A Political-Economic Map of The Turkish Defense Industry

İsmet Akça
Barış Alp Özden

2021

AN ECONOMIC-POLITICAL MAP OF THE TURKISH DEFENSE INDUSTRY

İsmet Akça: He was a faculty member at the Department of Political Sciences and International Relations at Yıldız Technical University until his dismissal under Decree No. 686 on February 7, 2017. He graduated from Marmara University, Department of Public Administration in French, and completed his master's and doctorate degrees in Political Sciences and International Relations at Boğaziçi University with a doctoral thesis entitled "Militarism, Capitalism and the State: Putting the Military in its Place". His research and publications focus on Turkey's political sociology, military-economy and military-politics relations in Turkey, militarism, the capitalist state and classes, neoliberalism, and hegemony.

Barış Alp Özden: He received his PhD degree from Boğaziçi University Atatürk Institute in 2011. He worked in the Department of Political Science and International Relations at Yıldız Technical University until his dismissal under Decree-Law No. 686 on February 7, 2017. He has published articles on labor history, neoliberalism, Turkish politics, and political economy. He is currently a visiting lecturer at the Institute of Turkish Studies at the University of Duisburg-Essen.

Citizens' Assembly (formerly Helsinki Citizens' Assembly) published this report as part of their work conducted on social reconciliation, peace, and human security.

Citizens' Assembly
Gümüşsuyu Mahallesi Ağa Çırağı Sk.
No: 7/3 Beyoğlu/İstanbul
+90 212 292 68 42
iletişim@hyd.org.tr

First Edition
İstanbul, December 2021

ISBN: 978-605-83027-6-1

Translation: Yeşim Öztarakçı
Copy Editing: Helen Mackreath

Cover Design and Page Layout
Yenen Demir-Ömer Süvari

HEINRICH BÖLL STIFTUNG
TURKEY

This report is prepared with the sponsorship of Heinrich Böll Stiftung Association Turkey Representative. The views expressed in the study belong entirely to the authors. They do not refle t the views of the Citizens' Assembly or the Heinrich Böll Stiftung Association.

A POLITICAL-ECONOMIC MAP OF THE TURKISH DEFENSE INDUSTRY

İsmet Akça
Barış Alp Özden

2021

“Domestic and national” policies and the “strong state” hold increasing resonance in discourse describing the latest period of the Turkish political regime. The repressive, public order policies and practices of the domestic administration have been enhanced by increasing the number of police and municipal police, militarizing them qualitatively, and strengthening the technical and information infrastructure. Simultaneously the strategy to become a "regional power" abroad is being continued through the development of the "domestic and national" military industry. The security sector’s place and weight in the country’s political economy also encompasses political, social, and cultural topography, development strategies, the sphere of citizenship, imagination, and opportunities ranging from the ow of daily life to the disposal of individual and collective rights and freedoms.

We hope that this report, which details the recent developments of the military industry in Turkey and its political-economic map using open sources, will become a reference for researchers, experts, non-governmental organizations, and journalists working in the relevant fields.

Citizens' Assembly
May 2021

Table of Content

LIST OF GRAPHS

LIST OF TABLES

ABBREVIATIONS

ACA: Aerospace Cluster Association

ARDEB: Academic Research Funding Program Directorate (ARDEB)

ARP: Action Requirements Plan

BASDEC: Bursa Aerospace and Defense Cluster

CAATSA: Countering America's Adversaries Through Sanctions Act

CAGR: Compound Annual Average Growth Rate

DL: Decree-Law

FMS: Foreign Military Sales (US Foreign Military Sales Program)

FRV: Fleet Replenishment Vessel

GDP: Gross Domestic Product

HAB: Ankara Aerospace Industrial Zone

IP/O: Industrial Participation and Offset

LPD: Landing Platform Dock

LST: Landing Ship Tank

MCIC: Mechanical and Chemical Industry Incorporated Company

MIKES: Microwave Electronic Systems Inc.

MİLGEM: National Ship

MSB: Ministry of National Defense

MUSIAD: Independent Industrialists and Businessmen's Association

NAD: National Armaments Directorate

NC: Northern Cyprus

NSPD: National Security Policy Document

OIZ: Organized Industrial Zones

OSSA: OSTİM (Middle East Industry and Trade Center, Ankara) Defense and Aviation Cluster

RCWS: Remote Controlled Weapon Systems

SADER: Defense Industry Association

SAGE: Defense Industries Research and Development Institute

SAHA: Turkish Defense and Industry Cluster, İstanbul

SASAD: Defense and Aerospace Industry Manufacturers Association

SAYP: The Researcher Training Program for the Defense Industry

SDIF: Savings Deposit Insurance Fund

SDİGV: General Directorate of Defense Inspection Enterprises

SIPRI: Stockholm International Peace Research Institute

SMEs: Small and Medium Sized Enterprises

SSB: Presidency of Defense Industries

SSDF: Defense Industry Support Fund

SSI: Turkish Defense and Aerospace Industry Exporters' Association

SSIK: Defense Industry Executive Committee

SSM: Undersecretariat for Defense Industries

TAF: Turkish Armed Forces

TAFF: Turkish Armed Forces Foundation

TAIS: Turkish Associated International Shipyards

TEYDEB: Technology and Innovation Grant Programs Directorate

TF: Turkish Fighter

TIM: Turkish Exporters Assembly

TNFC: Turkish Naval Forces Command

TOBB: The Union of Chambers and Commodity Exchanges of Turkey

TSSK: Teknokent Defense Industry Cluster

TÜMAS: Turkey's National Military Strategy

TÜSİAD: Turkish Industry and Business Association

TYPP: Ten Years Procurement Plan

UACV: Unmanned Aerial Combat Vehicles

UAE: United Arab Emirates

UAV: Unmanned Aerial Vehicle

YETEN: Defense Industry Talent Inventory

EXECUTIVE SUMMARY

The Turkish defense industry has made significant progress in the last two decades. During this period, the desire to make Turkey a “regional power” propelled efforts to develop domestic production and technologies in order to meet the increasing needs of the Turkish Armed Forces (TAF). This political motivation caused a rapid increase in both the rate with which the military needs from within the country were being met, and the size of the sector. With the rapid increase in the number of companies and personnel operating in the sector, the defense industry has been presented to the international arena as both a symbol of Turkey's "independent stance and increasing ascendance" and an economic "success story".

Although efforts towards Turkey's “military modernization” began in the mid-1980s, the capacity for the defense industry to grow and produce relatively more sophisticated weapon systems has become more evident in the last two decades. This progress of the industry has been accompanied by a notable rise of nationalist-militarist populist rhetoric in political discourse, extensively used by the President and other political figures and reproduced by the media, which has made it enormously difficult to obtain an objective assessment of the current state of the development of defense industry. Even though interest in the defense industry is high, and is disseminated across the internet and social media channels alongside print and visual media, articles and news which contain misinformation, propaganda, and even psychological warfare dominate the information produced about defense and security.

The number of academic studies on the fiscal course of defense expenditures in Turkey, the macroeconomic (especially economic growth) effects of defense expenditures, its relationship with borrowing and budget deficits, and the relationship between defense expenditures and other social expenditures is quite high. However academic and scholarly publications and analyses on Turkey's defense needs and the state of the military industry, industry’s capital structure and its relationship with the state, and defense and security technologies across the world are very limited. For that reason, this research report aims to provide a picture of the defense industry from a political-economic perspective. The report is intended as a study to provide a basis for the development of further research in this direction.

The development of the defense industry is closely related to the development of defense expenditures. For this reason, in the first part of the report, we focused on Turkey's course of defense expenditures using existing studies and data sets. The extra-budgetary Defense Industry Support Fund has had a significant impact on defense expenditures in Turkey, especially on the resources spent on defense industry projects. But the inability to obtain chronological and regular data on the fund's expenditures makes comparative calculations difficult. Nevertheless, we can detect that defense expenditures have shown an almost continuous upward trend since 1980. In the first decade of the 2000s (especially between 2000 and 2008), budgetary defense expenditures displayed a downward trend when calculated on TL basis, but the ups and downs in this period remained within a fairly narrow range. A continuous and regular increase can be observed on a dollar basis, and the expenditures made from non-budgetary Defense Industry Support Fund (SSDF) resources compensated for the decrease in defense expenditures made from the budget. In this period, the decrease in personnel expenditures due to the reduction in the number of military personnel was the determining factor in the decrease in budgetary defense expenditures. In contrast, defense industry production projects and acquisitions, within which SSDF expenditures fl w, were not affected by this decline. Defense expenditures re-

entered a partial upward trend between 2008-2014 and a remarkable increase after 2015.

Another important phenomenon observed in the post-2002 period is the significant increase in domestic security expenditures, especially in the police force. The expenditures of the police force have increased since 1998, and this increase gained momentum, especially after 2008. An important factor behind this increase is that the number of police personnel increased by almost 50 percent during the 2004-2014 period. Between 2002 and 2014, the budget of the Ministry of Interior increased by five times, and between 2003 and 2012, the budget of the police force doubled.

At the NATO summit held in Wales in 2014, it was decided to increase the ratio of member countries' defense expenditures to their Gross Domestic Product (GDP) to 2 percent and equipment spending at least to 20 percent of the total defense budget. This decision has also been an important factor affecting the developments in Turkey in recent years. Turkey increased the share of defense expenditures to GDP from 1.45 percent in 2014 to 1.85 percent in 2019. While the share of equipment expenditures in Turkey's defense spending was 25.08% in 2014, it increased to 34.32% in 2019.

Although the desire to develop the military industry in Turkey dates back to the Republic's first years, it experienced its main momentum after 1985. In the context of the “Modernization of the Armed Forces project” announced in 1985, the acquisition of advanced military equipment and increase in the share of domestic production in the military industry was targeted. With this aim in mind, the most important legal-institutional regulation has been the establishment of Undersecretariat for Defense Industries (SSM) and SSDF as an extra-budgetary resource. SSDF has created a very decisive financial resource for the purchase and, more importantly, the production of military equipment. A defining feature of this period was that large companies affiliated with TAFF, some of which date back to the second half of the 1970s, had a decisive position in the sector (one-third of the sector's total turnover by 2000). However, as the sector developed financially, other large-scale capital groups began to participate in the sector in the 1990s. When the distribution of the total turnover of the Turkish defense industry as of 2008 is considered, the weight of private companies is 36%, TAFF is 33%, and public sector is 31%.

Although various efforts had been made to increase the share of domestic production in the military industry since the 1980s, the rate of domestically meeting the needs of the TAF was still only around 25% in 2003. In 2004, in order to reduce foreign dependency in armaments to 50%, the model based on supply agreements established through joint production was abandoned and a model focused on domestic weapons production was adopted. Since this date, the financial size of the defense industry has increased tremendously. The rate of domestically meeting the needs of the TAF increased to 65% in 2018, and the target for 2023 was determined to be 75%. It should be noted that we do not know the criteria by which the rates given regarding the level of indigenization in the defense industry are prepared. These rates are viewed with suspicion by some experts who follow the industry closely. Therefore, it would be more appropriate to think of these ratios as refle ting a trend.

While the turnover of the sector, which was $1,337 million in 2004, increased to $3,707 million in 2010 and $10,884 million in 2019, the target for 2023 has been set as $26,900 million. Similarly, the total number of projects carried out by Presidency of Defense Industries (SSB) (formerly SSM) was 84 in 2004, 269 in 2010, and 667 in 2018. The total contract value of these projects increased from $7,957 million in 2004 to $24,462 million in 2010 and $60 billion in 2018. With the ongoing projects taken into consideration, the total contract value is expected to reach $75 billion.

A similar trend is also evident in the export capacity of the sector. Turkey's defense industry exports increased from $196 million in 2004 to $853 million in 2010 and to $3,068 million in 2019. Although there has been a decrease in concentration in the exports of defense industry products in the world since the end of the 1990s this has opened space for new exporting powers in the market. This has led to such an increase in the export capacity of the Turkish defense industry, that Turkey is now able to compete in the field of relatively low technology products in the international market. Despite Turkey's relatively rapid rise in this area, its share in the global arms market is below 1 percent. Long-term sales figures reveal that European countries, especially Germany, and United States are dominant in the foreign sales revenues of the defense industry. The highest technology segment in the exports of the Turkish defense industry is reported to be the land platforms/systems, followed by the military aviation and arms and ammunition sales, respectively. Uncertainties in the international political arena and, as illustrated by the latest Countering America's Adversaries Through Sanctions Act (CAATSA) sanctions, the occasional trade restrictions resulting from Turkey's alienation from its NATO allies, are potential obstacles to the development of defense industry exports.

Although Turkey has made great strides since the 1990s in meeting defense procurement from within, this does not mean that Turkey's defense industry has significantly reduced its foreign dependency and approached its target of self-sufficiency. The form of import dependency in the defense industry has shifted from ready-made weapon platforms to the supply of high-tech and cost-effective subsystems and components for domestic production such as engines and electro-optical sensors. The increase in the defense and aviation sector imports, from $1,409 million in 2012 to $3,088 million in 2019 shows that the share of imports in the total turnover of the sector has not changed. Turkey’s exclusion from the F35 programme and the CAATSA sanctions may affect Turkey’s defense imports in the short term. However, in the face of such sanctions and embargoes, the Turkish defense industry has demonstrated an improved ability to change suppliers and use alternative subsystems over time.

Although the R&D expenditures of the sector are increasing, they are still far from making a significant technological breakthrough and reaching levels that will make Turkey more competitive in the international arms market. Defense and aerospace R&D spending, which was around $50 million in 2002, increased to $1,672 million in 2019. However, the share of Turkey’s defense R&D investments of national income is only around 0.06%. Although the increase in the employment ratio of engineers and those working in product-technology development is interpreted as a positive development, it has been observed by experts who closely follow the sector that the last few years have seen an intensifying tendency to migrate abroad, especially among experienced and educated individuals in the sector.

One of the most difficult areas to find reliable data on regarding the Turkish defense industry is the intra-sector shares of capital groups in the sector and the in-sector structuring of capital groups. Companies operating in the defense industry can be bracketed into three groups in terms of market share, size, revenues, employment, and technology investments. The first group consists of large companies such as ASELSAN, TAI, Roketsan, Mechanical and Chemical Industry Incorporated Company (MCIC) , HAVELSAN, Otokar and FNSS, which carry out major defense projects and are the main contractors in the supply of defense needs. Companies in this group, affiliated to TAFF, still hold significant power. This group also includes public companies such as MCIC, STM, and private sector groups such as Otokar, FNSS, Nurol, and BMC. The second group consists of defense industry companies such as STM, SDT, Savronik, Alp Aerospace, HMS. These can be the main contractors in medium-sized projects but mostly work as subcontractors of the main contractors in large projects and undertake the task of developing and producing the

sub-systems and delivering them to the main contractor. The third category are companies that directly supply parts and components for small defense needs to the Turkish Armed Forces or the companies in the first and second categories. Most of these companies do not only work in the defense industry, but are Small and Medium Sized Enterprises (SMEs) that mainly produce for other sectors as well. The growth of the defense industry market has increased the desire of these third group companies to become subcontractors in the defense industry. At the top of the Turkish defense industry sector, the first group displays an oligopolistic structure, within which a certain division of labor and partial competition are evident.

The private sector companies in the Turkish defense industry are mostly working in the land and naval sub-sectors. In these sub-sectors, which constitute the leading product segment in terms of both turnover and export amount, the intense competition between companies and their ties with the government in recent years is striking. The sector with the most intense competition is the armored land vehicles. Based on ISO data, the main companies such as BMC, Otokar, FNSS, and Nurol are in the same net sales segment (under and around 5 billion TL). In the context of their relations with political power, some companies, such as Otokar, which had been excluded from public tenders and had difficulties in finding a share in the domestic market, turned to exports and foreign investments. Companies that are more closely related to political power, such as BMC, benefit much more from public tenders.

In areas such as the development, modernization, and production of aviation and space industry systems where competition is much less due to high technology and costs in aircraft; the design and manufacture of fixed and rotary-wing platforms; and the production of engine and engine parts, those companies affiliated to TAFF continue to dominate due to their capital size and their seniority in the sector. A new niche in the aviation sub-sector, both in terms of military strategy and the economy, can be observed in Unmanned Aerial Vehicle (UAV) production. The rapid development of the global unmanned aerial systems market and the performance of the armed and unarmed UAVs produced by Turkey since 2016 for domestic and international operations have generated intense interest in these aircraft, both internationally and among the Turkish public. Another factor behind this interest is that Baykar Defense, the largest manufacturer of unmanned aerial vehicles together with TUSAŞ, belongs to the family of the President's son-in-law. This discourse of great success about unmanned aerial vehicles has caused politicized discussions that make it impossible to find accurate information about the level of foreign dependency, in the context of UAVs' engines and other critical subsystems.

Efforts to meet Turkey's defense procurement domestically have led to a development that has seen the widening of the base of capital accumulation from large companies at the top to subcontractors below and the SMEs which are finding a place in the sector as subcontractors. In the last decade in particular, both the increase in defense expenditures and the steps taken to increase industry participation and offset rates, in combination with the crisis conjuncture that the Turkish economy has entered, has accelerated the entry of small enterprises into the defense sector, which promises relatively high profits. The companies affiliated with TAFF and the public sector's industrial clusters and Organized Industrial Zones (OIZ) practices can be seen as effective in directing SMEs to the fields of defense, security, aviation, and space. This situation also refle ts the emphasis of the defense industry in terms of transforming it into a capital accumulation model to enable it to survive and strengthen its legitimacy during a structural crisis. In order to evaluate whether defense industry investments will have such a function, further studies based on the capital groups and companies, in other words an analysis of the transition from the macro-level to micro-level, are required. ■

INTRODUCTION

The Turkish defense industry has made significant progress in the last two decades. During this period, the desire to make Turkey a “regional power” propelled efforts to develop domestic production and technologies in order to meet the increasing needs of the Turkish Armed Forces (TAF). This political motivation caused a rapid increase in both the rate with which the military needs from within the country were being met, and the size of the sector. With the rapid increase in the number of companies and personnel operating in the sector, the defense industry has been presented to the international arena as both a symbol of Turkey's "independent stance and increasing ascendance" and an economic "success story".

Indeed, although efforts towards Turkey's “military modernization” began in the mid-1980s, the capacity for the defense industry to grow and produce more sophisticated weapon systems has become more evident in the last two decades. While the rate of domestically meeting the needs of the TAF was 25% in 2002, this rate increased to 65% in 2018. The Presidency of Defense Industries has set the target for the rate of localization as 75% for 2023. The defense and aviation sector developed rapidly in the 2000s as a result of a policy which prioritized domestic production in the purchasing of weapons, equipment, and ammunition. The industry's turnover, which was $1.3 billion in 2004, reached $3.7 billion in 2010 and approximately $10.1 billion in 2019. The significant re-ascension in Turkey's military spending since 2006 has been accompanied by the localization of the defense industry and an increase in the number of projects carried out by the industry.

While the number of national defense projects – such as the “one hundred percent domestic” UAVs; the “domestic and national” ALTAY Tank; the “national warship program” National Ship (MİLGEM); and the “ATAK Attack Helicopter developed using Turkey's unique national capabilities” – are constantly increasing, a wide economic network has emerged formed by the large capital groups led by companies ranging from those affiliated to the Turkish Armed Forces Foundation (TAFF) to SMEs. During the last decade in particular, when the Turkish economy entered a recessionary trend, the defense industry rose as a profitable area of accumulation, starting from the big companies at the top and spreading downwards, similar to the construction industry.

This militarization vein in the Turkish economy has developed simultaneously to the increasing nationalist-militarist populist rhetoric in political discourse. While the ruling party was preparing for the 2011 elections, it listed its 2023 production targets in strategic areas as being "national tanks, national satellites, national aircrafts." Again, in the 2023 Political Vision Document of the Justice and Development Party (AKP), the claim was that Turkey would progress from a point "from which we could not even produce an infantry rifle tha our soldiers could use, to that in which we will begin to produce our own national tank." The ambition was also repeated for "a Turkey that designs and produces all its military defense needs within the framework of its 2023 vision."[1] The great importance given to the defense industry, both as an economic and foreign policy tool, has been repeatedly proclaimed by President Erdoğan himself. In a speech dated 24 August 2020, he stated: “Turkey is continuing along a decisive path in the defense industry. The distance we have covered in the defense industry has contributed to the many strategic successes we have recently achieved within and outside our borders. It is not possible for nations that are not strong and independent in the field of defense to envision their future with confidence. By meeting our national defense and security needs, technological independence has become more critical than ever in creating deterrence in the international arena.”[2] This claim about

[1] https://www.akparti.org.tr/parti/2023-siyasi-vizyon/

Turkey's defense industry has also been highlighted in the various publications of those organizations with close relations to political power. 3

In line with the increase in militarist and nationalist rhetoric in recent years, news in the Turkish media about the defense industry and military technology, mostly exaggerated and sometimes containing misinformation, has also increased. Even though interest in the defense industry is high, and is disseminated across the internet and social media channels alongside print and visual media, articles and news which contain misinformation, propaganda, and even psychological warfare dominate the information produced about defense and security. A simple internet search reveals dozens of such inaccurate news stories: 'UAVs are using "ghost software" prepared by Turkish engineers'; 4'Bora missile can hit Rome with a range of more than a thousand kilometers,' 5 Göktürk, Turkey's satellite can reportedly "even see a person's wristwatch and the minute hand from space,"' 6Korkut is reported as an "intelligent air system that can even stop an atomic bomb." 7

One reason why such propaganda and fake news are given heavy coverage in the media is the minimal number of journalists, experts, and academics who produce quality content on issues such as Turkey's defense needs and the state of the military industry and defense and security technologies across the world. This situation has resulted in the spread of incomplete or incorrect information and the widespread acceptance of erroneous and unobjective analyses about them. The number of academic studies on the fiscal course of defense expenditures in Turkey, the macroeconomic (especially economic growth) effects of defense expenditures, its relationship with borrowing and budget deficits, and the relationship between defense expenditures and other social expenditures is quite high.8 However, studies on the political economy of the defense industry are very limited.

This research report was written with the aim of gaining a picture of the defense industry from a political-economic perspective. We would like the report to be considered a study which provides a basis for the development of further studies in this direction. A limited number of academic studies, reports, and data published by public institutions have been used in the report, such as the Undersecretariat for the Defense Industry and the Presidency of Defense Industries; employer organizations such as the Union of Chambers and Commodity Exchanges of Turkey (TOBB), the Defense and Aerospace Industry Manufacturers Association (SASAD) and the Turkish Exporters Assembly (TIM); international organizations such as the Stockholm International Peace Research Institute (SIPRI), the World Bank, NATO; and printed and internet publications on the defense industry sector and newspapers. We would like to thank the Heinrich Böll Stiftung Turkey Representation and Citizens' Assembly for their institutional and financial support to conduct this research, to Utku Özveri, who was the project assistant, and to Bahadır Özgür, who provided feedback by reading the project report and who generously shared information and data with us. ■ May 2021

---

[2] https://www.ssb.gov.tr/Website/contentList.aspx?PageID=2637&LangID=1.

[3] SETA (Politics, Economics, and Society Research Foundation) is the most prominent institution in this regard. For examples of their publications in the defense industry field, see. Insight Turkey Summer 2020 issue; Ayse I. A. Ozer, The Rise of Turkish Defense Industry, SETA Publications, Ankara, 2019.

[4] "İşte Kandil'i Yerle Bir Eden Hayalet ", Sabah, 31 July 2015

[5] "Türkiye 'Roma'yı Vurabilecek Füze' Üretti", haberler.com, 31 January 2017

Ergun Diler, "Göktürkler", Takvim, 28 August 2015.

[7] "ASELSAN Yapımı Bu Silah Atom Bombasını Dahi Durdurabiliyor!", Yeni Şafak, 6 February 2016

[8] In this study, we only discuss the financial course of defense expenditures from 1980 to the present; we do not include other topics. For a recent study that both evaluates this enriched literature and contributes to the relations between defense expenditures and income inequality, defense expenditures, and profit margins, see. Adem Yavuz Elveren, Askerî Harcamalar ve Ekonomi. Eleştirel Bir Yaklaşım, İletişim, Istanbul, 2021.

1) MILITARY EXPENDITURES

As in any other country, the development of the defense industry in Turkey is closely related to the development of defense expenditures. In this section, the course of defense expenditures in Turkey in the post-1980 period will be examined.

The first question to be addressed in this regard is what defense spending includes. Based on the most comprehensive research on military expenditures in Turkey, two descriptions can be made, one relatively narrow and the other relatively broad. Gülay Günlük-Şenesen, who has produced pioneering and comprehensive studies on defense expenditures in Turkey, describes their scope as follows:

> Defense expenditures include expenditures made to meet the personnel, weapons, other military equipment, and ammunition requirements of the Ministry of National Defense (and its affiliated Service Commands), the General Command of Gendarmerie, and the Coast Guard Command; and the investment and transfer expenditures on fuel, food, clothing, etc. [9]

Gülay Günlük-Şenesen includes both the budgetary and extra-budgetary expenditures (of the Undersecretariat for the Defense Industry [SSM] and the Turkish Armed Forces Foundation [TAFF]) in her studies.

Nurhan Yentürk, who has published important research into public expenditures and the defense and security expenditures included within, uses the broader definition provided by the Stockholm International Peace Research Institute (SIPRI) and also includes the expenditures allocated to paramilitary forces and military research operating in this field (Mechanical and Chemical Industry Incorporated Company [MCIC]) and the expenditures of other public institutions.

> According to the SIPRI methodology, the armed forces' current and capital transfer expenditures, ministries of defense, and other public institutions producing defense projects (for example, the Defense Industry Support Fund) are considered military expenditures. In addition, paramilitary forces whose training and armament are made for military operations and can be used in military operations (for example, village guards), military space expenditures, military research and development expenditures, whose training and armament are made for military operations and can be used in military operations, are also considered within the scope of military expenditures. All expenditures of military and civilian personnel working in the specified forces and their payments to social security institutions, pension payments to retirees, operations, maintenance and purchases of goods and services, and military donations to other countries are also considered in these expenditures. According to

[9] Gülay Günlük-Şenesen, 1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri, İstanbul: TESEV Yayınları, 2002, 8.

> the SIPRI methodology, civil defense expenditures should not be included in military expenditures. [10]

In both definitions, the two main determinants of the sources of military expenditures in Turkey are budgetary and extra-budgetary resources.11 The budgetary resource is the "Defense Services" item in the Ministry of Finance budget data. Until 2006, only the MSB, the General Command of the Gendarmerie, and the Coast Guard Command were included under this item; the Public Financial Management and Control Law No. 5018,12 which has been implemented since 2006 and which includes the expenditures of non-military public institutions, has also been added under the new classification. Although the definition of military expenditures attains more accuracy with these additions, the Ministry of National Defense budget is still clearly decisive, since it constituted 99% of the relevant items in 2008. However, under the new classification, the expenditures of the General Command of Gendarmerie and the Coast Guard Command began to fall under a different item — under the item "Public Order and Security Services" rather than "Defense Services". Excluding the expenditures of these two institutions, which in Turkey are still clearly military unlike in EU countries, appears to reduce military expenditures by 20.2%For this reason, when calculating military expenditures, it would be more accurate to add the expenditures of these two institutions to the expenditures of the Ministry of National Defense.13 The non-budgetary source of military expenditures in Turkey is actually the Defense Industry Support Fund (SSDF) within the Undersecretariat for Defense Industries' body.

1980-2001 Period

If we look at the period between 1980-2001, based on the data prepared by Gülay Günlük-Şenesen (see Table 1 and Graph 1), the total defense expenditures (budget + SSDF + TAFF) in Turkey increased rapidly between 1988 and 2000. The annual average expenditure was $5,275 million. The total expenditure on military equipment between 1988 and 1999 was $1,328 million annually. From 1990 to 2000, $5 to $8 billion was spent annually on the military, and $1 to $2 billion was spent on military equipment.[14] If an evaluation is made which takes the flu tuations in the period into account, the total military expenditures started to increase rapidly after 1988, and military expenditures increased 4.3 times in dollar terms from 1988 to 1999. Although there was some interruption in 1994 due to the

---

[10] Nurhan Yenturk, Askeri ve İç Güvenlik Harcamalarını İzleme Kılavuzu 2009-2010-2011, Istanbul: Istanbul Bilgi University NGO Education and Research Unit, 2009, http://stk.bilgi.edu.tr/stkButce.asp., p.8-9; Nurhan Yenturk, Sosyal Yardımlardan Güvenliğe Türkiye'nin Kamu Harcamaları (2006-2017), Istanbul: Istanbul Bilgi Üniversitesi Yayınları, 2018, p.134.

[11] All sources of military expenditures in Turkey can be listed as follows: Budget, Defense Industry Support Fund (SSDF), US security assistance, company loans, German Slice Aid, NATO Infrastructure Fund, Turkish Defense Fund, special appropriations, TAFF.

[12] This law was enacted in 2003 to harmonize the financial management and control system in Turkey with European Union norms.

[13] Gülay Günlük-Şenesen, "Türkiye'nin Savunma Harcamaları: 2000'li Yıllar", Eds. Ali Bayramoğlu, Ahmet İnsel, Almanak Türkiye 2006-2008 Güvenlik Sektörü ve Demokratik Gözetim, Istanbul: TESEV Yayınları.
2009, p.172-173.

[14] Gülay Günlük-Şenesen, "1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri", s. 76, 82

economic crisis, the rise continued the following year. In 1999, the total military equipment expenditure in dollars was 5.7 times that of 1987.[15] The rapid increase in the military equipment expenditures in the total defense expenditures in this period is due to two factors: expenditures made especially from SSM for defense industry projects to build the national defense industry, and equipment purchases required for the "low-intensity confli t" strategy carried out within the framework of the Kurdish problem.[16]

Table 1: Defense and Military Equipment Expenditures of Turkey, 1980-2000

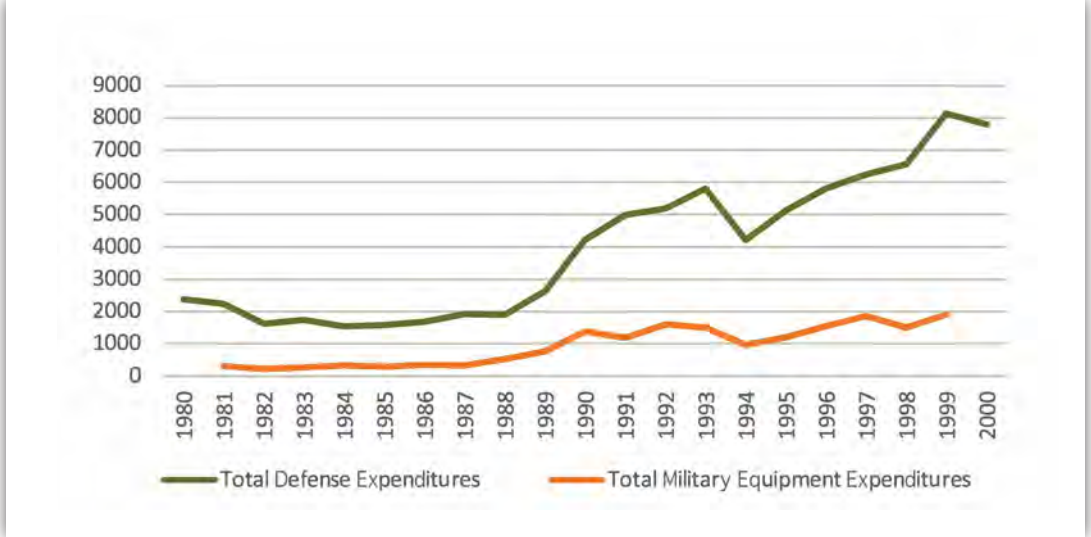
Years	Total Defense Expenditures (Million $)	Total Military Equipment Expenditures (Million $)	Share of Military Equipment Expenditures in Total Defense Expenditures %
1980	2387		
1981	2237	315	14,08%
1982	1627	222	13,64%
1983	1750	271	15,49%
1984	1541	333	21,61%
1985	1576	285	18,08%
1986	1692	356	21,04%
1987	1931	334	17,30%
1988	1892	534	28,22%
1989	2629	775	29,48%
1990	4202	1381	32,87%
1991	4980	1187	23,84%
1992	5179	1597	30,84%
1993	5810	1495	25,73%
1994	4217	958	22,72%
1995	5136	1199	23,35%
1996	5795	1543	26,63%
1997	6233	1863	29,89%
1998	6570	1501	22,85%
1999	8132	1909	23,48%
2000	7793		

Source: Data from Gülay Günlük-Şenesen, 1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri, p.76

[15] Ibid., p.79.

[16] In an article in Radikal newspaper, in 1999, it was stated that "according to the authorities, the cost of terrorism to Turkey varies between 65 and 100 billion dollars." See "Terör Çok Pahalıya Mal Oldu", Radikal, 18 February 1999. In July 2008, then Government Spokesperson, State Minister, and Deputy Prime Minister Cemil Çiçek stated that the said cost was over $300 billion for 25 years. See "Çiçek: 25 yılda PKK ülkeye 300 milyar doların üzerinde zarar verdi", Sabah, 21 July 2008. Numan Kurtulmuş, Minister of Culture and Tourism at the time, stated that the cost of terrorism to Turkey was as high as 1.5 trillion dollars. See "Minister Kurtulmuş: Terrorism Costs Turkey 1.5 Trillion Dollars", Hürriyet, 13 June 2018. Numan Kurtulmus pronounced the same amount in February 2016 as the deputy prime minister of the time. "Deputy PM Urges Parliament to Restore Honor of Coup Victims", Daily Sabah, 29 February 2016, https://www.dailysabah.com/politics/2016/02/29/deputy-pm-urges-parliament-to-restore-honor-of-coup-victims.

Graph 1: Turkey's Defense and Military Equipment Expenditures, 1980-2000



2000s

The period that coincided with the first period of the *AKP* government, when the regulations and policies aimed at demilitarization which meant bringing the army's political power under the control of the civilian government were in effect, has often been considered a period in which defense expenditures decreased. When looking at the 2000s, again based on the data presented by Gülay Günlük-Şenesen, this time only taking budgetary resources and defense expenditures (1998-2008) into consideration (see Table 2, Charts 2 and 3), although it can be seen that the defense budget expenditures showed a significant downward trend in TL, there is a continuous and regular increase in dollar terms. Considering the inflation adjusted to TL prices accordingly, the share allocated to defense expenditures from the budget showed a significant downward trend after 2002. However, the fluctuations in this period remained within a fairly narrow range. To summarize, the average military expenditure for the 1998-2008 period is 1.8 billion TL. Expenditures were above this amount until 2002 (1.93 billion TL in 2002). After 2002, except for 2006, they remained below this average, but even the lowest annual expenditure, in the year 2004 (1.73 billion TL) was above the 1998 level. There is a continuous upward trend on a dollar basis, except for the decline in the 1999-2001 range. In 2001, the year of the great economic crisis, budget-based defense expenditures of $5,241 million marked the lowest point of the period.[17] Afterwards it regularly increased every year and reached $13,515 million in 2008. Overvalued TL and a low exchange rate policy created an advantage for Turkey regarding military expenditures. The decline seen in the first decade of the 2000s was not large enough to reverse the high military spending policy. The decrease in personnel expenditures due to the decrease in the number of military personnel was the determining factor in the decrease in the defense budget. [18]

[17] After the crisis broke out in 2001, statements made by the TAF officials that some arms supply and production projects would be suspended did not come into effect, and they were put into effect again in a short time. See. "23 Katrilyonluk Tasarruf", Milliyet, April 12, 2001; "Türk Silahlı Kuvvetleri Savunma Harcamaları", General Staff Information Note, 16.03.2001 and 11.04.2001, http://www.tsk.mil.tr. However, four months later, then-Prime Minister Bülent Ecevit announced that suspended military projects would resume in 2002. See . "Askerlere Moral", Radikal, 02 August 2001.

[18] Gülay Günlük-Şenesen, "Türkiye'nin Savunma Harcamaları: 2000'li Yıllar", p.174-175

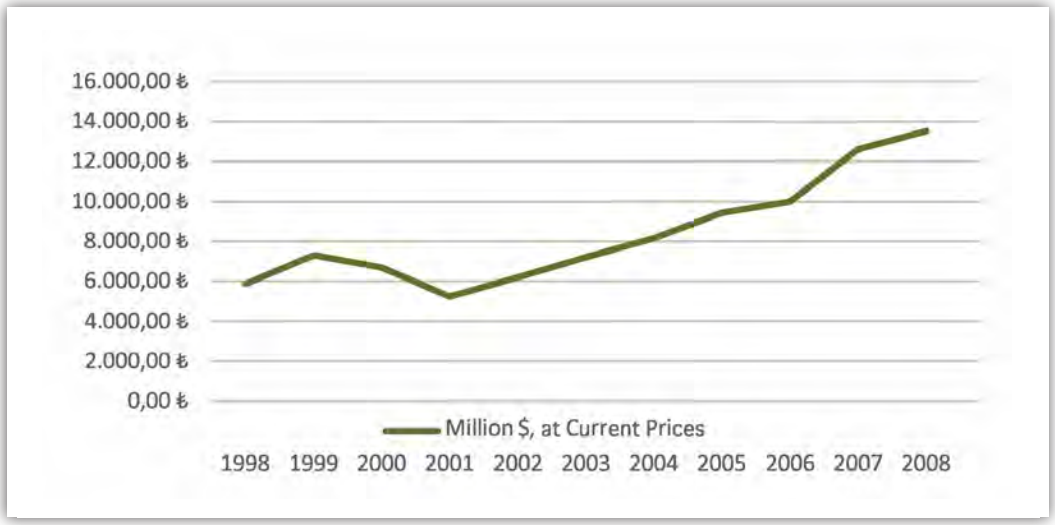
Table 2: Defense Expenditures of Turkey (Defense Budget) (1998-2008)

Year	1000 TL, Current Prices	1000 TL, 1998 Prices	Million $, at Current Prices
1998	1.617.889,00 ₺	1.617.889,00 ₺	5.883,00 ₺
1999	2.841.694,00 ₺	1.842.862,50 ₺	7.326,60 ₺
2000	4.421.343,00 ₺	1.921.768,20 ₺	6.690,00 ₺
2001	6.404.565,00 ₺	1.820.660,40 ₺	5.241,10 ₺
2002	9.337.170,00 ₺	1.931.825,30 ₺	6.200,00 ₺
2003	10.768.367,00 ₺	1.806.921,80 ₺	7.212,60 ₺
2004	11.602.695,00 ₺	1.732.136,30 ₺	8.159,40 ₺
2005	12.674.733,00 ₺	1.766.739,60 ₺	9.451,70 ₺
2006	14.232.657,00 ₺	1.826.446,00 ₺	10.008,10 ₺
2007	14.772.925,00 ₺	1.742.827,30 ₺	12.620,80 ₺
2008	16.634.402,00 ₺	1.779.178,60 ₺	13.515,60 ₺

Kaynak: Gülay Günlük-Şenesen, "Türkiye'nin Savunma Harcamaları: 2000'li Yıllar", s. 173.

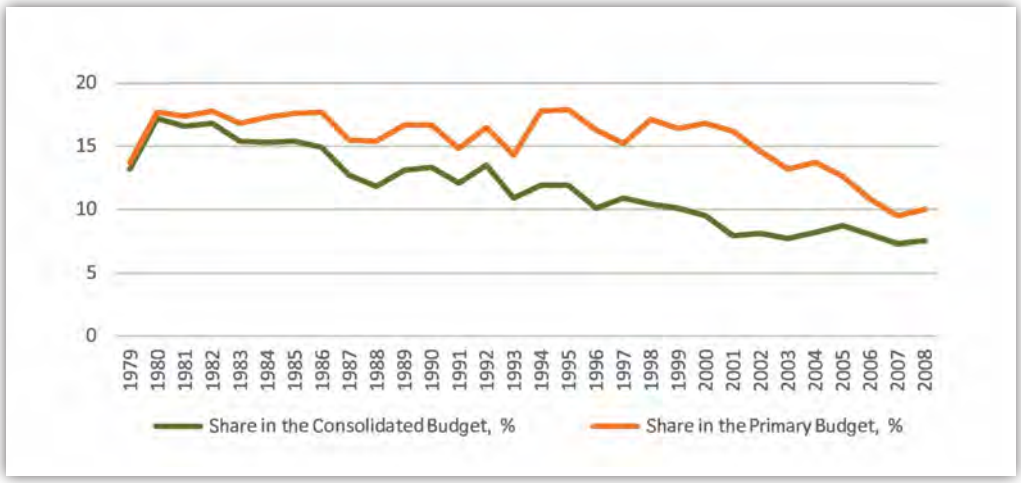
Graph 2: Defense Expenditures of Turkey, 1998-2008 (1998 Prices)

Graph 3: Defense Expenditures of Turkey, 1998-2008 (At Current Prices)



Considering the defense expenditure budget in relation to the total budget (see. Graph 4), a decrease can clearly be observed, especially in the 2000s. In the period between 1980 and 2001, the share of defense expenditures in the consolidated budget decreased by 17.2% in 1980; 11.8% in 1988; 13.5% in 1992; 10.1% in 1999; and 7.9% in 2001. Considering the 2000s, the ratio of defense expenditures in the consolidated budget increased to 8.7% in 2005 but decreased to 7.5% in 2008. However, considering that a significant part of the budget expenditures was spent on interest payments in this period, it would be more realistic and accurate to look at how public resources are distributed after interest payments. That is, to look at the primary budget (the budget from which interest expenditures are subtracted from the consolidated budget) rather than the consolidated budget. From this perspective, the rate of military expenditures was 17.7% in 1980; 15.4% in 1988; 16.5% in 1992; 16.4% in 1999; and 16.2% in 2001. In other words, the 16.5% level, which was the average of the period until 2001, was preserved despite the crises. After 2002 (14.6%), the share of military expenditures in the primary budget also decreased and regressed to 10% in 2008. [19] However, it should be reiterated that non-budgetary military expenditures are not included in these calculations.

Graph 4: Share of Turkey's Defense Expenditures in the Budget (Percentage)



Source: Gülay Günlük-Şenesen, "Türkiye'nin Savunma Bütçesi: Veriler ve Gözlemler", Ed. Ahmet İnsel-Ali Bayramoglu, "Bir Zümre, Bir Parti. Türkiye'de Ordu", Istanbul: Birikim Yayınları, p. 273; "Türkiye'nin Savunma Harcamaları: 2000'li Yıllar", p.173.

The more recent studies of Günlük-Şenesen and Kırık show that the downward trend in the defense expenditures budget within the total budget stopped after 2008 and started to increase, albeit relatively, until 2014 (see Graph 6). [20]

A crucial factor compensating for the decrease in Turkey's budgetary defense expenditures in TL terms in the 2000-2008 period is the extra-budgetary defense expenditures, originally made from SSDF (see Chart 8). [21]

[19] Gülay Günlük-Şenesen, "1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri", p.18-26; Gülay Günlük-Şenesen, "Türkiye'nin Savunma Harcamaları: 2000'li Yıllar", p.173.

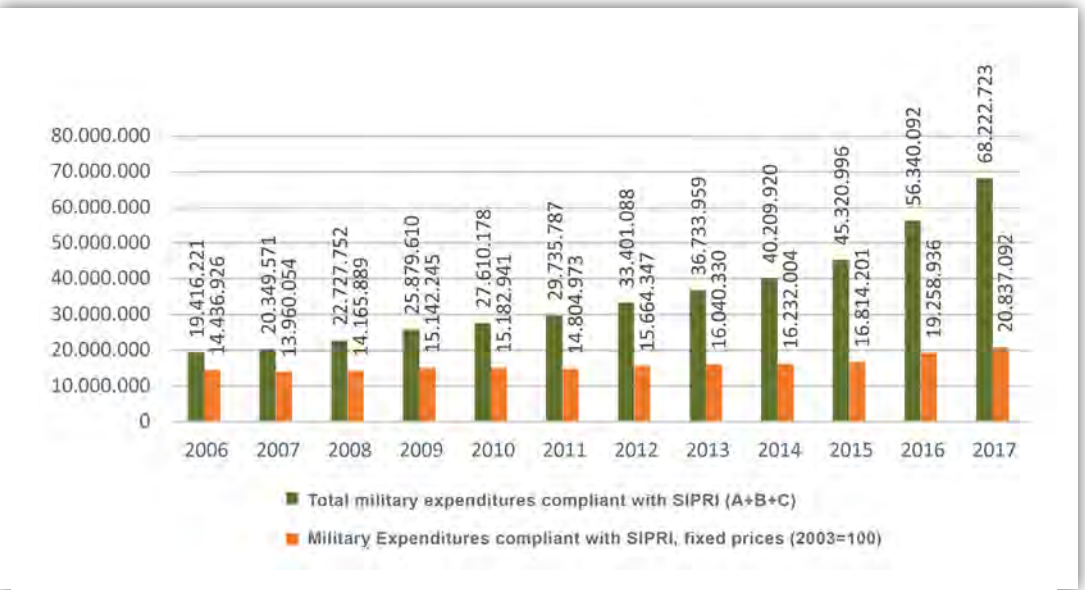
[20] Gülay Günlük-Şenesen & Hikmet Kırık, "The AKP Era: Democratization or Resecuritization? An Assessment of the Institutional and Budgetary Reflections", Research and Policy on Turkey, 1/1, 2016, p. 6.

[21] Graph 8 shows SSDF revenues and expenditures on an annual basis from 1986 to 2013. However, simply adding these to the defense expenditures budget does not add up to the grand total because there are duplicate items. The way to eliminate this is possible by knowing the SSDF itemized data. However, this data is not available after 2002. Such enormous extra-budgetary resources make the determination of defense expenditures even more difficult when it comes to Turkey.

In addition, if we add that a huge part of SSDF's expenditures, of $10,400 million in the 2000-2008 period, were devoted to the supply and production of weapons, it can be said that extra-budgetary expenditures largely compensated for the partial decrease in the budgetary expenditures. Considering the figures given above for the 2000s, especially the military production projects and purchases made by the SSM through SSDF resources, we can say that military expenditures continued to be high in this period as well. Expenditures from SSDF showed an upward trend until 2013. Although the available data on the expenditures in the post-2013 period does not allow us to follow the previous data set consistently, according to the available data, SSDF revenues and expenditures were 3,347 million TL (income) and 3,607 million TL (spending) for 2014 and 9,041 million TL (income) and 4,034 million TL (expenditure) for 2015. In other words, defense expenditures from SSDF continued to increase until 2015.[22]

According to the data set created by Nurhan Yentürk, which follows SIPRI's definition of broad military expenditures outlined in the introduction to this section, Turkey's military expenditures in the period 2006-2017 were as follows (see Chart 5). This data set, which is much higher than the sum of the budgetary defense expenditures and the budget + extra-budgetary defense (including the SSDF and TAFF) expenditures, shows that there was an increase in Turkey's military expenditures after 2013, which was particularly pronounced after 2015. This situation coincided with the period when the expenditures for the defense industry and the efforts to build a national defense industry gained momentum again.

Graph 5: SIPRI Compliant Total Military Expenditures, 2006-2017 (1000 TL)



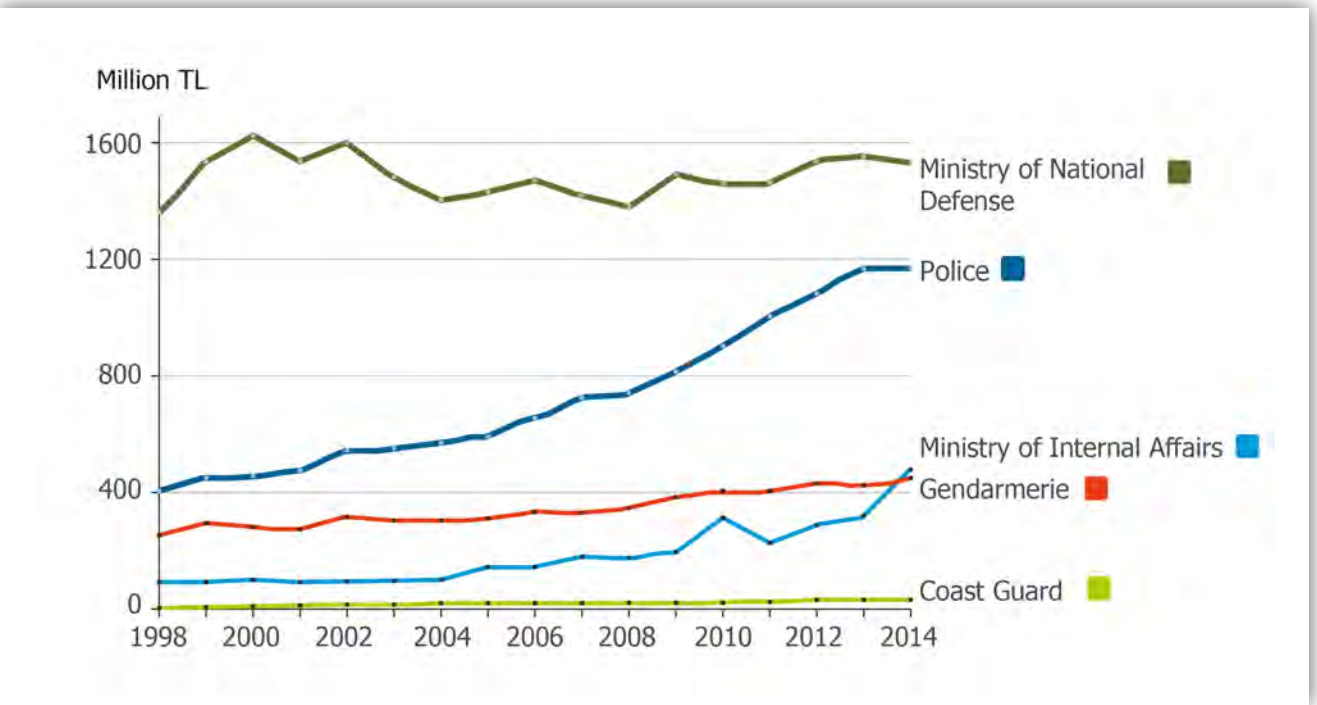
Kaynak: Nurhan Yenturk, Sosyal Yardımlardan Güvenliğe Türkiye'nin Kamu Harcamaları (2006-2017), p. 146

Note: A= Monitorable military expenditures (Ministry of National Defense, General Command of Gendarmerie, Coast Guard Command, Undersecretariat for Defense Industry, Defense Industry Support Fund); B = Restricted military expenditures (transfers from the budget to MCIC, salaries of village guards, secret service expenditures (procurement of goods and services), Prime Ministry discretionary fund, TÜBİTAK defense-related R&D, foreign loan repayments (FMS principal and interest, interest for central government institutions), military aid to the TRNC; C = Estimated military expenditures (Expense estimates for TAFF military projects, retirement payments of retired civilian and military personnel from the Armed Forces).

[22] The amounts transferred from the MSB budget and other institution budgets and the payments made within this context are not included in the 2014 and 2015 SSDF income and expense amounts. See SSM, 2014 Faaliyet Raporu, p.28; SSM, 2015 Faaliyet Raporu, p. 29.

Another critical point that the studies on defense expenditures draw attention to in Turkey is that, despite the partial and periodic decrease in defense expenditures within the budget in the post-2002 AKP period, the domestic security expenditures, especially the expenditures of the police, showed a remarkable increase. The expenditures of the police force have increased since 1998, and this increase gained momentum, especially after 2008. An important factor behind this increase is that the number of police personnel increased by almost 50% to 253,000 during the 2004-2014 period. Between 2002 and 2014, the budget of the Ministry of Interior increased by five times, and between 2003 and 2012, the budget of the police force doubled. [23]

Graph 6: Security Institutions' Budget (1998 Prices)



Source: Gülay Günlük-Şenesen & Hikmet Kırık, "The AKP Era: Democratization or Resecuritization? An Assessment of the Institutional and Budgetary Refle tions", p. 6

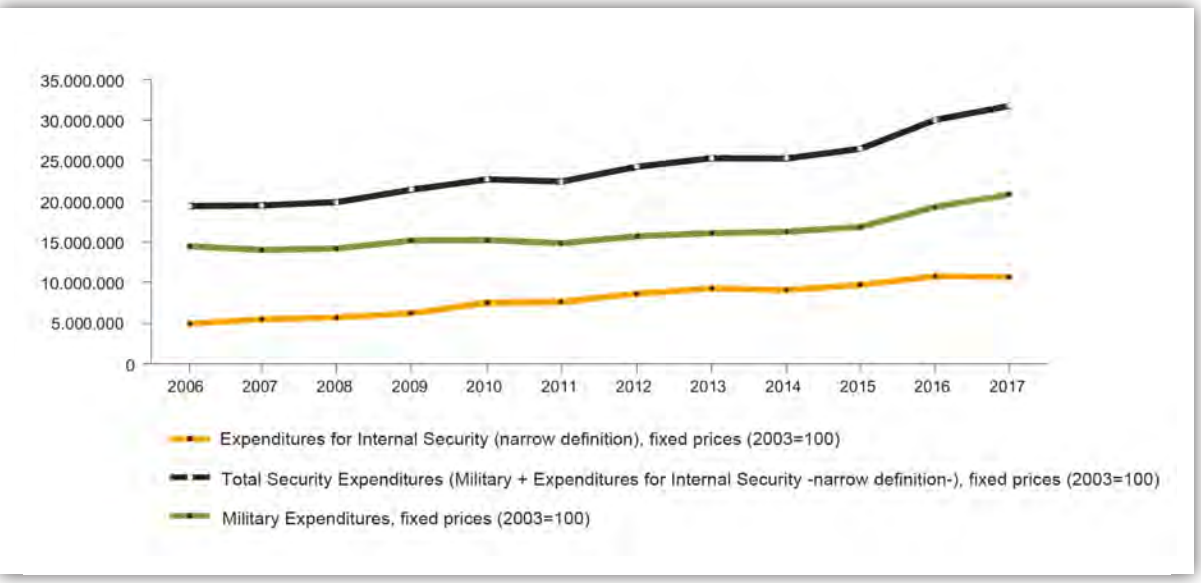
Nurhan Yentürk's study also draws attention to the increase in internal security expenditures. Accordingly, narrow-scope domestic security expenditures, which were calculated at a fixed price, increased by more than 15% between 2013 and 2017. The rate of increase in the wide-ranging internal security expenditures between 2013 and 2017 is 24%. The General Directorate of Security has the largest share in domestic security expenditures. According to Yenturk's data (see Graph 7), military and internal security expenditures, which constitute the total security expenditures in Turkey, increased in the 2006-2017 period. [24]

[23] Gülay Günlük-Şenesen & Hikmet Kırık, "The AKP Era: Democratization or Resecuritization? An Assessment of the Institutional and Budgetary Reflections", p.6-7.

[24] Nurhan Yenturk, "Sosyal Yardımlardan Güvenliğe Türkiye'nin Kamu Harcamaları (2006-2017)", p.156, for detailed data see p.157.

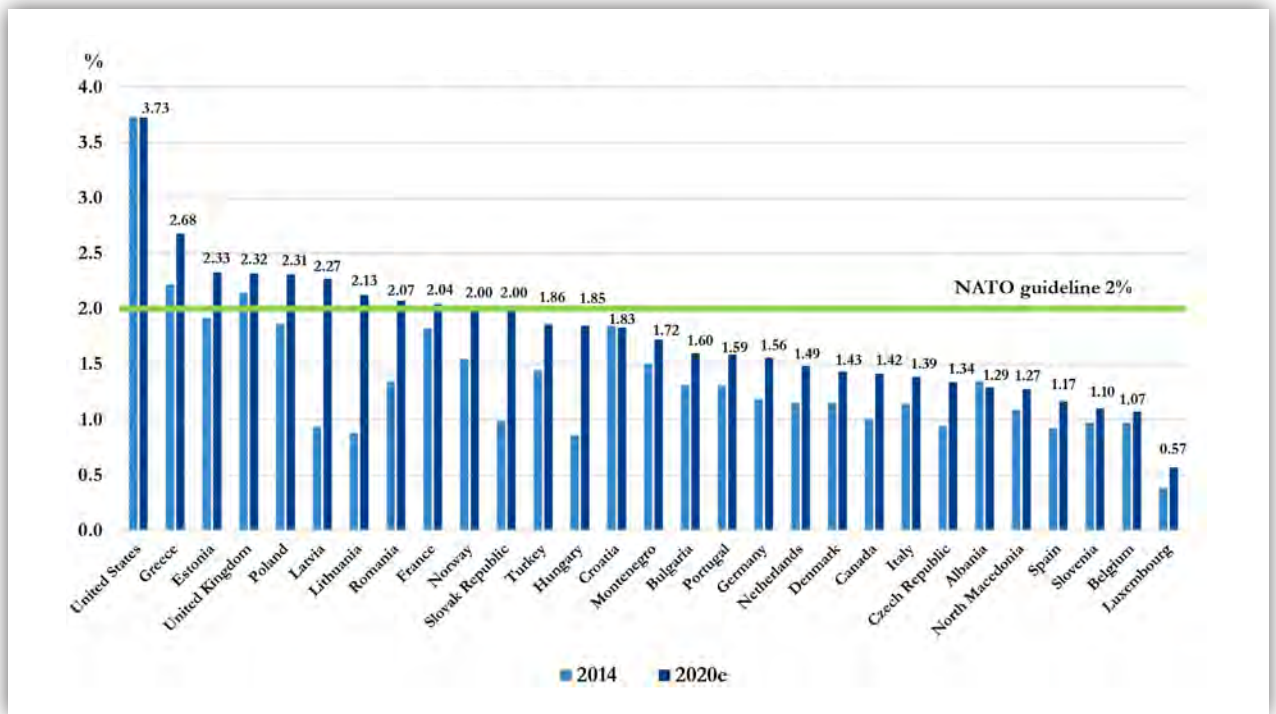
One of the important dynamics behind the increase in defense expenditures in the 2010s was the decision made in 2014 by NATO. At the NATO summit held in Wales in 2014, it was decided to level out the ratio of defense expenditures to the Gross Domestic Product of member countries to 2%. Turkey increased this rate from 1.45% in 2014 to 1.85% in 2019.

Graph 7: Development of Security Expenditure (2006-2017)



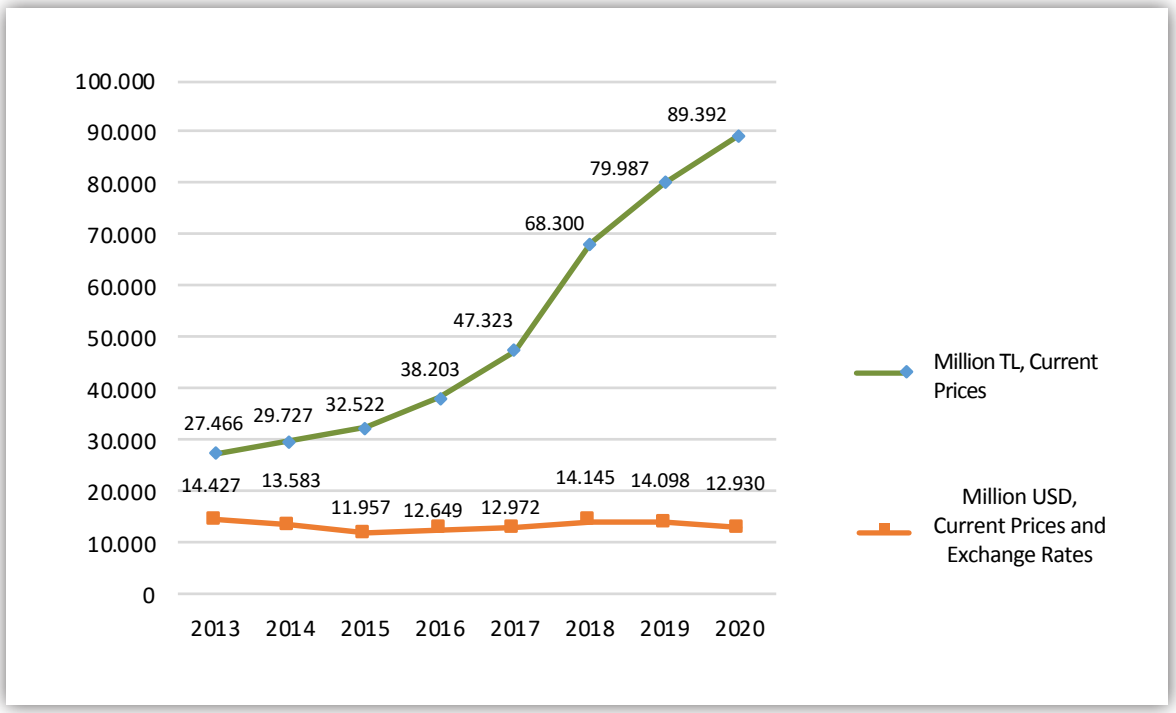
Source: Nurhan Yenturk, "Sosyal Yardımlardan Güvenliğe Türkiye'nin Kamu Harcamaları (2006-2017)", p. 169

Graph 8: The Ratio of Defense Expenditures of NATO Countries to GDP (%) (in 2015 prices and exchange rates)



Note: 2020 figures are estimates.
Source: Defense Expenditure of NATO Countries (2013-2020), p. 3.

Graph 9: Turkey's Defense Expenditures According to NATO Data



Note: 2020 figures are estimates.
Source: Defense Expenditure of NATO Countries (2013-2020), p. 6-7.

To sum up, in the post-1980 period, defense expenditures using budgetary and extra-budgetary resources regularly increased in Turkey. In the first decade of the 2000s, the partial and periodic decline in budgetary spending, mainly due to the decrease in personnel, did not eliminate the upward trend both when evaluated in dollars and when extra-budgetary expenditures are taken into account. A significant increase can also be observed in defense expenditures after 2015. Another important feature of the post-2002 period is the massive rise in spending on domestic security, particularly the police. ■

2. DEVELOPMENT OF THE DEFENSE INDUSTRY IN TURKEY (1985-2004)

Although the desire to develop the military industry in Turkey dates back to the Republic's first years, it only began to experience sustained momentum after 1985.

Following the long years of war, the Republic's economic legacy and industrial infrastructure inherited from the Ottoman Empire were weak. The breakthrough in industrialization came with the statist policies of the 1930s, and industrial production nearly doubled in this period. But even if the establishment of a national defense industry had been set as a target by the Republic, and both private sector initiatives and public investments were possible sources of funding[25], no significant progress was made in the defense industry due to the structural constraints in the economy.

With the end of the Second World War, Turkey's foreign policy orientation shifted towards integrating with the Western bloc under the hegemony of the USA within the bipolar world system. This was decisive in terms of the national security policies and army organization, as well as the defense industry. With Turkey's inclusion in the scope of the military aid agreement signed with the USA on 12 July 1947 and the Mutual Defense Act signed on 6 April 1949, during the Truman presidency in the USA, the TAF's needs for vehicles and equipment were largely funded by the USA based on the Military Support Program. “The supply planning of the TAF was reduced to the lists of needs sent to the USA every year, and the maintenance of the equipment; equipment in the form of aid and grant was left to the management and control of the USA. Therefore, not only the vehicle and platform requirements, and their planning and procurement, but also their maintenance, repair, and renewal processes were carried out under the control of the USA and NATO.”[26] This situation resulted in the cessation of the weak steps previously taken to construct the national defense industry.

The famous "Johnson Letter," sent in 1964 after Turkish military intervention in Cyprus, which stated that Turkey could not use the weapons and equipment provided by the USA for such an intervention, together with the arms embargo imposed by the USA from February 1975 to 1978 after the Cyprus Peace Operation in 1974, revived intentions to establish a national defense industry. Accordingly, foundations for strengthening the land, navy, and air forces were established.[27] Within those bodies, the foundations of companies such as TUSAŞ (1973), ASELSAN (1975), İşbir (1977), Aspilsan (1981), HAVELSAN (1982) were laid. However, this initiative was limited by the effects of the crisis period into which the economy had entered.

---

[25] For companies established in this period, see Osmanlı’dan Günümüze Savunma Sanayii, 14 May 2008, https://m5dergi.com/kapak/osmanlidan-gunumuze-savunma-sanayii/.

[26] Arda Mevlutoglu, “Türkiye'nin Savunma Reformu: Tespit ve Öneriler”, Istanbul: SETA, 2016, p. 9.

[27] The Air Force Foundation was established in 1970, the Naval Forces Foundation in 1972, and the Land Forces Foundation in 1974.

The major acceleration in the development of the military industry was in the context of the "Armed Forces Modernization Project" announced in 1985. First, a total of $12 billion (an annual average of $1.2 billion) was envisaged for a ten-year period. This was then redefined as $150 billion (an annual average of $5 billion) for a 30-year period in 1996; and finally, in 2000, it was announced as $20 billion (an annual average of $2 billion) for 10 years. With the effect of the modernization project, the share of the budget allocated to defense increased significantly, especially after 1988. The main pillars of the modernization project were to acquire advanced military equipment and increase the share of domestic production in the military industry.

At the time, the most important institutional arrangement for the defense industry was establishing the SSM and, accordingly, the SSDF, which constitutes the extra-budgetary source of military expenditures in Turkey. The General Directorate of Defense Inspection Enterprises (SDİGV), which consisted entirely of civilians, was established in 1983. The decision-making board of this institution was composed of the Prime Minister, the Minister of Finance, and the Minister of Defense. The executive team was composed of civilian bureaucrats appointed by the Ministers of Defense and Finance. The institution was responsible for meeting and producing the various needs of the TAF. It was decided to transfer the military factories under the control of the TAF to the authority of this institution, and, in 1985, to liquidate the foundations of the force commands and transfer the defense industry companies affiliated with them to the SDİGV.[28] However, these transfers did not take place owing to reasons such as the army's unwillingness to leave the field regarding the determination and meeting of the needs of the defense industry, the weapons and equipment needs, the weakness of the government's political resistance, and the limited capacity of civilian experts in the field. As a result, the SDGİV was disbanded.

Instead, the Defense Industry Development and Support Administration Office was established in 1989 under law no. 3238, dated 07.11.1985.[29] It was organized as an undersecretariat under decree no. 390, dated 30.10.1989. The decision-making bodies of the SSM were the Defense Industry High Coordination Board and the Defense Industry Executive Committee (SSIK). The High Coordination Board's task was to meet twice a year with 13 members[30] chaired by the prime minister, for purposes of planning and coordination. It was stated that the form of weapon systems and equipment procurement would be determined following the Strategic Target Plan determined by the General Staff. But this board did not have much influe ce as an advisory board and had never even met as of 2013.[31] The members of SSIK were the Prime Minister, the Commander of the

[28] Çağlar Kurç, "Between Defence Autarky and Dependency: The Dynamics of Turkish Defence Industrialization." Defence Studies, 17/3, 2017, p. 267.

[29] Republic of Turkey Official Gazette, "Savunma Sanayii Geliştirme ve Destekleme İdaresi Başkanlığının Kurulması Hakkında Kanun", Law no. 3238, T.C. Resmî Gazete, issue 18927, 13.11.1985.

[30] The members of the Board are the Prime Minister, the Chief of the General Staff, the Minister of State in Charge of Economic Affairs, the Minister of National Defense, the Minister of Foreign Affairs, the Minister of Finance and Customs, the Minister of Industry and Trade, the Force Commanders, the Commander of the Turkish Gendarmerie Forces, the Undersecretary of the Prime Ministry, the Undersecretary of the State Planning Organization and the Undersecretary of the Treasury and Foreign Trade.

[31] See SSM, 2013 Faaliyet Raporu, p. 9.

Turkish Armed Forces, and the Minister of National Defense. The Committee took decisions on the domestic and international procurement of weapons and other equipment, gave directives to the SSM about advance payments and incentives, and determined the principles of use of SSDF.

As Çağlar Kurç states, during the 1980s and 1990s, decision-making[32] mechanisms regarding the production of the defense industry and the procurement of equipment formed one of the areas of confli t over control between soldiers and civilians, which resulted in institutional disorganization, lack of coordination between institutions and the prolonging of decision making. SSM was assigned responsibility for the planning, coordinating, and following of TAF's modernization projects in line with the Strategic Target Plan and the Ten Years Procurement Plan (TYPP). However, in 1997, the National Armaments Directorate (NAD), which would be under the control of the TAF, was established; thus, although the idea of replacing the SSM completely, as initially envisaged, was abandoned after a short while, a dual structure emerged. In practice, the TAF in particular encouraged the direct purchase of military equipment required by the military struggle against the PKK; some armed forces carried out modernization production projects, while the SSM carried out some other joint production projects for the national defense industry. The division of authority and division of labor among them remained ambiguous. [33]

The supply process flow of the period was as follows: [34]

- The National Security Policy Document (NSPD) is prepared (under the coordination of the Secretariat General of the National Security Council [MGK])
- The General Staff prepares Turkey's National Military Strategy (TÜMAS) document in line with the NSPD.
- The Service Commands and the General Staff prepare Movement Requirements Plans (HRPs), which defines the equipment, and capability requirements in line with TÜMAS, and HRPs are prioritized in line with the Strategic Target Plan,
- A Ten-Year Procurement Plan is prepared with the participation of the General Staff, MND, and SSM.
- Each item is projectized, and the procurement process begins through the channels of SSM, the MND Internal Procurement Department, and the MND External Procurement Department.

The TAF equipment and weapon modernization project was financed through the MSB budget and the extra-budgetary SSDF affiliated to the SSB. Through the fund envisaged in Article 12 of Law No. 3238, it had been possible to obtain the necessary resources from outside the general budget in order to finance arms and military equipment purchases and, in fact, military industry projects.

---

[32] Çağlar Kurç, "Between Defence Autarky and Dependency", p. 266. See also Arda Mevlutoglu, Türkiye'nin Savunma Reformu, p. 19.

[33] Çağlar Kurç, "Between Defence Autarky and Dependency", p. 266-268.

[34] Arda Mevlutoglu, Türkiye'nin Savunma Reformu, p. 17-19.

The income sources of the fund during this period were:

- The appropriation to be put into the budget for this purpose every year (through the Ministry of Finance Directorate General of Public Accounts),
- Share transferred over income and corporate tax revenue,
- The appropriation allocated from the Ministry of National Defense for modern weapons, tools, and equipment,
- The rate transferred from the special consumption tax share of the MND budget,
- Share of National Lottery revenues,
- Share of joint betting proceeds,
- The share to be transferred from the games of fortune income,
- Transfers from foundations established to strengthen the Turkish Armed Forces,
- Transfers from funds established by law of an amount to be determined by the Council of Ministers,
- Income from paid military service,
- Donations and grants
- Revenue from the assets of the fund.

Expenditures from the fund consisted of credits for the production of weapons, capital participation, and project costs related to the purchase and production of weapons.

Between 1986 and 2013, the fund's total revenue was $31,342 million, and expenditures were $30,686 million (see Graph 10). In the 1986-2000 period, the income resource rate was as follows: income-corporate tax 30%, transfer from the Ministry of National Defense 16%, fuel consumption tax 10%, foreign loans 9%, sales of alcohol and tobacco products 9%, assets of the fund 8%, revenues from the national lottery 7%, common betting revenues had a share of 5% and other sources 6%.[35] In 2007, $814 million, out of a total income of $1,256 million, was the share taken from income and corporate tax, $186 million from the National Lottery revenues, $127 million was the amount transferred from the Ministry of National Defense's special consumption tax share, $88 million was the income from their own assets, $30 million was the share of the common bet.[36]

67% of expenditures in the period 1986-2000 were spent on arms procurement and production (50% production contracts, 17% direct supply payments).[37]

---

[35] Gülay Günlük-Şenesen, 1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri, p. 47.

[36] SSM, 2007 Yılı Faaliyet Raporu, 2007, p. 40.

[37] SSM, 2005 Yılı Faaliyet Raporu, 2005, p. 22, 27, 29. For a breakdown of the annual income and expenses of the fund between 1986-2000, see Gülay Günlük-Şenesen, 1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri, p.41,44,45.

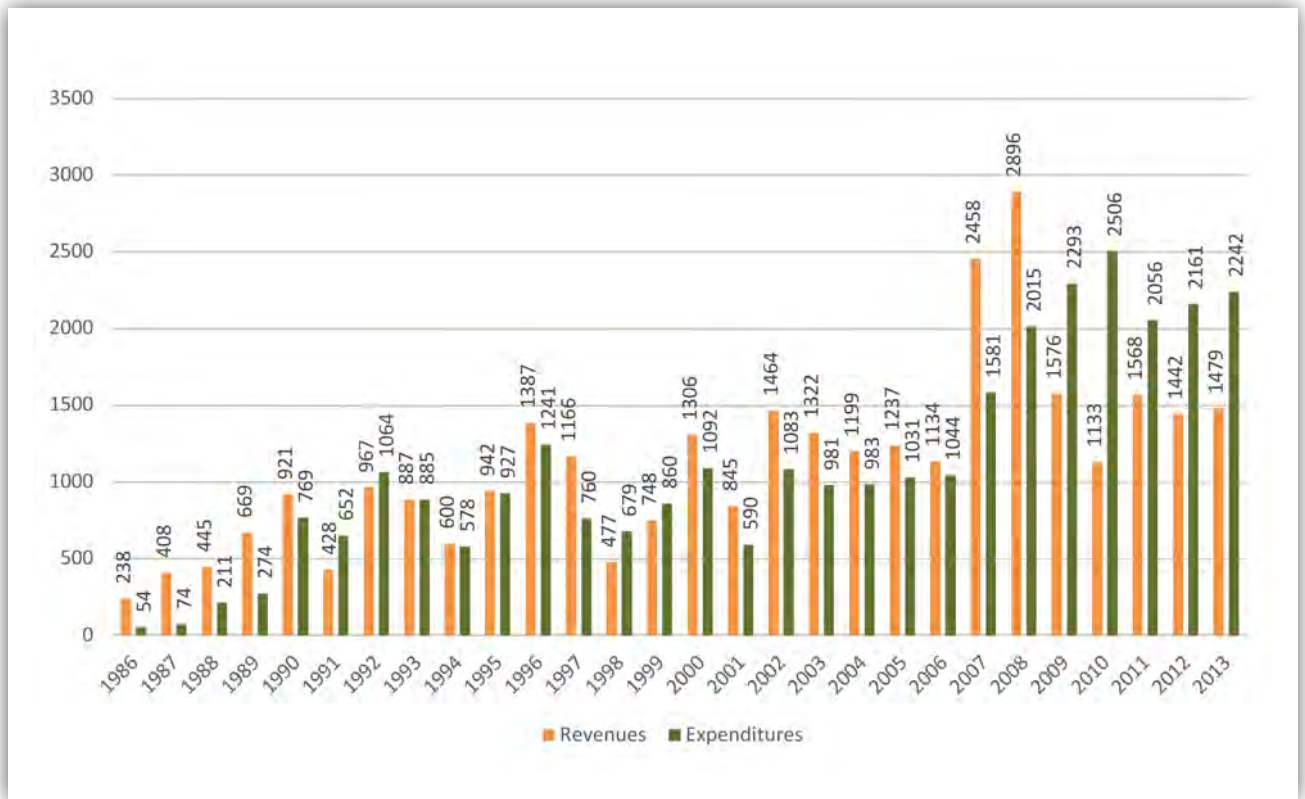
Project payments accounted for $1,016 million, or 85%, of the $1,194 million SSDF expenses for the year 2007.[38]

According to the data presented by Gülay Günlük-Şenesen, between 1987 and 2000, approximately 86% of military expenditures were met from the budget and nearly 14% from SSDF.[39] When the military equipment expenditures are taken into consideration, the importance of SSDF becomes more evident.

Again, for the same period, 26.7% of the total (budget and non-budgetary) military expenditures in Turkey were for military equipment expenditures. On the other hand, 54% of the expenditures made for the purchase and production of military equipment were met from the budget, and 44% from the SSDF.[40]

Meanwhile, while SSDF's revenues should have been much higher in recent years, non-payment of its accrued receivables in the Treasury shows that its revenues were lower. For example, there was a due of $5,700 million waiting to be transferred from the Treasury in 2014, and $13,240 million TL in 2015. [41]

Graph 10: SSDF Revenues-Expenditures (1986-2013) (Million $)



Source: SSM, Faaliyet Raporu 2008 [Annual Report 2008], p.39;
SSM, Faaliyet Raporu 2008 [Annual Report 2008], p.31.
(The Annual Report 2013 has been taken as a basis at the point where the data is inconsistent.)

---

[38] Gülay Günlük-Şenesen, "Türkiye'nin Savunma Harcamaları: 2000'li Yıllar", p.177. 2007 expenses are higher in the graph below because while Gülay Günlük-Şenesen uses the data from the 2007 SSM annual report, in graph 10, we used the data from the 2008 Annual Report.

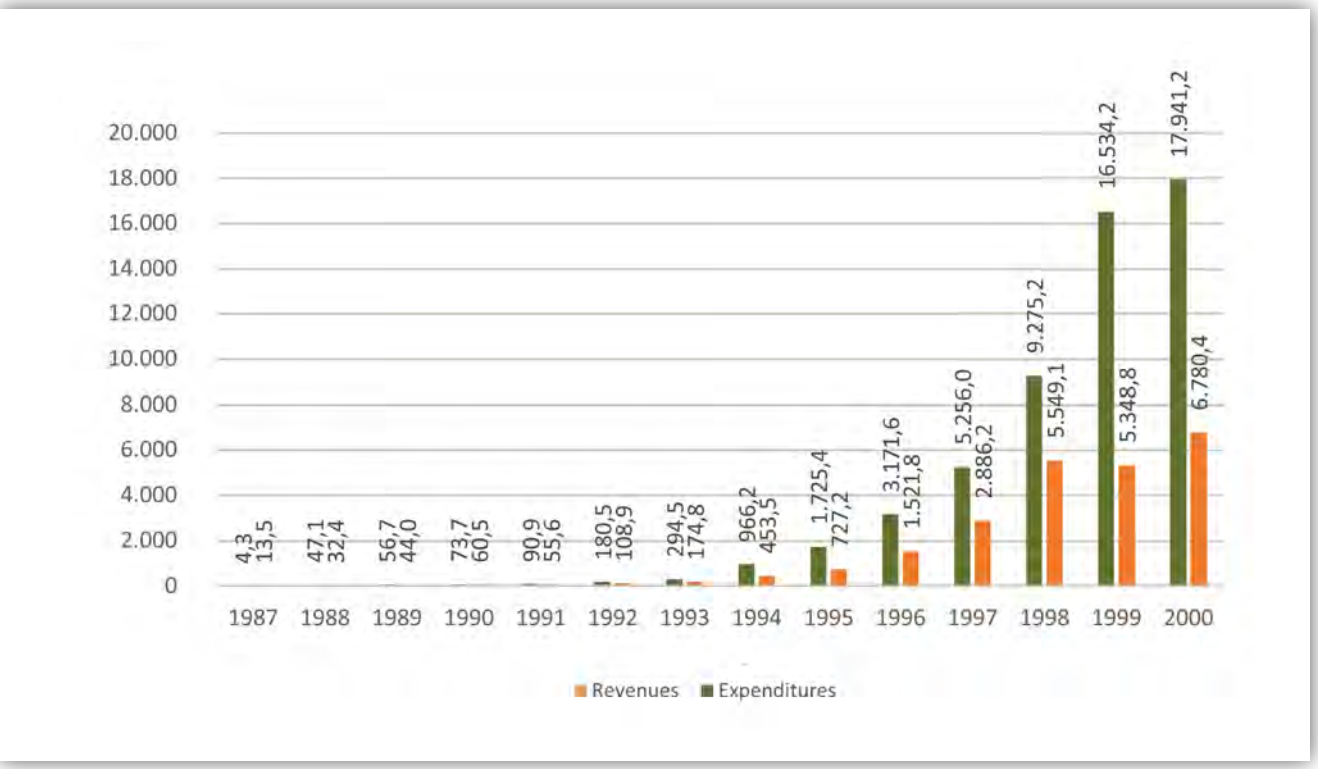
[39] Günlük-Şenesen, 1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri, p. 37.

[40] Gülay Günlük-Şenesen, 1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri, p. 73, 76.

[41] See SSM, 2014 Yılı Faaliyet Raporu, p. 28; SSM, 2015 Yılı Faaliyet Raporu, p. 29.

Another important development of the post-1985 period was the establishment of the Turkish Armed Forces Foundation (TAFF), formed by merging the foundations affiliated to the force commands established in the 1970s. TAFF was established with Law No. 3388 dated 17 June 1987.[42] The foundation's purpose was defined as "contributing to the increase of the Turkish Armed Forces' combat power by developing our national war industry, establishing new war industry branches, purchasing war weapons, tools and equipment." The foundation's board of trustees consisted of the Minister of National Defense, the Deputy Chief of the General Staff, the Undersecretary of the Ministry of National Defense, and the Undersecretary for Defense Industry of the Ministry of National Defense. Soldiers participated in all management duties of the foundation. The main income sources of the foundation were as follows: donations, dividends received from affiliates, rental income from real estate and businesses, income from cooperation protocols, income from bank deposits, income from securities, income from fairs. According to Article 6 of the Deed of Establishment, the foundation was obliged to allocate 20% of its revenues for maintenance and administrative expenses and 80% for its founding purposes. However, when the income and expenses between 1987-2000 are considered, only 42% of the total income (55,617.5 billion TL) was spent (23,756.7 billion TL) (see Chart 11). In this period, interest income and foreign exchange income held a high place in the incomes of TAFF, apart from profit income from participations.[43]

Graph 11: TAFF Revenues-Expenditures (1987-2000) (Billion TL)



Source: Gülay Günlük-Şenesen, 1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri, Data from table on p.54.

[42] For the foundation law, see. http://www.tskgv.org.tr/index.php?option=com_content&task=view&id=47&Itemid=55.

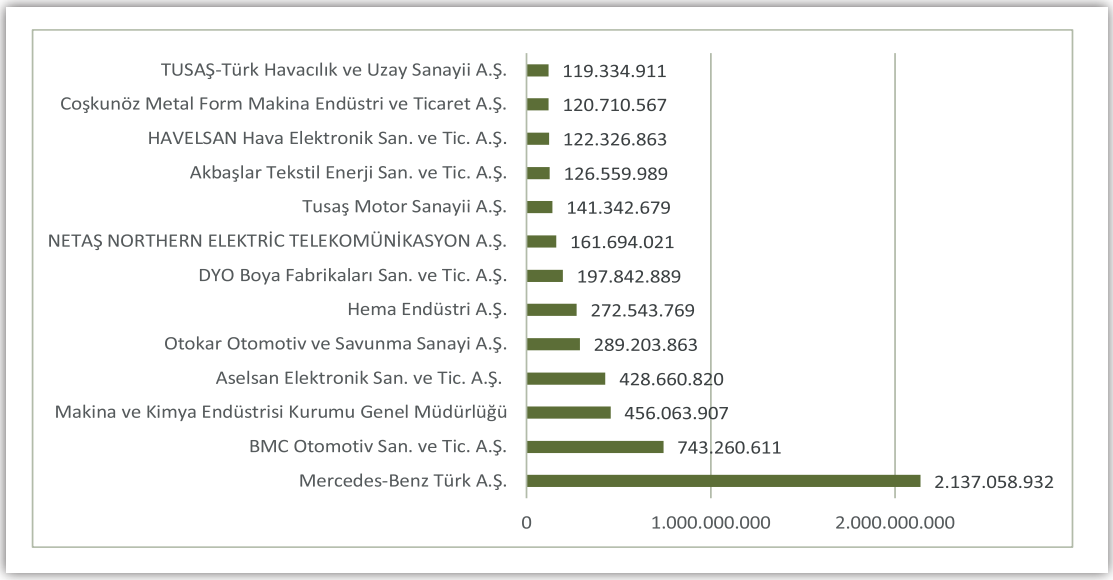
[43] "For example, in 1999, almost half of the revenues were from the capital market (interest and securities) and 19 percent from the foreign exchange market. The share of profits in joint arms companies was 18 percent in 1999." Gülay Günlük-Şenesen, 1980-2001 Türkiye'de Savunma Harcamaları ve Ekonomik Etkileri, p.54.

After the financial liberalization in 1989 and during the financial crisis cycles of the 1990s, TAFF, like other capital groups, used its assets in financial investments with currency-interest arbitrage. In other words, instead of allocating the ratios of the incomes of this period, which were foreseen in the deed of foundation as being investments in the defense industry, it preferred to use them for financial investments, which were much more profitable.

During this period, the specific context of the defense industry in Turkey was that the companies controlled by the army through TAFF were in a powerful position. The main role of TAFF, in the context of the modernization project and the construction of the defense industry, was to establish or partner with companies producing weapons. For example, in the year 2005, 14 companies in total were under the TAFF structure, 6 of which were parent companies with high shares in TAFF (see Table 3).

In this period, companies affiliated with TAFF held one-third of the total defense industry turnover. According to 2001 ISO 500 data, 17 defense industry companies were among the top 500 companies, and 6 were TAFF companies. The share of TAFF companies in the total turnover of these 17 companies was 30.82%.[44] Again, two of the 50 most profitable industrial companies in 2001 were TAFF companies: TAI (19th), TUSAŞ (31st).[45] When we look at the 2005 ISO 500 data, the number of defense industry companies included in the list was 13, of which four were affiliated to TAFF. When we look at the defense industry companies in the ISO 500 and their net sales in the selected years between 1993 and 2019, three of the 13 companies listed in 1995 and four of 13 companies in 2005 were affiliated to TAFF (See Table 10 and Graph 12).

Graph 12: ISO 500 Defense Industry Companies Net Sales (TL), 2005



Source: Data in Table 10.

[44] Mercedes-Benz and Netaş, with only 5% of TAFF shares are excluded.

[45] Istanbul Chamber of Industry, Türkiye'nin 500 Büyük Sanayi Kuruluşu, 2002.

Table 3: Companies Affiliated with TAFF (2005)

COMPANY	SECTOR	TAFF'S SHARE (%)	OTHER PARTNERS	SHARE OF OTHER PARTNERS (%)
ASELSAN	Electronics	84.58	Prime Ministry	
			Privatization Administration	0.27
			Axa-Oyak Sigorta A.Ş	0.12
			ISE	15.03
HAVELSAN	Aviation -Electronics	98.9	PROFILO Holding	0.1
			Prime Ministry	
			Privatization Administration	0.1
			TUSAŞ	0.5
			THK (Turkish Aeronautical Assoc.)	0.5
			GAMA	0.03
			KUTLUTAŞ Holding	0.03
Aspilsan	Military Batteries	97.69		
Işbir Electric	Electric-Energy	99.9		
Roketsan	Rocket and Missile Manufac.	30.5 (50)	ASELSAN	15
			KUTLUTAŞ Holding	20
			HAVELSAN	4.5
			Kale Kalıp	15
			MCIC	15
TUSAŞ*	Aviation Industry	45	SSM	55
TAI	Aviation Industry	54.50	SSM	
			THK	0.1
TEI	Aerospace Engine Ind.	3.02 (53.54)	TUSAŞ	50.52
			General Electric International	46.22
			THK	0.24
Mercedes-Benz Türk	Automotive, Vehicle Man.	5	Daimler-Chrysler	55
			Overseas Lending Co.	15
			KOLUMAN Holding	15
			MCIC	10
DİTAŞ	Maritime Trade	20	Dogan Holding	50.98
NETAS	Communications	15	Northern Telecom	53.13
			ISE	31.87
HEAŞ	Aviation Industry	1.17		
HAVELSAN Radar	Radar Industry	0.0001 (100)	HAVELSAN	99.99
Tapasan Inc.	Mechanical Electronics	25		
Turkish Tipsan	Medical	20		
Mikes		(72)	ASELSAN	72
Esdaş				
Ehsim				
STM				

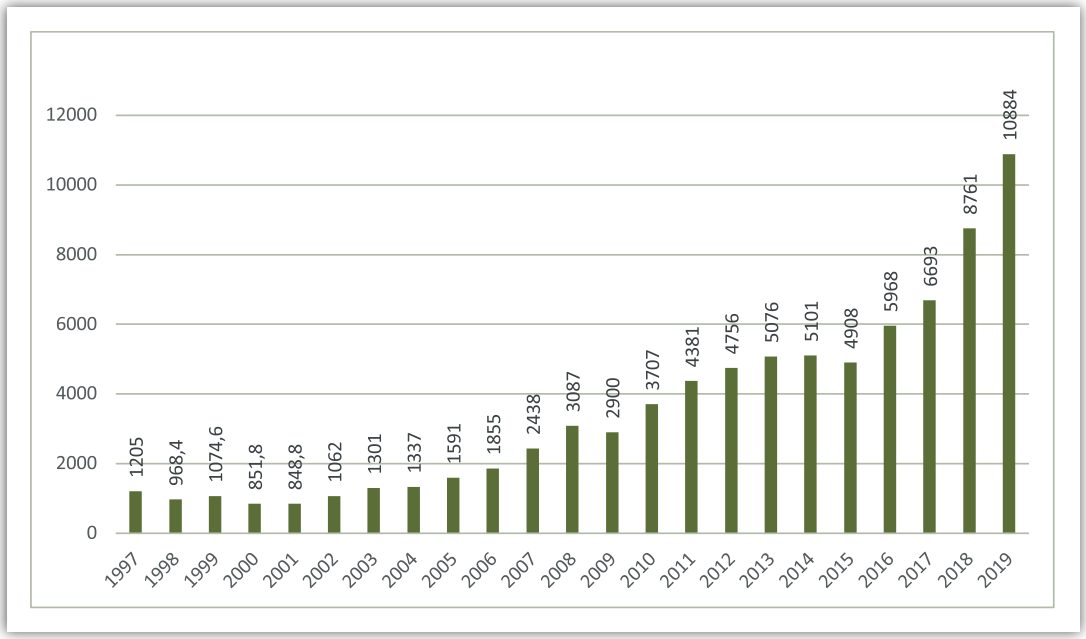
Source: Produced from the web pages, publications, and brochures of TAFF and affiliated companies. See Ismet Akca, Militarism, Capitalism and the State: Putting the Military in its Place in Turkey" Istanbul: Boğaziçi University, Institute of Social Sciences, Ph.D. Thesis, 2006, p.403.

Note: The numbers in parentheses in the Share of TAFF column show the total shares of TAFF together with its subsidiaries.

***** TUSAŞ and TAI merged on 28.04.2005. Lockheed Martin and General Electric, partners in TAI, sold their shares (49%) to TUSAŞ.

The increase in resources for the defense industry after 1985 had a serious impact on the development of the defense industry as a sector, and the total turnover of the sector had reached a certain volume by the 1990s. The total sector turnover, which was $1,205 million in 1997, was $1,337 million in 2004 (see Graph 13). But despite the level reached in the early 2000s, the defense industry's place in the total industrial structure was still limited. According to the information given by the Undersecretary for Defense Industries in 2002, activities related to the defense industry, partially or wholly, constituted only 10% of the total annual industry turnover; only about a quarter of this was the core defense industry production.[46] The rate of meeting the needs of the TAF with domestic production was 33%. As of 2004, Turkey's total defense industry R&D budget was $45 million, while this figure was $63.4 billion for the USA and $10 billion for European countries.[47] According to the information given by the Undersecretary for Defense Industry of the period, 85% of the world defense industry market at the time was controlled by the USA, England, France, Russia, Germany, and China while Turkey's share was only 0.2%.[48]

Graph 13: Defense and Aviation Industry Total Turnover (1997-2019) ($ Million)



Source: Presidency of Defenses Industries for 2002-2018 period, 2019 2023 Strategic Plan (Updated Version), 2020; SASAD for other years, 2003 Defense Industry Activities Turkey Results, 2004; SASAD, Performance Report 2019.

In the 1990s, the state defined the development of the defense industry as a crucial goal. The document "Principles of Turkish Defense Industry Policy and Strategy" published in 1998 aimed to develop the domestic production and export capacity in the national defense industry through investing in the national weapon systems and technologies. It also included ambitions for the development of defense

[46] See Speech of the Undersecretary for Defense Industries at the National Security Academy dated 11.06.2002, http://www.ssm.gov.tr/kurumsal/FMS.htm.

[47] SASAD President Yılmaz Küçükseyhan, "From Technology Transfer to Technology Production", The Diplomatic Newsbridge, no1.

[48] Speech of the Undersecretary for Defense Industries at the National Security Academy dated 11.06.2002, http://www.ssm.gov.tr/kurumsal/ssdf.htm.

industry infrastructure, investment and export incentives for domestic capital, increasing production cooperation among domestic companies to increase competitiveness and production cooperation with foreign capital.[49]

> "From the 1990s onwards, the national defense industry began to be organized in a pyramid scheme. At the top, were located companies such as ASELSAN, HAVELSAN, Roketsan, TAI affiliated to TAFF. A model was formed in which these were the main companies, and small and medium-sized enterprises (SMEs) were used as subcontractors and suppliers in other system and solution areas, excluding land and marine vehicles. In the case of the land and marine vehicles, all of the main contractors – except for the submarine platforms built at Gölcük Military Shipyard – were private sector companies." [50]

The increase in resources allocated to military expenditures and military industry led to the emergence of the defense industry as a new area of investment, profit, and capital accumulation for Turkish capitalists. The number of companies and organizations in the sector refle ts this situation. While the number of companies in the sector was 56 in 2002, this number increased to over 100 in 2004.[51] The number of members of the Defense and Aerospace Industry Manufacturers Association (SASAD), which started to work with 12 founding members in 1990, increased to 21 in 1991, 61 in 2002, 73 in 2004, and 83 in 2010. As of 2020, it has increased to 179. Another organization in the sector is the Defense Industry Association (SADER), which was established in 1999, with only seven 100% domestic companies affiliated with TAFF.

When the companies operating in the defense industry and participating in the tenders in the 2000s are examined, we see that Turkey's big capital groups such as Mercedes-Benz, MAN, STFA-Savronik, Alarko Holding, Otokar (Koç Holding), KOÇ Information and Defense Technologies, BMC (Çukurova Holding), TEMSA (Sabancı Holding), FNSS (Nurol Holding), Nurol Technology, VESTEL Defense, OYTEK (OYAK Technology), Kale Holding, NETAŞ, Siemens, Yakupoğlu Deri Ticaret A.Ş. all positioned themselves to receive a share of this wealth.[52] This tendency of big capital in Turkey was also revealed by the establishment of the "Defense Industry Working Groups" within organizations such as TOBB and TÜSİAD. When the distribution of the total turnover of the Turkish defense industry as of 2008 is examined, it indicates that there is a weighting of 36% private companies, 33% TAFF, and 31% public sector. [53] This picture shows on the one hand that the defense industry, which absorbs large financial resources, has created an important market for capital groups and their partners in Turkey; and on the other that the army wants to keep the production process of this market under their own control through TAFF. Some companies of TAFF have a monopoly position in their own

---

[49] "Türk Savunma Sanayii Politikası ve Stratejisi Esasları", Decision Number 98/11173, Resmî Gazete, Issue 23378, 20.06.1998.

[50] Arda Mevlütoğlu, "Türk Savunma Sanayiinin Dönüşümü", https://www.perspektif.online/turk-savunma-sanayiinin-donusumu/, 17 April 2020.

[51] Yılmaz Küçükseyhan, "From Technology Transfer to Technology Production", The Diplomatic Newsbridge, no 1, 2004.

[52] İsmet Akca, Türkiye'de Askeri-İktisadi Yapı: Durum, Sorunlar, Çözümler, Istanbul: TESEV Yayınları, 2010, p. 25. For the complete SASAD member list, see. https://www.sasad.org.tr/uyelerimiz.

[53] SASAD, Türk Savunma Sanayi Sektör Raporu 2008, p.31.

sectors (such as ASELSAN in electronics, TAI in airframe production, and Roketsan in the missile and rocket field).

Since it is not possible to obtain consistent and reliable data on how the defense industry turnover is distributed among companies and holdings, nor the ratio of military industry turnover and profits in terms of companies and holdings in their total activities in Turkey, the position of the military industry in terms of the accumulation strategies of capital groups cannot be determined. However, it is significant that large capital groups saw the military industry sector – which generally operates with cost-plus pricing method – as a guaranteed area of accumulation and selected it for their investment. In a period when the manufacturing industry's share in the total fixed investments in Turkey decreased[54] continuously after 1980, both in the private and public sectors (from 11.7% in the public sector between 1983-1987 to 3.5% in 1999) these investments in the arms industry increased in significance. A few examples which demonstrate how vital this sector was to these capital groups can be illustrative. For example, the General Manager of Otokar (Koç Holding) said that they had not been affected by the contraction in the domestic market thanks to the sales of the defense industry, which made up 60% of their total sales during the 2001 crisis.[55] Kale Group, who said that they had expected a turnover of $2 billion within the scope of the F-35 project in 2009 (when the effects of the 2008 global crisis were being intensely felt) stated that they would close that year with a turnover of $30 million and that they were targeting a $5 billion turnover during the next five year period.[56]

High-profit opportunities also create a situation in which the competition between capital groups increases and the existing contradictions are deepened. The best example of this was the declaration of the most important business organization claiming to carry an Islamic identity, the Independent Industrialists and Businessmen's Association (MÜSİAD), which announced its desire to enter the defense industry before and after the military intervention of 28 February 1997 and the discussions this created. Upon the announcement in 1996 that 150 billion dollars were planned to be spent in the next 30 years, the head of MÜSİAD stated that they would encourage their members to enter the defense industry and that public companies should be privatized. This situation aroused the army's reaction, and it entered a surveillance and inspection process to keep Islamist companies away from the defense industry. [57] In the first half of the 2000s, although there is no complete list of MÜSİAD member companies in the military industry and their share of the industry's total turnover, the following companies who were members of MÜSİAD at the time were operating in the military industry: Daloğlu Döküm Makina, Erkekoğlu Pres Makina, Kahraman Sarsılmaz Makina, Karmetal İnşaat, Safir Silah Sanayi, Şimur Savunma Sanayi. [58]

---

[54] Erinç Yeldan, Küreselleşme Sürecinde Türkiye Ekonomisi: Bölüşüm, Birikim ve Büyüme, Istanbul: İletişim Yayınları, 2001, p. 46.

[55] Radikal, 22.04.2001.

[56] Milliyet, 29.04.2009.

[57] See Radikal, 26.01.1997; "Müsiad'ın Gözü Silahta...", Radikal, 11.05.1997; "Tankta Yerli Üretim", Akit, 28-30.04.1997; "Savunma Sanayiinde İslami Sermayenin Önü Kesilecek", Hürriyet, 09.06.1997; Erol Yarar, "Neden Milli Savunma Sanayii", Çerçeve, Issue 19, 1997; Serdar Sen, Geçmişten Geleceğe Ordu, Istanbul: Alan Yayıncılık, 2000, p.107-123; Aydın Uğur and Haluk Alkan, "Türkiye'de İşadamı-Devlet İlişkileri Perspektifinden MÜSİAD", Toplum ve Bilim, no. 85, 2000, p.151-152.

[58] İsmet Akca, "Türkiye'de Askeri-İktisadi Yapı: Durum, Sorunlar, Çözümler", p.26. The information has been extracted from the list of MÜSİAD member companies. See http://www.e-musiad.com/Firma/KatalogSektor.aspx.

3. DEVELOPMENTS IN THE DEFENSE INDUSTRY AFTER 2004

Despite all the political statements, legal and institutional arrangements, and investments intended to develop the national defense industry after 1985, the results of the military modernization project in the 2000s appeared to be "partnership with foreign capital, imports, and borrowing."[59] The rate of meeting the needs of the TAF domestically was still 25% in 2003. As we mentioned above, the sector's total turnover had reached a certain level by the 1990s but it was still low.

In 2004, the model based on supply agreements which depended on joint production was abandoned to reduce foreign dependency in armament to 50%, and a model focusing on domestic weapons production was adopted. At the Defense Industry Executive Committee meeting in 2004, tenders worth a total value of 27 quadrillion TL for modern tanks, unmanned aerial vehicles, and tactical reconnaissance helicopters, including the biggest projects of the TAF, were abandoned.[60] The aim was now to realize these projects through new supply models based on domestic production and original design. Thus, new defense industry projects were initiated, in which national companies were the main contractors. Altay main battle tank and ATAK attack and tactical reconnaissance helicopter programs as well as the National Ship (MİLGEM) corvette project are the prominent projects of this period in this context. The acquisition of American Lockheed Martin shares in TAI in January 2005 and the merger of TUSAŞ and TAI (TUSAŞ named Turkish Aerospace Industries Inc.) can be understood in the context of localizing the defense industry. Therefore, in this period, it is possible to say that "projects in which local companies are the main contractors and which include models of an original design or equipping a proven design with original sub-systems gained weight".[61] Accordingly, in 2005, SSM signed contracts worth approximately $1billion with over 100 companies, including 15 companies affiliated with TAFF.[62] At the beginning of this period, in 2006, SSM wanted to unite four companies affiliated to TAFF (ASELSAN, TUSAŞ, HAVELSAN, and Roketsan) under a single holding under the name of Defense Technologies Holding, which a civilian general manager was intended to head. But private companies in the defense industry opposed this unification because they feared a monopoly power would emerge in the market.[63]

The policy documents of this period also reiterated these goals: the strategic plans of the Undersecretariat for Defense Industries (first the 2007-2011 Strategic

---

[59] Gülay Günlük-Şenesen, "Silahlanma Küreselleşme Döneminde İktisadi Yansımalar", Eds. Neşecan Balkan, Sungur Savran, Neoliberalizmin Tahribatı. Türkiye'de Ekonomi, Toplum ve Cinsiyet, Istanbul: Metis 2004, p. 124.

[60] "Savunma ihaleleri iptal", 15 May, 2004, Milliyet, http://www.milliyet.com.tr/2004/05/15/ekonomi/eko02.html.

[61] Arda Mevlütoğlu, "Türk Savunma Sanayiinin Dönüşümü", Perspektif, 17 April 2020, https://www.perspektif.online/turk-savunma-sanayiinin-donusumu/.

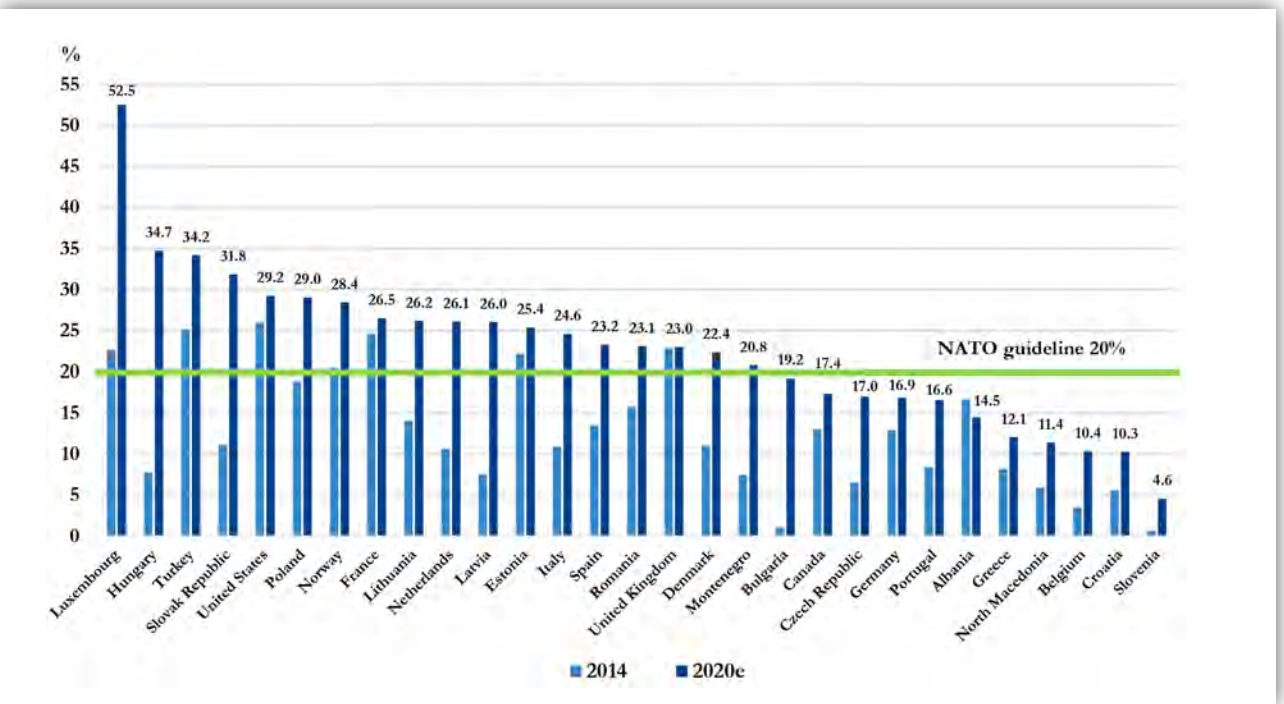
[62] Lale Sarıibrahimoğlu, "Savunma Sanayii", Eds. Ali Bayramoglu, Ahmet İnsel, Almanak Türkiye 2006-2008 Güvenlik Sektörü ve Demokratik Gözetim, Istanbul: TESEV, 2009, p. 181-182.

[63] Çağlar Kurç, "Between Defence Autarky and Dependency", p. 269.

Plan; then the 2012-2016 Strategic Plan; and the 2017-2021 Strategic Plan) and the Defense Industry Sectoral Strategy Document of 2009 (2009-2016).

In addition to national documents, it is worth mentioning the critical decision of NATO at this point. In line with NATO's 2014 decision, which we discussed above, the objective was to bring the defense expenditures of member countries to at least 2% of GDP, as well as the equipment expenditures to constitute of at least 20% of the total defense budget. While the share of equipment expenditures in Turkey's defense spending was 25.08% in 2014, it increased to 34.32% in 2019 (Forecast for 2020 is 34.20%) (see Graph 14).

Graph 14: Share of Equipment Expenditures in Defense Expenditures of NATO Countries (%) (In 2015, Prices And Exchange Rates)



Source: Defense Expenditure of NATO Countries (2013-2020).
Note: 2020 figures are estimates.

The post-2016 period was also a period in which the institutional decision-making structure of the defense industry underwent significant changes. The decision-making mechanism of the defense industry was centralized under the control of the President, following the declaration of the State of Emergency administration (20 July 2016-19 July 2018) after the failed coup attempt on 15 July 2016, and the Presidential system called the “Presidential Management System” was passed in 2017.[64]

Firstly, the Minister of Interior and the General Director of Police were included in the Defense Industry High Coordination Board under the SSM, a board which just has an advisory function, (Emergency State Decree no. 676, 29 October

[64] Regarding the emergency decrees and presidential decrees, see. İsmet Akça, Süreyya Algül, Hülya Dinçer, Erhan Keleşoğlu, Barış Alp Özden, Olağanlaşan OHAL. KHK’ların Yasal Mevzuat Üzerindeki Etkileri, https://olaganlasanohal.com/

2016, art. 30); this board was then abolished (Emergency State Decree no. 696, 20 November 2017, art. 62). SSIK, the decision-making body under the SSM, was restructured. In 2016 and 2017, the Minister of Interior (Emergency State Decree no. 676, 29 October 2016, art. 31) and the President (replacing the now-defunct Prime Minister) were added. The SSM was no longer subordinate to the MND but to the President. In line with this change, the committee would be chaired by the President, convened upon the invitation of the President, the President would determine the meeting agenda, and the Undersecretariat would carry out the secretarial works (Emergency State Decree no. 696, 20 November 2017, art. 57, 62). In addition, the Police was also included in the scope of SSM with a statement added to the Committee's duties article that the production and supply of weapons, tools, and equipment would be acted on according to the security priorities of the Ministry of Interior for the General Command of Gendarmerie, Coast Guard Command, and the Police Department (Emergency State Decree no. 696 art. 56). Finally, the expression the “approval of the Minister of National Defense” regarding the transfer of the necessary resources to the bank account for the supply of needs deemed appropriate by the National Intelligence Organization (MIT) was removed, and it was decided that this transaction would be carried out “with the proposal of the Undersecretary of MIT and the approval of the President” (Emergency State Decree no. 696 art. 59).

Afterwards, a series of changes were made through Presidential decrees. The Undersecretariat for Defense Industries, which had previously reported to the President during the State of Emergency Decree, changed its name under Presidential Decree No. 1 (10 July 2018) and was included as the Presidency of Defense Industries (SSB) among the institutions and organizations affiliated to the President (art. 347). With Decree no. 3 (10 July 2018), the President and Vice Presidents of Defense Industries were appointed by the decision of the President (art. 2). With Decree No. 7 (15 July 2018) regarding the Presidency of Defense Industries, it was stated that “The Presidency of Defense Industries, which is affiliated to the President and has legal personality, has been established” (art. 3). Again with this decree, the regulations introduced were that the Defense Industry Executive Committee would consist of the President as the chairman, the Vice President to be appointed by the President, the Ministers of Interior and National Defense, the Chief of the General Staff, and the President of the Defense Industries, and that the committee would convene upon the invitation of the President (art. 5). Then, with decree No. 18 (2 October 2018), The Minister of Economy (Berat Albayrak at the time) was also included.

An important regulation for the SSM and SSDF made in 2011, long before the state of emergency, was to include the urgent needs of the General Directorate of Security and the MIT within the scope of the SSM's mandate. The decisions made on this issue would be taken only by the Prime Minister and the Minister of National Defense. In addition, it became possible to transfer money from SSDF to the MIT bank account with an amendment made to MIT law in 2014.

There is no doubt that when it comes to the defense industry, another institution over which there is a struggle for control is the TAFF, which includes Turkey's most prominent defense industry companies. Although the government tried

to break the rule of the soldiers by appointing civilian members to the boards of companies affiliated with TAFF and by placing more shares of affiliated companies on the stock exchange,[65] it made the major regulatory move in this regard with the emergency decree laws. With Decree No. 696 dated 20 November 2017, an arrangement at TAFF was made to ensure control of the Presidency. An additional article to the Law on Turkish Armed Forces Foundation Law No. 3388 stated that the Board of Trustees of the Foundation, under the chairmanship of the President, would consist of the Minister of National Defense, the Deputy Chief of the General Staff, the Undersecretary of the Ministry of National Defense, and the Undersecretary for Defense Industries. It also stated that this provision would be implemented without waiting to complete the registration of the intended changes in the foundation deed (Executive Decree no. 696, 20 November 2017, art. 65-66). With a sentence added to the law, it was decided that the assets and rights of the foundation could be replaced with more beneficial ones or converted into money by the decision of the authorized body (Decree-Law no. 696 art. 64). With Law No. 7149 dated 24 October 2018, the Board of Trustees of the Foundation was composed of the Vice President to be appointed by the President, under the chairmanship of the President, the Minister of National Defense, the Chief of the General Staff, and the President of the Defense Industries.[66] Thus, under the President's chairmanship, the civilians' dominance was ensured in the TAFF's administrative structure, which had been controlled by the army up until then. The existence of retired officers in the administrative positions of the foundation continues today. [67]

Financial Size of The Sector

Following the trend roughly mentioned above after 2004, both the rate of domestically meeting the military's needs and the sector's size increased rapidly. While the rate of domestically meeting the needs of the TAF was 25% in 2002, it had increased to 36.7% in 2006, 41.6% in 2007, and 44.2% in 2008; the target set for 2010 was 50%. According to the SSB 2023 strategy report, the objective is to increase the domestic rate from 65% in 2018 to 75% in 2023.[68] According to SSB data, the industry's turnover, which was $1,337 million in 2004, increased to $3,707 million in 2010 and $10,884 million in 2019. The 2023 target has been set as $26,900 million. As can be seen in Graph 13, the total turnover of the sector increased continuously after 2004 (except for the small decreases in 2009 and 2015), and two breaking points, especially after 2007 and 2016 appear. The sector's export data also followed a similar regular course of increase, increasing from $196 million in 2004 to $853 million in 2010 and to $2,188 million in 2018. The 2023 target has been determined as $10,200 million.[69]

---

[65] Lale Sarıibrahimoğlu, "Turkey acts to reform its defense sector" Jane's Defence Industry, 30 (8), 2013.

[66] https://www.resmigazete.gov.tr/eskiler/2018/11/20181102-1.htm.

[67] https://www.tskgv.org.tr/tr/hakkimizda/yonetim.

[68] Presidency of Defense Industries, 2019 2023 Stratejik Plan (Güncellenmiş Versiyon), 2020, p.16. We should note that we do not know the criteria by which the rates given regarding the level of indigenization in the defense industry are prepared. These rates are viewed with suspicion by some experts who follow the industry closely. Therefore, it would be more appropriate to think of these ratios as reflecting a trend.

[69] Presidency of Defense Industries, 2019 2023 Stratejik Plan (Güncellenmiş Versiyon), 2020, p.33-34, 44.

Similarly, the SSB's total number of projects (formerly SSM) was 84 in 2004, 269 in 2010, and 667 in 2018. The total contract value of these projects increased to $24,462 million in 2010, from $7,957 million in 2004, and $60 billion in 2018. With the ongoing projects, the total contract value is expected to reach $75 billion.[70] According to the information provided by the President of Defense Industries İsmail Demir, 350 new projects were initiated between 2015 and 2020. While the number of companies in the defense industry was 56 in 2002, they reached 1,500 in 2020.[71] The number of companies that are members of the Defense Industry Talent Inventory (YETEN) is 2,086 as of February 2021.[72] As the number and turnover of companies operating in defense and aerospace have grown, the number of employees in the sector has also increased over the years. While defense industry employment was 33,491 (0.1% of total employment) in 2012, this number increased to 73,771 (0.26% of total employment) in 2019.[73]

Export Capacity of the Sector

The 2017-2021 International Cooperation and Export Strategic Plan prepared by the Presidency of Defenses Industries emphasized that the development of the Turkish defense and aerospace industry in the last 15 years has increased the demand for the platforms, systems, and capabilities of defense industry companies in foreign markets. In addition, it was noted that the focus of these companies not only on exports, but also on their cooperation activities, with methods based on joint production, technology transfer, and joint investment relations, also played an important role in making them preferable to the international markets. [74]

An important reason for the emphasis on exports in the defense industry in recent years is the evaluation that the domestic market and armament expenditures are not sufficient for the sector's sustainable development. Despite having one of the largest armies in NATO, Turkey's defense expenditures are low compared to many countries with large armies and developed defense industries (for example, the USA, France, Germany, Japan, Korea, Brazil, and Italy). Another factor behind the importance given to exports is the decrease in the concentration of exports of defense industry products, especially since the end of the 1990s.[75] During the 2000s, the US share in the arms trade decreased from 42% to 34%, making room for emerging exporting powers. For this reason, increasing the defense industry exports and the international competitiveness of the companies in the sector has been defined as a strategic goal.

One indication of the internationalization of the Turkish defense industry and the importance given to exports was the establishment of the Turkish Defense and

---

[70] Ibid. p.36-37.

[71] İsmail Demir, "Transformation of the Turkish Defense Industry: The Story and Rationale of the Great Rise," Insight Turkey, 22/3, 2020, p.37.

[72] Mehmet Kaya, "Yetenek Havuzunda 2086 Firmaya Ulaşıldı", Dünya, February 25, 2021.

[73] SASAD, 2012 Yılı Savunma ve Havacılık Sanayii Performans Raporu, 2013, p.3; 2019 Yılı Savunma ve Havacılık Sanayii Performans Raporu, 2020, p.14.

[74] SSB, Uluslararası İşbirliği ve İhracat Stratejik Planı 2017-2021, 2016, p. 2.

[75] See Marc Devore, "Arms Production in the Global Village: Options for Adapting to Defense-Industrial Globalization", Security Studies, vol. 22, no. 3 (2013).

Aerospace Industry Exporters' Association (SSI) in 2011. With early optimism, SSI set its 2023 target as $25 billion for exports, despite them only approaching $1.4 billion by 2013.[76] This goal was criticized for not being realistic[77], and SSB reduced its export target for 2023 to $10.2 billion in its 2019-2023 Strategic Plan.[78] The fact that Turkey's defense industry exports would accelerate in the coming years and this would contribute not only to the defense industry but also to the Turkish economy as a whole refle ts its status as being a new emphasis among sector representatives, public officials, and government representatives.

SIPRI counts Turkey among the "Emerging Suppliers of the Global Arms Industry". According to SIPRI's calculations, Turkey is the second fastest growing country in the arms export market after the United Arab Emirates (see Table 4). While Turkey was 29th among the largest exporters between 2000-2004, it rose to 13th place between 2015-2019.[79] When the years 2009-2013 and 2014-2018 are examined, Turkey's export volume in the defense industry and aviation sector is seen to increase by 170% during these five-year periods. However, we should note that although new actors have entered the global arms market in recent years, the market shares of these countries are still very low. Despite Turkey's relatively rapid rise in this area, its share in the global arms market is only 0.8 percent.

We can follow the export performance of the Turkish defense and aerospace industry from SASAD reports. It should be noted that these figures also include the civil aviation sector, whose share has changed between 10 and 20% over the years.[80]

According to SASAD's performance report, which presents the figures for 2019, overseas sales revenues rose to $3,068,519,809 in 2019, representing an increase of 40.2% compared to 2018 figures. Of this amount, $2,741 billion consisted of export revenues, and $327 million consisted of foreign exchange earning service revenues. In the report, the Compound Annual Average Growth Rate (CAGR) for 2014-2019 was determined as 10.6%. This data was 2.32% for the years 2012-2017. In 2013-2018, the CAGR had increased to 5.6%. According to the report, the jump in international sales figures in 2019 provided a significant improvement in the long-term growth data. Offset agreements, which have become widespread since the 1990s, have increased the chances of the emergence and development of new supplier forces globally, as they have allowed licensed production and technology transfer.[81] Understandably, a significant part of Turkey's foreign sales revenues

---

[76] SSI, Savunma ve Havacılık Sanayii Vizyon Buluşması Raporu, 2014, p.3.

[77] Burak Ege Bekdil, "Turkey reveals path to boost defense and aerospace exports by $10.2B in 2023", 10 December 2019, https://www.defensenews.com/industry/2019/12/10/turkey-reveals-path-to -boost-defense-and-aerospace-exports-by-102b-in-2023/.

[78] SSB, 2019-2023 Stratejik Planı, 2020, p. 44.

[79] SIPRI, "Emerging Suppliers in the Global Arms Trade", SIPRI Insights on Peace and Security, No. 2020/13, December 2020.

[80] For the place of civil aviation in the sector, see Invest in Turkey, Turkish Defense & Aerospace Industry Report 2018, https://www.invest.gov.tr/en/library/publications/lists/investpublications/defense-aerospace-industry.pdf.

[81] Fulvio Castellacci and Arne Fevolden. "Capable companies or changing markets? Explaining the export performance of firms in the defence industry," Defence and Peace Economics 25.6 (2014).

Table 4: Fastest Growing Arms Suppliers and Rankings, 2000-2019

	2000-2004	2005-2009	2010-2014	2015-2019
United Arab Emirates	42	39	26	19
Turkey	29	22	19	13
S. Korea	25	17	15	11
India	35	31	37	24
Indonesia	35	42	42	26
Australia	28	29	22	20
Denmark	38	39	32	31
Singapore	33	32	34	26
Iran	41	29	28	37
Brazil	29	28	25	24
Uzbekistan	46	45	34	42
S. Africa	25	19	20	21
Czech	23	27	33	20
Norway	21	26	17	19
Bulgaria	30	37	37	30

Source: SIPRI, "Emerging Suppliers in the Global Arms Trade," SIPRI Insights on Peace and Security, No. 2020/13, December 2020.

also depends on offset agreements.[82] It can also be seen that in 2019 offset related to the US and European markets provided a significant portion of foreign sales revenues. However, SASAD's report contains contradictory information about the export markets with which the defense industry is engaging. In the report, $705 million of total exports, of value around $3 billion, were recorded as going to the USA, $821 million to Europe, and $1 billion 942 million to "Other Countries." However, these three amounts add up to $3 billion 468 million. Leaving aside this contradiction, data shows that there has been a significant increase in sales rates to African, Asian, Central Asian, and South American countries, which are expressed as non-offset markets in the report. However, when we look at the past export figures, the fact that the offset sales rates have been around 55-60% for the last ten years raises doubts about the competitiveness of the sector and its long-term performance in foreign markets.[83] However, when long-term sales figures are considered, European countries, especially Germany, and America are dominant in the foreign sales revenues of the defense industry (see Graph 16).

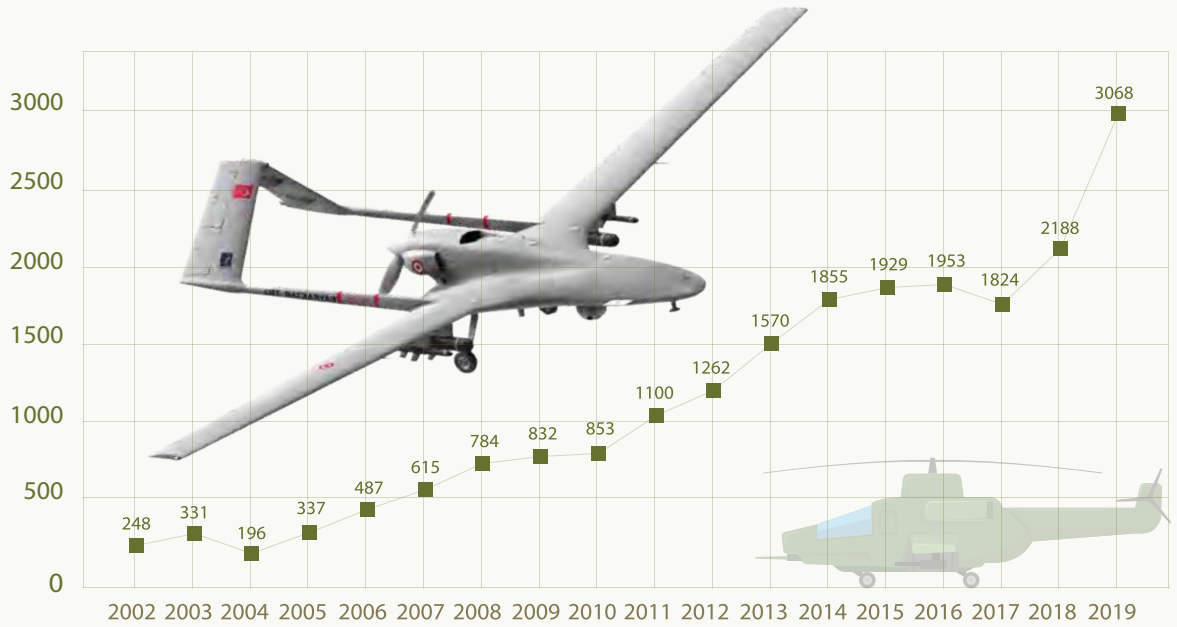
According to SIPRI, Turkmenistan, Saudi Arabia, Pakistan, Malaysia, and the United Arab Emirates are listed as the top five countries to which Turkey's

[82] Offset can be defined as the export of goods and services to that country at a rate determined by the legislation over the sales price in order to compensate to some extent the foreign currency to be spent on a purchase made from abroad. However, as Arda Mevlütoğlu stated, "competitiveness is not decisive in offset sales. Very roughly, offset is 'guaranteed export'. […] Therefore, in order to measure the competitiveness of the sector, especially in the international market, it is necessary to know how much of the export is made through offset. […] Offset is a method to increase exports. But imports must also increase for exports to increase. Therefore, the fact that the total exports of the sector depend on offset means that the sector indirectly becomes dependent on imports." See Arda Mevlütoğlu, "Savunma ve Havacılık Sanayii 2018 Performans Raporu ve Bazı Değerlendirmeler", Siyah Gri Beyaz, 31 May 2019, https://www. siyahgribeyaz.com/2019/05/savunma-ve-havaclk-sanayii-2018.html.

[83] Krş. Arda Mevlütoğlu, "Karda Donuyorsun, Uyumak Tatlı Geliyor Ama Ölüyorsun", Siyah Gri Beyaz, June 22, 2016, https://www. siyahgribeyaz.com/2015/06/karda-donuyorsun-uyumak-tatl-geliyor.html.

weapon systems were being exported between 2002-2019.[84] Although the figures presented by SIPRI differ from TIM and SASAD data, as they are based on the sales of primary weapons systems, they are important because they refle t long-term trends in a consistent manner and provide comparisons on an international scale. According to another SIPRI report, between 2010 and 2019, Turkey exported major weapon systems to 28 countries. However, the report also draws attention to the fact that among the countries to which Turkey exports its major weapon systems, there is no country among NATO countries and developed weapons industries.[85]

Graph 15: Defense and Aviation Exports of Turkey (2002-2019/$ Million)



Source: SSB, 2019-2023 Stratejik Plan [Strategic Plan], 2020

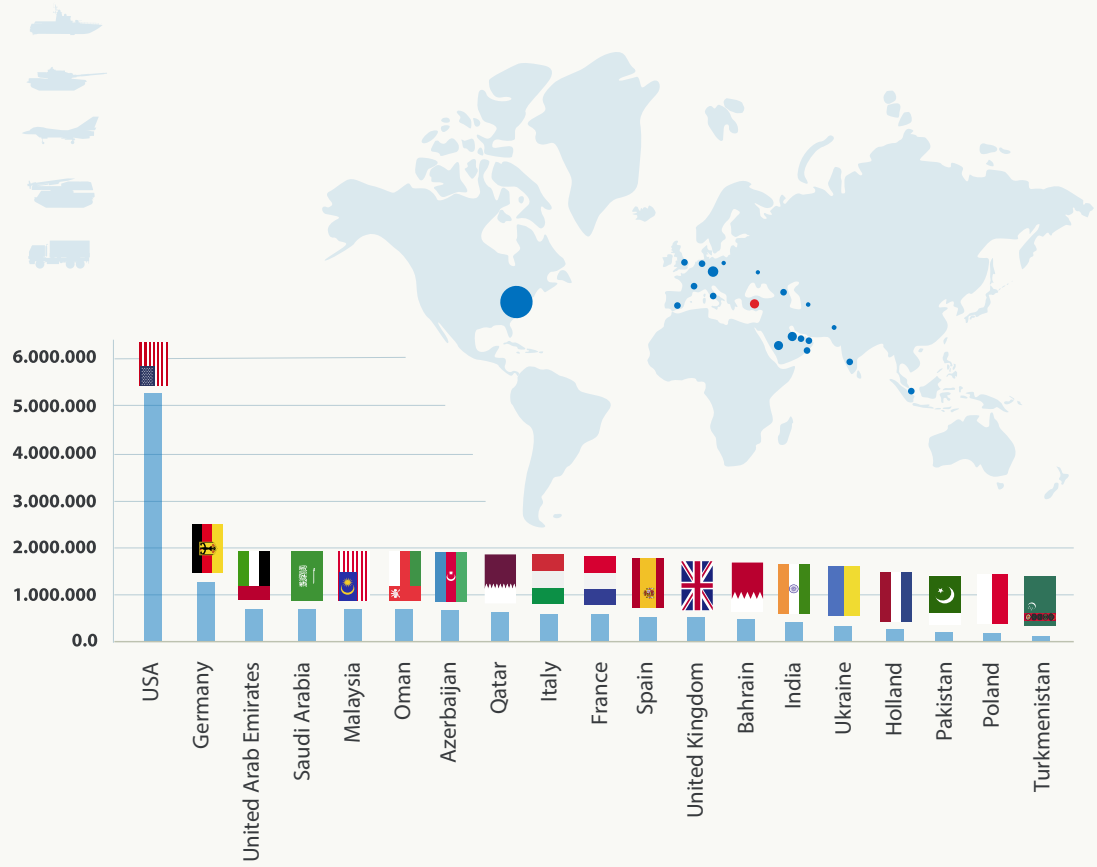
The highest technology segment in the exports of the Turkish defense industry is reported to be the land platforms/systems, followed by the military aviation and arms and ammunition sales, respectively. This situation shows that the Turkish defense industry can compete in relatively low technology products in the international market, as illustrated by the examples below. Exports in aviation are mostly made to European and US markets within the framework of offset agreements. The export of maintenance and repair services and the sales of many large and small companies, especially TUSAŞ, and various parts of the fuselage and wings of aircraft to Boeing and Airbus companies constitute the basis of exports in this sector.

Between 2010-19, armored land vehicles took first place in exports with a share of 52% of the total exports. Most of the vehicles in this category are light armored

[84] SIPRI Arms Transfers Database 2020, https://armstrade.sipri.org/armstrade/page/values.php.

[85] SIPRI, "Emerging Suppliers in the Global Arms Trade", SIPRI Insights on Peace and Security, No. 2020/13, Aralık 2020, p.9.

Graph 16: Top 10 Countries in Turkey's Defense Industry Export (2011-2019/$ Million)



Source: Turkish Exporters Assembly (TIM), 2011-2019 Total and Export Tables by Country

vehicles carrying personnel.[86] For example, the Remote Controlled Weapon Systems (RCSS) used in tactical land vehicles, manufactured by ASELSAN, have been exported to 14 countries, including Pakistan, Malaysia, Georgia, Azerbaijan, and Saudi Arabia.[87]

Marine vehicles are among the exported products that have come to the fore in recent years. Dearsan has exported 25 ships to the Turkmenistan Navy and Border Guard since 2010. Among these, there are 10 Tuzla Class Patrol Ships, 2 landing craft, 6 33-meter torpedo boats, 5 search and rescue ships, 1 hydrographic ship, and 1 passenger ship.[88] On October 16, 2018, under the leadership of the Presidency of Defense Industries, STM company delivered the Marine Supply Ship, designed with domestic resources, to the Pakistan Navy.[89] It is also evident that uncertainties in the international political arena and Turkey's efforts to become a regional power have been among the main factors to have directed the exports of the defense industry. For example, military agreements with Qatar developed rapidly after the country broke off diplomatic relations with Saudi

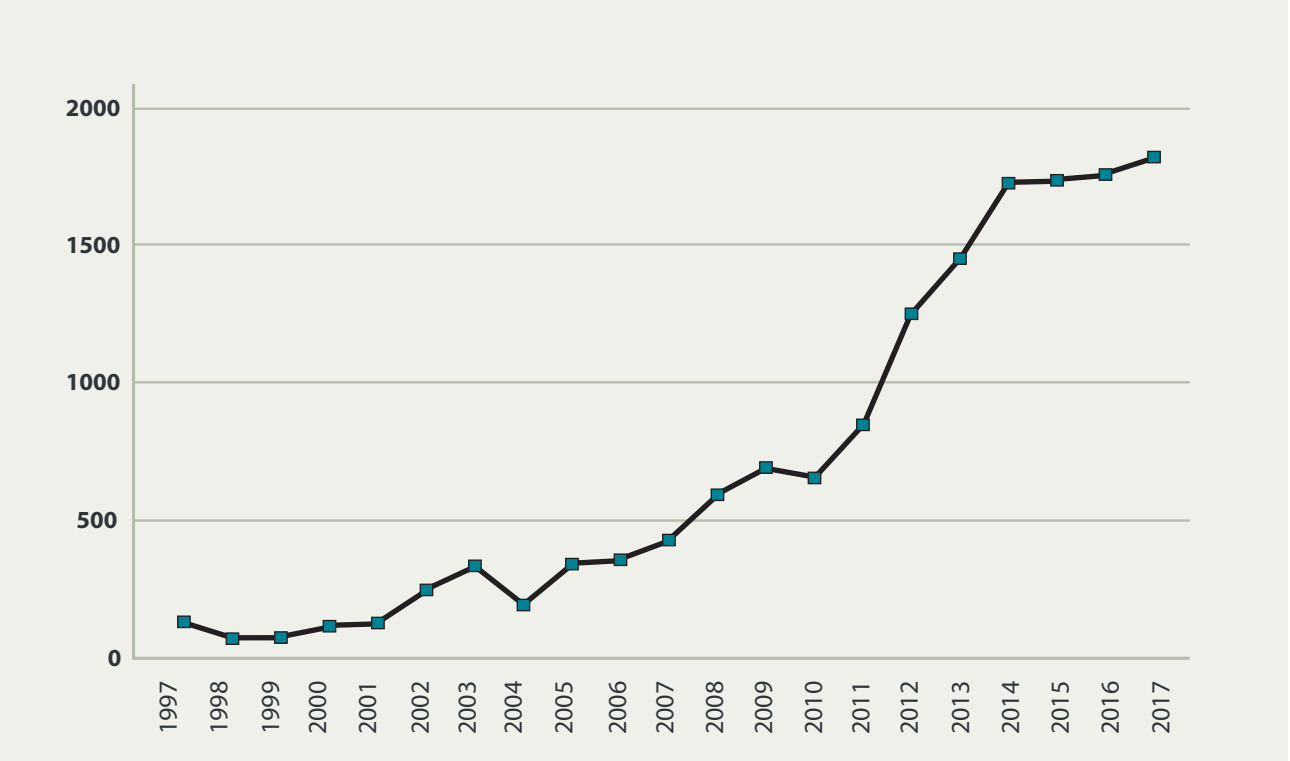
[86] Ibid.

[87] https://www.c4defence.com/Gundem/altay-hangi-ulkede/6918/1.

[88] Fatih Mehmet, "Dearsan Türkmenistan'da korvet inşa edecek", 4 August 2019, https://www.defenceturk.net/dearsan-turkmenistanda-korvet-insa-edecek.

[89] https://www.denizhaber.net/stm-tarafindan-gelistirilen-denizde-ikmal-gemisi-pakistana-teslim-edildi-haber-84896.htm

Graph 17: Turkey's Weapon Systems Exports According to SIPRI Data (1997-2017/Million $)



Source: SIPRI Government and industry data on the financial value of national arms exports, 1994-2017

Arabia and the United Arab Emirates in 2017. Within the scope of contracts signed after this year, which exceeded $800 million, many systems and platforms such as armored land vehicles, UAVs, training ships, and coast guard boats were sold to Qatar. According to SSI data, as of 2019, 15 companies from Turkey export weapons to Qatar. Among these, Anadolu Deniz İnşaat, Ares Tersanecilik, ASELSAN, Baykar Makina, BMC, HAVELSAN and Nurol Makina stand out. It was also reported in the press that MUSIAD and SSB had made efforts to increase this number.[90] However, it is noteworthy that Turkey's share in Qatar's defense industry procurement is still very small and that Turkey lags far behind the USA and France in arms exports to Qatar.

It is noteworthy that Turkey's arms exports to Azerbaijan seem to have accelerated just before its war with Armenia over Nagorno-Karabakh began in October 2020. Turkey has been selling armored land vehicles, mainly Cobra, T-107/122, and T-300 MRLs, for the last ten years. However, Turkey's arms sales to Azerbaijan increased sevenfold in the first nine months of 2020, reaching $207 million.[91] In the news coverage in the international and national press, it was estimated that this great leap in exports to Azerbaijan had been achieved by the sales of Bayraktar TB2 UACV and smart ammunition in particular.[92]

Intensive activities are also being carried out to increase Turkish defense industry exports to Africa, which is seen as a "new market." The Presidency of Defense

[90] İbrahim Sünnetçi, "Turkey & Qatar Foul-Weather Friends!", Defence Turkey, vol. 14. No. 98, 2020.

[91] Ece Toksabay, "Turkish arms sales to Azerbaijan surged before Nagorno-Karabakh fighting", Reuters, 14 October 2020.

[92] Sebastien Roblin, "Turkish drones over Nagorno-Karabakh—and other updates from a day-old war", Forbes, 28 September 2020.

Industries has established "international cooperation offices for the promotion of Turkish defense industry products abroad" and has carried out "advertisement, promotional films, brand and slogan studies in foreign media."[93] Efforts in this direction gained momentum after 2015, and cooperation agreements in the defense industry were signed with African countries such as Benin, Guinea, Uganda, Chad, Gabon, Gambia, Congo, Mali, Senegal, Sierra Leone, Zambia, and Somalia.[94] Private companies within the Turkish defense industry export armored wheeled tactical vehicles and mini unmanned aerial vehicles to African countries and compete in this market with other important countries in the international defense industry market. For example, Kirpi armored vehicles produced by BMC are exported to Tunisia and Somalia, as well as Turkmenistan and Qatar.[95] Sarsılmaz Company exports the pistols it produces to many African countries. Again, through the SSB, an agreement was made to sell boats of different sizes to Oman.[96] The latest example in this regard was ASELSAN, which exported night vision binoculars to Gambia.[97] ASELSAN, which also established an electro-optical design company in South Africa, is striving to improve its relations and activities with Sub-Saharan Africa.

The rapid growth in defense industry export figures seems to have halted in 2020 with the arrival of the Covid-19 pandemic. According to data from TIM, the defense and aerospace industry exports, which were $2,733 million in 2019, decreased by 16.4% in 2020 to $2,285 million. It is noteworthy that while the USA ranks first with sales of $748 million in the list of exporting countries, the UAE is in third place with sales of $200 million.[98] İsmail Demir, President of the Defense Industry, told journalists via a video conference call on 7 May 2020, that the civil aviation sector had been most affected by the slowdown and orders had been cancelled due to the pandemic. According to one estimate, there was a 30-40% drop in production in the aviation industry during the Covid-19 shutdowns. [99]

---

[93] "Türk Savunma Sanayii Afrika ve Güney Amerika Pazarına Giriyor", Star, 02.08.2014, http:// www.star.com.tr/ekonomi/turk-savunma-sanayii-afrika-ve-guney-amerika-pazarina-giriyor-haber-920669/.

[94] For agreements in this area, see "Türkiye Cumhuriyeti Hükümeti ile Benin Cumhuriyeti Hükümeti Arasında Savunma Sanayi İşbirliği Anlaşmasının Onaylanmasının Uygun Bulunduğuna Dair Kanun", Resmî Gazete, 07.03.2017; "Türkiye Cumhuriyeti Hükümeti ile Çad Cumhuriyeti Hükümeti Arasında Savunma Sanayi İşbirliği Anlaşmasının Onaylanmasının Uygun Bulunduğuna Dair Kanun", Resmî Gazete, 16.03.2017; "Türkiye Cumhuriyeti Hükümeti ile Gabon Cumhuriyeti Hükümeti Arasında Savunma Sanayi İşbirliği Anlaşmasının Onaylanmasının Uygun Bulunduğuna Dair Kanun", Resmî Gazete, 08.01.2016; "Türkiye Cumhuriyeti Hükümeti ile Gambiya Cumhuriyeti Hükümeti Arasında Savunma Alanında Sanayi ve Teknik İşbirliği Anlaşmasının Onaylanması Hakkında Karar", Resmî Gazete, 07.06.2017; "Türkiye Cumhuriyeti Hükümeti ile Mali Cumhuriyeti Hükümeti Arasında Savunma Sanayi İşbirliği Anlaşmasının Onaylanmasının Uygun Bulunduğuna Dair Kanun", Resmî Gazete, Law No: 6848, Date of Adoption: 28.02.2017; "Türkiye Cumhuriyeti Hükümeti İle Somali Federal Cumhuriyeti Hükümeti Arasında Savunma Sanayi İşbirliği Anlaşmasının Onaylanmasının Uygun Bulunduğuna Dair Kanun", Resmî Gazete, 16.03.2017, Resmî Gazete, 18.02.2016. See also Tuğrul Oğuzhan Yılmaz, "Türkiye-Afrika İlişkilerinin Güvenlik Boyutu: Türk Savunma Sanayii ve Afrika." Türk Dünyası Araştırmaları, c. 120, p. 237 (2018); Göksel Yıldırım and Mustafa Çalkaya, "Dış Politikada Yeni Anahtar Savunma Sanayisi", Anadolu Ajansı, 27.04.2017, https://www.aa.com.tr/tr/turkiye/dis-politikada-yeni-anahtar-savunma-sanayisi/806246.

[95] Göksel Yıldırım, "BMC'nin Zırhlı Araçlarının Son Durağı Somali Oldu", Anadolu Ajansı, 29 August 2020, https:// www.aa.com.tr/tr/bilim-teknoloji/bmcnin-zirhli-araclarinin-son-duragi-somali-oldu/1957057.

[96] https://www.airporthaber.com/havacilik-haberleri/savunma-sanayisinde-ihracat-seferberligi.html

[97] http://defenceandtechnology.com/2018/10/01/aselsan-gambiyaya-ilk-ihracatini-yapti

[98] According to a comment made within the defense industry, the UAE is careful to purchase from companies not close to Turkey's government. Considering the armament speed of the Gulf and Arab countries in recent years, it is estimated that defense industry exports will increase exponentially if Turkey improves its relations with these countries. Burak Ege Bekdil, "Turkey-Gulf Détente may Boost Turkish Exports", Defence News, February 15, 2021, https://www.defensenews.com/digital-show-dailies/idex/2021/02/15/turkey-gulf-detente-may-boost-turkish-exports/.

[99] https://www.youtube.com/watch?v=ZKtaMpY8yyU&t=4807s&ab_channel=SavunmaSanayiiBa%C5%9Fkanl%C4%B1%C4%9F%C4%B1.

Again, it should be noted that the share of defense industry exports in Turkey's total exports is only 1.5%, according to TIM data. Just to compare, Turkey's carpet sales to foreign countries, for instance, has a larger share at 1.7% of total exports. In 2020, the country to which aerospace and defense industry products were exported the most was the USA with $478 million worth of sales, followed by Azerbaijan with $264 million and the United Arab Emirates with $200 million.[100]

Table 5: TIM 2020 Export Numbers ($ 1.000)

SECTORS	2019 - 2020	2020 - 2021	VARIATION ('20/'19) (%)	SHARE ('20) (%)
I. AGRICULTURE	**23.535.532**	**24.380.732**	**3,6**	**15,6**
A. HERBAL PRODUCTS	**15.452.502**	**16.355.570**	**5,8**	**10,5**
Cereals, Pulses, Oilseeds and Products	6.811.251	7.314.446	7,4	4,7
Fresh Fruit and Vegetables	2.316.548	2.754.235	18,9	1,8
Fruit and Vegetable Products	1.554.515	1.681.484	8,2	1,1
Dried Fruits and Products	1.417.525	1.390.157	-1,9	0,9
Hazelnut and Products	2.059.490	1.954.742	-5,1	1,3
Olive and Olive Oil	279.112	262.665	-5,9	0,2
Tobacco	905.005	890.733	-1,6	0,6
Ornamental Plants and Products	109.056	107.108	-1,8	0,1
B. ANIMAL PRODUCTS	**2.493.132**	**2.458.622**	**-1,4**	**1,6**
Fisheries and Animal Products	2.493.132	2.458.622	-1,4	1,6
C. WOOD AND FORESTRY PRODUCTS	**5.589.898**	**5.566.540**	**-0,4**	**3,6**
Furniture, Paper and Forestry Products	5.589.898	5.566.540	-0,4	3,6
II. INDUSTRY	**138.683.541**	**127.602.042**	**-8,0**	**81,7**
A. AGRICULTURAL PROCESSED PRODUCTS	**12.171.229**	**11.271.904**	**-7,4**	**7,2**
Textile and Raw Materials	7.916.811	7.343.230	-7,2	4,7
Leather and Leather Products	1.681.300	1.310.256	-22,1	0,8
Carpet	2.573.118	2.618.418	1,8	1,7
B. CHEMICALS AND PRODUCTS	**20.731.708**	**18.221.640**	**-12,1**	**11,7**
Chemicals and Products	20.731.708	18.221.640	-12,1	11,7
C. INDUSTRIAL PRODUCTS	**105.780.605**	**98.108.498**	**-7,3**	**62,8**
Ready-to-Wear and Garment	17.773.521	17.165.678	3,4	11,0
Automotive Industry	30.657.336	25.416.160	-17,1	16,3
Ship and Yacht	1.059.159	1.308.998	23,6	0,8
Electric and Electronic	11.261.303	11.126.787	-1,2	7,1
Machinery and Parts	7.871.028	7.569.703	-3,8	4,8
Ferrous and Non-Ferrous Metals	8.172.160	8.312.673	1,7	5,3
Steel	13.753.333	12.562.389	-8,7	8,0
Cement Glass Ceramic and Soil Products	3.550.638	3.749.702	5,6	2,4
Jewelry	4.126.968	3.807.010	-7,8	2,4
Defense and Aerospace Industry	**2.733.047**	**2.285.147**	**-16,4**	**1,5**
Air Conditioning Industry	4.703.136	4.703.533	0,0	3,0
Other Industrial Products	118.974	100.717	-15,3	0,1
III. MINING	**4.335.311**	**4.295.601**	**-0,9**	**2,7**
Mining Products	4.335.311	4.295.601	-0,9	2,7
TOTAL (TİM*)	**166.554.384**	**156.278.375**	**-6,2**	

Source: https://tim.org.tr/tr/ihracat-rakamlari

[100] Kerry Herschelman, "Turkish aerospace and defense exports decline 16.8% in 2020", Janes, January 8, 2021, https://www.janes.com/defence-news/news-detail/turkish-aerospace-and-defence-exports-decline-168-in-2020_14704.

Another development that makes the growth of defense industry exports uncertain is the economic consequences of Turkey's deviation from its NATO allies over a number of issues, particularly the S-400's. The most recent example of this is the exclusion of Turkey from the F-35 project, which it had been involved in as a production and development partner since the beginning. Turkey was an important stakeholder involved in the production of various components and equipment of the F-35s in the project, was the sole producer of approximately 400 aircraft parts, and was among the suppliers of a total of 937 parts.[101] For example, AYESAŞ was the supplier of the electronic boards for the missile remote control interface and panoramic cabin display, while TUSAŞ and TAI were the only suppliers outside the USA of the F-35 mid-body production.[102] Alp Aviation and Kale Aviation were also producing various parts of the F-35 engine as well as some structural parts. Another agreement within the program's scope was the agreement between Roketsan and Lockheed Martin, which is also the manufacturer of the aircraft, to develop an air-to-sea cruise missile, one of the F-35s' ammunitions. This cruise missile operated as SOM-J, a version of Roketsan's cruise missile SOM. The two companies planned to develop the SOM-J together, for its sale to countries using F-35. In light of the current situation, the future of this program is also uncertain. Turkish companies will suffer a significant income loss through their expulsion from this project. According to Lockheed Martin's calculations in 2018, the cost of removing Turkey from the F-35 project was approximately $12 billion. Some other sources have recently said that this loss is around $9 billion. It seems impossible to know the exact loss at this point, as Lockheed Martin is still making purchases.[103] Secondly, the relations established by the companies excluded from the project and the Turkish defense industry with Western countries and the United States in the international arena may also be damaged to a certain extent. The foreign perception of the Turkish defense industry, which had been excluded from the F-35 project due to their purchase of the Russian S-400 missile system, may also weaken relations with Western companies. In this context, the desire of these companies to do projects together, develop joint products or buy products and goods from Turkey may decrease.[104]

Before the CAATSA sanctions, Turkey was already in conflict with the USA regarding the export permits of defense systems containing components produced by American companies. Perhaps the best-known example of this was the export licenses of turboshaft engines of ATAK helicopters. On July 13, 2018, SSB reached an agreement to sell 30 ATAK helicopters produced by TUSAŞ/TAI to Pakistan. At that time, it was stated that this export would amount to 1.5 billion dollars, and would thus constitute the largest defense industry export in the history of Turkey. The delivery of the first ATAK helicopter to Pakistan was planned for 2019, but the engine obstacle, one of the most important parts of the helicopter, became an issue in exports.[105] The CTS800 type engine produced by LHTEC, a joint venture between American Honeywell and British Rolls Royce, is used in the ATAK helicopter. Due to the use of this engine, permission is

[101] John A. Tiprak and Brian W. Everstine, Cold Turkey: Shanahan Pushes Ankara Out of F-35", 7 June 2019, https://www.airforcemag.com/cold-turkey-shanahan-pushes-ankara-out-of -f-35/

[102] Abdullah Karakuş, "F35'te ek maliyet 15 milyar dolar", Milliyet, 4 August 2018.

[103] Mehmet Kaya, "12 milyar dolarlık iş üstlendiğimiz F35 askıda", Dünya, 19 July 2019.

[104] Arın Demir, "Arda Mevlütoğlu: Türkiye'nin şu ana kadar askeri alanda geliştirdiği endüstriyel, siyasi, teknolojik ilişkilerin S-400 alımından dolayı radikal bir şekilde değişme olasılığı bulunuyor", 3 May 2020, https://daktilo1984.com/roportajlar/arda-mevlutoglu-turkiyenin-su-ana-kadar-askeri-alanda-gelistirdigi-endustriyel-siyasi-teknolojik-iliskilerin-s-400-alimindan-dolayi-radikal-bir-sekilde-degisme-olasiligi-bulunuyor/

[105] "ATAK'ta İhraç Engeli", Cumhuriyet, 9 December 2019.

required from the US Department of Defense (Pentagon) for the export of the helicopter to another country. However, since this permit has not been issued yet, Pakistan has recently turned to China for the supply of attack helicopters – a striking development.[106]

Ongoing Import Dependence

The growth of the Turkish defense industry has developed alongside the emergence of original models as a result of mounting under license, co-production, and domestic design and product development in the country. This has meant that the share of purchases made directly from abroad has declined since the 1990s. Between 1985 and 1990, Turkey met 98% of its defense procurement through ready-made purchases.[107] In the 1990s, co-production and mounting became the dominant procurement methods. Since the 2000s in particular, the defense industry has gained the capacity to produce many systems and sub-systems, such as shipbuilding, design, and wheeled and tracked land vehicles, electronics, sensors, and software. It was announced that the domestic rate of the sector, which was said to be around 20-25% in 2003, had reached 65% in 2018, and is aimed to be increased to 75% for 2023.[108]

However, this does not mean that the Turkish defense industry has significantly reduced its foreign dependency and is approaching its target of self-sufficiency. Turkey has rapidly turned to import substitution in the defense sector since the 1990s, but this type of industrialization also necessitates technical support, consultancy, and subsystem component imports from many countries.[109] As can be seen in Graph 18, there was no significant decrease in Turkey's defense industry imports in the 2000s. The configuration of imports seems to have shifted from ready-made weapon platforms to the import of high-tech and high-cost subsystems and components required for domestic production such as engines and electro-optical sensors. The high import figures notable in the 1990s are because some NATO forces had to limit their tanks, armored vehicles, heavy artillery, attack helicopters, and planes under the Treaty on Conventional Armed Forces in Europe, which entered into force after the Cold War and sold them to four NATO countries, including Turkey. At the time, Turkey imported about a thousand second-hand weapon systems, including Leopard tanks and M-113 armored personnel carriers, within the framework of NATO's Cascading Program.[110]

According to the Trends in International Arms Transfer 2019 Report announced by SIPRI, Turkey was the world's 3rd largest arms importer between 1995-1999. Turkey, which fell to 9th rank between 2005-2009, fell to 15th rank between 2015-2019. Turkey's share in global arms imports in 2010-2014 decreased from 3.7%

---

[106] Kerry Herschelman, "Turkey admits US blocking of its attack helicopter sale to Pakistan", Janes, March 11, 2021.

[107] Presidency of Defense Industry, 2012-2016 Stratejik Planı, 2012, Ankara, p.33.

[108] Presidency of Defense Industry, 2019-2023 Stratejik Planı, 2020, Ankara, p. 44.

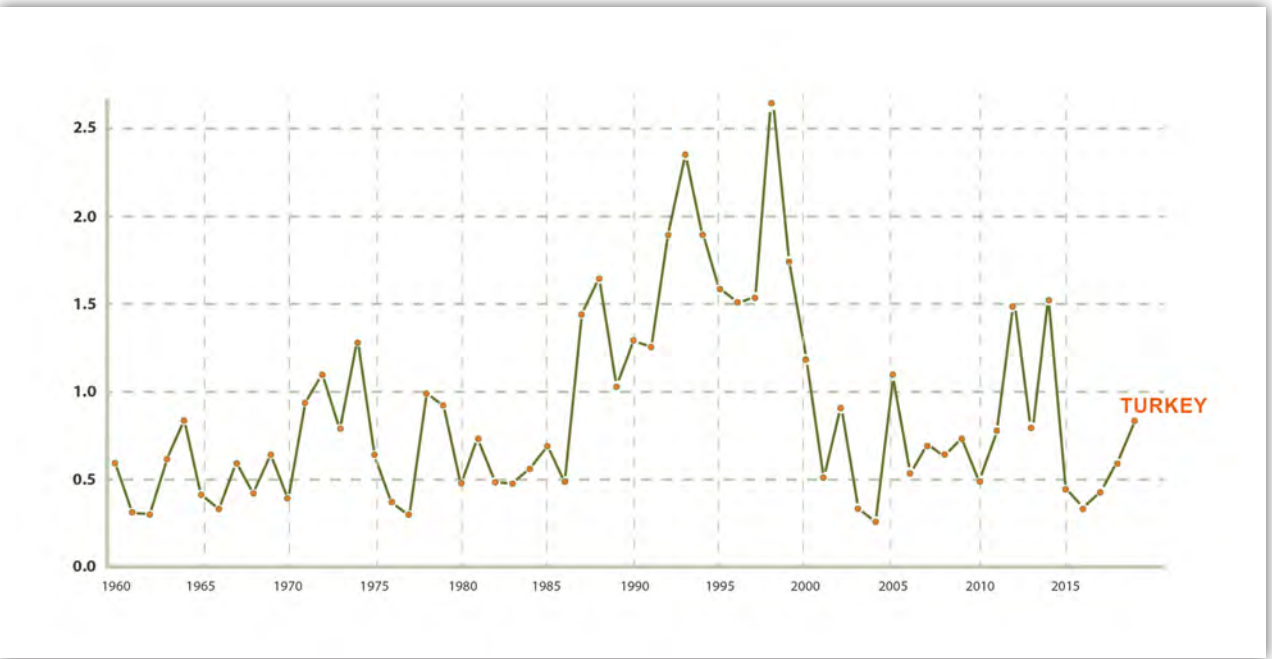
[109] Hüseyin Bağcı ve Çağlar Kurç, "Turkey's strategic choice: buy or make weapons?", Defence Studies, 17:1, (2017), p. 44-45.

[110] See J. Colijn ve P. Rusman. "The Second-Hand Arms Market after the Cold War." Revue Belge de Droit International, 26:1 (1993).

to 1.8% in 2015-2019.[111] Pointing out that there has been a relative decrease in Turkey's arms imports despite the security operations in the country, cross-border operations, and confli ts in Libya, SIPRI said that this decrease is due to the delays in the delivery of some major weapons, the cancellation of the major agreement with the USA for F-35 aircraft and the improvements in the industry's capability. It is emphasized in the SIPRI report that the delay of the submarines manufactured by Germany, which were planned to be delivered between 2015-19, also has a share in this.[112] Since the SIPRI database is limited to the main weapon systems, it does not cover the subsystems (excluding engines and sensors) that the Turkish defense industry needs and imports.[113] Therefore, it can be said that there has been a decrease in Turkey's imports of major weapon systems, but a significant increase in imports by the defense industry, as can be seen below.

Turkey has faced various explicit and covert embargoes due to its operations in Syria. During Operation Peace Spring in October and November 2019, Germany, France, England, the Netherlands, Norway, Finland, and the Czechia announced that they had stopped arms sales to Turkey.[114] For example, while Finland stopped the export of steel used in the production of armored vehicles, England announced that it had suspended the agreements of the companies that would

Graph 18: 1960-2019 Turkey's Weapon Systems Import (Billion $)



Kaynak: https://data.worldbank.org/indicator/MS.MIL.MPRT.KD?end=2019&locations=TR&start=1960&view =chart

[111] In the same period, the global arms trade increased by 20%, reaching its highest level since the Cold War.

[112] Wezeman, PD et al., 'Tends in International Arms Transfers', 2019, SIPRI Fact Sheet, March 2020, https://www.sipri.org/sites/default/files/2020-03/fs_2003_at_2019.pdf.

[113] The SIPRI database, which is the most important resource providing up-to-date information on the international arms trade, covers the following systems: aircraft, air defense systems, anti-submarine weapons, armored vehicles, artillery systems, missiles, engines, sensors, reconnaissance satellites, ships, tower weapons. See. https://www.sipri.org/databases/armstransfers/sources-and-methods.

[114] Alice Tidey, "UK, France, and Germany halt arms export to Turkey over incursion into northern Syria", Euronews, 16 October 2019.

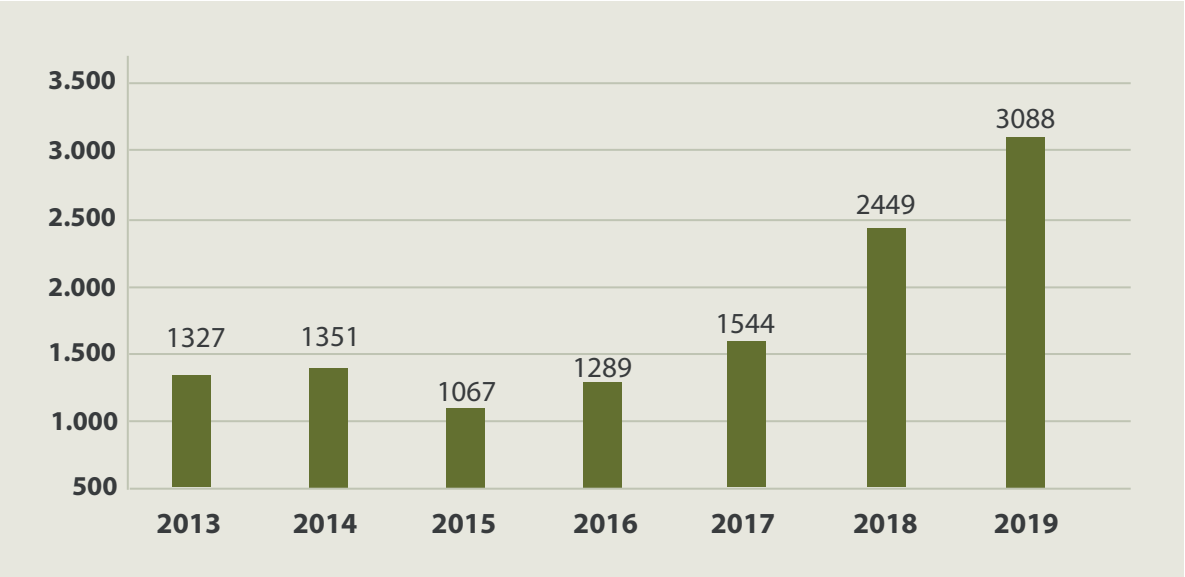
supply the engines to be used in Turkey's first domestic fighter jet project. [115] Turkey is making great efforts to localize the embargoed subsystems. If the decision to freeze Turkey's role in the F-35 program continues, it is believed that this will contribute to the downward trend in Turkey's arms imports. According to the program, it was predicted that Turkey would purchase 100 F-35 aircraft over the next five years.

However, SASAD's performance report for 2019 shows, unlike SIPRI, that defense industry imports have accelerated in recent years. According to the report, the sector's total imports amounted to $3,088 billion in 2019, almost equal to its exports. This figure shows that imports increased by 26% compared to 2018, when it was $2,449 billion.[116] As can be seen in the graph below, defense industry imports have tripled since 2015.

This increase can also be seen in the sector turnover-import ratio graph. While the rate of imports in the turnover of the sector decreased steadily until 2015, it started to increase rapidly after the horizontal course between 2015-2016. It has finally reached the 2012 level, of about 30%.

The most likely reason for this situation can be said to be the rapidly increasing operational needs since 2015. First, the operations that started in the Sur district of Diyarbakır in 2015 and spread to other regional provinces, then four operations carried out in Syria over four years, the continuous operations in Northern Iraq, and the activities in the Eastern Mediterranean and Libya, have all greatly increased the need for ammunition and equipment used by TAF in the field. Although the domestic manufacturers mostly provide these needs, foreign orders

Graph 19: Defense and Aviation Sector Import 2012-2019 (Million $)

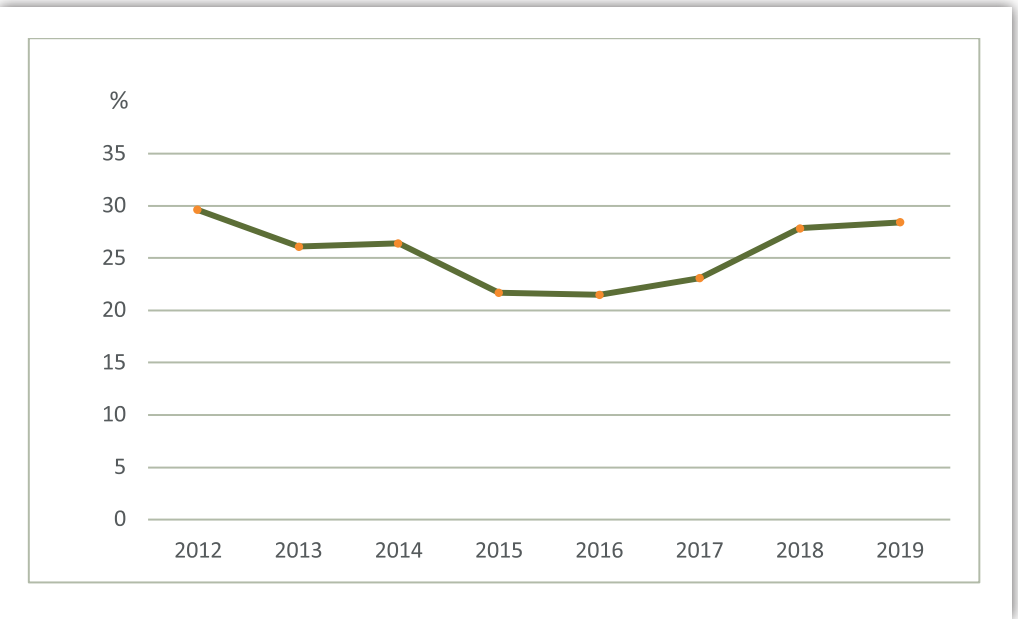


Source: SASAD, Performans Raporu [Performance Report] 2019, 2020

[115] Metin Gürcan, "Is Turkish defense industry's 'success story' turning sour?", Al-Monitor, 4 May 2020, www.al-monitor.com/pulse/originals/2020/05/turkey-defense-industry-success-story -turns-sour-sipri.html#ixzz6ovulSRkr.

[116] SASAD, Performans Raporu [Performance Report] 2019, 2020

Graph 20: Rate of Imports in Defense and Aviation Turnover (Percentage)



Source: SASAD, Performans Raporu [Performance Report] 2019, 2020

for subsystems and the component needs of the industry are also understood to have increased.[117] The highest expenditure in imports was made by military and civil aviation ($648 million and $564 million, respectively); considering that this amount is only around $400 million in land systems, the high foreign dependency ratio in the aviation sector is noteworthy.

As shown above, although Turkey's dependency relationship in defense procurement has undergone a qualitative transformation in the last thirty years, from ready-made weapons to subsystems and components, the direction of the dependency relationship has not changed. The SIPRI Arms Transfers Database shows that in the last two decades, the United States has maintained its first place and Germany second in Turkey's defense procurement.[118] In the last performance report of SASAD, it is noted that 47% of imports are from Europe, 45% from the USA and 8% from other countries, as in previous years. In the meantime, despite the arms embargo decision taken on October 2019, it was also reported in the press that Turkey was the country to which Germany had sold the most arms during that year. In 2019, Turkey's arms imports from Germany reached the highest level of the past 14 years, exceeding 250 million euros.[119]

---

[117] "Savunma ve Havacılık Sanayii 2019 Performans Raporu ve Bazı Değerlendirmeler", Siyah Gri Beyaz, 24 July 2020, https://www.siyahgribeyaz.com/2020/07/savunma-ve-havaclk-sanayii-2019.html.

[118] SIPRI Arms Transfers Database 2020, https://armstrade.sipri.org/armstrade/html/export_values.php.

[119] "Almanya listeyi açıkladı: 2019'da en fazla Türkiye'ye silah satıldı", Birgün, 5 May 2020; "German arms exports to Turkey at highest level since 2005", 17 October 2019, Deutsche Welle, https://www.dw.com/en/german-arms-exports-to-turkey-at-highest-level-since-2005/a-50866242. After Operation Olive Branch in 2018, Germany decided to stop the arms trade, except for naval warfare equipment. Still, a short time later, the German cabinet approved a massive arms trade to Turkey despite all the criticism. For an analysis that argues that commercial interests are decisive in the face of political disagreements in defense cooperation between the two countries, that is why Germany's arms restrictions on Turkey are doomed to be short-lived see Can Kasapoğlu and Sine Özkaraşahin, Savunma İş Birliği ve İki Taraflı Siyasi-Askeri Ajanda Kapsamında Türk – Alman Stratejik İlişkileri, EDAM Foreign Policy and Security Report, December 2020.

Since it is the leading institution in defense procurement, R&D activities, and offset agreements, it can be predicted that CAATSA sanctions against SSB will also affect Turkey's defense imports in the short term. In 2019, the US Department of State approved export licenses for Turkey for a value of $581.6 million (about $200 million of which was for licenses for aircraft and aircraft components). This figure was much higher than the previous year, 2018, when the export license held a value of $472 million. CAATSA sanctions are expected to reduce US-Turkish defense trade as they prohibit the issuance of licenses involving product and technology transfer to the SSB. In addition, it may be possible for manufacturers from other countries working in the US market to reconsider their relations with Turkey.[120] Air force equipment and ground systems are the areas that will potentially be most affected by the sanctions. Among the most important issues for the Turkish Air Force are the modernization and maintenance of F-16 warplanes, the TF-X national warplane project, and Turkey's need for foreign-made aircraft engines. In terms of land systems, the sanctions threaten to weaken the operational efficiency of radars, command and control systems, and armored vehicles.[121]

However, in the face of such sanctions and embargoes, the Turkish defense industry has demonstrated an improved ability to change suppliers and use alternative subsystems over time. For this purpose, the number of cooperation agreements with Asian countries such as South Korea, Japan, and China has increased in recent years. For example, at the end of the '90s, an agreement was made with China regarding the joint development and production of the T-300 Kasırga multi-barreled rocket launcher system, and the B-611 short-range ballistic missiles.[122] A more recent example followed the decision of the German authorities to break the sub-agreements between German companies and BMC in the serial production of the Altay tank produced by BMC. Following this decision, BMC turned to Hyundai Rotem for tank engines and to two other Korean companies for the purchase of automatic transmissions.[123]

R&D Investments and Human Resources

One of the issues considered an indicator of developments in the defense industry is the number of patents developed by institutions and organizations in the sector. This criterion itself is also associated with the R&D expenditures made

[120] Charles Forrester, "US Sanctions on Turkish Defence Agency May Have Wider Global Impact, Janes, 15 December 2020, https://www.janes.com/defence-news/news-detail/us-sanctions-on-turkish-defence-agency-may-have-wider-global-impact-says-janes.

[121] Metin Gürcan, "Turkish defense industry risks big damage from US sanctions", Al-Monitor, 16 December 2020, https://www.al-moMlTor.com/pulse/originals/2020/12/turkey-United-states-russia-s400-sanctions-risk-big-damage.html#ixzz6pDHxdtOW.

[122] Hüseyin Bağcı and Çağlar Kurç. "Turkey's strategic choice: buy or make weapons?" Defense Studies 17.1 (2017), p. 47.

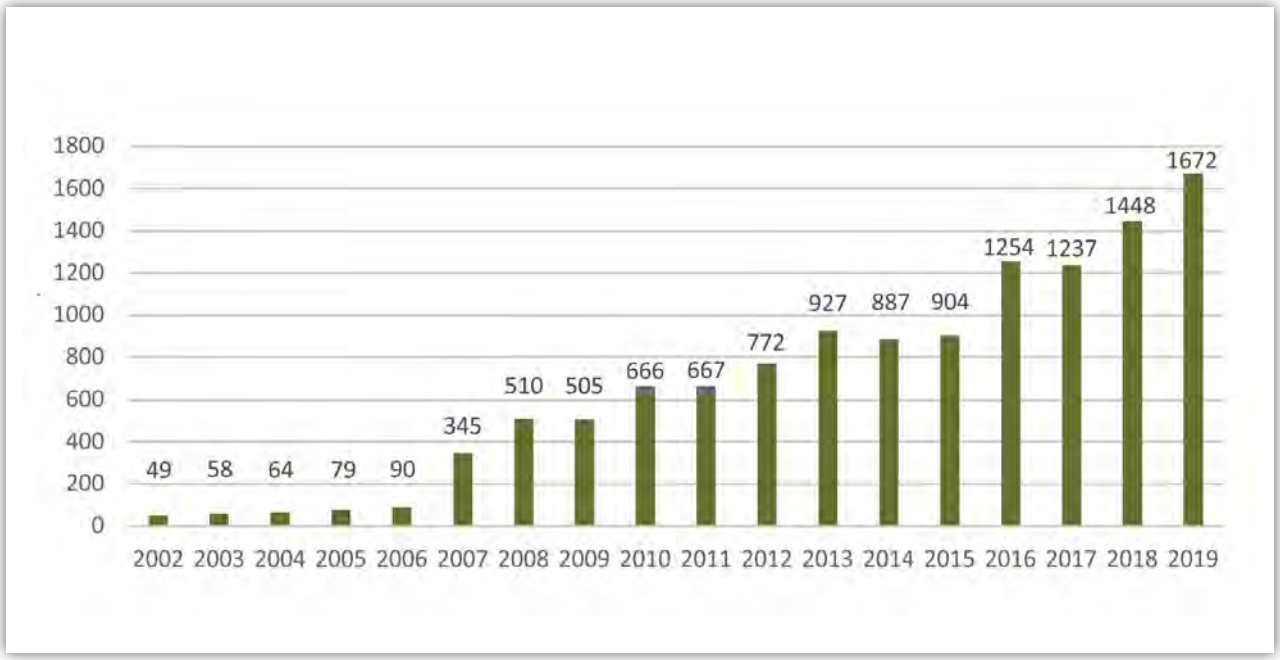
[123] However, there are also discussions about whether the Hyundai Rotem engine will work with the same efficiency in the ALTAY tank. See İbrahim Sünnetçi, "Güney Kore Güç Grubu, ALTAY AMT Seri Üretim Projesi için Aranan Güç Grubu Çözümü Olabilir mi?", 25 November 2020, https://www.defenceturkey.com/tr/icerik/guney-kore-guc-grubu-altay-amt-seri-uretim-projesi-icin-aranan-guc-grubu-cozumu-olabilir-mi-4286; Caleb Larson, "Is Turkey, Really Building a New Tank?", The National Interest, 20 November 2020, https://nationalinterest.org/blog/buzz/turkey-really-building-new-tank-172961.

by the defense industry. It is very difficult to obtain reliable information on the efficiency and R&D expenditures of the Turkish defense industry.

First, the R&D expenditures of the companies in the sector are very low despite claims to the contrary. The companies' share in the total R%D expenditures in Turkey is generally below 50% – far behind other OECD countries.[124] This rate is lower in the defense industry. According to the SASAD reports, the share of the companies' expenditures from their equity in the total defense R&D expenditures is around 20-25%.[125] The TOBB Defense Industry Sector Report also indicates that this situation was no different before 2010.[126] Therefore, R&D investments in the field of defense are largely covered by public resources. We can follow the R&D expenditures allocated from the public budget for defense in the OECD database since 2008. When calculated according to current prices and purchasing power parity, R&D expenditures, which were $523 million in 2008, increased to $1,638 billion in 2013, and then increased again after 2016, reaching $1,518 billion in 2019.[127]

The data of the Presidency of Defense Industries shows a similar development and points out that defense and aerospace R&D expenditures, which were around $50 million in 2002, had increased to $1,672 million in 2019.[128] The share of defense R&D investments in Turkey's national income is around 0.06%.[129]

Graph 21: Defense and Aviation Sector R&D Expenditure (Million $)



Source: Presidency of Defense Industries, Stratejik Plan [Strategic Plan] (2019-2023), 2020 (Updated Version). Source: SASAD, Performans Raporu [Performance Report] 2019, 2020

[124] Güven Sak, "Ne Ar-Ge'si yahu, bizim burada, bildiğin elektrik yok", TEPAV, 05 January 2017

[125] SASAD, , Performans Raporu [Performance Report], 2020, p. 13.

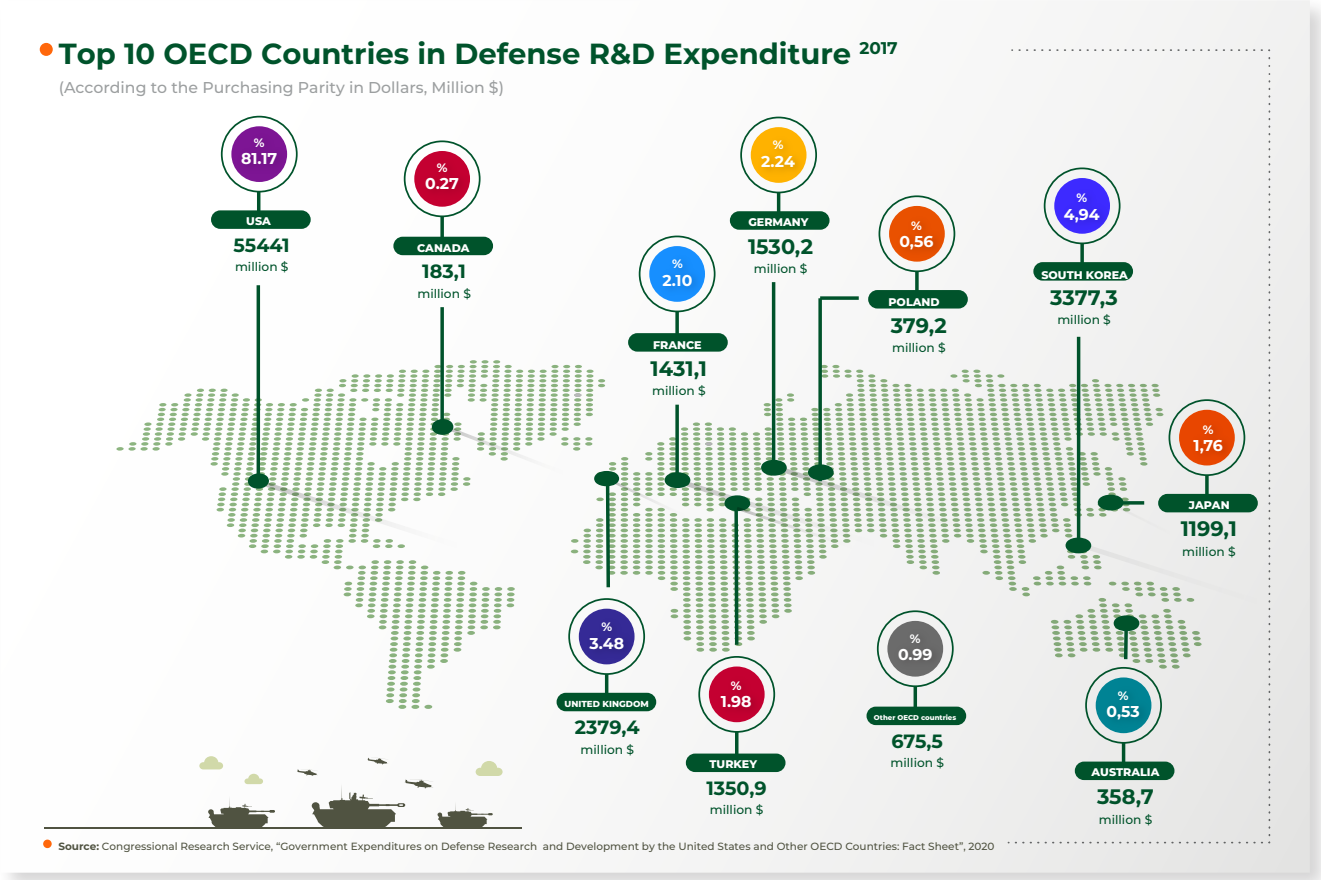
[126] TOBB, Savunma Sanayi Meclisi Sektör Raporu 2011 [Defense Industry Assembly Sector Report], 2012, p. 55.

[127] OECD, Research and Development Statistics: Government budget appropriations or outlays for RD [online], OECD Science, Technology and R&D Statistics, 2020.

[128] SSB, Stratejik Plan [Strategic Plan] 2019-2023, 2020 (Updated Version), p. 34.

[129] Congressional Research Service, Government Expenditures on Defense Research and Development by the United States and Other OECD Countries: Fact Sheet, 2020, https://fas.org/sgp/crs/natsec/R45441.pdf.

Table 6: Top 10 OECD Countries in Defense R&D Expenditure, 2017 (According to the Purchasing Parity in Dollars, Million $)



Source: Congressional Research Service, "Government Expenditures on Defense Research and Development by the United States and Other OECD Countries: Fact Sheet", 2020

However, the low level of R&D investments is a problem that goes beyond the defense industry. Turkey's total R&D investments, which have been at the level of 0.9% of national income for many years, are behind the other OECD countries with which it competes (e.g., South Korea, Brazil, Russia).[130] In 2019, Turkey ranked 16th in the world with its R&D expenditures.[131] But if only defense R&D expenditures are taken into consideration, Turkey ranks 6th among OECD countries after the USA, South Korea, England, Germany, and France. In the global defense industry R&D activities, the US seems to be the undisputed leader with a rate of 81%. Turkey's share is 2%.

Turkey's defense R&D expenditures approach 20% of the total R&D investments, which puts Turkey in second place after the USA for this category, showing the political importance given to the sector.[132] According to the European Innovation Scoreboard 2016, which provides comparative analyses by evaluating the relative

[130] Çağlar Kurç, "Between defense autarky and dependency: the dynamics of Turkish defense industrialization," Defense Studies, 17:3, p. 272. Industrial Research Institute, Global R&D Funding Forecast 2019, https://www.rdworldonline.com/2019-rd-global-funding-forecast/.

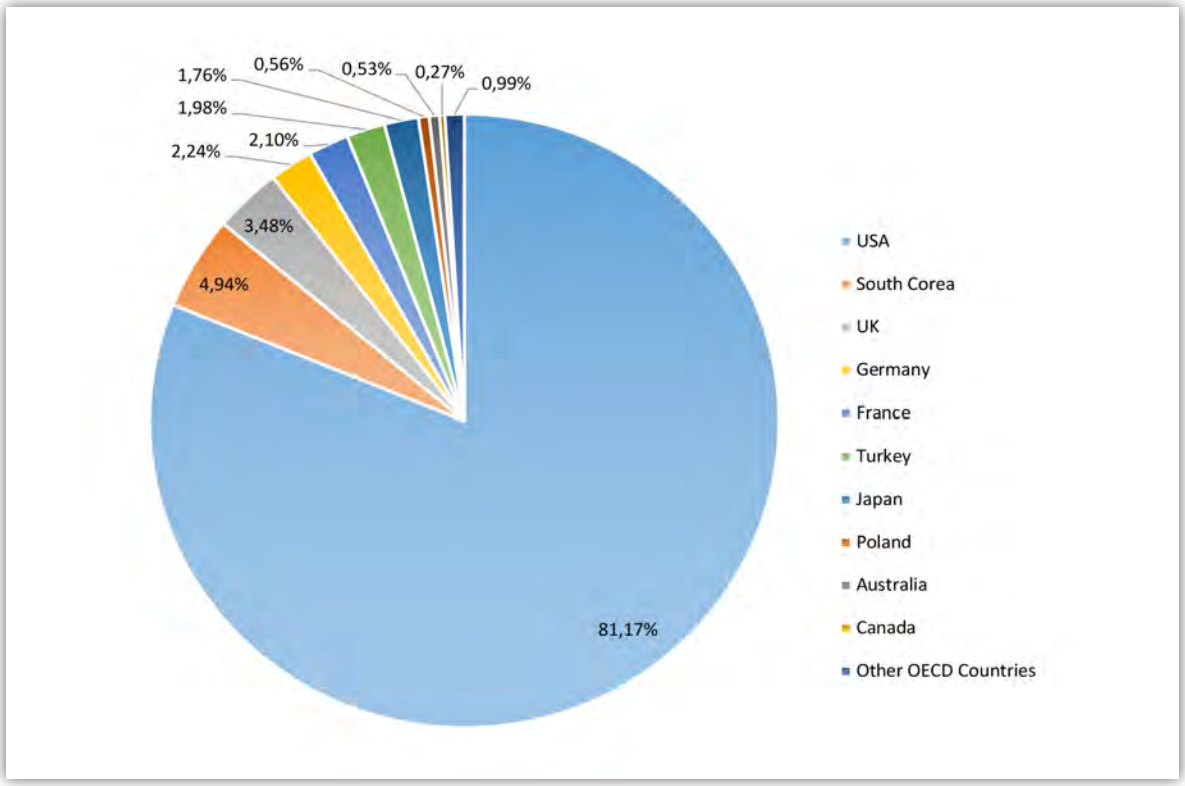
[131] Industrial Research Institute, Global R&D Funding Forecast 2019, https://www.rdworldonline.com/2019-rd-global-funding-forecast/.

[132] Congressional Research Service, "Government Expenditures on Defense Research and Development by the United States and Other OECD Countries: Fact Sheet", 2020, p. 2-3. https://fas.org/sgp/crs/natsec/R45441.pdf

strengths and weaknesses of national innovation systems, Turkey is in a mid-level innovator position that performs well below the EU average. According to the same report, Sweden, Denmark, Finland, Germany, and the Netherlands are the leading innovative countries; Ireland, Belgium, United Kingdom, Luxembourg, Austria, and France are strong innovators. This indicates that these countries outperform Turkey in aspects of innovation such as research systems, human resources, and company investments.[133] According to Hüseyin Bağcı and Çağlar Kurç, the current levels of Turkey's defense R&D spending are enough to make modest improvements in the current military technologies. But it seems that it will not be easy to bring the current R&D expenditures and innovation capabilities of companies to a level that will make Turkey more competitive in the international arms market and allow increases in defense exports, as is expected by government officials.[134] In addition, as happened in 2018, companies may cut back on the resources they allocate for product and technology development activities due to contractions in the economy and flu tuations in the exchange rate.

Many institutions have supported defense R&D investments in recent years. In this context, the technology management strategy document prepared by the Presidency of Defense Industries for the years 2011-2016 refle ts the efforts of the institution to manage and conduct activities in this direction.[135]

Graph 22: Top 10 OECD Countries in Defense R&D Expenditures



Source: Congressional Research Service, Government Expenditures on Defense Research and Development by the United States and Other OECD Countries: Fact Sheet, 2020.

[133] Hüseyin Bağcı & Çağlar Kurç (2017) "Turkey's strategic choice: buy or make weapons?", Defense Studies, 17:1, p. 53.

[134] Ibid, p. 54.

[135] SSB, "Savunma Sanayii Müsteşarlığı Teknoloji Yönetimi Stratejisi" [Undersecretariat for Defense Industries Technology Management Strategy], 2011.

SSB has been organizing the Researcher Training Program for the Defense Industry (SAYP) activities since 2016, based on the determination that there are not enough qualified R&D personnel for the rapidly increasing number of projects. It promotes joint product development projects between universities, industry, research institutions, and SMEs. According to the SSB, 104 R&D projects worth 3.5 billion TL have been conducted so far.[136] SSB is also trying to increase its R&D projects to reduce Turkey's dependency level in the field of technology by establishing many private and public companies. DELTA V Uzay Teknolojileri A.Ş., which was established to carry out the R&D processes of hybrid rocket technologies; ULAK Haberleşme A.Ş., which was established to carry out R&D studies of broadband communication devices and systems; TR Motor Güç Sistemleri A.Ş., which carries out the R&D studies of gas turbine engines; TRD Mikroelektronik A.Ş., which continues its photodetector design and R&D studies, and YİTAL Mikroelektronik A.Ş., which works in the design of all kinds of electronic and microelectronic devices and systems, can be listed among these. [137]

In addition to the SSB, TÜBİTAK SAGE (the Defense Industries Research and Development Institute), which was established with the aim of "providing competitive strength and high added value technology, products and services to the defense industry through R&D", manages the rocket and critical munitions development projects.[138] While TÜBİTAK SAGE's R&D investments were 24 million TL in 2006, these investments reached 583 million TL in 2018.[139] TÜBİTAK also offers many R&D project support programs under the Technology and Innovation Grant Programs Directorate (TEYDEB) and the Academic Research Funding Program Directorate (ARDEB).

Due to the extensive support given to the sector, defense industry companies have become the companies that have increased their R&D investments the most in recent years. "Research on Companies with the Highest R&D Expenditure in Turkey," conducted by Turkishtime, indicates that four of the top five companies with the highest R&D spending in Turkey in 2020 (TUSAŞ, ASELSAN, Roketsan, and HAVELSAN, respectively – all subsidiaries of TAFF) are from the defense and aerospace industry. For example, while spending 40% of TUSAŞ's turnover on R&D investments,[140] ASELSAN's R&D expenditures have increased eightfold in the last ten years.[141]

A point emphasized in many reports and policy documents is that the disentanglement of Turkey from foreign dependency in the defense industrydepends on a sustainable human resources policy. The rapidly developing defense press and social media groups, as well as festivals and competitions such as Teknofest and Roboik, indicate that the younger

---

[136] Göksel Yıldırım and Mustafa Çalkaya, "Savunma Sanayisinde 6 Ar-Ge Projesi için İmzalar Atıldı", Anadolu Ajansı, 18 February 2021.

[137] SSB, "2018-2022 Savunma Sanayii Sektörel Strateji Dokümanı", [2018-2022 Defense Industry Sectoral Strategy Document], p. 9-10.

[138] TÜBİTAK SAGE Katalog, https://www.sage.tubitak.gov.tr/tr/icerik/tubitak-sage-katalog.

[139] Merve Seren, "Turkey's Military Spending Trends: A Reflection of Changes in Defense Policy", Insight Turkey, Summer 2020, Volume 22, Number 3, p. 206.

[140] "TUSAŞ, cirosunun neredeyse yarısını Ar-Ge yatırımlarına harcadı", Hürriyet , 6 January 2021.

[141] https://www.aselsan.com.tr/tr/inovasyon/arge-faaliyetleri.

Table 7: Companies with The Most R&D Expenditure in Turkey in 2019

COMPANY	NUMBER OF R&D STAFF	NUMBER OF R&D PROJECTS	2019 R&D EXPENDITURE (TL)	R&D EXPENDITURE PLANNED IN 2020 (TL)
TUSAŞ Türk Havacılık ve Uzay Sanayi (TAİ)	2974	111	3,013,816,010	315,197,611
Aselsan Elektronik Sanayi ve Ticaret A.Ş.	4583	620	2,975,377,381	
Roketsan Roket San. ve Tic. A.ş.	1165	113	525,251,883	908,467,918
Turkcell Teknoloji Araştırma ve Gelişt A.Ş.	1165	56	462,477,446	
Havelsan Hava Elektronik San. ve Tic. A.Ş.	1313	88	458,482,341	695,000,000
Ford Otomotiv			419,583,000	
Vestel Elektronik San. ve W. A.Ş.	1007	352	360,036,271	410,000,000
Tofaş Türk Otomobil A.Ş.	678	32	355,167,000	1,544,590,740
TUSAŞ Motor Sanayii A.Ş. (TEI)	630	44	313,617,779	1,699,963
Mercedes Benz Türk A.Ş.	658	89	291,148,924	300,000,000
FNSS Savunma Sistemleri A.Ş.	326	62	282,710,518	208,800,000
Arçelik A.Ş.			256,751,000	
Softtech Yazılım Teknolojileri	391	63	243,402,663	304,253,329
Netaş Telekomüniksayon A.Ş.	972	52	175,251,724	
Logo Yazılım San. ve Tic. A.Ş.	832	34	171,825,277	207,908,585
Siemens Türkiye San. Tic. A.Ş.	609	27	166,008,187	223,250,800
Türkiye Şişe ve Cam Fabrikaları A.Ş.	168	81	139,484,168	174,002,045
Koza Anadolu Metal Madencilik İşt. A.Ş.			139,240,000	
Koza Altın İşletmeleri A.Ş.			136,849,000	
Otokar Otomotiv ve Savunma San. A.Ş.	433	41	135,960,887	196,700,000

Source: Turkishtime "Ar-Ge 250, Türkiye'nin En Çok Ar-Ge Harcaması Yapan Şirketleri-2019" Araştırması [R&D 250, Turkey's Top R&D Spending Companies 2019 Research]

generations are approaching the defense industry with increasing interest.[142] With projects such as the Defense Industry Academy, the Defense Industry Training Program, and the Visionary Youth, efforts are being made to "raise the awareness about local and national production" among university youth and to increase relations between the industry and universities.[143] The SASAD 2019 Performance Report, shows that the sector employs 73,771 personnel in total.[144] This means that the current share of the defense and aerospace sector in total employment across the country is roughly 0.26%.

[142] Mustafa Kibaroğlu, "Between a Rock and a Hard Place: How to Make Sense of Turkey's S-400 Choice?", Insight Turkey, Summer 2020, Volume 22, Number 3, p. 175.

[143] https://vizyonergenc.com/sayfa/hakkinda.

[144] SASAD, Performans Raporu 2019 (Performance Report), 2020, p. 14.

Although the increase in the employment ratio of engineers and those working in product-technology development is interpreted as a positive development, it has been observed by experts who closely follow the sector that the last few years have seen an intensifying tendency to migrate abroad, especially among experienced and educated individuals in the sector. According to an exceptional study on the reasons for these knowledgeable, experienced, senior, and specialist employees to migrate abroad, the distrust of Turkey's political and economic stability, the fact that there are more opportunities abroad, and the working conditions for those who want to work in R&D departments stand out as the most important reasons for brain drain.[145] Another factor affecting the personnel quality of the defense industry and aerospace sector has been the recent caderisation and mobbing allegations against some employees. For example, allegations were widely covered in the press that Mahmut Faruk Akşit, who has been the general manager of TUSAŞ Motor Sanayii A.Ş. (TEI) since 2013, had appointed members of the Iskenderpasa Community of the Naqshbandi Order * to the upper levels of the company without considering their merits.[146] ■

[145] Merve Seren, "Savunma Sanayii ve Beyin Göçü", Analiz Gazetesi, 11 April 2019, http://www.analizgazetesi.com.tr/yazarlar/savunma-sanayii-ve-beyin-gocu/; Metin Gürcan, "Brain drain saps Turkey's defense industry", Al-Monitor, 1 May 2019.

** Iskenderpasa has been one of the most politically involved Islamic communities in Turkey. Many Turkish politicians today, including President Recep Tayyip Erdoğan, are associated with the Ikenderpasa Community which commands a vast network of economic, social and cultural institutions.*

[146] "Türk havacılığı, Nakşibendilerin kontrolüne verildi", Cumhuriyet, 14 March 2021; Ali Kıdık, "TEI'de tarikat yapılanması iddiaları!", Airport Haber, February 22, 2021.

4. CAPITAL STRUCTURE, COMPANIES and RELATIONS

One of the most difficult areas to find reliable data on about the Turkish defense industry is the intra-sector shares of capital groups in the sector and the in-sector structuring of capital groups.

Companies operating in the defense industry can be bracketed into three groups in terms of market share, size, revenues, employment, and technology investments. Those in the first group are big companies carrying out major defense projects such as ASELSAN, TAI, Roketsan, MCIC, HAVELSAN Otokar and FNSS. Companies in the first group are the main contractors in the supply of defense needs. The second group consists of defense industry companies such as STM, SDT, Savronik, Alp Havacılık, HMS, which can be the main contractors in medium-sized projects but are mostly the subcontractors of the main contractors in large projects and undertake the task of developing and producing the sub-systems and delivering them to the main contractor. The third category are companies that supply parts and components for small defense needs directly to the Turkish Armed Forces or the companies in the first and second categories. Most of these companies are SMEs, which do not have a defense industry company's identity and mainly produce for other sectors. The growth of the defense industry market has increased the desire of these third group companies to become subcontractors for the industry. [147]

Although the economic and political investments in the defense industry, which gained new momentum after 2004 and accelerated after 2015, brought about the growth of the companies in the sector, the place of Turkish companies among the world giants is still quite limited. An examination of the top 100 defense companies globally in terms of revenues (million dollars) in 2020, shows that seven companies from Turkey are on the list. Four of them are companies affiliated with TAFF. ASELSAN, which entered the list as the top company from Turkey and is in 48th place, had a 2,172 million dollar defense revenue in 2019, while the revenue of the first on the list (Lockheed Martin 50,536 million dollars) is 23 times higher, and the revenue of the twentieth in the list (China Aerospace 7,745 million dollars) is 3.5 times higher (see Table 8). The first company from Turkey to be included in this list, was ASELSAN (97th place) in 2008. The companies added to the list in the following years, with their rankings, are as follows: TUSAŞ (83rd) in 2012, Roketsan (98th) in 2017, STM (97th) in 2018, BMC Otomotiv (85th) in 2019, FNSS (98th) and HAVELSAN (99th) in 2020. As this data shows, companies from Turkey were not able to enter this list until 2008. The only companies that achieved entry up until 2018 were the affiliated companies of TAFF (ASELSAN, TUSAŞ, Roketsan), and the ranking of these companies in the list has progressed upwards over the years. STM, the new company added in 2018, is affiliated with SSB. The first company entry from the private sector was BMC in 2019, and FNSS in 2020.

---

[147] Ufuk Uras, "Savunma Sanayi Sektöründe Alt Yüklenici Olmak", Harkul Savunma ve Havacılık, 1 July 2020, https://harkul.com.tr/blog/savunma-sanayi-sektorunde-alt-yuklenici-olmak/.

Table 8: Top 100 Defense Industry Companies in The World, 2020

2020 Ranking	2019 Ranking	COMPANY	COUNTRY	2019 DEFENSE REVENUE (Million)	2018 DEFENSE REVENUE (Million)	DEFENSE REVENUE CHANGE %	2019 TOTAL REVENUE (Million)	DEFENSE INCOME
1	1	Lockheed Martin	U.S.	$56,606.00	$50,536.00	12%	$59,812.00	95%
2	2	Boeing	U.S.	$34,300.00	$34,050.00	1%	$76,559.00	45%
3	6	General Dynamics	U.S.	$29,512.00	$27,507.00	7%	$39,350.00	75%
4	3	Northrop Grumman	U.S.	$28,600.00	$25,300.00	13%	$33,841.00	85%
5	4	Raytheon Company	U.S.	$27,448.00	$25,163.94	9%	$29,200.00	94%
6	5	Aviation Industry Corporation of China	China	$25,075.38	$24,902.01	1%	$66,858.02	38%
7	7	BAE Systems	U.K.	$21,033.27	$22,477.48	-6%	$23,370.30	90%
8	8	China North Industries Group Corporation Limited	China	$14,771.60	$14,777.77	0%	$68,074.15	22%
9	NEW	L3Harris Technologies	U.S.	$13,916.98	$12,303.08	13%	$18,074.00	77%
10	17	United Technologies Corp.	U.S.	$13,090.00	$9,310.00	41%	$77,000.00	17%
11	10	China Aerospace Science and Industry Corporation	China	$12,035.25	$12,130.93	-1%	$37,610.17	32%
12	9	Airbus	Netherlands France	$11,266.57	$13,063.82	-14%	$78,916.36	14%
13	13	Leonardo	Italy	$11,109.27	$9,828.51	13%	$15,429.55	72%
14	14	China Shipbuilding Industry Corporation	China	$11,019.56	$9,795.47	12%	$55,097.78	20%
15	12	China Electronics Technology Group	China	$10,148.87	$10,275.58	-1%	$32,951.25	31%
16	16	Thales	France	$9,251.68	$9,575.57	-3%	$20,596.61	45%
17	15	Almaz-Antey	Russia	$9,191.60	$9,660.14	-5%	$9,651.71	95%
18	11	China South Industries Group Corporation	China	$8,845.87	$11,963.37	-26%	$28,550.02	31%
19	20	Huntington Ingalls Industries	U.S.	$8,119.00	$7,767.00	5%	$8,899.00	91%
20	19	China Aerospace Science and Technology Corporation	China	$7,745.57	$8,138.47	-5%	$36,223.21	21%
48	52	Aselsan A.S.	Turkey	$2,172.57	$1,792.63	21%	$2,290.61	95%
53	69	Turkish Aerospace Industries	Turkey	$1,858.35	$1,307.65	42%	$2,266.79	82%
89	85	BMC Otomotiv San. ve Tic. A.Ş.	Turkey	$533.56	$554.18	-4%	$676.59	79%
91	89	Roketsan A.S	Turkey	$515.18	$522.76	-1%	$515.18	100%
92	85	STM Savunma Teknolojileri Muhendislik ve Ticaret A.Ş.	Turkey	$485.08	$564.83	-14%	$503.73	96%
98	NEW	FNSS Savunma Sistemleri A.Ş.	Turkey	$374.94	$367.54	2%	$374.94	100%
99	NEW	Havelsan A.S.	Turkey	$295.61	$278.60	6%	$342.27	86%

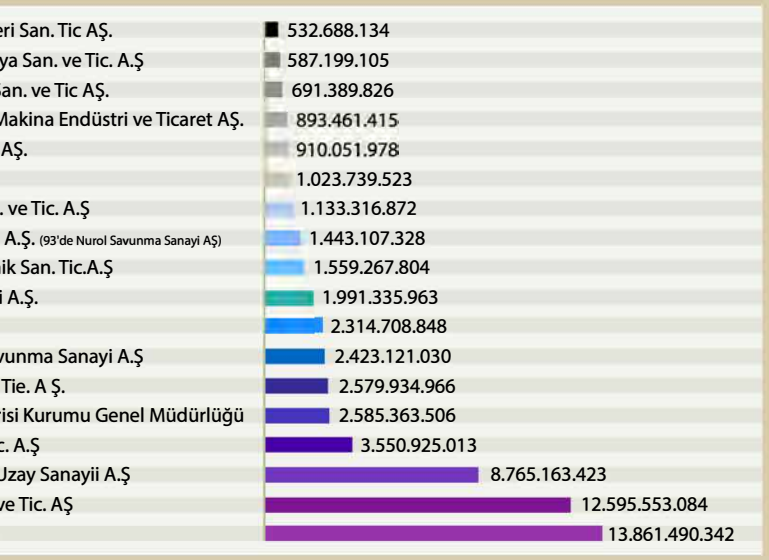
Source: https://people.defensenews.com/top-100/Trade", SIPRI Insights on Peace and Security, No. 2020/13, December 2020.

In 2019, there were 18 defense industry companies among the 500 largest companies published by the Istanbul Chamber of Industry on net sales. Five of them (ASELSAN, TUSAŞ, Roketsan, TUSAŞ Engine Industries, and HAVELSAN) are affiliated companies of TAFF. In addition to the companies of TAFF, companies such as Otokar, BMC, FNSS, Nurol, as well as public companies such as MCIC, stand out as being the largest companies of the first group mentioned above (see. Graph 23). As we will discuss below, the competition among these first group companies within the defense industry has been increasing in recent years, and their relations with the political power can be an effective guide to predict how this competition will progress.

Considering the post-1995 development of the defense industry companies that entered the İS0 500 list, it can be said that the top of the Turkish defense industry sectorhas been characterized by an oligopolistic structurewith limited competition. Like the companies of the TAFF (where the President now has a decisive position in the administration) or public companies such as MCIC and STM, companies that have the support of the public authority, and the know-how in their own fields, hold the top position in the defense industry.

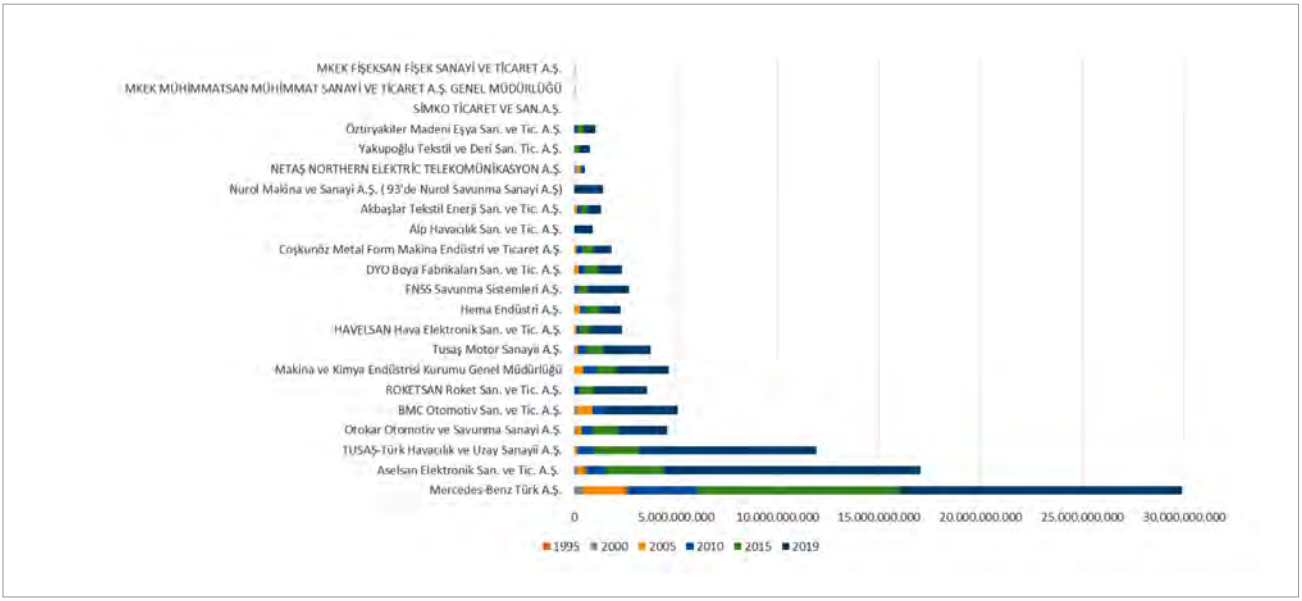
In addition, in recent years we have witnessed intense competition between companies in the land and sea vehicles sectors, where private sector companies are heavily involved, and the determinant ties are those which lie with the political power. The sector with the most intense competition is armored land vehicles. Based on ISO data, the main companies such as BMC, Otokar, FNSS, and Nurol are in the same net sales segment (under and around 5 billion TL). In addition, although it does not have as large a financial volume as land vehicles, the manufacture of marine vehicles is also an area of intense competition, shaped by political mediation between different capital groups.

Graph 23 ISO 500 Defense Industry Companies 2019 (Net Sales)



Source: İstanbul Sanayi Odası, http://www.iso500.org.tr/500-buyuk-sanayi-kurulusu/2019/

Graph 24: Development of Defense Industry Companies in ISO 500, 1995-2019



Source: Istanbul Chamber of Industry, http://www.iso500.org.tr/iso-500-hakkinda/gecmis-yil-verileri/

Armored Land Vehicles and Increased Competition: The Story of BMC and Otokar

Land platforms, and wheeled armored vehicles in particular, constitute the leading product segment (roughly one-third of total sales) of the Turkish defense industry both in terms of turnover and export. Armored land vehicles are the product group in which the competition between various capital groups is experienced most intensely. The manufacturing companies in this group and the prominent armored vehicle models are as follows: FNSS (Pars), BMC (Kirpi and Amazon), Otokar (Arma and Cobra), Nurol (Ejder and Ejder Yalçın) and Katmerciler (Hızır ve Ateş). Apart from these five big companies, SSB Product Catalog lists about 30 companies operating in this group.[148] Another striking feature is that although ASELSAN and MCIC have productions in this field, the private sector companies are those who dominate. The sustainability of having many different companies and models in the field is a point of discussion, and it is possible that these five companies which produce armored land vehicles will be brought together under a common roof in the future, just as the five shipyards specializing in military navy shipbuilding were gathered under a joint company under TAIS Gemi İnşa A.Ş.[149] There is intense demand from TAF for armored land vehicles, which have a wide area of use both in domestic operations and asymmetric warfare, especially in Syria and Iraq. However, it seems to be an opinion in the sector that political tendencies play a role in determining the preferences, as well as the capabilities of the tools mentioned. FNSS and Nurol Makina appear to be prioritized in the tenders for TAF's needs, but in recent years, BMC has been particularly prominent in the domestic procurement tenders.

[148] SSB, "Türk Savunma Sanayii Ürün Kataloğu", 2019.

[149] https://www.taisshipyards.com/tr/hakkimizda.

Many large and small businesses, which are stated to be close to political power, are also receiving their share of opportunities.[150]

On the other hand, the exclusion of Koç Otokar from these tenders has compelled it to enter into export, joint production, or foreign investments at various levels.[151] Otokar, which increased its exports by 78% in 2019, operates in more than 60 countries across five continents.[152] The SIPRI Arms Transfers Database shows that Otokar Cobra, which was sold to Azerbaijan, Bahrain, Bangladesh, Burkina Faso, Chad, Georgia, Ghana, Kazakhstan, Kosovo, Mauritania, Nigeria, and Slovenia, is the armored vehicle model with the largest export area in its class.[153]

In 2018, Otokar, which has been excluded from public procurement particularly in recent years, reported that its share of exports in the defense industry turnover had reached 85%.[154] The opening of Otokar to Gulf countries such as Bahrain, Kuwait, and Saudi Arabia in recent years is also noteworthy in terms of its development, especially in light of the bad relations between these countries and the Turkish government. The most important export and co-production project that emerged as a result of Otokar's expansion towards these countries was an armored vehicle production project, with a total of 700 amphibious 8x8s for the UAE Armed Forces. This was carried out in partnership with Al Jasoor (Cesur), which was established on the initiative of Tawazun, the leading investment company of the UAE.[155]

While Otokar was ignored in public tenders, BMC's Kirpi model became the largest domestic armored personnel vehicle model in the TAF's inventory.[156] With this large support, BMC became the first Turkish private-sector defense company to be included in the "Top 100" list of Defense News in 2019. With $533 million revenues in defense, the company ranked 85th on the list. However, the support given to BMC was not limited to the purchase of wheeled armored vehicles. For example, the modernization project of the Leopard 2A4 tanks, which needed to be developed due to the loss of their armor protection in Operation Euphrates Shield, was given to BMC quietly, without an official statement and signing

---

[150] Rasim Anıl Kurt, "Tekerlekli ve Paletli Zırhlı Araçlar Sektörüne Özel Bakış", Defence Turk, 16 January 2021, https://www.defenceturk.net/tekerlekli-ve-paletli-zirhli-araclar-sektorune-ozel-bakis.

[151] Companies that are thought to have a better relationship with the government are given greater publicity by the media. A recent example of this was TRT News' promotion of Nurol Makina's tactical wheeled armored vehicle Ejder Yalçın 4x4 as the "first Turkish battleship" sold to a NATO country (Hungary) and used in NATO missions. However, the first armored vehicle sale to a NATO country was Otokar's Cobra CBRN model reconnaissance vehicle, which was delivered to Slovenia in 2008.

[152] https://defense.otokar.com.tr/haberler/otokar-fortune-turkiye-listesinde-yukselisini-surduruyor

[153] https://armstrade.sipri.org/armstrade/page/trade_register.php

[154] In 2019, Otokar's General Manager, Serdar Görgüç, stated that ideally nearly 50% of production would be made for the domestic market, but that the share of Otokar's exports had increased "due to the circumstances." See Emre Deveci, "Otokar Elektrikli Zırhlı Araç Üretti", Cumhuriyet, 24 April 2019.

[155] Paolo Valpolini, "IDEX 2019: Rabdan and not only, Otokar's focus on the Middle East", European Defense Review, 20 February 2019, https://www.edrmagazine.eu/idex-2019-rabdan-and-not-only-otokars-focus-on-the-middle-east. The $661 million agreement was the largest defense export ever signed in a single item for the Turkish defense industry.

[156] "TSK Envanterine Kaç Adet Zırhlı Personel Taşıyıcı Var?", 20 March 2020, https://www.xn--savunmagnl-hebca30c.com/2020/03/20/tsk-envanterine-kac-adet-zirhli-personel-tasiyici-var/

ceremony. At the end of two years, the lack of progress in the modernization project was criticized, but no official or unofficial statement was made addressing these criticisms.[157]

The need for the modernization of the Leopard and M60 tanks, which hold a prominent place in the TAF inventory, is partly due to the continuous delay in the Altay tank project given to BMC. BMC, which became the property of Çukurova Holding after the Savings Deposit Insurance Fund (SDIF) seized Çukurova Holding, was put up for sale in 2014 for an estimated 935 million TL. It was bought by Ethem Sancak for 751 million TL. Talip Öztürk, the businessman from Güneysu town in Rize, who is the owner of Öztreyler Company and is also a relative of President Erdoğan, was made a 25% partner in BMC upon Erdoğan's suggestion – a development which was reported in the press. The foreign partner became the Qatar Army after Erdogan met with the Emir of Qatar, Al Thani. The Qatar Army bought 49.9% of the company's shares, paying $300 million. Thus, Ethem Sancak sold 75% of BMC, which he had bought for $200 million, to Talip Öztürk and the Qatar Army for $400 million. But BMC's previous agreements with the Turkish Armed Forces and other public institutions continued. BMC, which earned half of its revenues from public institutions such as the Presidency of Defense Industries, TAF, and municipalities, became interested in the Altay tank project. However, Otokar had previously received the prototype production (first phase) tender for the project in 2009. According to the contract Otokar would be eligible to continue with the second phase (mass production) if they could agree on the price. However, SSB canceled the process, citing that Otokar's offer was too high, and BMC won the tender in their place, which was re-issued in April 2018 for mass production and engine development. It was also reported in the media that BMC would benefit from the "super incentive", which amounted to 1.4 billion TL, with the Presidential decision, in the month the tender contract was signed.[158] According to the agreement between the TAF and BMC, BMC was also given the option to use the Tank-Pallet Factory for 250 tanks to be produced until May 2020 (this number will later increase to 1000). With the decision of the Presidency, the factory was transferred to BMC for 25 years without any lease obligations, except for the investment requirement of 50 million dollars.[159] However, as of August 2021, the production of the Altay tank has not yet started, as Germany is not selling MTU engines and RENK transmissions to Turkey.[160]

---

[157] Fatih Mehmet, "Leopard 2A4 modernizasyonuna ne oldu?", Defence Turk, 25 May 2020, https://www.defenceturk.net/leopard-2a4-modernizasyonuna-ne-oldu; "Türk Leopard 2'lere Sessiz Sedasız Modernizasyon", 12 July 2020, https://www.c4defence.com/turk-leopard-2lere-sessiz-sedasiz-modernizasyon/

[158] " "BMC, Savunma Sanayiinde Dünyada ilk 3'e Talip", Dünya, April 27, 2018, https://www.dunya.com/sirketler/bmc-savunma-sanayiinde-dunyada-ilk-3e-talip-haberi-413322. The incentives BMC benefited from included the following: VAT exemption, customs duty exemption, VAT refund, corporate tax reduction (100% tax reduction rate, 72% investment contribution rate, 100% investment contribution rate that can be used in the investment period), employer's insurance premium support (10 years without a maximum amount limit), income tax withholding support (10 years), qualified personnel support (maximum 69 million TL), interest support and/or profit share support (maximum 10 years from the date of loan use, not exceeding 141 million TL), energy support (50% of energy consumption expenditures up to 10 years from the date of commissioning, not exceeding 12 million TL).

[159] Deniz Zeyrek, "BMC nasıl bir koyup 60 alacak?", Sözcü, 18 December 2019.

[160] Burak Ege Bekdil, "Turkey's 'chronic engine problem' is harming defense projects, warn officials," Defence News, 26 June 2020, https://www.defensenews.com/industry/techwatch/2020/06/26/turkeys-chronic-engine-problem-is-harming-defense-projects-warn-officials/.

BMC also wants to enter jet engine production. After receiving Erdoğan's political support, BMC's TRMotor had a joint venture with TUSAŞ and was awarded the right to develop a jet engine for Turkey's domestic aircraft project TF-X, with the support of British Rolls-Royce. However, in March 2019, Rolls-Royce reported that it had withdrawn from cooperation with TRMotor because Qatar's involvement in the project had complicated the intellectual property protection rights.[161]

Competition in MİLGEM and Sea Vehicles

MİLGEM (National Ship) corvette project started in 1994 at the Naval Forces Command initiative, with the intention to develop "a domestic Turkish warship that uses stealth technology principles in its design and can perform anti-submarine warfare and offshore patrol duties."[162] However, except for some preliminary preparations, there had been no significant developments regarding the project up until 1998.

When the project was revived in 1998, the civil-military rivalry between the SSM and the TNFC, and the continuous changes in the procurement model until 2005 caused significant delays. According to Çağlar Kurç, SSM wanted the technology and knowledge transfer to be made directly from the navy shipyards to private companies and for TNFC to have no involvement in the procurement, design, and construction processes. TNFC, on the other hand, insisted on being responsible for the design and manufacturing of the ships. [163] Eventually, according to the agreement reached in 2006, it was decided that the first two corvettes would be built with STM, a public-owned defense company affiliated with the SSB, responsible for the supply of materials and services, while TNFC would be responsible for the design, development, and construction of the ships. The construction of the ships started at Istanbul Tuzla Military Shipyard, a military facility.

It was agreed that the other ships of the ongoing project would be completed by private shipyards. Although Koç Holding subsidiary RMK Marine won the tender for the production of the ongoing ships in 2011, the tender was cancelled upon a complaint by Sedef Shipbuilding Company, owned by Metin Kalkavan, who did not officially participate in the tender process and had a close relationship with political power.[164] The cancellation of the tender led to comments in the press such as "The defense companies owned by Koç Holding, whose companies have had their tax audits tightened by inspectors after the government accused them of supporting Gezi Park protesters in one of their hotels, are also facing tough times."[165] After the cancellation of the tender, the construction of the third and

---

[161] Metin Gürcan, "Turkey's defense industry sees rise of 'the president's men'", Al-Monitor, 18 November 2019, https://www.al-monitor.com/originals/2019/11/turkey-rivalry-in-turkish-defense-industry-escalates.html#ixzz6p-yMDavLI.

[162] Global Security. (2018, April 3). TCG Heybeliada - (MILGEM - National Ship). Retrieved from https://www.globalsecurity.org/military/world/europe/tcg-milgem.htm.

[163] Çağlar Kurç, "Between Defence Autarky and Dependency", p. 269.

[164] Ibid, p. 270.

[165] "Türkiye'nin ilk milli savaş gemisi projesi Koç'tan alınıyor mu?", T24, 3 August 2013, https://t24.com.tr/haber/turkiyenin-ilk-milli-savas-gemisi-projesi-koctan-aliniyor,236015.

fourth ships was awarded to STM in 2014. With this contract, unlike with the first two ships, STM also assumed the responsibility of supplying and integrating the main propulsion system. [166]

The tender of the Naval Forces Command for the critical Landing Platform Dock (LPD) in 2013, which was presented as one of the "global power projects" and also called the helicopter carrier, witnessed a similar struggle. The 3 billion dollar LPD tender, in which Koç Group competed with RMK Shipyard, was awarded to Sedef Shipyard, owned by Metin Kalkavan, Chairman of the Chamber of Shipping.[167] TCG Yarbay Kudret Güngör fuel supply ship, the first ship built in a private shipyard in Turkey for the Turkish Navy, was built at Sedef Shipyard.[168] The Multipurpose Amphibious Assault Ship, named the TCG Anadolu, which will be Turkey's largest warship and is expected to be delivered in 2021, was also built by Sedef Shipyard.[169] Turkish Associated International Shipyards is one of the five companies that make up TAIS and Sedef Shipyard, along with Anadolu, Sefine, Selah, and Istanbul Shipyard companies. These companies gathered under TAIS have become the preferred companies to meet the needs of the navy in recent years. For example, Sefine Shipyard manufactures Turkey's Supply on the Sea Combat Support Ship (DIMDEG).[170] Anadolu Shipyard completed the construction of TCG Bayraktar and TCG Sancaktar Amphibious Ships (LST) and delivered them to the Naval Forces. The firm is building eight landing crafts and two training vessels for the Qatar Navy. TAIS undertook the construction of five fleet suppo t tankers for the Indian Navy in 2019, in order to make it competitive in the international arena through the merger of companies. [171] The press also reported that TAIS had taken action to produce national engines for national warships at the request of President Recep Tayyip Erdoğan.[172]

RMK Marine, which was completely excluded from the MİLGEM project, shifted its activities from military vessels to commercial vessels after delivering the ships it had built under the Coast Guard Search and Rescue Vessel Project to the Turkish

---

[166] https://www.stm.com.tr/tr/cozumlerimiz/deniz-projeleri/milgem-projesi

[167] Levent İçgen, "Havuzlu Çıkarma Gemisi İhalesi Koç'tan Sedef'e!", Vatan, 28 Aralık 2013, http://www.gazetevatan.com/havuzlu-cikarma-gemisi-ihalesi-koc-tan-sedef-e--596241-ekonomi/

[168] SSB, "Türk Savunma Sanayii Ürün Kataloğu", 2019, p. 86.

[169] TGC Anadolu has a capacity of 6 F358s, 4 ATAK helicopters, 8 medium-duty transport helicopters, 2 seahawk utility helicopters, and 2 unmanned aerial vehicles. See. https://www.sedefshipyard.com/tr/haberdetay.aspx?TID=149https://www.sedefshipyard.com/tr/haberdetay.aspx?TID=149. According to the statements of Industry and Technology Minister Mustafa Varank, tactical class UAVs will also be able to take off from TCG Anadolu. See Ata Ahmet Kökçü, "TCG Anadolu'nun pistinden 'taktik' sınıf İHA kalkabilecek" 5 July 2020, https://www.defenceturk.net/sanayi-ve-teknoloji-bakani-mustafa-varank-tcg-anadoludaki-calismalari-inceledi

[170] Salih Zeki Çakır, one of the partners of Sefine Shipyard, is known to the public for his close relationship with Binali Yıldırım. It was also reported in the media that Oraz Denizcilik, owned by Salih Zeki Çakır, won the operation tender for Turkey's first "domestic and national research ship" Oruç Reis Research Ship, and grew by 664.9% in just two years. See "Binali Yıldırım'ın Yakın Dostundan İki Yılda 'Çılgın' Büyüme", Gerçek Gündem, 24 December 2020, https://www.gercekgundem.com/siyaset/239174/binali-yildirimin-yakin-dostundan-iki-yilda-cilgin-buyume.

[171] "TAIS Hindistan'da 2,3 milyar dolarlık ihale kazandı", C Savunma, 1 June 2019, https://www.csavunma.com/turk-tersanlerin-ortak-firmasi-tais-hindistanda-23-milyar-dolarlik-ihale-kazandi/. Thus, TAIS has taken the title of the biggest tender abroad from Otokar.

[172] Vahap Munyar, "Milli Gemiye Milli Motor", Hürriyet, 6 April 2018.

Coast Guard Command in 2013 and 2014.[173]

Within the scope of the MİLGEM Ada Class Corvette Project, the first ship TCG Heybeliada was delivered to the Naval Forces Command in 2011, the second ship TCG Büyükada in 2013, the third ship TCG Burgazada in 2018, and the fourth ship TCG Kınalıada in 2019. The combat systems of the MİLGEM corvettes were carried out by the MİLGEM Business Partnership, which was established jointly by ASELSAN and HAVELSAN.[174] The contract for TCG Istanbul, the first domestic I-class frigate, was again signed with STM in 2019. It has been announced that TCG Istanbul, which was launched on 23 January 2021, and planned to be delivered to the navy in 2023, will be 75% local.[175]

Lack of Competitiveness in Aviation, The UACV Industry as an Opportunity, and the Rise of Bayraktar Holding

Contrary to land and sea platforms, there is less competition in the procurement of air vehicles., The design and production of fixed and rotary-wing platforms have developed under the dominance of the Turkish Aircraft Industry Joint Stock Company (TUSAŞ), owned by TAFF. The establishment in 1984 of TUSAŞ Aerospace Industries Inc. (TAI) as a Turkish-USA joint investment company for the production, integration, and flight ests of F-16 aircraft and their delivery to the Turkish Air Force can be considered a milestone for the sector. Before the completion of the 25-year project period, the foreign shares of TAI were purchased by Turkish shareholders in 2005 (54.49% TAFF, 45.45% SSB and 0.06% THK), and the company was restructured. In this context, TAI and TUSAŞ merged and became TUSAŞ (Türk Havacılık ve Uzay Sanayii A.Ş.), expanding its operations and tasked with the development, modernization, and production of aerospace industry systems.[176]

In parallel with this development, TEI-TUSAŞ Engine Industries Inc., located in Eskişehir, was established in 1985 to produce engines and engine parts. TEI's shareholders are TUSAŞ (50.5%), GE (46.2%), and TAFF (3.3%).[177] Similarly, Microwave Electronic Systems Inc. (MIKES), which was established in 2015 in partnership with the USA to produce electronic warfare systems for F-16 aircraft, was also taken over by ASELSAN. It is therefore possible to say that in the 2000s, especially in the aviation sector, projects with original designs or original subsystems, in which the companies belonged to TAFF, were the main contractors to succeed and expand.[178]

---

[173] https://www.rmkmarine.com.tr/gerceklesen-askeri-gemi-projeleri/

[174] "Milli Gemi'nin Savaş Sistemini ASELSAN ve HAVELSAN Yapacak", Dünya, September 2, 2014, https://www.dunya.com/sirketler/milli-gemi039nin-savas-sistemini-aselsan-ve-havelsan-yapacak-haberi-256245.

[175] "Here's what we know about Turkey's newly launched homemade frigate", Defense News, January 25, 2021, https://www.defensenews.com/naval/2021/01/25/heres-what-we-know-about-turkeys-newly-launched-home-made-frigate/

[176] https://www.tusas.com/kurumsal/hakkimizda

[177] https://www.tei.com.tr/tr/kurumsal/hakkimizda

[178] Arda Mevlütoğlu, "Türk Savunma Sanayiinin Dönüşümü", Perspektif Online, 17 April 2020, https://www.perspektif.online/turk-savunma-sanayiinin-donusumu/.

TUSAŞ-TAI, which has a monopoly position in the aircraft group, rose from 22nd to 18th in the ISO 500 list, including Turkey's largest companies, with net sales figures of approximately 8.8 billion TL in 2019. TUSAŞ continues to carry out many modernization projects in addition to the important projects it has implemented, such as ATAK and GÖKBEY helicopters, HÜRJET and HÜRKUŞ trainer and light attack aircraft, ANKA Unmanned Aerial Vehicle, and GÖKTÜRK Satellite. Alongside the increase in the number of products in its portfolio in recent years, the number of employees of TAI increased from 3,242 to approximately 9,000 between 2009-2019.[179]

TAI's most ambitious project is the Turkish Fighter (TF) or TF-X project, which is planned to be a fifth-generation fighter aircraft. At the meeting of the Defense Industry Executive Committee on 15 December 2010, it was decided to start contract negotiations with TUSAŞ for the conceptual design of the Air Force Command in the first stage, as a project to develop the need for jet trainers and warplanes after the 2020s, using national resources. Preparations for HÜRJET, within the scope of the jet trainer project, and the TF, within the scope of the fighter aircraft project, began in 2011. Along with the F-35s, the TF was planned to replace the F-16s gradually starting from the year 2030. It was decided to proceed with the agreement between UK's BAE Systems for engineering support and TR Motor and Rolls Royce for its engine. Although it remains unclear whether the CAATSA sanctions will affect the TF project, as well as projects such as HÜRJET, ATAK, F-16 parts, MİLGEM, Turkey's removal from the F-35 program has increased the importance given to the TF for decision-makers. In 2018, under a Presidential Decree, the investment period of the project was agreed to be 15 years, the fixed investment was 5.7 billion TL, the number of additional people to be employed was 3,000, and the annual production number was 12 aircrafts.[180] It was also reported in the press that around 1,000 engineers were working on the project within TAI and that large investments such as a wind tunnel and a lightning test facility were being made.[181] Regardless of whether the TF project will progress as predicted or not, it is believed that this project will provide the industry with the experience and capacities required to produce a new generation of technologies and aircraft.[182]

Another product that has come to the fore in defense industry aircraft in recent years has been Unmanned Aerial Combat Vehicles (UACV). It is accepted that the success achieved in the design and production of UCAVs has contributed significantly to the modernization of Turkey's air warfare system. But perhaps more importantly, UACVs have also become a symbol of the development of

---

[179] https://www.fortuneturkey.com/fortune500?yil=2015&fcode=tusas---turk-havacilik-ve-uzay-sanayi-a-s--F277882#popup

[180] "TAI'nin MMU üretim tesisi yatırımı proje bazlı devlet desteği kapsamına alındı", Star, 3 August 2018, https://www.star.com.tr/teknoloji/tainin-mmu-uretim-tesisi-yatirimi-proje-bazli-devlet-destegi-kapsamina-alindi-haber-1371376/

[181] "Milli Muharip Uçağın Güç Grubunda Stratejik Adım Atıldı", C4 Defence, 14 February 2021, https://www.c4defence.com/milli-muharip-ucagin-guc-grubunda-stratejik-adim-atildi/.

[182] "Savunma Sanayii Başkanı Demir: Büyük Projeler ABD Yaptırımlarından Etkilemeyecek", Independent Türkiye, 21 December 2020, https://www.indyturk.com/node/288736/siyaset/savunma-sanayi-ba%C5%9Fkan%C4%B1-demir-h%C3%BCrjet-atak-f-16-par%C3%A7alar%C4%B1-ve-mi%CC%87lgem-gibi-b%C3%BCy%C3%BCk; "New Development in National Fighter Aircraft: Signed", Sabah, 14 February 2021.

the defense industry, the positioning of Turkey as a regional power, the military-technical transformation of the Turkish army, and its increased response capacity. For example, Francis Fukuyama claimed that the drones produced by Turkey had "changed the nature of interstate confli ts" and strengthened Turkey's efforts to become a regional power.[183] Turkey's UAV development process first started with the contract signed between SSM and TUSAŞ in 2004. Then, in 2009, Bayraktar Block A successfully completed its first automatic flight est. UAV development efforts gained momentum in the 2010s after the US decided not to sell the Predator and its larger variant, the Reaper, to Turkey. [184] GÖZCÜ mini UAVs produced by Baykar Makina at the end of 2014 entered the TAF inventory in 2007. There were 164 of them in the TAF and 20 in the General Directorate of Security. The Land Forces Command has used four MALAZGİRT rotary-wing UAVs produced by Baykar Defense since 2009. [185] The first UAVs have been used in various operations abroad since Operation Euphrates Shield in 2016. In 2019, the investment of 600 million TL to be made by Baykar Makina Sanayi A.Ş. was included in the Project-Based Incentive System through the decision of the Presidency. It was stated that Baykar Makina, which was announced to have increased its production capacity by three times as well as to have opened a new R&D center with this investment, and to have tax exemption during the investment period, would increase its Bayraktar TB2 production from 46 to 92 units per year.[186]

In particular, the place and performance of UACVs in the war against the Syrian army in the Operation Spring Shield in March 2020 attracted the attention of the international community. Again in 2020, the UACVs, which were activated in May through the military cooperation agreement signed with the Government of National Accord in Libya, significantly changed the course of the confli ts and the balance of power. In the last Nagorno-Karabakh War, the Azerbaijani army infli ted great losses on Armenian troops with Turkish and Israeli-made UACVs. The deployment of TB2 UACVs to Geçitkale Airport in Northern Cyprus and the start of reconnaissance-surveillance flights ver the entire Eastern Mediterranean from there were also an important factor in geopolitical competition in the region.[187]

The fact that TUSAŞ-produced ANKA-Ss and Baykar Defense's Bayraktar TB2s have been exhibited so much in the field in the last few years has increased the interest in these UACVs and made them competitive with their counterparts sold across the world, such as China and Israel.[188] Baykar Defense signed its first UACV

---

[183] Francis Fukuyama, "Droning On in the Middle East", April 5, 2020 American Purpose, https://www.american-purpose.com/blog/fukuyama/droning-on/.

[184] David Ax, "Turkey Has a Drone Air Force. And It Just Went to War in Syria", The National Interest, 2 March 2020, https://nationalinterest.org/blog/buzz/turkey-has-drone-air-force-and-it-just-went-war-syria-128752.

[185] İlker Akgüngör, "İlk Milli İHA'lar teslime hazır", 14 November 2014, Vatan, http://www.gazetevatan.com/ilk-milli-iha-lar-teslime-hazir-696958-gundem/.

[186] "Baykar, 600 Milyon Yatırım ile İHA Üretimini Artıracak", Savunma Sanayii Dergilik, 5 September 2019, https://www.savunmasanayiidergilik.com/tr/HaberDergilik/Baykar-600-milyon-yatirim-ile-iHA-uretini-artiracak.

[187] Arda Mevlütoğlu, "Türk Savunma Sanayiinin Dönüşümü", Perspektif Online, 17 April 2020, https://www.perspektif.online/turk-savunma-sanayiinin-donusumu/.

[188] Kareem Fahim, "Turkey's military campaign beyond its borders is powered by homemade armed drones", The Washington Post, 30 November 2020, https://www.washingtonpost.com/world/middle_east/turkey-drones-libya-nagorno-karabakh/2020/11/29/d8c98b96-29de-11eb-9c21-3cc501d0981f_story.html.

agreements with Qatar and Ukraine in 2018. In 2020, Libya and Azerbaijan joined the list of countries to buy Bayraktar TB2s. TUSAŞ, on the other hand, made an agreement to sell 6 ANKA-S vehicles to Tunisia for 240 million dollars in 2020. It was also reported in the press that four other countries, along with Pakistan, Malaysia, and Indonesia, are negotiating for the purchase of UACVs.[189] On the other hand, Vestel Defense signed an agreement to produce 6 Karayel UACVs in 2021 and 40 in the next five years in Saudi Arabia. Vestel is continuing the negotiations over sales with the UAE, Kuwait and Qatar.[190]

It is estimated that the global unmanned aerial systems market will reach over $13 billion by 2024 and that governments will spend $90 billion over the next decade to acquire these systems.[191] The Center for a New American Century UAV Database records that there are about 90 UAV user countries today, and that the number of UAV developer countries is increasing every year.[192]

This situation has also increased the appetite of Turkish UAV manufacturers. However, the continued dependence on foreign countries in terms of engines and other critical subsystems of UAVs such as the ALTAY tank and TF-X is the biggest challenge for development. For example, the TB2 uses the Rotax engine from Sweden and the Wescam MX-15d model cameras imported from Canada.[193] Canada suspended the export permit, claiming that the UAVs produced by Turkey had been used with disproportionate force in the war between Azerbaijan and Armenia in Karabakh. Canada also blocked exports for the duration of the Operation Peace Spring in Syria, but allowed exports again after the operation had ended.

Expanding Network of SMEs in the Defense Industry

The pyramid structure in the defense industry that expanded from the relatively few large companies at the top, to various SMEs along the bottom, was established in the 2000s.[194] After the cancellation of various ready-made or licensed production projects following a radical decision taken in 2004, which reached a total value of 11 billion dollars, domestic development projects began to be emphasized. Projects such as MİLGEM, ATAK, ALTAY, and ANKA became projects that had started as an outcome of this localization decision.

---

[189] Sinan Tavşan, "Turkey Begins to Rival China in Military Drones", Nikkei Asia, 7 October 2020, https://asia.nikkei.com/Politics/International-relations/Turkey-begins-to-rival-China-in-military-drones.

[190] Sibel Duz, The Ascension of Turkey as a Drone Power: History, Strategy, and Geopolitical Implications, Seta Analysis no. 65 (July 2020), p. 18-19.

[191] Yasin Kılıç, "İnsansız Hava Sistemleri için 10 yılda 90 Milyar Dolar", Teknolojiden Haber, 5 July 2020, https://www.teknolojidenbihaber.com/insansiz-hava-sistemleri-icin-10-yilda-90-milyar-dolar/.

[192] http://drones.cnas.org/reports/what-are-drones/

[193] Panos Hadjikomninos, "BAYKAR: Small Company, Great Ambition-1", Straturka, https://www.straturka.com/baykar-small-company-great-ambition-1/.

[194] In recent years, it has been observed that defense industry companies all over the world tend to transfer their sub-assembly lines to their suppliers and concentrate their own operations on design, assembly, and marketing to reduce costs. For example, while the share of SMEs among the suppliers of Europe's leading consortium EADS (European Aeronautic Defense and Space Company) is 65% in France, this ratio reaches 90% in Germany. See Tanyel Özelçi Eceral, "Türk Savunma ve Havacılık Sanayisinin Küresel, Ulusal ve Yerel Dinamikleri: Ankara Örneği", Akademik Bakış, vol 11, issue 21 (Winter 2017).

A second turning point in this direction came with the amendment made by the Undersecretariat for Defense Industry in the Industrial Participation and Offset (IP/O) Directive in 2011. Following this, the IP/O base increased from 50% to 70%, and the share of sub-industry and SMEs to a minimum of 30%.[195] After that year, the sector's development accelerated, and the number of companies that were both main contractors, subcontractors, and suppliers increased rapidly. The increase in defense expenditures, especially after 2017, gave a new impetus to the revival of the sector. For example, while there were 71 large companies in 2012, the number increased after 2016, reaching 119 in 2017, 540 in 2018, and 600 in 2019. The increase in the number of SMEs was 280% in these years.[196]

We can examine in closer detail some projects which refle t this transformation in the defense procurement as a development that widens the base of capital accumulation from large to small enterprises and opens up new accumulation opportunities. For instance, BMC manufactures KİRPİ armored vehicles that have 6,000 parts in partnership with 1,200 different companies. 5,200 of these parts are procured from SMEs.

While there are more than a thousand manufacturers supplying goods and services within the scope of this project, small industrial companies from Bursa, Çorum, and Kayseri are involved in the production processes.[197] In the MİLGEM project, it is reported that the rate of domestic producers involved in the process at different stages of production and service is 65%. In the construction process of TCG-Bayraktar, the first domestic landing ship tank built entirely in Turkey within the project's scope, the share of domestic manufacturers participating was 70%, and the share of the enterprise in SME status was 48%. Nearly 80 subcontractors are producing for TCG Istanbul, the fifth ship of the MİLGEM project. It is also emphasized that the number of contracted and commissioned companies is approximately 220, and most of the manufacturing companies are SMEs.[198] It was primarily under the leadership of TAFF that small companies were included in the defense industry network and had a share in this growing sector. For example, in 2020, approximately 70% of the companies that Roketsan worked with are SMEs, and the total number of suppliers located in 37 different provinces reached 1,710.[199]

ASELSAN seems to be particularly prominent in this regard. As a result of ASELSAN's preference for the sub-components of its products to be procured from domestic manufacturers, the purchase rate from domestic suppliers, which was 38% in 2008, reached 70% at the end of 2020. The orders given to SMEs have increased approximately six times in the last ten years and in 2020, nine out of

---

[195] For SSM guidelines setting out the offset policy, see Renkin Saliha Tan, "Sanayileşmede Yeni Dönem, Stratejik Offset Yönetimi", Savunma Sanayi Gündemi, issue 19, 2012.

[196] Bahadır Özgür, "Koç'tan Sancak'a: Türkiye'nin 'Savaş Makinası'", Gazete Duvar, February 23, 2021, https://www.gazeteduvar.com.tr/koctan-sancaka-turkiyenin-savas-makinasi-makale-1514116?fbclid=IwAR-1FAQWfP1Z70FLc8H5QND6BILhQu91CfQIxFe1aThKTVYoTPpg0t9X44

[197] Bahattin Gökhan Topal, "Türk Savunma Sanayiinin Kobi'lerin Gelişimine Etkisi: Kümelenme Örnekleri" Istanbul Commerce University Social Sciences Institute Unpublished Master Thesis, 2019, p. 81.

[198] "Milli Fırkateyn Türk Savunma Sanayiinde Kilometre Taşı Olacak", January 25 2021,

http://ssdergilik.com/tr/HaberDergilik/Milli-firkatayn-Turk-savunma-sanayiinde-kilometer-tasi-olacak.

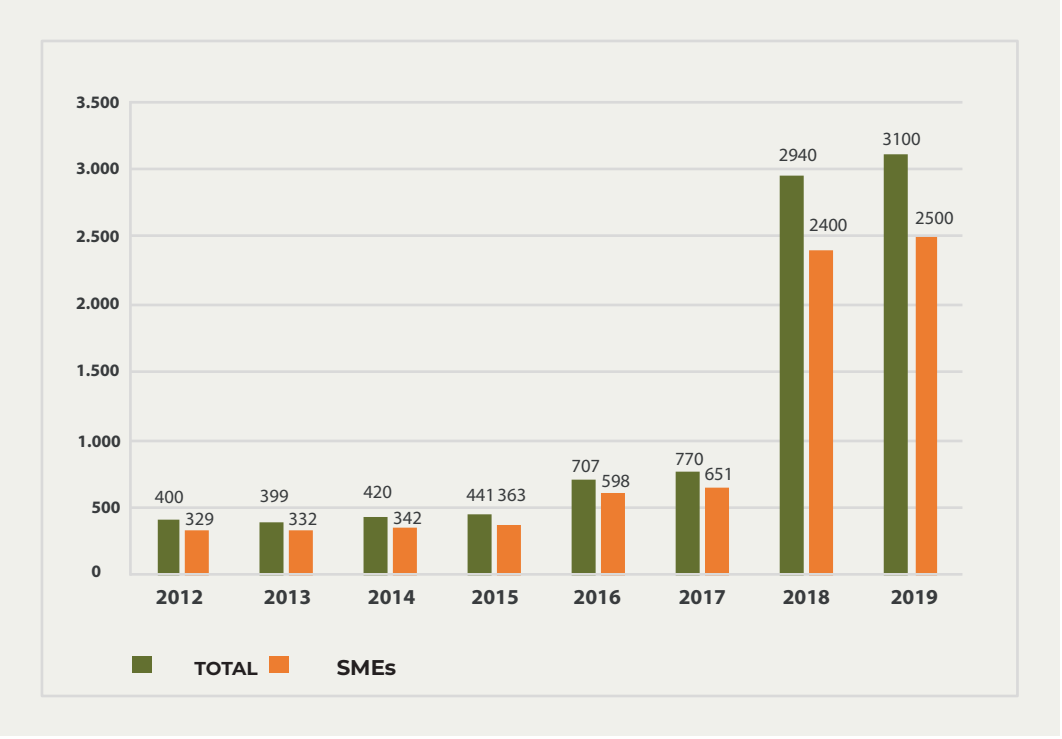
[199] "Savunma Sanayisine TÜBİTAK'tan 5 Milyar TL Destek", Hürriyet, 21 January 2021.

every ten orders were given to SME companies in domestic orders.[200] ASELSAN placed orders for 3,189 companies in 2020, of which 2,716 were SMEs. The value of open orders given to these companies exceeded $1.5 billion, and a total of $890 million was paid in 2020.[201] Graph 25 shows the number of companies that ASELSAN gave projects to, and their distribution by years as the main company and subcontractor. The total value of ASELSAN's orders to domestic SMEs was $62 million in 2008, which increased to $410 million in 2016. These figures show the surge in the number of orders given to SMEs in the last decade.

ASELSAN gathers various SMEs located in Anatolian cities such as Konya, Kayseri, Sivas, Malatya, and Elazığ around a common project, develops partnerships with these companies, and encourages them to establish companies (see. Table 9). For example, ASELSAN, which established a partnership with a group of businessmen from Sivas, and Yıltaş Group in 2014, opened a production facility in Sivas to develop precision optical technology for ultraviolet, visible, and near-infrared bands.[202]

Another example is ASELSAN Konya Silah Sistemleri A.Ş., which was founded on November 22, 2018. ASELSAN owns 51%, and Konya Silah Sistemleri A.Ş. owns

Graph 25: Number of Companies with Projects by ASELSAN



Source: Bahadır Özgür, "Koç'tan Sancak'a Türkiye'nin 'Savaş Makinası'", https://www.gazeteduvar.com.tr/koctan-sancaka-turkiyenin-savas-makinasi-makale-1514116 [203]

[200] Mehmet Kaya, "ASELSAN, 750 Ürün İçin KOBİ Arıyor", Dünya, 11 February 2021, https://www.dunya.com/sirketler/aselsan-750-urun-icin-kobi-ariyor-haberi-610554.

[201] "Aselsan her 10 Siparişten 9'unu Kobilere Veriyor", January 17 2021, http://ssdergilik.com/tr/HaberDergilik/ASELSAN-her-10-siparisten-9-unu-KOBi-lere-veriyor.

[202] "Kızılötesi Optik Tesisinin Temelleri Sivas'ta Atıldı", Dünya, 16 March 2014, https://www.dunya.com/sirketler/kizilotesi-optik-tesisinin-temelleri-sivas039ta-atildi-haberi-241060.

[203] We thank Bahadır Özgür for sharing the data.

49% of the company, which produces various parts of the Altay tank as well as the weapon systems used on land and sea platforms.[204] The construction of the factory, which covers an area of 300,000 square meters in Konya's organized industry zone, is continuing. Konya Silah Sistemleri A.Ş. which ASELSAN is in a partnership with, consists of 24 different merged companies. The largest partner is Koyuncu Nakliye Pazarlama, which operates five fuel stations. Besides Fiat's Konya dealership, this company sells second-hand cars and operates vehicle inspection stations on behalf of TÜVTÜRK in 21 provinces. It owns 18 small-scale solar power plants in Konya and Nevşehir. The company's biggest business is the facility established in Lake Tuz. This company, which operates in the salt, fuel, and auto dealership business, is now expanding into the defense industry thanks to ASELSAN. The situation of other partners whose shares are at different levels is also similar. Among them, the number of companies related to the defense industry is only three. These SME companies also manufacture simple weapons such as shotguns and pistols. Some of the remaining companies are listed as follows: ABC Kavafiye Konfeksiyon, Mges Enerji ve İnşaat, Beşel Endüstriyel Gıda, Ömer Atiker Yakıt Sistemleri İthalat, Enka Süt ve Gıda, Filkar Otomotiv, Konya Saraylı Madeni Eşya İmalat.[205] This example shows how attractive the defense industry, which has become even more profitable with the increase in armament expenditures both in Turkey and globally, has turned out to be. It has become even more attractive as a new accumulation area in recent years since the Turkish economy has entered into a serious conjuncture of crisis. It should be underlined that small and medium-sized capital groups, which constitute the base of the government, are being organized and encouraged to enter this field.

One method used in recent years to encourage sub-industry and SMEs to operate in the fields of defense, security, aviation, and space has been the establishment of industrial clusters that aim to bring them together, organized through common areas. For example, the Teknokent Defense Industry Cluster (TSSK), established in Ankara in 2010, has 144 members and carries out more than 600 projects. In recent years TSSK companies have contributed to many projects in the defense industry in Turkey. Software, hardware, and systems prepared by TSSK members are used in the unmanned aerial vehicle ANKA, the attack and tactical reconnaissance helicopter ATAK, the main battle tank ALTAY, the corvette-type military ship MİLGEM and the high-definition earth observation satellite Göktürk-2. In TSSK member companies, more than 2,100 personnel are employed, and nearly 550 active R&D projects are carried out for the defense industry. The exports of these cluster members, whose products are used in more than 40 countries, was worth 135 million dollars last year. The annual turnover of TSSK members reached 1.4 billion TL.[206]

Again, OSTİM Defense and Aviation Cluster (OSSA), established in Ankara, has 191 members. A significant portion of the turnovers of cluster member SMEs comes from the revenues generated by the defense industry. Most of the companies

[204] https://www.aselsankonya.com.tr/urunlerimiz

[205] Bahadır Özgür, "İnşaat durdu, silah ya Resulullah!", Gazete Duvar, 12 January 2020, https://www.gazeteduvar.com.tr/yazarlar/2020/01/21/insaat-durdu-silah-ya-resulullah.

[206] Göksel Yıldırım, "Savunmadaki kümelenme ihracatta örnek oldu", Anadolu Ajansı, 26 November 2018, https://www.aa.com.tr/tr/ekonomi/savunmadaki-kumelenme-ihracatta-ornek-oldu/1321444.

Table 9: ASELSAN Subsidiaries

SUBSIDIARIES	FOUNDATION YEAR / PARTNER	PROVINCE	ASELSAN SHARE
DOMESTIC SUBSIDIARIES			
ASELSANNET Elektronik ve Haberleşme Sistemleri Sanayi Tic.	2004	ANKARA	100 %
Mikroelektronik Ar-Ge Tasarım ve Tic. Ltd. Şti.	2010	İSTANBUL	85 %
TÜYAR Mikroelektronik Sanayi ve Ticaret A.Ş.	2017	KOCAELİ	51 %
ASELSAN Hassas Optik San. ve Tic. A.Ş	2014	SİVAS	50 %
ASELSAN Bilkent Mikro Nano Tek. San. ve Tic. A.Ş.	2014	ANKARA	50 %
ROKETSAN Roket San. ve Tic. A.Ş.	1988	ANKARA	14,90
ASPİLSAN Askeri Pil San. Tic. A.Ş.	1981	KAYSERİ	1 %
ASELSAN Konya Silah Sistemleri A.Ş EHSİM Elektronik Harp Sistemleri	2018	KONYA	51 %
Mühendislik Ticaret A.Ş.	2019	ANKARA	50
TR Eğitim ve Teknoloji A.Ş.	2019	ANKARA	50 %
ASELSAN GLOBAL Dış Ticaret ve Pazarlama A.Ş.		ANKARA	100 %
BİTES Savunma Havacılık ve Uzay Teknolojileri Yazılım Elektronik Ticaret A.Ş	2019	ANKARA	51 %
ULAK Haberleşme A.Ş.	2017	ANKARA	51 %
TEKNOHAB Teknoloji Geliştirme Bölgesi Yönetici A.Ş.	2018	ANKARA	30 %
OVERSEAS SUBSİDİARİES			
ASELSAN Bakü Şirketi	1998	AZERBAYCAN	100 %
ASELSAN Malaysia Sdn. Bhd.		MALEZYA	100 %
SADEC LLC.	2016	SUUDİ ARABİSTAN	50 %
ASELSAN Middle East PSC.	2012	ÜRDÜN	51 %
IGG ASELSAN Integrated Systems LLC.	2011	BAE	49 %
Kazakhstan ASELSAN Engineering LLP.	2011	KAZAKİSTAN	50 %
BARQ QSTP LLC.	2018	KATAR	48 %
BRANCHES			
ASELSAN Güney Afrika	2011		
ASELSAN Makedonya	2014		

Source: ASELSAN 2019 Annual Report, https://www.aselsan.com.tr/2019_Faaliyet_Raporu_3771.pdf

in the cluster take their place as an approved sub-supplier of the main industry companies such as ASELSAN, HAVELSAN, TAI, TEI, Roketsan, FNSS, Boeing, Sikorsky etc. According to a survey conducted in 2017 among 97 defense and aerospace industry subcontractors established in OSTİM, 40% were established between 1980-2000 and 43% after 2000.[207]

Bursa Aerospace and Defense Cluster (BASDEC), founded in 2013, has 84

[207] Tanyel Özelçi Eceral, "Türk Savunma ve Havacılık Sanayisinin Küresel, Ulusal ve Yerel Dinamikleri: Ankara Örneği", Akademik Bakış, vol 11, issue 21 (Winter 2017).

Table 10: ISO 500 Defense Industry Companies

COMPANY NAME	NET SALES						
	1993	1995	2000	2005	2010	2015	2019
Mercedes-Benz Türk A.Ş.	6.983.973	21.015.504	430.449.866	2.137.058.932	3.484.149.812	9.947.666.693	13.861.490.342
Aselsan Elektronik San. ve Tic. A.Ş.	1.633.063	6.728.061	140.592.016	428.660.820	982.149.357	2.865.076.885	12.595.553.084
TUSAŞ-Türk Havacılık ve Uzay Sanayii A.Ş.	747.818	3.145.054	29.493.336	119.334.911	870.022.305	2.142.130.107	8.765.163.423
Otokar Otomotiv ve Savunma Sanayi A.Ş.	997.030	5.654.466	75.811.152	289.203.863	548.246.783	1.235.130.265	2.423.121.030
BMC Otomotiv San. ve Tic. A.Ş.	3.433.090	9.207.202	154.822.897	743.260.611	645.026.589		3.550.925.013
ROKETSAN Roket San. ve Tic. A.Ş.					254.319.257	758.584.283	2.579.934.966
Makina ve Kimya Endüstrisi Kurumu Gen. Müd.	7.983.832			456.063.907	650.553.793	963.873.699	2.585.363.506
TUSAŞ Motor Sanayii A.Ş.		1.440.612	40.130.716	141.342.679	418.047.545	841.005.841	2.314.708.848
HAVELSAN Hava Elektronik San. ve Tic. A.Ş.				122.326.863	186.276.326	498.416.717	1.559.267.804
Hema Endüstri A.Ş.	532.310	1.985.128	37.803.616	272.543.769	273.319.595	678.548.246	1.023.739.523
FNSS Savunma Sistemleri A.Ş.			22.250.720		171.047.624	514.806.491	1.991.335.963
DYO Boya Fabrikaları San. ve Tic. A.Ş.		2.596.986	30.631.031	197.842.889	292.052.750	690.224.619	1.133.316.872
Coşkunöz Metal Form Makina Endüstri ve Ticaret A.Ş.		1.196.416	18.550.714	120.710.567	257.188.853	564.570.616	893.461.415
Alp Havacılık San. ve Tic. A.Ş.							910.051.978
Akbaşlar Tekstil Enerji San. ve Tic. A.Ş.			30.861.438	126.559.989	160.196.714	323.422.633	691.389.826
Nurol Makina ve Sanayi A.Ş. (93'de Nurol Sav. San. A.Ş)	1.629.421						1.443.107.328
NETAŞ Northern Elektric Telekomünikasyon A.Ş.	3.990.118	7.384.093	150.025.462	161.694.021	223.993.999		
YAKUPOĞLU Tekstil Ve Deri San. Tic. A.Ş.						260.565.602	532.688.134
ÖZTİRYAKİLER Madeni Eşya San. Ve Tic. A.Ş.					175.221.775	291.150.555	587.199.105
SİMKO Ticaret Ve San.A.Ş.	3.430.152						
MKEK Mühimmatsan Mühimmat San. ve Tic. A.Ş. GM			50.047.470				
MKEK Fişeksan Fişek Sanayi Ve Ticaret A.Ş.			45.554.180				

Source: http://www.iso500.org.tr/iso-500-hakkinda/gecmis-yil-verileri/

members. BASDEC takes part in the projects of domestic and foreign companies such as SSM, TAI, TEI, Roketsan, HAVELSAN, ASELSAN, THY Teknik, Airbus, Boeing, which are most of the companies operating in the automotive sub-industry.[208] Aerospace Cluster Association (ACA), founded in 2009 in Izmir, has 49 corporate members. Although it accepts members from all over Turkey, most of the association members are SMEs in and around İzmir.

The largest cluster in the defense industry is the Turkish Defense and Industry Cluster, Istanbul (SAHA), which has 566 members. The head of this cluster is Haluk Bayraktar, the General Manager of UACV manufacturer Baykar Defense and also a member of the TÜBİTAK Board of Directors. The members of SAHA Istanbul work under main topics such as composite textile and chemistry, testing and certification, electronic software, special alloys, machinery and metal, electromechanical, and automation systems. They carry out activities in UR-GE, UR-GE2, HATEM, SAYEM, ARELPOTKAM, MİHENK, BİLİŞİM, MÜRGEMER, EYDEP, and MINI MBA projects.[209] Under the leadership of Baykar, who is not a member

[208] BASDEC Catalogue, 2019, http://www.basdec.org/UserFiles/Dosyalar/1.pdf.

[209] https://www.sahaistanbul.org.tr/hakkimizda/; See also Bahattin Gökhan Topal, "Türk Savunma Sanayiinin Kobi'lerin Gelişimine Etkisi", p. 116-117.

of SASAD, SAHA is rapidly growing and undergoing a transformation from being a cluster of defense and aerospace companies in Istanbul to a national umbrella organization.[210]

We see that the number of organized industrial zones specific to the defense industry have increased, as well as the clusters aiming to "create a suitable environment for SMEs to get more involved in the sector" by bringing together large companies, public institutions, development agencies and universities with SMEs. For example the "Ankara Aerospace Industrial Zone (HAB)", established on an area of approximately 730 hectares adjacent to the TAI campus in Ankara Kahramankazan and with 60% partnership of the SSB, is one of the most advanced examples of this.[211] To turn Kırıkkale into a sub-industry center for weapons and ammunition production, Kırıkkale Arms Specialization Organized Industrial Zone was established with 15% participation of the SSB.[212] In addition, similar structures were established in organized industrial zones in Konya, Elazuğ, and Sivas. Events such as the Konya Defense Industry Summit and the Aegean Defense Industry and Suppliers Summit, whose numbers are increasing day by day in Anatolia, were also part of the efforts to ensure cooperation between the main contractors, the subcontractors and SMEs. ■

[210] Arda Mevlütoğlu, "Savunma ve Havacılık Sanayii 2019 Performans Raporu ve Bazı Değerlendirmeler", Siyah Gri Beyaz, 24 July 2020, https://www.siyahgribeyaz.com/2020/07/savunma-ve-havaclk-sanayii-2019.html.

[211] According to MUSIAD's former Head of Ankara Branch İlhan Erdal, HAB (Ankara Aerospace Industrial Zone) is important for Ankara as Kanal Istanbul is. See Vuslat Ay, "Ankara uzay sanayisi üssü olacak", Sabah, February 19, 2018; "İşte Kanal İstanbul`dan Sonra Türkiye`nin En Büyük 2. Projesi" Emlak Pencerem, 19 February 2018, https://www.emlakpencerem.com/iste-kanal-istanbul-dan-sonra-turkiye-nin-en-buyuk-2-projesi/98733/.

[212] SSB, 2018-2022 Savunma Sanayii Sektörel Strateji Dokümanı, p. 8-11.

CONCLUSION

The Turkish defense industry has recently attained an increasingly important place on the agenda of both politicians and the public. While one of the main pillars of the regime's "Great Turkey" discourse is Turkey's crossing the threshold of economic development, another is becoming a regional power and, accordingly, an active player involved in foreign policy. The military-industrial complex is located at the intersection of these two trivets. It is widely understood that being a regional power requires not staying on the sidelines of regional military confli ts, and therefore having an effective military force. This requires the construction of a self-sufficient "domestic and national" defense industry. Such a defense industry, with impacts ranging from R&D investments to enhanced export capacity as an economic power, is being presented as Turkey's trademark in line with this political orientation.

This approach to the defense industry is not only limited to the discursive level. Indeed, the defense industry, which became a serious sector of development in the mid-1980s but gained its real momentum after the 2000s, has shown remarkable progress in economic terms.

Undoubtedly, the development of the defense industry is closely related to the development of defense expenditures. For this reason, in the first part of the report, we focused on Turkey's course of defense expenditures using existing studies and data sets. The extra-budgetary Defense Industry Support Fund has had a significant impact on defense expenditures in Turkey, especially on the resources spent on defense industry projects. But the inability to obtain chronological and regular data on the fund's expenditures makes comparative calculations difficult. Nevertheless, we can detect that defense expenditures have shown an almost continuous upward trend since 1980. In the first decade of the 2000s (especially between 2000 and 2008), budgetary defense expenditures displayed a downward trend when calculated on YTL basis, but the ups and downs in this period remained within a fairly narrow range. A continuous and regular increase can be observed on a dollar basis, and the expenditures made from non-budgetary SSDF resources compensated for the decrease in defense expenditures made from the budget. In this period, the decrease in personnel expenditures due to the reduction in the number of military personnel was the determining factor in the decrease in budgetary defense expenditures. In contrast, defense industry production projects and acquisitions, within which SSDF expenditures fl w, were not affected by this decline. Defense expenditures re-entered a partial upward trend between 2008-2014 and a remarkable increase after 2015.

Another important phenomenon observed in the post-2002 period is the significant increase in domestic security expenditures, especially in the police force. At the NATO summit held in Wales in 2014, it was decided to increase the ratio of member countries' defense expenditures to their Gross Domestic Product to 2% and equipment spending at least to 20% of the total defense budget. This decision has also been an important factor affecting the developments in Turkey in recent years.

Although the desire to develop the military industry in Turkey dates back to the Republic's first years, it experienced its main momentum after 1985. In the context of the “Modernization of the Armed Forces project” announced in 1985, the acquisition of advanced military equipment and increase in the share of domestic production in the military industry was targeted. With this aim in mind, the most important legal-institutional regulation has been the establishment of SSM and SSDF as an extra-budgetary resource. SSDF has created a very decisive financial resource for the purchase and, more importantly, the production of military equipment. A defining feature of this period was that large companies affiliated with TAFF, some of which date back to the second half of the 1970s, had a decisive position in the sector (one-third of the sector's total turnover by 2000). However, as the sector developed financially, other large-scale capital groups began to participate in the sector in the 1990s. When the distribution of the total turnover of the Turkish defense industry as of 2008 is considered, the weight of private companies is 36%, TAFF is 33%, and public sector is 31%.

Although various efforts had been made to increase the share of domestic production in the military industry since the 1980s, the rate of domestically meeting the needs of the TAF was still only around 25% in 2003. In 2004, in order to reduce foreign dependency in armaments to 50%, the model based on supply agreements established through joint production was abandoned and a model focused on domestic weapons production was adopted. Since this date, the financial size of the defense industry has increased tremendously. The rate of domestically meeting the needs of the TAF increased to 65% in 2018, and the target for 2023 was determined to be 75%. While the turnover of the sector, which was $1,337 million in 2004, increased to $3,707 million in 2010 and $10,884 million in 2019, the target for 2023 has been set as $26,900 million. Similarly, the total number of projects carried out by SSB (formerly SSM) was 84 in 2004, 269 in 2010, and 667 in 2018. The total contract value of these projects increased from $7,957 million in 2004 to $24,462 million in 2010 and $60 billion in 2018. With the ongoing projects taken into consideration, the total contract value is expected to reach $75 billion.

A similar trend is also evident in the export capacity of the sector. Turkey's defense industry exports increased from $196 million in 2004 to $853 million in 2010 and to $3,068 million in 2019. Although there has been a decrease in concentration in the exports of defense industry products in the world since the end of the 1990s this has opened space for new exporting powers in the market. This has led to such an increase in the export capacity of the Turkish defense industry, that Turkey is now able to compete in the field of relatively low technology products in the international market. Uncertainties in the international political arena and, as illustrated by the latest CAATSA sanctions, the occasional trade restrictions resulting from Turkey's alienation from its NATO allies, are potential obstacles to the development of defense industry exports.

Although Turkey has made great strides since the 1990s in meeting defense procurement from within, this does not mean that Turkey's defense industry has significantly reduced its foreign dependency and approached its target of self-sufficiency. The form of import dependency in the defense industry has shifted

from ready-made weapon platforms to the supply of high-tech and cost-effective subsystems and components for domestic production such as engines and electro-optical sensors. The increase in the defense and aviation sector imports, from $1,409 million in 2012 to $3,088 million in 2019 shows that the share of imports in the total turnover of the sector has not changed.

Although the R&D expenditures of the sector are increasing, they are still far from making a significant technological breakthrough and reaching levels that will make Turkey more competitive in the international arms market. Defense and aerospace R&D spending, which was around $50 million in 2002, increased to $1,672 million in 2019. However, the share of Turkey's defense R&D investments of national income is only around 0.06%.

One of the most difficult areas to find reliable data on regarding the Turkish defense industry is the intra-sector shares of capital groups in the sector and the in-sector structuring of capital groups. Companies operating in the defense industry can be bracketed into three groups in terms of market share, size, revenues, employment, and technology investments. The first group consists of large companies such as ASELSAN, TAI, Roketsan, MCIC, HAVELSAN, Otokar and FNSS, which carry out major defense projects and are the main contractors in the supply of defense needs. Companies in this group, affiliated to TAFF, still hold significant power. This group also includes public companies such as MCIC, STM, and private sector groups such as Otokar, FNSS, Nurol, and BMC. The second group consists of defense industry companies such as STM, SDT, Savronik, Alp Aerospace, HMS. These can be the main contractors in medium-sized projects but mostly work as subcontractors of the main contractors in large projects and undertake the task of developing and producing the sub-systems and delivering them to the main contractor. The third category are companies that directly supply parts and components for small defense needs to the Turkish Armed Forces or the companies in the first and second categories. Most of these companies do not only work in the defense industry, but are SMEs that mainly produce for other sectors as well. The growth of the defense industry market has increased the desire of these third group companies to become subcontractors in the defense industry. At the top of the Turkish defense industry sector, the first group displays an oligopolistic structure, within which a certain division of labor and partial competition are evident.

The private sector companies in the Turkish defense industry are mostly working in the land and naval sub-sectors. In these sub-sectors, which constitute the leading product segment in terms of both turnover and export amount, the intense competition between companies and their ties with the government in recent years is striking. The sector with the most intense competition is the armored land vehicles. Based on ISO data, the main companies such as BMC, Otokar, FNSS, and Nurol are in the same net sales segment (under and around 5 billion TL). In the context of their relations with political power, some companies, such as Otokar, which had been excluded from public tenders and had difficulties in finding a share in the domestic market, turned to exports and foreign investments. Companies that are more closely related to political power, such as BMC, benefit much more from public tenders.

In areas such as the development, modernization, and production of aviation and space industry systems where competition is much less due to high technology and costs in aircraft; the design and manufacture of fixed and rotary-wing platforms; and the production of engine and engine parts, those companies affiliated to TAFF continue to dominate due to their capital size and their seniority in the sector. A new niche in the aviation sub-sector, both in terms of military strategy and the economy, can be observed in UAV production. The rapid development of the global unmanned aerial systems market and the performance of the armed and unarmed UAVs produced by Turkey since 2016 for domestic and international operations have generated intense interest in these aircraft, both internationally and among the Turkish public. Another factor behind this interest is that Baykar Defense, the largest manufacturer of unmanned aerial vehicles together with TUSAŞ, belongs to the family of the President's son-in-law. This discourse of great success about unmanned aerial vehicles has caused politicized discussions that make it impossible to find accurate information about the level of foreign dependency, in the context of UAVs' engines and other critical subsystems.

Efforts to meet Turkey's defense procurement domestically have led to a development that has seen the widening of the base of capital accumulation from large companies at the top to subcontractors below and the SMEs which are finding a place in the sector as subcontractors. In the last decade in particular, both the increase in defense expenditures and the steps taken to increase industry participation and offset rates, in combination with the crisis conjuncture that the Turkish economy has entered, has accelerated the entry of small enterprises into the defense sector, which promises relatively high profits. The companies affiliated with TAFF and the public sector's industrial clusters and OIZ practices can be seen as effective in directing SMEs to the fields of defense, security, aviation, and space. This situation also refle ts the emphasis of the defense industry in terms of transforming it into a capital accumulation model to enable it to survive and strengthen its legitimacy during a structural crisis. In order to evaluate whether defense industry investments will have such a function, further studies based on the capital groups and companies, in other words an analysis of the transition from the macro-level to micro-level, are required. ■

A Political-Economic Map of The Turkish Defense Industry

CITIZENS ASSEMBLY
YURTTAŞLIK DERNEĞİ

HEINRICH BÖLL STIFTUNG
TURKEY