on terrorism systematically examines the variable alongside socio-economic factors such as growth, interest rates, tourism, inflation, foreign capital, and exchange rates. The reviewed studies underscore the varied impacts of political, economic, and security policies on terrorism, as well as the factors influencing the persistence or reduction of terrorist incidents:

(1) *Mixed impact of deterrent and economic policies:* Barros (2003) indicates that the relationship between terrorism and factors like police presence, military expenditure, tourism, and foreign investment is complex, without clear-cut effects on stabilizing or reducing terrorism. According to Ojewale and Osasona (2025) "the complex nature of conflict dynamics, which can lead to an incorrect assessment of root causes and ineffective policy responses".

(2) *Economic growth as a mitigating factor:* Studies by Meierrieks and Gries (2012) and Shahbaz *et al.* (2013) suggest that economic growth can be a stabilizing factor against terrorism in underdeveloped regions. Growth inversely affects terrorism rates in Latin America and Pakistan.

(3) *Role of political instability and socioeconomic variables:* Research on Tunisia by Nurunnabi and Sghaier (2018) emphasizes that higher unemployment, political instability, and educational enrollment correlate positively with terrorism, while GDP per capita and foreign direct investment (FDI) have negative effects on terrorism.

(4) *Investment and terrorism:* Onanuga *et al.* (2021) argue that terrorism deters FDI and negatively impacts financial inflows, and find that increased military spending positively affects financial indexes despite the rise in terrorist incidents, suggesting that heightened security measures may bolster investor confidence in unstable regions.

(5) *Long-term relationships and causality:* Mohamed *et al.* (2019) found in their study long-term relationships between terrorism and economic variables like GDP, FDI, and trade openness. These connections imply that sustained economic strategies, including growth promotion and investment in trade openness, could stabilize terrorism over time.

(6) *Systemic challenges:* These include "misalignment between top-down directives and local priorities, resource limitations, and an emphasis on outputs (e.g., equipment procurement) over outcomes (e.g., prevention effectiveness)". Resistance to change, reliance on individual initiative, and a lack of clarity, motivation, and performance-based incentives are included in the key barriers (Bellander *et al.*, 2025).

(7) *Institutional resilience, policy transfer, and learning*: Successful counterterrorism applications, policy development, and strategies of "coordination and learning, characterized by its multi-level nature and incrementalism, and crisis processes, which are indirectly coercive and state-centric" (Palomo and Villoria, 2025) can be used for developing counterterrorism policies.

In sum, there is a literature gap in examining how specific counterterrorism policies directly impact the stability or reduction of terrorism. The problem of measuring counterterrorism policies' effectiveness thus emerges. To develop the analysis, the question of "how can this effectiveness be accurately measured" has to be addressed.

In this context, the four factors counted in a country's annual Global Terrorism Index (GTI) score are as follows (IEP, 2025):

(1) The total number of terrorist incidents occurring in a given year.

(2) The total number of deaths caused by terrorists in a given year.

(3) The total number of injuries caused by terrorists in a given year.

(4) The total number of hostages taken by terrorists in a given year.

If the GTI series is non-stationary or contains a unit root, external shocks from changes in the GTI score can have lasting effects on national economies. Otherwise, their impact is

temporary. The rapid development observed in the ten selected countries, despite terrorist incidents, suggests such effects have been temporary. For temporary effects, the GTI variable must be stationary, which also indicates the effectiveness of implemented counterterrorism policies.

Methodology

A key implication of the theoretical framework is that terrorism-related shocks may be temporary or persistent, depending on the effectiveness of counterterrorism policies. Empirically separating these dynamics requires econometric methods that test for unit roots in terrorism data. Building on this premise, the study employs panel unit root tests to assess whether terrorist shocks dissipate over time.

This paper employs unit root tests to examine "if the impacts of implemented policies on terrorism within the data range of 2002-2021 for the ten fast-developing countries are enduring or transitory." The analysis leverages the GTI calculated by Vision of Humanity (2022). The study's sample comprises the top ten countries (Argentina, Brazil, China, India, Indonesia, Mexico, Poland, South Africa, South Korea, and Türkiye) exhibiting the most rapid increases in their shares of world production. This approach ensures analytical coherence when examining economic growth and the short-lived nature of terror shocks within a unified framework. However, reliance on a small sample of countries presents limitations. With only ten nations (N = 10), some panel unit root tests may not fully exhibit their asymptotic properties. Moreover, although the analysis draws on global comparisons, the model does not directly incorporate cross-national differences in institutional capacity, political systems, or counterterrorism strategies.

The study uses GTI, a composite measure based on four indicators: *the frequency of attacks*, *fatalities*, *injuries*, and *hostage-taking*. Widely employed for its methodological rigor and cross-country comparability, the GTI nonetheless has constraints. As an aggregate index, it lacks detailed micro-level information on incident types or organizational motives. Finally, the study's time span is limited to 20 years because GTI data before 2002 are sparse and inconsistently available.

Data set and modelling

While the GTI provides a standardized cross-national measure by combining incidents, fatalities, injuries, and hostage events, it has limitations. As a composite indicator, it may obscure differences in attack types, motives, and organizational structures. Its reliance on publicly available data can also introduce reporting bias, especially in countries with weaker institutions. Additionally, its weighting scheme may not fully capture qualitative variations in attack severity.

Countries are selected based on high economic growth to assess whether terrorism-related shocks have permanent or temporary effects. The ten fast-developing economies identified by Morgan Stanley Capital International (2013) for their significant share of global income. Their pivotal role in global trade and financial stability, along with their influence on Asia, Central Europe, and Latin America's transition to free markets, underscores their importance. The framework assumes effective counterterrorism policies render such shocks temporary, implying stationarity. Accordingly, unit root and stationarity tests are employed to determine whether shocks persist. Cross-sectional dependency tests and second-generation panel unit root methods are used to account for interdependence and evaluate long-term convergence in terrorism trends.

The analyses are grounded in a selected group of countries, and the examination relies on annual data spanning 2002-2021 due to data constraints and the challenge of creating a uniform dataset. In determining the variable for the GTI, alignment with established practices in previous studies is emphasized, drawing from the consistency observed in the literature (Takay *et al.*, 2009; Meierrieks and Gries, 2012).

Econometric method

In this study, the stationarity of the GTI variable is examined using annual data spanning the period 2002-2021. Panel Data Analysis techniques are employed, and the applied methodological sequence unfolds as follows:

- To analyze the cross-section dependency of variables Breusch and Pagan's (1980) CD_{lm1} and LM_{adj} test by Pesaran *et.al.* (2008).
- Whether the variables included in the model contain unit roots or not is analyzed by Pesaran's (2007) CADF, Hadri and Kurozumi (2012), and SURADF stationarity tests.

Findings

In this section, we interpret the outcomes of the cross-sectional dependency and unit root tests applied to the variables as part of the econometric analysis.

Cross-sectional dependency test

Ascertaining the presence of cross-sectional relationships among variables before hypothesis testing is imperative in panel data studies. Pesaran (2006) asserted that failing to conduct a cross-sectional analysis may yield inconsistent and biased results. According to Breusch and Pagan (1980) and Pesaran (2004), detecting cross-sectional dependence in variables necessitates its consideration in subsequent analyses.

The tests employed for detecting cross-sectional dependency are as follows:

- When the time dimension is larger than the cross-sectional dimension (T>N); use the Breusch and Pagan (1980) CD_{lm1} test,
- When the time dimension is equal to the cross-sectional dimension (T=N); use the Pesaran (2004) CD_{lm2} test,
- When the time dimension is smaller than the cross-sectional dimension (T<N); use the Pesaran (2004) CD_{lm} test,
- When the time dimension is both smaller (T<N) and larger (T>N) than the cross-sectional dimension, use the Pesaran *et al.* (2008) (LM_{adj}) test.

This study comprises datasets from the ten countries exhibiting the highest economic growth performance, defining the cross-sectional dimension as N=10. The time dimension, T, is set to 20, representing the annual data span from 2002 to 2021. Given that T>N, the analyses utilize Breusch and Pagan's (1980) CD_{lm1} test and Pesaran *et al.*'s (2008) LM_{adj} test. The results of Cross-Sectional Tests are given in Table 1.

Considering both the *countries* in the model and the *time dimension*, and given that *T>N*, decisions rely on the results of the CD_{lm1} and LM_{adj} tests. In cross-section dependency assessments, LM_{adj} results are generally prioritized over CD_{lm1} due to potential deviations. Table 1 shows that the GTI variable is statistically significant at the 1% level.

Table 1. The Results of Cross-Sectional Tests

Variables	CD Test	CD_{lm1} (BP, 1980)	CD_{lm2} (Pesaran, 2004)	CD (Pesaran, 2004)	LM_{adj} (Pesaran *et al.*, 2008)
GTI	T statistics	128.4869	8.8005	-0.4280	8.5374
	Probability	0.0000*	0.0000*	0.0000*	0.0000*

Note: *, **, and *** indicate cross-sectional dependency at 1%, 5%, and 10% significance levels, respectively.
Source: By authors

Thus, the null hypothesis of "no cross-sectional dependency" is rejected for the GTI variable, supporting the presence of horizontal cross-sectional dependence among countries in the panel data. This reflects the contemporary global context, where shocks in one country can affect others, highlighting that policymakers must consider the interconnected nature of national and international dynamics.

Panel Unit Root Tests

A key consideration in panel data stationarity tests is the independence of countries within the sample. Unit root tests for panel data include first- and second-generation approaches. While first-generation tests ignore cross-section dependency, second-generation tests account for it. Given the global context, it is realistic to expect that shocks in one country affect others. Since the GTI variable exhibits cross-sectional dependency, second-generation tests are more appropriate. Accordingly, the GTI variable is analyzed using CADF, Hadri and Kurozumi (2012), and SURADF unit root tests, which are widely regarded as the most suitable in literature.

CADF Unit Root Test

The GTI variable undergoes the CADF unit root test developed by Pesaran (2007). Key distinctions between the CADF unit root test and other stationarity tests are outlined as follows:

- Considering both the countries in the model and the time dimension, CADF yields consistent results, particularly applicable when T>N. In this study, with N=10 as the cross-sectional dimension and annual data spanning 2002-2021, T=20, thus meeting the condition T>N, making CADF the most favored unit root test in literature.
- In the analysis, a test statistic value is computed for each unit constituting the panel, followed by the calculation of the CIPS (Cross Sectionally Augmented IPS) test statistic for the entire panel, determined by averaging these individual tests.
- The CADF test extends the ADF regression with lagged cross-sectional averages. Consequently, the regression model established using CADF simplifies to the Ordinary Least Squares (OLS) estimation of the regression specified in Equation (1).

$$\Delta y_{it} = a_i + b_i y_{i,t-1} + c_i \bar{y}_{t-1} + d_i \Delta \bar{y}_t + e_{it} \tag{1}$$

The CADF and CIPS test statistics from the CADF unit root tests are compared against critical values generated via Monte Carlo simulations to assess stationarity. If the absolute values of the calculated CADF and CIPS statistics exceed the critical values, the null hypothesis of a unit root is rejected, and the alternative hypothesis of stationarity is accepted for the panel as a whole.

The stationarity of the GTI variable is examined for countries with the highest economic growth using the CADF test under both the "constant" and "constant and trend" models, applied to the entire panel as well as individual cross-sectional units. Results are presented in Table 2, alongside the critical values from Pesaran (2007).

Analyzing the CADF test results for the GTI variable in Table 2 reveals distinct stationarity patterns among the countries comprising the panel. Examining the variables:

- In the constant model, the GTI variable is stationary at a 5% significance level for Indonesia, Mexico, and South Africa and a 10% significance level for China and Poland. In the remaining countries, it exhibits unit-rooted behavior. The CIPS statistic, providing stationarity analysis results for the entire panel, is stationary at a 1% significance level.

Table 2. CADF Unit Root Test Results

Country	Constant Model	Constant and Trend Model
Argentina	-1.83	-2.664
Brasilia	-2.60	-2.5117
China	-3.27***	-3.147
India	-2.87	-2.684
Indonesia	-3.52**	-3.781***
United Mexican States (Mexico)	-3.77**	-3.969***
Poland	-3.06***	-3.675***
South Africa	-3.47**	-3.253
South Korea	-1.23	-1.894
Türkiye	-1.51	-1.622
CIPS statistics	-2.71*	-2.921**

Notes 1) CADF critical table values for the constant model: %1: -4.35 %5: -3.43 %10: -3.00
CADF critical table values for the constant and trend model: %1: -4.97 %5: -3.99 %10: -3.55
2) CIPS critical table values: %1: -2.60 %5: -2.34 %10: -2.21
CIPS critical table values for the constant and trend model: %1: -3.15 %5: -2.88 %10: -2.74
3) The signs (*), (**), and (***) indicate stationary at 1%, 5% and 10% significance levels, respectively.
4) Lag lengths are chosen according to the Schwarz information criterion.
Source: By authors

- In the constant and trend model, Indonesia, Mexico, and Poland show stationarity at a 10% significance level. For the other countries, the GTI variable displays unit-rooted behavior. The CIPS statistic, reflecting stationarity analysis results for the entire panel, is stationary at a 5% significance level.

The stationarity of the CIPS statistic calculated for both the "constant" and the "constant and trend" model panels suggests that the impact of shocks resulting from terrorist incidents is temporary. This outcome can indicate the effective implementation of anti-terrorism policies in the ten countries with the highest economic growth rates.

Hadri and Kurozumi Unit Root Test

Hadri and Kurozumi's (2012) unit root test not only considers cross-sectional dependency among the units comprising the panel but also accommodates unit roots stemming from the common factors constituting the series, allowing for the presence of common factors. In the presence of autocorrelation, correction is made by adding one to the number of lags, relying on AR(p) based on the Seemingly Unrelated Regressions (SUR) method or AR(p+1) based on the Toda and Yamamoto (1995) method.

$$y_{it} = z_t'\delta_i + f_t\Upsilon_i + \varepsilon_{it} \tag{2}$$

$$\varepsilon_{it} = \phi_1\varepsilon_{it} + v_{it} \tag{3}$$

z_t' in equation (2) is deterministic. Hadri and Kurozumi (2012) proposed the following test statistic for autocorrelation correction based on AR(p) using the SUR (Seeming Unrelated Regression) method, also known as the SPC method developed by Sul *et al*. (2005):

$$Z_A^{SPC} = \frac{1}{\delta_{iSPC^2T^2}} \sum_{t=1}^{T} \left(S_{it}^{w}\right)^2 \tag{4}$$

The LA (Lag-Augmented) test statistic with autocorrelation correction based on AR(p+1) predicated on the Toda and Yamamoto (1995) method is as follows:

$$Z_A^{LA} = \frac{1}{\delta_{iLA^2T^2}} \sum_{t=1}^{T} \left(S_{it}^{w}\right)^2 \quad (5)$$

If at least one of the SPAC and LA values is stationary, the series is considered stationary. The null hypothesis states that the series is stationary, and the alternative hypothesis states that the series is unit-rooted.

Table 3 shows that the GTI variable is stationary under the constant model but exhibits a unit root under the constant and trend models. Since the GTI series does not display a clear trend from 2002 to 2021, the Hadri and Kurozumi (2012) unit root test relies on the constant model. The stationarity of the ZASPC test statistic for the full panel under this model suggests that shocks from terrorist incidents have only temporary effects. This finding indicates the likely effectiveness of anti-terrorism policies in the ten countries with the highest economic growth rates.

SURADF Unit Root Test

Breuer *et al.* (2002) note that rejecting the null hypothesis of a unit root using standard panel tests does not guarantee that all units are stationary, due to their "all-or-none" nature. To address this limitation, they propose a panel unit root test based on estimating augmented Dickey-Fuller (ADF) models via a seemingly unrelated regression (SUR) approach. This method overcomes the shortcomings of standard panel tests. In the SURADF test, the null hypothesis assumes the series is stationary, while the alternative assumes non-stationarity.

Table 4 reports the SURADF results for the constant model. The GTI variable is stationary in all countries except Argentina, indicating that shocks from terrorist incidents are temporary in these nations, *except Argentina*.

Table 3. Hadri and Kurozumi Unit Root Test Results

	Constant		Constant and Trend	
	Z_A^{SPC}	Z_A^{LA}	Z_A^{SPC}	Z_A^{LA}
Test Statistics	0.2773	1.9916	2.4129	5.3659
Probability	0.3908	0.0232	0.0079	0.0000

Source: By authors

Table 4. SURADF Unit Root Test Results (Constant Model)

Country	Test Statistics	Critical Values %1	%5	%10
Argentina	-3.5755	-7.6672	-6.1270	-5.3068
Brasilia	-5.4665***	-7.8730	-5.9912	-5.2884
China	-5.2966***	-7.2078	-5.7383	-4.9769
India	-5.8473***	-7.9709	-6.1535	-5.3227
Indonesia	-5.9694**	-7.3746	-5.7255	-4.8999
United Mexican States (Mexico)	-6.1675**	-7.5922	-6.0838	-5.2283
Poland	-6.6900**	-7.9386	-6.1591	-5.3773
South Africa	-6.5295**	-7.8962	-6.1626	-5.3054
South Korea	-5.5141***	-7.1561	-5.3498	-4.6668
Türkiye	-7.0444**	-7.5466	-5.7242	-4.9267

Note: (*), (**), and (***) denote stationarity at 1%, 5%, and 10% significance levels, respectively.

Source: By authors

This outcome can be interpreted as an indication that the ten countries with the highest economic growth rates (excluding Argentina) are in this position due to the implementation of effective anti-terrorism policies. Table 5 displays the results of the SURADF unit root test for the constant and trend model.

Based on these findings, the GTI variable is stationary in most countries except Argentina, Brazil, China, and India, suggesting that the impact of shocks resulting from terrorist incidents is temporary elsewhere. This outcome can be interpreted as evidence that effective anti-terrorism policies have been implemented in those countries.

Discussion

This study provides important insights into the effectiveness of counterterrorism policies in the ten fast-growing countries by examining the stationarity of the GTI. Through analyses, it evaluates the transitory nature of terrorism-related shocks, offering a measure of counterterrorism policy impact. The findings indicate a general trend toward stationarity for the GTI variable, suggesting that these policies effectively limit the prolonged economic effects of terrorism.

Cross-sectional dependency and global interconnectivity: The cross-sectional dependency test highlights a high degree of interconnection among the sampled countries, reflecting the growing global interdependence in counterterrorism outcomes. Consistent with Pesaran (2006), shocks in one country can reverberate across others, emphasizing the importance of internationally coordinated counterterrorism efforts. These results reinforce the view that effective counterterrorism cannot occur in isolation, given the transnational nature of terrorism and its economic repercussions.

Stationarity and policy effectiveness: Results from CADF, Hadri-Kurozumi, and SURADF tests show that the GTI variable is largely stationary across the sampled countries. In econometric terms, stationarity indicates that shocks from terrorist incidents are temporary rather than permanent, suggesting that these countries have successfully implemented counterterrorism measures that mitigate long-term economic impacts. This finding aligns with Shahbaz *et al.* (2013) and Nurunnabi and Sghaier (2018), which link political stability and proactive counterterrorism policies to greater economic resilience and reduced effects of terrorism.

To examine the relationship between stable patterns of terrorist incidents and the influence of counterterrorism (CT) policies in the sample group, it is important to consider newly introduced policies, legislation, and institutions. One such institution is MIKTA — a cross-

Table 5. SURADF Unit Root Test Results (Constant and Trend Model)

Country	Test Statistics	Critical Value %1	%5	%10
Argentina	-4.5178	-10.0795	-7.8402	-7.0767
Brasilia	-5.4195	-10.5175	-8.0437	-7.1596
China	-5.4552	-9.0178	-7.0350	-6.4146
India	-6.0618	-10.5684	-8.0249	-7.1742
Indonesia	-6.7118***	-9.2135	-7.5396	-6.5273
United Mexican States (Mexico)	-7.1822***	-10.0770	-7.6620	-6.9520
Poland	-7.6305***	-9.9862	-7.6357	-6.7684
South Africa	-7.6532**	-9.9340	-7.4326	-6.5401
South Korea	-8.0184**	-9.7558	-7.5431	-6.4427
Türkiye	-8.8811**	-9.7366	-7.2150	-6.3398

Note: (*), (**) and (***) denote stationarity at 1%, 5% and 10% significance levels, respectively.
Sources: By authors

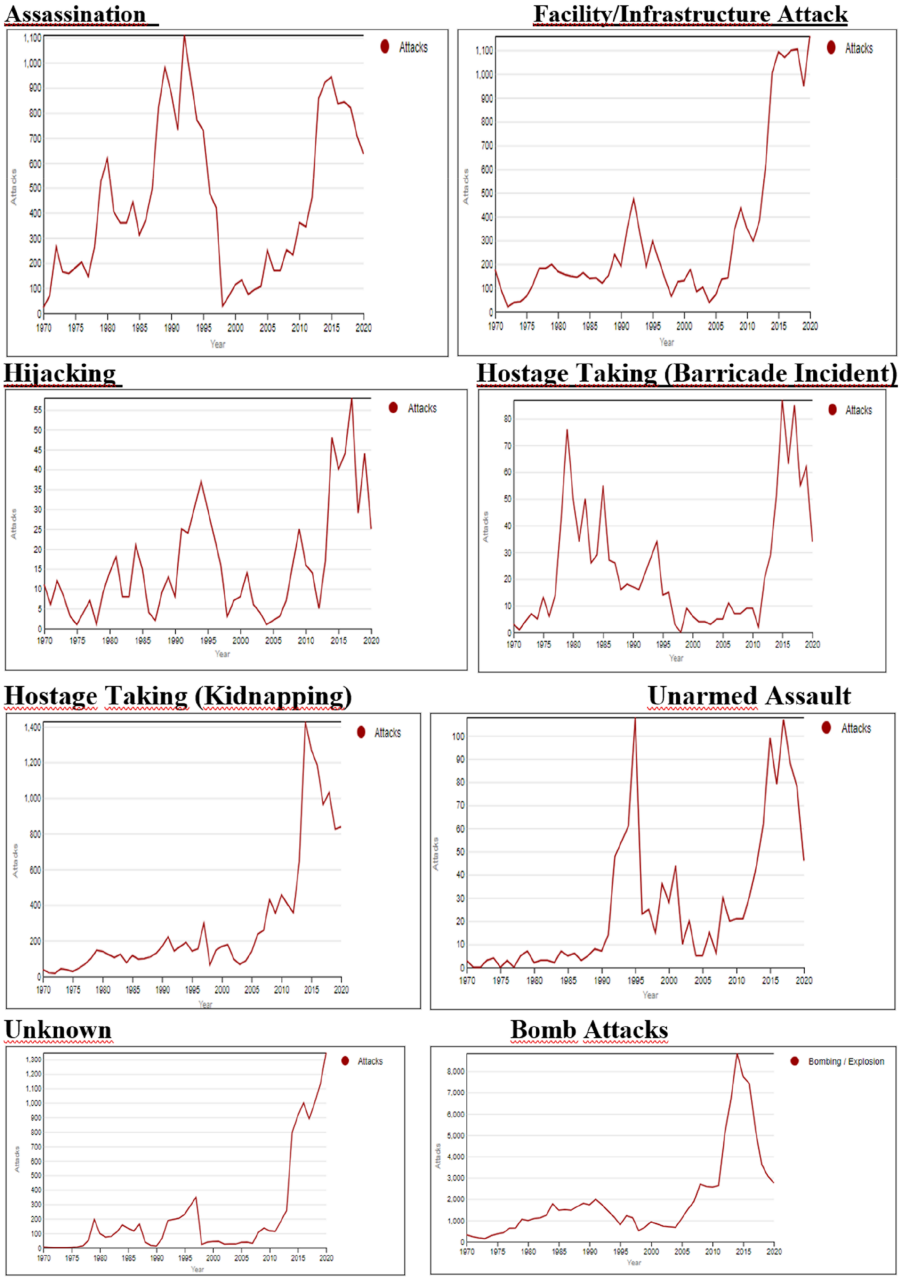

Figure 1. Terrorist Incidents by Type of Attack on a Global Scale (1970-2020). **Source:** Graphics are drawn from the data of the Global Terrorism Database (2020).

regional grouping of Mexico, Indonesia, Korea, Türkiye, and Australia — formed in 2013 during the UN General Assembly (MIKTA, 2013). Representing diverse cultural, linguistic, and religious backgrounds, MIKTA promotes democratic values and multilateral cooperation. It operates as an informal, flexible platform driven by its five members — ranked among the world's 12th to 17th largest economies — to advance shared interests, including CT (Daily Sabah, 2015). In 2019, the group issued a joint declaration condemning terrorism, violent extremism, and online incitement to hatred (Bureau of Counterterrorism, 2019). Thus, five of the ten sample countries have engaged in multilateral CT collaboration.

A thorough investigation of the developed CT policies within the sample group shows that, at the national level, CT policies also demonstrate varying degrees of institutional development and effectiveness.

South Africa's Protection of Constitutional Democracy Against Terrorist and Related Activities Act criminalizes terrorism and its financing, while the *Regulation of Foreign Military Assistance Act of 1998* restricts nationals' involvement in groups such as ISIS/ISIL.

Indonesia has applied sustained pressure on domestic terrorist networks and participates actively in the Global Counterterrorism Forum (GCTF). The 2018 Mako Brimob prison riot —marked by hostage-taking by terrorist inmates—and subsequent family suicide bombings hastened the revision of Indonesia's Anti-Terrorism Law (Sukabdi, 2021). Bambang Soesatyo emphasized reforms addressing victim compensation, pre-emptive arrests, practitioner protection, detention rules, deradicalization, and the authority of the National Counterterrorism Agency (BNPT). Indonesia subsequently adopted a "pentahelix" model combining enforcement and preventive measures (Subagyo, 2021). Despite legal reinforcement and long-term implementation, deradicalization efforts have shown limited effectiveness (Subagyo, 2021).

China has significantly strengthened its counterterrorism (CT) posture following a series of high-profile attacks and increasingly aligned its CT practices with international norms (Jiemian, 2003). On March 1, 2014, five assailants armed with knives killed 29 civilians at a railway station in Kunming. This incident was followed by at least four major attacks — a bombing at Beijing Airport, a vehicle attack and explosion near Tiananmen Gate, a blast outside the Communist Party headquarters in Shanxi Province, and an assault on a police station in Xinjiang — as dominated media coverage between July and December 2013 (Reeves, 2016). In response, President Xi Jinping pledged in March 2014 that the government would act decisively and rapidly to prevent future attacks (Zhongbing, 2014). Since the late 1990s and early 2000s, China's CT framework has evolved in four key respects. First, while the Ministry of Public Security (MPS) and the People's Liberation Army (PLA) remained central actors, the broadening definition of terrorism drew in additional agencies, including the Ministries of Health and Transportation, particularly in preparedness and infrastructure protection (Zhengyuan, 2011). Second, policymaking became more centralized and strategically aligned, facilitating international cooperation. This shift underpinned collaboration with Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan, and supported multilateral initiatives such as the 2001 Shanghai Pact (Jie, 2005; Zhongbing, 2014). Third, terrorism was more firmly institutionalized as a national security concern, as reflected in the 2002 National Defense White Paper (Ministry of National Defense, 2002). Finally, policy approaches became more multifaceted, combining measures with socio-economic initiatives addressing root causes, including the "Open-Up the West" campaign (Zhengyuan, 2011; Zhongbing, 2014). Legislative adoptions in 2001 and 2011 targeted terrorist financing, organized crime links, propaganda, and legal standardization (Jie, 2005; Qian, 2008).

Türkiye remains an active contributor to global CT efforts, including the GCTF and the Global Coalition to Defeat ISIS/ISIL. Türkiye's advanced law enforcement apparatus is complemented by social-prevention programs conducted by the Turkish National Police and rehabilitation initiatives implemented by the Ministry of Justice. *Mexico*, on the other hand, passed an asset-forfeiture law in 2019 to support CT and strengthened border management by

deploying additional security personnel, though illicit flows persist. The new legislation enhances prosecutors' ability to seize assets tied to criminal or terrorist activity (Bureau of Counterterrorism, 2019).

At this juncture, applying the Global Terrorism Database (2020), terrorist incidents that occurred in 205 countries between 1970 and 2020 can be categorized and examined in terms of the number of terrorist acts. When terrorist incidents worldwide are categorized within themselves, it is seen that there have been changes in the number of different types of terrorist incidents over the years. Figure 1 shows that most types of terrorist incidents increased globally after 2005, peaking around 2015. After 2015, the number of attacks declined considerably, except for unclassified incidents, among which bombings were the most frequent.

This rise between 2003 and 2015 was influenced by turmoil in Asia and the Middle East — such as the emergence of the Taliban in Afghanistan, the 2003 Iraq invasion, and the rise of ISIS/ISIL in Syria and Iraq — and conflicts in Africa, which provided safe havens for terrorist groups like the PKK.

Examining incidents by attack type in Figure 1, upward trends are evident from 2005 and downward trends from 2015, reflecting increased international coordination and stricter counterterrorism policies. This supports the study's assumption that effective counterterrorism measures reduce the frequency of attacks.

Policy implications: Literature shows mixed effects of economic, deterrent, and policy measures on terrorism. Barros (2003) and Piazza (2006) find that economic growth alone does not reduce terrorism, while political stability and socio-economic factors are crucial. Onanuga *et al.* (2021) highlight that military expenditure and robust counterterrorism frameworks yield positive results, consistent with this study's finding that countries with stationary GTI variables likely benefit from effective policies.

However, some studies offer a more nuanced view. Meierrieks and Gries (2012) report that economic growth can partially deter terrorism but requires targeted anti-terrorism initiatives to meaningfully reduce incidents. This study emphasizes that while growth helps absorb temporary shocks, consistent, adaptive counterterrorism policies are essential for sustained stability.

Practical contributions: The findings highlight the importance of balancing counterterrorism efforts with broader socio-economic policies. For policymakers, this dual strategy is critical for sustaining economic growth in regions vulnerable to terrorism.

To enhance the practical relevance of the findings, it is important to clarify how the empirical results inform policy implementation. The stationarity of the GTI in most sampled countries suggests that terrorism-related shocks are absorbed quickly, indicating the presence of coherent and effective counterterrorism systems. This provides policymakers with evidence that sustained investments in intelligence coordination, border management, socio-economic stabilization, and inter-agency cooperation produce tangible outcomes.

Conclusions

Terrorism, a pressing global issue, has far-reaching impacts affecting individuals, regions, and countries worldwide. In the era of advancing technology, terrorist groups constantly evolve their methods, posing a threat to societies. These complexities, encompassing economic, political, social, and cultural dimensions, also impose psychological pressures on individuals. As Keser *et al.* (2025) argued, "A good performance in the sustainability of economic growth needs a high standard of security and political stability". Thus, it is imperative to develop and implement effective policies against terrorism.

These findings align closely with the study's theoretical framework. Stationary GTI series suggest that terrorism's economic shocks are absorbed quickly, reflecting strong security systems, effective policies, international cooperation, and social welfare support. In contrast, persistent shocks in Argentina, Brazil, and India highlight vulnerabilities such as political

instability, regional conflict, weak institutions, or limited policy coordination, consistent with literature linking non-stationary shocks to lasting economic losses and growth deficits (Eckstein and Tsiddon, 2004).

According to the results of this study, the terrorism variable is predominantly stationary in the ten fast-growing countries, suggesting the temporary nature of shocks. This implies the effectiveness of anti-terrorism policies, which positively impact these countries' economies. However, the statistical results show that policy effectiveness becomes meaningful only when assessed alongside international cooperation, social welfare provision, political integrity, economic stability, and security investment. This confirms the empirical validity of a multifaceted and sustainable counterterrorism framework. Thus, when countries simultaneously (1) implement robust security measures, (2) strengthen their economic structure through macro-level policies, (3) adopt social initiatives that enhance cohesion, and (4) expand regional and global cooperation, they achieve greater overall stability and reduce the persistence of terrorism-related shocks.

The study's originality is underscored by the scarcity of literature examining the terrorism variable stationarity. Recommendations emphasize consistent policy implementation, international cooperation, and collective efforts across sectors. Future research could enhance this framework by applying similar stationarity analyses to other sample groups or regions with differing economic profiles.

About the authors

Ahmet Keser (Ph.D.) is a Professor and Head of the Department of Political Science and International Relations at Hasan Kalyoncu University, Gaziantep, Türkiye. He teaches political science, public policy and administration, and security courses, with research focus on public policy analysis, policy transfer, governance, sustainability and security issues.

Mehmet Vahit Eren (Ph.D.) is an Associate Professor at the Department of Economics, Kilis 7 Aralik University, Türkiye. He teaches economics and international economics, with research focus on political economics, economic growth, and economic sustainability issues.

Ibrahim Cutcu is a Professor at the Department of Economics, Hasan Kalyoncu University, Gaziantep, Türkiye, and a Visiting Researcher at Department of Finance, Durham University Business School, UK. His research focuses on foreign direct investment, impacts of climate change on economics, economic growth, and econometric methods.

References

Barros, C.P. (2003), "An intervention analysis of terrorism: the Spanish eta case", *Defence and Peace Economics*, Vol. 14 No. 6, pp. 401-412.

Bellander, S., Eriksson, M., Sundqvist, J. and Ghazinour, M. (2025), "A gap between decision and execution: an explorative study of the Swedish Police's experiences in implementing the 2015 counter-terrorism strategy", *European Journal on Criminal Policy and Research*, ahead-of-print, pp. 1-24, doi: 10.1007/s10610-025-09616-1.

Breuer, J.B., Mcnown, R. and Wallace, M. (2002), "Series-specific unit root tests with panel data", *Oxford Bulletin of Economics and Statistics*, Vol. 64 No. 5, pp. 527-546.

Breusch, T.S. and Pagan, A.R. (1980), "The Lagrange Multiplier Test and its applications to model specification in econometrics", *Review of Economic Studies*, Vol. 47 No. 1, pp. 239-253.

Bureau of Counterterrorism (2019), "Country Reports on Terrorism 2019", The Department of State report on terrorism to Congress, USA, available at: https://www.state.gov/reports/country-reports-on-terrorism-2019 (accessed 29 November 2025).

Daily Sabah (2015), "MIKTA: a new model of partnership for a global future", *Daily Sabah Newspaper*, 24 June, available at: https://www.dailysabah.com/politics/2015/06/24/mikta-a-new-model-of-partnership-for-a-global-future/amp (accessed 30 November 2025).

Eckstein, Z. and Tsiddon, D. (2004), "Macroeconomic consequences of terror: theory and the case of Israel", *Journal of Monetary Economics*, Vol. 51 No. 5, pp. 971-1002.

Global Terrorism Database (2020), GTD, available at: https://www.start.umd.edu/gtd/ (accessed 24 May 2023).

Hadri, K. and Kurozumi, E. (2012), "A simple panel stationarity test in the presence of serial correlation and a common factor", *Economics Letters*, Vol. 115 No. 1, pp. 31-34.

IEP (2025), *Global Terrorism Index*, Institute for Economics and Peace, available at: https://www.economicsandpeace.org/global-terrorism-index/ (accessed 30 November 2025).

Jie, Z. (2005), "Zhongguo de fankong zhengce yuanze: neirong yu cuoshi [China's counter-terror policy: content and measures]", *Contemporary Asia-Pacific*, Vol. 11, pp. 31-37.

Jiemian, Y. (2003), *Guoji hezuo fankong: chaoyue diyuanzhengzhi de sikao [International Cooperation on Counterterrorism: Transcending Geopolitical Thought]*, Current Affairs Press, Beijing.

Keser, A. and Fakhoury, F. (2025), "Hay'at Tahrir Al-Sham (HTS) from an insurgent group to a local authority: emergence, development and social support base", *Studies in Conflict & Terrorism*, Vol. 48 No. 1, pp. 46-66.

Keser, A., Cutcu, I., Tiwari, S., Eren, M.V., Askar, S.S. and Abouhawwash, M. (2025), "How does terrorism hollow out the sustainable economic growth in big ten countries?", *International Journal of Emerging Markets*, Vol. 20 No. 3, pp. 1148-1169.

Meierrieks, D. and Gries, T. (2012), "Economic performance and terrorist activity in Latin America", *Defence and Peace Economics*, Vol. 23 No. 5, pp. 447-470.

MIKTA (2013), "What is MIKTA?", MIKTA official website, available at: https://mikta.org/about/what-is-mikta/?ckattempt=1 (accessed 29 November 2025).

Ministry of National Defense (2002), *White Paper*, Mönch Publishing, Ankara.

Mohamed, H., Jebli, M.B. and Youssef, S.B. (2019), "Renewable and fossil energy, terrorism, economic growth, and trade: evidence from France", *Renewable Energy*, Vol. 139, pp. 459-467.

Morgan Stanley Capital International (2013), "Climate Action Indexes: taking action for net-zero", *MSCI Climate Action Indexes*, available at: http://www.msci.com/products/indices/country_and_regional/em/ (accessed 28 November 2025).

Nurunnabi, M. and Sghaier, A. (2018), "Socioeconomic determinants of terrorism", *Digest of Middle East Studies*, Vol. 27 No. 2, pp. 278-302.

Ojewale, O. and Osasona, T. (2025), "The politics of terror group designation and implications for Nigeria's national security", *Behavioral Sciences of Terrorism and Political Aggression*, ahead-of-print, pp. 1-23, doi: 10.1080/19434472.2025.2504350.

Onanuga, A.T., Odusanya, I.A. and Adekunle, I.A. (2021), "Terrorism and financial flows in Africa", *Behavioral Sciences of Terrorism and Political Aggression*, Vol. 13 No. 3, pp. 197-214.

Palomo, J. and Villoria, M. (2025), "The Europeanization of anti-corruption policy: the case of Spain", *Administration & Society*, Vol. 57 No. 8-9, pp. 1147-1180.

Pesaran, M.H. (2004), "General diagnostic tests for cross section dependence in panels", CESifo Working Paper Series, No. 1229, IZA Discussion Paper No.1240, Bonn.

Pesaran, M.H. (2006), "Estimation and inference in large heterogeneous panels with a multifactor error structure", *Econometrica*, Vol. 74 No. 4, pp. 967-1012.

Pesaran, M.H. (2007), "A Simple Panel Unit Root Test in the presence of cross-section dependence", *Journal of Applied Economics*, Vol. 22 No. 2, pp. 265-312.

Pesaran, M.H., Ullah, A. and Yamagata, T. (2008), "A bias-adjusted LM test of error cross-section independence", *Econometrics Journal*, Vol. 11, pp. 105-127.

Piazza, J.A. (2006), "Rooted in poverty? Terrorism, poor economic development, and social cleavages", *Terrorism and Political Violence*, Vol. 18 No. 1, pp. 159-177.

Qian, W. (2008), "Dongtu' wenti fazhan yanbian yu zhongdong kongbu zhuyi [Analysis of 'East Turkestan' problem and its correlations with the Middle East terrorist groups]", *Arab World Studies*, Vol. 11, No. 6, pp. 31-37.

Reeves, J. (2016), "Ideas and influence: scholarship as a harbinger of counterterrorism institutions, policies, and laws in the People's Republic of China", *Terrorism and Political Violence*, Vol. 28, No. 5, pp. 827-847.

Shahbaz, M., Shabbir, M.S., Malik, M.N. and Wolters, M.E. (2013), "An analysis of a causal relationship between economic growth and terrorism in Pakistan", *Economic Modelling*, Vol. 35, pp. 21-29.

Subagyo, A. (2021), "The implementation of the pentahelix model for the terrorism deradicalization program in Indonesia", *Cogent Social Sciences*, Vol. 7, pp. 1-21.

Sukabdi, Z.A. (2021), "Bridging the gap: contributions of academics and national security practitioners to counterterrorism in Indonesia", *International Journal of Law, Crime and Justice*, Vol. 65, pp. 1-14.

Sul, D., Phillips, P.C.B. and Choi, C.Y. (2005), "Prewhitening bias in HAC estimation", *Oxford Bulletin of Economics and Statistics*, Vol. 67, pp. 517-546.

Takay, B.A., Arin, K.P. and Omay, T. (2009), "The endogenous and non-linear relationship between terrorism and economic performance: Turkish evidence", *Defence and Peace Economics*, Vol. 20 No. 1, pp. 1-10.

Tavares, J. (2004), "The open society assesses its enemies: shock, disasters and terrorist attacks", *Journal of Monetary Economics*, Vol. 51 No. 5, pp. 1039-1070.

Toda, H.Y. and Yamamoto, T. (1995), "Statistical inference in vector autoregressions with possibly integrated processes", *Journal of Econometrics*, Vol. 66, pp. 225-250.

Vision of Humanity (2022), "Global Terrorism Index", available at: https://www.visionofhumanity.org/maps/global-terrorism-index/#/ (accessed 1 October 2022).

Zhengyuan, L. (2011), "Fei chuantong anquan zai zhongguo: Cong chubu renzhi dao lixingyingdui", [Non-traditional security in China: from initial conceptualization to rational response], *World Affairs*, Vol. 3, pp. 25-31.

Zhongbing, Q. (2014). "Xi Jinping jiu Yunnan Kunming huochezhan baoli kongbu anjianzuochu zhongyao zhishi [Xi Jinping issues important directives following the violent incident at the Train Station in Kunming, Yunnan]", *Xinhua*, 2 March, available at: http://news.xinhuanet.com/politics/2014-03/02/c_119564039.htm (accessed 1 October 2025).

Corresponding author
Ahmet Keser can be contacted at: ahmet.keser@hku.edu.tr