

The Relationship of Defence Expenditures and Economic Growth: Examples of Turkey and China (2000-2020)

Savunma Harcamaları ve Ekonomik Büyüme İlişkisi:
Türkiye ve Çin Örnekleri (2000-2020)

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Abstract

Defence expenditures are essential components of the countries' financial strategies to ensure national security. Structural differences, geopolitical positions, and political reasons impact defence expenditures. However, since these variables have a different impact on each country's economy, a consensus cannot be reached on the relationship between defence expenditures and economic growth. Therefore, assessing the effect of defence expenditures on economic growth can provide various insights for each country. In this article, the relationship between the defence expenditures and the economic growth of China and Turkey, the two countries displaying the most significant increase in defence expenditures in the world between 2000 and 2020, was studied comparatively by trend analysis and graphics. The analysis results show that China and Turkey are different from each other. While China has stable economic growth and defence expenditures, Turkey has a more volatile structure. Therefore, while there is a correlation between defence expenditures and economic growth in China, it is concluded that this is not the case for Turkey. The findings are of a quality that will increase awareness among policymakers and practitioners.

Keywords: Defence Expenditure, Security, Economic Growth, Turkey, China.

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Öz

Savunma harcamaları, ulusal güvenliği sağlamak için ülkelerin uyguladığı, mali stratejilerin önemli bir parçasıdır. Yapılan bu harcamalar, ülke ekonomisinin parametrelerini her ülke için farklı yönde etkilemektedir. Bu nedenle, savunma harcamalarının ekonomik büyüme üzerindeki etkilerinin değerlendirilmesi kritik bir konudur. Bu bağlamda araştırmada savunma harcamaları ve ekonomik büyüme ilişkisi araştırmıştır. Araştırma kapsamına uygun olarak, 2000-2020 yılları arasında dünyada savunma harcamalarında en fazla artışı gösteren Çin ile Türkiye'nin savunma harcamaları ile ekonomik büyümesi arasındaki ilişki incelenmiş ve her iki ülkenin verileri karşılaştırılmıştır. Araştırmada veriler trend analiz ve grafikler yardımı ile analiz edilmiştir. Analiz sonuçları Çin ve Türkiye'nin birbirinden farklı olduğunu ve Çin'in istikrarlı seyreden ekonomik büyüme ve savunma harcamalarına rağmen, Türkiye'nin daha dalgalı bir yapıya sahiptir. Çin'de savunma harcamaları ile ekonomik büyüme arasında bir ilişki söz konusu iken Türkiye için böyle bir ilişki olmadığı sonucuna varılmıştır. Elde edilen bulgular politika yapıcılar ve uygulayıcılarda farkındalığı artıracak niteliktedir.

Anahtar Kelimeler: *Savunma Harcamaları, Güvenlik, Ekonomik Büyüme, Türkiye, Çin.*

Introduction

War is one of the most real phenomena in human history. Although the concept has changed in certain periods of history, it has always existed. Therefore, countries that are aware of the current reality need to update and develop their defence systems to secure their existence against possible internal and/or external threats. In this context, countries allocate a significant part of their budget to defence expenditures to ensure their security.¹

Today, the share of defence expenditures in national budgets is relatively high, especially in countries where uncertainty and conflict are intense. Considering the developments in the world, it is expected that the share of defence expenditures from the state budget will increase. The increase in defence expenditures affects the parameters of the country's economy in different ways (positively/negatively) for each country. The fact that defence expenditures have significant effects on national economies

¹ Kutluk K. Sümer, "Savunma Harcamalarının Ekonomik Büyüme Etkisi." *Harp Akademileri Komutanlığı Güvenlik Stratejileri Dergisi*, 2004, Vol. 1, 80-91. p. 87.

has attracted the attention of researchers, and research on the subject has increased. In particular, the economic aspect of defence expenditures led to various discussions in the literature. After Benoit (1973), who brought the subject to the agenda of academia for the first time with research, many studies have been conducted that examine the relationship between defence expenditures and economic growth in the context of different countries². In these studies, it was analyzed whether defence expenditures are an efficient expenditure for the country's economy and its effect on economic growth. These studies are valuable because countries consider them necessary for sustainable development. It invests in defence expenditures by reducing its education, health, and production expenditures. In this context, it is important to know the effect of the budget allocated to defence expenditures on economic growth.³ Thanks to the research, countries will be able to consider the effects of the expenditures on economic growth when investing in defence expenditures.

When the studies on the effects of defence expenditures on economic growth are examined, it is observed that the researchers frequently used Granger causality test, VAR model, Johansen-Juselius cointegration test, ARDL bounds test, and regression analysis. However, there is an inconsistency in the research findings. These inconsistencies in research findings necessitate further research on the subject.

According to the report released by the Stockholm Peace Research Institute (SIPRI) in 2021, the most significant increase in defence expenditures from 2000 to 2020 was in the People's Republic of China with 594.98%⁴. Based on the rise in defence expenditures of China, which has the world's second-largest economy; NATO-China tensions, the possibility of conflict with Vietnam, the Philippines, and Japan in the South China Sea, expectations of suppressing Taiwan's independence and

² Emile Benoit, *Defence and Economic Growth in Developing Countries*, Lexington Books, Boston, Massachusetts, 1973, p. 11.

³ Na Hou and Bo Chen, "Military Expenditure and Economic Growth in Developing Countries: Evidence From System GMM Estimates." *Defence and Peace Economics*, 2013, Vol. 24, No. 3, 183–193, p. 184.

⁴ SIPRI, "Stockholm International Peace Research Institute," <https://www.sipri.org/databases/milex>, 2021 (Date of Access: 16 September 2021).

having a greater say in the world compared to the USA have increased. In the same report, Turkey, which has the world's 15th largest economy, ranks 10th with an increase of 56.34% in defence expenditures between 2000 and 2020, following the USA. Turkey sees itself under constant threat due to its geopolitical position. Therefore, the budget allocated to defence expenditures is increasing each year. Especially during recent years, the expansion of its military operations in Syria, Iraq, and Libya led to a further increase in defence expenditures.

Due to the continuation of the upward trend in the defence expenditures of China and Turkey, the effects of China's and Turkey's defence expenditures on economic growth were comparatively investigated. The research provided definitions of economic growth and defence expenditures, and general data on defence expenditures were presented. In the following parts of the study, literature has been reviewed on the positive and negative aspects of defence expenditures on the economy, and research on the subject are included. Then, considering the increased rate of defence expenditures of China and Turkey between 2000-2020, the relationship with economic growth was studied with the help of trend analysis, and the findings of the two countries were compared. Finally, conclusions and recommendations were presented in line with the findings.

The main purpose of the research is to understand more deeply the effects of defence expenditures on economic growth and expand the literature on defence expenditures, based on the examples of China and Turkey. The research contributes to the literature in two ways. (a) First, given the inconsistency in past research findings, the current research expands the literature on defence spending. (b) Research findings are considered to increase awareness among policymakers.

1. Literature

1.1. Economic Growth and Defence Expenditures

Economic Growth expresses the increase in the production capacity of the goods and services produced by the country in a year or the real increases in the gross domestic product that can be measured numerically. Although the term is often used in discussions of short-term economic performance, economic growth is the increase in a state's wealth over time.

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Economic growth is considered as one of the most important indicators of a stable economy. A country's sustainable economic growth helps increase national income, improve its living standards, employ more people and reduce poverty. For this reason, governments aim to minimize their financial fragility and risk by creating policies to ensure sustainable economic growth.⁵

Most developed countries have slower economic growth when compared with developing countries. For instance, in 2018, India grew by 7.4%, while the US economy grew by only 2.2%. This statistic can be misleading because India's GDP was \$2,848,231 million in 2018, while the GDP of the US was \$21,439,453 million.⁶ Using the example given, we can say that the most accurate measure of economic growth is real GDP since it displays the entire economic output of the country by eliminating the effects of inflation.

Defence Expenditures are the transfer expenditures of the countries from the national income to take precautions against internal and/or external threats to the country's integrity and ensure the sustainability of its sovereignty and independence. Throughout history, every country had to allocate a budget for defence expenditures at the expense of the people. Thus, if humans' 7000 years of history of civilization is divided into centuries, every 87 years corresponds to war, and the remaining 13 years corresponds to peace. According to researchers, while there were 181 generations affected by 14531 war events until 1960, only ten could end their lives without seeing war.⁷ Considering this current situation, defence expenditures will continue to occupy an essential place in the economy of countries.

⁵ Denis Kan and Bernadette Andreosso-O'callaghan, "Examination of the Efficient Market Hypothesis—the Case of Post-Crisis Asia Pacific Countries." *Journal of Asian Economics*, 2007, Vol. 18, No. 2, 294-313, p. 296.

⁶ Ticaret, <https://ticaret.gov.tr/yurtdisi-teskilati/guney-asya/hindistan/genel-bilgiler,%20https://ticaret.gov.tr/yurtdisi-teskilati/kuzey-amerika/abd/genel-bilgiler>, 2020, (Date of Access: 16 May 2021).

⁷ Nihat Falay, *Kapitalist Devletler ve Savaşlar, İktisadi Gelişmeler İzleme Raporu (2.Bölüm)*, 2004.

Modern studies consider the year 1987, when the Cold War came to an end, as a starting point. After this date, there was a decrease in defence expenditures worldwide, and this decrease continued for a while. USA, Israel, and countries with internal conflicts increased their defence expenditures in this process as well. Naturally, the increase in defence expenditures has a different justification for each state. For example, with the end of the Cold War, the United States has become the world's only superpower and has increased its defence expenditures, considering it beneficial for its own interests to increase its military presence in various parts of the world.

An increase replaced the decreasing trend in defence expenditures as of 1998.⁸ After this year, defence expenditures have increased worldwide, especially in Eastern Europe, the Middle East, and North America. USA's attacks on Afghanistan and Iraq are the main factors that accelerate this increase in particular.⁹ General data on defence expenditures in the world are presented in Table 1.

Table 1: General Data on Defence Expenditures in the World

	2000	2005	2010	2015	2016	2017	2018	2019	2020	Countries Not Included
World	1022	1440	1785	1758	1768	1789	1836	1902	1953	Cuba, Eritrea, Iraq, North Korea, Somalia, Syria, Turkmenistan, Uzbekistan
Africa	18,9	23,9	34,3	44,0	42,6	41,5	40,5	40,9	43,0	Djibouti, Eritrea, Somalia
North Africa	5,4	8,6	14,0	23,3	23,2	22,6	22,1	23,1	24,6	
Sub-Saharan Africa	13,4	15,3	20,3	20,7	19,4	18,9	18,4	17,8	18,4	Djibouti, Eritrea, Somalia

⁸ Seyhan Taş, İbrahim Örnek and Gül Aksoğan, "Türkiye'de Savunma Harcamaları, Büyüme ve Gelir Eşitsizliği, 1970-2008: Ekonometrik Bir İnceleme." *Gaziantepe University Journal of Social Sciences*, 2013, Vol. 12, No. 3, 659-682, p. 659.

⁹ Mustafa Taner, "Dokuzuncu Kalkınma Planı Savunma Sanayi Özel İhtisas Komisyonu Raporu.", *Devlet Planlama Teşkilatı*, 2006, 1-91, p. 3.

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America	524	752	937	761	757	756	779	817	849	Cuba
Central America & Caribbean	4,7	4,4	6,1	7,4	8,2	7,7	8,4	9,2	9,2	Cuba
North America	488	713	883	702	700	697	717	757	789	
South America	31,0	35,0	48,4	50,9	48,6	51,4	52,7	51,8	50,7	
Asia and Oceania	194	249	340	428	449	470	484	506	519	North Korea, Turkmenistan, Uzbekistan
Middle Asia	0,3	0,7	1,2	1,8	1,6	1,5	1,7	2,1	2,0	Turkmenistan, Uzbekistan
East Asia	119	156	218	288	300	313	328	343	351	
Oceania	16,0	18,5	23,2	25,9	28,3	28,4	28,0	29,2	30,8	North Korea
south asia	38,1	48,4	64,7	70,5	76,7	82,6	85,8	88,6	89,7	
Southeast Asia	20,3	24,7	32,4	41,6	42,2	43,8	40,8	43,4	45,6	
Europe	285	303	330	336	348	339	346	363	378	
Middle Europe	17,7	20,2	19,5	22,3	22,6	24,4	27,5	31,1	33,0	
Eastern Europe	25,3	38,2	54,5	82,4	87,0	71,9	70,5	74,3	76,8	
West Europe	242	244	256	231	239	243	248	258	268	
Middle East	93,4	112	143		Iraq, Syria

Billion \$, 2019 fixed prices¹⁰

The Arab Spring, which has taken place in the Middle East in recent years, the civil war in Syria, and the events in Libya have all increased armament and security concerns in the region. In line with these developments, it can be stated that defence expenditures worldwide will increase even more. As of 2020, the data of 18 countries with the highest defence expenditures in the world are presented in Table 2.

¹⁰ SIPRI, "Stockholm International Peace Research Institute," <https://www.sipri.org/databases/milex>, 2021 (Date of Access: 16 September 2021)

**Table 2: Defence Expenditures of 18 Countries
with the Highest Defence Expenditures between 2000 and 2020**

Nu	Country	2000	2005	2010	2015	2016	2017	2018	2019	2020
1	USA	475217	698019	865268	683678	681580	674557	694860	734344	766583
2	Chinese	41167	73390	129359	192843	203944	216487	229168	240333	244934
3	India	30296	39498	54032	56773	62567	67522	69285	71469	73001
4	Russia	23584	35165	49834	74649	80027	64848	62404	65201	66838
5	England	48701	58716	63177	53996	53807	53449	54163	56856	58485
6	Saudi Arabia	30822	38889	53569	88520	63337	70621	72918	61952	55535
7	France	45010	47469	48415	48033	49895	50551	49304	50119	51572
8	Germany	42403	33323	41046	40566	42269	43468	44670	49008	51570
9	Japan	46223	47052	46420	47600	47312	47350	47426	47609	48160
10	South Korea	21090	26023	32178	37210	38143	38844	40814	43891	46056
11	Italy	33109	32555	29944	23043	26104	26854	27122	26381	28370
12	Australia	14053	16725	21086	23797	26059	26012	25391	26079	27618
13	Brazil	16768	17651	25389	25111	23836	25390	27074	25907	25101
14	Canada	13243	15076	17508	18577	18823	22737	22632	22204	22854
15	Israel	12746	13840	15747	18257	19213	20053	20074	20504	21065
16	Turkey	12516	10168	10943	12036	14112	15147	19225	20603	19567
17	Spain	18245	17963	18488	15972	14810	16391	17024	17189	17160
18	Poland	5350	6534	7887	10594	10007	10233	11591	11786	12815

Million \$, 2019 fixed prices ¹¹

When the table above is analyzed, it is observed that the defence expenditures of the USA exceeded the sum of the defence expenditures of the 11 countries that followed it and reached 766,583 billion dollars. After the terrorist attack on September 11, 2001, there was a dramatic shift in the doctrine of the USA. Consequently, there was a rapid increase in military expenditures due to Afghanistan, Iraq, and Syria operations. As a result, the USA has become the country that allocates the highest budget to defence expenditures.

¹¹ SIPRI, *ibid.*

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The total budget allocated to defence by all countries is 1952,773 billion dollars.¹² The total expenditure of 18 countries, which make up the largest budget for defence expenditures, is 1637,284 billion dollars. In other words, 80.73% of the world's defence expenditures belong to the 18 countries listed in Table 2. The defence expenditure data of the 18 countries with the highest defence expenditures in the world are presented in Table 3.

**Table 3: Defence Expenditure Data of 18 Countries
with the Highest Defence Expenditures**

Country	Defence Spending in 2000 (Billion \$)	Defence Expenditure in 2020 (Billion \$)	Change Amount 2000-2020 (%)*	Share of World Defence Spending (%)*	Percent in GDP	Share (%) in Budget Expenditures	Amount Per Person (\$)
USA	475,217	766,583	61,31	39,25	3,7%	7,9%	2351,1
Chinese	41,167	244,934	594,98	12,54	1,7%	4,7%	175,3
India	30,296	73,001	240,96	3,74	2,9%	9,1%	52,8
Russia	23,584	66,838	283,40	3,42	4,3%	11,4%	422,9
England	48,701	58,485	20,09	2,99	2,2%	8,8%	872,6
Saudi Arabia	30,822	55,535	80,18	2,84	8,4%	21,7%	1652,2
France	45,010	51,572	14,58	2,64	2,1%	3,3%	808,1
Germany	42,403	51,570	21,62	2,64	1,4%	2,6%	629,8
Japan	46,223	48,160	4,19	2,47	1,0%	2,1%	388,6
South Korea	21,090	46,056	218,38	2,36	2,8%	10,9%	892,1
Italy	33,109	28,370	-14,31	1,45	1,6%	2,6%	478,3
Australia	14,053	27,618	96,53	1,41	2,1%	4,6%	1079,9
Brazil	16,768	25,101	49,70	1,29	1,4%	3,2%	92,9
Canada	13,243	22,854	72,57	1,17	1,4%	2,5%	602,9
Israel	12,746	21,065	65,27	1,08	5,6%	12,1%	2507,6
Turkey	12,516	19,567	56,34	1,00	2,8%	7,5%	210,2
Spain	18,245	17,160	-5,95	0,88	1,4%	2,7%	372,8
Poland	5,350	12,815	239,53	0,66	2,2%	4,4%	344,2

Billion \$, 2019 fixed prices¹³

* Calculated by the researchers with the data in Table 1.

¹² Ibid.

¹³ Ibid.

When we examine the table above, it is seen that the most significant increase in defence expenditures between 2000 and 2020 was in the People's Republic of China with 594.98%. While the USA accounts for 39.25% of the world's defence expenditures, Saudi Arabia has the largest share in defence expenditures with 21.7%. Regarding the per capita defence expenditures, Saudi Arabia ranks first with \$2507.6.

Countries take into account many factors when determining their defence expenditures. For example, the geopolitical position of the country is one of the important factors in determining defence expenditures.¹⁴ The fact that a country is located in the Middle East, where terrorism and civil war are intense, and being in Western Europe, where there is no direct threat to its territorial integrity, will change the perception of security and create differences in shaping defence expenditures.

The policies of the countries and the historical position they place themselves are also important factors in determining defence expenditures. The existence of expansion plans by states like Israel and North Korea is a typical example. This open or closed policy causes an increase in the budget allocated to defence expenditures.

Finally, the military regime in the country, the role of the army in politics, the number of soldiers, the risk of war, and technological dependence on foreign sources have a decisive role in shaping defence expenditures.¹⁵ It is possible to increase these examples even further. For instance, Treddenick (1985), in his research on Canada, showed that the most important factor affecting the increase in Canada's defence expenditures is economic concerns rather than security.¹⁶ This research by Treddenick (1985) shows that, in fact, defence expenditures affect many factors in the country.¹⁷

¹⁴ Filiz Giray, "Savunma Harcamaları ve Ekonomik Büyüme." *Cumhuriyet Üniversitesi İktisadi ve İdari Bilimler Dergisi*, 2004, Vol. 5, No. 1, 181-199. p. 181.

¹⁵ Ramazan Gökbunar and Halit Yanıkkaya, "Savunma Harcamalarını Belirleyen Faktörler ve Ekonomik Büyüme Etkileri." *Ankara Üniversitesi SBF Dergisi*, 2004, Vol. 59, No. 1, 159-179, p. 159.

¹⁶ John M. Treddenick, "The arms race and military Keynesianism." *Canadian Public Policy/Analyse de Politiques*, 1985, Vol. 11, No. 1, 77-92, p. 81.

¹⁷ *Ibid*, p. 85.

1.2. Factors Affected by Defence Expenditures

Defence expenditures are linked with many factors in the country. However, due to the methodology of the research, the areas with the most significant impacts are included in this section. Defence requires advanced technology; provided by weapons, vehicles, materials, and equipment. In particular, advanced technology in defence is the monopoly of a few developed countries. For instance, five of the top six companies selling weapons and military equipment worldwide are US-based. Therefore, every state that is not one of the few states mentioned has to import the relevant technology and equipment from these states. Thus, the most important effect of defence expenditures is its effect on foreign trade both for importing and for exporting states.

Another benefit of advanced technology is the employment of qualified personnel. Qualified personnel are needed in the creation and development of defence technologies. In addition, defence technology will also develop related sub-industries and thus increase employment. In summary, spending on defence technology will increase employment, mostly qualified personnel.

There is no consensus in the literature on the relationship between defence expenditures and inflation. While some researchers argue that defence expenditures have an increasing effect on inflation, some argue that they have a reducing effect¹⁸. Another group of researchers state that there is no significant relationship between these two. This situation mostly changes depending on the internal dynamics of the states.

The contribution of industrialization to economic growth can be clearly seen when the developed countries are examined. The defence industry also contributes to economic growth and industrialization. For instance, during Hitler's Germany, the idle workforce was mobilized with the defence industry investments, which contributed to the growth.¹⁹ However, there was no consensus among researchers on the effect of

¹⁸ Selim Başar and Serkan Künü, "Savunma Harcamalarının İktisadi Büyüme Etkisi", *Sosyal Bilimler Enstitüsü Dergisi*, 2012, Vol. 1, No. 10, 1-30, p. 8.

¹⁹ *ibid*, p. 8.

defence expenditures on economic growth, which is also the subject of this study, and two different economic views emerged.

1.3. Basic Economic Theories Examining the Relationship between Defence Expenditures and Economic Growth

Although there are many economic theories in the literature that examine the relationship between defence expenditures and economic growth, the Keynesian approach and the Neo-Classical approach are two generally accepted approaches by researchers.

Keynesian Approach: The Keynesian approach, also called the Harrod-Domar or modern growth model, is a demand-side approach. It assumes that aggregate demand will increase by encouraging investments to ensure economic growth and full employment. In the Keynesian approach, while the increase in production is only linked with capital, labor and technological developments are ignored.²⁰ According to this approach, defence expenditures will increase as demand increases. Thus, the external influence of the economy occurs, and the civil economy is positively affected by this situation. In summary, the Keynesian approach argues that defence expenditures will positively affect economic growth through aggregate demand and incentives. Another one that deals with the relationship between defence expenditures and economic growth is the Neo-Classical approach.

Neo-Classical Approach: In this approach, the Solow Growth Model is dominant. Contrary to the Keynesian approach, perfect competition and full employment conditions are considered valid. In addition, labor and capital production processes have been accepted as substitutes for each other. The Neo-Classical approach is a supply-side approach. According to the neo-classical approach, while the workforce and technological developments affect growth, in the opposite case, economic growth does not affect the workforce and technological development. For this reason, an increase in workforce and technological developments are considered as externalities in this approach.²¹ According

²⁰ Metin Berber, *İktisadi Büyüme ve Kalkınma*, Derya Kitabevi, 2. Baskı, Trabzon, 2004. p. 115.

²¹ *ibid*, p. 121.

to the Neo-Classical approach, defence expenditures become an alternative cost of resources for growth by creating an exclusion effect and reducing growth. As in the Keynesian approach, this approach accepts that there is a link between defence expenditures and economic development but states that the relationship is negative.

1.4. Effects of Defence Expenditures on Economic Growth

1.4.1. Generally recognized positive effects

- Countries adopt all kinds of scientific developments obtained after R&D studies in the military field to applications outside the military field in a short time. This, most of the developments in the fields of transportation and electronics have occurred as a result of R&D studies in the military field.

- A strong defence industry ensures the overall development of the industry by influencing other branches of industry. The USA is a good example.

- According to researchers advocating the Keynesian model, defence expenditures create favorable conditions for foreign investors coming from outside by keeping the market safe.²²

Controllability of defence expenditures means control of growth. To put it more clearly, while defence expenditures can be used to mobilize the market in recessionary periods, they can be used to keep the market in balance during volatile periods.

1.4.2. Generally Accepted Negative Effects

- A country must allocate significant budgets for education and health to ensure its development and increase its welfare level. However, especially underdeveloped and developing countries make deductions from these resources to meet their defence expenditures. In this context, defence expenditures involve large opportunity costs.

- Increasing the resources allocated to defence expenditures may delay economic development. As a matter of fact, the economic development of the USA, which is the world leader in defence expenditures, is lower than

²² Taş, Örnek and Aksoğan, *ibid*, p. 659-682.

that of Japan. Japan is a more developed country than the USA due to its balanced approach to defence expenditures.

- If the defence expenditure for the state requires an industrial basis, then the import-substitution economy model will be strengthened, and thus, foreign trade will be harmed.²³

- Defence expenditures are entirely on public property. These public properties are realized not by private enterprise but by state means. In this case, the state, which increases its defence expenditures, will demand an increase in the state revenues in some way, and this situation will most likely be reflected in the form of taxes to the public. As a result, the purchasing power of the people, whose tax burden increases, will decrease, and the market will stagnate.

- Defence expenditures require advanced technology. Imports from states with this technology mean foreign exchange loss for states with limited foreign exchange resources. Considering the place of defence expenditures in budget expenditures, it will cause a serious foreign exchange loss.²⁴

- If R&D studies, which have a significant share in defence expenditures, produce results that are cheaper to outsource, a waste of resources will occur and cause the economy to shrink.

While it is possible to amplify these effects, only a few considered important are mentioned in this section of the study.

1.5. Empirical Studies

After the first study published in 1973, the relationship between defence expenditures and economic growth has attracted the attention of many researchers. Several research studies were carried out on this subject, and the literature was expanded. The sample studies in the literature and the results of these studies are provided below.

²³ Saadat Deger and Somnath Sen *Military expenditure and developing countries*. In *Handbook of Defense Economics*, edited by K. Hartley and T. Sandler. Amsterdam: Elsevier, 1995, 275–307.

²⁴ Eprime Eshag, *Fiscal and Monetary Policies and Problems in Developing Countries*, Cambridge: Cambridge University Press. 1983, p. 87.

Benoit did the first research examining the relationship between defence expenditures and economic growth in 1973 and provided a source for other studies in the literature.²⁵ Benoit (1973) found in his research that there is a one-way relationship from defence expenditures to economic growth. Based on these results, he introduced the hypothesis of defence expenditures and economic growth, known as the Benoit Hypothesis, to the literature.²⁶

Based on the data of 44 developing countries, Benoit developed his work in 1978, published previously in 1973.²⁷ The research covering the years 1950-1965 shows that there is a positive relationship between defence expenditures and economic growth.

Başar and Künü (2012) investigated the effect of defence expenditures on economic growth in the world and in Turkey and the reasons why governments tend to spend on defence.²⁸ According to the fixed effect model in the research, it was concluded that as defence expenditures increase, the growth rate decreases.

Duyar and Koçoğlu (2012) studied the effect of military expenditures on economic growth in sub-Saharan African countries.²⁹ In this study, it has been determined that defence expenditures have a positive effect on economic growth, which is not significant in terms of macroeconomics.

Taş, Örnek, and Aksoğan (2013) examined the relationship between defence expenditures, income inequality, and economic growth in Turkey for the period 1970-2008.³⁰ Cointegration and VAR model methods were used in the research. While determining one-way causality from defence expenditures to income inequality, it was concluded that defence expenditures are quite strong in explaining income inequality with the VAR model.

²⁵ Emile Benoit, p. 125.

²⁶ İbid, p. 126.

²⁷ İbid, p. 225.

²⁸ Başar and Künü, İbid, p. 26.

²⁹ Metin Duyar and Mustafa Koçoğlu, "Askeri Harcamaların Ekonomik Büyüme Üzerine Etkisi; Sahra Altı Afrika Örneği", *Uluslararası Sosyal Araştırmalar Dergisi*, 2012, Vol. 7, No. 33, 703-722, p. 703.

³⁰ Taş, Örnek and Aksoğan, ibid, p. 659-682.

Korkmaz and Bilgin (2017) examined the relationship between defence expenditures and economic growth, comparing Turkey with the USA.³¹ In this study, the data between 1961 and 2015 were evaluated, and Johansen-Juselius cointegration and Granger causality analyzes were used. As a result of the research, while there is no causal link between defence expenditures and economic growth for the USA, a bidirectional causality relationship has been detected between defence expenditures and economic growth for Turkey.

Durgun and Timur (2017) analyzed Turkey's defence expenditures and GDP figures between 1970 and 2015 using the Granger causality test, and as a result, a causal relationship between defence expenditures and economic growth for the Turkish economy could not be determined.³²

Çevik and Bektaş (2019) examined the relationship between defence expenditures and economic growth with the data of Turkey between 1968 and 2017.³³ In the research, a causality test was used in the frequency domain, and it was seen that there is a causal relationship between the defence expenditures and the economic growth in Turkey

Yantur and Gurson (2019) analyzed the defence expenditures and per capita incomes of Japan, France, and the USA between 1960 and 2017 with a causality analysis.³⁴ In the study, it was observed that while the effect of the defence expenditures of the USA on national income per capita could not be determined, the defence expenditures of France and Japan had a positive effect on the national income per capita.

³¹ Özge Korkmaz and Tuba Bilgin, "Askeri Harcamalar İle Ekonomik Büyüme Arasındaki İlişki: Türkiye ve Amerika Birleşik Devletleri'nin Karşılaştırmalı Analizi." *UIİD-İYEAS*, 2017, Vol. 18, 289-316. p. 289.

³² Özlem Durgun and Mustafa C. Timur, "Savunma Harcamaları ve Ekonomik Büyüme İlişkisi: Türkiye Analizi", *Dumlupınar Üniversitesi Sosyal Bilimler Dergisi*, 2017, Vol. 54, 126-137, p. 126.

³³ Emrah İ. Çevik and Gürsel Bektaş, "Savunma Harcamaları ve Ekonomik Büyüme İlişkisi: Türkiye Örneği." *Balkan Journal of Social Sciences*, 2019, Vol. 8, No. 16, 271-280, p. 271.

³⁴ Pelin Yantur and Poyraz Gürson, "Savunma Harcamaları ve Ekonomik Büyüme Üzerine Araştırma: ABD, Japonya ve Fransa Örneği." *İnsan ve Toplum Bilimleri Araştırmaları Dergisi*, 2019, Vol. 8, No. 1, 163-182. p. 163.

Karakaya and Sahinoglu (2020) studied Turkey's data between 1984 and 2016 with the help of the Johansen Cointegration Test and the ARDL Boundary Test.³⁵ While the Johansen Cointegration Test shows that there is a bidirectional causal relationship between Turkey's defence expenditures and economic growth; The ARDL boundary test results pointed out Turkey's defence expenditures have a positive effect on economic growth.

2. Method

The similarities or differences in defence expenditures of two important developing countries such as Turkey and China, which are influential in the world economy and also stand out with their defence expenditures, are examined by the trend analysis method. With this method, the interaction between defence and economic growth with 20 years of data for both countries will be tried to be revealed. Studies mainly analyzed the relationship between defence and economic growth using causality, regression, and econometric analysis methods. Contrary to the previous studies, the relationship between defence expenditures and economic development of China and Turkey, two countries with significant economic growth rates in the 2000s, was examined by trend analysis in this study. In this process, it will be examined whether the defence expenditures of the two countries are affected by the economic developments, and the reasons will be discussed. A 30-year data set is needed to ensure reliability in econometric analyzes. Since the 2000s were affected by different dynamics than the 1990s, it was concluded that it would be more meaningful to evaluate the years after 2000.

2.1. Analysis and Findings

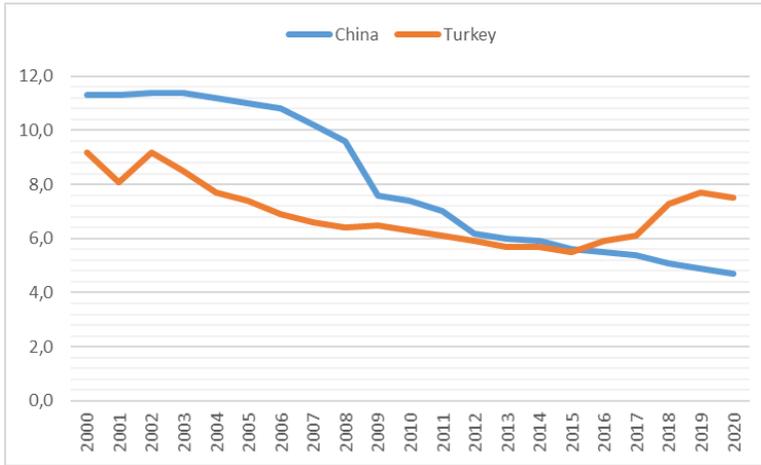
2.1.1. Turkey and China Defence Expenditure Trend (2000-2020)

It is possible to define the size of defence expenditures of Turkey and China in different ways. In scientific studies, the GDP shares of defence expenditures, the share in budget expenditures and total amounts,

³⁵ Ceylan Karakaya and Tuba Sahinoglu, "Savunma Harcamaları ve Ekonomik Büyüme İlişkisi: Türkiye Örneği." *Business & Economics Research Journal*, 2020, Vol. 11, No. 2, 335-351, p. 335.

and the rate of increase are used in the analysis. Figure 1 shows the share of Turkey and China's defence expenditures in total public expenditures. Defence is carried out by the public sector, especially in China and Turkey, and its production is mostly carried out by the public sector. Therefore, the share of defence expenditures in public expenditures can be considered as an important indicator. In Graph 1, it is seen that China and Turkey had a defence expenditure of 11% and 9%, respectively, in the 2000s. In addition, it is observed that this share continued to decrease until 2015 in both countries, and it came out approximately 6%. However, Turkey's defence expenditures did not increase between 2015 and 2019 and decreased partially in 2020. Similarly, China continued to reduce its defence expenditures, and this rate was 4% in 2020. However, this rate does not mean that China has decreased its defence expenditures. It is only because the increase in public expenditures is higher than defence expenditures.

Figure 1: Share of Defence Expenditures of Turkey and China in Public Expenditures (%)³⁶



³⁶ SIPRI, *ibid.*

Figure 2 shows defence expenditures measured in fixed prices. Here, it is seen that China's defence expenditures increased linearly, and Turkey's defence expenditures remained stable. In contrast to Figure 1, this situation displays public spending in China increased faster than defence expenditures, while in Turkey, defence expenditures increased faster than public spending in 2015 and beyond. It is clearly seen in Graph 3 that there is no significant increase in defence expenditures in Turkey. Supporting this, when the share of China's defence expenditures in GDP is examined, it is observed that the defence expenditures, 2% in the early 2000s, remained between 1.7% and 1.9% after 2010. The GDP share of Turkey's defence expenditures varies between 3% in the early 2000s and between 1.8% and 2.8% in the following years. It can be stated that Turkey's defence expenditures are more unstable in terms of GDP share, especially since the share of GDP increased to 2.8% after 2017 but was realized as 1.8% and 1.9% between 2013 and 2015.³⁷

When the SIPRI (2021) data is analyzed and the share of Turkey's defence expenditures in GDP is taken into account, Turkey is seen to be among the high spending countries in Europe, America, Asia, and Africa.³⁸ Moreover, compared to Middle Eastern countries, Turkey is the country with similar and higher expenditures. Although China is spending much higher on military expenditures in terms of GDP, it is spending close to both Asian countries and the world in general. Nevertheless, as can be seen in Figure 2, the ever-increasing defence expenditures pose a threat to their neighbors, and especially the high defence expenditures of India and Japan catch attention.³⁹ Although China and Turkey are located in different geographies, both countries have the potential to pose a threat to their neighbors militarily. This situation causes the military expenditures of both countries to be high due to the geography they are in and the tension with their neighbors. Clements et al. (2021) state that countries experiencing political instability with their neighbors will continuously increase their military expenditures.⁴⁰

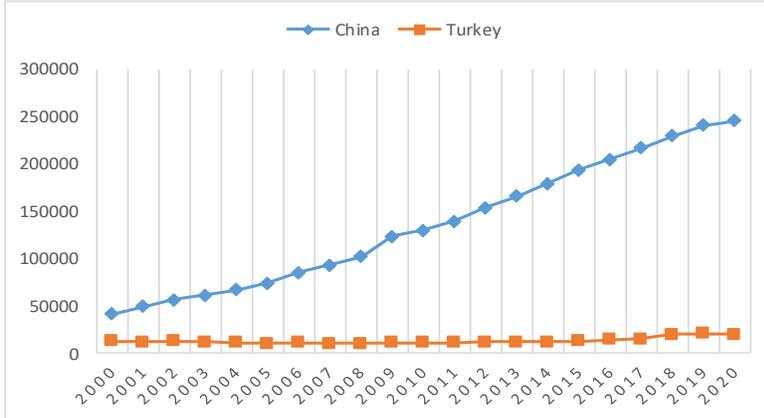
³⁷ *İbid.*

³⁸ *İbid.*

³⁹ Rifat Öncel, (2020). "5 Soru: 2019 Küresel Askeri Harcama Trendleri, SETA," 4 May 2020 <https://www.setav.org/5-soru-2019-kuresel-askeri-harcama-trendleri/> (Date of Access: 17 October 2021).

⁴⁰ Benedict J. Clements, Sanjeev Gupta and Saida Khamidova (2021 June). Military

**Figure 2: Defence expenditures of Turkey and China
(at US Dollar 2019 fixed price)⁴¹**



When the increasing trend in defence expenditures in dollars in Figure 3 is analyzed, it is observed that defence expenditures in Turkey and China were unstable until 2010, but after 2010, China's rate of increase steadily decreased, and Turkey continued its unstable increases after 2010. Since this situation can also be affected by the instability in the Turkish Lira, it is not sufficient to reflect the real expenditure amount totally. However, the remarkable thing is that defence expenditures showed a sudden upward trend in both countries during the 2009 Global Financial Crisis. Generally, crises can affect defence expenditures. In the research, it has been found that the defence expenditures, which decreased after the cold war, will continue to increase during and after the Covid-19 pandemic period.⁴²

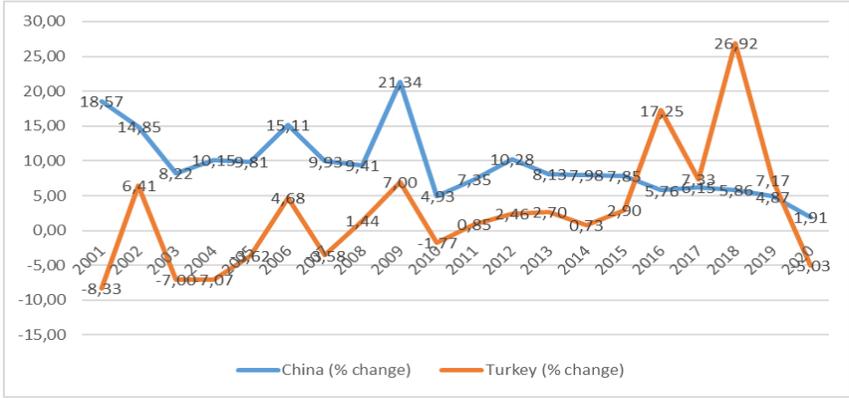
Spending in the Post-Pandemic Era – IMF F&D, <https://www.imf.org/external/pubs/ft/fandd/2021/06/military-spending-in-the-post-pandemic-era-clements-gupta-khamidova.htm>, 2021, (Date of Access: 13 October 2021).

⁴¹ SIPRI, *ibid.*

⁴² Clements, Gupta and Khamidova, *ibid.*

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Figure 3: The increasing trend of defence expenditures in Turkey and China (in US Dollar 2019 fixed price)⁴³



2.1.2. Relationship between Turkey and China Economic Growth Trend and Defence Expenditures (2000-2020)

Although Turkey and China have vast economic and population resources in different geographies, they are both in the developing economy category and at the upper middle-income level of the World Bank.⁴⁴ In addition to the rapid economic growth, their common feature, their strategic importance in the geographies they are located in, causes them to attach importance to defence expenditures.

Figure 4 shows the economic growth trends of both countries after 2000. It is observed that the ups and downs in growth rates in Turkey are sharper, and this instability is continuous. In addition, the Chinese economy grew very fast until 2007. There were ups and downs between 2007 and 2010, but after 2010, although there was a decrease in growth rates, it generally grew faster than the Turkish economy. In 2020, the growth rate decreased from approximately 6% to 2.3%. With this ratio, Turkey has again come close to its growth rate. On the other hand, the Turkish economy came out

⁴³ SIPRI, *ibid.*

⁴⁴ The World Bank. <https://data.worldbank.org/country/XT>, (Date of Access: 11 October 2021).

of the bottom (-5.75) with the 2001 crisis and reached 6% growth in 2002, but it could not catch up with the growth rate of China, which grew very fast in those years. Only in 2013 Turkey achieved higher growth than China. The 2008-2009 Crisis, also included in Figure 4, affected both countries negatively, but Turkey experienced a much higher decline and again realized negative growth. The fact that China is less affected by global crises shows that its economy is more stable.

Figure 4: Turkey and China GDP Growth Trend⁴⁵

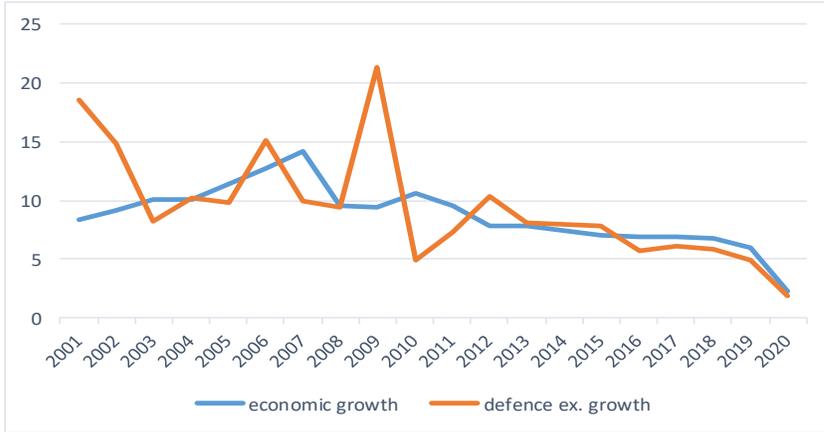


Finally, Figure 5 and Figure 6 reveal the economic growth rates and defence expenditure growth rates of Turkey and China. Looking at the Chinese data in Figure 5, it can be stated that until 2013, defence expenditures increased during the periods when the economy slowed down, and the rate of increase in defence expenditures decreased during the periods when the economy expanded. This situation can be easily seen in the graph, especially for 2001, 2007, 2009, 2010 and 2012. However, after 2013, a trend supporting the study that found a positive relationship between economic growth and defence expenditures stands out in the

⁴⁵ The World Bank, *ibid.*

literature. Especially after 2016, both the economic growth and the increase in defence expenditures occurred almost at the same rate.

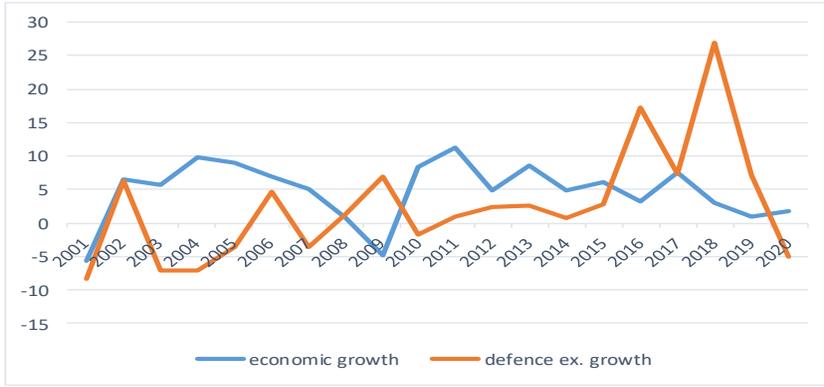
Figure 5: Increasing Trends in Chinese Economic Growth and Defence Expenditures⁴⁶



Turkey's growth and defence expenditures increase trend is more complex than China's. Similar to China, defence expenditures increased at a higher rate during periods of economic contraction, and defence expenditures followed a reverse course during growth periods. This situation became more apparent in 2003, 2004, 2009, 2016, and 2018. With the exception of 2009, the increase in defence expenditures remained below the economic growth until 2016, and this situation changed in 2016-2019, and the difference increased a lot in 2018. In 2020, the increase in defence expenditures remained below the economic growth rate again.

⁴⁶ SIPRI, *ibid.*

Figure 6: Increasing Trends in Turkey's Economic Growth and Defence Expenditures⁴⁷



When China and Turkey are compared, it can be stated that the economic growth rates in China and the increase in defence expenditures generally are in parallel with each other; however, the difference between the economic growth rates and the increase in defence expenditures is higher in Turkey than in China, as it is striking in the graph of Turkey. Therefore, although there are differences in China's economic growth rates and the increase in defence expenditures, the trends are very close and parallel to each other. Therefore, from this point of view, it is possible to say that there is a relationship between economic growth and the increase in defence expenditures in China.

The breakout analysis can obtain more meaningful results by testing the fluctuations in Turkey's defence and economic growth trends. In the long run, the same situation is also important for China.

3. Conclusion And Discussion

In this study, the relationship between Turkey's and China's economic growth and defence expenditures was analyzed by trend analysis. Looking at the data from 2000 to 2020, it has been revealed that there is no linear relationship between the increase in defence expenditures and economic

⁴⁷ Ibid.

growth for Turkey, but there is a parallelism in China, especially after 2013. In addition, it has been determined that despite Turkey's fluctuating economic growth and increase in defence expenditure, China's growth rates are more stable and close to each other.

The fact that the econometric analysis in the literature has produced very different results from each other makes it inevitable to analyze this issue with different methods. Today, like many other countries, defence expenditures are also important for these developing economies such as Turkey and China. Although the 1990s supported policies towards a more peaceful world and the use of resources allocated for the defence to areas such as education and health, the current process does not make this possible for some countries, including China and Turkey. However, increasing or keeping defence expenditures high undoubtedly results in insufficient limited resources for other areas. This situation negatively affects the future of developing countries. As stated at the beginning of this study, defence is public property and is undertaken by the state. Such services, namely public services, fulfill other purposes along with economic growth. Just as it is not possible for an uneducated society to progress in production, it is also not possible for a country with defence weakness to economically guide its resources to the right areas. A country can be expected not to grow with defence expenditures but expected to make higher defence expenditures along with economic growth.

Özet

Savunma harcamaları, ulusal güvenliği sağlamak için ülkelerin uyguladığı, mali stratejilerin önemli bir parçasıdır. Yapılan bu harcamalar, ülke ekonomisinin parametrelerini her ülke için farklı yönde etkilemektedir. Bu nedenle, savunma harcamalarının ekonomik büyüme üzerindeki etkilerinin değerlendirilmesi kritik bir konudur. Savunma harcamalarının ekonomik büyüme üzerindeki etkilerine yönelik yapılan araştırmalar incelendiğinde, araştırmacılar; Granger nedensellik testi, VAR modeli, Johansen-Juselius eş bütünleşme testi, ARDL sınır testi ve regresyon analizlerinden sıklıkla faydalandığı görülmektedir. Bununla birlikte yapılan araştırma bulgularında, tutarsızlık söz konusudur. Araştırma bulgularında ki bu tutarsızlıklar, konuya ilişkin daha fazla araştırma yapılmasını gerekli kılmaktadır.

Stockholm Barış Araştırmaları Enstitüsünün (SIPRI) 2021 yılında açıkladığı rapora göre, 2000-2020 yılları arasında savunma harcamalarında, dünyadaki en büyük artış % 594,98 ile Çin Halk Cumhuriyeti'nde yaşanmıştır. Dünyanın en büyük ikinci ekonomisine sahip Çin'in savunma harcamalarındaki artışın temelinde; NATO-Çin çekişmesi, Güney Çin Deniz'inde Vietnam, Filipinler ve Japonya ile yaşanan anlaşmazlıkların artması, topraklarının ayrılmaz bir parçası olarak gördükleri Tayvan'ın bağımsızlık mücadelesini bastırma düşüncesi ve dünya üzerinde ABD'ye kıyasla, daha fazla söz sahibi olma konusundaki beklentileri gösterilebilir. Aynı raporda, dünyanın en büyük 15. ekonomisine sahip Türkiye'ye ise 2000-2020 yılları arasında, savunma harcamalarında ABD'den sonra % 56,34 artışla 10. sırada yer almaktadır. Türkiye jeopolitik konumu nedeniyle kendisini sürekli tehdit altında görmektedir. Bu nedenle, savunma harcamalarına ayırdığı bütçe, her geçen yıl artış göstermektedir. Özellikle son yıllarda; Suriye, Irak ve Libya'daki askerî harekâtını genişletmesi, savunma harcamalarının daha da artmasına sebep olmuştur. Çin ve Türkiye'nin savunma harcamalarındaki yükseliş eğiliminin devam etmesi nedeniyle araştırmada, Çin ve Türkiye'nin savunma harcamalarının ekonomik büyüme üzerindeki etkileri araştırılmış ve elde edilen bulgular iki ülke bağlamında karşılaştırılmıştır.

Araştırmanın temel amacı, Çin ve Türkiye örneklerinden yola çıkarak, savunma harcamalarının ekonomik büyüme üzerindeki etkilerini daha derinden anlamak ve savunma harcamalarına yönelik literatürü genişletmektir.

Türkiye ve Çin savunma harcamaları trendini dikkate alırken, savunma harcamalarının büyüklüğünü farklı şekillerde tanımlamak mümkündür. Bilimsel çalışmalarda genellikle savunma harcamalarının GSYH payları, bütçe harcamaları içindeki pay ve toplam miktarlar ile artış hızı verileri analizlerde kullanılmaktadır. Grafik 1, Türkiye ve Çin savunma harcamalarını toplam kamu harcamaları içindeki payını göstermektedir. Grafik 1'de Çin ve Türkiye'nin 2000'li yıllarda sırasıyla %11 ve %9 kadar bir savunma harcamasına sahip olduğu görülmektedir.

Grafik 2'de sabit fiyatlarla ölçülen savunma harcamaları gösterilmektedir. Burada Çin'in savunma harcamalarının doğrusal bir şekilde arttığı ve Türkiye'nin savunma harcamalarının dolar bazında sabit kaldığı görülmektedir.

Grafik 3'te yer alan dolar cinsinden yapılan savunma harcamaları artış trendi incelendiğinde 2010 yılına kadar Türkiye ve Çin savunma harcamaları artış trendinin istikrarsız olduğu ancak 2010 sonrasında Çin'in istikrarlı bir şekilde artış oranında düşüşe geçtiği ve Türkiye'nin 2010 sonrasında istikrarsız artışlarını devam ettirdiği görülmektedir.

Grafik 4 her iki ülkenin 2000 yılı sonrası ekonomik büyüme trendlerini göstermektedir. Türkiye'de büyüme oranlarındaki iniş ve çıkışların daha keskin olduğu ve bu istikrarsızlığın sürekli olduğu görülmektedir.

Son olarak Grafik 5 ve Grafik 6, Türkiye ve Çin'in ekonomik büyüme oranları ile savunma harcamaları artış oranlarını göstermektedir. Grafik 5'te yer alan Çin verilerine bakıldığında 2013 yılına kadar ekonominin yavaşladığı dönemlerde savunma harcamalarının arttığı ve ekonominin büyüdüğü dönemlerde de savunma harcamaları artış hızının azaldığı söylenebilir. Bu durum özellikle 2001, 2007, 2009, 2010 ve 2012 için grafikte rahatlıkla görülebilir. Ancak 2013 sonrasında literatürde ekonomik büyüme ile savunma harcamaları arasında pozitif yönlü bir ilişki saptayan çalışmayı destekler nitelikte bir trend göze çarpmaktadır. Özellikle 2016 sonrasında hem ekonomik büyüme hem de savunma harcamaları artış oranı nerede ise aynı oranda gerçekleşmiştir.

Günümüzde savunma harcamaları birçok ülkede olduğu gibi Türkiye ve Çin gibi iki gelişen ekonomi için de önem arz etmektedir. Her ne kadar 1990'lar daha barışçı bir dünyayı ve savunmaya ayrılan kaynakların eğitim ve sağlık gibi alanlara yönelmesine doğru politikaları destekliyorsa da içinde bulunduğumuz süreç Çin ve Türkiye'nin de aralarında bulunduğu bazı ülkeler için bunu mümkün kılmamaktadır. Ancak savunma harcamalarını artırmak veya yüksek tutmak kuşkusuz sınırlı olan kaynakların diğer alanlar için yeterince kullanılmaması ile sonuçlanmaktadır. Bu durum gelişmekte olan ülkelerin geleceğini olumsuz yönde etkilemektedir. Belki de bu nedenle ülkelerin savunma harcamaları ile büyüyeceğini inanarak, bunu ortaya koyan çalışmalar dikkate alınmaktadır. Çalışmanın başında da belirtildiği gibi savunma bir kamu malıdır ve devlet tarafından üstlenilmektedir. Bu tür hizmetlerin, yani kamusal hizmetlerin ekonomik büyüme ile birlikte başka amaçları da yerine gerçekleştirmektedirler. Tıpkı eğitimsiz bir toplumun üretimde ilerlemesi mümkün olmadığı gibi savunma zafiyeti olan bir ülkenin de ekonomik olarak kaynaklarını doğru alanlara kanalize etmesi mümkün

görülmemektedir. Bir ülkenin savunma harcamaları ile büyümesi değil ama ekonomik büyüme ile daha yüksek savunma harcaması yapması beklenebilir.

Declaration of Conflict of Interest:

There is no conflict of interest with any institution, organization, or person related to the article.

Authors' Contributions:

The authors' contribution rates in the study are equal.

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