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# Estimates of Chinese Military Spending

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<b>ESTIMATES OF CHINESE MILITARY SPENDING .....</b>	<b>3</b>
CHINESE STATEMENTS ON MILITARY SPENDING .....	3
<i>2010 Defense White Paper</i> .....	5
<i>2013 Defense White Paper</i> .....	7
<i>2015 Defense White Paper and Official Statements</i> .....	7
<i>2016 Estimates</i> .....	11
LIMITED TRANSPARENCY AND PROBLEMS ESTIMATING CHINESE MILITARY EXPENDITURE... .	11
US ANALYSES OF CHINESE DEFENSE BUDGETS .....	15
OTHER OUTSIDE ASSESSMENTS OF CHINESE MILITARY SPENDING.....	20
<i>SIPRI Estimates</i> .....	20
<i>IISS Estimates</i> .....	24
<i>Erickson and Liff Estimates</i> .....	26
THE CHINESE RESPONSE .....	28
RAMIFICATIONS FOR THE UNITED STATES .....	35
<i>U.S. Budget Caps and Defense Funding Instability</i> .....	39
<i>China-U.S. Defense Spending Convergence</i> .....	41
RAMIFICATIONS FOR ASIA .....	43

## ESTIMATES OF CHINESE MILITARY SPENDING

There is no clear way to determine how much Chinese strategy shapes military spending versus how Chinese resources shape strategy; the two are always interdependent. An assessment of China's defense spending does indicate, however, that Chinese economic growth has allowed it to finance a massive modernization program, and radically improve every aspect of its conventional and asymmetric warfare capabilities, including sea-air-missile-nuclear capabilities.

Although estimates of Chinese defense spending vary sharply, there is little controversy that China now dominates Asian military spending and is becoming the premier military power in Asia. This is partly driven by China's perception of the potential threat from the U.S. and other Asian powers, but is also driven by the fact that China can now afford such efforts, support them largely with its own technology base, and cannot forget its recent past.

As Western analyst, Richard Bitzinger, pointed out in a March 2015 article in *Foreign Affairs* that:<sup>1</sup>

The simple fact is that Beijing is committed, at least publically, to sizable defense spending increases because China's leadership, from the hardliner to the reformer, is united around the central idea that the PLA must become a modern, twenty-first century fighting force.

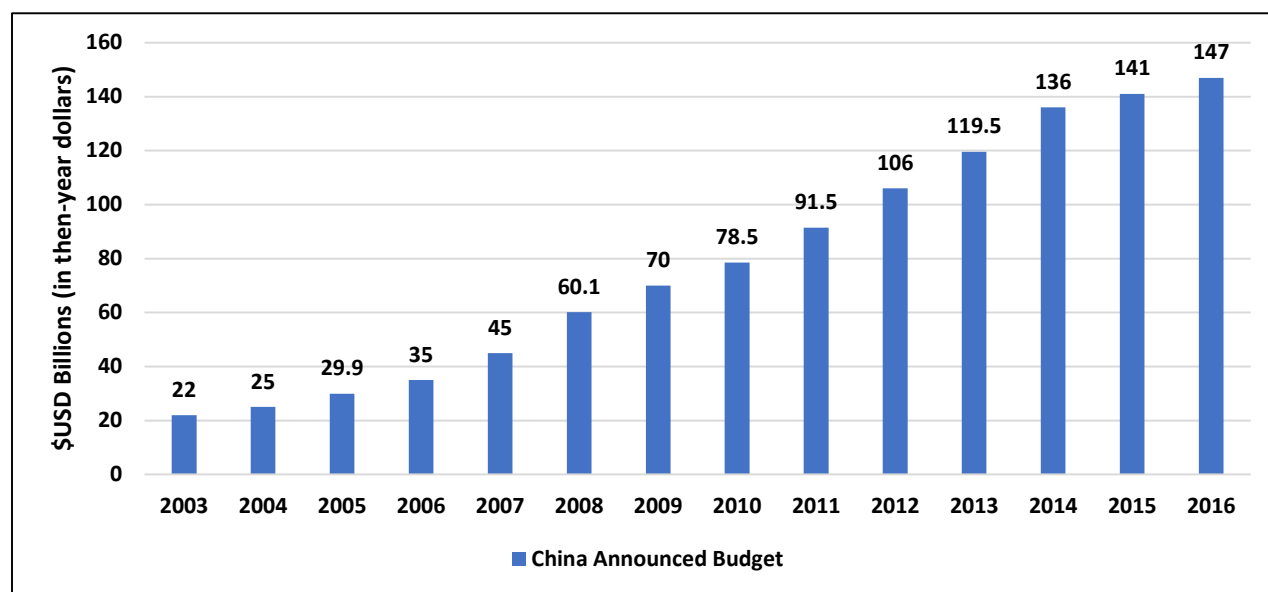
Moreover, this view appears to be widely shared among the general populace. A recent poll undertaken by the Australian think tank Perth USAsia Center found that the Chinese, by a solid majority, backed Beijing's claims over the disputed islands in the East and South China Seas. In addition, a sizable number (greater than 70 percent) believed that the PLA could prevail in any conflict in those regions, even if the United States were to intervene (although most felt it would not be in China's interest to pursue a military solution.)

This support is driven by two factors: growing nationalism and the government's active promotion of historical victimization and ongoing vulnerability—particularly through its 20-year-long “patriotic education” campaign, which downplays the faults of the country's leaders and emphasizes the brutality committed against China by “evil” foreign powers.

As one Chinese official, when defending the most recent defense budget increase, put it, “our lesson from history—those who fall behind will get bullied—this is something we will never forget.” In this regard, too, a modernized PLA dovetails well with Chinese leader Xi Jinping's “China dream,” a vision of a “rejuvenated” and “revitalized” China. If China wants to be a great power, it requires a powerful military. Consequently, the “rich nation, strong army” ideal resonates with much of China's population.

### *Chinese Statements on Military Spending*

The actual levels of Chinese military spending, however, are unclear. The last time China provided a detailed explanation of its military spending was in their 2010 Defense White Paper. Since then, its refusal to report specific aspects of its military spending and how it prices military goods and services within its state sector has made any comparison with the military spending of the US or other military powers very unreliable. China has also released an official number on their defense spending every spring at the annual meeting of the national legislature. However, specific details are not provided and there is no way to confirm the accuracy of the numbers being reported. Most observers are skeptical about the official numbers released by the Chinese government for a variety of reasons.

**Figure 1.1: Announced Chinese Defense Budget**

Source: Years 2003-2015 taken from DoD, *Military and Security Developments Involving the People's Republic of China 2003-2016*. 2016 announced budget number taken from Andrew S. Erickson and Adam P. Liff, "The Limits of Growth: Economic Headwinds Inform China's Latest Military Budget", *Wall Street Journal*, March 5, 2016. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

The most extensive official outline of Chinese military spending is provided in a brief historical statement on the website of the Ministry of National Defense of the PRC: <sup>2</sup>

Guided by the principle that defense expenditure should grow in line with the demands of national defense and economic development, the Chinese government decides on the size of defense expenditure in an appropriate way, and takes a road of national defense and armed forces modernization featuring lower cost and higher efficiency.

In the past three decades of reform and opening up, China has insisted that defense development should be both subordinated to and in the service of the country's overall economic development, and that the former should be coordinated with the latter. As a result, defense expenditure has always been kept at a reasonable and appropriate level. From 1978 to 1987, as the nation shifted its focus to economic development, national defense received a low input and was in a state of bare sustenance. During this period the average annual increase of defense expenditure was 3.5 percent, while that of GDP was 14.1 percent and that of the state financial expenditure was 10.4 percent. The shares of China's annual defense expenditure in its GDP and in the state financial expenditure dropped respectively from 4.6 percent and 14.96 percent in 1978 to 1.74 percent and 9.27 percent in 1987.

From 1988 to 1997, to make up for the inadequacy of defense development and maintain national security and unity, China gradually increased its defense expenditure on the basis of its sustained economic growth. During this period the average annual increase of defense expenditure was 14.5 percent while that of GDP was 20.7 percent and that of the state financial expenditure was 15.1 percent. The shares of China's annual defense expenditure in its GDP and in the state financial expenditure continued to drop.

From 1998 to 2007, to maintain national security and development and meet the requirements of the RMA with Chinese characteristics, China continued to increase its defense expenditure steadily on the basis of its rapid economic growth. During this period, the average annual increase of defense expenditure was 15.9 percent, while that of GDP was 12.5 percent and that of the state financial expenditure was 18.4 percent. Although the share of China's defense expenditure in its GDP increased, that in the state financial expenditure continued to drop on the whole.

China's GDP was RMB 21,192.3 billion in 2006 and RMB 25,730.6 billion in 2007. The state financial expenditure was RMB 4,042.273 billion in 2006 and RMB 4,978.135 billion in 2007, up 19.1 percent and 23.2 percent respectively over the previous year. China's defense expenditure was RMB 297.938 billion in 2006 and RMB 355.491 billion in 2007, up 20.4 percent and 19.3 percent respectively over the previous year. The shares of China's annual defense expenditure in its GDP and in the state financial expenditure in 2006 were roughly the same as those in 2007, being 1.41 percent and 7.37 percent in 2006 and 1.38 percent and 7.14 percent in 2007. China's defense expenditure mainly comprises expenses for personnel, training and maintenance, and equipment. Expenses for personnel and training and maintenance account for two thirds of the defense expenditure. In 2007, the defense expenditure was used to cover the expenses of the active force (RMB 343.439 billion), the reserve force (RMB 3.693 billion) and the militia (RMB 8.359 billion). China's defense budget for 2008 is RMB 417.769 billion.

In the past two years, the increased part of China's defense expenditure has primarily been used for the following purposes:

- (1) Increasing the salaries and benefits of servicemen. Along with the rise of the income of civil servants and the living standards of both urban and rural residents, China has increased the relevant allowances and subsidies of servicemen to ensure the parallel improvement of their living standards.
- (2) Compensating for price rises. With the rise of the prices of food, building materials, fuel, etc., China has accordingly increased the boarding subsidies and other funds closely related to servicemen's life as well as the expenses on education, training, petroleum, oils and lubricants for the armed forces, and improved the working and living conditions of border and coastal defense forces, units in remote and tough areas, and grass-roots units.
- (3) Pushing forward the RMA. China has augmented the input into military informationization and moderately increased the funds for equipment and supporting facilities, so as to raise the defense capabilities in conditions of informationization.

Both the total amount and per-service-person share of China's defense expenditure remain lower than those of some major powers. In 2007 China's defense expenditure equaled 7.51 percent of that of the United States, 62.43 percent of that of the United Kingdom. China's defense expenses per service person amounted to 4.49 percent of that of the United States, 11.3 percent of that of Japan, 5.31 percent of that of the United Kingdom, 15.76 percent of that of France and 14.33 percent of that of Germany. As for the share of defense expenditure in GDP, that of China was merely 1.38 percent, while that of the United States was 4.5 percent, that of the United Kingdom 2.7 percent, and that of France 1.92 percent.

The Chinese government has established defense expenditure reporting and publishing mechanisms. Since 1978 the Chinese government has submitted a financial budget report to the NPC and published the total amount of the defense budget each year. The relevant data of China's defense expenditure has been made public in the China Economy Yearbook since 1981, and in the China Finance Yearbook since 1992. And since 1995 the composition and main purposes of China's defense expenditure have been published in the form of government white papers.

## **2010 Defense White Paper**

Recent Chinese official statements and defense white papers do help provide insights into Chinese spending. China's 2010 Defense White Paper provides both a rationale for the current trends in Chinese military spending and some possible insights into its future military expenditures:<sup>3</sup>

China adheres to the principle of coordinated development of national defense and economy. In line with the demands of national defense and economic development, China decides on the size of defense expenditure in an appropriate way, and manages and uses its defense funds in accordance with the law.

With the development of national economy and society, the increase of China's defense expenditure has been kept at a reasonable and appropriate level. China's GDP was RMB 31,404.5 billion in 2008 and RMB 34,090.3 billion in 2009. State financial expenditure was RMB 6,259.266 billion in 2008 and RMB

7,629.993 billion in 2009, up 25.7 percent and 21.9 percent respectively over the previous year. China's defense expenditure was RMB417.876 billion in 2008 and RMB495.11 billion in 2009, up 17.5 percent and 18.5 percent respectively over the previous year. In recent years, the share of China's annual defense expenditure in its GDP has remained relatively steady, while that in overall state financial expenditure has been moderately decreased.

China's defense expenditure mainly comprises expenses for personnel, training and maintenance, and equipment, with each accounting for roughly one third of the total. Personnel expenses mainly cover salaries, allowances, housing, insurance, food, bedding and clothing for officers, non-ranking officers, enlisted men and contracted civilians. Training and maintenance expenses mainly cover troop training, institutional education, construction and maintenance of installations and facilities, and other expenses on routine consumables. Equipment expenses mainly cover R&D, experimentation, procurement, maintenance, transportation and storage of weaponry and equipment. Defense expenditure covers costs to support the active forces, reserve forces, and militia. It also covers part of the costs to support retired servicemen, servicemen's spouses, and education of servicemen's children, as well as national and local economic development and other social expenses.

In the past two years, the increase in China's defense expenditure has primarily been used for the following purposes: (1) Improving support conditions for the troops: Along with the economic and social development and the improvement of people's living standards, the PLA has adjusted servicemen's salaries and allowances, increased funding for education and training, water and electricity supplies and heating, upgraded logistics support for grass-roots units in a comprehensive and coordinated way, and improved the on-duty, training and living conditions of border and coastal defense forces and units in remote areas and harsh environments. (2) Accomplishing diversified military tasks: China has increased investment in improving MOOTW capabilities, in supporting earthquake rescue and disaster relief operations, in escort operations in the Gulf of Aden and waters off Somalia, in flood control and emergency rescue operations, and in international rescue operations. (3) Pushing forward the Revolution in Military Affairs (RMA) with Chinese characteristics. In view of the upward trend in purchasing prices and maintenance costs, China has moderately increased the funds for high-tech weaponry and equipment and their supporting facilities.

In 2010, confronted by the residual impact of the global financial crisis and other uncertainties, the tension between revenue and expenditure in China's finances persists. Giving priority to socially beneficial spending in agriculture, rural areas and farmers, as well as in education, science and technology, health, medical care and social security, China has increased its defense expenditure moderately as needed. China's defense budget for 2010 is RMB532.115 billion, up 7.5 percent over 2009. The growth rate of defense expenditure has decreased.

China practices a strict system of financial supervision of defense funds. The annual defense budget is incorporated into the annual financial budget draft of the central government, and then submitted to the NPC for review and approval. The auditing offices of the state and the PLA conduct audit and supervision of the defense budget and its enforcement. In recent years, the Chinese government has strengthened systematic and meticulous management of defense expenditure, reformed and innovated financial management systems, pressed forward with reforms in asset management, reinforced budget implementation, supervision and management, and organized auditing of economic responsibilities of military leaders and special auditing of the use of funds and materials. In this way, transparency and standardization of defense expenditure are enhanced, and the proper and effective use of defense funds is ensured.

The 2010 White Paper stated that the defense budget was split approximately equally between personnel, training and maintenance, and equipment expenditures. It also provides the chart shown in **Figure 1.1**, which supports these government statements by providing a breakdown of the PRC's 2009 military budget: spending for personnel, training and maintenance, and equipment is almost equal, with equipment expenses slightly higher. A more detailed Chinese breakdown of spending allocations was not made available.

**Figure 1.2: Official PRC Defense Budget Allocation for 2009 (in RMB billion)**

	Active Force	Reserve Force	Militia	Total	
				Amount	Percentage
<b>Personnel</b>	167.063	1.465	0	168.528	34.04
<b>Training &amp; Maintenance</b>	152.171	1.965	12.859	166.995	33.73
<b>Equipment</b>	157.426	1.431	0.73	159.587	32.23
<b>Total</b>	476.66	4.861	13.589	495.11	100.00

Source: *China's National Defense in 2010*, March 30, 2011, chapter 8, [http://english.gov.cn/official/2011-03/31/content\\_1835499\\_10.htm](http://english.gov.cn/official/2011-03/31/content_1835499_10.htm).

### 2013 Defense White Paper

China's 2013 Defense White Paper did not discuss military spending in detail. However, the Chinese Ministry of Finance did announce in 2013 that there had been a 11.2% increase in the 2012 military budget that had been "used to improve living and training conditions for our troops, support the military in promoting IT application, strengthen development of new- and high-technology weapons and equipment, and enhance the country's modern military capabilities."<sup>4</sup>

According to the Twelfth National People's Congress, the 2013 budget was to "be used to support efforts to improve the working and living conditions of officers and enlisted personnel, make the armed forces more mechanized and information-based, and safeguard national security."<sup>5</sup> In early March 2013, China released its 2013 national budget, forecasting a military expenditure of 720.2 billion Yuan (\$114.3 billion), a 10.7% increase. Official military spending in 2012 was approximately \$106 billion, an 11.2% rise over 2011.

### 2015 Defense White Paper and Official Statements

Like the 2013 White Paper, the 2015 white paper only provide limited detail on Chinese military expenditures. It provided a brief strategic overview of its security situation, "active defense" concept, and guidelines for its military forces<sup>6</sup>.

Months before China published its latest defense white paper, a spokeswoman for China's National People's Congress announced that the defense appropriation for 2015 increase 10.1% from the previous year, roughly placing spending at \$141.5 billion and making China the second largest military spender in the world.<sup>7</sup>

Shortly after this announcement, the Premier of the State Council Li Keqiang delivered the "Report on the Work of the Government" at the Third Session of the 12<sup>th</sup> National People's Congress on March 5, 2015. Among a cautious tone that targeted sustained economic growth rate

of 7%, he briefly mentioned the national defense priorities from the National Committee of the Chinese People's Political Consultative Conference:<sup>8</sup>

Building a solid national and strong armed forces is fundamental to safeguarding China's sovereignty, security, and developmental interests. We must keep to the Party's goal of strengthening the armed forces under the new conditions, uphold the fundamental principle of the Party's absolute leadership over the armed forces, strengthen our efforts in all areas in a coordinated way to maintain military preparedness, and ensure border, coastal, and air defense security and stability. We will comprehensively strengthen modern logistics, step up national defense research and development of new- and high-technology weapons and equipment, and develop defense-related science and technology industries.

We will deepen the reform of national defense and the armed forces, and increase the level of rule of law in their development. We will strengthen efforts to modernize the armed police forces. We will raise public awareness of the importance of national defense, and improve mobilization for national defense and the building of reserve forces. We will coordinate national defense development and economic development and deepen the integration of the military and civil sectors. Governments at all levels must always take an active interest in and support the strengthening of our national defense and armed forces, and remain committed to consolidating and increasing the unity between the government and the armed forces and between the people and the armed forces.<sup>9</sup>

The 2015 Defense White Paper did, however, provide an official explanation of the strategic guidelines of the Chinese military branches and critical security domains:<sup>10</sup>

In the implementation of the military strategic guideline in the new situation, China's armed forces must closely center around the CPC's goal of building a strong military, respond to the state's core security needs, aim at building an informationized military and winning informationized wars, deepen the reform of national defense and the armed forces in an all-round way, build a modern system of military forces with Chinese characteristics, and constantly enhance their capabilities for addressing various security threats and accomplishing diversified military tasks.

*Development of the Services and Arms of the People's Liberation Army (PLA) and the People's Armed Police Force (PAPF)*

In line with the strategic requirement of mobile operations and multi-dimensional offense and defense, the PLA Army (PLAA) will continue to reorient from theater defense to trans-theater mobility. In the process of building small, multi-functional and modular units, the PLAA will adapt itself to tasks in different regions, develop the capacity of its combat forces for different purposes, and construct a combat force structure for joint operations. The PLAA will elevate its capabilities for precise, multi-dimensional, trans-theater, multi-functional and sustainable operations.

In line with the strategic requirement of offshore waters defense and open seas protection, the PLA Navy (PLAN) will gradually shift its focus from "offshore waters defense" to the combination of "offshore waters defense" with "open seas protection," and build a combined, multi-functional and efficient marine combat force structure. The PLAN will enhance its capabilities for strategic deterrence and counterattack, maritime maneuvers, joint operations at sea, comprehensive defense and comprehensive support.

In line with the strategic requirement of building air-space capabilities and conducting offensive and defensive operations, the PLA Air Force (PLAAF) will endeavor to shift its focus from territorial air defense to both defense and offense, and build an air-space defense force structure that can meet the requirements of informationized operations. The PLAAF will boost its capabilities for strategic early warning, air strike, air and missile defense, information countermeasures, airborne operations, strategic projection and comprehensive support.

In line with the strategic requirement of being lean and effective and possessing both nuclear and conventional missiles, the PLA Second Artillery Force (PLASAF) will strive to transform itself in the direction of informationization, press forward with independent innovations in weaponry and equipment by reliance on science and technology, enhance the safety, reliability and effectiveness of missile systems, and improve the force structure featuring a combination of both nuclear and conventional capabilities. The

PLASAF will strengthen its capabilities for strategic deterrence and nuclear counterattack, and medium- and long-range precision strikes.

In line with the strategic requirement of performing multiple functions and effectively maintaining social stability, the PAPF will continue to develop its forces for guard and security, contingency response, stability maintenance, counter-terrorism operations, emergency rescue and disaster relief, emergency support and air support, and work to improve a force structure which highlights guard duty, contingency response, counter-terrorism and stability maintenance. The PAPF will enhance its capabilities for performing diversified tasks centering on guard duty and contingency response in informationized conditions.

#### *Force Development in Critical Security Domains*

The seas and oceans bear on the enduring peace, lasting stability and sustainable development of China. The traditional mentality that land outweighs sea must be abandoned, and great importance has to be attached to managing the seas and oceans and protecting maritime rights and interests. It is necessary for China to develop a modern maritime military force structure commensurate with its national security and development interests, safeguard its national sovereignty and maritime rights and interests, protect the security of strategic SLOCs and overseas interests, and participate in international maritime cooperation, so as to provide strategic support for building itself into a maritime power.

Outer space has become a commanding height in international strategic competition. Countries concerned are developing their space forces and instruments, and the first signs of weaponization of outer space have appeared. China has all along advocated the peaceful use of outer space, opposed the weaponization of and arms race in outer space, and taken an active part in international space cooperation. China will keep abreast of the dynamics of outer space, deal with security threats and challenges in that domain, and secure its space assets to serve its national economic and social development, and maintain outer space security.

Cyberspace has become a new pillar of economic and social development, and a new domain of national security. As international strategic competition in cyberspace has been turning increasingly fiercer, quite a few countries are developing their cyber military forces. Being one of the major victims of hacker attacks, China is confronted with grave security threats to its cyber infrastructure. As cyberspace weighs more in military security, China will expedite the development of a cyber force, and enhance its capabilities of cyberspace situation awareness, cyber defense, support for the country's endeavors in cyberspace and participation in international cyber cooperation, so as to stem major cyber crises, ensure national network and information security, and maintain national security and social stability.

The nuclear force is a strategic cornerstone for safeguarding national sovereignty and security. China has always pursued the policy of no first use of nuclear weapons and adhered to a self-defensive nuclear strategy that is defensive in nature. China will unconditionally not use or threaten to use nuclear weapons against non-nuclear-weapon states or in nuclear-weapon-free zones, and will never enter into a nuclear arms race with any other country. China has always kept its nuclear capabilities at the minimum level required for maintaining its national security. China will optimize its nuclear force structure, improve strategic early warning, command and control, missile penetration, rapid reaction, and survivability and protection, and deter other countries from using or threatening to use nuclear weapons against China.

#### *Military Force Building Measures*

Strengthening ideological and political work. China's armed forces always treat ideological and political building as the first priority, and have endeavored to reinforce and improve their political work in the new situation. They will continue to practice and carry forward the Core Socialist Values, cultivate the Core Values of Contemporary Revolutionary Service Personnel, and carry forward their glorious traditions and fine styles. Moreover, the armed forces will uphold a series of fundamental principles for and institutions of the CPC's absolute leadership over the military, enhance the creativity, cohesion and combat effectiveness of their CPC organizations at all levels, make great efforts to cultivate a new generation of revolutionary service personnel of noble soul, competence, courage, uprightness and virtue, and ensure that the armed forces will resolutely follow the commands of the CPC Central Committee and the CMC at all times and under all conditions, and consistently retain the nature and purpose of the people's armed forces.

Pushing ahead with logistics modernization. China's armed forces will deepen logistics reform in relevant policies, institutions and support forces, and optimize strategic logistics deployment. They will innovate the modes of support, develop new support means, augment war reserves, integrate logistics information systems, improve rules and standards, and meticulously organize supply and support, so as to build a logistics system that can provide support for fighting and winning modern wars, serve the modernization of the armed forces, and transform towards informationization.

Developing advanced weaponry and equipment. Persevering in information dominance, systems building, independent innovation, sustainable development, overall planning, and emphasis on priorities, China's armed forces will speed up to upgrade weaponry and equipment, and work to develop a weaponry and equipment system which can effectively respond to informationized warfare and help fulfill the missions and tasks.

Cultivating new-type military personnel. China's armed forces will continue with the strategic project for personnel training and perfect the system for military human resources. They will deepen the reform of military educational institutions and improve the triad training system for new-type military personnel - institutional education, unit training and military professional education, so as to pool more talented people and cultivate more personnel who can meet the demands of informationized warfare.

Intensifying efforts in running the armed forces with strict discipline and in accordance with the law. Aiming at strengthening the revolutionization, modernization and regularization of the armed forces in all respects, China will innovate and develop theories and practice in relation to running the armed forces in accordance with the law, establish a well-knit military law system with Chinese characteristics, so as to elevate the level of rule by law of national defense and armed forces building.

Innovating military theories. Under the guidance of the CPC's innovative theories, China's armed forces will intensify their studies of military operations, probe into the mechanisms of winning modern wars, innovate strategies and tactics featuring mobility and flexibility, and develop theories on military building in the new situation, so as to bring into place a system of advanced military theories commensurate with the requirement of winning future wars.

Improving strategic management. It is necessary to optimize the functions and institutions of the CMC and the general headquarters/departments, improve the leadership and management system of the services and arms, and adhere to demand-based planning and plan-based resource allocation. China's armed forces will set up a system and a working mechanism for overall and coordinated programming and planning. They will also intensify overall supervision and management of strategic resources, strengthen the in-process supervision and risk control of major projects, improve mechanisms for strategic assessment, and set up and improve relevant assessment systems and complementary standards and codes.

#### *In-depth Development of Civil-Military Integration (CMI)*

Following the guiding principle of integrating military with civilian purposes and combining military efforts with civilian support, China will forge further ahead with CMI by constantly bettering the mechanisms, diversifying the forms, expanding the scope and elevating the level of the integration, so as to endeavor to bring into place an all-element, multi-domain and cost-efficient pattern of CMI.

Accelerating CMI in key sectors. With stronger policy support, China will work to establish uniform military and civilian standards for infrastructure, key technological areas and major industries, explore the ways and means for training military personnel in civilian educational institutions, developing weaponry and equipment by national defense industries, and outsourcing logistics support to civilian support systems. China encourages joint building and utilization of military and civilian infrastructure, joint exploration of the sea, outer space and air, and shared use of such resources as surveying and mapping, navigation, meteorology and frequency spectra. Accordingly, military and civilian resources can be more compatible, complementary and mutually accessible.

Building a mechanism for operating CMI. At the state level, it is necessary to establish a mechanism for CMI development, featuring unified leadership, military-civilian coordination, abutment of military and civilian needs, and resource sharing. Furthermore, it is necessary to improve the management responsibilities of relevant military and civilian institutions, improve the general standards for both the military and the civilian sectors, make studies on the establishment of a policy system in which the

government makes the investment, offers tax incentives and financial support, and expedites legislation promoting military-civilian coordinated development, so as to form a pattern featuring overall military-civilian planning and coordinated development. It is also necessary to push forward with the shared utilization of military capabilities and those of other sectors, and establish a mechanism for joint civil-military response to major crises and emergencies.

Improving the systems and mechanisms of national defense mobilization. China will enhance education in national defense and boost the awareness of the general public in relation to national defense. It will continue to strengthen the building of the reserve force, optimize its structure, and increase its proportion in the PLAN, PLAFAF and PLASAF as well as in combat support forces. The ways to organize and employ reserve forces will be more diversified. China will devote more efforts to science and technology in national defense mobilization, be more readily prepared for the requisition of information resources, and build specialized support forces. China aims to build a national defense mobilization system that can meet the requirements of winning informationized wars and responding to both emergencies and wars.

China's reported growth in military spending of 10.7% has roughly matched China's past GDP growth rate. Outside observers estimate that similar increase in China's military spending may be affordable even if China's GDP growth rate drops. In 2015, for example, the US Department of Defense assessed that, "China will probably sustain defense spending growth at comparable levels for the foreseeable future".<sup>11</sup>

At the same time, Chinese estimates of the growth of its military budget indicate this growth has been smaller than the increases in total national financial expenditures – with both roughly correlating to China's yearly GDP growth. China's official estimate of the military budget's share of total state expenditures decreased from 9.5% in 1994 to approximately 5% in 2015.<sup>12</sup> SIPRI notes that the share of China's military spending in relation to its GDP has fallen from 2.5% in 1992 to 1.9% in 2015.<sup>13</sup> These data provide some support to official Chinese statements that China's principal objective is economic development – and thus that defense.<sup>14</sup>

### **2016 Estimates**

In March 2016 the Chinese government announced that the defense budget would be 147 billion USD, marking a 7.6% increase from 2015.<sup>15</sup> This was a relatively small percentage increase compared to the last decade. In 2015 the increase had been 10.1%.<sup>16</sup> Once again, such statements were far from definitive and often differed substantially from the estimates given by the U.S. government, IISS, and SIPRI, or were seen as more political than real.

## ***Limited Transparency and Problems in Estimating Chinese Military Expenditures***

Most China experts, foreign governments, and military expenditure publications question China's official reporting. These concerns and subsequent differing conclusions regarding budgetary estimates illustrate the lack of expert consensus regarding the real level of Chinese defense spending. Indeed, experts put forth an array of complicating factors to suggest Chinese official reporting is not reliable.

Most experts concur that Chinese government statistics do not include some outlays that are standard reporting for most other countries. The 2006 Department of Defense report on China states the following aspects of China's military spending are not accurately disclosed by Chinese officials:<sup>17</sup>

- Arms imports, foreign weapon procurement, military aid for and from foreign countries;
- Expenses for paramilitary forces;
- Expenses for strategic and nuclear forces;
- Government subsidies for military production;
- Expenses for military R&D; and
- The PLA's own fundraising.

China experts Adam P. Liff and Andrew S. Erickson have also examined the issues involved, and their list of the items excluded from the official Chinese defense budget is a notably one:<sup>18</sup>

- The budget of the 660,000-strong People's Armed Police (PAP);
- Some domestic procurement and research and development expenses;
- Overseas purchases of major weapons and platforms;
- Contributions from regional and local governments;
- Extra-budgetary revenues and resources from a limited number of military commercial enterprises (such as hospitals, and strategic infrastructure);
- Militarily- relevant portions of China's space programme;
- Central and local government defence mobilization funds;
- One-time entrance bonuses for college students;
- Authorized sales of land or excess food produced by some units;
- Personnel for motion pictures; and
- Donations of goods, services and money by local governments and enterprises to units and demobilized personnel.

The Stockholm International Peace Research Institute (SIPRI)—considered an expert source for their vast database on military expenditure—likewise note prominent Chinese budgetary exclusions:<sup>19</sup>

The items outside the official defence budget that are included in the estimates are:

- (a) spending on the paramilitary People's Armed Police (PAP);
- (b) soldiers' demobilization and retirement payments from the Ministry of Civil Affairs;
- (c) subsidies to the arms industry;
- (d) additional military research, development, testing and evaluation (RDT&E) funding outside the national defence budget;
- (e) additional military construction expenses;
- (f) Chinese arms imports; and
- (g) residual military-owned enterprises.

Of the experts, entities, and organizations that attempt to calculate Chinese there are noticeable differences in methods and final projections. However, there is a consensus that officially released Chinese budget numbers underreport the level of defense expenditure.

Some outside experts believe that China's officially stated appropriations are not enough to support an organization that maintains 2.3 million service personnel and an increasingly

sophisticated and therefore expensive arsenal of weapons systems. The US government has at least implied that China is hiding information about military spending that should be made public. Others point out that pay increases and expenditures for social services among the armed forces have increased substantially in recent years. As previously noted, large pay raises have been authorized in 2006, 2008, and 2011. However, it is not clear whether pay increases have, in relative terms, outspent overall military expenditure growth.

One clear area of omission includes specific weapons and equipment procurement costs from domestic defense industries and defense-related R&D funds given to civilian defense contractors and PLA armament research institutions. These data are not publically released. Funding probably comes from several different parts of the government, such as the State Administration for Science, Technology, and Industry.

To this end, the 2016 Department of Defense report on China notes:<sup>20</sup>

However, it is difficult to estimate actual military expenses due to China's poor accounting transparency and incomplete transition to a market economy. China's published military budget omits several major categories of expenditure, such as R&D and the procurement of foreign weapons and equipment.

Although most PLA procurement is domestic, a significant percentage is imported, particularly advanced weapons technology and some weapons platforms. The PRC both imports completed weapons systems and promotes foreign-assisted development, licensed production, and reverse engineering. It is believed that these exports are paid for from special accounts controlled by the State Council and thus are not part of the official defense budget. It is likely that China will continue to rely on such imports for at least several more years.<sup>21</sup>

China's defense budget does not include provincial defense-related spending like military base operating costs. It is believed that this money comes from local governments and the Ministry of Civil Affairs. The former also contributes to militia and reserve expenses, including civilians working for some PLA departments. However, a 2010 government statistic showed that only 2.94% of defense expenditures were paid for by local governments, meaning that the exclusion of this spending from the official budget does not significantly affect the real spending numbers.<sup>22</sup>

The PAPF is sometimes cited as another major exclusion from the official Chinese military budget. However, this force's primary focus is paramilitary and domestic – with responsibilities like firefighting, border security, and natural disaster relief. In the event of a war, the PAPF would support the PLA in local defense, but neither supports the other in domestic operations during peacetime. The PAPF's budget is categorized under public security expenditures, not national defense expenditures (where the PLA's budget is located).<sup>23</sup>

As Adam P. Liff and Andrew S. Erickson note, these issues make estimating China's defense spending exceptionally difficult:<sup>24</sup>

China's general lack of transparency about how its official defence budget is calculated makes judging the validity of these Western criticisms very difficult. However, the potential significance of the above exclusions for assessing the size of China's actual defence budget is suggested in three important studies conducted by the International Institute for Strategic Studies (IISS).

In 2006, IISS estimated that including the costs of foreign weapons purchases, subsidies, R&D spending, new product expenditures, arms exports and PAP funding revealed a 72 per cent gap (in RMB terms) between China's FY2005 official defence budget and "actual" (i.e. IISS-estimated) defence spending.

In 2010, IISS estimated a roughly 39 per cent difference between the FY2008 official defence budget and “actual” (i.e. IISS-estimated) defence spending. In 2012, the estimated gap for the FY2010 budget was 41 per cent. It should be noted that, although large, the disparity between the official budget and IISS’s estimates declined significantly over the initial three-year period before stabilizing. As argued in the next section, this shrinking gap, which is consistent with similar trends in estimates by the US Department of Defense, suggests that in recent years an increasing percentage of “actual” PLA funding has been placed “on the books”; that is, officially reported figures increasingly reflect actual spending.

.... Although the exclusion of major items from China’s official defence budget is undoubtedly an issue of concern, less widely known is that the budget also includes some items that are not included in those of its Western counterparts. For example, the PLA still engages in some infrastructure construction projects, although many are designed to be dual-use and paid for from local and national non-defence funds.

It provides some medical help to civilians in remote areas and provides some support to domestic security operations (e.g. during the 2008 Olympics). The PLA also engages in disaster relief, such as the dispatch of over 200,000 personnel in response to the 2008 Wenchuan earthquake – the largest deployment of Chinese armed forces since the 1979 war with Vietnam.

There are legal provisions for it to be reimbursed for these operations, but the processes, delays and extent of such reimbursements remain unclear. In Western countries, such tasks are assigned primarily to non-military organizations. The PLA also provides perquisites for retired senior officers (offices, assistants, cars, drivers, cooks, caregivers, and special hospital facilities) that their better-salaried Western counterparts do not receive.

The problem is compounded in some cases by the methods used by outside experts. Some estimates by non-Chinese analysts that indicate military expenses are several times larger than PRC figures rely on PPP models. This reliance poses several problems:

- The assumed relative buying power of Chinese government funds in PPP terms refers to buying Chinese-made goods
- The market for military equipment and services in China is highly non-transparent, and transferring average PPP assumptions to the state-run military-industrial complex almost certainly will result in skewed results, even more so as China is importing military goods manufactured abroad
- Purchasing power theory loses its descriptive value when applied to goods, which are not homogenous; weapon systems and other military purchases are artificially protected by government regulation
- The return on investment in buying Chinese-made goods is unclear, and it is not unlikely that an indigenous product that meets state-of-the-art quality may actually cost more money than arrived at by PPP conversion

Other reasons include: (1) the difficulty of defining “defense spending”; (2) conversion of China’s RMB-denominated budget into US dollars, especially because of problems with the official exchange rates, application of PPP rates, and inflation and strengthening of the RMB since 2005 – meaning that conversions based on current exchange rates make recent budget increases look larger than they really are; and (3) the lack of transparency regarding the actual costs of individual items and which specific spending categories are already included in the official budget further complicates estimates of actual PLA military expenditures, and (4) a failure to take into account the fact that military pay can differ sharply from country to country, and that conscript forces are far cheaper than an all-volunteer forces.<sup>25</sup>

Liff and Erickson note that some of these issues can have a serious impact on the quality of outside estimates:<sup>26</sup>

...[I]n 2009, the US Department of Defense estimated China’s “actual” FY2008 defence budget at US\$105–150 billion: 1.8–2.6 times the official figure of US\$57.2 billion (RMB417.8 billion) and 2.5–3.6 per cent of GDP. Meanwhile, the Stockholm International Peace Research Institute (SIPRI)’s estimate that

year was much lower: US\$84.9 billion – 1.48 times the officially released figure. The difference between SIPRI's estimate and the upper bound of the Department of Defense's estimate was US\$65.1 billion, a difference larger than China's entire official defence budget that year.

While significant defence-related spending is undoubtedly excluded from China's official defence budget, some of the items included in foreign estimates of the "actual" figure are controversial. For example, some Western institutions include expenditures for the (domestically focused) PAP in their calculations, labeling it one of the largest extra-budgetary sources of defence spending. But they do so without offering explicit justification. This single line-item can inflate estimates of the budget by as much as one-fifth above the official figure. Take the 2010 figures as an example: adding only official PAP expenditures (RMB93.4 billion) to the official budget (RMB533.4 billion) results in an estimate of "actual" Chinese defence spending 18 per cent higher.

Finally, there are no standard rules for measuring security or "military" expenditures. Many other nations, including the US, have defense-related spending that is outside of their official defense budgets.<sup>27</sup>

For example, the US 051 (Department of Defense) budget excludes a significant amount of defence-related spending. In fact, one analysis of US "total defence-related spending" based on similar metrics to those regularly used by Western organizations to estimate China's "actual" defence budget found a US\$187 billion gap between the United States' official FY2006 defence budget and what this group of American PLA experts calculated as "actual" US defence-related spending that year.

The parallels they draw are intriguing: China is criticized for excluding some funding for officer pensions from its official defence budget, yet the Department of Veterans Affairs' entire budget, retirement costs paid by the Department of Treasury, and veterans' re-employment and training programmes paid by the Department of Labor are not included in Department of Defense's budget. China is criticized for excluding funding for its nuclear and strategic rocket programmes from its official defence budget, yet atomic energy activities related to defence are funded by the Department of Energy and fall outside the Department of Defense's budget. Finally, China is criticized for excluding the PAP's budget and various defence activities that are paid for by local governments from its official defence budget, yet neither the Department of Homeland Security budget nor state funding for some US National Guard functions is included in the Department of Defense's budget... [I]t is important to also stress that while "actual" US defence spending is larger than the official figure, most other relevant spending is relatively transparent, and can be assembled by a knowledgeable analyst. This is significantly less true of China's defence spending.

This report relies heavily on estimates from incredibly capable sources such as the DoD, SIPRI, and IISS. However, it should not be forgotten that these estimates are, in fact, estimates. These organizations do substantial work in attempting to lift back the cover but it is impossible to know how successful they are in mitigating the opacity. Thus, it is fruitless to focus on specific data points. Instead, the defense expenditure estimates that make up this report prove most instructive in illuminating and depicting trend lines.

## *US Analyses of Chinese Defense Budgets*

The 2016 DoD report on China "estimates that China's total military-related spending for 2015 exceeded \$180 billion U.S. dollars (USD)."<sup>28</sup> As always, the U.S. estimate was much higher than the Chinese government report that China's military budget increased to \$141.5 billion in 2015.<sup>29</sup> China argues that its defense budget expands in parallel with its economic growth and is not directed at any other country. One Chinese Vice-Foreign Minister remarked, "Strengthening China's defense capability will be conducive to further stability in the region and will be conducive to world peace."<sup>30</sup>

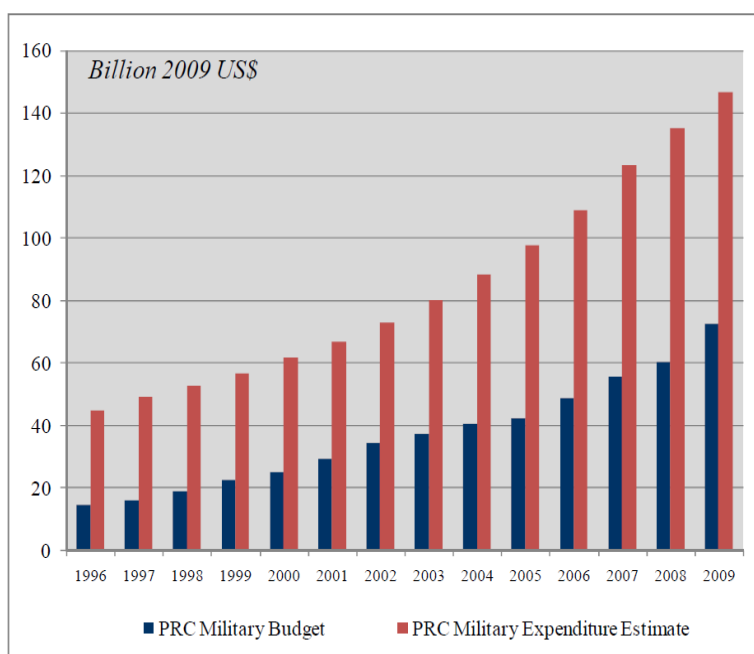
The DoD estimated China's actual military spending at \$120-180 billion in 2011, compared to the official figure of \$91.5 billion.<sup>31</sup> While in 2012 the DoD estimated that the PLA budget was

in between \$135-215 billion compared to the report \$114 billion. DoD reports have not reported a budget estimate in range form since the 2013 report. Considering there is no information regarding DoD estimation methodology this could indicate some sort of change in methodology.

Recently unclassified DoD and US Intelligence reports have provided some assessments of the PLA budget and expenditures. **Figure 1.3 Pt. 1** is taken from the now-dated 2010 DoD report on China, shows a comparison of official Chinese defense budgets and US estimates of the actual size of the Chinese budget over 1996-2009.

**Figure 1.3 Pt. 2** aggregates the annual Department of Defense estimates regarding actual PLA budget and expenditure. These US estimates try to take into account all military-related expenses rather than taking PLA reporting at face value. Still, the DoD estimates should also be treated with caution as a detailed explanation of the methodology used to make these estimates is not available. However, they illustrate trends that may characterize the current PLA budget and expenditures. Having come from the DoD the estimates may also take into account classified intelligence and information that organizations like IISS, SIPRI, and IHS Jane's do not have access to.

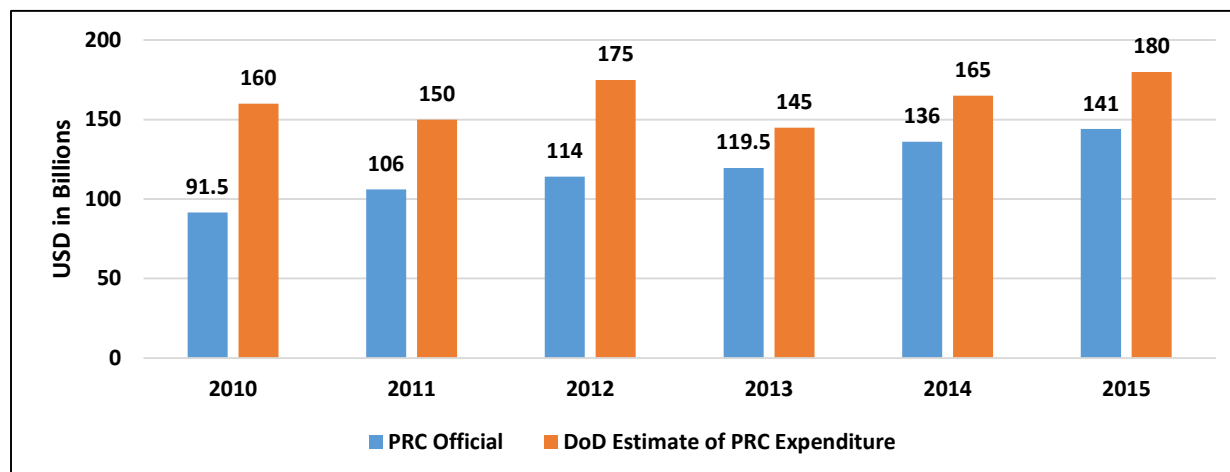
***Figure 1.3: Historical PRC Defense Budget Compared to US Estimates of Total Defense Spending Pt. 1***



*China's Annual Real GDP and Military Budget Growth, 2000 - 2009.*

Source: DoD, *Military and Security Developments Involving the People's Republic of China 2010*, 42, [http://www.defense.gov/pubs/pdfs/2010\\_CMPR\\_Final.pdf](http://www.defense.gov/pubs/pdfs/2010_CMPR_Final.pdf).

**Figure 1.3: Historical PRC Defense Budget Compared to US Estimates of Total Defense Spending Pt. 2**

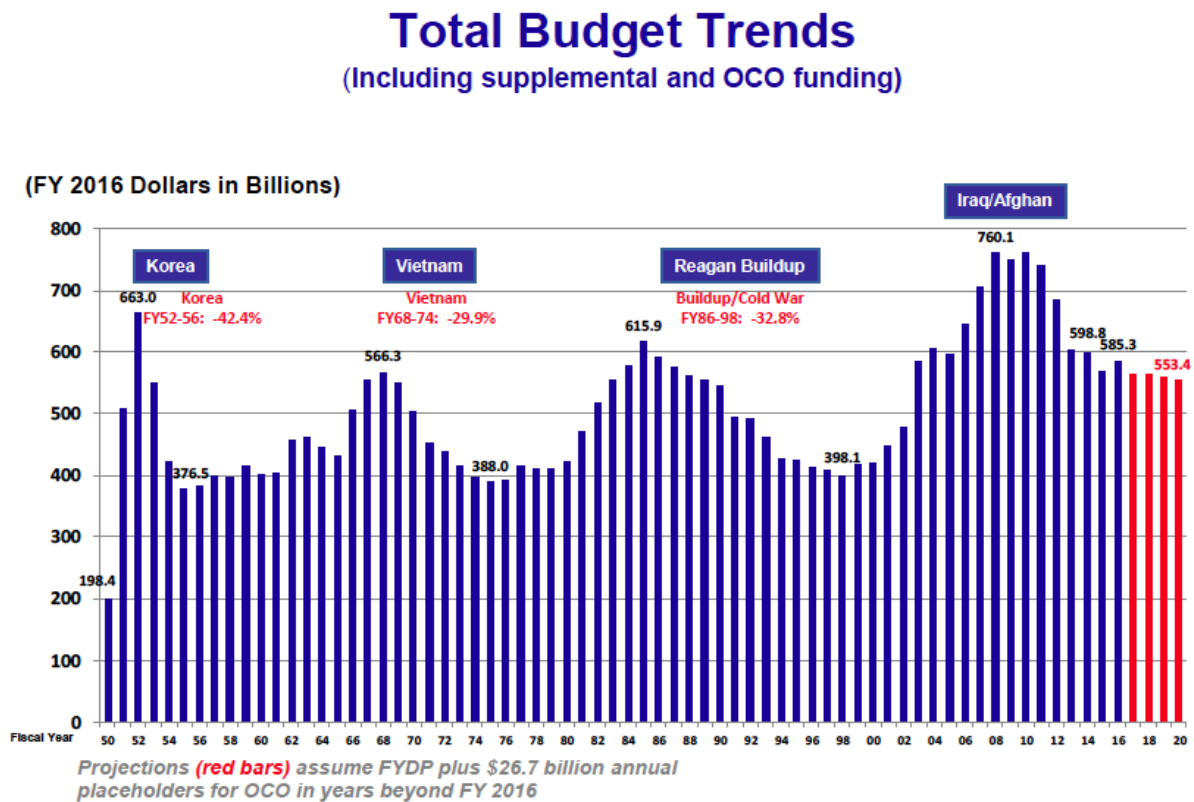


Source: DoD, *Military and Security Developments Involving the People's Republic of China 2011-2016*. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, August 2016.

Note: In the case of the 2011 and 2012 DoD reports the estimate of PRC spending was presented as a range. For statistical clarity, the ranges have been averaged and the average incorporated into the graph. Additionally, the numbers are taken from the yearly DoD reports and thus not adjusted for inflation as they are in **Figure 1.3 Pt. 1**.

The different US Department of Defense estimates do seem to be based partly on comparable cost – the value of Chinese military efforts in prices comparable to those in the U.S. At the same time, free market attempts to guess at the market cost of such military efforts are notoriously inaccurate and uncertain. For example, the US intelligence community found after the Cold War that its attempts to determine the economic burden of Soviet defense expenditure and the equivalent cost of Soviet forces in US terms were sometimes little more than econometric nonsense.

At the same time, both the Chinese and U.S. estimates of Chinese spending fell far below the figures for U.S. military spending. **Figure 1.4** shows the trends in U.S. defense spending from 1950-2020. The figures for U.S. spending during 2010-2014 are four to seven times larger than those of China. It would take years at a 7-10% growth for Chinese spending to rival that of the U.S. However, at a time when U.S. defense spending is restricted due to budget caps installed by the Budget Control Act of 2011, there is understandable consternation in Washington regarding China's continued defense budget growth.

*Figure 1.4: Historical US Defense Expenditures*

Source: DoD, *Fiscal Year 2016 Budget Request*, Office of the Undersecretary of Defense (Comptroller) /Chief Financial Officer, February 2015, 25,  
[http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2016/FY2016\\_Budget\\_Request\\_Overview\\_Book.pdf](http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2016/FY2016_Budget_Request_Overview_Book.pdf)

Even more than for the U.S., Chinese military growth is undoubtedly concerning for its neighbors in Asia. **Figure 1.5** is taken from the 2016 DoD report and compares China's official 2015 defense budget to other regional powers. If such estimates are correct, Chinese defense spending has far surpassed those of its neighbors.

**Figure 1.5: DoD Comparison of Chinese and Other Regional Defense Budgets**

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2015 Defense Budget Comparison (Adjusted for Inflation)	
	Billion (USD)
China (Official Budget)	\$144
Russia (National Defense Budget)	\$54.4
Japan	\$40.8
India	\$39.0
Republic of Korea	\$33.43
Taiwan	\$9.9

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Source: Department of Defense, *Military and Security Developments Involving the People's Republic of China 2016*, April 2016.

While neither China nor the U.S. forecast future Chinese military spending, or provide a clear basis for doing so, the DoD did include an *IHS Jane's* projection in the 2016 China report:<sup>32</sup>

IHS Jane's Defense Budgets expects China's defense budget to increase by an annual average of 7 percent, growing to \$260 billion by 2020. As of March 2015, the DoD Comptroller forecasted the US defense budget will reach \$598 billion in current dollars over the same period.

Still, China has not disclosed any specifics in its more recent defense budgets nor reported any expenditures publicly, making it difficult to assess any spending trends. The *IHS Jane's* estimate is based on a reasonable educated guess of continued 7% growth in China's defense expenditures, but this is not a projection based on hard knowledge or intelligence.

The Department of Defense annual report – *Military and Security Developments Involving the People's Republic of China 2016* – did not mention China's 2016 defense appropriation, even though it was announced a month prior to the publication of the U.S. report. The 2016 DoD report did, however, provide the following overview of China's resources for force modernization and defense spending:<sup>33</sup>

China has the fiscal strength and political will to sustain increased defense spending, supporting the continued modernization of the PLA into a more professional and capable force. The PLA continues to decrease its reliance on foreign weapon acquisitions as China's defense-industrial and research bases mature. However, the PLA still looks to foreign assistance to fill some critical, near-term capability gaps. China continues to leverage foreign investments, commercial joint ventures, academic exchanges, the experience of Chinese students and researchers, and state-sponsored industrial and technical espionage to increase the level of technologies and expertise available to support military research, development, and acquisition. China's long-term goal is to create a wholly indigenous defense-industrial sector, augmented by a strong commercial sector, to meet the needs of PLA modernization and to compete as a top-tier supplier in the global arms market. China draws from diverse sources to support PLA modernization, including domestic defense investments, indigenous defense industrial development, a growing research and development (R&D) / science and technology (S&T) base, dual-use technologies, and foreign technology acquisition.

Overall, most official U.S. assessments focus squarely on the massive growth in the Chinese defense spending in the past few decades. The 2009 DoD report on China notes:<sup>34</sup>

China's military budget doubled between 1989 and 1994, and almost doubled again between 1994 and 1999. The 2005 military budget was almost ten times the 1989 military budget. If these trends continue, China's military budget for 2009 will nearly double the 2005 figure.

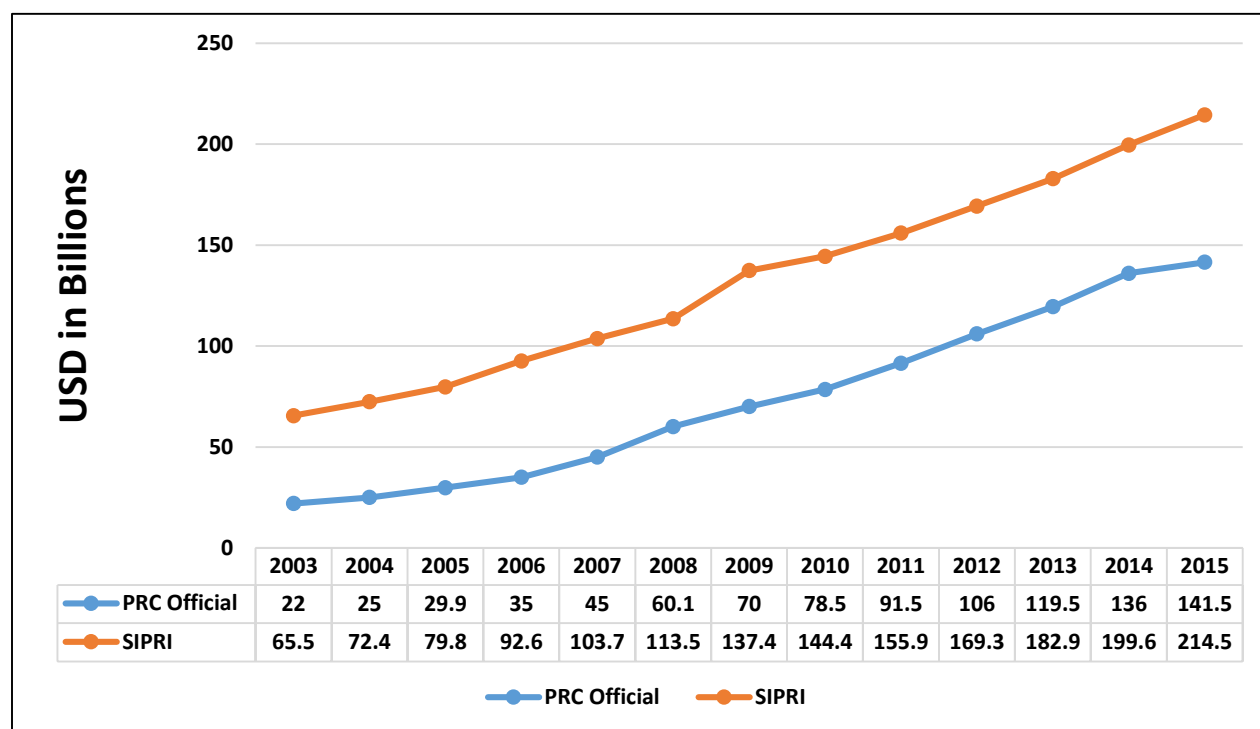
Despite this, there is no doubt that the U.S. remains the predominant military power in the world by a substantial margin. Even when comparing the DoD's 2016 expanded estimate of Chinese military expenditure to the U.S. Fiscal Year 2017 Defense Budget—struggling under the weight of budget caps—the U.S. is still out spending China threefold.

## *Other Outside Assessments of Chinese Military Spending*

### **SIPRI Estimates**

SIPRI has consistently estimated that China actually far outspends its declared budget. For 2015, SIPRI estimated China's military expenditure to be \$214.5 billion, a substantial amount higher than China's official claim of \$141.5 billion. **Figure 1.6** depicts the consistently substantial difference in SIPRI estimates compared to what Chinese government official releases.

**Figure 1.6: Official Chinese Budget Announcements versus SIPRI Estimates 2003-2015**



Source: Source: DoD, *Military and Security Developments Involving the People's Republic of China 2003-2016* for "PRC official" and SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, August 2016.

SIPRI institutionally recognizes the difficulties of calculating China's actual defense spending with precision. Consequently, on its website SIPRI provides a detailed breakdown regarding how they collect and interpret data differently in relation to China. SIPRI notes:<sup>35</sup>

In its estimates of Chinese military expenditure, SIPRI seeks to take into account a number of sources of military expenditure outside the official defence budget. Such sources of military expenditure include funding from other central government ministries (some of which is publicly available, some of which is not), funding from local government and funding from internal People's Liberation Army (PLA) sources—the latter probably represents a much smaller share of the total than in the past. SIPRI's estimate of China's military spending is based on a methodology used in a study published in SIPRI Yearbook 1999, which provides estimates of Chinese military spending from 1989–1998, based on both the official defence budget and data and estimates for a number of items outside the budget (see below). [1]

SIPRI's estimates for China continue to be based on Professor Wang's methodology, adapted over time as new information has become available, or in some cases where data series have ceased to be available. The figures come from the official defence budget, and estimates for the additional items identified by Professor Wang. These are based on additional data from various editions of the China Public Finance Yearbook, the China Statistical Yearbook and other official publications, but also in some cases require additional estimation for more recent years, where the data series used by Professor Wang are no longer available.

The items outside the official defence budget that are included in the estimates are:

- (a) spending on the paramilitary People's Armed Police (PAP);
- (b) soldiers' demobilization and retirement payments from the Ministry of Civil Affairs;
- (c) subsidies to the arms industry;
- (d) additional military research, development, testing and evaluation (RDT&E) funding outside the national defence budget;
- (e) additional military construction expenses;
- (f) Chinese arms imports; and
- (g) residual military-owned enterprises.

Professor Wang included one additional item, namely an estimate for PLA revenues from arms exports. However, to avoid the risk of double-counting, this item (which was a very small part of the total) has been removed. These figures and estimates are derived as follows:

- The figures for the PAP come from published expenditure figures up to 2014, while the figures for 2015 is estimated based on the rate of change of the Public Security budget.
- The figures for demobilization payments come from published expenditure figures up to 2012, with the figures for 2013–15 estimated based on the rate of change of the official budget.
- Estimates for subsidies to the arms industry are based on a share of the total budget for industrial subsidies. From 2005, this share is assumed to have declined due to the increasing profitability of most of the arms industry in China, and to have been zero from 2010 onwards.
- Estimates for additional military RDT&E from 2007–2015 are based on a share of total Central Government appropriations for Science & Technology (S&T). The share is based on information for 2011–2014 on the proportion of the S&T budget that is allocated to civilian agencies that disclose their spending in annual reports. The remainder is assumed to be allocated to the agencies that do not disclose annual reports, with military and security significance, and it is estimated that 90% of this is for military purposes. The estimates for 1997–2006 are based on a slightly smaller share of a previous series for Central Government S&T appropriations, which used a different classification system, giving somewhat higher figures than the new system. The estimates up to 1996 are Professor Wang's estimates, and are based on a share of overall government Research and Development and Science and Technology budget.
- Estimates for additional military construction are based on a share of the government's capital infrastructure budget. As these figures are not published beyond 2006, estimates for 2007–2015 are based on the average growth rate of this budget over the previous 5 years; estimates for arms imports use figures provided by Russia for the value of arms transfers to China for the years where this information is available, as Russia accounts for the vast majority of Chinese arms imports. For

the years where these figures are not available, the estimates are based on the rate of change of China's arms imports as measured by the SIPRI Trend Indicator Value (TIV).

- Income from commercial activities of the PLA is assumed to have declined steadily since 1999, as a policy of divestment from such activities has been followed. The figures for 1989–98 are Professor Wang's, and are based on a share of the official defence budget.

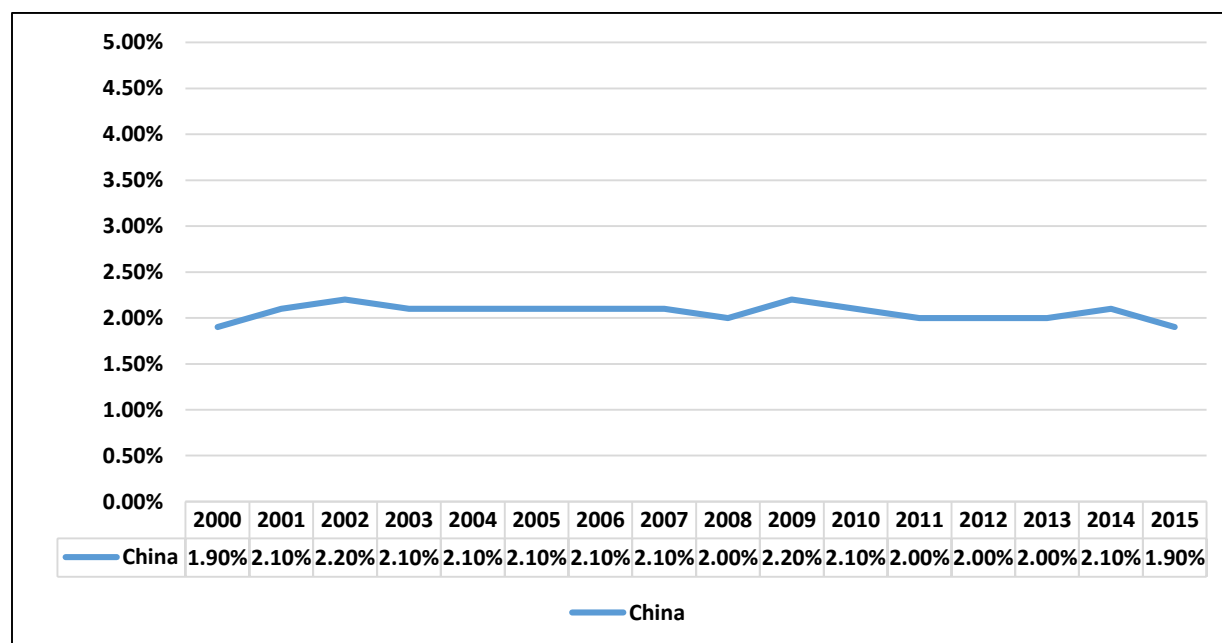
The resulting SIPRI estimates for Chinese military spending for recent years come to around 1.5 times the official defence budget for most years.

A 2006 report by the US-China Policy Foundation, based on an analysis of available Chinese-language sources, broadly concurs with the list of items included by SIPRI, but also adds various additional forms of funding to the PLA from local government, as well as some higher education expenses for PLA officers and compensation for disaster relief activities. The report concludes, however, that there is not at present enough information to make a reasonable estimate of total Chinese defence-related spending.

While details of some elements of Chinese military spending outside the official defence budget are publicly available (such as the PAP budget) others—most importantly R&D spending—are not, and can at present only be the subject of educated guesswork. Further research based on publicly available Chinese-language sources could provide improved estimates, but without greater transparency on the part of the Chinese Government, a completely accurate figure is not currently possible.

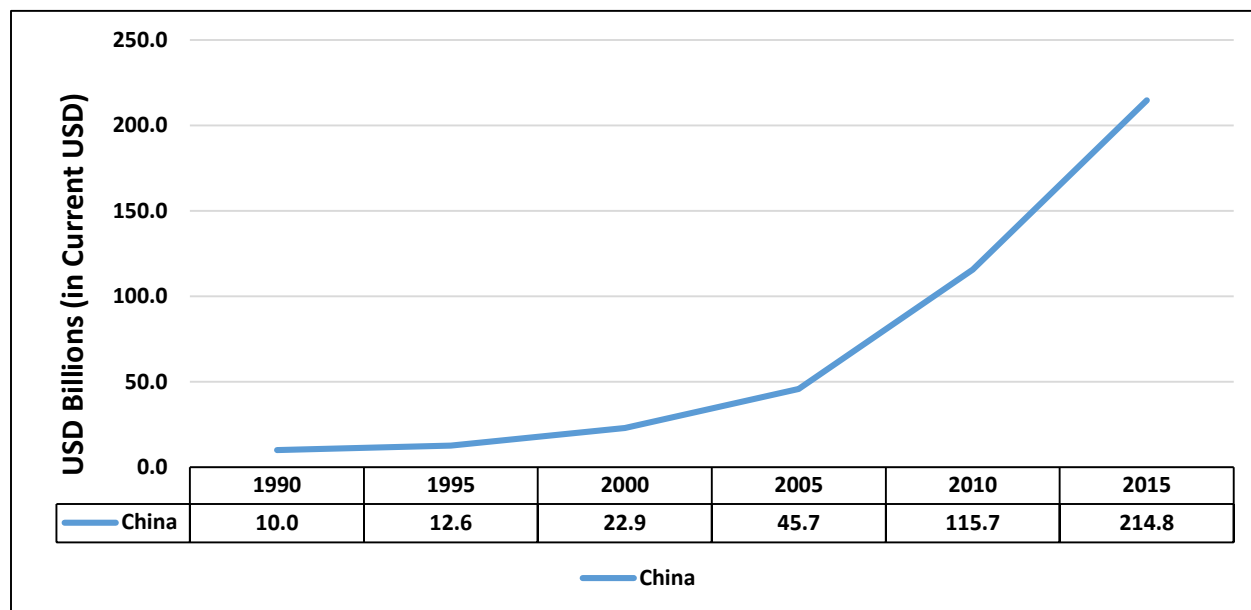
Furthermore, SIPRI's substantial database includes a wide array of other statistics which are included in **Figures 1.7-1.9**. These include statistics assessing Chinese defense spending as both a percentage of it GDP and overall government spending and addressing China's growth in spending since 1990.

**Figure 1.7: SIPRI Estimate on Chinese Defense Spending as Percentage of GDP 2000-2015**



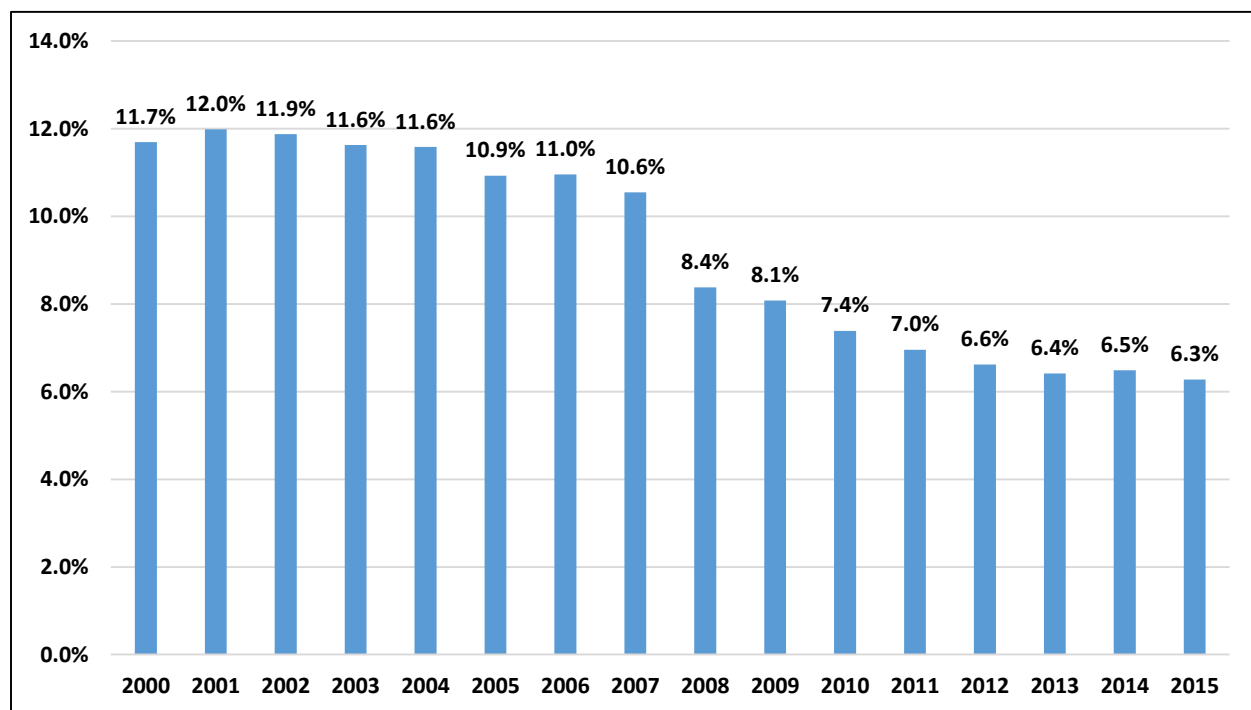
Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

**Figure 1.8: SIPRI Estimate on China's Defense Expenditure 1990-2015 (Current USD)**



Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

**Figure 1.9: Chinese Defense Expenditure as Percentage of Overall Government Spending (2000-2015)**



Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

## IISS Estimates

The International Institute for Strategic Studies (IISS) is another source for well-researched budget data. Like SIPRI, the IISS provides special qualifications in its assessment of less forthcoming countries like China. IISS predominantly relies on three statistics in regards to China: official budget as reported by China, their own defense expenditure estimate, and a defense expenditure estimate using purchasing power parity (PPP). **Figure 1.10** depicts the three IISS categories side by side from 2010-2014.

For IISS, they include the category of defense expenditure for countries that do not disclose their defense budgets or are not totally forthcoming in their release. Defense expenditure amounts to their institutional estimation of defense spending. IISS elaborates:<sup>36</sup>

Where possible, official defence budgets for the current and previous two years are shown, as well as an estimate of actual defence expenditures for those countries where true defence expenditure is thought to be higher than official budget figures suggest. Estimates of actual defence expenditure, however, are only made for those countries where there is sufficient data to justify such a measurement. Therefore, there will be several countries listed in *The Military Balance* for which only an official defence-budget figure is provided but where, in reality, true defence-related expenditure is almost certainly higher.

All financial data in the country entries is shown in both national currency and US dollars at current year - not constant - prices. US-dollar conversions are generally, but not invariably, calculated from the exchange rates listed in the entry. In some cases a US-dollar purchasing-power parity (PPP) rate is used in preference to official or market exchange rates and this is indicated in each case.

...For those countries where the official defence-budget figure is considered to be an incomplete measure of total military-related spending, and appropriate additional data is available, the IISS will use data from a variety of sources to arrive at a more accurate estimate of true defence expenditure. The most frequent instances of budgetary manipulation or falsification typically involve equipment procurement, R&D, defence-industrial investment, covert weapons programmes, pensions for retired military and civilian personnel, paramilitary forces and non-budgetary sources of revenue for the military arising from ownership of industrial, property and land assets.

Furthermore, IISS finds unique value in utilizing PPP as a measure for defense expenditure in the case of China.<sup>37</sup>

Typically, but not invariably, the exchange rates shown in the country entries are also used to calculate GDP and defence-budget and defence-expenditure dollar conversions. Where they are not used, it is because the use of exchange-rate dollar conversions can misrepresent both GDP and defence expenditure. For some countries, PPP rather than market exchange rates are sometimes used for dollar conversions of both GDP and defence expenditures. Where PPP is used, it is annotated accordingly.

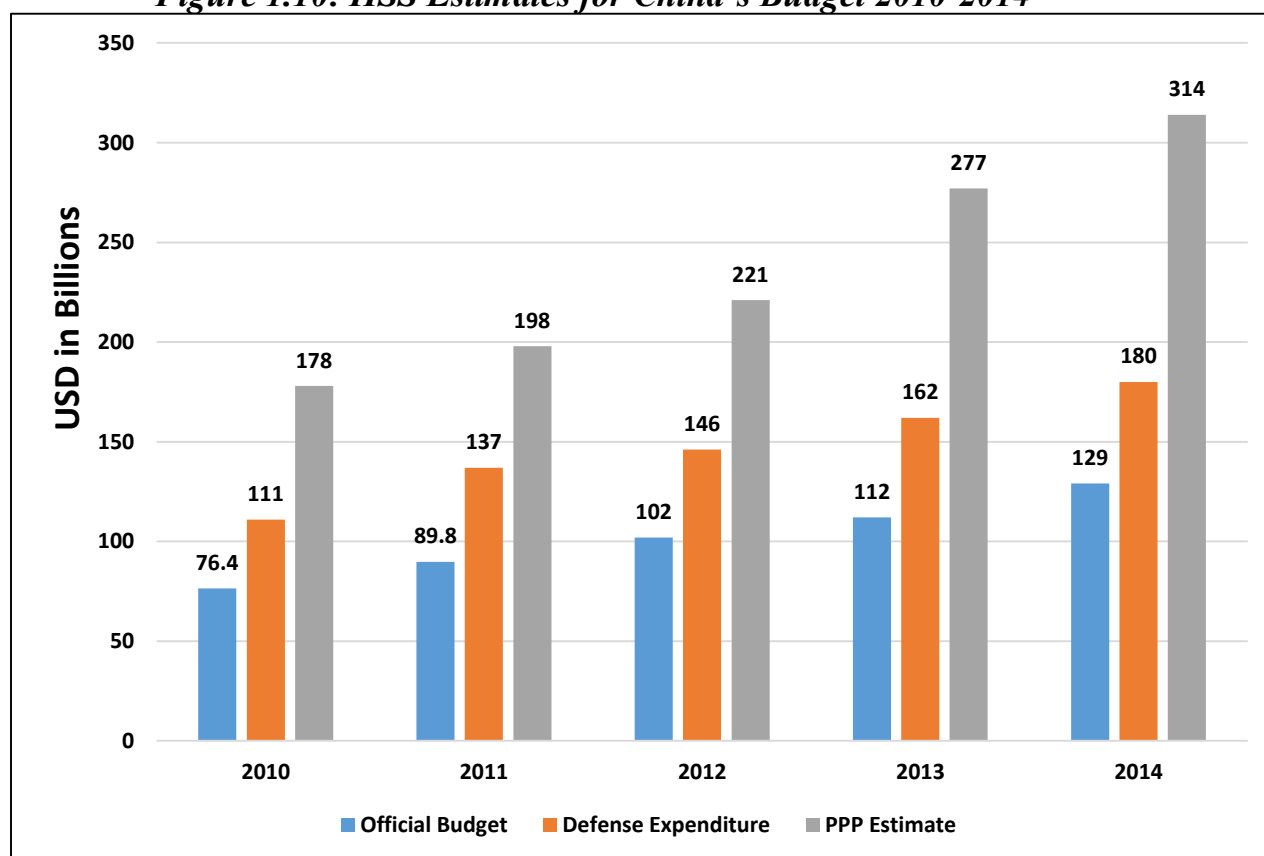
The arguments for using PPP are strongest for Russia and China. Both the UN and IMF have issued caveats concerning the reliability of official economic statistics on transitional economies, particularly those of Russia, and some Eastern European and Central Asian countries. Non-reporting, lags in the publication of current statistics and frequent revisions of recent data (not always accompanied by timely revision of previously published figures in the same series) pose transparency and consistency problems. Another problem arises with certain transitional economies whose productive capabilities are similar to those of developed economies, but where cost and price structures are often much lower than world levels. No specific PPP rate exists for the military sector, and its use for this purpose should be treated with caution. Furthermore, there is no definitive guide as to which elements of military spending should be calculated using the limited PPP rates available. The figures presented here are only intended to illustrate a range of possible outcomes depending on which input variables are used.

.... On 5 March, China released its 2013 defence budget. It was set at RMB718bn (US\$112bn), an increase of 10.7% over 2012. Over the past decade, China has seen a rapid acceleration in its official defence-spending levels, with rates of increase comparable to the expansion of the Chinese economy. Additionally,

as noted each year in *The Military Balance*, official Chinese defence budget figures probably underestimate true defence spending. Although official figures include personnel, operations and equipment expenditure, it is widely held that other military-related expenditures are omitted, such as R&D and overseas weapons purchases. A fuller account of China's true military spending levels should also include funding allocated to the People's Armed Police (PAP). If estimates of these extra items are included, Chinese defence spending typically rises to about 1.4 to 1.5 times official figures.

However, the after-effects of the financial and debt crises that in 2008 hit advanced Western economies, China's main export destination, call into question Beijing's export-oriented industrial growth model. China's announced growth target for 2013 is, at 7.5%, lower than the 2012 figure. Unless China can decouple from advanced economies and successfully rebalance towards a domestic-demand driven model, its GDP growth- and by extension, its defence spending growth- will in part continue to be constrained by the ill-health of advanced economies. Chinese real defence spending growth rates may have started to fall in the five years since the crisis. In 2009-13, average real defence-spending growth was 7.6% per annum, compared to an average 10.4% per annum in the five years before the crisis (2003-2007).

**Figure 1.10: IISS Estimates for China's Budget 2010-2014**



Source: *IISS Military Balance 2012-2016*.

Note: IISS releases estimates on Defense Expenditure and PPP a year after it includes official budgets. For example, *IISS Military Balance 2016* includes the officially released Chinese budget for 2015 but the Defense Expenditure and PPP estimates are from 2014.

### Erickson and Liff Estimates

A 2013 analysis by Adam P. Liff and Andrew S. Erickson puts forth a different outlook. Indeed, Erickson and Liff push back against the idea that the Chinese defense budget is wildly underreported and note:<sup>38</sup>

The growth in spending over the past two decades is driven primarily by a desire to modernize and professionalize the PLA after decades of neglect and military backwardness. Throughout much of the post-1978 reform era the real-world effects of China's nominal defence spending have been mitigated heavily by rampant inflation. Even during recent periods of relatively low inflation, rapid defence budget increases have been roughly consistent with overall GDP growth and outpaced by the growth in total state financial expenditures. Beijing's official defence budget increasingly captures actual PLA funding and the PLA's widely criticized opacity is improving gradually and is not as exceptional among countries at its stage of development as is widely believed. Defence spending growth over the past two decades has led to significantly improved military capabilities, the most significant of which are designed primarily to address contingencies in the Near Seas and their immediate approaches as opposed to further afield. Recent defence spending increases are sustainable, at least in the near-term, and could be augmented considerably and directed to support selected overseas contingencies. However, in the medium- to long-term, worsening economic and demographic pressures may impel China's leaders to shift budget resources elsewhere and thereby limit further military spending growth

The article provided the data on Chinese defense spending shown in **Figures 1.11 and 1.12** Liff and Erickson noted that while the official Chinese defense budget nominally increased at an average annual rate that exceeded 10% since 1990, important qualifications had to be made in assessing China's real spending. One qualification was inflationary pressure in China. Liff and Erickson felt that calculating China's defense budget at real prices – and thus accounting for inflation effects – showed that China's effective defense spending growth rate was much lower, as was the burden Chinese military spending placed on the Chinese economy:<sup>39</sup>

The differences between the nominal (current price) and real (constant price) average annual growth rates are remarkable: 1.6 per cent vs. -3.2 per cent (1980–1989); 15.7 per cent vs. 7.8 per cent (1990–1999); 16.5 per cent vs. 12.5 per cent (2000–2009); and 10.4 per cent vs. 3.1 per cent over the 2010–2011 period. In other words, when calculated in real terms the average annual increases in the budget exceeded 10 per cent during only one of the ten-year periods in [see **Figure 1.12**]: 2000–2009. This all suggests that unqualified statements along the lines of “China's official defence budget has increased by double-digits since year 19XX,” while in most cases technically true in nominal terms, may exaggerate the real-world effects of these budget increases.

**Figure 1.11: PRC Defense Spending-related Comparative Statistics, 1980-2011**

	1980-1989 (annual average)	1990-1999 (annual average)	2000-2009 (annual average)	2010-2011 (annual average)
Defense budget growth rate...				
... At current prices	1.6%	15.7%	16.5%	10.4%
... At constant prices (base year of 1980)	-3.2%	7.8%	12.5%	3.1%
GDP growth rate	9.8%	10.0%	10.3%	9.8%
State financial expenditures growth rate (aggregate – central and local)...				
... At current prices	8.6%	16.8%	19.3%	19.5%
... At constant prices (base year of 1980)	3.5%	8.8%	15.1%	11.6%

Source: Adam P. Liff and Andrew S. Erickson, “Demystifying China’s Defence Spending: Less Mysterious in the Aggregate,” *China Quarterly*, March 2013, 8.

**Figure 1.12: PRC Official Defense Budget Annual Data, 2002-2012**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
GDP growth rate at current prices	9.1%	10.0%	10.1%	11.3%	12.7%	14.2%	9.6%	9.2%	10.4%	9.2%	N/A
Defense budget (RMB billions)...											
... At current prices	170.8	190.8	220.0	247.5	297.9	355.5	417.9	495.1	533.3	602.7	670.0
... At 2002 constant prices	170.8	186.0	200.6	217.1	251.8	279.1	304.4	362.9	366.6	385.3	N/A
... As % of GDP	1.42%	1.40%	1.38%	1.34%	1.38%	1.34%	1.33%	1.45%	1.33%	1.28%	N/A
Defense budget growth rate...											
... At current prices	18.4%	11.7%	15.3%	12.5%	20.4%	19.3%	17.6%	18.5%	7.7%	13.0%	11.2%
... At 2002 constant prices	18.5%	11.4%	14.0%	11.0%	17.2%	15.2%	12.8%	13.6%	5.3%	8.3%	N/A

Source: Adam P. Liff and Andrew S. Erickson, “Demystifying China’s Defence Spending: Less Mysterious in the Aggregate,” *China Quarterly*, March 2013, 10.

Note: 2012 defense budget is an estimated figure reported in Xinhua.

## *The Chinese Response*

The fact remains, however, that outside critics often do criticize this lack of transparency and inclusiveness in the Chinese defense budget transparency and the exclusion of significant defense-related spending from the official budget – arguing that China deliberately underreports actual military spending to disguise its actual military efforts and intentions.

Chinese commentators respond to such criticisms of the PRC's lack of military transparency in several different ways. They:<sup>40</sup>

- (1) emphasize that there is no universal standard for military transparency;
- (2) compare the current level of transparency favourably to even greater opacity previously; or
- (3) contend that “the most fundamental and most important form of transparency” is the transparency of China's strategic intentions, as opposed to the transparency of military capabilities or doctrine.

This highlights Chinese defensiveness regarding their transparency. Yet, in their commitment to obfuscating their defense spending, the Chinese invite onto themselves external concerns about whether their rise will be peaceful. There is a vagueness regarding what China is trying to achieve through its lack of transparency, which begets mistrust. At the same time, it is important to note that other countries in the region with similar economic development levels, such as India, have similar transparency (or lack thereof) in their military spending. China is scarcely an exception.<sup>41</sup>

The Chinese also take substantial umbrage with international concern about their increased defense spending. Erickson and Liff point to Donald Rumsfeld's comment at the 2005 Shangri-La Dialogue as the type that enrages the Chinese, “Since no nation threatens China, one must wonder: Why this growing investment [in defence]? Why these continuing large and expanded arms purchases? Why these continued deployments?”<sup>42</sup>

Further exemplifying this is a March 2015 article published by state-run *Xinhua*—shortly after the announcement of the Chinese military budget increase of 10.1%—that complained about statements from the West regarding the rapidly increasing defense spending:<sup>43</sup>

The double-standard deeply rooted in some Western countries' minds makes them biased when they look at China, which, according to their imagination, should better be a giant market and concurrently a military dwarf.

No wonder the newly revealed 10.1-percent increase of Chinese military budget in 2015 draws ire from them.

However, their outcry of "concerns" and "worries" is misplaced and unfounded at least for three reasons.

First of all, comparatively speaking, the current Chinese military spending is by no means a big one for a country that has the world's largest population and a territory of over 9 million square km to defend.

Through tinted glasses, some Western countries and media could see nothing but threat regarding China's military budget. Or so to speak, they neglect on purpose the fact that the budget in 2014 was less than 1.5 percent of its GDP, and lower than the average level of 2.6 percent worldwide.

They also deliberately ignored that China's per capita military spending in 2014, a key figure that their own military experts hold as an important index in judging a nation's defense budget, is even less -- only one twenty-second that of the United States, one-ninth of Britain and one-fifth of Japan, which does not even have a regular army.

So, to portray China as a threat on the basis of its less-than-supposed military budget is nonsensical.

Second, unlike Britain and Japan that have alliance to share military technology, China's defense modernization is naturally to be more difficult, as it has to rely mostly on itself to start from scratch, which surely demands a relatively high military expenditure.

This self-dependence reality is further strengthened by a weapon embargo groundlessly forced on China by the European Union and the United States. In this sense, the West is a catalyst for China's relatively "big" military budget.

Third, the balance of power, touted by Western politicians as an iron law in their political bible, is unstable in East Asia, with Japan approving its largest ever military budget in January.

No Western countries could keep closed eyes on its neighbor's surging military ambition, for the sake of balance of power and its own national security, let alone a neighbor of recidivist trouble maker.

By the same token, a responsible and major stakeholder like China needs sufficient strength to prevent a possible conflict or war lodged by miscalculating, hot-headed neighbors, and maintain a stable and peaceful Asia-Pacific region and the world as a whole.

For all that, China's expanding military budget is a justifiable and normal uptick. Depicting it as a new story of China threat neither does any good to the mutual trust between China and the West, nor strengthens the moral high ground of the West.

There is credence to China's claims of unfair treatment. Though it is clear that China's defense expenditure has grown significantly in the last twenty-five years, it has been underpinned by massive overall economic growth. 2015 marked the first year since 1990 that China's GDP growth percentage fell below 7%. **Figure 1.13** depicts not only China's huge growth in GDP percentage but also its sustained nature stretching across three decades.

Reacting to these facts, the Xinhua article also makes the argument that China's growth in defense spending should be seen simply as an "normal uptick" resulting from overall economic growth. Indeed, it would be nonsensical to suggest that a country's expenditures should not rise to match incoming revenue.

**Figures 1.14** and **Figure 1.15** offer additional support to Chinese claims. **Figure 1.14** depicts the percentage of GDP made up of defense spending for SIPRI's top ten highest defense spenders. In 2015, China sat at the identical 1.9% that it was at in 2000, with minimal variation in between. This also marks a decrease on the 2.5% that China posted in 1990. In comparison to the other top ten spenders only Germany and Japan have lower percentages. Both those countries have long restrained defense spending—legally in the case of Japan—as a result of their World War II legacies.

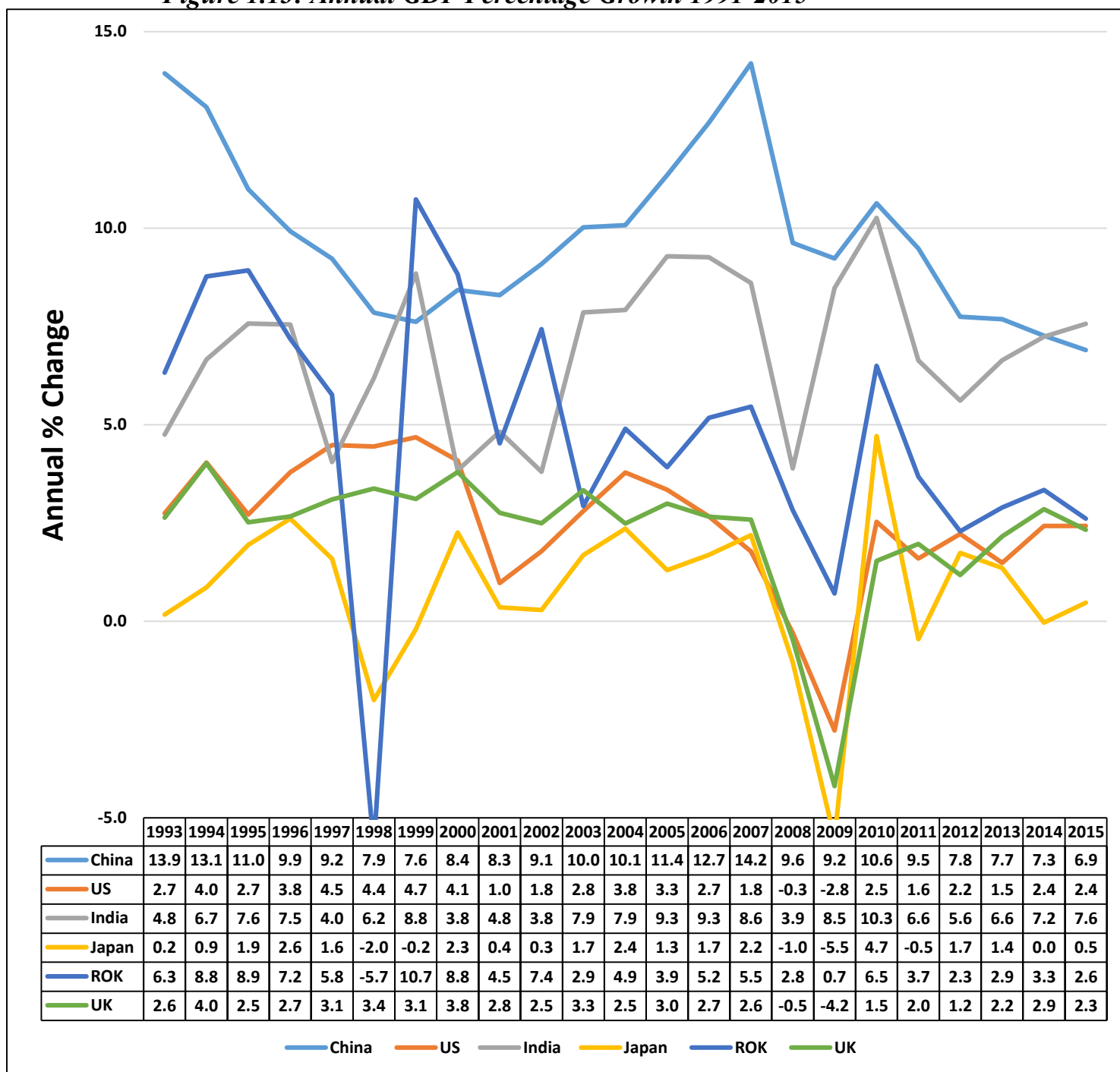
**Figure 1.15** details the percentage SIPRI's top ten spenders devote to defense spending out of total government spending. Once again, China does not stand out as a reckless or aggressive spender. In 2015, China's 6.3% is sixth out of the ten countries. The 2015 number also marks a near halving in the 11.7% China devoted to defense spending in 2000.

Even in Asia and compared to its neighbors China's spending as percentage of GDP and overall government spending does not look excessive. This is shown in **Figures 1.16** and **1.17**.

China's increased defense spending looks more reasonable when put in context alongside its recent massive growth. However, for concerned countries the only number that matters is annual defense expenditure. This is the money that buys real guns, aircraft, ships, and missiles. Even taking the official Chinese government number at face value, that number has increased over 6.5 times since 2003 from 22 billion USD to 147 billion. That China's defense expenditure is mostly

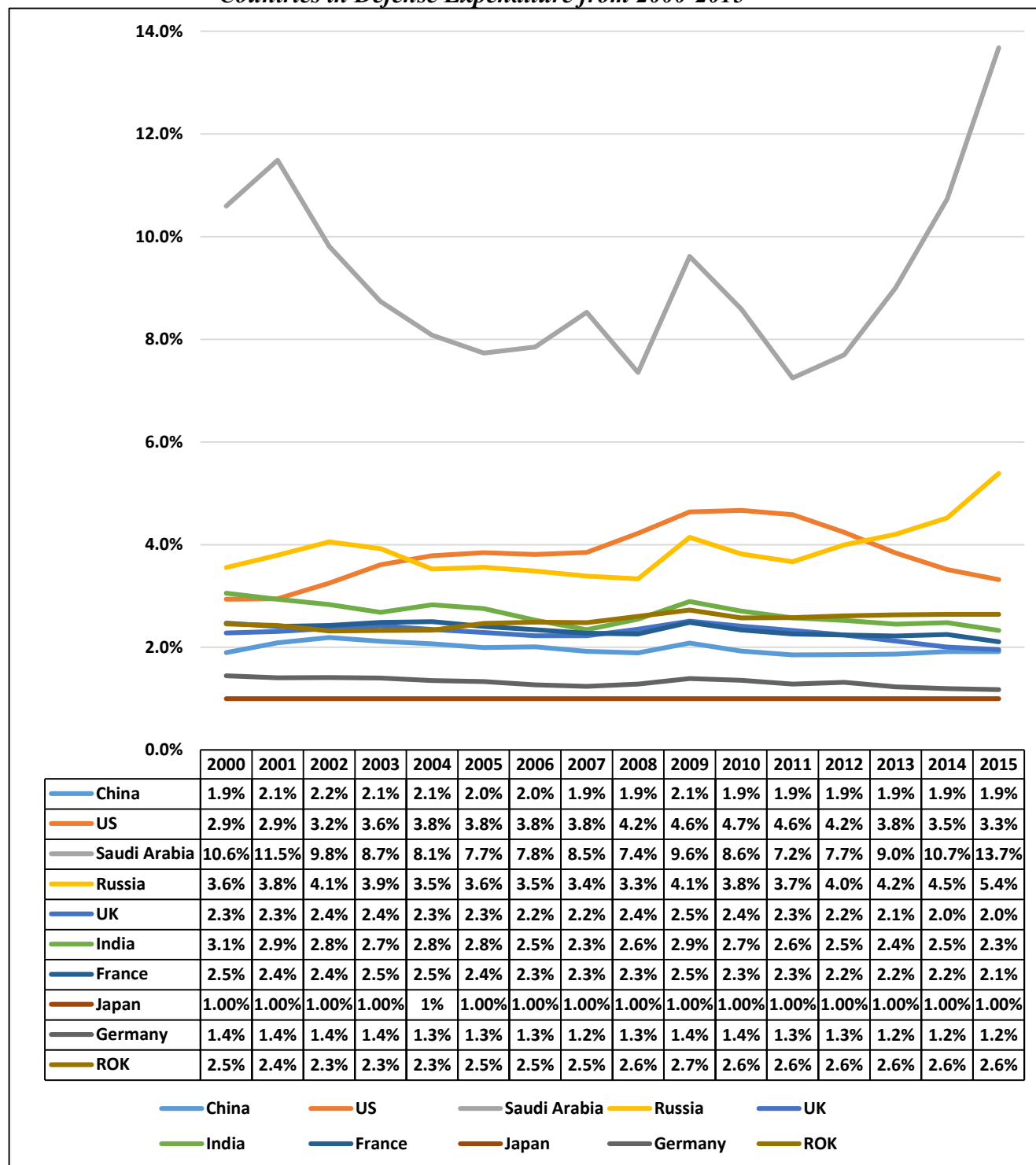
in line with its overall growth is of little consolation to Taiwan, the Philippines, Vietnam, Japan and the ROK.

Analytically it will always be difficult to glean strategy and intent solely from budgetary numbers. However, as China's growth explosion reaches its end, the next few years of China's defense spending may prove instructive in discerning how closely China's overall economic growth is tied to defense expenditure. The restrained 7.6% increase in the announced 2016 defense budget may be the first indication that growth in defense spending will slow in step with overall growth.

**Figure 1.13: Annual GDP Percentage Growth 1991-2015**

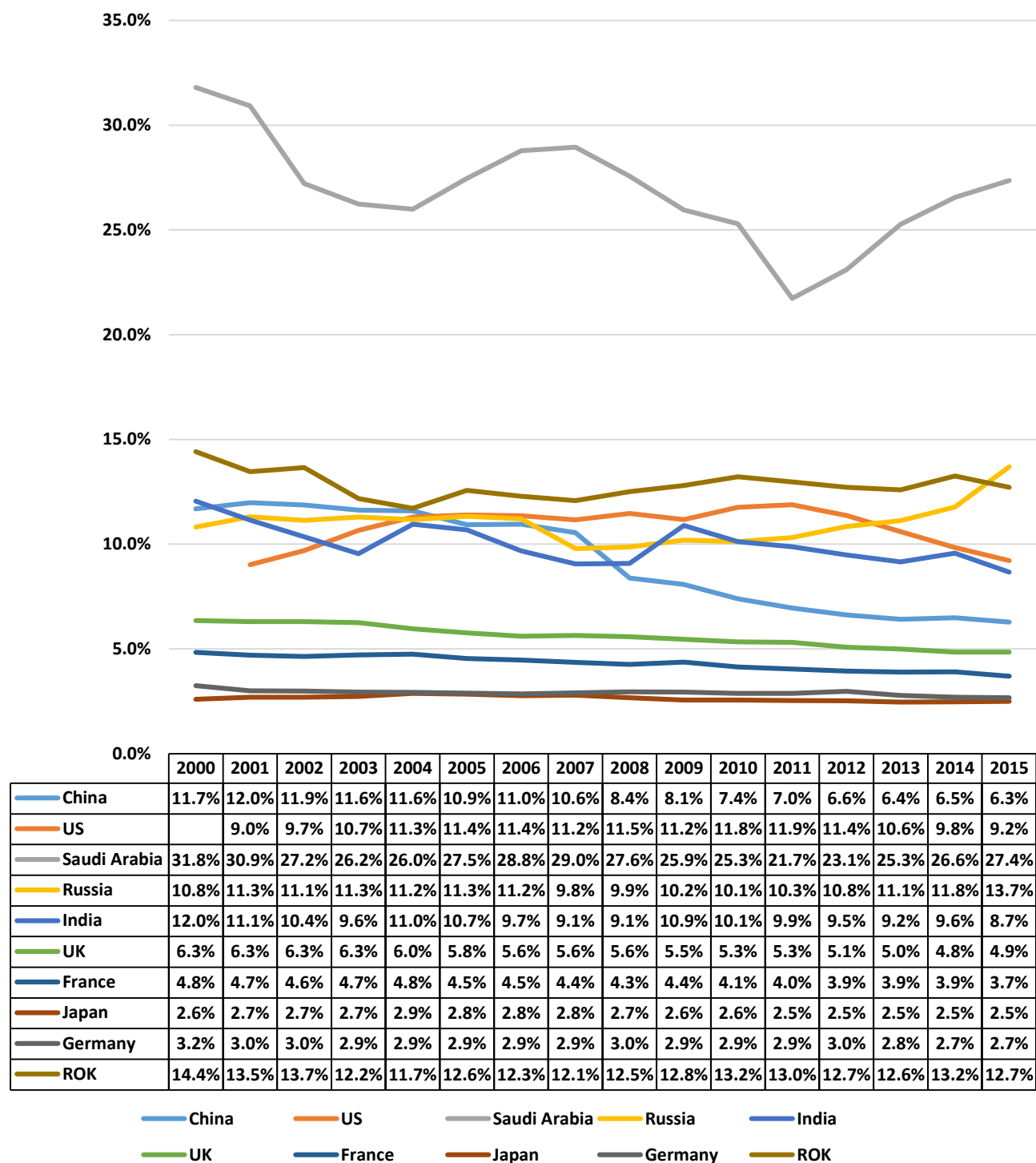
Source: World Bank. <http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=CN>

**Figure 1.14: Defense Spending as Percentage of GDP among SIPRI's 2015 Top 10 Countries in Defense Expenditure from 2000-2015**



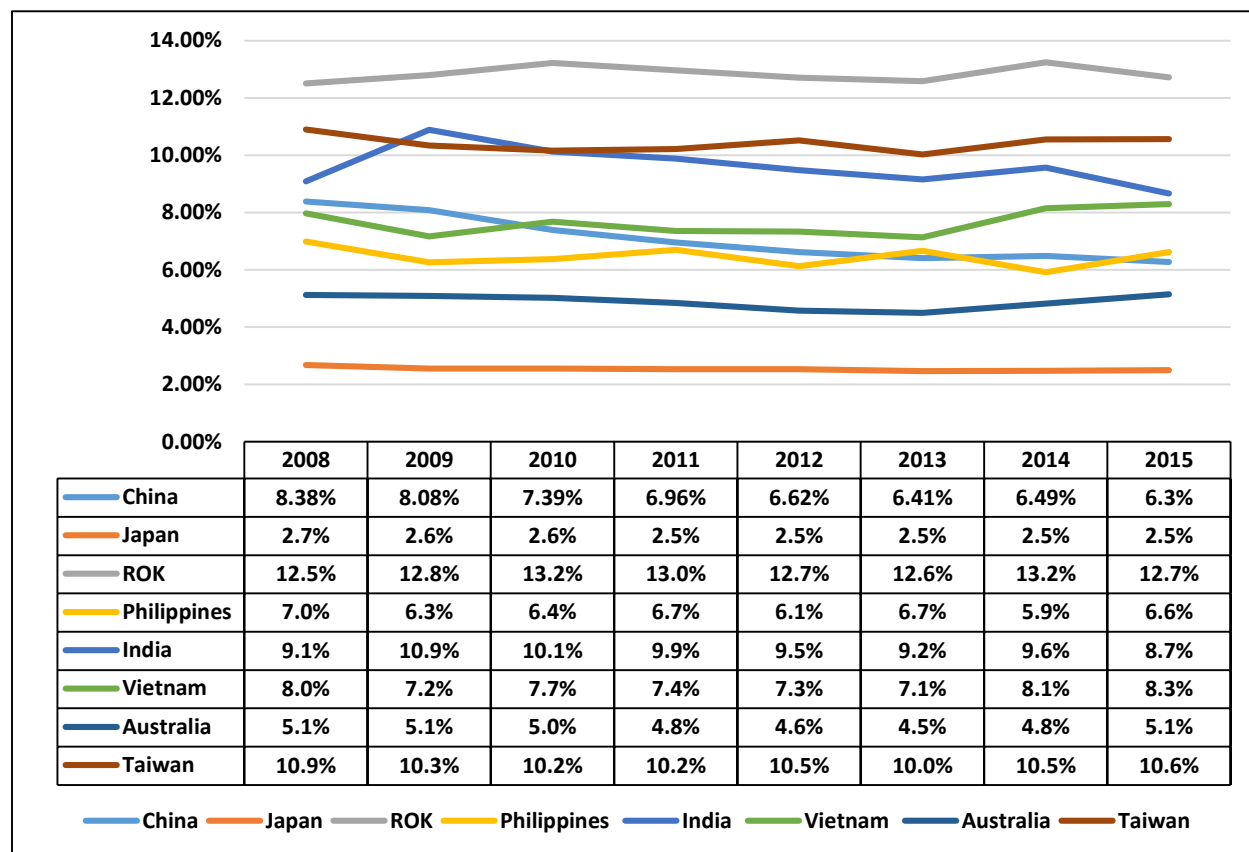
Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

**Figure 1.15: Defense Spending as Percentage of Government Spending among SIPRI's 2015 Top 10 Countries in Defense Expenditure from 2000-2015**

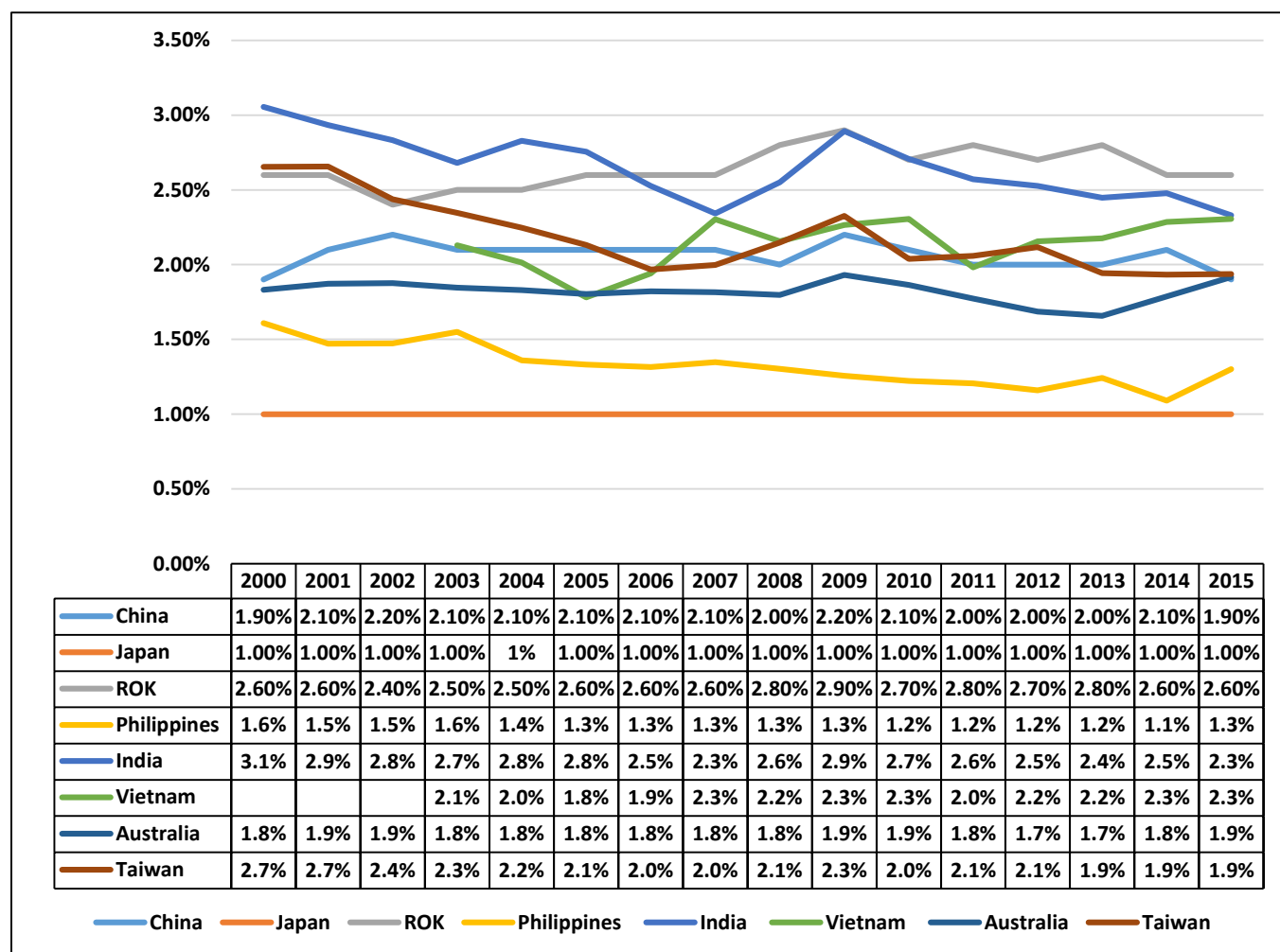


Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016

**Figure 1.16: Defense Spending as Percentage of Overall Government Spending in Asia 2008-2015**



Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

**Figure 1.17: Defense Spending as % of GDP for Asia 2000-2015**

Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

## ***Ramifications for the United States***

The United States has history of exaggerating or overreacting to other nation's military buildups. Much of the Cold War was an exercise in this, highlighted famously by the fictional "missile gap" claims during the 1960 Presidential election. At intermittent points, countries like Japan, India, and Iran have been presented as future threats to the U.S. international dominance.

China has already become the current target of American concern. This concern is unlikely to abate going forward, especially considering the ongoing South China Sea spats and already rocky U.S.-China relations as displayed at the September 2016 G20 summit in Hangzhou.<sup>44</sup> Consequently, it is important to provide analysis and statistics to properly contextualize China's threat to the U.S.

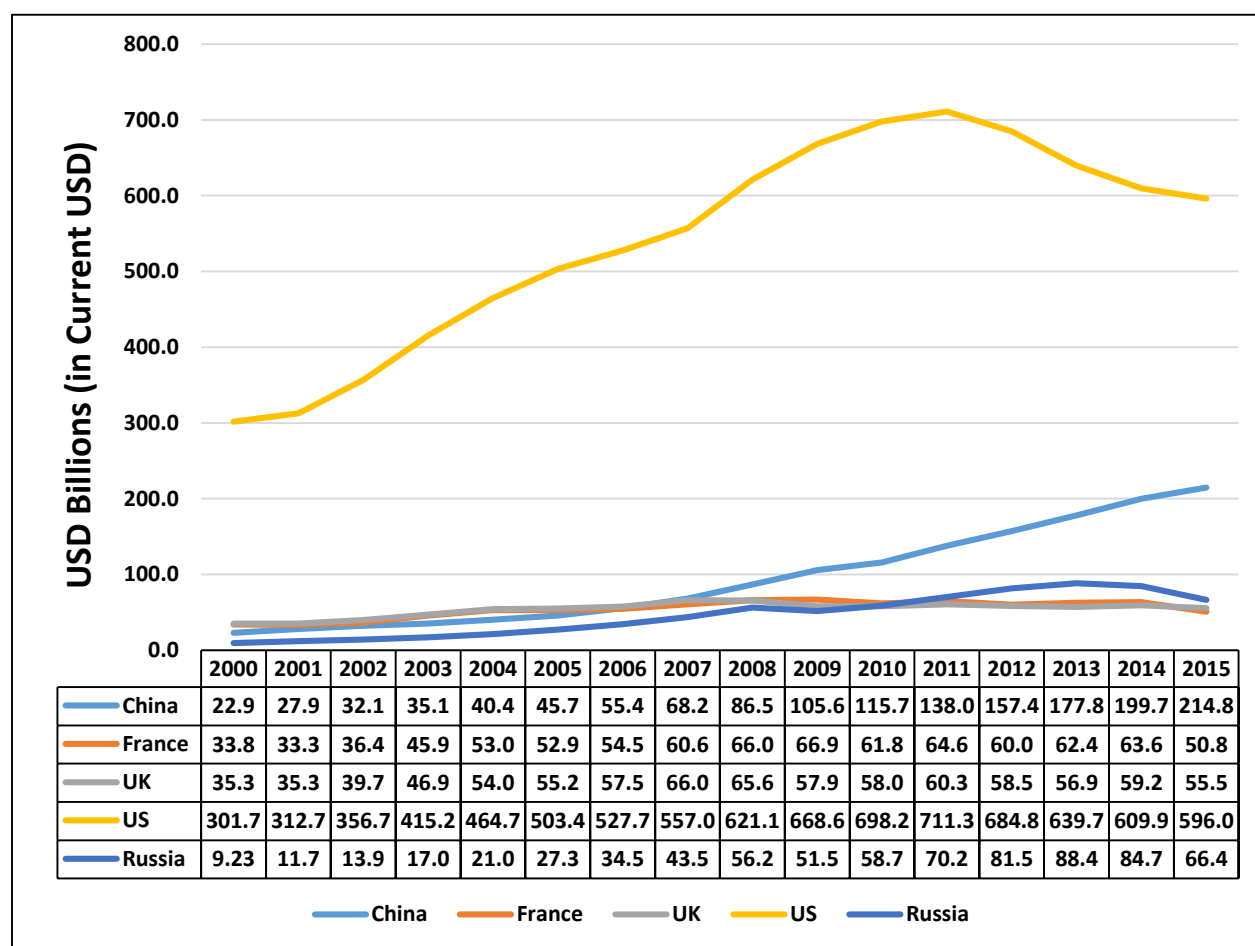
First, it bears reiterating that presently the U.S. does not currently have a legitimate competitor in military spending. **Figure 1.18** displays SIPRI's estimate of military expenditure for the five United Nations Security Council (UNSC) members. China is the closest competitor of the U.S.

but they are still being outspent by nearly threefold. In the post-Cold War era the U.S. in unchecked in terms of military spending and might.

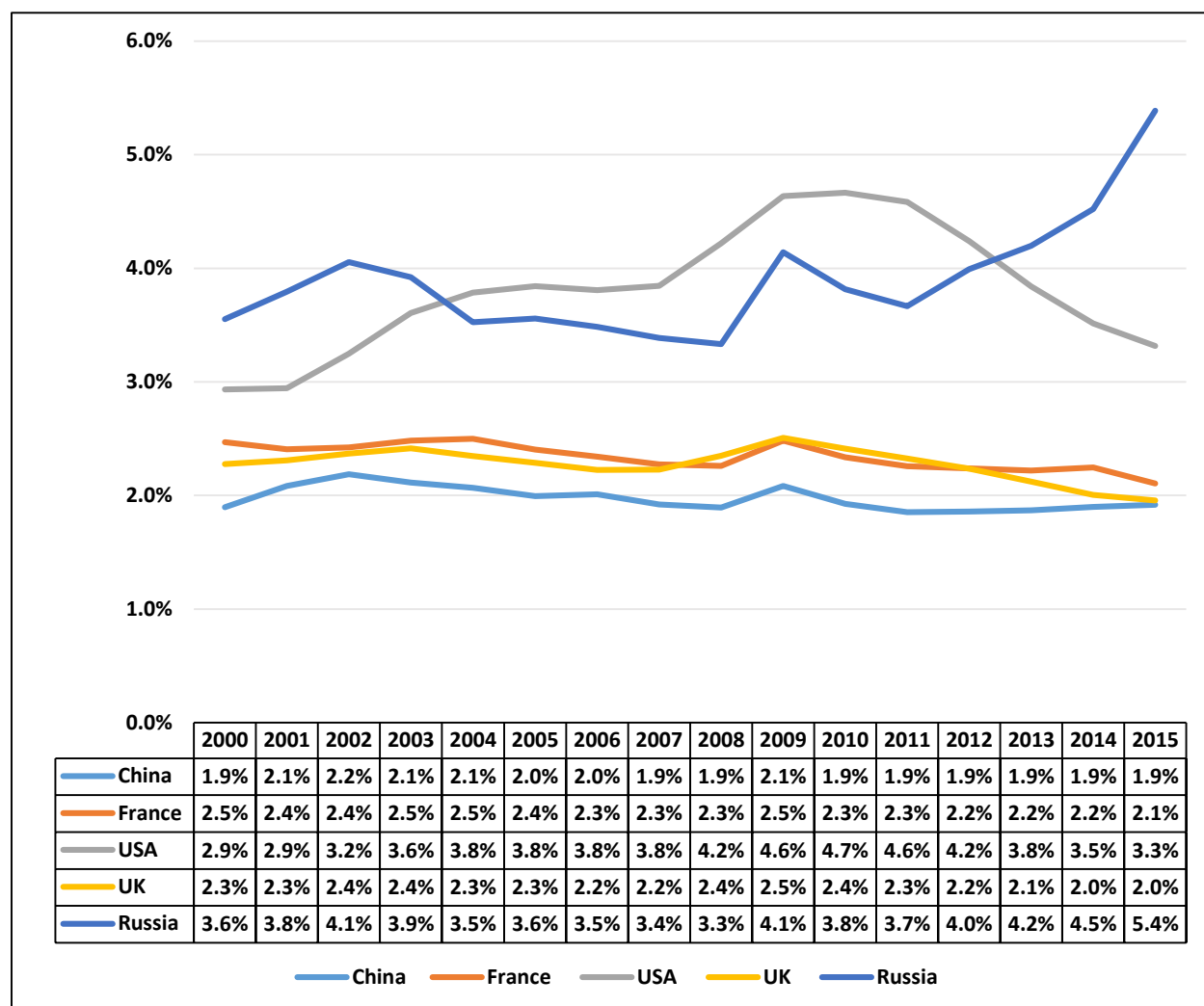
The underlying numbers in **Figure 1.19** and **Figure 1.20** further underline U.S. dominance. In both cases, the U.S. remains well above China in both defense spending as percentage of the GDP and defense spending as the percentage of overall government spending. In terms of the other UNSC countries the U.S. was only bested by Russia starting in 2012. However, these percentages reflect the recent downturn in the Russian economy as SIPRI's overall Russian defense spending estimates fell in both 2014 and 2015.

Another indication of the military dominance of the United States is the fact that China and Russia are described only as “near-peers”. In recent years, there has been substantial U.S. consternation about both Russia and China as relations have remained terse and both nations have undertaken military modernization. Still, even in an atmosphere where China and Russia are seen by the U.S. as the most threatening adversarial states, they are only labelled as “near-peers”.

**Figure 1.18: Defense Expenditure from UNSC Countries 2000-2015  
(Current USD)**

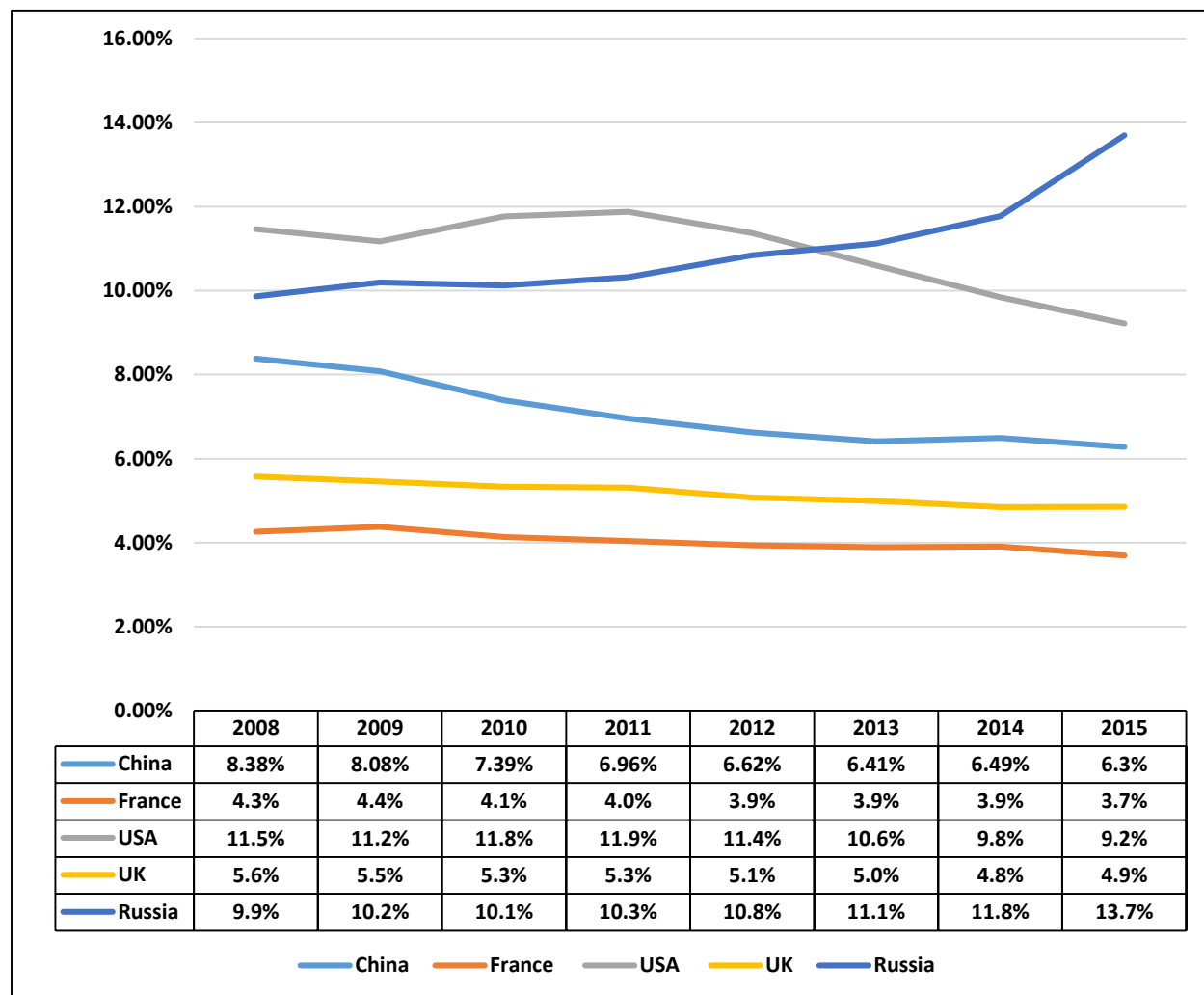


Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016

**Figure 1.19: Defense Spending as % of GDP for UNSC 2000-2015**

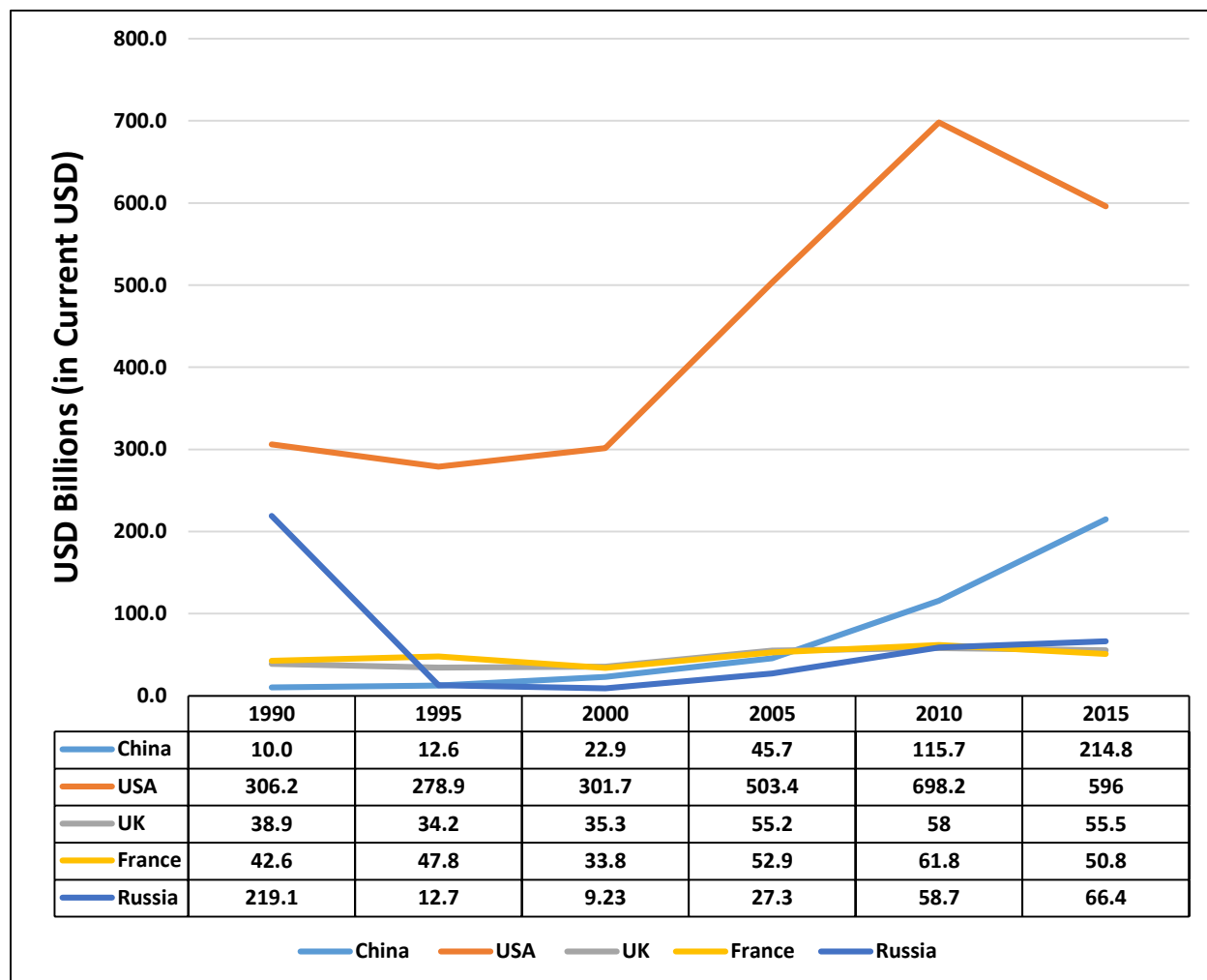
Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

**Figure 1.20: Defense Spending as Percentage of Overall Government Spending for UNSC 2008-2015**



Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

**Figure 1.21: Defense Expenditure from UNSC Countries 1990-2015  
(Current USD)**



Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

### U.S. Budget Caps and Defense Funding Instability

However, the aforementioned figures only describe the present. As **Figure 1.21** shows, China's defense expenditure has increased twenty fold since 1990 while the U.S. expenditure is just short of having doubled. Considering how small China's spending was in 1990 this is not necessarily a cause for concern. However, there are problems on the American home front in regards to defense spending.

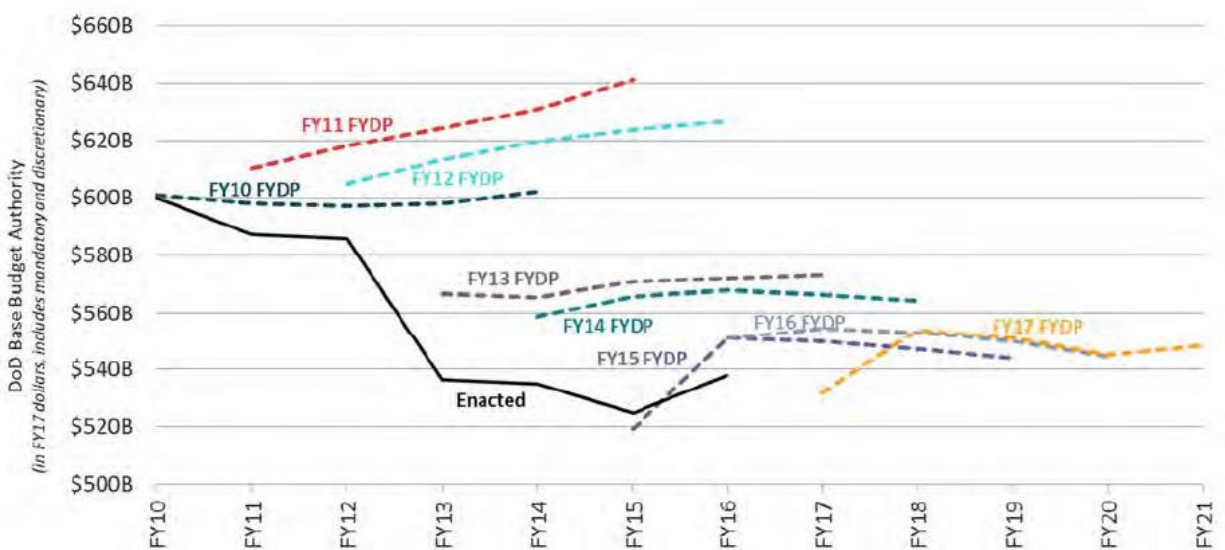
In response to the rapidly expanding the federal deficit, the US Congress enacted the Budget Control Act (BCA) in August 2011. The BCA instilled budget caps on discretionary federal spending. In the President's Budget requests from FY11 to FY17 defense spending on average makes up 50.65% of discretionary spending.<sup>45</sup> Consequently, U.S. defense spending has been significantly altered as a result of the 2011 BCA. The enacted ten-year budget caps were set to cut a trillion dollars in defense spending over the following ten years compared to what was proposed in the President's FY12 budget.<sup>46</sup>

Despite the apocalyptic terms in which Defense officials discussed the BCA after it was enacted, the DoD has been able to mitigate some of the projected brunt of budget capping. In both 2013 and 2015, Congress passed last minute Bipartisan Budget Acts (BBA) that minimally raised budget caps allowing the DoD more money. Furthermore, both Congress and the DoD have utilized the Overseas Contingency Operations (OCO) fund as a loophole for more funding. OCO funding is intended for necessary war funding, which allows for its exemption from budget caps. However, in the aftermath of the 2011 BCA it has been utilized for spending not directly related to war efforts.

Still, as **Figure 1.22** depicts, defense spending is still well below what was expected before the BCA was enacted.

**Figure 1.22: Comparison of Budget Requests and Enacted Budget FY10-FY17**

**Figure 2: Comparison of DoD FYDP Projections in the FY 2010 to FY 2017 Budget Requests**



Source: Todd Harrison, *Analysis of the FY 2017 Defense Budget*, CSIS, April 2016.

Budget caps create more problems than just decreasing defense funding. The BCA has led to a culture of instability and short termism that is antithetical to defense planning. The position of the U.S. military as the world's predominant power stems not only from economic mass but also constant technological innovation and strategic forethought.

Planning is particularly important for defense acquisition which has a tendency to move at a glacial pace. Take for example the Joint Strike Fighter (JSF), now known as the F-35. Lockheed Martin won the contract to develop the JSF in October 2001—the largest defense contract in U.S. history—following a competition and prototype development period that lasted much of the 1990's.<sup>47</sup> It was only in August 2016 that the USAF declared the first batch F-35s ready for battle.<sup>48</sup> The U.S. government still has to procure thousands more F-35s to complete the contract and the USAF has stated their lifespan will be until 2070.<sup>49</sup> This means that there will be almost seventy years between the award of the JSF contract and its retirement.

Simply, when the DoD is forced to depend on bills providing two-year bumps in budget caps it is detrimental to innovation and defense planning.

Assessing future U.S. defense planning is particularly important as it relates to a near-peer like China. As the U.S. has mostly extracted itself from wars in Iraq and Afghanistan, defense acquisition has moved away from things like Mine-Resistant Ambush Protected vehicles (MRAPs) and towards platforms that would be deployed in a conflict with a near-peer country.

While defense spending is capped through 2021, there is an expectation that defense spending will once again ramp under during the 2020s. Indeed, defense spending will have to increase due to the large number of modernization programs that will be ongoing throughout the decade. A select few important platforms that will be modernizing are the F-35, long-range striker bomber (LRS-B), KC-46 tanker aircraft, Ohio-class replacement submarine, and the ground-based strategic deterrent. Each of these are multi-billion dollar programs and platforms that are meant to confront a near-peer competitor.

The fact that all of these expensive platforms need to be updated at the same time has been referred to as the “modernization bow wave.”<sup>50</sup> As yet, there has been little acknowledgment from the DoD or Congress that the bow wave won’t be overcome. Equally, there has been little indication as to where the money will come from. Program instability is a serious ramification of budget caps and shortsightedness in defense planning.<sup>51</sup> If the U.S. fails in procuring the modernized platforms planned for the 2020s they could lose technological superiority to a near peer country like China.

### China-U.S. Defense Spending Convergence

As previously noted, at present China is nowhere near a military equal to the U.S. Still, even if their defense spending growth plateaus, China will continue to handily outstrip U.S. growth in defense spending due to the constraints of budget capping. This has led to discussion and prognostication regarding a convergence in defense spending between the U.S. and China.

In particular, the IISS *Military Balance 2013* puts forth a model to estimate when convergence might occur as depicted in **Figure 1.22**. Using Chinese defense budget information that was disclosed in 2010, along with other assessments of R&D and foreign weapons purchases that were likely not included, the IISS developed the analysis of China’s defense budget trends and estimates over 2009-2011.

This estimate led the IISS to project a possible future convergence between Chinese and US military spending under a variety of scenarios that could take place as early as 2022 or as late as 2050:<sup>52</sup>

Given the rapid growth in China’s military spending over the past decade, the question arises of how long it will be before China may be expected to rival the US as the world’s largest defence spender. Such projections are fraught with difficulty because they rely on assumptions about future economic growth rates and the trajectories of not just China’s defence spending, but also that of the US. While neither definitive nor clearly predictive, they can offer an indication.

Figure 19 shows the potential future convergence in Chinese and US defence spending, assuming that average defence-spending growth in both countries between 2001 and 2012 is maintained. If US base defence-budget spending figures contained in the FY12 defence budget request submitted to Congress (in February 2011) are extrapolated, these converge with projections of the official PLA budget in around 15 years, in 2028. If the lower US base defence spending contained in the FY13 budget request is used instead,

convergence with official PLA budget projects occurs slightly sooner, in 2026. Under sequestration (see pp. 59-66), this convergence would occur earlier still, in 2025.

However, as noted each year in *The Military Balance*, official Chinese defence budget figures probably underestimate the true extent of Beijing's defence spending. Although official figures include personnel, operations and equipment expenditure, it is widely held that other military-related expenditures are omitted - such as allocations for R&D and overseas weapons purchases. A fuller account of China's true military-spending levels should also include funding allocated to the People's Armed Police (PAP). As shown in Table 12, if estimates of these additional items are included, Chinese defence spending rises by a factor of approximately 1.4-1.5 relative to officially published figures, to an estimated RMB883.3bn (US\$136.7bn) using market exchange rates (MER). If these higher estimates of Chinese spending are projected into the future, convergence with US defence spending could occur as early as 2023 (if US FY13 proposed spending levels are accepted) or 2022 (if sequestration is instituted).

Of course, several factors might delay or even prevent such convergence. A lower trajectory of economic growth in China as the global economy slows, or a downshift in economic activity as the country attempts to move away from an export oriented growth model, or economic turbulence as China attempts to modernise its fledgling financial markets and uncompetitive banking sector - these are all factors that could diminish economic growth, limiting the resources available for defence and, at the very least, delaying the date of convergence.

For example, if the average nominal defence spending increase in China slowed to 7.8% (half the 15.6% average increase in nominal Chinese spending between 2001 and 2012), official PLA spending would only converge with the FY13 US base budget spending projection in 2038 (2036 under sequestration). At 5% average annual spending growth, official Chinese spending converges with the US FY13 base budget projection in 2042 (2040 under sequestration). A sharp increase in US defence spending under a future US administration would have a similar delaying effect on convergence. Alternatively, a combination of the two could occur: US spending growth increases and Chinese spending growth reduces. The estimates provided here should thus be seen as indicative projections based on current trends; and on the balance of probabilities, any convergence is more likely to occur after 2028 rather than before, should it occur at all. It should also be noted that in considering possible convergence between China's defence spending levels and the US base defence budget, this discussion excludes military expenditures on overseas contingency operations (OCO) allocated to operational military activities, such as those undertaken in Iraq and Afghanistan. OCO funding is by nature ad hoc and can vary considerably year by year.

While the IISS prediction is heavily couched and now slightly dated, the mere possibility of a convergence underlines the high priority that repealing the BCA and enacting a long-term sustainable budget should have for the next administration. However, considering the partisan politics at play in the legislature and the personal animosity both parties have towards the opposing Presidential candidate it seems like a budget agreement will be an uphill battle.

**Figure 1.22: IISS Model on U.S.-China Defense Spending Convergence**

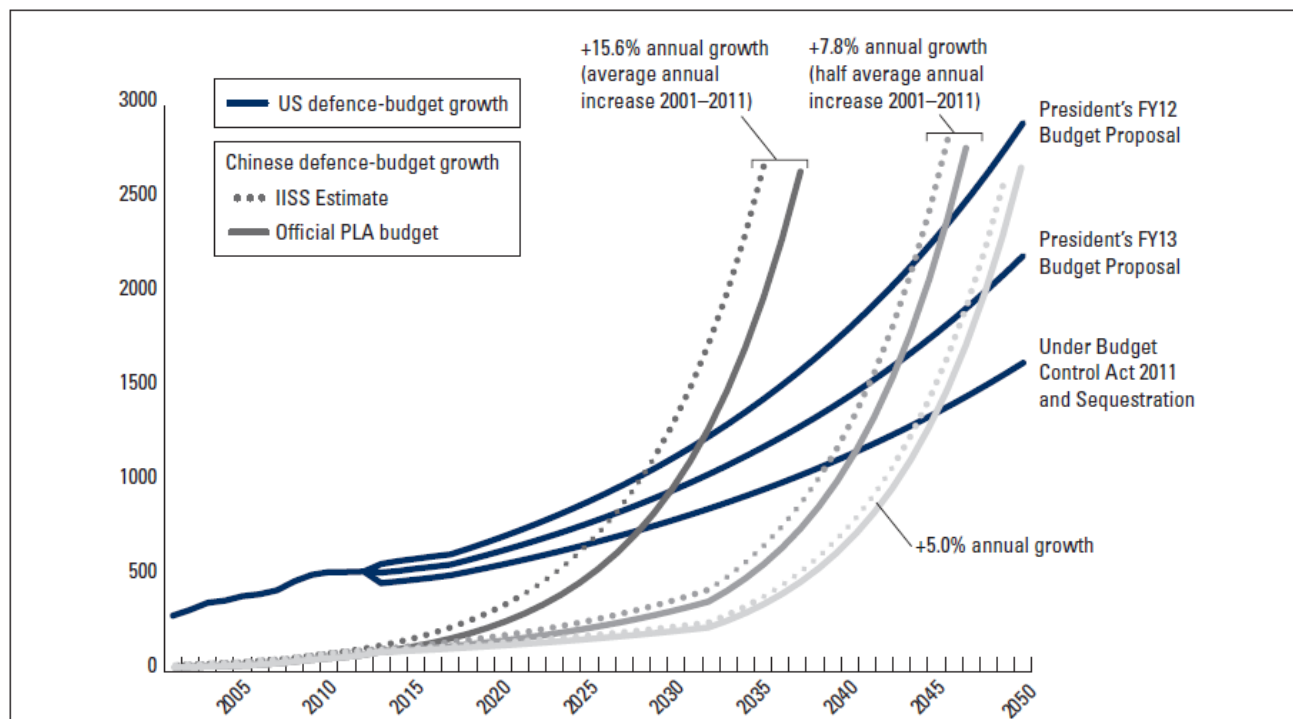


Figure 19 China–United States Defence Expenditure Convergence 2001–2050

Source: *IISS Military Balance 2013* p. 256.

## ***Ramifications for Asia***

The reality for Asian countries is much different than that of the United States. Not only has the last fifteen years seen China surpass all other Asian countries in defense expenditure, but China has left them in the dust. As **Figure 1.23** depicts, Japan has traditionally had the highest defense expenditure in Asia. In 2000, Japan's defense spending was double that of China. Currently, China's defense spending is over five times that of Japan. China's spending and economic growth has become such that no Asian country will be able to compete for a long time.

The response from Asian countries has largely been garbled and reactive. As **Figure 1.23** and **Figure 1.24** show, there has not been a significant uptick in defense spending from many Asian countries who have expressed concern about China's rise in defense expenditure. In real dollars, Japan spends less than it did in 1995 and Taiwan has only increased spending by one billion since 2000.

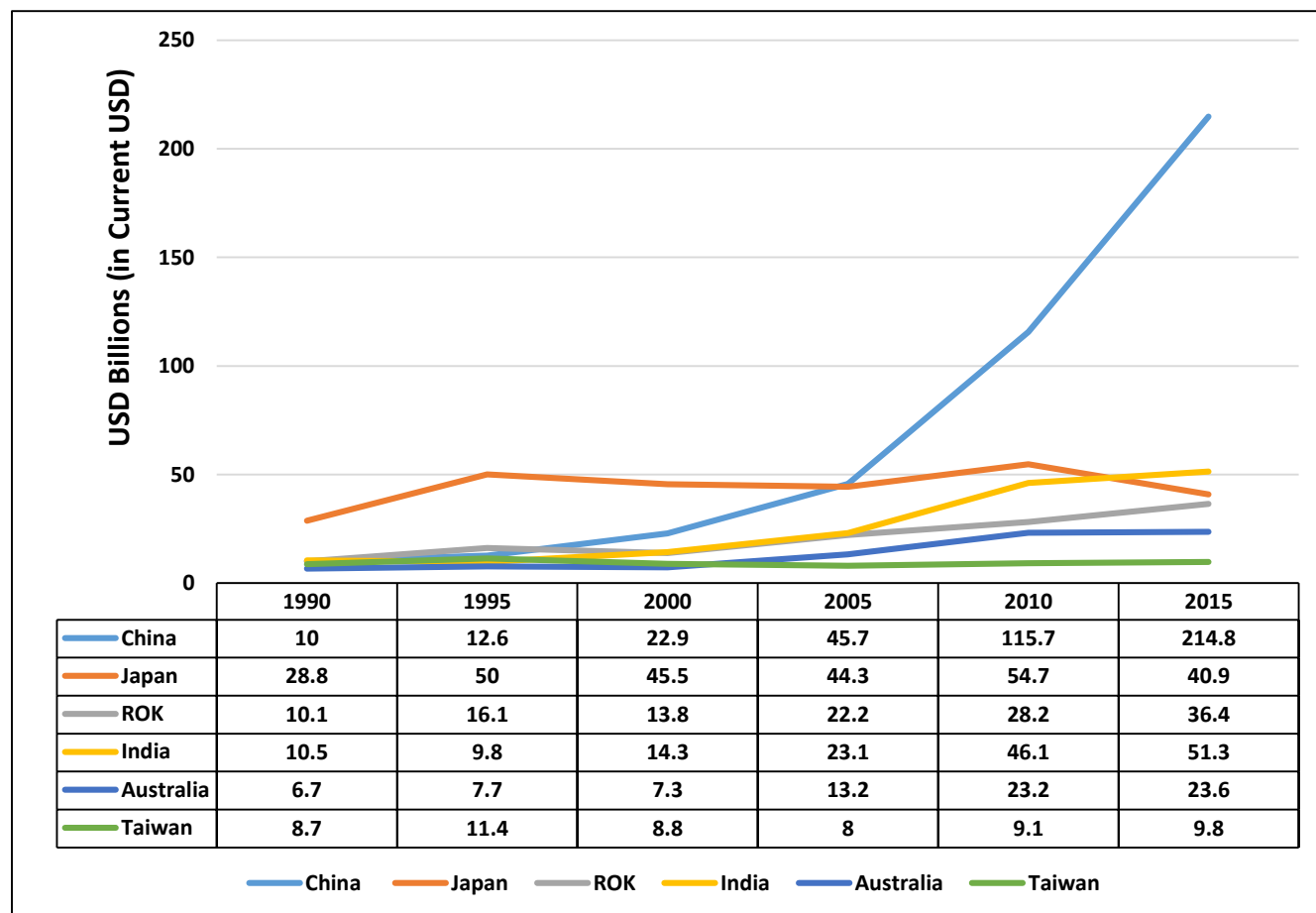
There have been fractures among Asian countries in attempting to present a unified front to China. For example, in the aftermath of the arbitration ruling on the South China Sea, the Association of Southeast Asian Nations (ASEAN) could not come to an agreement on releasing a joint statement regarding the arbitration result due to differing opinions.<sup>53</sup>

Consequently, it seems that many of the Asian countries are relying heavily on the U.S. and its rebalance to Asia. In many cases, they for an increasing U.S. presence while doing little to

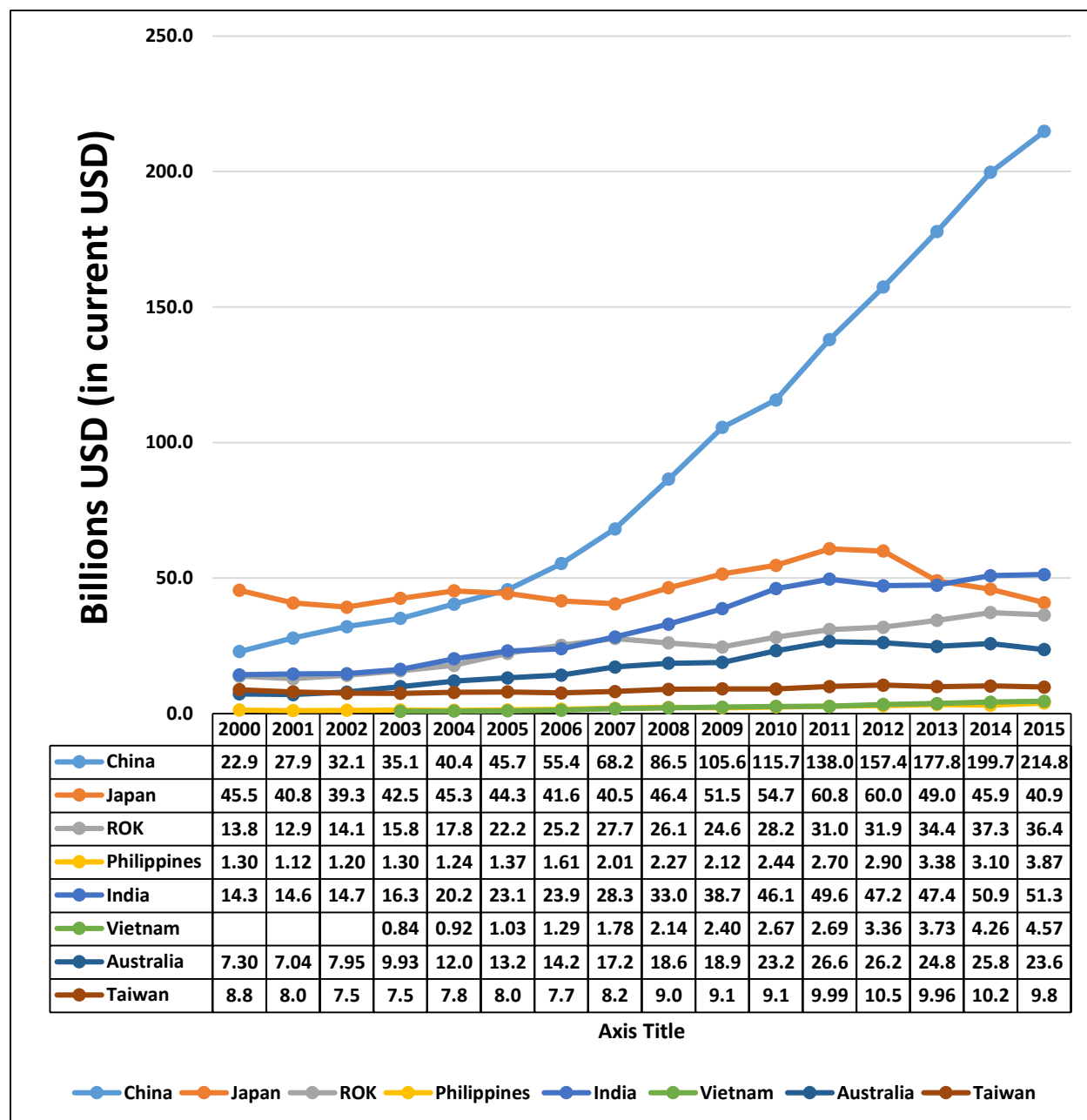
bolster themselves. This has led to complaints across the spectrum in the U.S. that many of its Asian allies are freeriding on American power and commitment.

Overall, China's massive growth appears to have blindsided many Asian countries and their subsequent response has been tepid.

**Figure 1.23: Military Expenditure in Asia 1990-2015 (Current USD)**



Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

**Figure 1.24: Military Expenditure in Asia 2000-2015 (Current USD)**

Source: SIPRI, *Military Expenditure Data 1988-2015*, <https://www.sipri.org/databases/milex>. Adapted by Anthony H. Cordesman and Joseph Kendall at the Center for Strategic and International Studies, September 2016.

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- <sup>1</sup> Richard A. Bitzinger, "China's Double-Digit Defense Growth, What it Means for a Peaceful Rise," *Foreign Affairs*, March 19, 2015.
- <sup>2</sup> Ministry of National Defense - The People's Republic of China, *Defense Expenditure*, <http://eng.mod.gov.cn/Database/Expenditure/index.htm>.
- <sup>3</sup> PRC, *China's National Defense in 2010*, Ch. 8.
- <sup>4</sup> Andrew S. Erickson, "China's 2013 Military Budget to Rise 10.7% to US \$114.3 Billion – What it Means, and Why it Matters," March 4, 2013, <http://www.andrewerickson.com/2013/03/chinas-2013-military-budget-what-it-means-and-why-it-matters/>.
- <sup>5</sup> Andrew S. Erickson, "China's 2013 Military Budget to Rise 10.7% to US \$114.3 Billion – What it Means, and Why it Matters," March 4, 2013. <http://www.andrewerickson.com/2013/03/chinas-2013-military-budget-what-it-means-and-why-it-matters/>.
- <sup>6</sup> Ministry of National Defense of the People's Republic of China, *China's Military Strategy*, May 26, 2015, [http://eng.mod.gov.cn/DefenseNews/2015-05/26/content\\_4586748.htm](http://eng.mod.gov.cn/DefenseNews/2015-05/26/content_4586748.htm).
- <sup>7</sup> Megha Rajagopalan and Sui-Lee Wee, "China to raise defense budget 10.1 percent this year in high-tech drive", *Reuters*, March 5, 2015, <http://www.reuters.com/article/us-china-parliament-defence-idUSKBN0M100Z20150305>.
- <sup>8</sup> Ministry of National Defense of the People's Republic of China, *China's Military Strategy*, May 26, 2015, [http://eng.mod.gov.cn/DefenseNews/2015-05/26/content\\_4586748.htm](http://eng.mod.gov.cn/DefenseNews/2015-05/26/content_4586748.htm).
- <sup>9</sup> The State Council of the People's Republic of China, *Report of the Work of the Government (2015)*, delivered by the Premier of the State Council Li Keqiang, March 5, 2015, [http://english.gov.cn/archive/publications/2015/03/05/content\\_281475066179954.htm](http://english.gov.cn/archive/publications/2015/03/05/content_281475066179954.htm).
- <sup>10</sup> The State Council of the People's Republic of China, *Report of the Work of the Government (2015)*, delivered by the Premier of the State Council Li Keqiang, March 5, 2015, [http://english.gov.cn/archive/publications/2015/03/05/content\\_281475066179954.htm](http://english.gov.cn/archive/publications/2015/03/05/content_281475066179954.htm).
- <sup>11</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2015*, April 2015, p. i.
- <sup>12</sup> Franz-Stefan Gady, "China's Defense Budget to Increase 10 Percent in 2015," *The Diplomat*, March 4, 2015, <http://thediplomat.com/2015/03/chinas-defense-budget-to-increase-10-percent-in-2015/>.
- <sup>13</sup> SIPRI, "Military Expenditure Data 1988-2015", <https://www.sipri.org/databases/milex>.
- <sup>14</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, p. 808-809.
- <sup>15</sup> Andrew S. Erickson and Adam P. Liff, "The Limits of Growth: Economic Headwinds Inform China's Latest Military Budget", *Wall Street Journal*, March 5, 2016.
- <sup>16</sup> "China Focus: China announces 7.6-pct defense budget rise, lowest in six years". *Xinhua*, March 5, 2016, [http://news.xinhuanet.com/english/2016-03/05/c\\_135158243.htm](http://news.xinhuanet.com/english/2016-03/05/c_135158243.htm).
- <sup>17</sup> Department of Defense, *Military Power of the People's Republic of China, 2006*, p. 20-21; David Shambaugh, "China's Military: Real or Paper Tiger?" *The Washington Quarterly* 19, no. 2 (1996): 23.
- <sup>18</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, p. 811-812, 814.
- <sup>19</sup> SIPRI, "Sources and methods", <https://www.sipri.org/databases/milex/sources-and-methods#methods>.
- <sup>20</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2016*, April 2016, p. 49.
- <sup>21</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, 813.
- <sup>22</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, 813.
- <sup>23</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, 812.
- <sup>24</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, 813-814.
- <sup>25</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, p. 819-821.
- <sup>26</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, p. 819-821.
- <sup>27</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, p. 822-823.

- 
- <sup>28</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2015*, April 2015, p. 49.
- <sup>29</sup> Andrew S. Erickson and Adam P. Liff, "China's Military Spending Swells Again Despite Domestic Headwinds", *Wall Street Journal*, March 5, 2015, <http://blogs.wsj.com/chinarealtime/2015/03/05/chinas-military-spending-swells-again-despite-domestic-headwinds/>
- <sup>30</sup> Jeremy Page, "New China Leader Courts Military," *Wall Street Journal*, March 4, 2013, <http://online.wsj.com/news/articles/SB10001424127887324178904578339243545311174>; Christopher Bodeen, "China to maintain defense spending, fight waste," *Yahoo! News*, March 4, 2013, <http://news.yahoo.com/china-maintain-defense-spending-fight-waste-090117589.html>.
- <sup>31</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2012*
- <sup>32</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2016*, April 2016, p. 77.
- <sup>33</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2015*, April 2016, p. 77.
- <sup>34</sup> Department of Defense, *Military and Security Developments Involving the People's Republic of China 2009*, April 2009, p. 31.
- <sup>35</sup> SIPRI, "Sources and methods", <https://www.sipri.org/databases/milex/sources-and-methods#methods>
- <sup>36</sup> IISS, *Military Balance 2016*, p. 494.
- <sup>37</sup> IISS, *Military Balance 2016*, p. 495.
- <sup>38</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, p. 807.
- <sup>39</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, p. 808-809.
- <sup>40</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, p. 816.
- <sup>41</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, 822.
- <sup>42</sup> Adam P. Liff and Andrew S. Erickson, "Demystifying China's Defence Spending: Less Mysterious in the Aggregate," *China Quarterly*, March 2013, p. 805-806.
- <sup>43</sup> Tian Dongdong, "Commentary: Western double standard demonizes China's normal military budget growth," *Xinhuanet*, March 5, 2015, [http://news.xinhuanet.com/english/2015-03/05/c\\_134040299.htm](http://news.xinhuanet.com/english/2015-03/05/c_134040299.htm).
- <sup>44</sup> "G20 leaders meet in China", *The Economist*, <http://www.economist.com/news/china/21706433-lows-and-highs-worlds-most-important-bilateral-relationship-g20-leaders-meet-china>.
- <sup>45</sup> White House-Office of Management and Budget, "The President's Budget", [https://budget2017.whitehouse.gov/#/year/2017/revenue/0/function\\_title](https://budget2017.whitehouse.gov/#/year/2017/revenue/0/function_title)
- <sup>46</sup> Todd Harrison, "What Has the Budget Control Act of 2011 Meant for Defense?", CSIS, August 1, 2013, <https://www.csis.org/analysis/what-has-budget-control-act-2011-meant-defense>
- <sup>47</sup> James Dao and Laura M. Holson, "Lockheed Wins \$200 Billion Deal for Fighter Jet", *New York Times*, October 27, 2001, <http://www.nytimes.com/2001/10/27/us/lockheed-wins-200-billion-deal-for-fighter-jet.html>
- <sup>48</sup> Valerie Insinna, "Air Force Declares F-35A Ready for Combat," *Defense News*, August 2, 2016, <http://www.defensenews.com/story/breaking-news/2016/08/02/f35-ioc-air-force-operational-acc-combat/87948142/>
- <sup>49</sup> Dave Majumdar, "Your Great-Grandchildren Will Still Fly F-35s in 2070," *The National Interest*, March 25, 2016, <http://nationalinterest.org/blog/the-buzz/your-great-grandchildren-will-still-fly-f-35s-2070-15602>
- <sup>50</sup> Todd Harrison, *Defense Modernization through the 2020s: Addressing the Bow Wave*, CSIS, February 2016.
- <sup>51</sup> Todd Harrison, *Defense Modernization through the 2020s: Addressing the Bow Wave*, CSIS, February 2016.
- <sup>52</sup> International Institute for Strategic Studies, *The Military Balance 2014* (Milton Park, United Kingdom: Routledge Journals, 2014), 209-10.
- <sup>53</sup> Termsak Chalermpanupap, "No ASEAN Consensus on the South China Sea", *The Diplomat*, July 21, 2016, <http://thediplomat.com/2016/07/no-asean-consensus-on-the-south-china-sea/>