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POLİTİK İSTİKRAR, JEOPOLİTİK RİSK ENDEKSİ VE MAKROEKONOMİK GÖSTERGELERİN ASKERİ HARCAMALARA ETKİSİ

THE EFFECT OF MACROECONOMIC INDICATORS, GEOPOLITICAL RISK AND POLITICAL STABILITY INDEX ON MILITARY EXPENDITURES

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Öz

Askeri harcamalar, dünya genelinde konjonktüre bağlı olarak her dönemde var olan ve ülkelerin kamu harcamaları içerisinde önemli bir pay alan bir unsurdur. Bu çalışmada BRICS-T kapsamında askeri harcamaların enflasyon, dış ticaret dengesi, gayri safi yurtiçi hasıla, jeopolitik risk endeksi ve politik istikrar endeksi göstergelerinden etkilenip etkilenmediği araştırılmıştır. Seçilen göstergelerin askeri harcamalar üzerindeki etkisi Panel ARDL/PMG analizi ile incelenmiştir. Askeri harcamalar ile politik istikrar endeksi ve enflasyon arasında uzun dönemli negatif yönlü nedensellik ilişkisi, jeopolitik risk endeksi ve gayri safi yurtiçi hasıla arasında ise pozitif yönlü nedensellik ilişkisi bulunmuştur. Dış ticaret dengesi ile askeri harcamalar arasında anlamlı bir ilişki tespit edilememiştir.

Anahtar Kelime: Askeri Harcamalar, Politik İstikrar Endeksi, Jeopolitik Risk Endeksi, Panel ARDL, BRICS-T

Abstract

Military expenditures are an element that exists in every period depending on the global dynamics and take a significant share of the public spending of countries. In this study, it was investigated whether military expenditures within the scope of BRICS-T were affected by inflation, balance of trade, gross domestic product, geopolitical risk index, and political stability index indicators. The impact of selected indicators on military expenditures was examined with panel ARDL/PMG analysis. A long-term negative causal relationship has been identified between military expenditures and both the political stability index and inflation, whereas a positive causal relationship has been found between military expenditures and both the geopolitical risk index and gross domestic product. No significant relationship was found between balance of trade and military expenditures.

Keywords: Military expenditures, Political stability index, Geopolitical risk index, Panel ARDL, BRICS-T

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INTRODUCTION

Military expenditures (milex) are a fundamental component of public spending that have existed throughout history and continue to fluctuate in response to global dynamics. While essential for national security, such expenditures may sometimes result in the inefficient allocation of public resources, particularly when nations prioritize defense spending to assert their global presence. Redirecting public funds toward military activities can have significant economic implications. In BRICS-T countries (Brazil, Russia, India, China, South Africa, and Türkiye)—nations that are geographically distant but closely aligned in political and economic terms—macroeconomic indicators such as inflation, balance of trade, and gross domestic product (GDP) play a pivotal role in shaping economic performance. Although military expenditures continue to rise as a strategic necessity, they are also influenced by macroeconomic fluctuations.

The concept of geopolitics encompasses the interplay of geography, economics, politics, population, and other factors in shaping a nation's strategic behavior. The real-time measurement of geopolitical risks and the assessment of these variables collectively led Caldara and Iacoviello to transform this concept into the Geopolitical Risk Index (GPR Index). In addition to violent acts and territorial disputes, they argue that geopolitical risk encompasses power struggles without direct physical conflict and tensions between the US and North Korea or Iran. Moreover, they note that over the past decade, terrorism has been included in this concept due to its role in fueling political tensions between states and, in some cases, triggering full-scale wars such as the Cuban Missile Crisis (Caldara & Iacoviello, 2022, p. 1197) .

To assess geopolitical risk, the GPR Index is constructed by scanning approximately 30,000 news articles each month and calculating the percentage that mention unfavorable geopolitical events or threats. Since 1985, automated text analysis has been applied to ten major newspapers to determine the monthly share of such articles, which is then used to compute a country-specific index for 44 developed and developing nations. The expansion of the index from 26 to 44 countries reflects the increasing participation of developing economies in significant geopolitical events—such as coups and regional conflicts—that have profound economic consequences (Caldara & Iacoviello, 2022, p. 1198). The Granger causality test applied in this study indicates no significant relationship between macroeconomic variables (inflation, trade balance, GDP) and the GPR Index.

The Granger causality test was employed to determine that there is no relationship between macroeconomic indicators taken as independent variables (inflation, balance of trade, GDP) and GPR index in the analysis. The recent GPR index was measured by scanning approximately 30,000 articles monthly. The percentage of articles discussing unfavorable geopolitical events and related threats is used to construct GPR Index monthly. Using automated text searches in the electronic archives of ten newspapers, this index has been created since 1985. To calculate GPR Index each month, the number of articles discussing increasing geopolitical risks is divided by the total number of published articles (Caldara & Iacoviello 2022, p. 1198). From 1985 to the present, the monthly percentage of all newspaper articles that mention the name of the nation or its major cities and meet the requirements for the Recent Index is used to compute the country-specific index for 44 developed and developing nations. The expansion of the index from 26 to 44 countries is primarily due to the involvement of developing economies in many significant geopolitical events since World War II, including coups and regional wars, which have had substantial economic impacts.

The purpose of the Political Stability Index (PSI) is to provide an assessment of countries' political stability. In this regard, risk scores are assigned to predefined factors grouped as political risk components. Twelve weighted variables that measure social and political attitudes comprise PSI. Through the assessment of risk scores for each of these elements, PSI functions as a tool for political stability analysis in a nation. Therefore, it can be said that PSI variable is an important external factor influencing milex of the countries included in the study.

An example of institutionally created indices used in this study is the Political Stability Index (PSI), sourced from the "International Country Risk Guide" (ICRG) prepared by the Political Risk Group (PRS Group). Alesina & Weder (1999, p. 9) note that this index is frequently used in academic studies. The widespread use of the index in academic research is attributed to its coverage of a long period, inclusion of many countries, and diverse sub-components. This characteristic aligns well with the countries included in the analysis. The varied sources feeding into PSI make this index more meaningful.

The demand-side Neoclassical approach and the supply-side Military Keynesian approaches are the two primary ways to interpret the connection between military spending and the economy.

Neoclassical approach:

- The balance of trade of states that acquire military outputs through imports can be negatively affected. If the balance of trade (net exports) decreases while military spending increases, it can be determined that military expenditures are being made through import channels.
- Investing in the military may displace private sector capital. This crowding out can reduce total supply, leading to a decrease in production and a decrease in private sector investments, which in turn can cause a decline in the GDP output. If there is an increase in a country's GDP output along with an increase in military spending, it can be stated that military expenditures are being made without crowding out private sector investments and without a decrease in efficiency.
- When military spending is met by an increase in the money supply or if it increases demand more than it does supply, it can lead to inflation. If there is an inverse relationship between inflation and milex, it can be said that milex cannot be financed by an increase in the money supply.

Military Keynesian approach:

- Military spending on research and development for defense industry products can positively affect the country's balance of trade when it results in the export of high value-added technology products. Conversely, the balance of trade is negatively affected when military outputs are acquired through imports. If an increase in the balance of trade leads to increased military spending, it can be said that the country is not using imported military outputs. Conversely, if a decrease in the balance of trade leads to increased military spending, it can be inferred that military expenditures are being met with imported outputs.
- Increases in defense investments in areas requiring high technology, such as the defense industry, can lead to GDP growth due to the expansion of domestic defense industry firms. If an increase in GDP leads to increased military spending, then the existence of this relationship can be confirmed. If increased GDP results in lower milex, it can be concluded that there is no correlation between investments in the defense industry and milex.
- The multiplier effect of military spending can lead to increased demand, which can cause an increase in investments and a decrease in unemployment, thus reducing

inflationary effects. If an increase in inflation leads to increased military spending, it indicates that the multiplier effect is not in operation and that military spending is apparently increasing due to inflationary effects (Efe & Aydin, 2023).

The rest of the study tests and analyzes the effects of countries' macroeconomic indicators, political stability index, and geopolitical risk index on military expenditures in the empirical literature. This study has tested whether the hypotheses, which are based on the theoretical discussions provided, hold. In other words, the following questions are examined for BRICS-T countries:

(1) Do military expenditures increase as a preventive measure when the geopolitical risk index rises? Does it decrease during periods when the index falls?

(2) Do increases in inflation lead to inflationary increases in military expenditures, and do decreases in inflation lead to deflationary decreases?

(3) Do military expenditures rise in years when there is an increase in GDP? Do military expenditures continue to rise when there is a decrease in GDP?

(4) Do military expenditures increase during periods when imports (import of military equipment) increase (i.e., when there is a trade deficit)? Does an increase in the balance of trade (i.e., an increase in exports of defense industry products) lead to increased defense industry investment and thus increased military expenditures?

(5) Is there a relationship between military spending and the political stability index? Does military spending decrease when there is an increase in the political stability index?

The central aim of this study is to investigate whether macroeconomic variables—including PSI and the GPR Index—affect military expenditures in ways not solely related to security threats. It aims to ascertain whether milex is associated with variables such as GDP, inflation, the geopolitical risk index, the balance of trade, and the political stability index, as well as whether and in which direction these correlations exist.

While many studies have explored the connection between military spending and economic growth, few have evaluated the role of macroeconomic factors alongside geopolitical and political stability indices using up-to-date data. It is anticipated that by assessing these factors collectively, the study will add to the relatively understudied field in the literature.

1.Literature Review

The literature on military expenditures began to take shape with Benoit's (1973) article of the relationship between milex and EG. Causal relationship between EG and milex have been identified as unidirectional from EG to milex, unidirectional from milex to EG, or bidirectional. But there is no consensus. According to Senturk Suat H. (2020) analysis of 14 NATO nations, GDP and milex in Portugal, Türkiye, and Denmark were causally related in a unidirectional manner. Dudzeviciute et al. (2016) state that in developed countries from the EU, milex affect EG, while in developing countries, EG affects milex. According to Surucu et al. (2022) ,there is a relationship between milex and EG in China, but not in Türkiye. In Croatia, Estonia, Slovenia, and Türkiye, Topal, Unver, and Türedi (2022) found a unidirectional causality between EG and milex, confirming the conservative argument that a growing economy can fortify itself against both internal and external threats. Gül & Torusdağ (2019) have reached a result of unidirectional causality from EG to milex across the panel in BRICS-T countries. Zhong et al. (2017) identified a positive one-way causality from EG to milex in Brazil and India, a positive two-way causality in Russia, and no causal relationship for China and South Africa.

Capra James R. (1981) examined the relationship between inflation and milex in ABD, pioneering the inclusion of the inflation variable in milex literature and leading the way for the investigation of the nexus between various macroeconomic indicators and milex. As a result of the analysis, he stated that an increase in inflation leads to an increase in milex. According to Xu, Su, and Tao (2020), there is a negative causal relationship between inflation and milex; that is, during times of peace in China, inflation lowers the growth rate of milex. Odehnal & Neubauer (2020) concluded that the variables affecting milex of the NATO countries they divided into groups, 14 countries, which they call traditional group, and 13 countries, including Türkiye, which they call new member countries, are not the same. For the traditional group, identified that border conflicts, the rise of inflation and the decrease in foreign debt are the factors that increase milex, while for the new member countries, the increase in GDP is the factor that reduces milex.

Murat (2020) conducted a study on BRICS-T countries and identified two-way causality between the balance of trade and milex in India and China. Milex and balance of trade were found to be causally related in a one-way fashion in Brazil, South Africa, and Türkiye. However, in Russia, no causal relationship was established. In the analysis of the five Middle

Eastern nations, (PRS Group, 2022) found a unidirectional causal relationship between the Turkish milex and the balance of trade, but bidirectional causality was observed in Iran and Egypt. In 36 developing nations, milex and external debts have a positive causal relationship, according to Esener & İpek (2016). Milex has a favorable impact on external borrowing in Bangladesh, India, Nepal, Pakistan, and Sri Lanka, according to research by Abbas & Wizarat (2018).

Buzdagli & Ozdemir (2021) discovered that while there was a bidirectional causal relationship between milex and the rise in exports, milex increased in response to the rise in per capita income and the geopolitical risk index of 17 developing nations, including Türkiye. Demirci & Ayyildiz (2023) identified a positive causal nexus from GPR index to milex in MIST countries. Khan et al. (2022) showed that in China, India, and Saudi Arabia, GPR index was causally related to milex, whereas in South Korea and Türkiye, the opposite was true. No causal relationship was detected in Brazil, Israel, and Russia.

Maher & Zhao (2022) looked at how milex and political unrest affected EG in Egypt, but they did not investigate whether the independent variables were related. Asongu et al. (2021) accepted that the net effect between milex and PSI is positive for 53 African countries and generally acknowledged that milex and PSI complement each other in the fight against terrorism. In Jordan, Lebanon, Saudi Arabia, Morocco, and Türkiye, Balan (2015) discovered a positive causal relationship between political instability and military spending. In Egypt, Israel, and Türkiye, he also found a positive causal relationship between military spending and political instability. Njamen Kengdo et al. (2023) concluded that political stability reduces milex in his analysis for Africa.

2.Data and Methodology

Data sets for military expenditures and its relationship with inflation, balance of trade, GDP from 1992 to 2022 were obtained from World Bank data (World Bank, 2023). Data from https://www.matteoiacoviello.com/gpr.htm was used to create the geopolitical risk index (Caldara & Iacoviello, 2022). The "International Country Risk Guide" (ICRG), created by the Political Risk Services (PRS) Group (PRS Group, 2022), provided the political stability index data. Table 1 lists descriptive variables along with their sources.

Table 1. Descriptive variables

Variables	Abbreviations	Source
Military expenditure	lnmil	Military expenditure constant (2022) US$ m.
Gross domestic product	lngdp	GDP (constant 2015 US$)
Inflation	lninf	Consumer price index (2010 = 100)
Balance of Trade	lnbot	Exports of goods and services (constant 2015 US$)- Imports of goods and services (constant 2015 US$)
Geopolitical Risk Index	lngpr	Recent GPR (Index: 1985:2019=100)
Political Stability Index	lnpsi	The PRS Group (The ICRG Methodology)

Logarithmic transformations of the variables were used for elasticity interpretations. Our research equation represents i panel unit (country), t panel time (year), α constant term, and ε error terms.

$$Ln(mil)_{i,t} = \alpha_{i,t} + \beta_{1,i,t}Ln(inf)_{i,t} + \beta_{2,i,t}Ln(gdp)_{i,t} + \beta_{3,i,t}Ln(bot)_{i,t} + \beta_{4,i,t}Ln(jre)_{i,t} + \beta_{5i,t}Ln(psi)_{i,t}\ \varepsilon_{i,t}$$

The stationarity of the variables must be established before utilizing the Panel ARDL model for analysis. To determine which generation of unit root analysis should be performed, a cross-sectional dependency test should be applied to the variables and the model. According to Pesaran (2004), the impact of a shock in one country on other countries in the analysis should be assessed based on time (T) and cross-sectional (CS) values. If T>CS, the Breush-Pagan LM and Pesaran CD tests should be applied; if T<CS, the Pesaran CDlm test should be used for cross-sectional dependency results.

H0: No cross-sectional dependency exists.

H1: Cross-sectional dependency exists.

Cross-sectional dependency is present if the result indicates that the H0 hypothesis is rejected (prob<0.05). The H0 cannot be rejected, however, if prob>0.05, which suggests that there is no cross-sectional dependency.

If cross-sectional dependency exists, 2nd generation unit root tests provide reliable results; if not, 1st generation tests are used. The 1st generation tests include Im et al. (2003)(IPS); Levin et al. (2002) and Hadri (2000), while the 2nd generation tests include Bai & Ng (2004);Moon & Perron (2004) and Pesaran (2004, 2007).

Pesaran (2007) created the CADF (Cross-Sectionally Augmented Dickey-Fuller) and CIPS (Cross Sectionally Augmented IPS) tests on the presumption that time effects and spatial autocorrelation have varying effects on different countries. In these tests, the stationarity of cross-sections is determined by calculating the CADF test statistic for all sections, and the overall panel stationarity is determined by the arithmetic mean of the CADF tests, represented by the CIPS test statistic (Pesaran, 2007, pp. 269–271). A rejection of the null hypothesis indicates that the series or the entire panel is stationary if the test statistics are less than the critical table value. If larger, the null hypothesis cannot be rejected, indicating the presence of a unit root (Pesaran 2007, 265-312) .

H0: Not stationary.

H1: Stationary.

Pesaran et al. (1999), developed PMG (Pooled Mean Group) and MG (Mean Group) estimators for ARDL analysis. In MG, long-term parameters are derived from individual ARDL estimates without imposing constraints on parameters, allowing variation between units. Conversely, PMG assumes that short-term coefficients, the constant term, and error variance change across cross-sections, while long-term coefficients remain constant across all parameters (Pesaran et al. 1999, p. 621). To find out which estimator works best, they recommended using the Hausman (1978) test. When the probability value exceeds 0.05 in the Hausman test, the null hypothesis is accepted and cannot be rejected.

H0: Coefficients obtained with the PMG method are more effective than those obtained with the MG method.

H1: Coefficients obtained with the MG method are more effective than those obtained with the PMG method.

Pesaran et al. (2001) noted that one precondition for their Panel ARDL analysis, which can examine relationships between series with different levels of stationarity, is that the series should not be stationary at I(2). Series must be stationary at I(1) or I(0). With military spending as the dependent variable and other indicators as independent variables, the ARDL model equation was modified to fit our variables:

$$\Delta mili,_{t} = \beta 0i,t + \sum_{l=1}^{m} \beta 1i \Delta mil_{i,t-l} + \sum_{l=0}^{m} \beta 2i\, \Delta inf_{i,t-l} + \sum_{l=0}^{m} \beta 3i\, \Delta gdp_{i,t-l} + \sum_{l=0}^{m} \beta 4i\, \Delta bot_{i,t-l} + \sum_{l=0}^{m} \beta 5i\, \Delta gpr_{i,t-l} + \sum_{l=0}^{m} \beta 6i\, \Delta psi_{i,t-l} + \beta 6 mil_{i,t-1} + \beta 7 inf_{i,t-1} + \beta 8 gdp_{i,t-1} + \beta 9 bot_{i,t-1} + \beta 10 gpr_{i,t-1} \beta 11 psi_{i,t-1} + u_{i,t}$$

The Error Correction model equation studied for short-term relationships in the panel ARDL model is:

$$\Delta mili,_{t} = \beta 0i,t + \sum_{l=1}^{m} \beta 1i \Delta mili,_{t-l} + \sum_{l=0}^{m} \beta 2i\, \Delta inf i,_{t-l} + \sum_{l=0}^{m} \beta 3i\, \Delta gdp i,_{t-l} + \sum_{l=0}^{m} \beta 4i\, \Delta bot i,_{t-l} + \sum_{l=0}^{m} \beta 5i\, \Delta gpr i,_{t-l} \sum_{l=0}^{m} \beta 6i\, \Delta psi i,_{t-l} + \lambda ECTt - 1 + u i,_{t}$$

3.Empirical Results

After applying the cross-sectional dependency test to our variables and model, cross-sectional dependency was found to be present in Table 2. Therefore, it was determined that 2nd generation unit root tests could provide reliable results for our variables.

Table 2. Cross-Sectional dependence test

Tests	Breusch-Pagan LM		Pesaran CD		BP-LM	Paseran-CD
	T-stat	p-value	T-stat	p-value	Decision	Decision
lnmil	231.262	0.000	14.433	0.000	H1 accepted	H1 accepted
lninf	371.907	0.000	19.204	0.000	H1 accepted	H1 accepted
lngdp	429.91	0.000	20.724	0.000	H1 accepted	H1 accepted
lnbo	33.976	0.003	0.999	0.317	H1 accepted	H0 accepted
lngpr	85.000	0.000	4.436	0.000	H1 accepted	H1 accepted
lnpsi	69.744	0.000	6.336	0.000	H1 accepted	H1 accepted
Model	36.660	0.001	2.565	0.010	H1 accepted	H1 accepted

According to 2nd generation CIPS test results our variables have different stationary levels as I(0) and I(1) in Table 3.

Table 3. Unit root test

CIPS	Constant	Constant & Trend	Decision
	T-stat	T-stat	
lnmil	-1.982	-2.186	I(1)
Δlnmil	-4.085**	-4.195**	
lninf	-1.729	-2.723	I(1)
Δlninf	-7.323**	-6.25**	
lngdp	-2.414**	-2.926**	I(0)
Δlngdp	-3.768**	-3.984**	
lnbot	-3.467**	-3.498**	I(0)
Δlnbot	-5.301**	-5.162**	
lngpr	-2.806**	-3.408**	I(0)
Δlngpr	-6.451**	-6.4**	
lnpsi	-2.316	-3.283**	Constant I(1)
Δlnpsi	-4.948**	-5.304**	Constant & Trend I(0)

Note: The maximum lag length is determined as 2 according to SIC criteria. At the 5% confidence level, the critical value in the table is -2.33 for the model with constant and -2.86 for the model with constant&trend.** denote significance at 5% significance levels.

Following the determination of the stationarity of our variables at various levels, the Hausman test was used to ascertain which estimator would yield trustworthy outcomes for the panel ARDL model in Table 4.

Table 4. Hausman test

Tests	t-stat
Chi2(4)	4.974
p-value	0.419
Decision	H0 accepted

The PMG estimator would yield trustworthy results for the panel ARDL model, according to the Hausman test. In accordance with the SIC information criterion, the ARDL (1,1,1,1,1,1) model's ideal lag lengths were determined to be two lags for the independent and dependent variables, with one lag for the independent variables and one lag for the dependent variable, lnmil.

Table 5. Panel ARDL long-run equation

Variables	Coefficient	Std-error	t-stat	p-value
lninf	-0.188	0.078	-2.410	0.017
lngdp	2.328	0.266	8.747	0.000
lnbot	0.087	0.203	0.431	0.667
lngpr	0.169	0.051	3.330	0.001
lnpsi	-1.053	0.270	-3.892	0.000

A 1% increase in inflation resulted in a 0.188% decrease in milex, which was statistically significant at the 5% level, according to the long-term coefficients in Table 5. At the 1% level, there was a statistically significant 2.328% increase in milex for every 1% increase in GDP. A

1% increase in the balance of trade resulted in a statistically insignificant 0.087% increase in milex. The difference was statistically significant at the 1% level: a 1% increase in PSI reduced milex by 1.053%, while a 1% increase in GPR index increased milex by 0.169%.

Table 6. BRICS-T panel/countries error correction model, short- run equation and cross-section short-run coefficient

Variables	Coefficient	t-stat	p-value
BRICS-T Panel			
CointEq(-1)*	-0.376	-3.910	0.000
D(lninf)	-0.203	-1.130	0.260
D(lngdp)	-0.514	-3.020	0.003
D(lnbot)	-0.125	-1.653	0.100
D(lngpr)	-0.034	-1.965	0.051
D(lnpsi)	0.210	0.997	0.320
c	-18.063	-3.859	0.000
@trend	-0.017	-4.559	0.000
Russia			
CointEq(-1)*	-0.823	-43.243	0.000
D(lninf)	-0.314	-18.165	0.000
D(lngdp)	-0.924	-4.243	0.024
D(lndtd)	-0.185	-5.634	0.011
D(lngpr)	-0.098	-42.529	0.000
D(lnpsi)	0.612	6.360	0.007
c	-39.97	-0.886	0.440
@trend	-0.007	-123.634	0.000
Brazil			
CointEq(-1)*	-0.267	-31.044	0.000
D(lninf)	-0.009	-19.903	0.000
D(lngdp)	-0.556	-2.240	0.110
D(lndtd)	-0.320	-15.018	0.000
D(lngpr)	0.031	43.352	0.000
D(lnpsi)	-0.718	-6.683	0.006
c	-13.153	-0.724	0.521
@trend	-0.009	-984.13	0.000
India			
CointEq(-1)*	-0.400	-22.343	0.000
D(lninf)	0.532	2.974	0.058
D(lngdp)	-0.566	-3.992	0.028
D(lndtd)	0.349	-9.455	0.002
D(lngpr)	-0.056	-71.998	0.000
D(lnpsi)	0.307	9.921	0.002
c	-19.028	-0.479	0.664
@trend	-0.032	-283.95	0.000
China			
CointEq(-1)*	-0.192	-39.965	0.000
D(lninf)	-0.787	-28.307	0.000
D(lngdp)	0.292	2.556	0.083
D(lndtd)	0.044	6.523	0.007
D(lngpr)	-0.012	-25.461	0.000
D(lnpsi)	0.053	1.358	0.267
c	-9.438	-0.827	0.468
@trend	-0.024	-375.384	0.000
South Africa			
CointEq(-1)*	-0.374	-59.541	0.000

D(lninf)	-0.399	-1.386	0.259
D(lngdp)	-0.640	-2.202	0.114
D(lndtd)	0.068	1.619	0.203
D(lngpr)	-0.039	-30.899	0.000
D(lnpsi)	0.726	6.560	0.007
c	-17.525	-1.174	0.324
@trend	-0.014	1162.79	0.000
Türkiye			
CointEq(-1)*	-0.198	-54.707	0.000
D(lninf)	-0.242	-29.449	0.001
D(lngdp)	-0.691	-4.424	0.021
D(lndtd)	0.008	-0.615	0.581
D(lngpr)	-0.033	-38.965	0.000
D(lnpsi)	0.278	2.333	0.101
c	-9.265	-1.249	0.300
@trend	-0.018	-581.14	0.000

Finding short-term relationships requires the use of the error correction coefficient in Table 6, which is created by adding the one-period lag of the model's residuals. At the 5% level, the CointEq(-1)* coefficient is negative and statistically significant based on the Panel ARDL Error Correction Model. In other words, any short-term deviation from equilibrium is rectified, and after 2.65 years, long-term equilibrium is reached. There is a 0.514% short-term decrease in milex for every 1% increase in GDP at a 1% significance level. At the 10% level, there is a statistically significant 0.034% decrease in milex for every 1% increase in GPR index. The panel's milex, inflation, balance of trade, and PSI did not show any statistically significant short-term relationships.

The CointEq(-1)* coefficient is negative and statistically significant at the 5% level for each of the BRICS_T countries, according to Table 6's Error Correction Coefficients. In the short term, any deviation from equilibrium in Russia is corrected after 1.21 years, in Brazil after 3.74 years, in India after 2.5 years, in China after 5.2 years, in South Africa after 2.67 years, and in Türkiye after 5.05 years to reach long-term equilibrium.

In Russia, milex falls by 0.314% for every 1% increase in inflation and by 0.098% for every 1% increase in GPR index under short-term conditions. Milex rises by 0.612% with a 1% increase in PSI. The 1% level of statistical significance is reached by these. 1% increase in GDP decreases milex by 0.924%, and a 1% increase in the balance of trade decreases milex by 0.185%. At the 5% level, these are statistically significant.

A 1% increase in inflation in Brazil has a short-term negative impact of 0.232% on milex, 0.32% on the balance of trade, and 0.718% on PSI. Milex rises by 0.031% for every 1% increase in GPR index. The 1% level of statistical significance is reached by these. In the short term, the GDP relationship is statistically insignificant.

A 1% increase in GPR index lowers milex by 0.065% in India at a 5% significance level, while a 1% increase in GDP lowers milex by 0.532% at a 1% significance level. Milex rises by 0.532% at a 10% significance level for every 1% increase in inflation. Milex rises by 0.349% and 0.307%, respectively, for every 1% increase in PSI and the balance of trade at a 1% significance level.

In China, a 1% increase in GPR index, balance of trade, and inflation reduces milex by 0.787%, raises it by 0.044%, and lowers it by 0.012%, respectively, over the short term at a 1% significance level. 1% increase in GDP increases milex by 0.292% at a 10% significance level. A statistically significant correlation between milex and PSI was not observed.

Short-term milex in South Africa drops by 0.014% for every 1% increase in GPR index. 1% increase in PSI increases milex by 0.726%. The 1% level of statistical significance is reached by these. No statistically significant short-term relationship was found between inflation, balance of trade, GDP, and milex.

In Türkiye, a 1% rise in GPR index and inflation causes milex to drop by 0.033% and 0.242%, respectively, over the short term. The 1% level of statistical significance is reached by these. 1% increase in GDP decreases milex by 0.691% at a 5% significance level. There was no short-term statistically significant correlation between PSI and the balance of trade.

CONCLUSIONS

This study examines the impact of the Geopolitical Risk Index (GPR), Political Stability Index (PSI), and macroeconomic variables—including inflation, economic growth (GDP), and balance of trade—on military expenditures in BRICS-T countries, utilizing a panel ARDL methodology. In the analysis, military expenditures were treated as the dependent variable, while the remaining indicators were considered independent variables.

Based on the panel ARDL analysis conducted with the PMG estimator, in the long term, a negative causal relationship was found from inflation and the political stability index to military expenditures, while a positive causal relationship was determined from gross domestic product and the geopolitical risk index to military expenditures. No significant relationship was found between the balance of trade and military expenditures. In the short run, while a negative causal relationship was reached across the panel from gross domestic product and geopolitical risk index to military expenditures, no causal relationship was detected between other variables and military expenditures.

Short-run relationships were also examined on a country-specific basis. In Russia, there is a negative causal relationship from inflation, geopolitical risk index, gross domestic product, and balance of trade to military expenditures, and a positive causal relationship from political stability index to military expenditures. In Brazil, there is a negative causal relationship from inflation, political stability index, and balance of trade to military expenditures; a positive causal relationship has been determined from the geopolitical risk index to military expenditures. In India, military expenditures have a positive correlation with inflation, the balance of trade, and the political stability index, and a negative correlation with the gross domestic product and the geopolitical risk. In China, the balance of trade and gross domestic product have a positive relationship with military expenditures, whereas the geopolitical risk index and inflation have a negative relationship. In South Africa, a positive causal relationship was found from the political stability index to military expenditures and a negative causal relationship from the geopolitical risk index to military expenditures. In Türkiye, a negative causal relationship was determined from the inflation, gross domestic product, and geopolitical risk index to military expenditures.

Inflation findings Xu et al. (2020), GDP findings Zhong et al. (2017), Gül & Torusdağ (2019) and, Topal et al. (2022), GPR findings Buzdagli & Ozdemir (2021) and Demirci & Ayyildiz (2023), and PSI findings Balan (2015) and Njamen Kengdo et al. (2023) state that parallel results were obtained.

According to empirical data, as inflation impacts the nation's economy, the proportion of resources allotted to military spending declines over time in the BRICS-T nations. The rise in the geopolitical risk index causes military expenditures to accelerate upwards for precautionary purposes. With GDP growth, military expenditures increase by taking a share from economic growth. Increasing political stability results in lower military expenditures.

The study is limited to selected variables and selected countries. It is hoped that this article will stimulate research studying how military spending affects other macroeconomic factors not included in the study, how military spending affects the variables under analysis, and how these factors affect military spending in other countries not included in the study.

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