

I. Global developments in military expenditure, 2021

NAN TIAN, XIAO LIANG, DIEGO LOPES DA SILVA AND
ALEXANDRA MARKSTEINER

Global military expenditure is estimated to have reached US\$2113 billion in 2021.¹ This was the first time that global spending on military activities had surpassed \$2 trillion, and in real terms it was higher than at any time since the end of the cold war.² The 2021 total was 0.7 per cent higher in real terms than in 2020 and 12 per cent higher than in 2012. The increase in 2021 represented the seventh consecutive year of increases in military spending.

Global military expenditure as measured in current 2021 US dollars was substantially higher than the total measured in 2020 constant US dollars (see table 8.1). This large discrepancy is related to the depreciation of the US dollar against major global currencies in 2021 (see box 8.1). The loss in value of the US dollar against the majority of currencies meant that the 2021 financial value of military expenditure once converted from local currency to US dollars using 2021 exchange rates was much higher than when using 2020 exchange rates (on SIPRI's definition, sources and methods for calculating military expenditure see box 8.2 at the end of this section).

The global military burden—that is, world military expenditure as a share of world gross domestic product (GDP)—is estimated to have been 2.2 per cent in 2021. After a global recession caused by the Covid-19 pandemic in 2020, when world GDP fell by 3.1 per cent, a sharp economic rebound was estimated for 2021, with global GDP projected to rise by 5.9 per cent.³ As a result, the global military burden fell by 0.1 percentage point. Military spending per capita rose for the fifth consecutive year in 2021, up to \$268 from \$256 in 2020, as the growth in nominal military spending continued to surpass projected world population growth (1.0 per cent). In 2021, countries appropriated an average of 5.9 per cent of their government budgets to the military, the same as in 2020, but well below the level of 6.4 per cent in 2012.

Military expenditure rose in 2021 in three of the five geographical regions (see figure 8.1 and section II). The rate of increase was highest in Asia and Oceania, at 3.5 per cent, taking the estimated regional total to \$586 billion in 2021. This was followed by Europe, with an overall increase of 3.0 per cent to \$418 billion, and Africa, with growth of 1.2 per cent to \$39.7 billion.

¹ All figures for spending in 2021 are quoted in current 2021 United States dollars. Except where otherwise stated, figures for increases or decreases in military spending are expressed in constant 2020 US dollars, often described as changes in 'real terms' or adjusted for inflation.

² Of the 168 countries for which SIPRI attempted to estimate military expenditure in 2021, relevant data was found for 152. See the notes in table 8.1 for more details on estimates in world and regional totals.

³ International Monetary Fund (IMF), *World Economic Outlook: Recovery during a Pandemic—Health Concerns, Supply Disruptions, and Price Pressures* (IMF: Washington, DC, Oct. 2021), p. 5.

Table 8.1. Military expenditure and military burden, by region, 2012–21

Figures for 2012–21 are in US\$ b. at constant (2020) prices and exchange rates, unless otherwise stated. Figures for 2021 in the right-most column, marked *, are in current US\$ b. Figures may not add up to the given totals because of the conventions of rounding.

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2021*
World total	1 791	1 757	1 751	1 779	1 787	1 810	1 859	1 932	1 992	2 007	2 113
<i>Geographical regions</i>											
Africa	(36.0)	38.4	40.0	(38.4)	37.1	36.5	34.7	35.8	36.4	(36.9)	(39.7)
North Africa	(14.0)	15.9	17.0	(17.3)	(17.4)	(16.9)	(16.4)	(17.4)	(18.3)	(18.0)	(19.6)
Sub-Saharan Africa	(21.9)	22.5	23.0	(21.1)	19.8	19.7	18.4	18.4	18.1	18.8	20.1
Americas	883	821	776	761	758	757	779	819	856	846	883
Central America and the Caribbean	6.3	6.7	7.0	6.8	7.4	7.0	7.6	8.4	10.2	10.0	11.0
North America	835	771	724	711	709	706	726	766	802	792	827
South America	42.1	43.9	44.4	43.9	41.9	44.2	45.2	44.5	44.3	44.1	45.3
Asia and Oceania	374	391	411	435	456	477	495	519	534	553	586
Central Asia	1.5	1.7	1.7	1.7	1.6	1.5	1.6	2.0	1.8	1.7	1.8
East Asia	249	262	277	294	306	320	337	354	368	386	411
Oceania	22.0	21.9	23.6	25.8	28.2	28.3	28.0	29.1	30.5	31.6	35.3
South Asia	67.0	66.8	70.6	71.7	78.0	83.4	87.8	92.7	90.1	90.8	95.1
South East Asia	34.7	38.2	37.9	41.6	42.2	43.9	40.7	41.9	44.3	43.2	43.1
Europe	329	324	327	336	348	339	346	364	381	393	418
Central and Western Europe	266	257	255	258	266	272	280	294	310	319	342
Eastern Europe	63.8	66.7	71.9	77.7	81.6	66.9	65.7	69.2	71.5	73.2	76.3
Middle East	169	183	196	(208)	(188)	(201)	(205)	(195)	(184)	(178)	(186)
<i>World military spending per capita (current US\$)</i>	245	242	239	229	226	233	240	247	256	268	
<i>Average military spending as a share of total government expenditure (%)^a</i>	6.4	6.5	6.4	6.4	6.4	6.4	6.2	6.3	5.9	5.9	

Military burden^b

World	2.3	2.3	2.2	2.3	2.2	2.1	2.2	2.3	2.2
Africa	1.8	1.9	2.2	1.8	1.9	1.6	1.7	1.7	1.6
Americas	1.5	1.5	1.4	1.4	1.4	1.4	1.5	1.5	1.4
Asia and Oceania	1.6	1.6	1.7	1.8	1.8	1.7	1.7	1.8	1.7
Europe	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.8	1.8
Middle East	4.6	4.7	4.8	5.4	5.3	4.7	4.6	4.7	4.3

() = total based on country data accounting for less than 90% of the regional total.

Notes: The totals for the world and regions are estimates, based on data from the SIPRI Military Expenditure Database. When military expenditure data for a country is missing for a few years, estimates are made, most often on the assumption that the rate of change in that country's military expenditure is the same as that for the region in which it is located. When no estimates can be made, countries are excluded from the totals. The countries excluded from all totals here are Cuba (Americas); Djibouti, Eritrea and Somalia (Africa); North Korea, Turkmenistan and Uzbekistan (Asia and Oceania); and Syria and Yemen (Middle East). Totals for regions cover the same groups of countries for all years. The SIPRI military expenditure figures are presented on a calendar-year basis, calculated on the assumption of an even rate of expenditure throughout the financial year. Further detail on sources and methods can be found in box 8.2 and 'Sources and methods' for the SIPRI Military Expenditure Database on the SIPRI website.

^a These figures represent the average budget shares that countries (for which data was available) allocated to their militaries.

^b The military burden of a country is its military spending as a share of its gross domestic product (GDP), both measured in current US dollars. The military spending of a region is the average military burden of the countries in the region for which data is available. The world military burden is world military spending as a share of world GDP.

Sources: SIPRI Military Expenditure Database, Apr. 2022; International Monetary Fund, World Economic Outlook Database, Oct. 2021, <<https://www.imf.org/external/pubs/ft/weo/2021/02/weodata/index.aspx>>; International Monetary Fund, International Financial Statistics Database, Sep. 2021, <<http://data.imf.org/IFS/>>; and United Nations, Department of Economic and Social Affairs, Population Division, 'World population prospects 2019', Aug. 2019, <<https://population.un.org/wpp/Download/Standard/Population/>>.

Box 8.1. Variations in economic data and associated consequences for military expenditure data

Depreciation in the US dollar

For comparability purposes, SIPRI provides global military expenditure estimates in US dollars. In 2021 a combination of lower interest rates and high inflation (as measured by the consumer price index, CPI) in the United States resulted in substantial depreciation of the US dollar against all major currencies. This, in combination with higher than usual CPI inflation in many countries, led to significant numerical differences in global, regional and country-level military expenditure when comparing 2021 spending using constant 2020 US dollars versus current 2021 US dollars. For example, measured in current 2021 US dollars, China's military spending amounted to \$293 billion in 2021, while it was only \$270 billion when measured in constant 2020 US dollars (see section II).

Data reliability: Gross domestic product

A significant development in 2021 was the decrease in the quality and availability of comparable data on gross domestic product (GDP). International Finance Statistics (IFS) from the International Monetary Fund (IMF) is the most reliable source of GDP data. In the IMF's most recent data release, actual GDP data for 2020 was only available for 68 countries. The majority of GDP data for 2020 and all of the GDP data for 2021 is based on estimates provided by the IMF World Economic Outlook (WEO). This substantially affects analysis of military burden as a result, since most GDP data used in calculating military burden is based on estimates.

For the Middle East, estimated military spending in 2021 fell by 3.3 per cent to \$186 billion, and in the Americas spending was down by 1.2 per cent to \$883 billion.

This section continues by providing an updated assessment of the impact of the Covid-19 pandemic on military expenditure, covering such topics as the affordability of military spending, government priorities and the renewed discussions taken up by the United Nations on military spending reductions. It then describes the global trends in military expenditure over the period 2012–21 and identifies the 15 countries with the highest military spending in 2021. Regional and subregional trends and the spending of individual countries are discussed in section II.

Military burden, government priorities and reductions in military expenditure

One of the striking observations in the aftermath of the first year of the Covid-19 pandemic was the opposite directions taken by global GDP on the one hand and global military expenditure on the other.⁴ In 2020, as the world contended with the worst economic fallout since the great depression of 1929, military spending rose by 3.1 per cent, to almost \$2 trillion. As the world's economy fell while military spending rose, the result was the biggest annual

⁴ See Tian, N. et al., 'Global developments in military expenditure 2020', *SIPRI Yearbook 2021*.

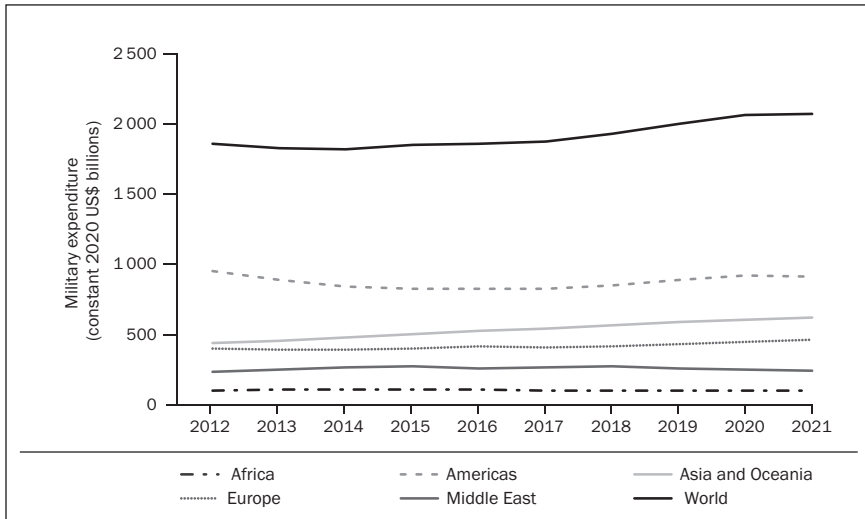


Figure 8.1. Military expenditure, by region, 2012–21

Source: SIPRI Military Expenditure Database, Apr. 2022.

increase in global military burden since the global financial and economic crisis in 2009. In other words, there was a sharp and substantial rise in the burden of military activities on the economy.

One year on, 2021 marked a significant turnaround and a resumption of the declining trend in military burden of 2015–18. While most countries continued to allocate more resources to military expenditure, the International Monetary Fund (IMF) estimates that there was a substantial recovery in the global economy, surpassing the growth of military spending.⁵ As a result, the military burden fell in most countries, which contributed to a fall in the global military burden, from 2.3 per cent in 2020 to 2.2 per cent in 2021.

The relationship between the growth of military expenditure and the growth of GDP can be visualized graphically: plotting changes in military spending growth on the vertical axis and growth in GDP on the horizontal axis shows how changes in GDP interact with changes in military spending (see figures 8.2 and 8.3). Considering the four quadrants of each graph, the countries situated in the upper-left quadrant have rising military spending coupled with decreasing GDP, while countries in the lower-left quadrant have decreasing GDP coupled with decreasing military spending. The lower-right quadrant represents increases in GDP and decreases in military spending, while the upper-right quadrant shows countries with increases in both GDP and military spending.

Comparing 2020 with 2021, the scatter plot for 2021 (figure 8.3) is almost a mirror reflection (at the vertical axis) of the graph for 2020 (figure 8.2).

⁵ International Monetary Fund (note 3), p. 5.

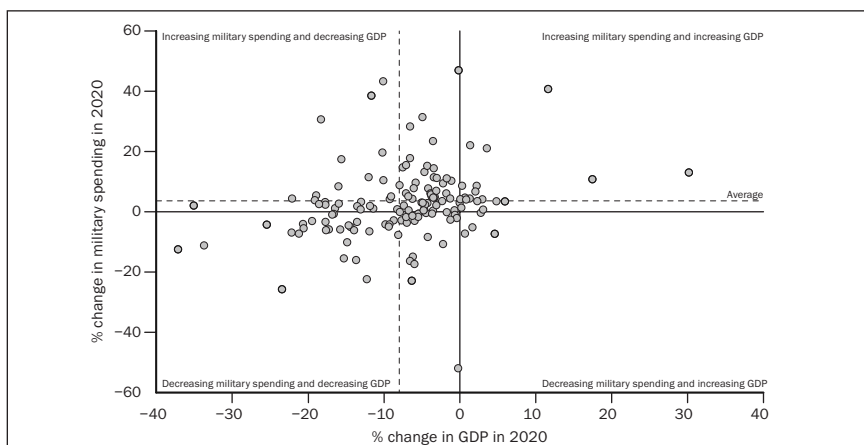


Figure 8.2. Changes in military spending and gross domestic product, by country, 2020

Source: SIPRI Military Expenditure Database, Apr. 2022.

Whereas most countries in 2020 coupled increasing military spending with decreases in GDP (the upper-left quadrant in figure 8.2), most countries in 2021 coupled increasing military spending with increases in GDP (the upper-right quadrant in figure 8.3). This means that the trajectory of military spending remained unchanged despite economic fluctuations induced by the Covid-19 pandemic.

Government spending priorities

Whereas military expenditure as a share of GDP quantifies the economic burden of the armed forces, military spending as a share of total government expenditure can help shed light on how governments allocate their limited financial resources. This indicator thus provides a more direct measure of government priorities than the military burden indicator. The trade-off between military and healthcare spending has been a particularly salient discussion during the Covid-19 pandemic, as governments have faced critical decisions on the prioritization of different types of spending—from healthcare expenditure via economic stimulus packages to military procurement.⁶

In 2021 countries allocated an average of 5.9 per cent of their government budgets to their militaries.⁷ This was the same as in 2020 but down from 6.4 per cent in 2012. Within the general decreasing trend in the share of

⁶ Becker, S., Mölling, C. and Schütz, T., 'Deterrence and defense in times of Covid-19: Europe's political choices', German Council on Foreign Relations (DGAP) Policy Brief no. 9, Apr. 2020; and Garcia, D., 'Redirect military budgets to tackle climate change and pandemics', *Nature*, 20 Aug. 2020.

⁷ This figure does not refer to the share of total expenditure by the governments of the world that was dedicated to the military. Instead, it represents the average budget shares that countries (for which data was available) allocated to their militaries.

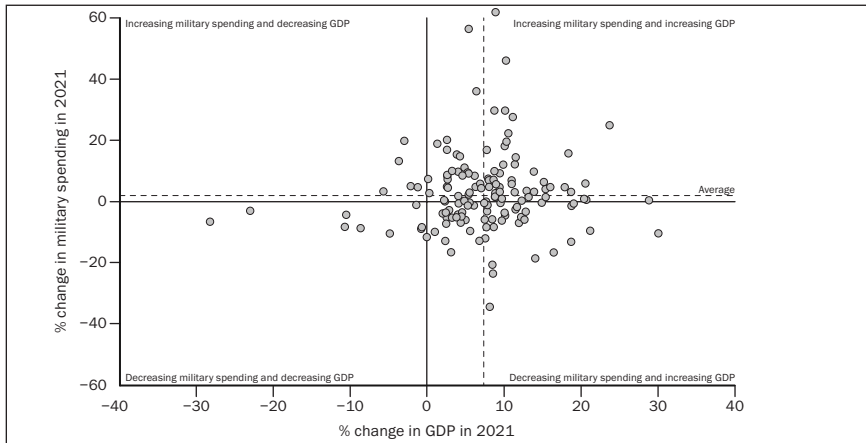


Figure 8.3. Changes in military spending and gross domestic product, by country, 2021

Source: SIPRI Military Expenditure Database, Apr. 2022.

government expenditure spent on military activities, there were significant regional differences. On average, countries in the Americas and Europe allocated the smallest portion of their government budgets to their armed forces, with respective proportions of 4.0 per cent and 4.7 per cent. Among European countries, the average share in 2021 was 0.1 percentage point higher than in 2020, whereas the average American share remained unchanged. Countries in Africa appropriated an average of 6.1 per cent of their government budgets for their armed forces (0.3 percentage points lower than in 2020), whereas governments in Asia and Oceania spent an average of 6.7 per cent (0.2 percentage points higher). With an average share of 12 per cent, Middle Eastern countries allocated by far the largest proportion of their government budgets to military activities in 2021. Compared to 2020, however, this was a decline of 0.3 percentage points.

These figures suggest that, while global military expenditure has been on the rise, government budgets have grown at an even faster pace. This trend was particularly pronounced during the first year of the Covid-19 pandemic. As public outlays increased and stimulus packages were adopted to stabilize economies in freefall and to fund social welfare programmes, government budgets ballooned. For example, the United States government's financial response to the economic fallout of the pandemic was equivalent to 27 per cent of the USA's GDP.⁸ The share of government spending allocated to military activities thus dropped. This meant that the proportion of US

⁸ Taylor, A., 'How the \$1.9 trillion US stimulus package compares with other countries' coronavirus spending', *Washington Post*, 5 Apr. 2021.

government expenditure spent on the military decreased by 0.3 percentage points between 2019 and 2020.

That said, the downward trend in military spending as a share of total government expenditure has been underway for some time. Over the decade 2012–21, the average share shrank by 0.5 percentage points. Many countries appear to be simultaneously investing more funds in their armed forces and in other government programmes, instead of prioritizing military spending over other public policy initiatives.

Opportunity costs of military spending and initiatives to reduce military expenditure

The opportunity costs of military spending represents the missed opportunity for spending on other expenditure items such as human development (e.g. healthcare, education or foreign aid) embodied by the choice to spend money on the military. Concerns regarding the opportunity costs of excessive military expenditure have long been emphasized by global disarmament efforts. Diversion of money spent on the military towards social and economic development was suggested by international organizations and civil society as early as the founding of the United Nations, in 1945, and the first special session of the UN General Assembly on disarmament, in 1978.⁹ Following the end of the cold war, declining military spending gave rise to renewed calls to redirect the funds for social expenditure and development aid, before global spending started to increase again in 1999.¹⁰

Countries with different levels of military spending and economic development face similar choices between competing priorities in allocating finite public resources. For the biggest spenders, reducing military expenditure can release resources for development aid. Total official development assistance (ODA) from members of the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) was \$161 billion in 2020, equivalent to 13 per cent of the military expenditure of DAC countries in 2020, which totalled \$1.23 trillion.¹¹ Yet the opportunity costs of military spending are critical for low-income countries, many of which have a higher share of military expenditure to government spending than the rest of the world. High military expenditure and inadequate social

⁹ Charter of the United Nations, opened for signature 26 June 1945, entered into force 24 Oct. 2015, Article 26; and United Nations, General Assembly, Final document of the 10th special session, A/RES/S-10/2, 30 June 1978, para. 35.

¹⁰ UN Development Programme (UNDP), *Human Development Report 1994* (Oxford University Press: Oxford, 1994); and Hewitt, D. P., *Military Expenditure: International Comparison of Trends*, International Monetary Fund (IMF) Working Paper no. WP/91/54 (IMF: Washington, DC, May 1991).

¹¹ Organisation for Economic Co-operation and Development (OECD), 'COVID-19 spending helped to lift foreign aid to an all-time high in 2020', 13 Apr. 2021.

spending in these states contribute to further insecurity and perpetuate military, social and economic vulnerability.¹²

With global military expenditure surpassing \$2 trillion for the first time in 2021, the world entered 2022 at the halfway mark between the adoption in 2015 of the Agenda for Sustainable Development and the Paris Agreement on climate change and their target date of 2030.¹³ Before the Covid-19 pandemic, it was estimated that the annual financing gap for developing countries to achieve the Sustainable Development Goals (SDGs) of the 2030 Agenda was \$2.5 trillion. This gap was predicted to increase by \$1.7 trillion because of the pandemic.¹⁴ Meanwhile, the World Health Organization (WHO) has estimated that \$16 billion funding is needed urgently from governments to ensure equitable global access to Covid-19 tests, treatments and vaccines.¹⁵ Under the Paris Agreement, developed countries also promised to provide \$100 billion a year to developing countries to combat climate change (SDG Target 13.A).

The effort to close these funding gaps has reinvigorated the agenda of rebalancing military expenditure and human security.¹⁶ For example, the \$16 billion need identified by WHO is equivalent to only 0.8 per cent of world military spending in 2021. At the 26th UN Climate Change Conference (COP26) in Glasgow, United Kingdom, in 2021, developed countries reaffirmed the \$100 billion commitment, which would amount to 8.1 per cent of developed countries' military spending in 2021.¹⁷ Furthermore, the UN Educational, Scientific and Cultural Organization (UNESCO) estimates that the annual financing gap for reaching universal primary and secondary education (SDG Target 4.1) in low- and lower middle-income countries is \$39 billion, equivalent to 1.8 per cent of global military spending in 2021.¹⁸

¹² Calvo Rufanges, J. and Royo Aspa, J. M., *Democratic Republic of Congo: A Review of 20 Years of War* (Centre Delàs d'Estudis per la Pau: Barcelona, Apr. 2016); and Saba, C. S. and Ngepah, N., 'A cross-regional analysis of military expenditure, state fragility and economic growth in Africa', *Quality & Quantity*, vol. 53, no. 6 (Nov. 2019).

¹³ UN General Assembly Resolution 70/1, 'Transforming our world: The 2030 Agenda for Sustainable Development', 25 Sep. 2015; and Paris Agreement, adopted 2 Dec. 2015, opened for signature 2 Apr. 2016, entered into force 4 Nov. 2016.

¹⁴ Organisation for Economic Co-operation and Development (OECD), *Global Outlook on Financing for Sustainable Development 2021: A New Way to Invest for People and Planet* (OECD: Paris, 2020), p. 16.

¹⁵ World Health Organization (WHO), 'ACT-Accelerator calls for fair share-based financing of US\$ 23 billion to end pandemic as global emergency in 2022', News release, 9 Feb. 2022.

¹⁶ Brzoska, M., Omitogoon, W. and Sköns, E., *The Human Security Case for Rebalancing Military Expenditure* (SIPRI: Stockholm, May 2022); Sabbagh, D., "'Colossal waste': Nobel laureates call for 2% cut to military spending worldwide', *The Guardian*, 14 Dec. 2021; and Garcia (note 6).

¹⁷ Organisation for Economic Co-operation and Development (OECD), *Forward-looking Scenarios of Climate Finance Provided and Mobilised by Developed Countries in 2021–2025*, Technical note (OECD: Paris, 2021); and British Government, 'COP26 presidency compilation of 2021–2025 climate finance commitments', Press release, Oct. 2021.

¹⁸ UN Educational, Scientific and Cultural Organization (UNESCO), 'Pricing the right to education: The cost of reaching new targets by 2030', Policy Paper no. 18, ED/EFA/MRT/2015/PP/18, July 2015.

Under these circumstances, the UN has reaffirmed various initiatives to reverse the upward trend in military expenditure within its disarmament efforts in addition to several pronouncements over the years. One prime example is the report of the UN secretary-general on the Women and Peace and Security (WPS) Agenda. In his 2020 report on WPS, the secretary-general identifies reversing the upward trajectory in global military spending as one of the goals for the next decade.¹⁹ In 2021 he furthered the initiative by issuing another urgent call for the reduction of excessive military spending and greater investment in social infrastructure and human security.²⁰

Trends in military expenditure, 2012–21

The 0.7 per cent increase in global military expenditure in 2021 was the seventh consecutive annual increase in spending since 2015. Over the decade 2012–21, world spending rose by 12 per cent, split into two different trends. Between 2012 and 2014, military spending was on a downward trajectory, falling 2.3 per cent over the three-year period. Thereafter, annual military expenditure rose consistently, averaging 2.0 per cent per year or a total increase of 15 per cent between 2014 and 2021.

Trends in world military spending are mostly driven by the world's largest spenders. The United States and China, the two largest spenders, together allocated \$1.1 trillion to military activities in 2021, accounting for 52 per cent of world spending. A change in military spending by either the USA or China therefore has a substantial effect on the global trend. Changes by other major spenders—such as India, the United Kingdom, the Russian Federation, France or Saudi Arabia—mainly affect regional or subregional spending trends. At times these changes have come together to affect world military spending, albeit to a much lesser extent.

The 2.3 per cent or \$40.9 billion (in 2020 constant US dollars) fall in global military spending over the period 2012–14 was primarily due to cuts in US military expenditure. Over this period, US spending fell by 13 per cent or \$109 billion (in 2020 constant US dollars) following the first major withdrawal of US troops from Afghanistan and Iraq.²¹ However, the total fall in world spending between 2012 and 2014 was only 38 per cent of the drop in US spending: world spending would have fallen by a far greater amount if the US decrease had not been offset by increases by emerging economies such as China, India, Russia and Saudi Arabia. Spending by these four countries rose

¹⁹ United Nations, Security Council, 'Women and peace and security', Report of the Secretary-General, S/2020/946, 25 Sep. 2020, para. 113.

²⁰ United Nations, Security Council, 'Women and peace and security', Report of the Secretary-General, S/2021/827, 27 Sep. 2021.

²¹ On the increases and decreases in US military spending in the early 2010s see Tian, N. et al., 'Global developments in military expenditure', *SIPRI Yearbook 2019*.

by \$58 billion (in 2020 constant US dollars), offsetting over half of the US decrease. The trend reversal—from decrease to increase—in world military spending since 2015 can be explained by the slowdown in the rate of decrease in US spending and the spending increases by other major spenders such as China, India, France, Germany and (until 2017) Russia. While US military spending fell 7.7 per cent in 2013 and 6.2 per cent in 2014, in 2015 it fell by only 2.3 per cent. From 2018, the USA returned to increases in military spending, and the rate of increase in world military spending also rose. World spending rose by 3.9 per cent in 2019, which coincided with a 5.7 per cent increase in US spending. The global rise in price levels in 2021 played a major role in dampening the real-terms increase in military expenditure.

Between 2012 and 2021, spending increased in all regions other than the Americas (−4.2 per cent; see table 8.2); the highest increase was in Asia and Oceania (48 per cent), followed by Europe (19 per cent), the Middle East (5.6 per cent) and Africa (2.5 per cent). Among the 13 subregions, spending fell over the decade in only two: sub-Saharan Africa (−14 per cent) and North America (−5.1 per cent). The five largest subregional increases were in Central America and the Caribbean (58 per cent), East Asia (55 per cent), Oceania (43 per cent), South Asia (36 per cent) and North Africa (29 per cent).

The decline in military spending in sub-Saharan Africa since 2012 was the result of spending decreases by four of the five countries with the largest military expenditure in the subregion at the time: Angola, South Africa, South Sudan and Sudan. In North America, the decrease was solely the result of cuts in the USA's military budget.

Spending increased in all 17 Central European countries between 2012 and 2021. This was due to the growing threat perceptions of Russia, which was manifested in a political will to reach the military expenditure target of 2 per cent of GDP for member states of the North Atlantic Treaty Organization (NATO). The increased spending was in the form of expensive weapon-modernization programmes.²²

All but one of the countries in Central America and the Caribbean, East Asia, Oceania, and South Asia increased military spending over the period 2012–21 (the exception being Papua New Guinea in Oceania).

The global military burden of 2.2 per cent in 2021 was 0.1 percentage point lower than in both 2020 and 2012. Between 2012 and 2018 the trend in world military burden was on a decline, down 0.2 percentage points, despite a 3.8 per cent increase in military spending (figure 8.4). This decrease was largely the result of recovering levels of GDP following the 2009 global financial and economic crisis. Thus, while the world spent more and more on the military in absolute terms over 2012–18, it dedicated a smaller proportion of

²² Tian, N., Lopes da Silva, D. and Wezeman, P. D., 'Spending on military equipment by European members of the North Atlantic Treaty Organization', *SIPRI Yearbook 2020*.

Table 8.2. Key military expenditure statistics, by region and subregion, 2021

Expenditure figures are in US\$, at current prices and exchange rates. Changes are in real terms, based on constant (2020) US dollars.

Region/subregion	Military expenditure, 2021 (US\$ b.)	Change (%)		Major changes, 2020–21 (%) ^a			
		2020–21	2012–21	Increases		Decreases	
World	2 113	0.7	12				
<i>Africa</i> ^b	(39.7)	1.2	2.5				
North Africa	(19.6)	-1.7	29	Nigeria	56	Togo	-35
Sub-Saharan Africa ^b	20.1	4.1	-14	Senegal	30	Mozambique	-24
				Benin	28	Niger	-20
				Zambia	20	DRC	-23
<i>Americas</i> ^c	883	-1.2	-4.2				
Central America and the Caribbean ^c	11.0	-2.5	58	Bolivia	20	Argentina	-15
North America	827	-1.2	-5.1	Trinidad and Tobago	19	Jamaica	-12
South America	45.3	-0.6	4.7	Honduras	17	Dominican Rep.	-7.0
				Uruguay	10	Peru	-4.9
<i>Asia and Oceania</i> ^d	586	3.5	48				
Central Asia ^e	1.8	-0.8	14	Malaysia	9.1	Indonesia	-15
East Asia ^f	411	4.9	55	Japan	7.3	Mongolia	-9.7
Oceania	35.3	3.5	43	Singapore	7.1	Kyrgyzstan	-8.8
South Asia	95.1	0.8	36	South Korea	4.7	Thailand	-8.5
South East Asia	43.2	-2.3	25				
<i>Europe</i>	418	3.0	19				
Central and Western Europe	342	3.1	20	Croatia	62	Switzerland	-13
Eastern Europe	76.3	2.3	15	Greece	46	Ukraine	-8.5
				Finland	36	Slovakia	-8.4
				N. Macedonia	30	Hungary	-5.9
<i>Middle East</i> ^g	186	-3.3	5.6				
				Kuwait	25	Saudi Arabia	-17
				Iran	11	Oman	-9.6
				Egypt	8.2	Iraq	-5.1

() = uncertain estimate; DRC = Democratic Republic of the Congo; N. = North; Rep. = Republic.

^a These lists shows the countries with the largest increases or decreases for each region as a whole, rather than by subregion. Countries with a military expenditure in 2021 of less than \$100 million, or \$50 million in Africa, are excluded.

^b These figures exclude Djibouti, Eritrea and Somalia.

^c These figures exclude Cuba.

^d These figures exclude North Korea, Turkmenistan and Uzbekistan.

^e These figures exclude Turkmenistan and Uzbekistan.

^f These figures exclude North Korea.

^g These figures exclude Syria and Yemen.

Source: SIPRI Military Expenditure Database, Apr. 2022.

total resources to the military. The declining trend in world military burden stopped in 2019 and 2020. This was mainly due to military spending rising faster than GDP in 2019 and the Covid-19-related economic recession in 2020, when GDP fell by 3.1 per cent while military spending rose by 3.1 per

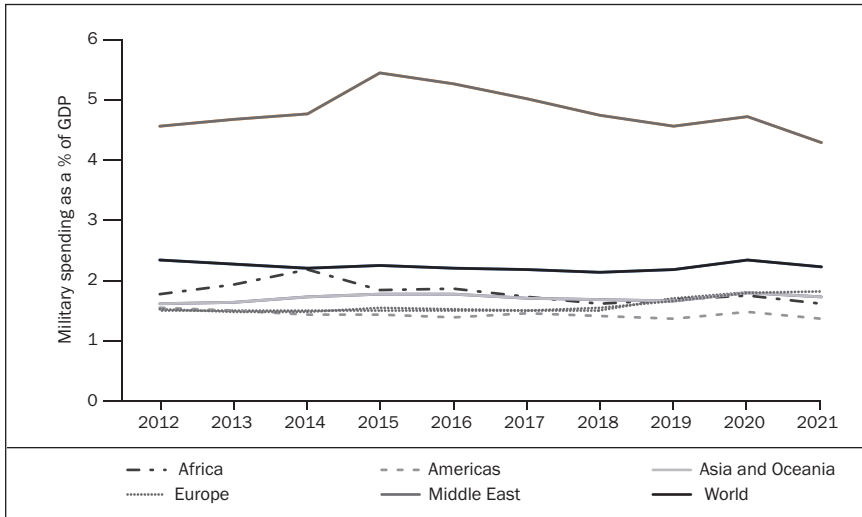


Figure 8.4. Military burden, regional averages, 2012–21

Note: The military burden is military expenditure as a share of gross domestic product. The military burden of a region is the average military burden of the countries in the region for which data is available.

Source: SIPRI Military Expenditure Database, Apr. 2022.

cent. The military burden fell once again in 2021, mainly due to the economic rebound following the global recession in 2020 (see above).

On average, states in the Middle East had the highest military burden in 2021, at 4.3 per cent of GDP. This was followed by states in Europe, with a substantially lower average of 1.8 per cent, in Asia and Oceania with 1.7 per cent, in Africa with 1.6 per cent, and in the Americas with 1.4 per cent. Between 2012 and 2021, the average military burden increased for states in Europe (0.3 percentage points) and Asia and Oceania (0.1 percentage point), while it fell in the Middle East (–0.3 percentage points), the Americas (–0.2 percentage points) and Africa (–0.1 percentage point).

The largest military spenders in 2021

Military spending by the 15 largest military spenders reached \$1717 billion in 2021, accounting for 81 per cent of global military expenditure (see table 8.3). The United States (accounting for 38 per cent of world military spending in 2021) and China (14 per cent) remained by far the two largest spenders. There were, however, some notable changes in ranking among the top 15 between 2020 and 2021. The United Kingdom and France each moved up two ranks, becoming the fourth and sixth largest spenders in 2021, respectively. After a 17 per cent drop in its military spending, Saudi Arabia fell from fourth largest spender in 2020 to eighth largest in 2021. Iran increased its military spending

Table 8.3. The 15 countries with the highest military expenditure in 2021

Expenditure and GDP figures are in US\$, at current prices and exchange rates. Changes are in real terms, based on constant (2020) US dollars.

Rank ^a			Military expenditure, 2021 (\$ b.)	Change (%)		Military expenditure as a share of GDP (%) ^b		Share of world military expenditure, 2021 (%)
2021	2020	Country		2020–21	2012–21	2021	2012	
1	1	USA	801	-1.4	-6.1	3.5	4.5	38
2	2	China	[293]	4.7	72	[1.7]	[1.7]	[14]
3	3	India	76.6	0.9	33	2.7	2.6	3.6
4	6	UK	68.4	3.0	3.7	2.2	2.4	3.2
5	5	Russia	65.9	2.9	11	4.1	3.7	3.1
<i>Subtotal top 5</i>			1 305	..	..	..	..	62
6	8	France	56.6	1.5	13	1.9	1.9	2.7
7	7	Germany	56.0	-1.4	24	1.3	1.2	2.7
8	4	Saudi Arabia	[55.6]	-17	-15	[6.6]	[7.7]	[2.6]
9	9	Japan	54.1	7.3	18	1.1	1.0	2.6
10	10	South Korea	50.2	4.7	43	2.8	2.5	2.4
<i>Subtotal top 10</i>			1 578	..	..	..	..	75
11	11	Italy	32.0	4.6	9.8	1.5	1.4	1.5
12	12	Australia	31.8	4.0	42	2.0	1.7	1.5
13	13	Canada	26.4	3.1	40	1.3	1.1	1.3
14	18	Iran	24.6	11	-17	2.3	2.8	1.2
15	14	Israel	24.3	3.1	35	5.2	5.6	1.2
<i>Subtotal top 15</i>			1 717	..	..	..	..	81
World			2 113	0.7	12	2.2	2.3	100

.. = not applicable; [] = estimated figure; GDP = gross domestic product.

^a Rankings for 2020 are based on updated military expenditure figures for 2020 in the current edition of the SIPRI Military Expenditure Database. They may therefore differ from the rankings for 2020 given in *SIPRI Yearbook 2021* and in other SIPRI publications in 2021.

^b These figures are based on GDP estimates from International Monetary Fund, World Economic Outlook Database, Oct. 2021, <<https://www.imf.org/external/pubs/ft/weo/2021/02/weodata/index.aspx>>; and International Monetary Fund, International Financial Statistics Database, Sep. 2021.

Source: SIPRI Military Expenditure Database, Apr. 2022.

by 11 per cent, making it the 14th largest military spender in 2021. This is the first time in 20 years that Iran has ranked among the top 15 military spenders.

All but three countries in the top 15 had higher military expenditure in 2021 than in 2012. The exceptions were the USA (-6.1 per cent), Iran (-17 per cent) and Saudi Arabia (-15 per cent). Of the 12 countries that increased their military spending over the period 2012–21, the lowest increase was the 3.7 per cent rise by the UK, far below the five largest increases made by China (72 per cent), the Republic of Korea (South Korea, 43 per cent), Australia (42 per cent), Canada (40 per cent) and Israel (35 per cent). The reasons behind these increases range from long-term expensive military modernization

programmes (i.e. China) to regional security concerns and threat perceptions (i.e. Australia, Israel and South Korea).

Despite continued increases in military spending in the majority of the top 15 spenders, their military burdens decreased as the world economy rebounded from the 2020 Covid-19-related recession. The most notable change in military burden in 2021 was the fall of 2.6 percentage points observed in Saudi Arabia. This sharp fall was the result of contrasting trends in GDP and military spending: a 17 per cent decrease in military expenditure was coupled with a predicted 16 per cent real-terms rise in GDP. Other notable decreases in military burdens in 2021 were from India (−0.2 percentage points), Israel (−0.2 percentage points), Russia (−0.2 percentage points) and the USA (−0.2 percentage points).

Notwithstanding the sharp fall, Saudi Arabia still had the highest military burden (6.6 per cent) among the 15 biggest military spenders in 2021. Seven other countries in the top 15—Israel (5.2 per cent), Russia (4.1 per cent), the USA (3.5 per cent), South Korea (2.8 per cent), India (2.7 per cent), Iran (2.3 per cent) and the UK (2.2 per cent)—also had a military burden higher than or equal to the global military burden of 2.2 per cent. Japan continued to have the lowest military burden among the 15, devoting 1.1 per cent of its GDP to military expenditure, albeit the highest level since 1960.

Box 8.2. Definition, sources and methods for SIPRI military expenditure^a**Definition**

The main purpose of the data on military expenditure is to provide an identifiable measure of the scale of financial resources absorbed by the military.

Although the lack of sufficiently detailed data makes it difficult to apply a common definition of military expenditure on a worldwide basis, SIPRI has adopted a definition as a guideline. Where possible, SIPRI military expenditure data includes all current and capital (including for procurement) expenditure on (a) the armed forces, including peacekeeping forces; (b) defence ministries and other government agencies engaged in defence projects; (c) paramilitary forces, when judged to be trained and equipped for military operations; and (d) military space activities. This should include expenditure on personnel, including salaries of military and civil personnel, retirement pensions of military personnel, and social services for personnel; operations and maintenance; procurement; military research and development; infrastructure spending; and military aid (in the military expenditure of the donor country). Civil defence, current expenditure on previous military activities (e.g. veterans' benefits, demobilization, conversion and weapon destruction) and military involvement in non-military activities (e.g. policing) are not included.

In practice, it is not possible to apply this definition for all countries, and in many cases SIPRI is confined to using the national data provided. Priority is then given to the choice of a uniform definition for each country in order to achieve consistency over time, rather than adjusting the figures for single years according to a common definition. In the light of these difficulties, military expenditure data is most appropriately used for comparisons over time and may be less suitable for close comparison between individual countries.

Sources of information

The SIPRI military expenditure figures are presented on a calendar-year basis. The only exception is the United States, for which data is reported on a financial-year basis.

SIPRI data reflects the official data reported by national governments. Such data is obtained directly from official publications such as budget documents, public finance statistics, reports of national audit agencies and government responses to questionnaires sent out by SIPRI. This official data is also available indirectly in reports published by the United Nations, the International Monetary Fund (IMF) and the North Atlantic Treaty Organization (NATO). In a few cases, the original government documents are not available to SIPRI, for example because they are not published, but the content of these documents may be reported in newspapers.

As a general rule, SIPRI takes national data to be accurate until there is convincing information to the contrary. Estimates are made primarily when the coverage of official data does not correspond to the SIPRI definition or when no consistent time series is available that covers the entire period covered by the data.

Military spending and military capability

Military spending measures the current level of resources devoted to renewing, replacing, expanding and maintaining military capability. Extreme caution should be exercised in drawing a link between a country's level of military expenditure and its degree of military capability, as many factors contribute to military capability. Further, other intervening factors may affect the degree to which military expenditure succeeds in buying military capability.

Thus, military spending does not reflect the stock of capabilities represented by factors such as weapons, training or knowledge. However, SIPRI military expenditure data can be directly used for comparisons of the national allocation of financial resources, for instance comparing it with spending on health services or education and as an indicator of military burden.

Military spending measured using market exchange rates

SIPRI uses market exchange rates (MERs) or, where applicable, fixed official exchange rates, to convert local currency military expenditure data into US dollars (whether current or constant prices). However, the prices of many goods and services on domestic markets are determined in partial or complete isolation from the rest of the world. Therefore, MERs do not always accurately reflect differences in price levels between countries.

An alternative is to use purchasing power parity (PPP) conversion factors (or PPP exchange rates). The PPP dollar rate of a country's currency is defined by the World Bank as 'the number of units of a country's currency required to buy the same amount of goods and services in the domestic market as a US dollar would buy in the United States'.^b PPP rates are designed to control for differences in price levels and thus provide a measure of the real purchasing power of the gross domestic product (GDP) of each country.

However, since PPP rates are statistical estimates, the reliability GDP-based PPP rates is lower than for MERs, which are calculated on the basis of collected price data for a basket of goods and services for benchmark years. Between benchmark years, the PPP rates are extrapolated forward using ratios of prices indexes, either GDP deflators or consumer price indexes. Like all statistical estimates, they are subject to a margin of error.

Furthermore, GDP-based PPP rates are of limited relevance for the conversion of military expenditure data into US dollars.^c Such PPP rates are designed to reflect the purchasing power for goods and services that are representative of spending patterns in each country, that is, primarily for civilian goods and services. Military expenditure is used to purchase a number of goods and services that are not typical of national consumption patterns. The extent to which this data reflects the amount of military goods and services that the military budget can buy is not known. Due to these uncertainties, SIPRI uses market exchange rates to convert military expenditure data into US dollars, despite their limitations.

^a For more information see SIPRI Military Expenditure Database, 'Frequently asked questions', [n.d.].

^b World Bank DataBank, 'Metadata glossary', [n.d.].

^c See e.g. Ward, M., 'International comparisons of military expenditures: Issues and challenges of using purchasing power parities', *SIPRI Yearbook 2006*.