World Military Expenditures and Arms Transfers, 2016 edition

Introduction

This edition of World Military Expenditures and Arms Transfers (WMEAT), *WMEAT 2016*, published in December 2016, covers the eleven-year period from the beginning of 2004 through the end of 2014. WMEAT responds to a statutory requirement that the U.S. Department of State annually publish detailed, comprehensive and statistical information and in-depth analyses regarding military expenditures, arms transfers, armed forces, and related economic data for each country of the world. Comments, including suggestions for improvement of WMEAT and identifications of apparent errors, may be addressed to WMEATeditor@state.gov.

This edition of WMEAT is published electronically, on the website of the U.S. Department of State, in the form of four distinct downloadable documents:

- this "Introduction and Overview" section, in a PDF document;
- Table I, the military expenditures and armed forces personnel table, in an Excel spreadsheet workbook containing eight "world pages" (pages of global scope) and 170 country pages;
- Tables II - IV, the arms transfer deliveries tables, in an Excel spreadsheet workbook containing thirteen "world pages" (no country pages); and
- a "Sources, Data and Methods" section, in a PDF document.

The Tables make up the body of this report. They offer much information not described in the "Overview." The "Sources, data and methods" section details the methodological basis for data in the tables, especially with respect to substantial and pervasive uncertainties and sources of error.

Table I presents annual and eleven-year-mean information about the number of armed forces personnel, population, labor force, military expenditures, gross domestic product (GDP), and ratios of these parameters, for individual countries, for geographic, economic and political groups of countries, and for the world. It also presents annual and eleven-year-mean Freedom House "political rights" scores and World Bank Institute "voice and accountability in governance" scores for individual countries.

Table II presents annual and eleven-year-mean information about the value of exports and imports both of arms and of all goods and services, and ratios of these parameters, for individual countries, for geographic, economic and political groups of countries, and for the world.

Table III presents a matrix of world arms transfer values by major supplier and country of destination for the three-year period from 2012 through 2014.

Table IV presents annual and eleven-year-mean information about the value of arms exports of major suppliers to individual countries, geographic, economic and political groups of countries, and the world.

The "Group rankings and trends" and "Country rankings and trends" pages of both the military expenditures workbook and the arms transfers tables workbook offer rankings of both of countries and of economic (GDP-per-capita) and political (degree-of-democracy) groupings of countries, by every demographic, economic and political parameter used in preparing this report, and also by a measure of average annual change for military parameters.

New features in this edition of WMEAT are described at the start of the "Sources, data and methods" section. Salient among them is that in *WMEAT 2016* the 11-year period covered ends two years before the publication year, whereas in recent previous editions of WMEAT it ended three years before the publication year. It is hoped that this increase in timeliness may render WMEAT more useful to readers, despite the reduction in accuracy for the final year, 2014, for which final GDP and trade data are not yet available for many countries. As in previous editions of WMEAT, country and country-group rankings are based on 11-year averages to reduce distortion by inaccuracies in any single year.

Military expenditure and GDP values and ratios involving them may vary greatly depending on currency conversion method used, and no single currency conversion method seems best for all analytic purposes. The "Overview" page of Table I indicates the range of variation across conversion methods of military spending both in absolute terms and relative to GDP, for all countries and groups of countries, for both the latest year covered and for the eleven-year period average. The conversion methods used, and the advantages and disadvantages of each, are described in the "Sources, data and methods" section.

Overview

WMEAT figures, especially for armed forces personnel, military expenditures and arms transfers, are neither so accurate nor so reliable as uniform presentation in statistical tables might seem to imply, due to incompleteness, ambiguity, or total absence of data for some countries either in those parameters or in parameters, such as GDP price deflators or exchange rates, used in Table I to convert local-currency-denominated values for military spending and GDP to U.S. dollars. In Table I, apparent sources of error and extent of imprecision vary across countries, years, and parameters, and are indicated by color-coding on the pages for specific countries. In Tables II, III and IV, the quality of source data for arms transfer values is not readily assessable. In no table does either rounding or limitation on significant digits adequately reflect potential inaccuracy.

Military expenditures

From 2004 through 2014, in constant 2014 U.S. dollar terms, the annual value of world military expenditures appears to have risen about 26-44%, from about $1.25-1.79 trillion in 2004 to about $1.70-2.58 trillion in 2014, and to have averaged between $1.61 and $2.25 trillion for the 11-year period. The range of values results from using diverse methods to convert non-U.S. military expenditures to U.S. dollars. Using a current-year-average market exchange rate (MER) for each country yields the lowest value for global military expenditures; using the purchasing power parity rate for each foreign country's whole economy (PPP-for-GDP) yields the highest value.

Military burden (ratio of military expenditures to GDP)

During the eleven-year period, for the world, the share of GDP to which military expenditure was equivalent – an indicator sometimes called "the military burden" – appears to have averaged between 2.0% and 2.5%, peaking at between 2.2% and 2.8% in 2009. Converting non-U.S. military expenditures and GDPs to U.S. dollars using a real MER yields the greatest indicator of military burden; converting non-U.S. GDPs at PPP-for-GDP while converting non-U.S. military expenditures at a notionally estimated defense-sector-specific PPP rate yields the least indicator of military burden.

Throughout the period, military spending accounted for a far lower share of measured global economic output than in 1989, at the end of the Cold War, when it appears to have been about 4.7% at a real MER.

Armed forces

The number of people serving in the world's armed forces at appears to have been about 21.1 million in both 2004 and 2014, peaking at about 21.3 million in 2008. The world total of armed forces personnel appears to have fallen about 12% in per capita terms, from about 0.33% to about 0.29% of total population. It appears to have fallen by about 13% as a proportion of the labor force, from about 0.71% to about 0.62%. Armed forces personnel as a share of the labor force appears to have trended downward over the period in every region except South Asia and South America, for every quintile of world population ranked by NGO-assessed degree of democracy, and for all but the middle quintile of world population ranked by GDP per capita.

From 2004 through 2014, world military expenditures per armed forces member – an indicator of the capital-intensivity of the military – appear to have risen by 26-44% despite rising more slowly or declining after 2009; results vary depending on which method of converting non-U.S. military expenditures to U.S. dollars is used. Military spending per armed forces member appears to have risen for every economic and political group of countries and in every region except Oceania.

The world ratio of military spending per armed forces member to GDP per labor force member – an indicator of the capital-intensivity of the military relative to that of the economy as a whole – appears to have trended slightly upward for the eleven-year period despite declining after 2009.

Arms transfers

From 2004 to 2014, the global annual value of international arms transfer deliveries appears to have averaged about $151 billion, in constant 2014 U.S. dollar terms, and to have risen by about 74%, from about $108 billion to about $183 billion, despite declining after 2012. The arms trade's share of world trade in goods and services appears to have ranged from about 0.6% to about 0.9%, troughing at about 0.6% in 2007-2008.

During the period, about 79% of the world arms trade, by value, appears to have been supplied by the United States, about 10% by the European Union, about 5% by Russia, and less than 2% by China. The U.S. share of the world arms market appears to have grown, while the E.U. share appears to have diminished, with no clear trend in the Russian and Chinese shares.

Countries in the richest quintile of world population appear to have accounted for about 97% of world arms exports and about 66-67% of world arms imports, regardless of whether quintiles are based on national GDP per capita at a real market exchange rate or at purchasing

power parity. By either standard, the richest quintile was the only GDP-per-capita quintile with a positive arms trade balance.

Countries in the most democratic quintile of world population appear to have accounted for 92% of world arms exports and about 55% of world arms imports. The most democratic quintile was the only degree-of-democracy quintile with a positive arms trade balance.

In constant 2014 U.S. dollar terms, U.S. arms exports appear to have averaged about $120 billion a year, while U.S. arms imports – of arms merchandise only, inasmuch as no data on U.S. arms services imports are readily available – appear to have averaged about $5 billion a year. Over the period, the arms trade surplus of the United States appears to have offset about 17% of its total trade deficit.

About 70% of U.S. arms exports appear to have been delivered to countries in the richest quintile of world population, which appear to have sourced 84-85% of their arms imports from the United States. About 59% of U.S. arms exports appear to have been delivered to countries in the most democratic quintile of world population, which appear to have sourced about 86% of their arms imports from the United States. A growing proportion of U.S. arms exports, averaging about 14% for the period, went to multinational entities or entities not specified by the governmental exporting or export licensing authority.

Both the growth in the world arms trade and the increase in the U.S. share of world arms exports during the period, from about 74% in 2004 to about 82% in 2014, appear to be due largely to increasing reliance on the United States as a source of arms by other rich, democratically-governed countries.

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