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U.S. Competition with China and Russia: The Crisis-Driven Need to Change U.S. Strategy

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> "Victorious warriors win first and then go to war, while defeated warriors go to war first and then seek to win…The greatest victory is that which requires no battle…To win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill." — Sun Tzu, The Art of War

The new National Security Strategy (NSS) that the White House issued on December 18, 2017, called for the United States to focus on competition with China and Russia in order to focus on the potential military threat they posed to the United States.[1] This call to look beyond the current U.S. emphasis on counterterrorism was all too valid, but its implementation has since focused far too narrowly on the military dimension and on providing each military service with all of the U.S. military forces that are needed to fight "worst case" wars.

This focus on fighting major wars with China and Russia is a fundamental misreading of the challenges the U.S. actually faces from Chinese and Russian competition as well as a misinterpretation of their strategy and capabilities. It ignores the fact that China and Russia compete on a diplomatic and economic level as well as a military one, and that this competition is equally serious.

At the military level the U.S. ignores the fact that much of this competition will be to influence other nations, their conflicts, and gain strategic leverage – a competition which involves far less risk of escalation and one where China and Russia can pick their targets on a global and regional basis, limit their intervention (often to a spoiler role), and achieve gains at minimum cost and exposure.

It fails to recognize that major wars between China or Russia and the United States – particularly wars that escalate to the use of nuclear weapons – can end in doing so much damage to both sides that they become the equivalent of "mutual assured destruction" (MAD). China and Russia understand that the only winner in a major nuclear conflict would be the power that could actually find a way to stand aside from a major nuclear exchange – or a high level of conventional theater warfare – between the other two. To quote a passage from the movie *War Games*, "the only way to win is not to play."

This military and "worst case" war approach to shaping a U.S. strategy to compete with China and Russia ignores the fact that China and Russia have already found ways to compete effectively using gray area and hybrid operations which rely on non-military political and economic competition or can involve unpredictable mixes of more limited forms of military and civil forms of "warfare." These operations are summarized in two working chronologies covering China and Russia that support this study: One is entitled ***Chronology of Possible Chinese Gray Area and Hybrid Warfare Operations*** and is available on the CSIS website here. The second is entitled ***Chronology of Possible Russian Gray Area and Hybrid Warfare Operations*** and is available here.

These chronologies show that China and Russia's dual focus on military and civil competition had a critical impact long before the Coronavirus created today's massive uncertainties in global economics. Understanding gray area and hybrid operations is far more critical now.

China and Russia have not only benefited from the fact that the U.S. has not focused on such forms of competition, they have also benefited from their state-driven systems that allow them to shape their economies to serve their strategic objectives just as well as their military forces. While there are many areas where China and Russia do not directly compete with the United States, there are many other cases where their strategy for such competition now applies to ongoing civil and military competition on a global level.

If the United States is to deal effectively with such competition, then the U.S. must refocus its military strategy and forces to give gray area and hybrid conflicts at least the same or even more priority as it does to higher levels of warfare. Above all, the United States needs to refocus its national security strategy to address key global developments at a national and regional level, and it needs to integrate its military strategy and operations with its political and economic strategy operations.

Other factors also create major uncertainties as to how the U.S. will compete with China and Russia. It is still far from clear how much the Coronavirus crisis will affect the relative competitiveness of the United States versus China and Russia. All three countries have suffered a major shock. The U.S. has reached unemployment levels equal to those of the Great Depression, and it has already spent more than $3 trillion dollars in an effort to ease the economic strain on its people and help prepare for recovery. It will certainly face problems in both maintaining its planned levels of national security spending and meeting its new economic needs.

China too has suffered a major blow in terms of employment, trade, and economic growth – although the data available prove to be uncertain – and the same is true of Russia. Both China and Russia have the potential advantage to use their state-driven systems and enable their leaders to directly allocate resources and to keep funding competition in ways that may demand more sacrifices from their peoples. Both are almost certain to keep competing with the United States and will continue to seek and exploit any new opportunities in other states that are facing political and economic crises.

At the same time, conflicts between lesser powers, civil wars, and extremism create new windows of opportunity throughout the world with sustained areas of local and regional competition that have an impact on the major powers. North and South Korea, Iran and the Arab Gulf, India and Pakistan are just a few long-standing examples. Syria, Turkey, and Libya are more recent cases that illustrate that exploiting new and unpredictable opportunities shaped by outside events can have a major and unpredictable impact on U.S., Chinese, and Russian civil and military action that may or may not fit prior models and any formal definition of different kinds of warfare.

This makes it even more important that the U.S. can refocus its efforts to compete. It means that the integration of the military and civil aspects of competition must occur at a wide range of levels. *Whether one calls it "warfare" or competition, the true meaning of "joint" and "multi-domain" has now become the need to integrate military and civil operations in every major region where the U.S. competes with China and Russia and in every relevant aspect of politics, technology, and trade.*

The U.S. must focus the combined use of military forces, economic resources, and political tools to maintain deterrence, shape its strategic influence, and control war fighting. In practice, this also means that the U.S. will deal with strategic partners, other countries, and non-state actors by treating them to be just as important as dealing with China and Russia.

China and Russia have already recognized these needs and are now competing with the United States at the civil level with "gray area" tactics or indirect uses of force, in low intensity military operations involving third countries and non-state actors, and in deterring and fighting at higher levels of conflict. Where possible, China and Russia use their military power in what might be called "wars of influence" and in ways that do not involve actual fighting. When they do use force, it generally takes the form of limited or demonstrative uses of their own forces; covert operations; or the support of the forces of other states, non-state actors, or factions.

This means the U.S. now needs to reshape its approach to great power competition to fully recognize that it cannot afford to focus solely on China and Russia. They already compete by creating ongoing mixes of political, economic, and national security competition that actively involve other states and non-state actors. In many cases, the center of such competition is indirect and driven as much by information warfare as by any form of physical action. In other cases, it focuses more on the civil dimension than on the military one. It will use "multi-domain" operations at the civil level and exploit civil technology in hybrid and asymmetric ways.

The **two chronologies** that support this analysis illustrate the complexity of these Chinese and Russian operations over the last two decades. They show both their civil-military character and their efforts to limit the use of their own national forces and exploit those of other countries and non-state actors. They also provide a range of partial cases that warn that the global impact of the Coronavirus and the resulting economic and political crisis in country after country will offer many new opportunities for China and Russia to challenge the U.S. and exploit the civil dimension and third country conflicts.

Even in those cases where some form of actual combat is involved, it is likely to be a limited part of a broader focus on winning without actual major warfare – China and Russia pursue the strategies advanced by Sun Tzu in *The Art of War* – while the present U.S strategy focuses on classic forms of conflict war as defined by Clausewitz in the earlier chapters of *On War*.

Table of Contents

The Key Military Challenge Lies in Gray Area, Hybrid, and Irregular Operations

> "If your enemy is secure at all points, be prepared for him. If he is in superior strength, evade him. If your opponent is temperamental, seek to irritate him. Pretend to be weak, that he may grow arrogant. If he is taking his ease, give him no rest. If his forces are united, separate them. If sovereign and subject are in accord, put division between them. Attack him where he is unprepared, appear where you are not expected." — Sun Tzu, The Art of War

The present U.S. focus on large-scale war fighting against China and Russia is partly the heritage of both American engagements in the World Wars and of the massive nuclear and theater warfare threats that emerged in the Cold War between 1947 and 1991. It is also partly the result of the frustration of engaging in two long wars driven by counterterrorism and the global impact of 9/11.

It is not surprising, therefore, that the rise of China and the return of a Russian threat have led the United States to return to a Cold War-like focus on major wars, and to an emphasis on nuclear forces and preparing for levels of theater conflict that can escalate to mutual assured destruction (MAD). These are areas where the U.S. has seen its past lead erode, where both China and Russia continue to make improvements in their forces, and where history warns that nations repeatedly miscalculate and escalate to the self-destructive levels of conflict regardless of the risk.

Preparing for major wars, however, is not the central focus of ongoing Chinese or Russian competition with the United States. Unlike Nazi Germany, Imperial Japan, and the former Soviet Union, China and Russia recognize that even an escalation to a major regional conflict is likely to be more costly to all the parties involved than it is worth. Occasional bursts of rhetoric aside, there is no ideological imperative to drive China or Russia to take such risks.

The United States is also facing opponents with very different levels of state control, public accountability, economic systems from the U.S.; and those with the ability to use force with far less regards to the rule of law. One of the key reasons why the U.S. has been slow to react to these realities is that the United States does not have a state-driven political system and economy. The U.S. relies on democratic competition between political factions, free-enterprise economics, and the priorities set by blocs of voters. It sees military power largely in terms of deterrence and defense as well as the ability to react to outside military threats.

As a result, the United States has a natural tendency to separate national security strategy into political, military, and economic compartments. U.S. democratic politics usually focus on topical domestic issues, and they rarely address any long-term strategy beyond a broad support for democratic systems and values.

U.S. diplomacy is normally driven by short-term needs and crises, and it only rarely focuses on long-term strategies to enhance U.S. power abroad. The U.S. economy is regulated but also driven by private businesses and investment. The U.S. government does not control or have the capability to directly manipulate key parts of the economy, and it especially does not seek to exploit that control to directly influence or defeat other states.

These aspects of the American political system, its pluralism, and U.S. ties to strategic partners – those that remain fully sovereign states – often lead U.S. military planning to be driven by immediate or near-term term military priorities. At the same time, the comparative isolation of American defense planning from its civil politics and economic sector has led to a focus on using U.S. power in deterring or "winning" worst-case wars.

Broadening the Definition of Gray Area, Hybrid, and Irregular Operations

There is a surprising amount of theory – about something as unpredictable as today's level of U.S. Chinese, and Russian civil-military competition and conflict – and many debates over how to define terms like Gray Area, Hybrid, and Irregular Warfare. The fact is that there are no rules, the history of war is more the history of irrational decisions and unpredictable attacks and escalation than the dictates of prewar strategy – and this risk is being steadily compounded by major changes in great power relationships, the individual civil and military actions of great powers and lesser states, as well as major shifts in military technology that have increasingly unpredictable real-world impacts.

Moreover, the United States and China – and to a lesser extent the United States and Russia – are involved in the constant process of both civil and military competition on a global basis where they may not use their own forces at all or use them in very limited ways, and where economic competition may be more critical over time than military competition. These broad streams of competition did not fit any of the present definitions, and they do not preclude areas of cooperation and compromise. In many cases, specific areas of competition are shaped by opportunism and a process of action and interaction that will never fit any given attempt at military taxonomy or efforts to develop a clear doctrine.

Nevertheless, these theories deserve attention. Irregular warfare operations first garnered recent popular attention when Frank G. Hoffman labeled it as "hybrid war" in his 2007 *Conflict in the 21st Century*. He has since then revised his definition in 2009 to describe "hybrid warfare" as: [2]

> Any adversary that simultaneously and adaptively employs a fused mix of conventional weapons, irregular tactics, terrorism and criminal behavior in the battle space to obtain their political objectives.

Hybrid warfare is also interchangeably used with the term "gray zone operations," which Hoffman defines as, [3]

> Those covert or illegal activities of non-traditional statecraft that are below the threshold of armed organized violence; including disruption of order, political subversion of government or non-governmental organizations, psychological operations, abuse of legal processes, and financial corruption as part of an integrated design to achieve strategic advantage.

In 2013, the Chief of the General Staff of the Russian Federation's Armed Forces, General Valery Gerasimov, gave a speech that was recognized by many U.S. academics for defining the Russian understanding of irregular warfare known to be called "non-linear warfare," which is when, [4]

> Wars are no longer declared, and having begun, proceed according to an unfamiliar template…the role of non-military means of achieving political and strategic goals has grown, and in many cases, they have exceeded the power of force of weapons in their effectiveness. The focus of applied methods of conflict has altered in the direction of the broad use of political, economic, informational, humanitarian, and other non-military measures – applied in coordination with the protest potential of the population. All this is supplemented by military means of a concealed character, including carrying out actions of informational conflict and the actions of special operations forces.

However, it is important to note that Gerasimov's article has been incorrectly labeled as the "Gerasimov doctrine," and the Russian understanding of "non-linear warfare" has been recognized by many scholars and strategists to be a mirror image of Russia's perception of U.S. activities in the irregular warfare domain.

In 1999, the Russian Major-General Vladimir Slipchenko believed that "sixth generation warfare" – or "no contact warfare" – would result in the next evolution of warfare that would become distant warfare that did not require contact.[5] The transition to "sixth generation warfare" calls for technological advancement to ensure strategic leverage with limited conventional forces in a contemporary world that uses nuclear weapons.

Also in 1999, two Chinese military analysts released a Chinese version of irregular warfare operations and labeled it as "unrestricted warfare." Colonel Qiao Liang and Colonel Wang Xiangsui describe unrestricted warfare as,[6]

> Unrestricted war is a war that surpasses all boundaries and restrictions. It takes nonmilitary forms and military forms and creates a war on many fronts. It is the war of the future.

The Chinese use of "unrestricted warfare" has been further analyzed and sometimes referred to as "quasi warfare," which is marked by the "three non-warfares: non-contact (*fei jierong*), non-linear (*fei xianshi*), and non-symmetric (*fei duicheng*)."[7]

Non-contact (*fei jierong*) is warfare conducted in which the more advanced side is outside the immediate geographical zone of the enemy's weapons, and therefore impervious to strikes while also retaining the ability to conduct its own direct strikes on the enemy. Non-linear (*fei xianshi*) is warfare that has no distinguishable battlefield due to the advancement of technology and codependent nature of the relationship between the sides – and it is usually carried out over the information space. Non-symmetric (*fei duicheng*) is warfare that engages the adversary in every strategic aspect with the use of limited military resources.

The U.S. commands and the Department of Defense (DoD) have also formally acquired their own term of "multi-domain operations" (MDO), which the 2017 Report released by the U.S. Army Training and Doctrine Command defined as,[8]

> Multi-Domain Battle is an operational concept with strategic and tactical implications. It deliberately focuses on increasingly capable adversaries who challenge deterrence and pose strategic risk to U.S. interests in two ways. First, in operations below armed conflict, these adversaries employ systems to achieve their strategic ends over time to avoid war and the traditional operating methods of the Joint Force. Second, if these adversaries choose to wage a military campaign, they employ integrated systems that contest and separate Joint Force capabilities simultaneously in all domains at extended ranges to make a friendly response prohibitively risky or irrelevant.

The U.S. Army Training and Doctrine Command later released a revised version in 2018, shown in **Chart One**, which outlines the following: [9]

- **Central idea.** Army forces, as an element of the Joint Force, conduct Multi-Domain Operations to prevail in competition; when necessary, Army forces penetrate and dis-integrate enemy anti-access and area denial systems and exploit the resultant freedom of maneuver to achieve strategic objectives (win) and force a return to competition on favorable terms.
- **Tenets of the Multi-Domain Operations.** The Army solves the problems presented by Chinese and Russian operations in competition and conflict by applying three interrelated tenets: calibrated force posture, multi-domain formations, and convergence. Calibrated force posture is the combination of position and the ability to maneuver across strategic distances. Multi-domain formations possess the capacity, capability, and endurance necessary to operate across multiple domains in contested spaces against a near-peer adversary. Convergence is rapid and continuous integration of capabilities in all domains, the EMS, and information environment that optimizes effects to overmatch the enemy through cross-domain synergy and multiple forms of attack all enabled by mission command and disciplined initiative. The three tenets of the solution are mutually reinforcing and common to all Multi-Domain Operations, though how they are realized will vary by echelon and depend upon the specific operational situation.

- **Multi-Domain Operations and strategic objectives.** The Joint Force must defeat adversaries and achieve strategic objectives in competition, armed conflict, and in a return to competition. In competition, the Joint Force expands the competitive space through active engagement to counter coercion, unconventional warfare, and information warfare directed against partners. These actions simultaneously deter escalation, defeat attempts by adversaries to "win without fighting," and set conditions for a rapid transition to armed conflict. In armed conflict, the Joint Force defeats aggression by optimizing effects from across multiple domains at decisive spaces to penetrate the enemy's strategic and operational anti-access and area denial systems, dis-integrate the components of the enemy's military system, and exploit freedom of maneuver necessary to achieve strategic and operational objectives that create conditions favorable to a political outcome. In the return to competition, the Joint Force consolidates gains and deters further conflict to allow the regeneration of forces and the re-establishment of a regional security order aligned with U.S. strategic objectives.

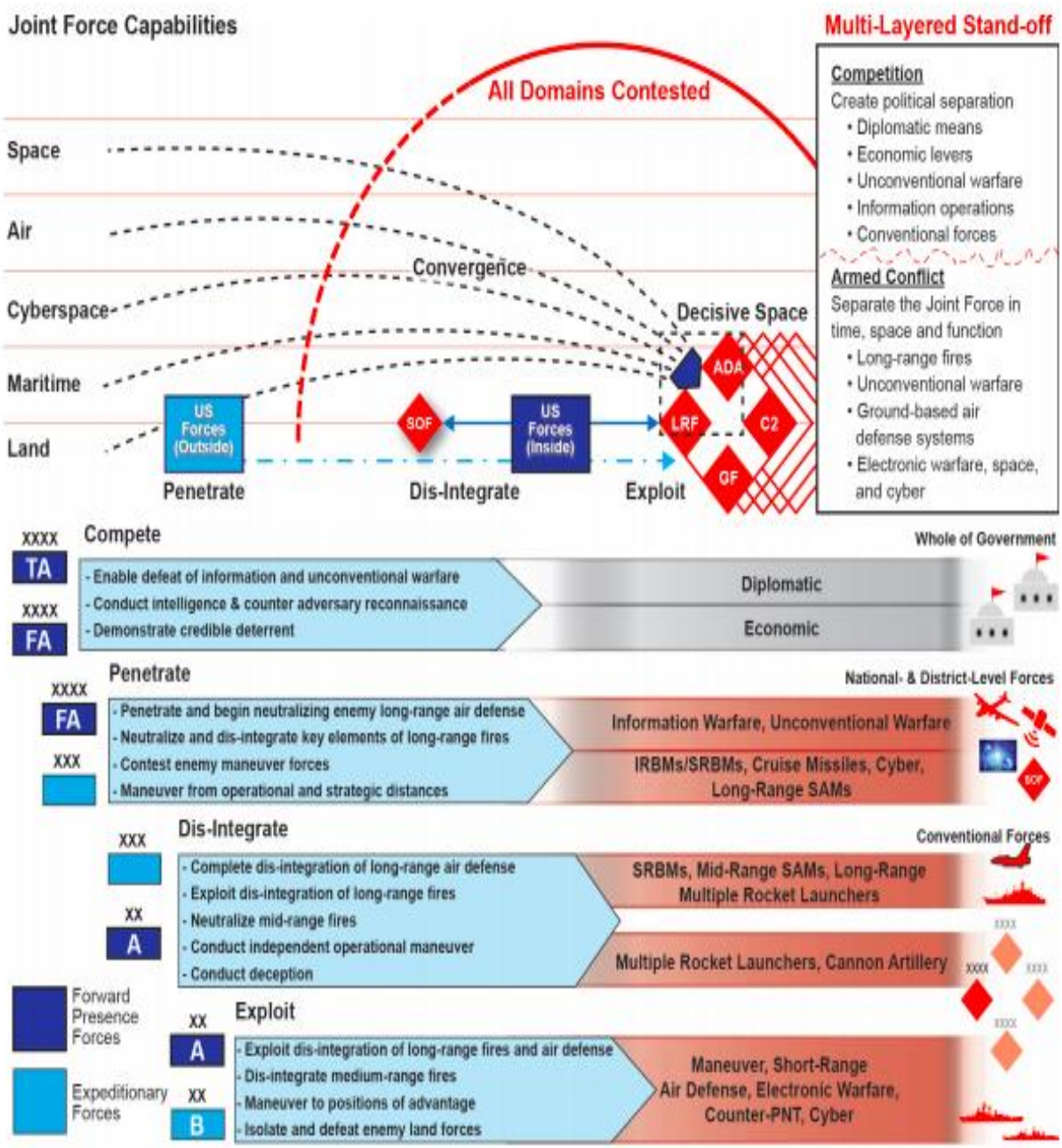
The following assessment uses these terms interchangeably, but irregular warfare operations are most commonly referred to as "gray zone" operations. The practical problem is that such operations may or may not involve any form of conflict or actual fighting directly with China and Russia, and both countries now compete actively with the United State in other ways.

In this study, terms like "gray zone," "hybrid," and "irregular" are used to describe any form of hegemonic competition and do not necessarily involve any form of combat. For the purposes of this analysis, gray zone operations can refer to any range of action from non-violent economic manipulation to low levels of violence using mercenaries. They can involve changes in deployment, basing, advisory missions, arms transfers, or military exercises; claims to military zones; use of sanctions and trade barriers; economic warfare; technological competition; information warfare; support of other states and non-state actors; and other forms of competition designed to gain strategic and tactical advantage as part of the current competition between the United States, China, and Russia.

In practice, finding new ways to compete is proving to be a critical part of American strategic competition with China and Russia. U.S. strategy must be based on the assumption that there are no fixed rules that define "gray zone" operations that clearly separate the use of military force from political and economic action or from competition based on a wide spectrum of different activities on a national, regional, and global basis. This assessment uses terminology like "gray zone" and "irregular warfare" operations as broad guidelines to stress the need for U.S. strategy to respond to the full range of options, from the grand strategic to the tactical level, as the United States competes with Russia and China.

There are clear historical precedents for doing so. They include most of the portions of human history when major powers of empires were not committed to something approaching total war. Human history, and such form of competition, is a key focus of Clausewitz and especially Sun Tzu. It is also clear that both Russia and China now actively compete with the U.S. on this basis, and any definition of this competition that excludes their full range of activities cannot be an effective basis for shaping U.S. strategy.

Chart One: Multi-Domain Operations (MDO) Solutions



Source: U.S. Army Training and Doctrine Command, "Multi-Domain Battle: Evolution of Combined Arms for the 21st Century 2025-2040," December 6, 2018, https://www.tradoc.army.mil/Portals/14/Documents/MDO/TP525-3-1_30Nov2018.pdf

Calculating the Balance of Power in Broader Terms

Over the last decade, China has increasingly shown that it can make major strategic gains by competing at different levels of "warfare" and by using unconventional means. Simply creating modern Chinese military forces that match the growth of its economy has made China the second ranking power in the world. Taking actions like fortifying islands in the Pacific, regardless of their vulnerability, has given it a major new strategic profile. So has debating maritime and air control zones with Japan, as well as actions like building a token carrier force – and taking that carrier through the Taiwan Straits – have produced the same effect.

While China's global economic expansion has triggered growing concerns outside the United States, its "Belt and Road Initiative" (BRI) approach to geo-economics has almost certainly done more to enhance its status as a great power than its military build-up. Just as important as the modernization of its military forces – and its expansion to the "second island chain" in the Pacific – its status in trade, investment, and economic links to other states and its ability to create an expanding zone of economic influence – that extends through Asia, it border areas with Russia, and the Strait of Malacca to the Arab-Persian gulf – have given more power and influence to China with greater benefits than any potential use of force that could lead to a serious conflict would be able to accomplish.[10]

Russia has not been able to challenge the U.S. at an economic level, but it has made its own gains in Eastern Europe, Ukraine, and Syria by making very limited use of its forces and supporting other states and non-state actors. Russia has combined political, economic and demonstrative military efforts to put pressure on the NATO states closest to its borders. More recently, there are reports that U.S. intelligence sources have assessed that Russia offered bounties to the Taliban to kill U.S. soldiers stationed in Afghanistan – although these have not been confirmed by the Secretary of Defense or senior military commanders.[11]

Russia has used its energy exports, trade, and economic weapons as well. Russia is also attempting to diversify its economic partnerships in Africa – with the Central African Republic, Sudan, and others – by making contracts concerning natural resource deals and the use of private military companies (PMCs). It has done an increasingly expert job of exploiting the fault lines between the U.S. and its strategic partners, with arms sales and advisory efforts, and of the political tensions in the Middle East. While it unclear that Russia focuses on the teaching of Sun Tzu, they clearly recognize that there are many areas of competition where they do not need to win, but they merely have to deny any form of "victory" to the U.S. or other national targets.

There is no way to predict how the Coronavirus and the overall process of civil competition between the great powers will affect these patterns of competition, or just how serious and enduring it will become. It is not yet possible to predict its relative impact on the United States, China, and Russia – or on their economic strength, their military spending, and national security goals and operations. It is all too possible, however, to predict that it will create a massive new set of economic and political vulnerabilities in other states, and that China and Russia are already deeply engaged in a form of competition, which they use to exploit the new opportunities that they helped to create.

Competition and the Impact of Nuclear Forces and Mutual Assured Destruction

> The art of war teaches us to rely not on the likelihood of the enemy's not coming, but on our own readiness to receive him; not on the chance of his not attacking, but rather on the fact that we have made our position unassailable — Sun Tzu, The Art of War

These civil – as well as limited and indirect forms of military competition – have the advantage that they not only are far less dangerous than any major nuclear or theater conflict with the United States, but that the end result will be far more effective and offer far more advantages.

As noted earlier, one key reason lies in the risk of nuclear conflict – or the cost of any major theater conflict that can damage or exhaust the economy. **Chart Two – Part One** displays open source estimates of the historical trends in U.S. and the former Soviet Union (FSU)/Russian nuclear weapons as well as the current U.S., Chinese, and Russian nuclear forces. Looking at these numbers, it is clear that the United States and Russia are the current two nuclear superpowers – although Chinese nuclear weapon holdings are growing more rapidly, and China is introducing a wide range of new nuclear and dual capable delivery systems.

The graph at the top of Chart Two – Part One demonstrates that the rise and fall of U.S. and Russian nuclear weapons holdings also sends an important message. There is a good reason for the sharp decline in the peak nuclear weapons holdings of the Former Soviet Union (FSU)/Russian Federation and the U.S. forces that led to a massive decline in total weapons after the mid-1980s with an emphasis on arms control. Once the United States and Russia – and also now China – escalate to strategic nuclear strikes on another major power's territory, there is a significant probability that this will inevitably lead to nuclear attacks on population centers.

Chart Two – Part Two provides a SIPRI estimate of all the world's nuclear forces as of January 2020. It reflects a rise in China's total inventory to 320 nuclear weapons versus 1,750 deployed weapons for the United States (total inventory of 5,800) and 1,750 deployed weapons for Russia (total inventory of 6,375). These numbers do not reflect the nature of current deployments and trends in terms of delivery systems and yields – and there are major uncertainties in such estimates – particularly for China. These are explained in depth in the SPIRI report from which the table is taken – which is the "World Nuclear Forces" chapter of *SIPRI Yearbook 2020: Armaments, Disarmament and International Security*.

The number of active strategic weapons is much smaller and is not known for China. The U.S. State Department does report the balance of U.S. and Russian strategic nuclear forces allowed under the START Treaty as of March 1, 2020:

- Deployed ICBMs, Deployed SLBMs, and Deployed Heavy Bombers; US: 655; Russia 485.
- Warheads on Deployed ICBMs, on Deployed SLBMs, and Nuclear Warheads Counted for Deployed Heavy Bombers – US: 1,372; Russia: 1,326.
- Deployed and Non-deployed Launchers of ICBMs Deployed and Non-deployed Launchers of SLBMs, and Deployed and Non-deployed Heavy Bombers – US: 800; Russia: 754.

These numbers are more than adequate to destroy most of the core urban population of both Russia and the United States. History warns how often wars escalate in ways that the nations involved failed to predict and then failed to control these wars from happening in the first place. Today, any

serious exchange of nuclear strikes on land-based military targets – particularly ICBM launchers, bomber bases, and nuclear facilities – will all have a major cumulative effect in terms of immediate collateral damage and the effects of fall out. No major power will accept the loss of all of its nuclear forces in counterforce exchanges, which will leave its cities vulnerable. Shifting from counterforce strikes to direct countervalue strikes on an opponent's cities and major economic centers is all too probable.

For the same reasons, China, Russia, and the U.S. continue to compete in developing new nuclear strike systems as well as missile, air, and other defenses. No power will grant another a meaningful edge if it can avoid it. Ironically, this both stabilizes the balance and limits the willingness to engage in a major war as long as each power carefully weighs the risk of escalation, but also simultaneously makes it harder to predict and control the process of escalation once a major conflict begins.

This means the nuclear balance needs to be measured in terms of the present and future ability to inflict both counterforce and countervalue strikes and the subsequent end result as much – or even more – than by the numbers and capabilities of nuclear weapons and delivery systems. As **Chart Three** shows all too clearly, the loss of even 10 to 20 of U.S., Chinese, or Russian major cities and the damage done to their total population and economic base makes the outcome of such a war a de facto defeat for all of the powers concerned.

The dead and injured will not be concerned with the pre-strike or post-conflict number of nuclear warheads, delivery systems, or the details on the weapons system that delivered the final blow and whether it was hypersonic or some new form of nuclear torpedo. The survivors will have to live with the aftermath and will stay vulnerable to different degrees. The "winner" – in terms of the power with the fewest dead and dying – will have lost so much that the end result will also be a defeat, and a broken back series of further exchanges would only make things worse.

Unless a given major power can avoid nuclear "mutual assured destruction" on even a comparatively limited basis, it has lost the war in any meaningful terms. The moment nuclear war approaches this level of escalation – through limited strikes, limited yields, or targeting the other side's nuclear forces – the risk becomes unacceptable to any rationale power. In short, it is far more important to estimate the consequences and probability of a U.S., Chinese, and Russian nuclear conflict than it is to compare each nation's trends in nuclear delivery systems, warhead storage, and nuclear modernization.

Moreover, the emergence of China as the world's second ranking major economic power has radically changed the balance that existed during the Cold War. The United States, China, and Russia are now competing in the equivalent of a "three cornered race." The grim reality that any combination of two out of the three major nuclear powers that participate in a nuclear exchange would face is that if the third nuclear power can stand aside, it will win in very real terms. Any nuclear war that becomes an exchange between the United States and Russia alone would make China the winner, regardless of its smaller nuclear inventories.

If there is a key "wild card," it lies in the fact that military technology is also evolving in ways that may increase these risks in new ways. Improvements in missile accuracy allow progressively smaller nuclear yields to be used to destroy critical targets – creating a growing uncertainty as to whether a given power will risk retaliating with high yield weapons that could trigger a broader exchange.

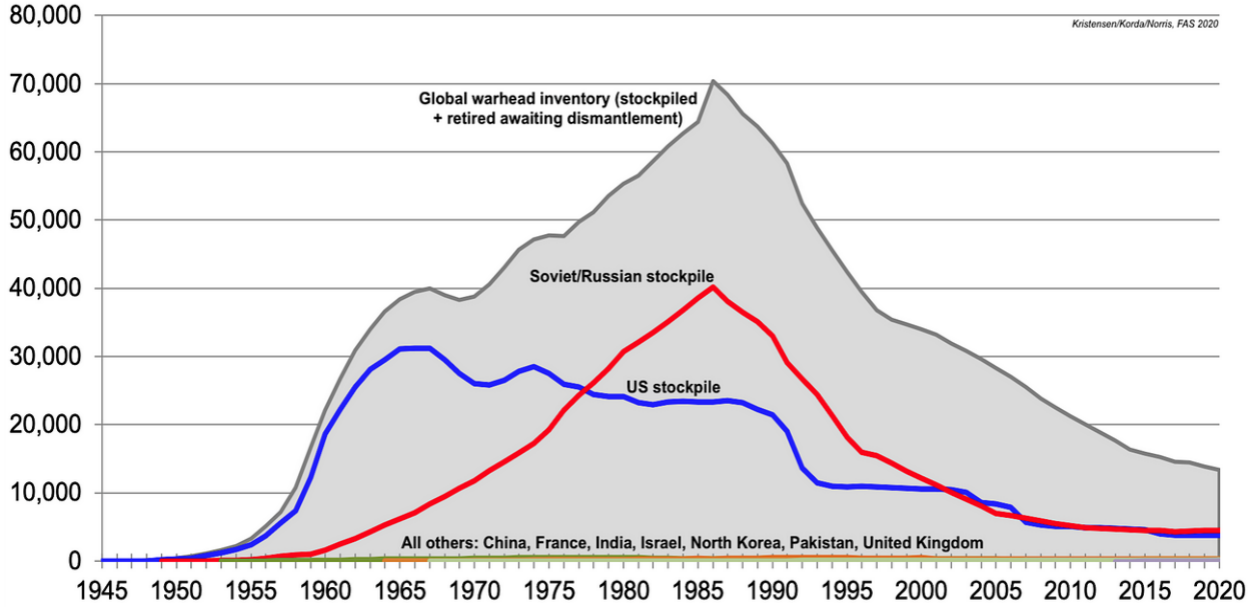
More critically, advancements in accuracy and warhead design allow a wide range of "conventionally" armed systems to be used at virtually any range to destroy critical smaller military civil targets as well as targets in space. As the U.S. demonstrated in attacking key civil targets in Iraq during the first Gulf War in 1991, conventional strike systems can become the equivalent of "weapons of mass effectiveness."

Hypersonic weapons increase the risk, as does the steady extension of the range of systems that can be used to strike land, naval, and air targets – which also creates new challenges to the defending power in characterizing nuclear versus non-nuclear targets. One recent example – though not directly involving China or Russia but nonetheless an apt instance – of the evolving threat and risks involved were the Houthi-Iranian missile attacks on major Saudi petroleum facilities.

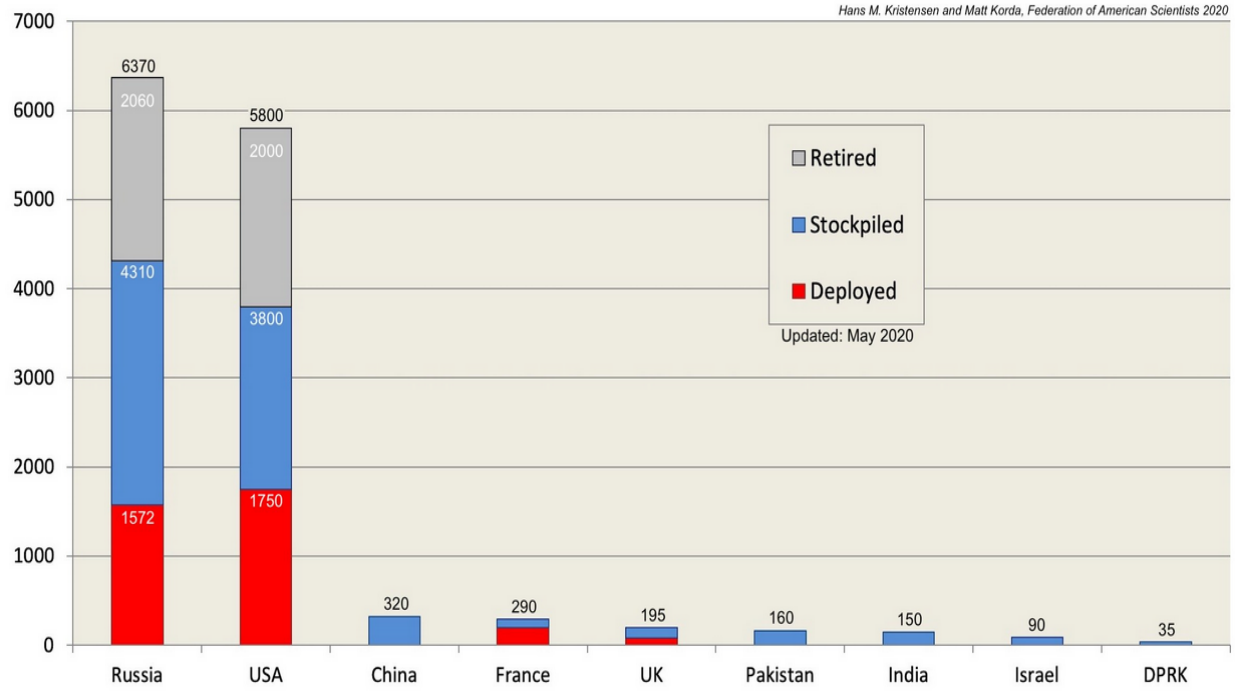
There is nothing the U.S. can do that can now totally eliminate the risk of a series of massive miscalculations, and another "Sarajevo" incident that leads to a nuclear war or worst-case theater conflict. However, worst case wars between the U.S. and China or Russia are now broadly deterred at every rational level, and the ongoing technological competition between them seems likely to continue to create a rough parity in both nuclear and the evolving conventional long-range precision strike weapons. In effect, "mutual assured destruction" will remain "mutual assured deterrence" unless a given power makes drastic miscalculations.

Chart Two – Part One: Estimated Global Nuclear Weapons Inventories: 1945-2020

Estimated Nuclear Weapons 1945-2020



Estimated Nuclear Weapons in 2020



Source: Hans M. Kristensen and Matt Korda, "Status of World Nuclear Forces," https://fas.org/wp-content/uploads/2020/04/WarheadInventories2020-1.jpg.

Chart Two – Part Two: Worldwide Holdings of Nuclear Weapons in 2020

All figures are approximate. The estimates presented here are based on public information and contain some uncertainties, as reflected in the notes to tables 10.1–10.10.

Country	Year of first nuclear test	Deployed warheads[a]	Stored warheads[b]	Other warheads	Total inventory
United States	1945	1 750[c]	2 050[d]	2 000[e]	5 800
Russia	1949	1 570[f]	2 745[g]	2 060[e]	6 375
United Kingdom	1952	120	95	–	215[h]
France	1960	280	10	. .	290
China	1964	–	320	–	320
India	1974	–	150	. .	150
Pakistan	1998	–	160	. .	160
Israel	. .	–	90	. .	90
North Korea	2006	–	. .	[30–40]	[30–40][i]
Total[j]		**3 720**	**5 620**	**4 060**	**13 400**

. . = not applicable or not available; – = zero; [ ] = uncertain figure.

Note: SIPRI revises its world nuclear forces data each year based on new information and updates to earlier assessments. The data for Jan. 2020 replaces all previously published SIPRI data on world nuclear forces.

[a] These are warheads placed on missiles or located on bases with operational forces.

[b] These are warheads in central storage that would require some preparation (e.g. transport and loading on to launchers) before they could become fully operationally available.

[c] This figure includes approximately 1600 strategic warheads (about 1300 on ballistic missiles and nearly 300 on bomber bases), as well as *c.* 150 non-strategic (tactical) nuclear bombs deployed outside the USA for delivery by US and other North Atlantic Treaty Organization aircraft.

[d] This figure includes *c.* 80 non-strategic nuclear bombs stored in the USA.

[e] This figure is for retired warheads awaiting dismantlement.

[f] This figure includes approximately 1370 strategic warheads on ballistic missiles and about 200 deployed at heavy bomber bases.

[g] This figure includes *c.* 870 warheads for strategic bombers and nuclear-powered ballistic missile submarines (SSBNs) in overhaul and *c.* 1875 non-strategic nuclear weapons for use by short-range air, air defence and naval forces.

[h] The British Government has stated that the process to reduce the stockpile to 180 warheads is under way. Although some sources suggest that the stockpile remains at 215 warheads, it is possible that, under this process, the stockpile may have already been reduced to 195 warheads.

[i] There is no publicly available evidence that North Korea has produced an operational nuclear warhead for delivery by an intercontinental-range ballistic missile.

[j] Totals do not include figures for North Korea.

Source: Shannon N. Kile & Hans M. Kristensen, "World Nuclear Forces," *SIPRI Yearbook 2020: Armaments, Disarmament and International Security, p. 326, www.sipriyearbook.org.*

Chart Three: Mutual Assured Destruction: An Illustrative Target Base

(Population in Millions)

	United States		Russia		China	
Rank	**Name**	**Population**	**Name**	**Population**	**Name**	**Population**
1	New York	8,537,673	Moscow	10,381,222	Shanghai	22,315,474
2	Los Angeles	4,030,668	Saint Petersburg	5,028,000	Beijing	11,716,620
3	Chicago	2,687,682	Novosibirsk	1,419,007	Tianjin	11,090,314
4	Houston	2,340,814	Yekaterinburg	1,349,772	Guangzhou	11,071,424
5	Phoenix	1,679,243	Nizhniy Novgorod	1,284,164	Shenzhen	10,358,381
6	Philadelphia	1,573,688	Samara	1,134,730	Wuhan	9,785,388
7	San Antonio	1,541,456	Omsk	1,129,281	Dongguan	8,000,000
8	San Diego	1,438,060	Kazan	1,104,738	Chongqing	7,457,600
9	Dallas	1,359,133	Rostov-na-Donu	1,074,482	Chengdu	7,415,590
10	San Jose	1,030,796	Chelyabinsk	1,062,919	Nanjing	7,165,292
Top 10		**26,219,213**		**24,968,315**		**106,376,083**
11	Austin	983,366	Ufa	1,033,338	Nanchong	7,150,000
12	Jacksonville	907,529	Volgograd	1,011,417	Xi'an	6,501,190
13	Fort Worth	893,997	Perm	982,419	Shenyang	6,255,921
14	San Francisco	888,653	Krasnoyarsk	927,200	Hangzhou	6,241,971
15	Columbus	880,182	Saratov	863,725	Harbin	5,878,939
16	Charlotte	873,363	Voronezh	848,752	Tai'an	5,499,000
17	Indianapolis	860,902	Tol'yatti	702,879	Suzhou	5,345,961
18	Seattle	746,046	Krasnodar	649,851	Shantou	5,329,024
19	Denver	719,116	Ulyanovsk	640,680	Jinan	4,335,989
20	Washington DC	702,756	Izhevsk	631,038	Zhengzhou	4,253,913
Top 20		**34,675,123**		**33,259,614**		**163,167,991**
21	El Paso	692,100	Yaroslavl	606,730	Changchun	4,193,073
22	Boston	687,584	Barnaul	599,579	Dalian	4,087,733
23	Nashville	673,008	Vladivostok	587,022	Kunming	3,855,346
24	Detroit	665,713	Irkutsk	586,695	Qingdao	3,718,835
25	Portland	658,347	Khabarovsk	579,000	Foshan	3,600,000
26	Oklahoma City	653,865	Khabarovsk Vtoroy	578,303	Puyang	3,590,000
27	Las Vegas	653,840	Orenburg	550,204	Wuxi	3,543,719
28	Memphis	649,243	Novokuznetsk	539,616	Xiamen	3,531,347
29	Louisville	619,287	Ryazan'	520,173	Tianshui	3,500,000
30	Baltimore	601,188	Tyumen	519,119	Ningbo	3,491,597
Top 30		**41,229,298**		**38,926,055**		**200,279,641**

Source: Anthony H. Cordesman, *China and the New Strategic Nuclear Arms Race: The Forces Driving the Creation of New Chinese Nuclear Delivery Systems, Nuclear Weapons, and Strategy*, CSIS, November 15, 2018, p. 66, https://www.csis.org/analysis/china-and-new-strategic-nuclear-arms-race.

Nuclear Modernization Remains Critical

It should be stressed in making these points, that nuclear modernization – hopefully coupled with effective nuclear arms control – remains critical to assuring that mutual assured destruction (MAD) is preserved while also assuring that the U.S. will not lose its massive nuclear edge over rogue nuclear powers like North Korea. The same is true of competing in long-range conventional precision strike systems and missile and air defenses. More advanced forms of arms control may limit these needs, but so far, there is little indication that this will be the case.

The fact that the U.S. needs to give more priority to competing in civil areas and in gray area and hybrid operations at lower levels of conflict and also deal with the impact of the Coronavirus crisis does not mean it can back away from nuclear competition. The problem with the current U.S. strategies and defense plans dealing with Chinese and Russian competition is not being able to recognize the primacy that should be given to other aspects of competition, gray area operations, and different types of conflict.

Chart Four illustrates this continuing need for modernization by providing a snapshot of recent Chinese and Russian nuclear modernization. This chart only covers past steps, and both China and Russia have since announced major new areas of modernization. Particularly in the case of Russia, some announcements like the focus on hypersonic weapons and a long-range submersible nuclear strike system seem to be designed to highlight the fact that Russia is taking the lead in dramatic new areas, while down playing the fact that Russia is also more quietly modernizing the rest of its delivery forces.

In the case of China, it is deploying land based multiple independently targetable reentry vehicles (MIRV'd) intercontinental ballistic missiles (ICBMs) for the first time, constructing a new nuclear capable bomber, deploying new dual-capable missiles, and making major increases in its still limited inventory of nuclear weapons for the first time in years. These trends have recently been reflected in the Chinese news articles, which publicly discusses the need for an increase to 1,000 warheads and a stockpile of 100 DF-41 ICBM's with MIRV'd warheads.[12]

The possible impact of that "Nth country's" nuclear forces must also be considered. North Korea is already an example of a threat that involves both the U.S. and China. Iran may become a threat to the United States. India's nuclear forces may be targeted on Pakistan, but they affect tensions and competition between India and China. British and French nuclear forces affect the balance in Europe and pose a potential threat to Russia.

As long as these forces exist and the prospect of more nations proliferating is real, it will be difficult to consider a "zero options" approach for arms control for the United States, China, and Russia. Even few nuclear weapons in such forces would then pose a serious threat, and future proliferators are all too possible – not to mention that biological weapons can also pose near nuclear threats and precision conventional weapons can be used to destroy critical target points. In some cases, long-range precision strikes with such weapons can even make them the equivalent of "weapons of mass effectiveness."

The only two ways for the U.S. to ensure that "mutual assured destruction" does remain "mutual assured deterrence" on a global basis is to one: either reach an arms control agreement that assures all three major powers that there will be a stable level of mutual assured deterrence, or two: to actively compete in modernizing U.S. nuclear forces and long-range precision strike capabilities –

and the same is true of its need to preserve a broad capability to fight a large-scale theater warfare as a second critical element of deterrence.

This is why the U.S. has embarked on its own major nuclear modernization, one that will preserve the present stability of the nuclear balance and deterrence through "mutual assured deterrence." As high as the price tag is for this program, U.S. modernization of its nuclear strike forces may seem excessive when taken out of context – and the CBO estimates that it will be $494 billion over the 2019–2028 period – but the cost of U.S nuclear modernization is also relatively moderate compared to the size of the U.S. economy and presents itself as an affordable burden.[13] The same is true of preserving a missile defense option and ensuring that the U.S. has the right assets in space, in its full variety of critical IS&R, and in C_4/battle management assets. Deterrence needs to steadily expand and/or modernize all of the necessary dimensions of "multi-domain" and "joint" warfare.

Accordingly, even if China or Russia should change their pace of modernization, the U.S. will have resources, technology, and time to keep pace with that change regardless of the deployment of hypersonic and other more advanced nuclear and conventional weapons and delivery systems. It can compete in missiles and air defenses, in space, in multi-domain warfare, and in creating a broad spectrum of transitional capabilities from long-range precision conventional strike systems to lower yield nuclear warheads.

For all the claims now being made about technical innovations to come, there seems to be little chance that any mix of modernization and/or expansion of nuclear offensive forces, conventional long-range strike systems, and strategic defenses – that is not linked to clear limits and arms control agreements – will be able to change MAD and the other risks of major wars between two major powers to a reasonable probability that any of the three can actually "win" at a reasonable cost, and that the outcome of such competition will accomplish anything more than creating a major drain on the defense budgets and economies of all three major powers. In the worst-case war scenario, the end result is still likely to be the equivalent of a three-dimensional chess game with more than two players, no rules, and players that attempt to win by smashing the game boards.

It is possible that the U.S. and China can eventually decisively outspend and out-deploy Russia, but only at an immense cost to their economies and investment in other military capabilities. The end result of such an effort – like all other aspects of a more intensive arms race in nuclear warfighting capabilities – is also likely to make every aspect of nuclear strategy and war planning more uncertain, and it will also certainly make escalation harder to control and evaluate under actual warfighting conditions.

The risks of miscalculation and escalation to actual war tend to grow in direct proportion to how fast nuclear and long range-precision strike forces change – the more asymmetric the forces on each side become, the harder it is to acquire full information in real time. Like the arms race in total U.S. and Soviet Union nuclear weapons shown during 1960-1990 in the top graph on **Chart Two**, it is also likely to raise the level of mutual assured destruction if a serious nuclear exchange does take place.

To put it bluntly, dead is dead. Modern strategy will have to continue to be based on the reality that the threat of committing suicide really is an effective deterrent to being murdered.

Chart Four: U.S., Russian, and Chinese Nuclear Modernization: 2010-2018

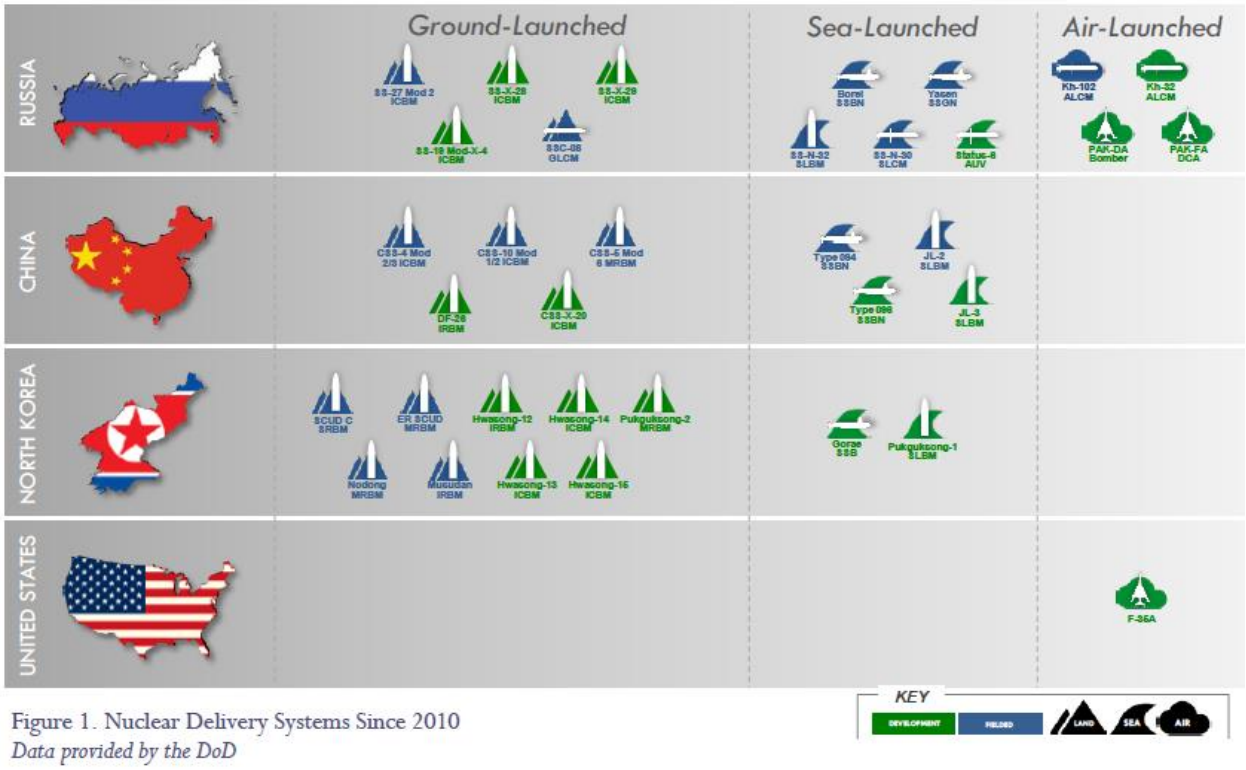


Figure 1. Nuclear Delivery Systems Since 2010
Data provided by the DoD

Source: Office of the Secretary of Defense, *2018 Nuclear Posture Review*, Department of Defense, p. 8, February 2018.

Utilizing Gray Zone Operations with Nonstrategic Nuclear Weapons

The analysis of Russian and Chinese gray zone operations demonstrates, if anything, that competition can be advanced in any strategic area in a wide range of different manners and on the basis of different strategies and degrees of predictability. It is also a grim reality that both strategy and rational behavior – not the simply battle plans – are among the first casualties of war.

The prime rational impact of nuclear weapons may be to gain mutual assured deterrence as a form of strategic leverage, but World War I is a classic example of the degree to which escalation can be driven by events, the unexpected actions of the other side, and miscalculation on all sides throughout the course of a war.

The present nuclear arms race – and the matching race in long range "conventional" precision strike systems that can destroy or cripple critical target to the point where they become "weapons of mass effectiveness" – have political impact in peacetime and also at every stage of escalation that involves actual combat. The extent to which the deterrent impact of "mutual assured destruction" depends on rational behavior at every state of escalation cannot be ignored. "Worst case" wars do happen.

The present asymmetries between powers can add to these uncertainties. As stated earlier in this analysis, both Chinese and Russian military analysts are aiming to achieve superiority on the battlefield with the use of limited resources and contact. Anti-satellite, other space warfare, and a wide range of advances in cyberwarfare, IS&R, and information warfare also affect these efforts. Non-strategic nuclear forces may add to their capability for gray zone operations.

Russia has already used the threat from its non-strategic nuclear weapons to increase its influence along its borders. Breakthrough developments in hypersonic weapons with conventional warheads could advance Russia's interests by allowing it to project its strength using tactical shorter-range systems with lower yields that could be used on the battlefield. Russia completion of its project, GLONASS (Global Navigation Satellite System) will also support Russia's precision strike system and give Russia a global navigation system.[14]

The Congressional Research Service has released a report on nonstrategic nuclear weapons and its role in Russian national security that addresses many of these issues,[15]

> As was noted above, many analysts argue that Russia's nonstrategic nuclear weapons pose a risk to the United States, its allies, and others because Russia has altered its national security concept and military strategies, increasing its reliance on nuclear weapons. Some fear that Russia might resort to the early use of nuclear weapons in a conflict along its periphery, which could lead to a wider conflict and the possible involvement of troops from NATO or other neighboring countries, possibly drawing in new NATO members. Some also believe that Russia could threaten NATO with its nonstrategic nuclear weapons because Russia sees NATO as a threat to its security. Russian analysts and officials have argued that NATO enlargement—with the possible deployment of nuclear weapons and missile defense capabilities on the territories of new NATO members close to Russia's borders—demonstrates how much NATO could threaten Russia.
>
> The 2008 congressionally mandated Strategic Posture Commission expressed a measure of concern about the military implications of Russia's nonstrategic nuclear forces. It noted that Russia "stores thousands of these weapons in apparent support of possible military operations west of the Urals." It further noted that the current imbalance between U.S. and Russian nonstrategic nuclear warheads is "worrisome to some U.S. allies in Central Europe." It argued that this imbalance, and the allies' worries, could become more pronounced in the future if the United States and Russia continue to reduce their numbers of deployed strategic nuclear weapons.

> Others have argued, however, that regardless of Russia's rhetoric, "Russia's theater nuclear weapons are not ... destabilizing." Even if modernized, these weapons will not "give Moscow the capability to alter the strategic landscape." Further, Russian weapons, even with its new military strategy, may not pose a threat to NATO or U.S. allies. Russia's doctrine indicates that it would use these weapons in response to a weak performance by its conventional forces in an ongoing conflict. Since it would be unlikely for NATO to be involved in a conventional conflict with Russia, it would also be unlikely for Russian weapons to find targets in NATO nations. This does not, however, preclude their use in other conflicts along Russia's periphery. As Russian documents indicate, Russia could use these weapons if its national survival were at stake.
>
> This view, however, has been tempered, in recent years, by both Russia's aggression in Ukraine and its frequent "nuclear saber-rattling." Not only have Russian officials reminded others of the existence and relevance of Russian nuclear weapons, Russian military exercises, bomber flights, and cruise missile launches have seemed designed to demonstrate Russia's capabilities and, possibly, its willingness to challenge NATO's eastern members. These actions have raised concerns about the possibility that Russia might threaten to use nuclear weapons during a crisis with NATO, in line with its apparent "escalate to de-escalate" strategy, to force a withdrawal by NATO forces defending an exposed ally or to terminate a conflict on terms favorable to Russia. While some analysts dispute this interpretation of Russia's doctrine, most agree that nonstrategic nuclear weapons appear to play a significant role in Russia's doctrine and war plans.

China does not yet have a full nuclear triad by U.S. and Russian standards because the PLA Air Force does not yet have a suitable strategic bomber force although it is acquiring suitable systems.[16] China does, however, have four Jin-class nuclear powered ballistic missile submarines (SSBN) which can each carry up to 12 submarine-launched ballistic missiles (SLBMs) – giving China the ability to project nonstrategic power.[17]

The Congressional Research Service also addressed the ways in which both Russian and Chinese nonstrategic nuclear weapons could affect U.S. national security,[18]

> Questions about the role of U.S. nuclear weapons in regional contingencies have resurfaced in recent years, as analysts have sought to understand how these weapons might affect a conflict with a regional ally armed with nuclear weapons. Some analysts doubt that U.S. nuclear weapons would play any role in such a contingency, unless used in retaliation after an adversary used a nuclear weapon against the United States or an ally, because U.S. conventional forces should be sufficient to achieve most conceivable military objectives. Others, however, argue that the United States might need to threaten the use of nuclear weapons, and possibly even employ those weapons, when facing an adversary seeking to use its own nuclear capabilities to intimidate the United States or coerce it to withdraw support for a regional ally. Some have suggested, specifically, that forward-deployed nuclear weapons with lower yields—in other words, nonstrategic nuclear weapons—might serve as a more credible deterrent threat in these circumstances.
>
> The 2018 Nuclear Posture Review adopted this perspective, and seemed to discount the approach, taken in both the Bush and Obama NPRs, of reducing the role of nuclear weapons by expanding the role and options available with advanced conventional weapons. It did not completely dismiss the value of U.S. conventional capabilities, but asserted that "conventional forces alone are inadequate to assure many allies who rightly place enormous value on U.S. extended nuclear deterrence for their security." These concerns were central to the NPR's recommendation that the United States develop two new types of nonstrategic nuclear weapons. Where the two previous NPRs sought to fill "gaps" in deterrence with ballistic missile defenses and advanced conventional weapons, the 2018 NPR asserted that new nuclear weapons were needed for this purpose.

Global vs. Real-World Uses of "Conventional" Military Forces

> "For to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill.…There is no instance of a nation benefitting from prolonged warfare. — Sun Tzu, The Art of War

All of these factors affect the ways in which the U.S. should assess the structure and employment of its conventional forces. They also affect how the U.S. should determine the relative priorities in shaping the total military forces in each U.S. military service in order to compete with those of China and Russia – specifically on how it will tailor the combined capabilities of U.S. forces in each major regional and functional combatant command and also from U.S. strategic partnerships to compete with the Chinese and Russian forces that drive competition in a specific regional or functional area.

Purely military net assessments of the balance are an increasingly poor substitute for comparisons of how the full range of Chinese and Russian civil-military operations now challenge the United States and its allies. Moreover, far too many military comparisons compare total strengths and not the capability to use forces in actual contingencies. These comparisons analyze total conventional forces or even of the ability to fight major wars that can lead Russia, China, or the United States into an all-out conflict for control of a region. Although these major wars can occur, powers like Russia, China, and the United States have every reason to try to avoid them.

Nevertheless, assessments of total numbers and the quality of military forces still tend to be the focus of military analysts even though the outcome of such analysis rarely measures real-world contingency capability even in purely military terms. It is the military capability to accomplish an objective – globally, regionally, nationally, or to achieve a more limited strategic victory – and to use it effectively by also using civil, political, and economic powers that serve to be critical.

These risks also apply to any conventional conflict where the risk of escalation to a nuclear war becomes high and directly threatens a key part of the economy, economic and trade activity, or a key strategic partner. To go back to chess, each player not only needs to avoid damaging the king or queen, but it must also avoid losing any other major piece. The only safe sacrifice is a pawn.

Under these conditions, the massive economic changes the Coronavirus is making in U.S. politics and economics will play a critical role in shaping the ways the United States deploys and uses conventional forces, the positions of its current and potential strategic partners, and the way its forces compete with those of China and Russia on a global basis.

So too will the level of engagement and the particular area of conflict affect how the U.S. will play an equally critical role in shaping the forces involved, the level of conflict (if any), and the de facto rules of engagement that emerge over time in a given area of competition. It also seems likely that the impact of the Coronavirus – and the cost of recovery – will make all three major powers even more cautious about any escalation that creates a serious form of conflict.

No matter how much the U.S. – or its two rivals – build up their global military forces and their readiness, the resulting increase in conventional strength will only serve a grand strategic purpose if they are able to deter a major theater conflict. The threat of using such forces must be both credible *and* be able to be used in ways where a rival is left with no strategic incentive to engage in such a level of war under these conditions. The economic and human cost of World War I and World War II – and the smaller peace time costs of the 1918 flu and the Coronavirus – should be

a clear warning to any power that does not let ideology and blind ambition triumph over common sense.

Focusing on Real-World Contingencies Rather than Total Conventional Forces

Chart Five and **Chart Six** display snapshots of the comparative total size of U.S., Chinese, and Russian global military forces, and they provide a rough summary picture of each nation's current military strength. China is on the path to create 420 ships by 2035 and outpace the United States as the world's biggest navy.[19] Russia has turned towards its private military companies (PMCs) as a force multiplier to support its military operations abroad.[20] Once again, there are many different methods of analysis and sources that can be used to make such comparisons, but regardless, the U.S. must compete in force size and force quality – taking into account that it has actual capabilities to influence, deter, and defend in given areas of competition.

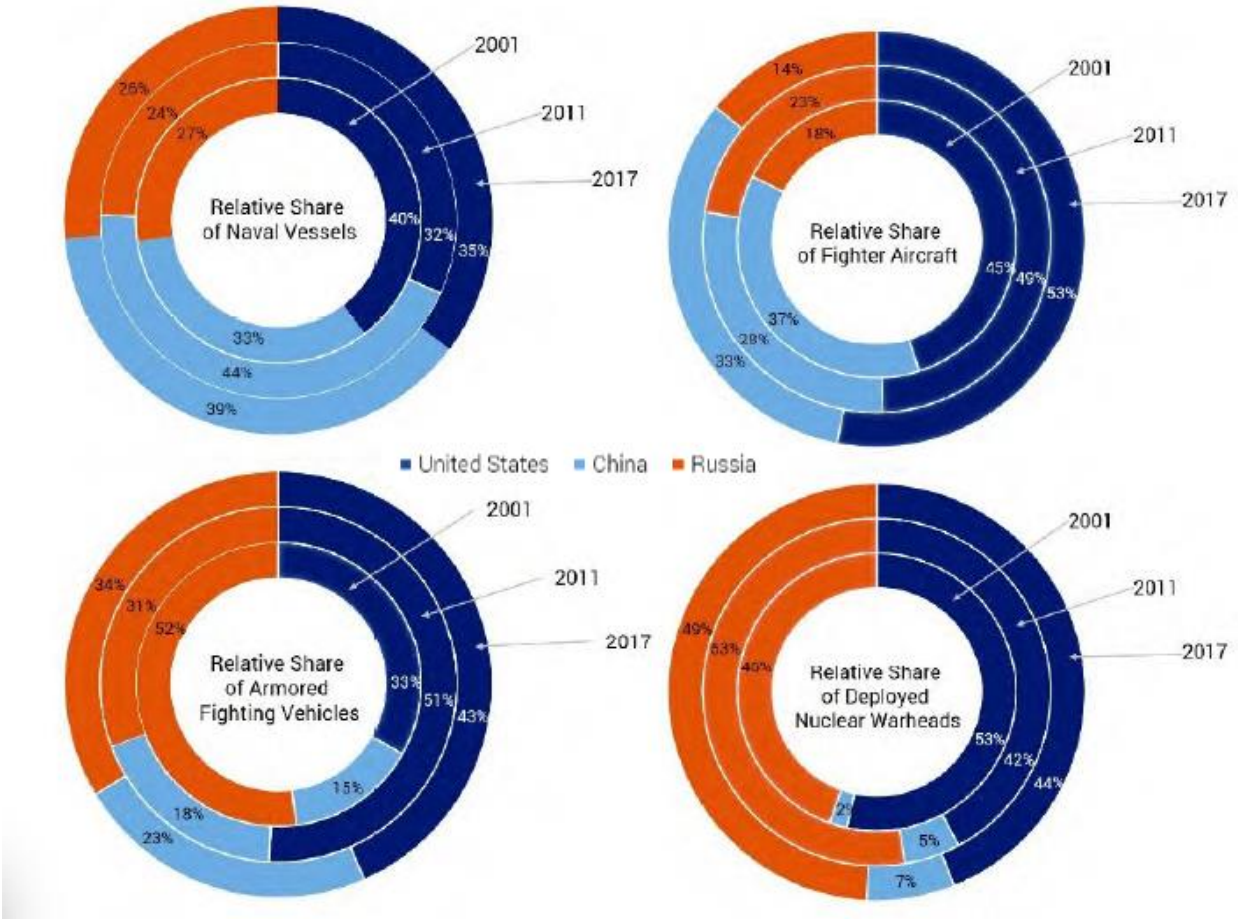
This competition will not, however, be shaped by total force size. In the real world, the United States, China, and Russia will influence, deter, and engage by using joint forces tailored to their objectives in given areas – limited bloc military forces whose relevance and capability depends on their individual effectiveness, readiness, modernization, training, precision strike assets as well as the full range of multi-domain, IS&R, and C_4/battle management assets – all capabilities that are not addressed in Chart Five and Chart Six.

These much smaller blocks of U.S., Chinese, and Russian forces will be tailored to maximize their interoperability in ways that often matter more than force numbers. They will focus on the use of limited parts of each nation's global military assets to service its interest in a range of areas and countries outside their immediate territory where they have limited – rather than existential – interests. Their value will also be tied to the relative level of IS&R and multi-domain assets that actually apply to a given area of competition.

In virtually every case, the effectiveness of the limited number of U.S., Chinese, and Russian military forces that become involved will be shaped by local and regional conditions. Political and economic conditions will be critical, as will the capabilities of the strategic partners and non-state actors on each side. Supporting the capability to shape regional forces from both state and non-state military actors, in many cases, will be the best way to "win" – especially in ways that offer direct gains or act as "spoiler" operations that have a political, economic, or military impact on the other major power. Key tools include arms transfers, cash, train and assist efforts, IS&R support, deployment of "volunteers, "deployment of great power forces to deter actions on a partner or client, creating new infrastructure and bases, cyberwarfare, and information warfare. These are tools that great powers can use without ever firing a shot.

The scale of direct combat will be carefully controlled and limited. Only a relatively small portion of U.S., Chinese, and Russian forces will normally be involved, and their primary use will often be demonstrative, consist of maneuvers and new deployments rather than actual fighting either against a competing major power or against a local or regional state or non-state actor.

Chart Five: Comparative Size of U.S., Chinese, and Russian Active Military Forces – Part One: Relative Force Size: 2001-2017



Source: International Institute for Strategic Studies (IISS) Military Balance, 2002, 2012, 2018. See United States Institute of Peace, "Providing for the Common Defense: The Assessments and Recommendations of the National Defense Strategy Commission," November 13, 2018, p.13, https://www.usip.org/publications/2018/11/providing-common-defense

Chart Six: Total U.S., Chinese, and Russian Military Forces in 2019

Category	U.S.	China	Russia
Defense Expenditures ($US billions)	730	225+	61.6
Defense Budget ($US billions)	685	181	48.2
Active Military Personnel	1,379,800	2,035,000	900,000
Reserve Military Personnel	849,850	510,000	2,000,000
SSBN	16	4	10
ICBMs	400	98	340
IRBM	-	72	-
MRBM	0	174	76
Nuclear Bombers	112		
Army Active Personnel	481,750	975,000	280,000
Main Battle Tanks	2,389	5,850	2,800
Other Armored Fighting Vehicles (AFVs)	4,810	6,950	6,860
Armor Personnel Carriers	10,547	3,950	6,100+
Artillery (Towed, SP, MRL)	5,444	6,194+	2,802+
Surface-to-Surface Missiles (MLRS)	140?	?	140?
Attack Helicopters	714	270+	393+
Navy Active Personnel	337,100	250,000	150,000
Tactical Nuclear Submarines (SSGN.SSN)	53	6	10
Tactical Conventional Submarines	0	48	22
Principal Surface Combatants	121	82	33
Aircraft Carriers	11	1	1
Combat Capable Aircraft	981	404	217
ASW Helicopters	269	28	83
Cruisers	24	1	1
Destroyers & Frigates	86	80	28
Patrol and Coastal Combatants	84	209	118
Principal Amphibious Ships & Landing Ships	40	6	20
Mine Warfare	11	54	43
Marine Active Personnel	186,300	25,000	35,000
Tanks	447	?	300
AFVs, and APCs	1,895	237+	1,461
Artillery	1,452	40+	383
Combat Capable Aircraft	432	-	-
Attack Helicopters	145	-	-
Air Force Active Personnel	332,650	395,000	165,000
Combat Capable Aircraft	1,522	2,517	1,183
Bomber	139	176	138
Fighter Ground Attack (FGA)	969	794+	444
Fighter	-	759	180
Attack	143	140	264
EW, IS&R, ELINT	75	69	43
AE&W	31	13	9
Tanker	178	13	15
Transport/Airlift	331	336+	439
Long Range-Surface-to-Air Missile Launch units	480+	516+	186-226

Source: Relevant country sections of the IISS, *Military Balance, 2020*.

Strategic Priorities for the U.S., Chinese, and Russian Use of Military Forces

The strategic priorities for the U.S., Chinese, and Russian use of such forces depend heavily on each power's capability to win and hold strategic influence in given countries and areas as well as on its economic success and interests in global trade. These are all factors that will be affected by the Coronavirus crisis, which will impact other states throughout the world just as much as it impacts the United States, China, and Russia.

History does provide all too many warnings that strategic priorities can suddenly change for unanticipated reasons such as sudden changes in the leadership, politics, and alignments of other states. It also teaches a lesson that major powers can drastically miscalculate the risks in using force, escalate far beyond the value of the military objective, and react in irrational and unpredictable ways. For the next decade, however, the Coronavirus crisis seems unlikely to drastically change the patterns of U.S., Chinese, and Russian competition. Each power is most likely to have broadly the same key areas of interest, and they will continue to use military forces in limited ways to achieve limited objectives – many shaped more by political and economic goals than military ones:

- **Key U.S. uses of military power will occur outside the United States and North America:** The U.S. is the only power that does not face potential threats near its borders. Its primary potential areas of military operations are Europe, Asia and the Pacific, and the Middle East/Gulf – its key combatant commands. However, it must continue to protect military power in ways that will include lower level uses of military force to deter and influence; support U.S. interests; fight limited wars and counter-extremism in Africa, Central America, and South America; and deter and defend other strategic partners and trade routes.

  The most direct areas of confrontation with China are now in Taiwan and the South China Sea, but these are not areas where a major war can produce lasting benefits to either state. They are rather areas where the ability to influence other regional powers, establish military presence, and develop strategic partners are critical.

  The situation is much the same in the case of Russia. The most direct areas of military competition lie in Scandinavia, the Baltic states, the NATO states that share a common border with Russia, and in the states along Russia's southern border like Georgia and the Ukraine – along with preserving U.S. and allied naval-air dominance in the Atlantic and Mediterranean.

  At the same time, the U.S. is equally dependent on its strategic relations with Japan and South Korea, its strategic presence in the Arab/Persian Gulf, and its influence over the flow of petroleum to key Asian economies – including China. So far, the U.S. only faces limited competition in these areas from China and Russia, but both powers are actively seeking to increase their presence and influence. The U.S. also faces a growing challenge from China's role in the Indian Ocean, Central Asia, and Pakistan, but it will soon begin to compete with Russia for military influence in India – a potential counterbalance to China.

  In every case, the U.S. position is at least as dependent on its strategic partners as on U.S. forces, and here the United States has to some extent become its own threat in maintaining these partnerships and its ability to compete in gray area and lower-level/hybrid operations.

Its focus on counterterrorism since 2001 has been coupled since 2017 with a focus on building up its total military power to deal with worst case conflicts with China and Russia, which it is attempting to achieve by seeking "burden sharing" efforts with its strategic partners in critical areas like NATO and South Korea – rather than preserving its strategic partnerships. This has been made worse at the civil level by its competition with China in trade wars, rather than building up its trade and economic cooperation with key trading partners and allies. Its withdrawal from the Trans-Pacific Partnership Agreement (TPP) is only one example out of many.

- **Key Chinese uses of military power will occur in Eurasia, the Indian Ocean, and the Pacific to defend China's expanding economic interests**: China's primary interest lies in establishing its status as the dominant power in Asia by expanding its forces and presence near Japan, South Korea, and Taiwan – and out to at least the perimeter of the Second Island Chain and the Philippines.[21] At the same time, it is creating a growing economic and trade presence in sub-Saharan Africa as well as high technology trade links to Europe.

  China is seeking to expand its civil and military strategic influence in Southeast Asia and develop its own strategic partnerships in areas like Cambodia, Myanmar, and Sri Lanka. It is slowly expanding its power projection capability in the Indian Ocean, its ties to Pakistan, its links to Central Asia, and its role in the Shanghai Cooperation Organization.

  It is expanding its economic presence in the Arab/Persian Gulf. This includes expanding its "anti-piracy" presence in the Indian Ocean near Somalia, naval presence in the Indian Ocean, actions like creating port facilities and bases in Djibouti and the Red Sea, and efforts to reach a mix of military and economic agreements with Iran that will counter the U.S. presence in the Persian/Arab Gulf to offer potential port facilities and help secure the flow of petroleum exports to China. China's recent border incidents with India, and the fact it has made Pakistan a key part of its "belt and road initiative" (BRI) are examples of such competition.

  Other key areas of Chinese gray area civil and military operations are the Koreas, Taiwan, the South China Sea, its border with India and the Indian Ocean, Southeast Asia, Central Asia, the South Pacific, Australia, and New Zealand. China is also dealing with internal disputes concerning sovereignty, including movements in Xinjiang, Hong Kong, Taiwan, and Tibet. Most of its military gray zone operations and show of force will be centered around China's immediate geographical region.

  Steadily expanding the numbers of countries affected by its "belt and road initiative" (BRI) are essential to defend China's goals and global economic expansion. China is partnering with Cambodia, Myanmar, Laos and Sri Lanka in Asia, and with countries in Africa by offering infrastructure projects and soft loans in countries like Sudan and Botswana. It is using dispute of air and maritime control zones – as well as changes in its military exercise and deployments – to put pressure on Japan and to some extent on South Korea.

  The U.S. focus on the South China Sea, on Taiwan (to a lesser degree), and on the risks posed by the tensions between the two Koreas each present the possibility of a U.S.-Chinese confrontation, showdown with gray area operations, clashes, or even a limited war. At the same time, barring a massive restructuring of U.S. and Chinese trade, any serious clash would be far more costly to both powers, regardless of which side appeared

to be the "winner" – if any – and instead would likely trigger a major new arms race between the two powers. **Chart Seven** and **Chart Eight** illustrate the range of key areas of Chinese interest, and they also demonstrate China's broader strategic role as a major Asia power with growing links to Europe and Africa.

- **Key Russian use of force will occur in Europe in seeking to expand Russian influence in other regions:** Russia's primary potential areas of military operations are in Scandinavia, the Baltic region – including the Gulf of Bothnia and the smaller Baltic states – as well as Eastern Europe to revive its level of influence in its "backyard" and its near abroad in countries like Belarus, Poland, the Czech Republic, Slovakia, Hungary, Rumania, Moldova, Eastern Ukraine, Turkey, Georgia, Armenia, and Azerbaijan – directly competing to weaken NATO, EU, and U.S. strategic influence and power projection capabilities.

  Russia has increased its efforts to compete with the U.S. in arms sales and in train and assist efforts. It has expanded its role in Afghanistan and ties to the Taliban, and made use of information warfare – including intervention in American and British elections.

  Russia is also seeking to restore and expand its strategic and military influence in the Atlantic and Mediterranean while it also seeks to rebuild its influence in the Middle East, particularly in Syria and in the Persian/Arab Gulf – where it has both made major arms sales to Iran and is seeking to sell to Arab states and Turkey – as well as establish links to the Gulf members of OPEC in setting goals and limits to petroleum exports.

  It is seeking to affirm its influence in Central Asia; to use the Shanghai Cooperation Organization to its advantage, to influence states in Africa for access to both natural resources and a testing ground for its PMCs, to expand its influence in the Artic by possibly claiming new maritime trade zones there, and to maintain its current levels of influence in the Northern Pacific, the Koreas, and Japan. **Chart Nine** shows the scale of Russia's interests in its "near abroad" and the Artic.

  As is the case with China, the U.S. has been slow to react to Russian lower level military competition. Key cases in point are the U.S. reactions to Ukraine and Syria. At the same time, the analysis that follows shows that these goals are affected by the fact that Russia has retained far more relative military power than economic and trade power, and it is often better equipped to use tools like political gray area operations or spoiler efforts with the use of limited forces and support from local state and non-state military forces, arms sales, and a mix of volunteers and train and assist forces. The Ukraine, Georgia, Syria, and S-400 sales to Turkey are cases in point.

- **One key uncertainty for both China and Russia will be the extent to which they can continue to cooperate, avoid competing for influence and control in their border areas, their "near abroad," and in other regions.** China's military forces are steadily expanding to match China's growing regional and global interests. China's economy is having a growing impact in Central Asia, in its border area with Russia, and in other areas of Russian national interest. So far, China and Russia are linked in Central Asia by their participation in the Shanghai Cooperation Organization, have cooperated in dealing with Mongolia, have increased their number of joint exercises, and have increasingly cooperated in competing with the United States, but China already has become a far larger power than

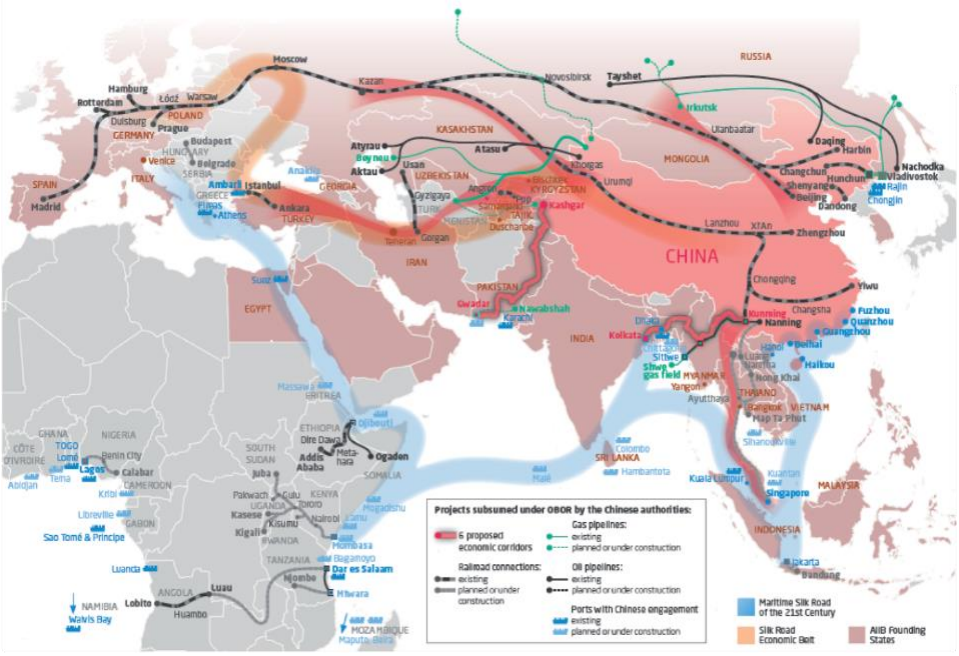
> Russia in every dimension but the military one – and cooperative bodies like the Shanghai Cooperation Organization and a rising number of joint military exercises do not mean that they will not compete in the future.[22]
>
> An example of future competition is the Sino-Russian cooperation in the Arctic. Although they both have expanded joint cooperation to claim natural resources and Northern maritime routes in the race against other Arctic countries, China and Russia are still competing against each other. Russia recently accused one of its Arctic researchers for spying and working with China to give sensitive information regarding underwater navigation.[23] China and Russia share a common interest in competing against the West, but they both have their own inherent self-interest which may intervene with their cooperation with one another.

Given these different key areas of interest – and the fact that their competition is often suddenly reshaped by events outside their control and key areas of interest – U.S., Chinese, and Russian military competition seems likely to continue to focus on strategic partnerships with state and non-state actors, to link military operations to economic activity, and target gray zone and hybrid operations, third party or low-level uses of force, and irregular or asymmetric war. Success in building up nuclear forces will be marginal at best given the near certainty that the other two powers will successfully compete.

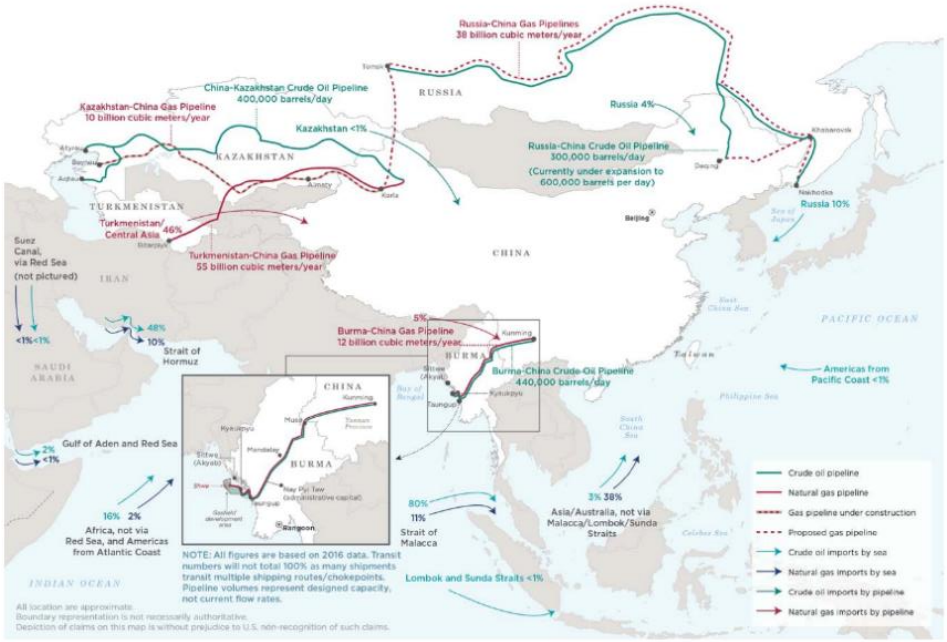
Building up U.S. deterrent and defense capabilities at theater, regional, and command level will remain important, but they will depend heavily on strategic partnerships as well as on military and economic relations with regional powers – rather than the relative size and capability of each nation's army, navy, and air force. It is the expansion of economic power and political influence – linked to these local and regional capabilities for deterrence and the use of force – that will determine success over time.

Chart Seven: China's "Belt and Road" and Broader Areas of Strategic Competition

Emerging Patterns of Economic Power

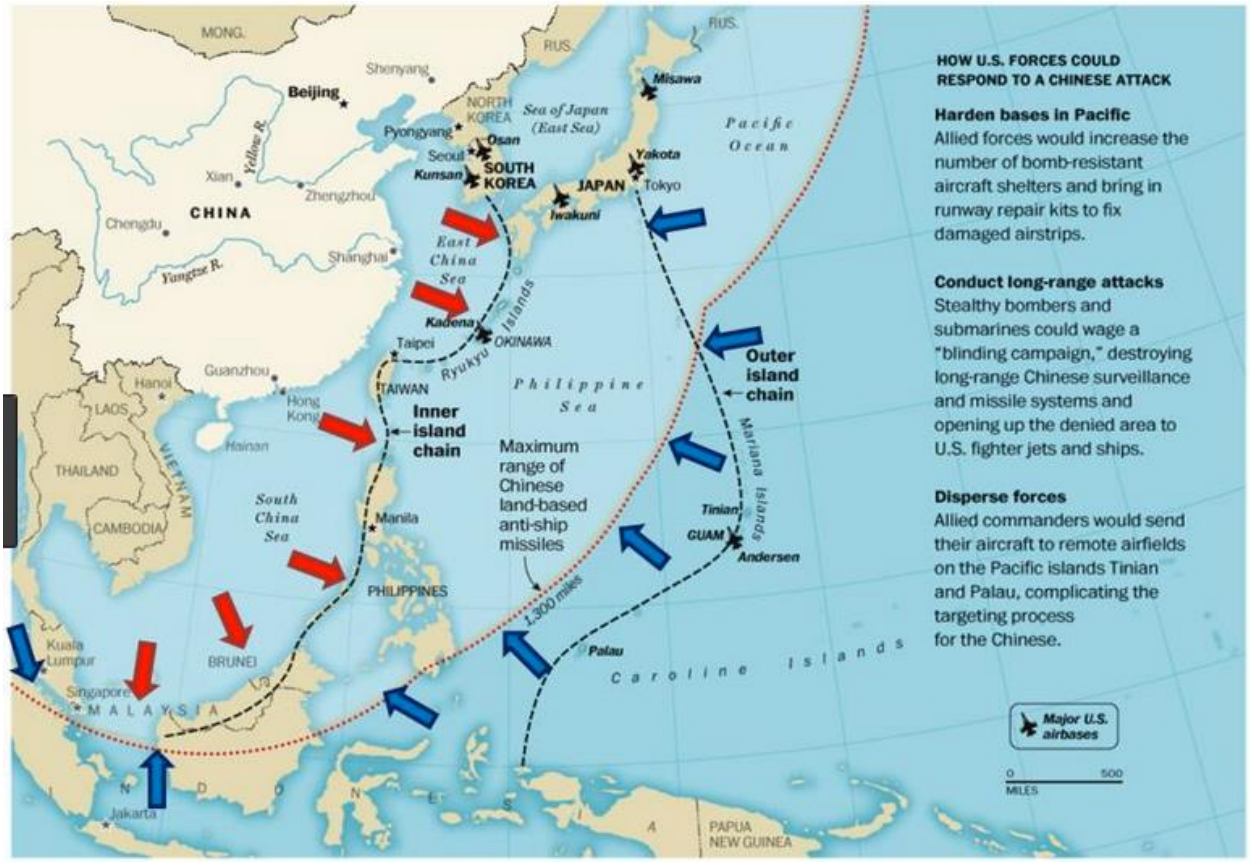


Competition to Reduce it Vulnerability in Petroleum Imports



Source: Brian Wang, MERICS China Monitor, January 20, 2017, https://www.nextbigfuture.com/2017/01/philippines-will-attend-chinas-one-belt.html, and Office of the Secretary of Defense, *Annual Report to Congress Military and Security Developments Involving the People's Republic of China 2017*, p. 44, May 15, 2018, https://www.defense.gov/Portals/1/Documents/pubs/2017_China_Military_Power_Report.PDF.

Chart Eight: Chinese and U.S. Postures in the South China Sea



Source: globalita.com via Ahn Sung Kyoo, Choi Kang, Kweon Eun Yul, "Implications of China's Ballistic Missiles for Korean National Security, *The Asian Institute for Policy Studies*, November 10, 2015, http://en.asaninst.org/contents/implications-of-chinas-ballistic-missiles-for-korean-national-security/

Chart Nine – Part One: Russia's Western Strategic "Near Abroad"

Source: World Map, "Gorky Map," https://www.worldmap1.com/map/gorky-map

Chart Nine – Part Two: Russia's Central Asian and Eastern Strategic "Near Abroad"

Source: "Russia Map and Satellite Image," Geology.com, 2017, https://geology.com/world/russia-satellite-image.shtml.

Tailoring Forces to Meet the Real Needs of Competition with China and Russia: Focusing on the Major U.S. Combatant Commands

The ability to tailor forces to a specific strategic task and to win without directly fighting will be a key goal and quite possibly the norm of future warfighting. Where direct clashes do occur, the tactical abilities of relatively small forces will generally determine the outcome. Allied state, enemy sate, and non-state actors will evolve to play a critical and sometimes dominant role.

Accordingly, when U.S. national security strategy shifts to place a primary focus on gray area and limited joint operations at lower levels of conflict, it should do so by adjusting the role of U.S. combatant commands rather than the plans of each military service and the joint staff. The strategy should also focus on the areas where active competition can take place in spite of the limits imposed by deterrence.

The U.S. has established eleven combatant commands to deal with competition on a joint level 00 six focus on geographic regions. Each describes its primary mission in different levels of detail, but it is clear that they are the primary commands where real world competition will occur: [24]

- *European Command* which focuses on the Russian threat in Europe and building up NATO capabilities. It executes a full range of multi-domain operations in coordination with allies and partners to support NATO, deter Russia, assist in the defense of Israel, enable global operations, and counter trans-national threats in order to defend the Homeland forward and fortify Euro-Atlantic security. Should deterrence fail, USEUCOM is prepared to fight alongside allies and partners to prevail in any conflict.
- *Indo-Pacific Command* which focuses on China, Asia, and the India Ocean. With allies and partners, the command is committed to enhancing stability in the Asia-Pacific region by promoting security cooperation, encouraging peaceful development, responding to contingencies, deterring aggression, and, when necessary, fighting to win. This approach is based on partnership, presence, and military readiness.
- *Central Command* which focuses on the Middle East, Egypt, Central Asia, and the threat from Iran and extremist groups like ISIS. Its key priorities are deterring Iran, negotiating resolution of the conflict in Afghanistan, maintaining a defeat-ISIS campaign in Syria and Iraq, countering the UAS Threat, and "weaponization" of Internally Displaced Persons (IDPs) and Refugees.
- *Africa Command* which focuses on Africa, building military stability and dealing with extremist threats, and building up strategic partnership with African States. It supports African partner nations in multiple ways by *working with, and through local partners and allies to combat transnational threats and minimize the malign influence of non-African powers.*
- *Northern Command* which focuses on the homeland defense of the United States, North America, and strategic partnerships with Canada and Mexico. USNORTHCOM plans, organizes, and executes homeland defense and civil support missions, but has few permanently assigned forces. The command is assigned forces whenever needed. Its area of operations includes air, land, and sea approaches and encompasses the continental United States, Alaska, Canada, Mexico and the surrounding water out to approximately 500 nautical miles. It also includes the Gulf of Mexico, the Straits of Florida, portions of the Caribbean region to include the Bahamas, Puerto Rico, and the U.S. Virgin Islands. The commander of USNORTHCOM is responsible for theater security cooperation with Canada, Mexico, and the Bahamas.
- *Southern Command* which focuses on the stability of Central and South America, regional strategic partnerships, and the role of outside powers in this region. It provides contingency planning, operations, and security cooperation in its assigned Area of Responsibility which includes Central America, South America, and the Caribbean (except U.S. commonwealths, territories, and possessions). It deters aggression, defeats threats, rapidly responds to crises, and builds regional capacity, working with our allies, partner nations, and U.S. government (USG) team members to enhance security and defend the U.S. homeland and our national interests.

The U.S. has five other functional commands that mix combat roles with the support of the regional commands:[25]

- *Strategic Command* which operates globally to deter and fight nuclear wars and other strategic attacks on the U.S., provides extended deterrence for regional commands, and has both nuclear and long-range conventional strike capabilities. Its mission is to deter strategic attack and employ forces, as directed, to guarantee the security of the U.S. and its allies. The command's assigned responsibilities include strategic deterrence; nuclear operations; space operations; joint electronic spectrum operations; global strike; missile defense; and analysis and targeting. USSTRATCOM's forces and capabilities underpin and enable all other Joint Force operations. It combines the synergy of the U.S. legacy nuclear command and control mission with responsibility for space operations, global strike, and global missile defense. This dynamic command gives national leadership a unified resource for greater understanding of specific threats around the world and the means to respond to those threats rapidly. The Global Operations Center is responsible for the global situational awareness of the Commander, USSTRATCOM, and is the mechanism by which the U.S. exercises operational command and control of the Nation's global strategic forces.
- *Space Command* which helps provide deterrence, support U.S. and allied forces with IS&R capabilities, and provide space combat power. USSPACECOM involves four distinct areas of focus:
    1. Deter Aggression/Conflict: USSPACECOM strengthens our national deterrence through the provision of space warfighting options that preserve U.S. and Allied competitive advantage and promote security and stability.
    2. Defend U.S./Allied Interests: If deterrence fails, USSPACECOM, in coordination with allied and joint force commanders and inter-agency partners, will lead the protection and defense of our combined interests in the space domain.
    3. Deliver Space Combat Power: USSPACECOM is committed to preserving and expanding space combat power to enable joint and combined force success.
    4. Develop Ready and Lethal Joint Warfighters: USSPACECOM will improve the development of joint space operations forces and capabilities to enhance space warfighting readiness and lethality while accelerating the integration of space capabilities into other warfighting forces.
- *Cyber Command* which has three main focus areas: Defending U.S. cyber operations, providing cyber support to combatant commanders for execution of their missions around the world, and strengthening U.S. ability to withstand and respond to cyberattack. The Command unifies the direction of cyberspace operations; strengthens DoD cyberspace capabilities; integrates and bolsters DoD's cyber expertise; improves DoD's capabilities to operate resilient, reliable information and communication networks; counter cyberspace threats; and assure access to cyberspace. It is designing the cyber force structure, training requirements and certification standards that will enable the Services to build the cyber force required to execute our assigned missions. The command also works closely with interagency and international partners in executing these critical missions.
- *Special Operations Command* which oversees the special forces components of each service on a joint operations basis and coordinates with civil intelligence operations. It develops and employs fully capable Special Operations Forces to conduct global special operations and activities as part of the Joint Force to support persistent, networked, and distributed Combatant Command operations and campaigns against state and non-state actors to protect and advance U.S. policies and objectives.
- *Transportation Command* which provides a wide range of transportation and supply capabilities for all U.S. military forces. It conducts globally integrated mobility operations, leads the broader Joint Deployment and Distribution Enterprise, and provides enabling capabilities

It is the joint capabilities of these commands – not the actions of each separate military service – that will determine U.S. success in creating the tailored forces for each command the U.S. needs to compete against China and Russia. Their expertise will develop and manage strategic partnerships, produce much of the specialized intelligence that is required, and contribute to the basis for integrated approaches to joint civil-and military competition. The ways in which the U.S.

shifts its strategy and national security resources to best address these commands and tasks will determine both its overall success, and its relative capability to address the impact of the Coronavirus crisis.

Economic and Civil Competition: Military Competition is Only Half the Challenge

> "All men can see these tactics whereby I conquer, but what none can see is the strategy out of which victory is evolved…When the enemy is relaxed, make them toil. When full, starve them. When settled, make them move." — Sun Tzu, The Art of War

As important as these issues relating to military competition are, they are only half the challenge in redefining U.S. strategic competition with China and Russia. For all the recent hopes of globalism and some enduring period of "global cooperation," the three major powers are now committed to competing at political, diplomatic, and economic levels as well as military ones, and they will adapt this competition as necessary to deal with the ongoing impact of the Coronavirus crisis.

As noted earlier, there are critical difference between the United States, China, and Russia in such competition. The United States has long had the advantage in economic power and technology. However, its political and economic systems broadly separate civil and military power, and capitalism limits the U.S. use of politics and economics as legitimate tools in expanding its power.

The state-driven systems of central government in China and Russia are a different story. In both countries, supreme political power is placed in the hands of its leadership with only limited checks and balances. The state shapes the major policies and programs that affect every major aspect of its economy just as it does to the nation's national security policies and to the actions of its military forces.

In practice, the relative integration of civil and military policy and action is limited by each state's ability to plan and administer, but it is now clear that Chinese and Russian operations are far more integrated than that of the United States – where military and civil/economic policy are normally kept separate and where the federal government still lacks a coherent structure for planning even the defense industrial sector.

Comparing Different Ways of Estimating Total Civil Economic Power

One key indicator of the lack of U.S. focus on the civil dimension in both military and civil competition with China and Russia is the lack of detailed attention to how the growth of each nation's economy is affecting its ability to compete at both military and civil levels. As the following analysis shows, there is no simple way to compare economic power or link such comparisons to U.S., Chinese, and Russian ability to compete at both the civil and military levels – a problem that can only grow worse with the massive economic disruptions caused by the Coronavirus crisis.

The various parts of **Chart Ten** show the trends in the total size of each nation's economy using several different methodologies that the World Bank uses to estimate the trends in the U.S., Chinese, and Russian Gross National Income (GNI) during 2000-2018. They do not agree in detail on whether the U.S. or China now has the lead, but all the comparisons of the trends in the total size of U.S., Chinese, and Russian economies do indicate that China is catching up with – or overtaking –the United States in several key metrics. They also agree that Russia increasingly lags behind. It is equally clear from the more detailed analysis that follows, that this reflects a broad

pattern in many other measures of economic capability and strength – one that seems likely to remain unchanged by the Coronavirus crisis.

Even a brief review on the difference between these comparisons of economic powers will warn that there are serious difficulties in making even the simplest comparisons of this aspect on the ability to compete. For example, the comparison in current dollars generally shows the highest differences between countries over time. Comparisons in constant dollars – which try to keep all of the cost data truly comparable from year-to-year – show much smaller rates of relative growth, but the comparison still creates major problems in trying to define "constant" for different economies and currencies.

There also are many different methods that can be used to measure the total size of a given economy, and any effort to measure the rate of competition must pay close attention to these differences as well. The IMF provides the following summary analysis of the major differences in methodology for making the comparisons of total U.S., Chinese, and Russian economic power; as well as warnings that no choice is necessarily right:[26]

> One of the two main methods of conversion uses market exchange rates—the rate prevailing in the foreign exchange market (using either the rate at the end of the period or an average over the period). The other approach uses the purchasing power parity (PPP) exchange rate—the rate at which the currency of one country would have to be converted into that of another country to buy the same amount of goods and services in each country.
>
> **PPP versus market rates**
>
> So which method is better? The appropriate way to aggregate economic data across countries depends on the issue being considered. *Market exchange rates are the logical choice when financial flows are involved.* For example, the current account balance—which measures the funds coming into and going out of a country—represents a flow of financial resources across countries. It is appropriate to use the market exchange rate to convert these flows into dollars when aggregating across regions or calculating the global current account discrepancy. But *for other variables, the decision is less clear cut.* Take real GDP growth. International organizations use different approaches. The World Bank uses market-based rates to determine the weights in its regional and global aggregations of real GDP, whereas the IMF and the Organization for Economic Cooperation and Development use weights based on PPP rates (although the IMF also publishes a global growth aggregate based on market rates in the WEO). Each methodology has its advantages and disadvantages.
>
> *Advantages of PPP:* A main one is that PPP exchange rates are relatively stable over time. By contrast, market rates are more volatile, and using them could produce quite large swings in aggregate measures of growth even when growth rates in individual countries are stable. Another drawback of market-based rates is that they are relevant only for internationally traded goods. Nontraded goods and services tend to be cheaper in low-income than in high-income countries. A haircut in New York is more expensive than in Lima; the price of a taxi ride of the same distance is higher in Paris than in Tunis; and a ticket to a cricket game costs more in London than in Lahore. Indeed, because wages tend to be lower in poorer countries, and services are often relatively labor intensive, the price of a haircut in Lima is likely to be cheaper than in New York even when the cost of making tradable goods, such as machinery, is the same in both countries. Any analysis that fails to take into account these differences in the prices of nontraded goods across countries will underestimate the purchasing power of consumers in emerging market and developing countries and, consequently, their overall welfare. For this reason, PPP is generally regarded as a better measure of overall well-being.
>
> *Drawbacks of PPP:* The biggest one is that PPP is harder to measure than market-based rates. The ICP is a huge statistical undertaking, and new price comparisons are available only at infrequent intervals. Methodological questions have also been raised about earlier surveys. Between survey dates, the PPP rates must be estimated, which can introduce inaccuracies into the measurement. Also, the ICP does not cover all countries, which means that data for missing countries must be estimated.

Does it make a difference?

It depends. There is a large gap between market- and PPP-based rates in emerging market and developing countries, for most of which the ratio of the market and PPP U.S. dollar exchange rate is between 2 and 4. But for advanced economies, the market and PPP rates tend to be much closer. As a result, developing countries get a much higher weight in aggregations that use PPP exchange rates than they do using market exchange rates. The weights of China and India in the world economy are far greater using PPP exchange rates than market-based weights.

Thus, the choice of weights makes a big difference in calculations of global growth, but little difference to estimates of aggregate growth in advanced economies. The per capita income gap between the richest and poorest countries is modestly reduced under PPP exchange rates (although it remains exceptionally large), and some countries jump up or down the income scale depending on the exchange rate conversion used.

The various estimates in **Chart Ten** show just how critical choice of a given methodology is on how to understand the competition between the three powers. However, finding the best way to measure the ability to compete has received surprisingly little open source analysis that looks for the best way to make such comparisons for strategic purposes.

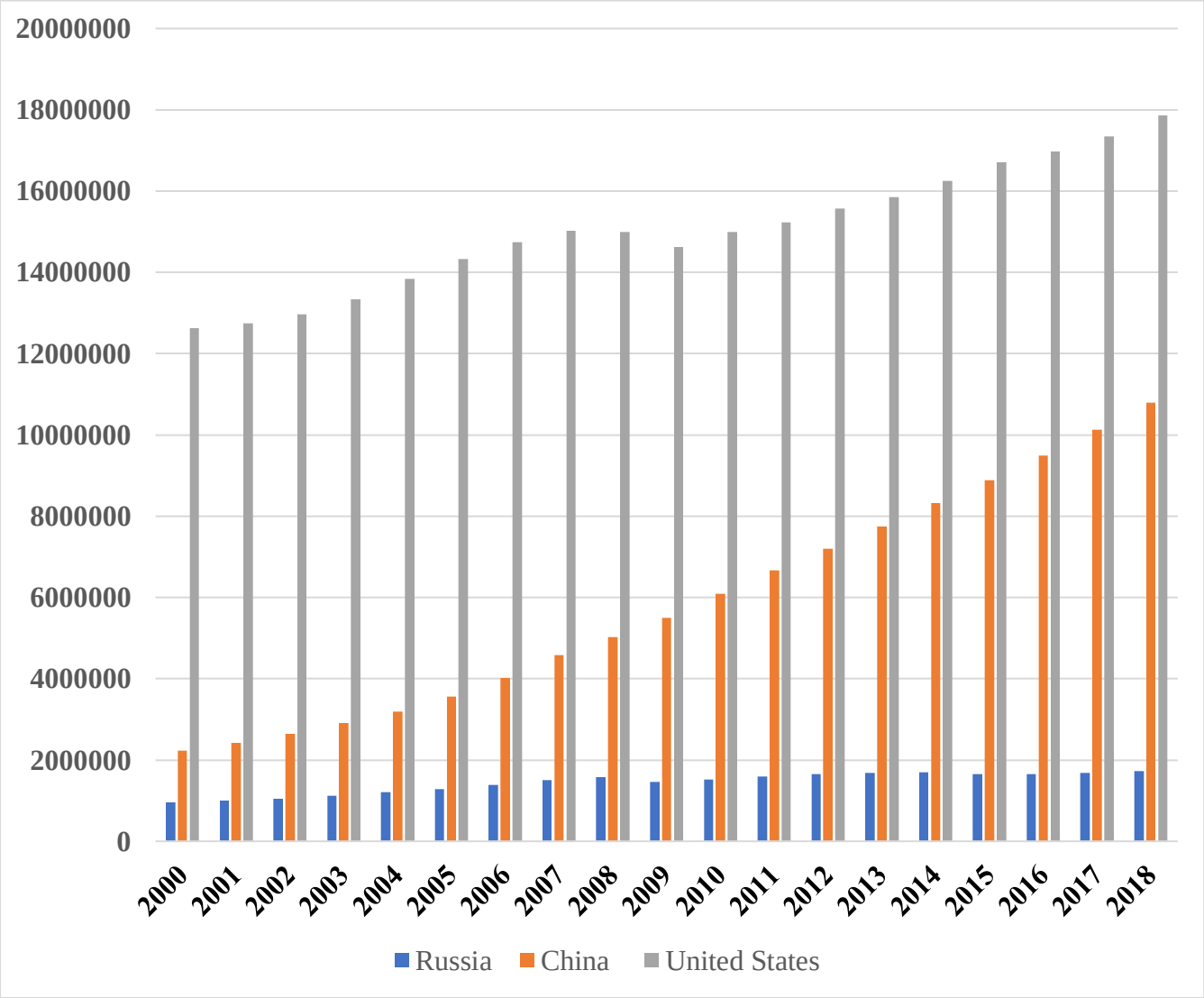
Despite the difficulties that arise when trying to produce a fair and accurate comparison, the data does provide for meaningful analysis:

- **Part One** of Chart Ten compares the gross domestic product (GDP) of the United States, Russia, and China in constant 2010 $US from 2000-2018. When using the market exchange rate, the country with the highest national output within its borders is the United States, followed by China, and then Russia. The chart indicates a trend that the GDP of the U.S. and China have both been steadily growing while the GDP of Russia remains relatively stagnant.
- **Part Two** of Chart Ten compares the GDP of the United States, Russia, and China using the purchasing power parity (PPP) exchange rate in constant 2011 $ international from 2000-2018. China has the highest GDP in PPP due to its low labor costs and wages that keeps prices down. As a result, people can buy more of a certain good in China compared to the United States or Russia. The trend demonstrates that while both the U.S. and China have growing GDPs in PPP (in which China surpassed the United States in 2014), Russia's GDP in PPP has remained relatively stagnant.
- **Part Three** of Chart Ten compares the gross national income (GNI) of the United States, Russia, and China in constant 2010 $US from 2000-2018. When using the market exchange rate, once again the United States has the highest national output from both domestic production and income from abroad – followed by China, and then Russia. The chart also shows a similar trend from Part One which indicates that the GNI of the U.S. and China have both been increasing while the GNI of Russia remains stagnant.
- **Part Four** of Chart Ten compares the GNI of the United States, Russia, and China using the purchasing power parity (PPP) exchange rate in constant 2011 $ intentional from 2000-2018. Similar to the Part Two chart, China ranks first in highest GNI using PPP due to its low labor costs and wages that keep prices down and allow people to buy more of a certain good in China – while the U.S. ranks second, and Russia ranks third. The trend also demonstrates that both the GNI in PPP of China and the United

States is increasing (in which China again surpassed the United States in 2014) while the GNI of Russia has remained stagnant.

- **Part Five** of Chart Ten compares the GNI of the United States, Russia, and China using the World Bank's Atlas Method in current $US from 2000-2018. The Atlas Method converts the local currency unit (LCU) into current $US using a variety of variables to compare the size of economies in different countries based on their GNI. Even with the Atlas Method, the trend is similar to the comparison of GNI using constant 2010 $US in Part Three where the United States ranks first, followed by China, and then Russia.

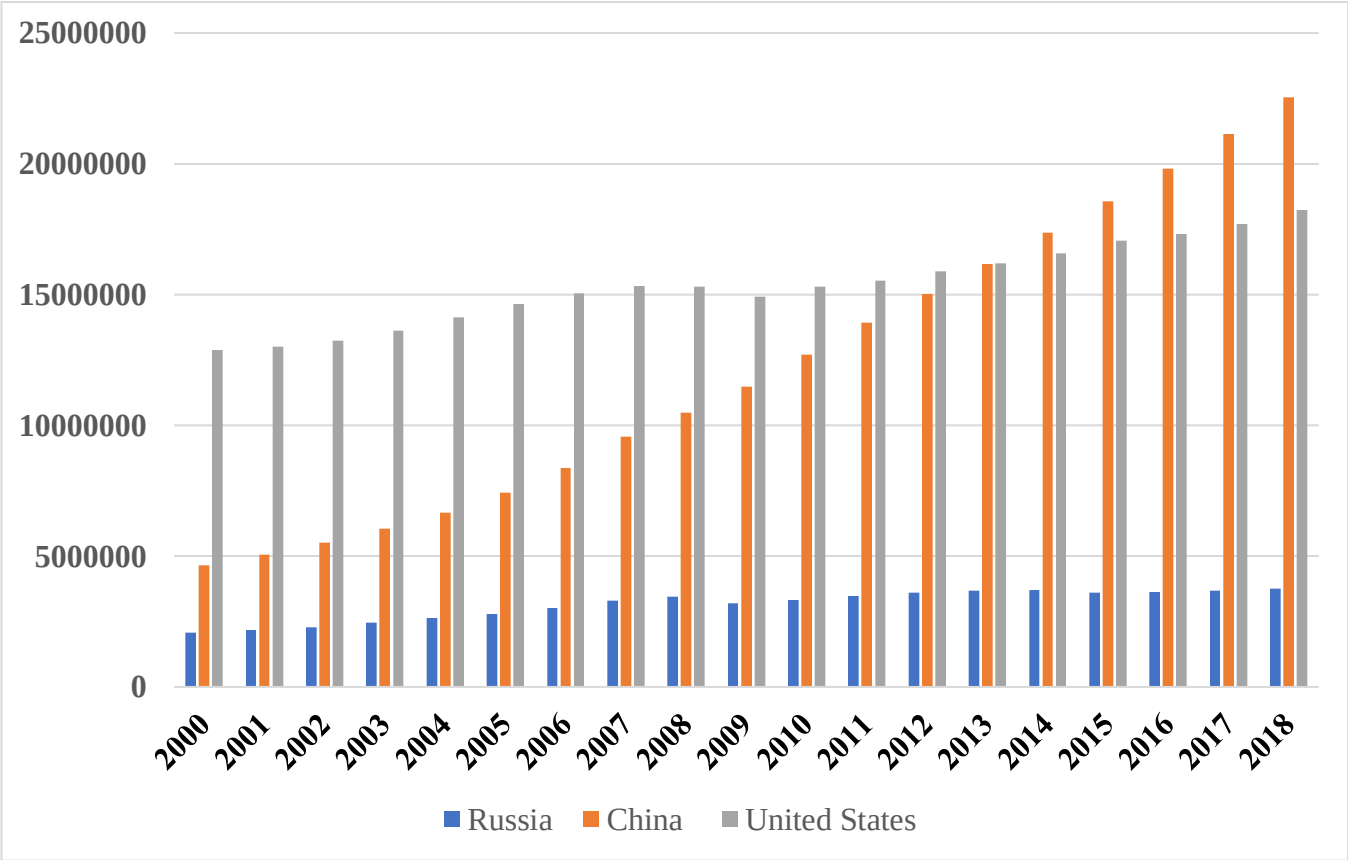
Chart Ten – Part One: Comparing GDP of Russia, China, and the United States by Official Exchange Rate from 2000-2018 (in Constant 2010 $US Millions)



GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2010 U.S. dollars. Dollar figures for GDP are converted from domestic currencies using 2010 official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions, an alternative conversion factor is used.

Source: World Bank, "GDP (constant 2010 US$)" https://data.worldbank.org/indicator/NY.GDP.MKTP.KD

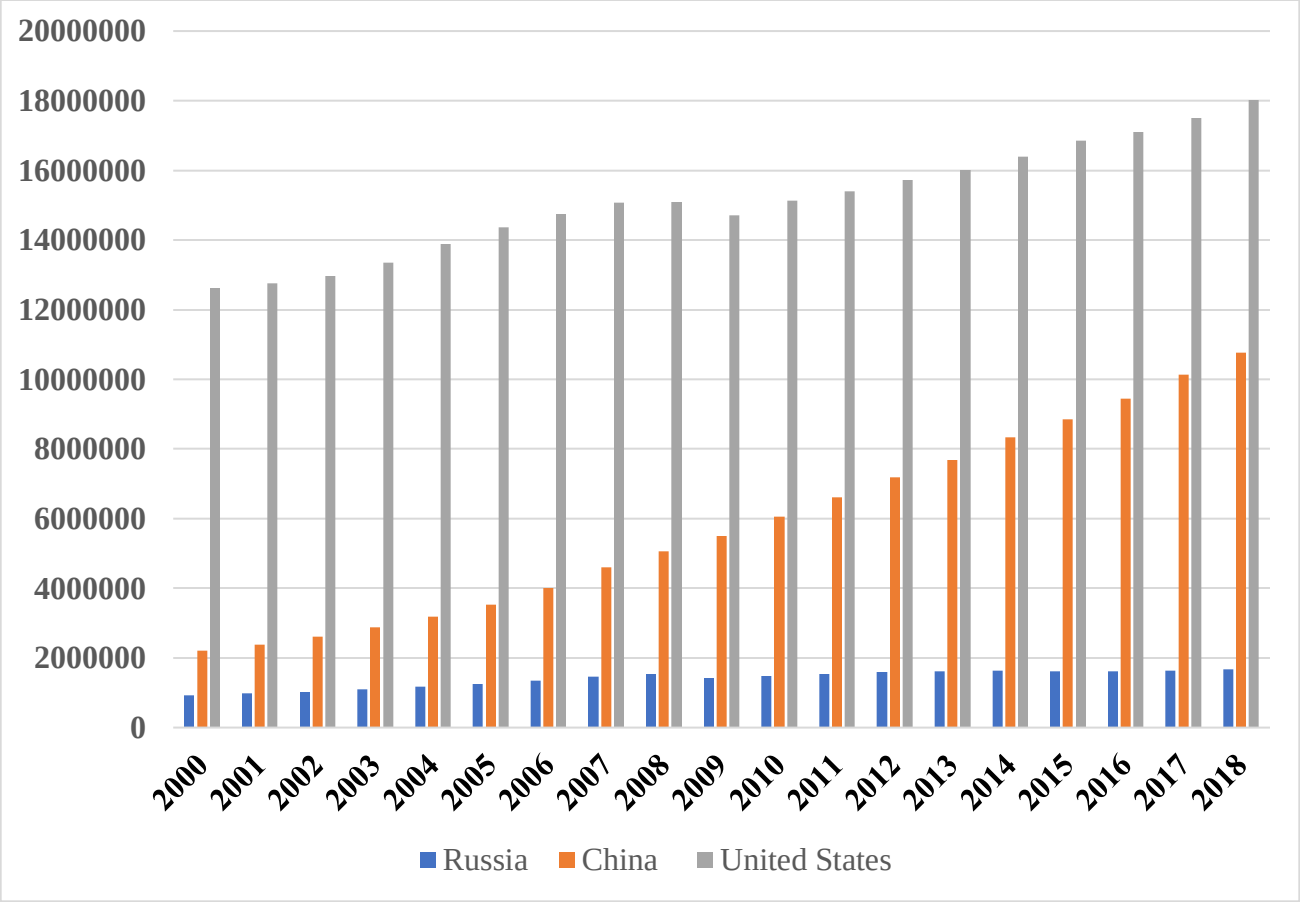
Chart Ten – Part Two: Comparing GDP, PPP of Russia, China, and the United States from 2000-2018 (in Constant 2011 International $ Millions)



PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current international dollars. For most economies PPP figures are extrapolated from the 2011 International Comparison Program (ICP) benchmark estimates or imputed using a statistical model based on the 2011 ICP. For 47 high- and upper middle-income economies conversion factors are provided by Eurostat and the Organization for Economic Co-operation and Development (OECD).

Source: World Bank, "GDP, PPP (constant 2011 international $)"
https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.KD

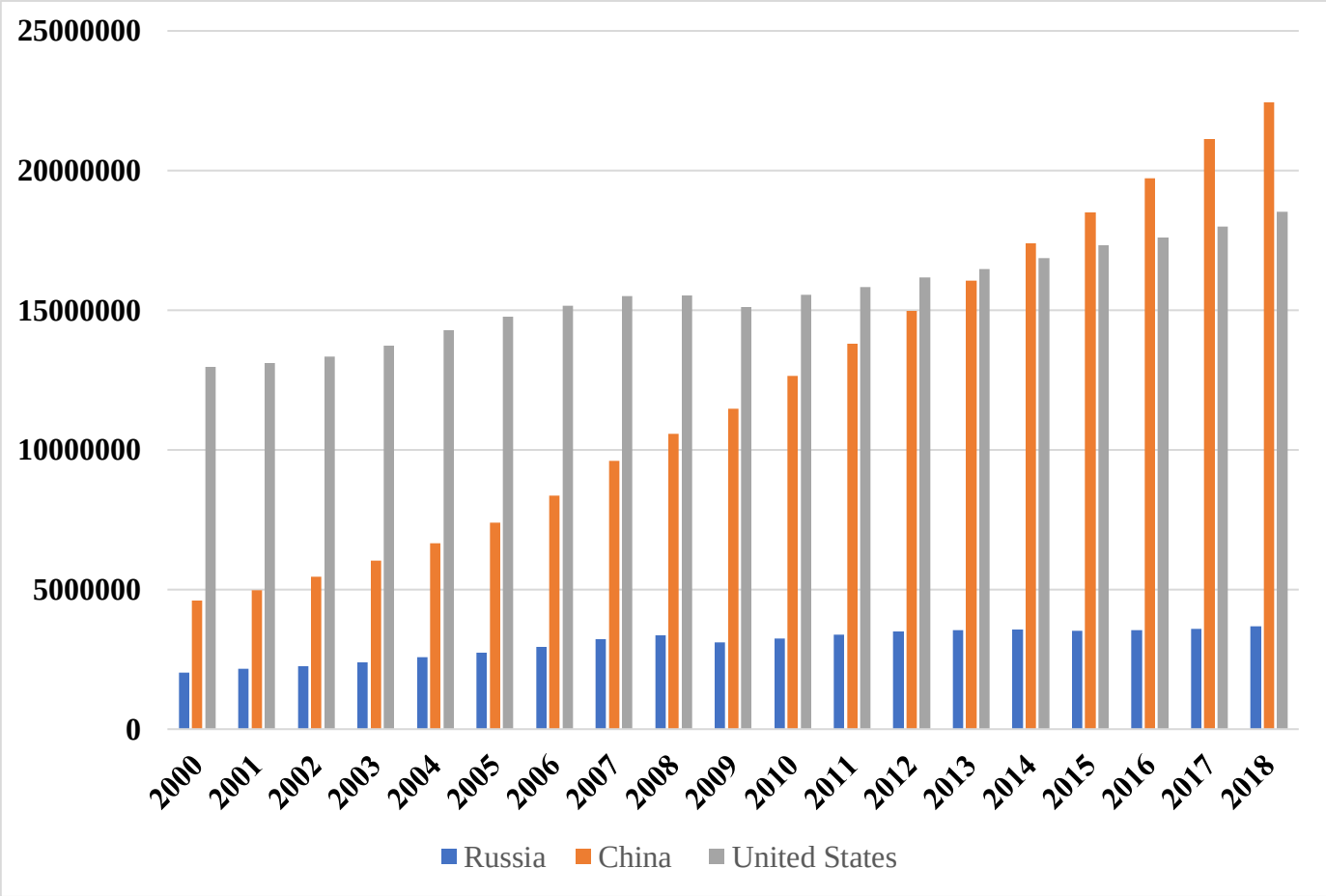
Chart Ten – Part Three: Comparing GNI of Russia, China, and the United States by Official Exchange Rate from 2000-2018 (in Constant 2010 $US Millions)



GNI (formerly GNP) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in constant 2010 U.S. dollars.

Source: World Bank, "GNI (constant 2010 US$)" https://data.worldbank.org/indicator/NY.GNP.MKTP.KD

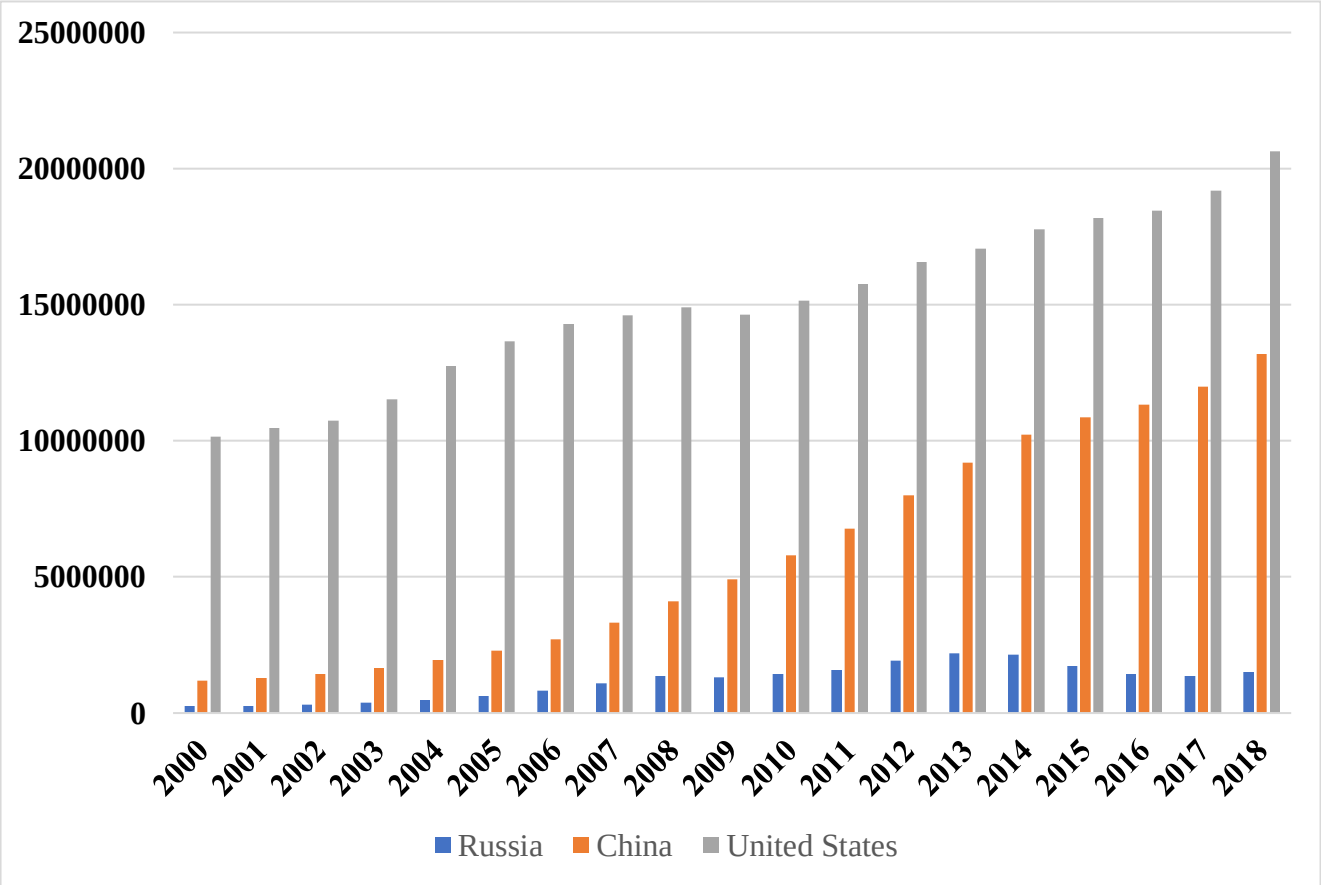
Chart Ten – Part Four: Comparing GNI PPP of Russia, China, and the United States from 2000-2018 (in Constant 2011 International $ Millions)



PPP GNI (formerly PPP GNP) is gross national income (GNI) converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GNI as a U.S. dollar has in the United States. Gross national income is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current international dollars. For most economies PPP figures are extrapolated from the 2011 International Comparison Program (ICP) benchmark estimates or imputed using a statistical model based on the 2011 ICP. For 47 high- and upper middle-income economies conversion factors are provided by Eurostat and the Organization for Economic Co-operation and Development (OECD).

Source: World Bank, "GNI, PPP (constant 2011 international $)"
https://data.worldbank.org/indicator/NY.GNP.MKTP.PP.KD

Chart Ten - Part Five: Comparing GNI Atlas Method of Russia, China, and the United States from 2000-2018 (in Current $US Millions)



GNI (formerly GNP) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current U.S. dollars. GNI, calculated in national currency, is usually converted to U.S. dollars at official exchange rates for comparisons across economies, although an alternative rate is used when the official exchange rate is judged to diverge by an exceptionally large margin from the rate actually applied in international transactions. To smooth fluctuations in prices and exchange rates, a special Atlas method of conversion is used by the World Bank. This applies a conversion factor that averages the exchange rate for a given year and the two preceding years, adjusted for differences in rates of inflation between the country, and through 2000, the G-5 countries (France, Germany, Japan, the United Kingdom, and the United States). From 2001, these countries include the Euro area, Japan, the United Kingdom, and the United States.

Source: World Bank, "GNI, Atlas method (current US$)" https://data.worldbank.org/indicator/NY.GNP.ATLS.CD

Wide Differences by Source in Estimating Total Economic Power

These problems in comparing the pre-Coronavirus crisis trends are further complicated by the fact that there are so many conflicting sources of such estimates of the total Chinese, Russian, and U.S. economies. Key sources like the World Bank, IMF, UN, the CIA, and various NGOs and commercial research centers all tend to provide different numbers that produce somewhat different rankings and estimates of trends.

Chart Ten has shown major differences based on the method of estimation, but all were all drawn from World Bank Estimates. **Chart Eleven** shows just a few of the different estimates of economic power by source, and there are many other sources that provide additional different sets of data.

Chart Eleven shows that the CIA *World Factbook* estimate as of May 2020 reported that China's Gross Domestic Product (GDP) was $26.36 trillion in purchasing power parity (PPP) terms in 2017, and $12.01 trillion in official exchange rate terms. Russia had a GDP of $4.106 trillion dollars in PPP terms in 2017, and $1.578 trillion at the official exchange rate. Using these comparisons, China's GDP was 6.4 times greater than Russia in PPP terms but only 2.6 times greater than Russia at the official exchange rate. [27]

The CIA estimate indicates that China was already superior to the United States in PPP terms, but it was only a major competitor in official exchange rate terms. The CIA estimated that the U.S. GDP was $19.49 trillion in PPP terms in 2017, and $19.49 trillion in official exchange rate terms. China's GDP was 1.35 times greater than the U.S. in PPP terms, but the U.S. GDP was 1.6 times greater at the official exchange rate.[28]

The World Bank produced very different figures. The World Bank estimate of GDP in current dollars for 2018, based on *monetary value*, was $13,608 billion for China; $1,658 for Russia; and $20,544 billion for the U.S. These estimates gave the U.S. a GDP that was 1.5 times that of China and 12.4 times that of Russia. [29]

In contrast, the World Bank *estimate of GDP in PPP terms* in current dollars was $25,399 billion for China; $4,051 for Russia; and $20,544 for the U.S. These estimates gave the U.S. a GDP that was only 0.81 times that of China, and 5.1 times that of Russia.[30]

Russia is clearly a different case in both sets of estimates. It no longer is close to the economic status it had as the former Soviet Union (FSU), and it is an increasingly distant third. Russia is now only a superpower in nuclear terms and in the size of the forces it can deploy against NATO in Europe. The real question in terms of competition is "*what metrics matter most?*" and the corresponding response would be "*the key metric is how Russia uses its lesser power more effectively than the United States*."

Experts again disagree sharply over the value of these metrics in measuring the capability to compete, build, and support military forces. Some argue that PPP numbers compensate for differences in the levels of development and economic structure while others argue that monetary comparisons focus more on the modern sectors that shape modern forces and economic capacity, and still yet others argue that other measures of economic capacity should be used. What is clear, however, is that the Coronavirus will lead to major cuts in virtually every area of economic activity for at least all of 2020, and probably for three to eight years in the future. This may sharply affect the relative rates of U.S. and Chinese growth, but the trends in Chart Ten strongly indicate that Russia will continue to lag badly behind.

Chart Eleven: Illustrative Comparisons of the Differences by Source in Estimates of the Chinese, Russian, and U.S. Economies

Comparative GDP Ranking (Current $U. S. Billions)

Country	CIA			World Bank PPP		World Bank Monetary	
	PPP	US%	Official Exchange Rate	US%	Total	US%	Total
United States	**19.490**	**NA**	**19.490**	**NA**	**20.544**	**NA**	**20.544**
China	**26.360**	**0.73**	**12.010**	**1.62**	**25.399**	**1.5**	**13.608**
Russia	**4.106**	**4.7**	**1.578**	**12.4**	**4.051**	**2.4**	**1.658**

Source: World Factbook, "Country Comparison: GDP (Purchasing Power Parity)" *CIA*, https://www.cia.gov/library/publications/the-world-factbook/fields/208rank.html; "GDP, PPP (current international $)," *World Bank*, https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD; "GDP (Current US$)," *World Bank*, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD

Major Differences in the Structure of Each Economy

These problems in making top-line comparisons of the economic power of each country and their potential capability to compete are compounded by the fact that there are many major differences in the structure of their economy – differences which almost certainly have at least as much impact as the impact that the total size of each economy has. An overview of some of the major differences are show in **Chart Twelve**.

This chart shows just how different the sizes of the agricultural, industrial, and service sectors are in each economy, drawing on the data from the CIA *World Factbook*. It should be stressed that such data are even more uncertain in accuracy, definition, and methodology than GDP data, and they are only roughly comparable by date.

At the same time, they are still comparable enough to show that the U.S. industrial sector was estimated to be a half the size of China's but close to three times that of Russia. To be specific, 40.5% of China's GDP was in industry and manufacturing when accounted for in 2017, and its industrial production was growing at an annual rate of 6.1%. Meanwhile, 32.4% of Russia's GDP was in industry and manufacturing when accounted for in 2017, and its industrial production was dropping at an annual rate of 1.0%. Only 19.1% of the U.S. GDP was in industry and manufacturing when accounted for in 2017, and industrial production was rising at an annual rate of 2.3%.

It is obvious that any strategy based on assessing competition needs to address such differences, but there is no agreed methodology for doing so or for separately assessing their impact on military comparisons. The data on the trends in industry and manufacturing alone raise such issues. The U.S. may have been the "arsenal of democracy" under President Roosevelt, but China seems to be taking the role as the "arsenal of autocracy" under President Xi.

Chart Twelve: U.S., China, and Russia: Comparative Agricultural, Industrial, and Service Sectors

Total GDP and Labor Force	U.S.	China	Russia
GDP (PPP) in $US Trillions (2017)	19.49	23.21	4.02
Labor Force in Millions (2009-2016)	160.0	806.7	76.5

Share of GDP (PPP) and Total Economy

	Agriculture			Industry			Service		
	U.S.	China	Russia	U.S.	China	Russia	U.S.	China	Russia
$ US Trillions	0.18	1.83	0.19	3.72	9.40	1.30	15.59	11.97	2.50
% of GDP	0.9	7.9	4.7	19.1	40.5	32.4	80.0	51.6	62.3

Share of Labor Force

	Agriculture			Industry			Service		
	U.S.	China	Russia	U.S.	China	Russia	U.S.	China	Russia
Millions	1.12	223.54	7.19	32.48	232.34	21.11	59.68	350.91	48.19
% of Total	0.7	27.7	9.4	20.3	28.8	27.6	37.3	43.5	63

Note: Rough comparisons since data are not all from the same year. Figures are rounded to nearest decimal point.

Source: Country Sections of CIA *World Factbook*, https://www.cia.gov/library/publications/the-world-factbook/.

Looking at Other Key Economic Factors Shaping Global Competition

Comparisons of total economic power also do not consider many other key factors that affect the ability to compete internationally in the civil and military domain. Key examples of such measures are volumes of trade, manufacturing power, foreign investment, key international projects, and key international infrastructure developments – many of which have potential military as well as civil value.

Here, many of the trend lines show far more rapid growth for China than for the United States and very slow growth for Russia. Many are difficult to directly compare for all three countries, although **Chart Thirteen** does provide some striking examples of key areas of Chinese growth in trade – which is only one sector of such growth.

Analyzing some "snapshots" of civil economic activity demonstrates the high potential impact on strategic competition. The CIA *World Factbook* reported in April 2020 that,[31]

- Chinese exports grew from $1.99 trillion in 2016 to $2.49 trillion in 2018. Russian exports were heavily driven by changes in petroleum prices and grew from $282 billion in 2017 to $353 billion in 2018. U.S. exports grew from $1.46 trillion in 2017 to $1.55 trillion in 2018.
- Total Chinese worldwide imports grew from $1.501 trillion in 2016 to $2.14 trillion in 2018. Russian total imports grew from $192 billion in 2016 to $238 million in 2018. U.S. total imports dropped from $2.36 trillion in 2016 to $2.21 trillion in 2018.
- China's installed electric generating capability was 1.653 billion KW in 2016. Russia's installed electric generating capability was 1,031 billion KW in 2016. U.S. installed electric generating capability was 1.087 billion KW in 2016.
- Chinese crude oil imports were 6.71 million barrels a day in 2015. Russian crude oil imports were 76 thousand barrels a day in 2015. U.S. net crude oil imports were 6.81 million barrels a day in 2015 (put turned to a net surplus of exports by 2020).
- China had 6,817 registered commercial aircraft in 2017, and 510 paved runways. Russia had 661 registered commercial aircraft in 2017, and 594 paved runways. The US had 661 registered commercial aircraft in 2017, and 5,054 paved runways.
- China had 5,594 merchant marine ships: bulk carrier 1,231, container ship 262, general cargo 846, oil tanker 777, other 2,478 (2019). Russia had 2,739 merchant marine ships: bulk carrier 16, container ship 13, general cargo 899, oil tanker 404, other 1,407 (2019) The U.S. had 3,673 merchant marine ships: bulk carrier 5, container ship 60, general cargo 104, oil tanker 68, other 3,436 (2019)
- China had 192 million fixed telephone lines, 1,649 million cellular phone lines, and 731 million Internet users. China had 192 million fixed telephone lines, 1,649 million cellular phone lines, and 731 million Internet users. Russia had 30.1 million fixed telephone lines, 229 million cellular phone lines, and 731 million Internet users. China had 192 million fixed telephone lines, 1,649 million cellular phone lines, and 109 million Internet users. The U.S. had 110 million fixed telephone lines, 422 million cellular phone lines, and 247 million Internet users.

These examples, as well as those in Chart Thirteen, illustrate the need to look well beyond the macroeconomic economic data in examining the relative present and probable future ability to compete in strategic terms, and they often call to make such comparisons by specific country or region. This analysis sometimes must extend to given levels of technology or by major project or investment activity. These examples also illustrate the urgency of using such analysis to fully understand the impact of the Coronavirus crisis.

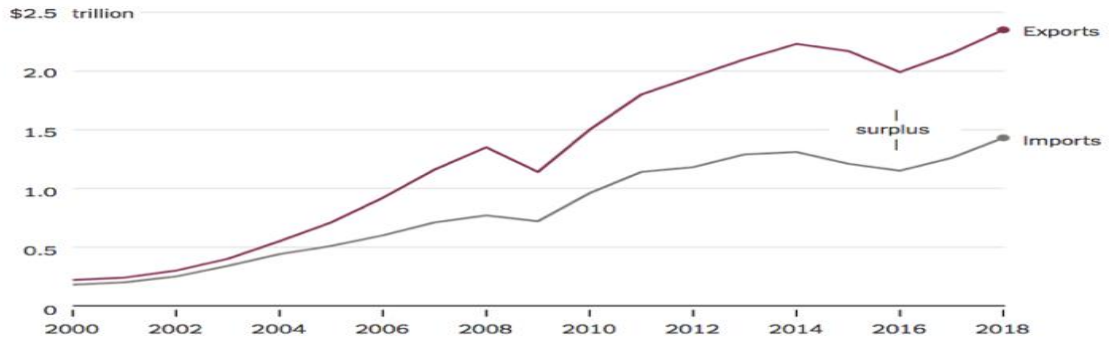
Better data, modeling, and analyses are clearly needed to determine how to fully analyze both civil and military competition, but there is one central fact regarding these issues that must be kept in careful perspective. *The key point for formulating U.S. strategy is that the end result of making different comparisons and using different sources still provides virtually the same message regarding the relative ability of each national economy to compete in military and civil terms*:

> *It is equally clear from both the comparisons shown in this analysis and from a wide range of other measures of economic power that competition with China is becoming the key focus in terms of relative power, not Russia – and that the Coronavirus is unlikely to change this situation.*

China is still far poorer than the United States in terms of per capita wealth and average living conditions, but it increasingly competes directly with the U.S. in virtually every measure of economic and manufacturing power. "Who's on first" is becoming largely irrelevant as both powers have become steadily more comparable in terms of overall development. China has already shown that it can compete directly with the U.S. in some key measures of both civil and military power.

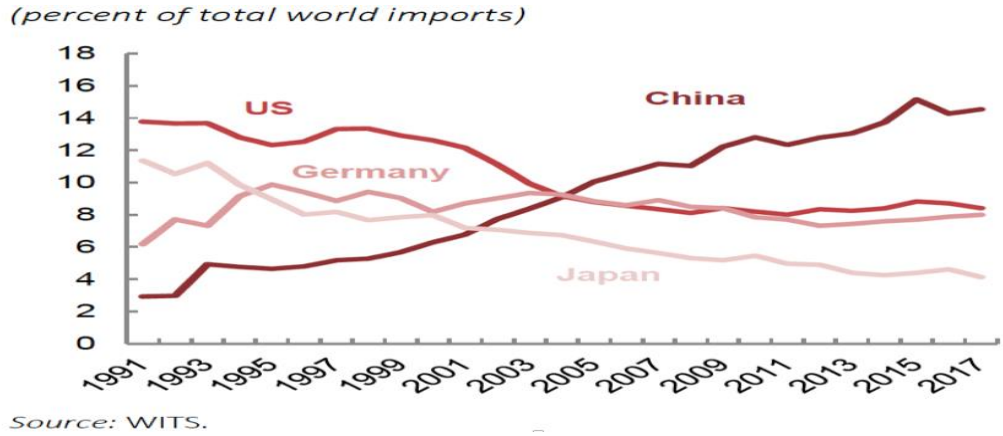
Chart Thirteen: Examples of China's Rising Competitiveness in Given Economic Areas

Chinese Surplus in Manufactured Goods Trade: 1991-2017 ($US Trillions)



Source: By Keith Bradsher, "China Needs New Places to Sell Its Mountain of Stuff," *New York Times*, July 26, 2019, https://www.nytimes.com/2019/07/26/business/china-trade-war-us-rcep.html

Share of Global Trade in Goods by Country: 1991-2017 (Percent of World Imports)



Source: World Bank, *China Economic Update*, May 2019, p. 15, http://pubdocs.worldbank.org/en/392571559199605819/CEU-May-2019-EN.pdf

U.S. Merchandise Trade with China 1990-2019: Pre-"Trade Wars" and Corona

Source: Alan Garrick: "The Reality of U.S. Foreign Trade – In 6 Graphs, Construct Connect," https://www.constructconnect.com/blog/economy/reality-u-s-foreign-trade-6-graphs

Comparing the Limits Imposed by the Need to Support a Given Population

At the same time, total economic power is only part of the story. States must deal with the needs of their peoples, and this is particularly true in the near-term because of the Coronavirus crisis. **Chart Fourteen** shows the World Bank estimates of the pre-crisis trends in income per capita based on the same multiple methods of estimation as Chart Ten. These comparisons provide a broad measure of economic power that go beyond the Gross National Product (GDP) and Gross National Income (GNI). GDP is the total market value of all finished goods and services produced within a country in a set time period. GNI is the total income received by the country from its residents and businesses regardless of whether they are located in the country or abroad.

It is clear from these charts that China's power to compete are limited by its need to support a far larger population than that of the United States or Russia. The CIA estimates that China's population in 2020 was 1,394 million; Russia's was 141.7 million; and the U.S. population was 332.6 million – slightly less than a quarter of China but 2.3 times that of Russia.

When factoring in the population distribution of GDP and GNI, the relative size of the U.S., Russian, and Chinese economies change. The following charts offer a different picture than the trends in Chart Ten show:

- **Part One** of Chart Fourteen compares the gross domestic product (GDP) per capita of the United States, Russia, and China in constant 2010 $US from 2000-2018. When using the market exchange rate, the U.S. ranked first for the country with the highest national output when divided by the country's midyear population. Russia ranked second because although it had a lower comparative GDP to China, its population size is significantly smaller than China's therefore its GDP does not have to be distributed by as many people.
- **Part Two** of Chart Thirteen compares the GDP per capita using the purchasing power parity (PPP) exchange rate in constant 2011 $ international from 2000-2018. Although China's GDP in PPP terms ranked first in Chart Ten, its population count is so significant, that once again it is surpassed by both the United States and Russia.
- **Part Three** of Chart Fourteen compare the gross national income (GNI) per capita of the United States, Russia and China in constant 2010 $US from 20000-2018. When using the market exchange rate, the United States ranks first, followed by Russia, and then China – similar to the trend seen in Part One of Chart Fourteen.
- **Part Four** of Chart Fourteen compares the GNI per capita using the PPP exchange rate in constant 2011 $ international from 2000-2018. Despite China's low labor costs and wages, its population count is still so significant that Part Four follows a similar trend to Part Two of Chart Thirteen where the U.S. ranks first, followed by Russia, and then China.
- **Part Five** of Chart Fourteen compares the GNI per capita of the United States, Russia, and China using the World Bank's Atlas Method in current $US from 2000-2018. Although the rankings are the same as the previous parts of Chart Fourteen, two trends become noticeable when applying the Atlas Method. First, Russia's economy spiked in 2013, which may be explained by the rising oil and gas export revenues it experienced

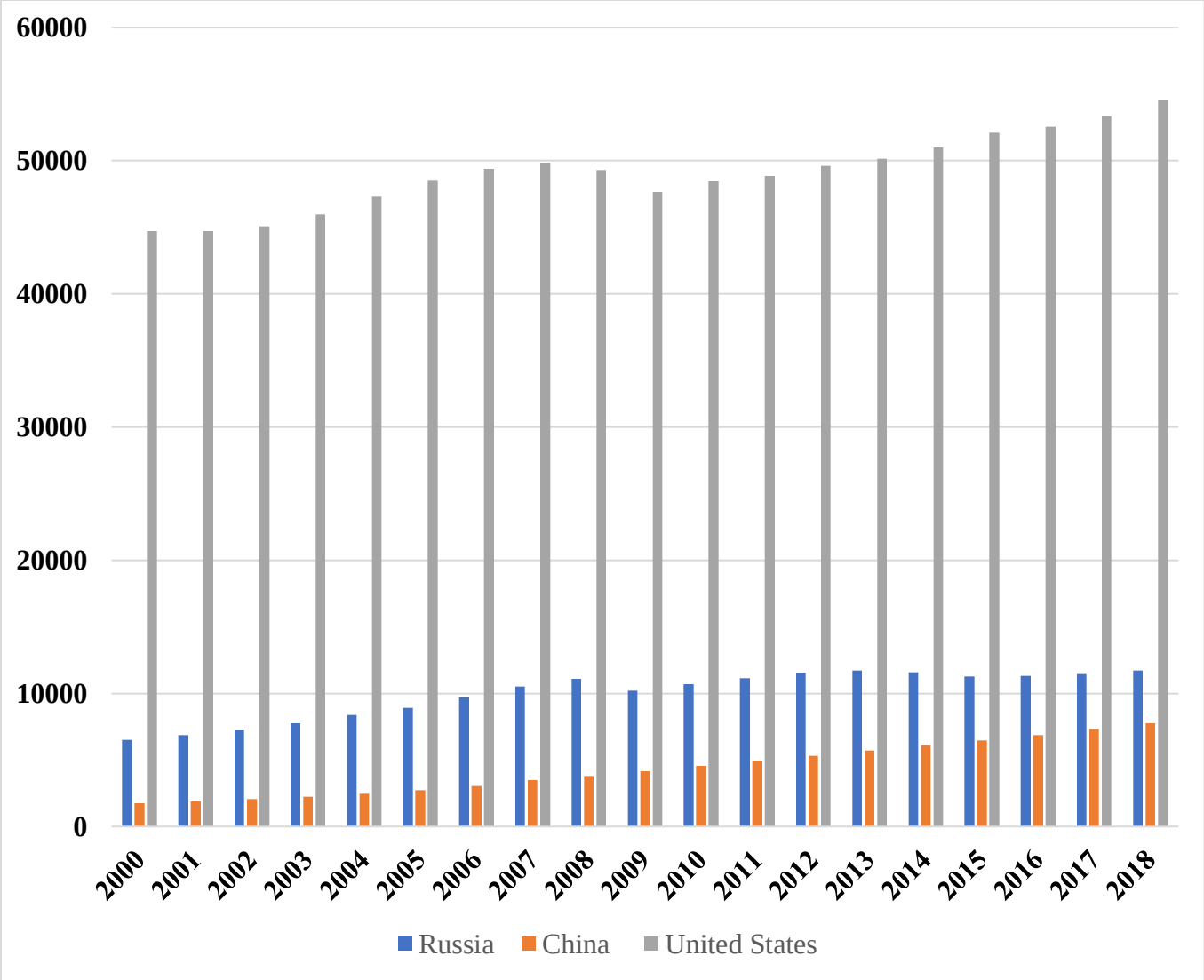
> that year. The second trend is that the economies of Russia and China are very comparable and almost equal to each other by 2018, which can serve as evidence that the size of Russia's economy is so small that China's economy is still comparable even with the significant population discrepancy between Russia and China.

Even a short glance at the data in these charts will show how different these estimates and trends are particularly for China and Russia. The PPP data almost certainly exaggerate Chinese and Russian per capita income relative to the United States while the GNI data underestimate it. Such data also do not reflect what given per capita incomes can actually buy, comparative living standards, or any aspect of the equity in income distribution.

Even so, the figures do make it clear that the United States, China, and Russia all have different major inequalities and problems in income distribution that limit what they can spend on civil-military competition. It is also apparent that their leaders have very different abilities to allocate resources away from popular needs and demands, but no leadership can go beyond some limits in favoring competition over their citizens' needs. Unfortunately, there is no meaningful comparative analysis of what these limits are.

There also are many other ways to estimate how well a given regime is serving its people, and the impact of the Coronavirus crisis has already become so severe that they may force the United States, China, and Russia – as well as other states throughout the world – to alter or reduce the economic resources they devote to funding and competing in the military and national security dimensions. For example, **Chart Fifteen** shows that the United Nations provides a very different method of scoring the overall progress in Chinese, Russian, and U.S. human development – as well as different estimates of per capita income.

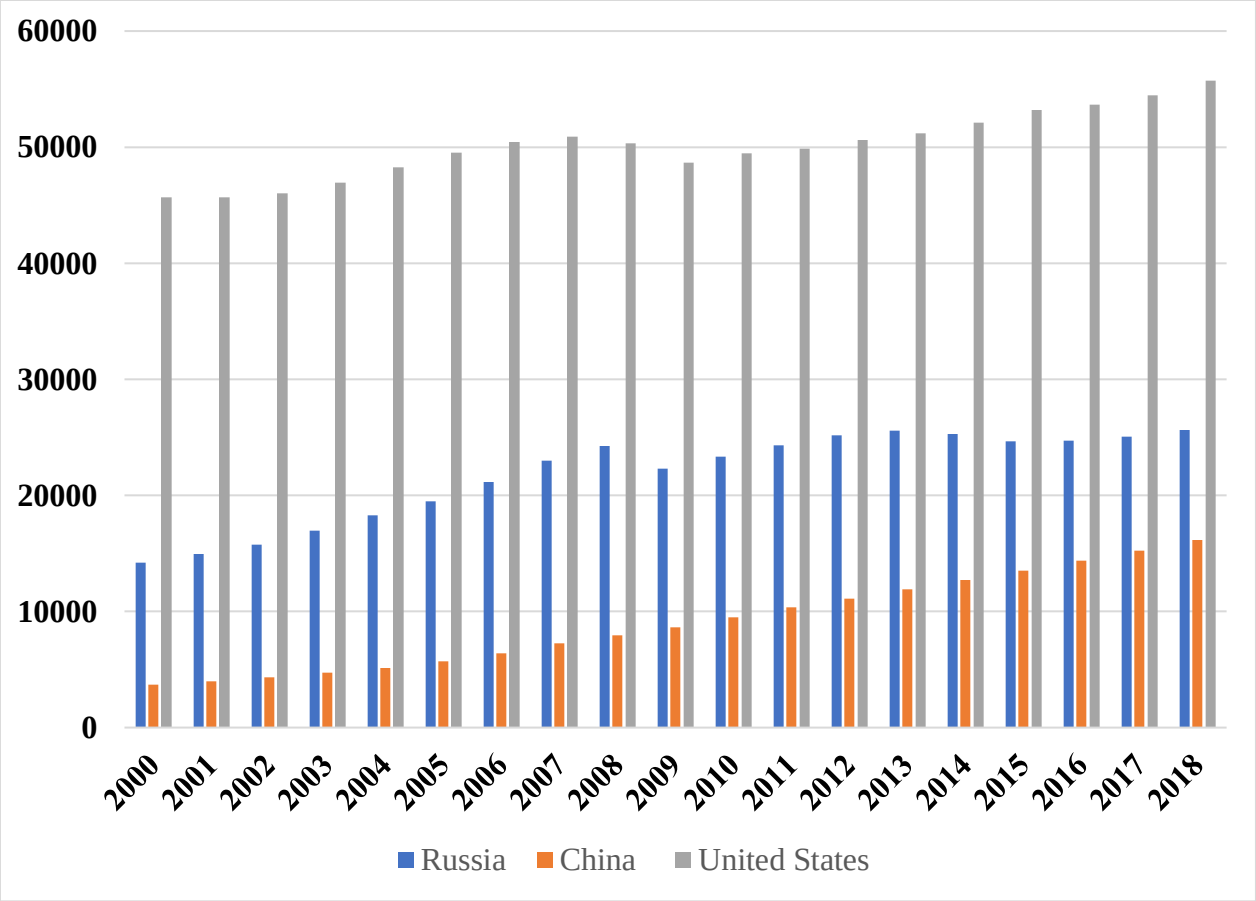
Chart Fourteen – Part One: Comparing GDP Per Capita of Russia, China, and the United States by Official Exchange Rate from 2000-2018 (in Constant 2010 $US)



GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2010 U.S. dollars.

Source: World Bank "GDP per capita (constant 2010 US$)"
https://data.worldbank.org/indicator/NY.GDP.PCAP.KD

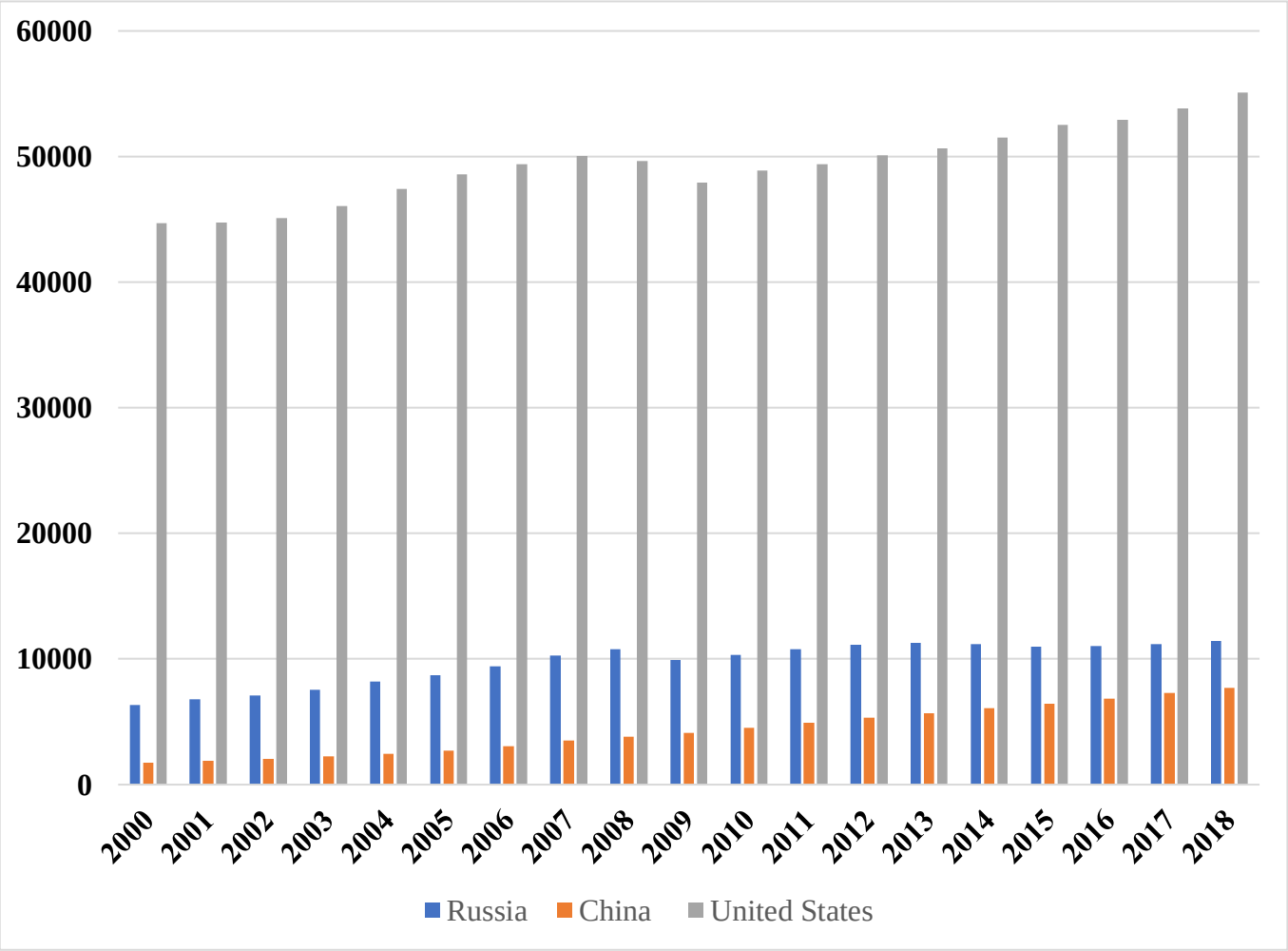
Chart Fourteen – Part Two: Comparing GDP per capita, PPP of Russia, China, and the United States from 2000-2018 (in Constant 2011 International $US)



GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2011 international dollars.

Source: World Bank, "GDP per capita, PPP (constant 2011 international $)"
https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.KD

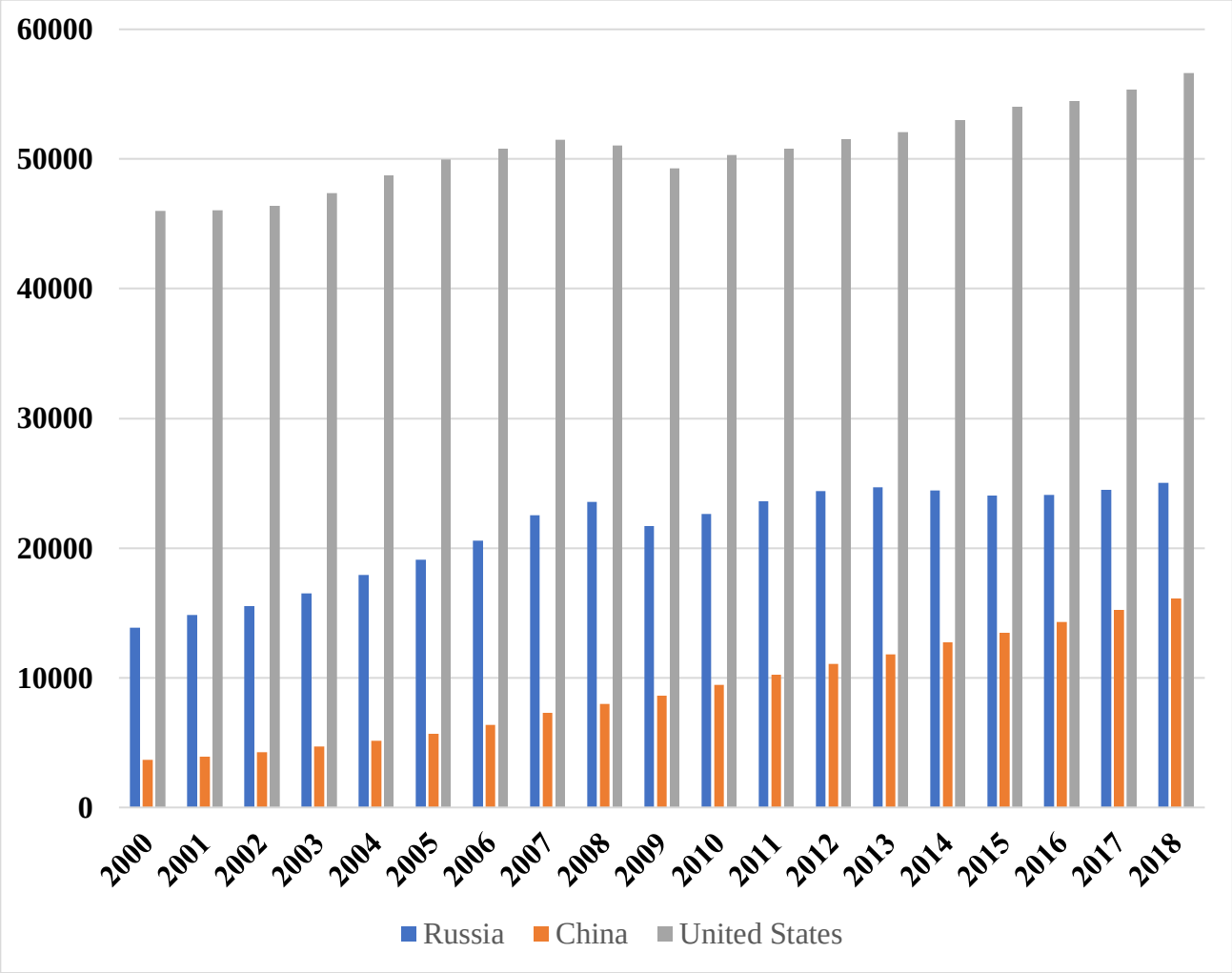
Chart Fourteen – Part Three: Comparing GNI Per Capita of Russia, China, and the United States by Official Exchange Rate from 2000-2018 (in Constant 2010 $US)



GNI per capita is gross national income divided by midyear population. GNI (formerly GNP) is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in constant 2010 U.S. dollars.

Source: World Bank, "GNI per capita (constant 2010 US$)"
https://data.worldbank.org/indicator/NY.GNP.PCAP.KD

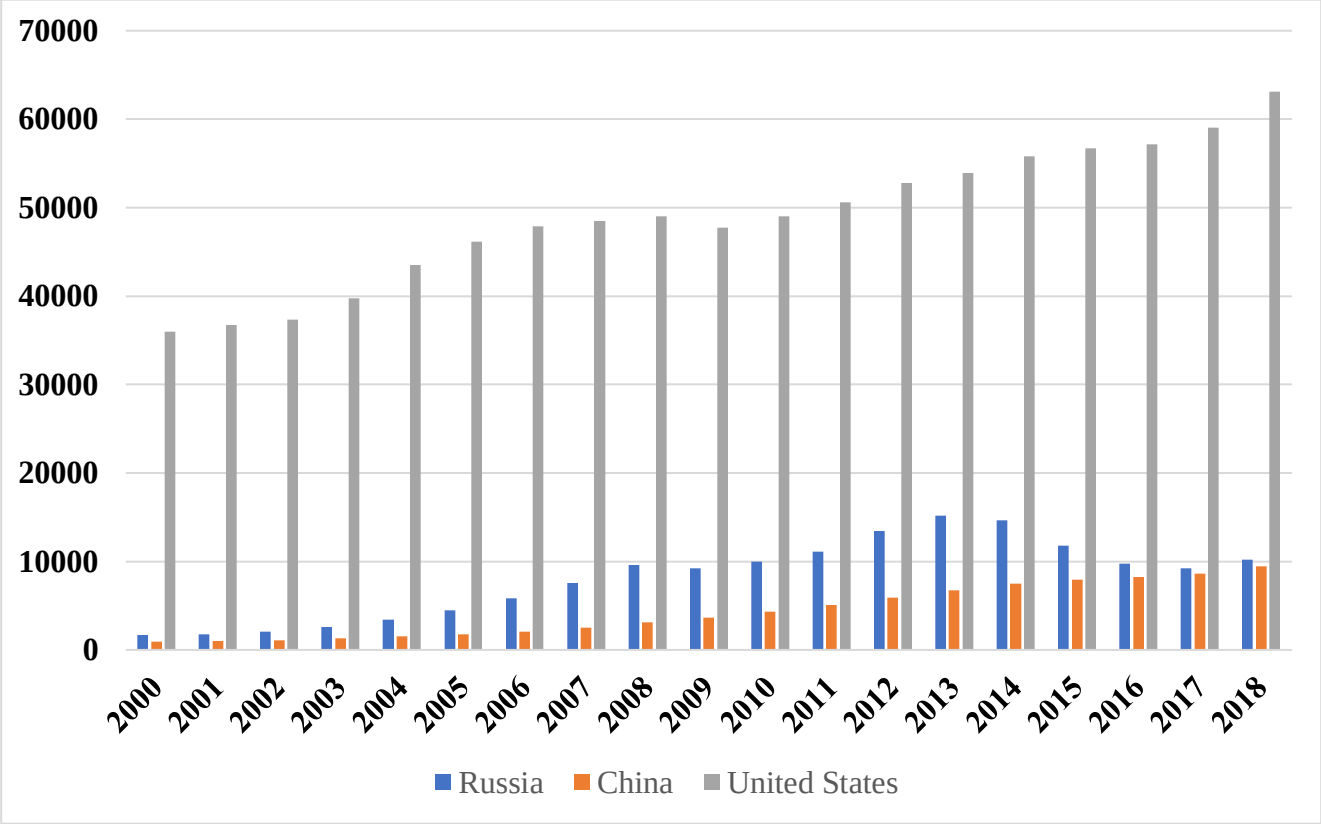
Chart Fourteen – Part Four: Comparing GNI Per Capita PPP of Russia, China, and the United States from 2000-2018 (in Constant 2011 International $)



GNI per capita based on purchasing power parity (PPP). PPP GNI is gross national income (GNI) converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GNI as a U.S. dollar has in the United States. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in constant 2011 international dollars.

Source: World Bank, "GNI per capita, PPP (constant 2011 International $)"
https://data.worldbank.org/indicator/NY.GNP.PCAP.PP.KD

Chart Fourteen – Part Five: Comparing GNI Per Capita Atlas Method of Russia, China, and the United States from 2000-2018 (in Current US$)



GNI per capita (formerly GNP per capita) is the gross national income, converted to U.S. dollars using the World Bank Atlas method, divided by the midyear population. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. GNI, calculated in national currency, is usually converted to U.S. dollars at official exchange rates for comparisons across economies, although an alternative rate is used when the official exchange rate is judged to diverge by an exceptionally large margin from the rate actually applied in international transactions. To smooth fluctuations in prices and exchange rates, a special Atlas method of conversion is used by the World Bank. This applies a conversion factor that averages the exchange rate for a given year and the two preceding years, adjusted for differences in rates of inflation between the country, and through 2000, the G-5 countries (France, Germany, Japan, the United Kingdom, and the United States). From 2001, these countries include the Euro area, Japan, the United Kingdom, and the United States.

Source: World Bank, "GNI per capita, Atlas method (current US$)"
https://data.worldbank.org/indicator/NY.GNP.PCAP.CD

Chart Fifteen: UN Human Development Rankings in the U.S. , China, and Russian in 2019

Category	U.S.	China	Russia
Overall Country Ranking	**15**	**85**	**49**
Human Development Index, (HDI) (Value)	**0.920**	**0.750**	**0.824**
Life Expectancy in Years	**78.9**	**76.7**	**72.4**
Expected Years of Schooling	**16.3**	**13.9**	**15.5**
Mean Years of Schooling	**13.4**	**7.9**	**12.0**
Gross National Income (GNI) Per Capita (PPP-US$)	**56,140**	**16,127**	**25,036**

Source: *UN Human development Rankings, 2019*, United Nations, http://hdr.undp.org/en/content/2019-human-development-index-ranking.

The Economy as the Source of Military and National Security Spending

The size of a national economy has a major impact on a country's military capability as it determines how much a given country can spend on military forces. However, so does the level and type of control that a national leadership can exercise in allocating economic resources. Many experts feel that both China and Russia's leaderships have a greater capability to spend in "peacetime" and prolonged periods of competition than the United States, and that they are actively exploiting this advantage in practice.

This may give China and Russia more capability to sustain current levels of military and national security spending during the Coronavirus crisis. Both regimes are notably less transparent in reporting their expenditures and less sensitive to public demands. In contrast, both the transparency of a democratic system and the perception that the Coronavirus crisis is a civil crisis rather than a gray zone operation or military challenge have already led some U.S. politicians to call for cuts in the FY2021 defense budget.

Many analysts and intelligence experts believe that China and Russia have long deliberately understated their military spending, particularly in terms of procurement spending and spending on related technology. Such experts again differ over the figures involved, and the range of different estimates is striking.

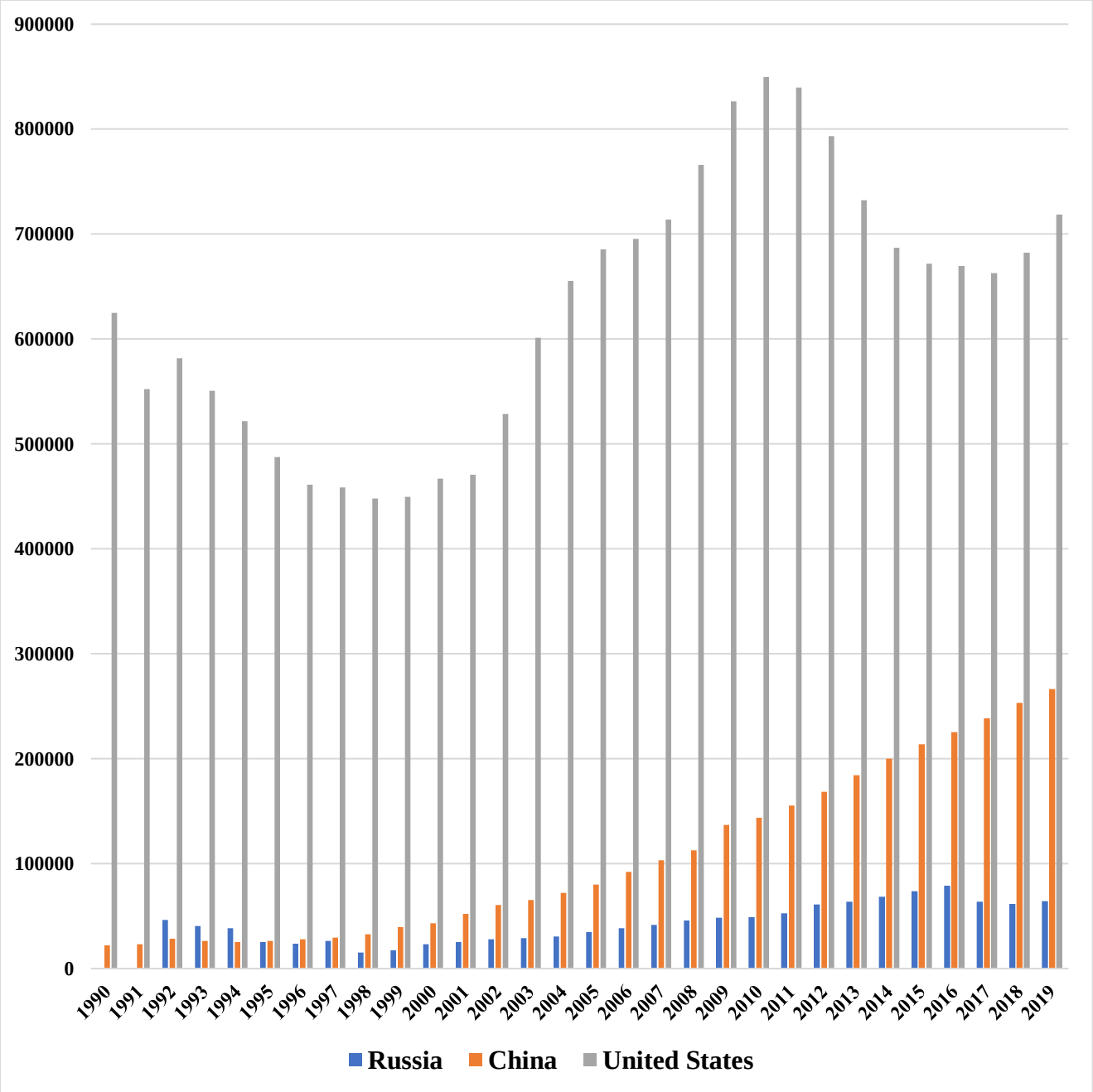
Chart Sixteen shows an estimate of trends based on SIPIRI estimates of military spending that does make some attempts to correct for the fact that China and Russia underreport their national security spending. Like the previous economic data, no source is clearly right, and every source that really makes its own estimates produces different results.

Chart Seventeen makes this clear by providing a range of different spending estimates for each country. The International Institute of Strategic Studies (IISS) estimates that China's actual military expenditures in 2019 were $225 billion, and its military budget was $181 billion (80% of expenditures). Russia's actual military expenditures in 2019 were $61.6 billion and its military budget was only $48.2 billion (78% of expenditures). In contrast U.S. actual military expenditures in 2019 were $730 billion and its military budget was $685 billion (94% of expenditures).

Yet, all of the different estimates of U.S., Chinese, and Russian military spending as a percent of GDP fall far below the level that experts feel the U.S., Russian, and Chinese economies can support. Figures that were well in excess of 50% of GDP were possible during World War II. This may give the two authoritarian states some advantage over the U.S. as long as the Coronavirus crisis continues. U.S. national security spending will be the subject of intense political debate. Chinese and Russian spending will not.

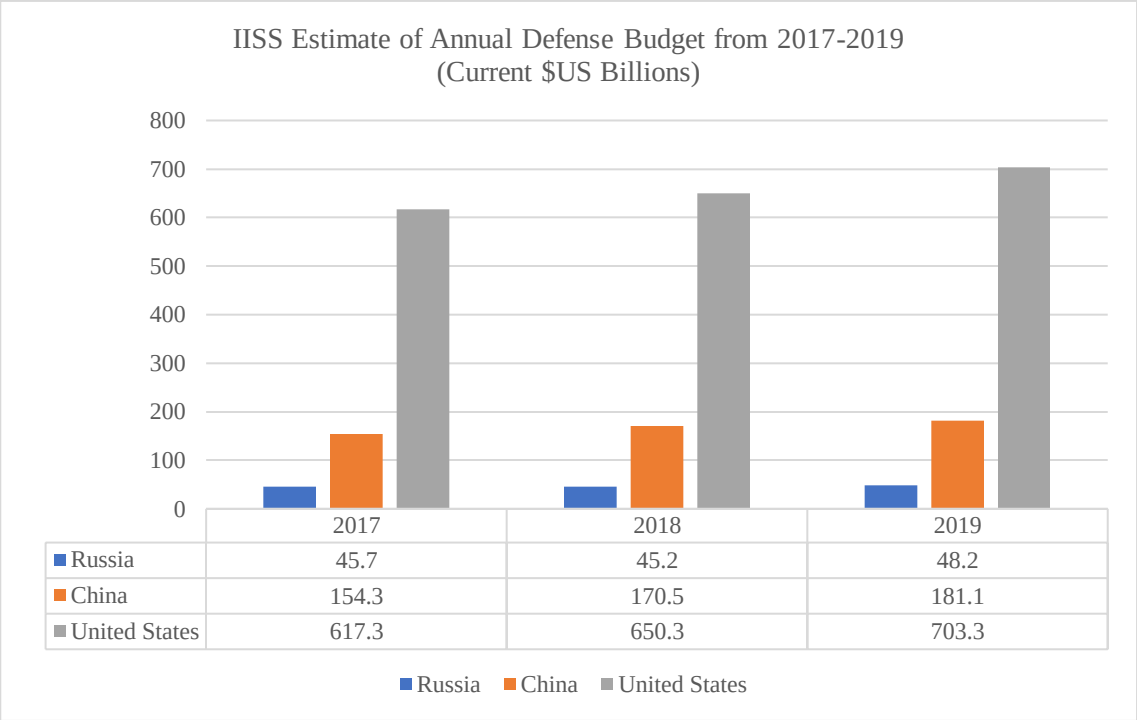
Chart Sixteen: SIPRI Estimates of Russian, U.S., Chinese Military Spending: 1990-2019

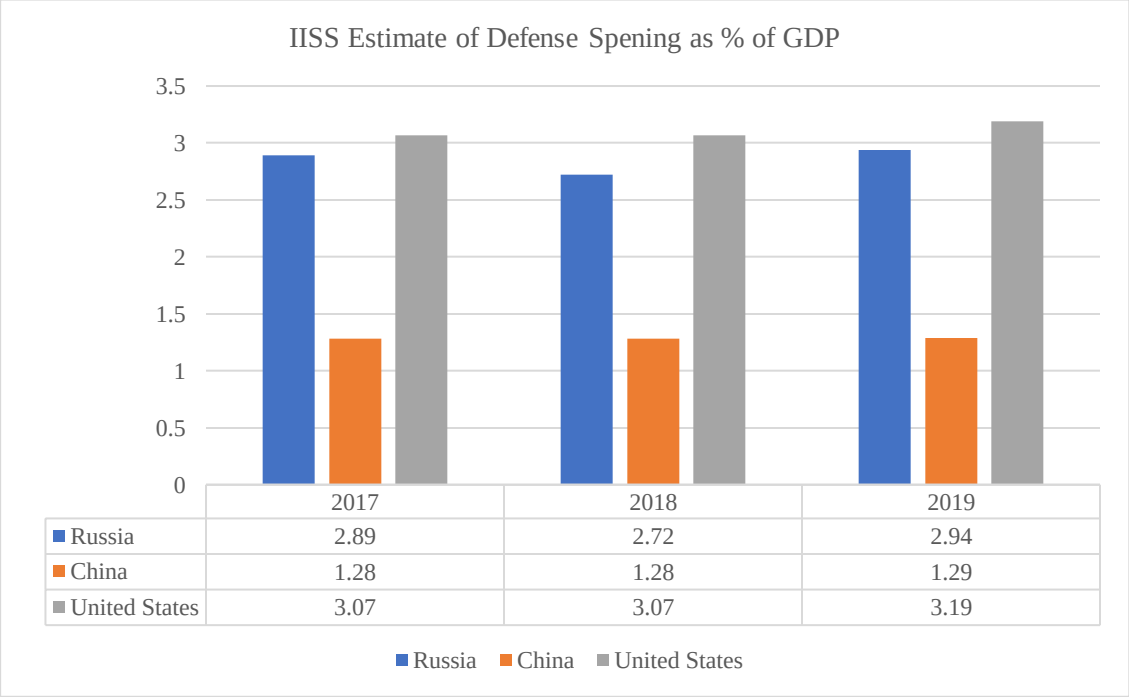
(Constant 2018 $US Millions)



Source: SIPRI, https://www.sipri.org/databases/milex. The 1990 and 1991 data for Russia are missing because no estimate is possible for the FSU/Russia.

Chart Seventeen: Comparative Estimates of Military Spending and Effort
($US Current Billions)

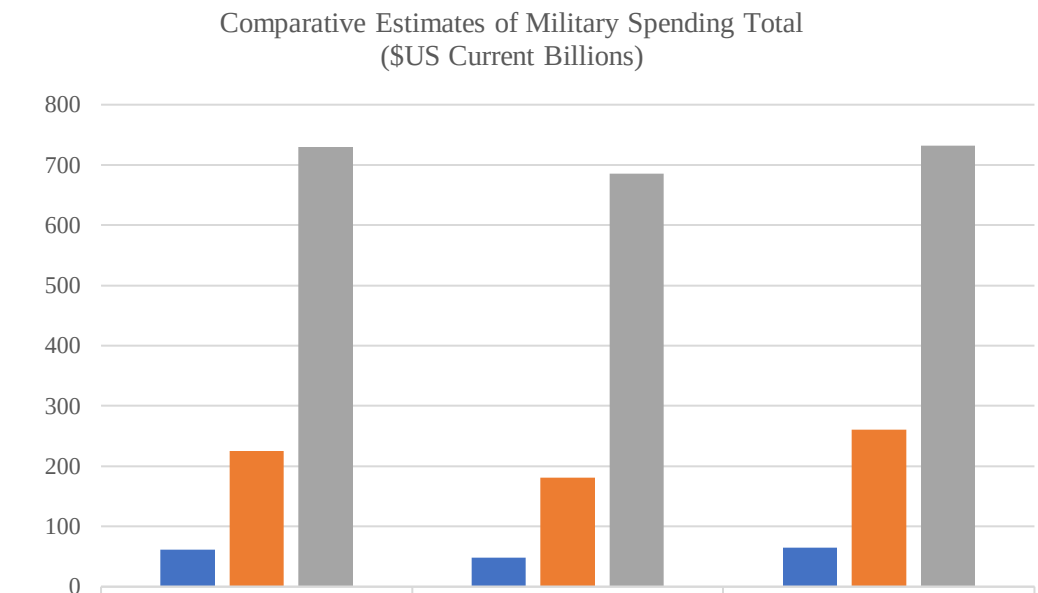




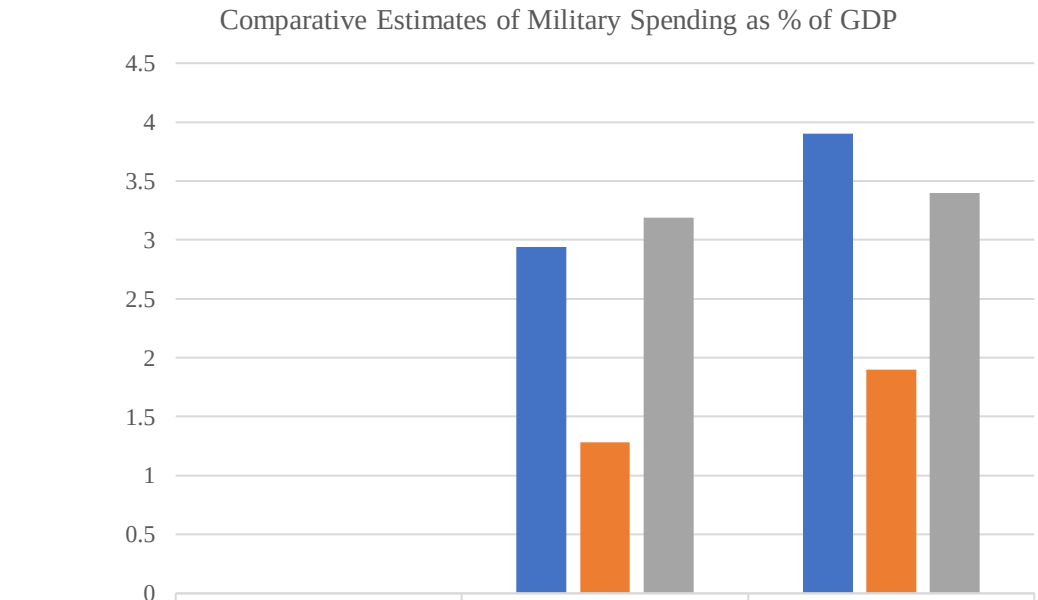
IISS Estimate of Officially Stated Defense Budget Trends: 2017-2019

Country	**Annual Defense Budget**			**Defense Spending as % of GDP**		
	2017	**2018**	**2019**	**2017**	**2018**	**2019**
United States	617.3	650.3	703.3	3.07%	3.07%	3.19%
China	154.3	170.5	181.1	1.28%	1.28%	1.29%
Russia	45.7	45.2	48.2	2.89%	2.72%	2.94%

Comparative Total Defense Spending and Percent of GDP in 2019



	IISS Expenditure 2019	IISS Budget 2019	SIPRI Spending 2019
Russia	61.6	48.2	65.1
China	225	181	261
U.S.	730	685	732



	IISS Expenditure 2019	IISS Budget 2019	SIPRI Spending 2019
Russia	0	2.94	3.9
China	0	1.28	1.9
United States	0	3.19	3.4

Source	U.S.		China			Russia		
	Total	**% of GDP**	**Total**	**% of GDP**	**% of US**	**Total**	**% of GDP**	**% of US**
IISS Expenditure 2019	730	-	225	-	31%	61.6	-	8.4%
IISS Budget 2019	685	3.19%	181	1.28%	26%	48.2	2.94	7.0%
SIPRI Spending 2019	732	3.40%	261	1.90%	36%	65.1	3.90	8.9%

Source: IISS Military Balance, 2020, country sections and pp. 530-532; SIPRI, "Global military expenditure sees largest annual increase in a decade—says SIPRI—reaching $1917 billion in 2019," April 27, 2019, and "Trends in World Military Expenditure," 2019, April 2020, https://www.sipri.org/sites/default/files/2020-04/fs_2020_04_milex_0.pdf.

Chinese and Russian Under-Reporting of Military Spending and the Burden It Places on the Russian and Chinese Economy

The estimates of the burden that military spending placed on the total size of the Russian and Chinese economies as a percent of GDP also seem to sharply under report the real burdens that they place on their respective economies. Russia is almost certainly underreporting the real burden that its military spending places on its economy – particularly its spending on new weaponry, investment in weapons-related research and design, and modernization and repair of existing weaponry. The budget also places major expenditures into future years. As a result, the real annual budget and burden on the GDP may well be 25% to 40% higher than the 2.9% to 3.9% shown in **Chart Seventeen**.

Although Russia was reported to spend about only $60 billion per year on its defense spending in 2019 as shown in Chart Seventeen, Russia's procurement of weapons – such as the development of hypersonic weapons and the S-500 – and support of over a million personnel would cost significantly more. Some sources estimate that if Russian spending is estimated in purchasing power parity (PPP) exchange rates, Russia could be spending close to $150 to $180 annually in the past five years on its defense spending.[32]

Chinese underreporting is almost certainly greater. The IISS estimate of military spending in 2019 as a percent of GDP is only 1.28% and is drawn from Chinese official reporting. This reporting is summarized in **Chart Eighteen**. These percentages are far too low. The U.S. Department of Defense (DoD) estimates that Chinese spending was at least $250 billion in its FY2021 budget submission, and DIA reporting made it clear that this figure – like the SIPRI estimate of $261 billion – might be too low because Chinese reporting omits large amounts of R&D, procurement, and other spending. (The SIPRI figure is not comparable because it is an estimate made by SIPRI).

The Chinese estimates were also planned to remain low in 2020 in the period before the Coronavirus hit. The Chinese budget estimate for 2020 was 1.19 trillion Yuan or $176 billion, and it was stated to be below 2% of the GDP.[33]

Nevertheless, the relevant portions of the official white paper from which they are drawn – *China's National Defense in a New Era, July 2019* – does provide some insights into how China describes its spending efforts and how it minimizes its level of competition that are likely to go on in spite of the Coronavirus crisis:

> China attends to both development and security. It is making an integrated effort to build a prosperous country and a strong military, and striving for the coordinated development of national defense and the economy. Following the principle of building the armed forces through diligence and thrift, China takes into consideration the development of the economy and the demands of national defense, decides on the appropriate scale and composition of defense expenditure, and manages and applies these funds in accordance with law.
>
> Since reform and opening-up, China has increased its defense expenditure from a level of sustainability to moderate growth. On the whole, defense expenditure has grown in tandem with the growth of the national economy and government expenditure. Defense expenditure as a percentage of GDP has fallen from a peak of 5.43% in 1979 to 1.26% in 2017. It has remained below 2% for the past three decades. Defense expenditure as a percentage of government expenditure was 17.37% in 1979 and 5.14% in 2017, a drop of more than 12 percentage points. The figures are on a clear downward trend.
>
> In the new era, to keep pace with the country's modernization, China is focusing on building a fortified national defense and a strong military commensurate with the country's international standing, and its national security and development interests. China is striving to narrow the gap between its military and the

world's leading militaries, and make up the deficiencies in the military's capabilities in modern warfare. Defense expenditure is growing steadily and the breakdown of spending is being continuously optimized.

In terms of usage, China's defense expenditure is assigned to three sectors – personnel, training and sustainment, and equipment. Personnel expenses mainly cover the salaries, allowances, food, bedding, clothing, insurance, subsidies and pensions for officers, non-ranking officers, soldiers and contracted civilians, as well as retirees supported from the defense budget. Training and sustainment expenses mainly cover training of the troops, institutional education, construction and maintenance of installations and facilities, and other expenditure on routine consumables. Equipment expenses mainly cover R&D, testing, procurement, repairs, maintenance, transport and the storage of weaponry and equipment. In terms of scope, defense expenditure covers all active forces, reserve forces and militia.

Since 2012, the increase in defense expenditure has been primarily spent for the following purposes:

1. Adapting to national economic and social development, improving the wellbeing of service personnel, ensuring regular increases in military salaries, and bettering the working, training and living conditions of the troops;

2. Increasing input in weaponry and equipment development, phasing out the outdated, upgrading the old, and developing and procuring the new, such as aircraft carriers, fighters, missiles and main battle tanks, to steadily modernize weaponry and equipment;

3. Deepening national defense and military reform, supporting major reforms in military leadership and command systems, force structure and composition, and policies and institutions;

4. Supporting training in real combat conditions, enhancing strategic-level training, joint training at TCs' level and training of services and arms, and improving the conditions for simulated, networked and force-on-force training; and

5. Supporting diverse military tasks including the UNPKOs, vessel protection operations, humanitarian assistance operations and disaster relief efforts.

From 2012 to 2017, China's defense expenditure increased from RMB669.192 billion to RMB1,043.237 billion. China's GDP and government expenditure grew at average rates of 9.04% and 10.43% respectively, calculated on the price of the indicated years, while its defense expenditure increased by an average of 9.42%. Defense expenditure accounted for 1.28% of GDP and 5.26% of government expenditure on average. The percentage of China's defense expenditure in GDP remained stable and grew in coordination with the increase of government expenditure.

China applies strict mechanisms of fiscal allocation and budget management on its defense expenditure. It pursues a level of defense spending that is demand-oriented, planning-led and consistent with its capacity. It endeavors to strengthen unified management, coordinate existing and incremental expenditure, gradually practice cost-effectiveness management, and steadily press ahead with reform that is centered on efficacy and efficiency. To improve and strengthen budget management, China's armed forces are extending reform of the centralized collection and payment of military funds, accelerating standardization in relation to defense expenditure, and improving the management of assets and funds.

Some NGO and think tank estimates of China's military spending also go far higher than those issued by the IISS and SIPIRI. A study by the CSIS *China Power Project*, "What Does China Really Spend on Its Military?" in 2019 highlights these issues and provides the comparisons of official Chinese and NGO estimates shown in **Chart Nineteen**. It notes that,[34]

There is no universally accepted standard for reporting military spending. While international mechanisms exist, such as the UN Report on Military Expenditures, participation is voluntary. This allows governments to report their expenditure with varying degrees of detail. China joined the UN instrument in 2007, but it remains less transparent than many countries…The Chinese government reports expenditure information annually. In March 2019, China's Ministry of Finance announced a yearly budget of 1.19 trillion yuan ($177.5 billion), marking a 7.5 percent increase from the 2018 budget of 1.11 trillion yuan ($167.4 billion). This follows a recent trend that has seen yearly percent increases in spending fall to single digits.

> ...Yet, how much China actually spends on its military is widely debated. The Stockholm International Peace Research Institute (SIPRI) estimates the overall 2018 figure at $250 billion and the International Institute for Strategic Studies (IISS) puts the number at $209 billion in 2017. The US Department of Defense (DoD) concludes that China's 2018 defense budget likely exceeded $200 billion.

The *2019 Report to Congress* by the U.S-China Economic and Security Review Commission in November 2019 summarizes the state of China's reporting as follows:[35]

> China's official budget is not transparent. Authoritative observers note that one cannot accept China's official figures at face value due to Beijing's provision of only top-line numbers and omission of major defense-related expenditures, such as research and development and foreign arms purchases… For these reasons, Phillip C. Saunders, director of the National Defense University's Center for the Study of Chinese Military Affairs, estimated in testimony to the Commission that the actual budget is likely $30 billion to $50 billion more than officially reported.
>
> The Department of Defense added an additional 25 percent to China's official budget numbers from 2012 to 2017 in its report to Congress on China's military, and well-regarded think tanks have estimated China's military budget to be a full 40 to 50 percent larger than what the central government officially reports.82 According to the Stockholm International Peace Research Institute, China's estimated overall defense expenditure in 2018 was $250 billion, larger than the combined sums of Saudi Arabia, India, and France (the world's third, fourth, and fifth top spenders, respectively). This figure amounted to 1.9 percent of China's gross domestic product and 5.5 percent of government spending that year.
>
> … Even accepting its official numbers, the growth of China's defense spending for 2019 will exceed its 2019 announced economic growth rate target of 6 to 6.5 percent—a figure some observers believe is itself overstated. Whether calculated by official or estimated growth rates, China's defense spending has outpaced overall economic growth most years since General Secretary Xi assumed power—a remarkable fact reflecting the high priority Beijing assigns to its military in the face of other demands on government resources

An estimate by Frederico Bartels of the Heritage Foundation calculates Chinese spending in PPP terms including all of the categories that are missing from Chinese estimates, and he puts the total at 87% of U.S. spending.[36] These high estimates should not be disregarded similar to when the U.S. sharply increased its percent of GDP estimates for the Former Soviet Union after its collapse and the full scale of the FSU's effort became clear.

This is a critical area for better U.S. analysis, particularly given the different pressures the Coronavirus crisis puts on the U.S. relative to China and Russia. There are few studies that attempt to develop meaningful comparisons of direct and indirect national security spending by the United States, China, and Russia. Past open source U.S. official reporting on military spending and economic impacts on security have become increasingly erratic, and documents like the State Department *World Military Expenditures and Arms Transfers* have been reduced to a sporadic computer database. There is virtually no detailed open source assessment of the relative size and efficiency of the military and national security structures and budgets that shape U.S., Russian, and Chinese competition.

Chart Eighteen: Chinese Official Reporting on Its Military Spending Effort

Figure 3 China's Defense Expenditure as a Percentage of Its GDP (1979-2017) (%)

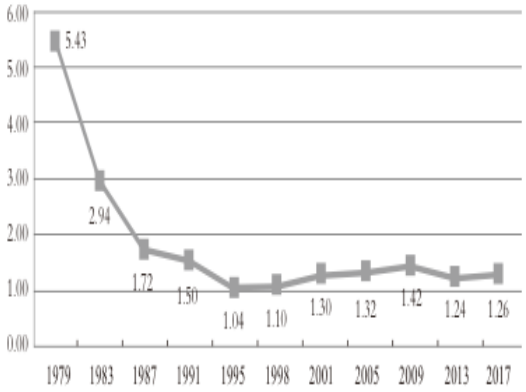


Figure 4 China's Defense Expenditure as a Percentage of Its Government Expenditure (1979-2017) (%)

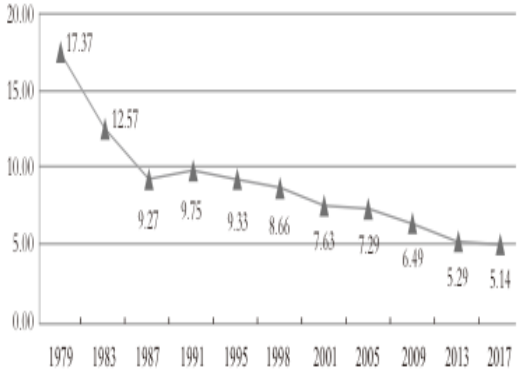


Figure 5 Average Ratio of Defense Expenditure to GDP by Country (2012-2017) (%)

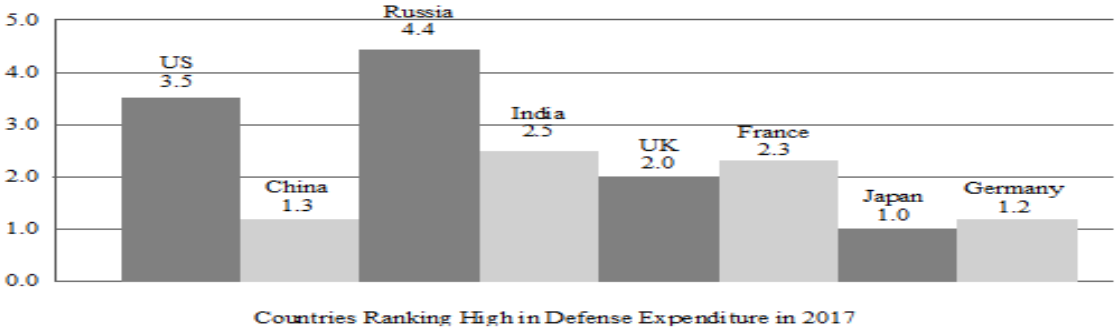
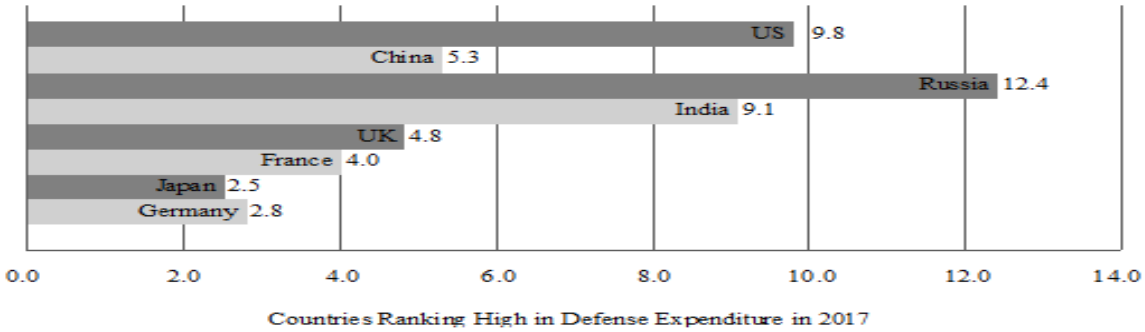
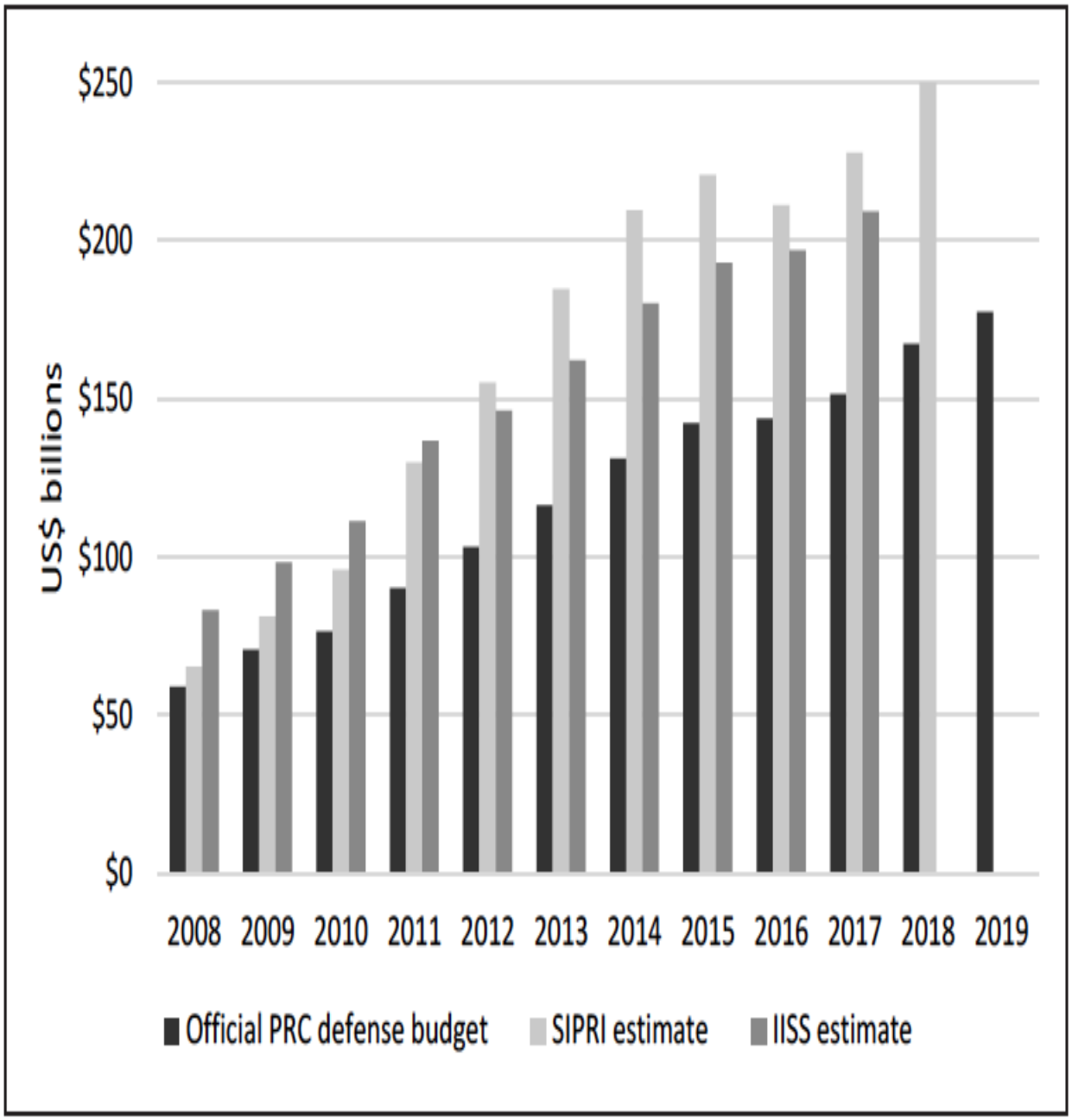


Figure 6 Average Ratio of Defense Expenditure to Government Expenditure by Country (2012-2017) (%)



Source: Adapted from *China's National Defense in a New Era*, July 2019, http://www.xinhuanet.com/english/download/whitepaperonnationaldefenseinnewera.doc

Chart Nineteen: Chinese Official Reporting on Its Military Spending versus SIPRI and IISS Estimates: 2008-2019



Source: Center for Strategic and International Studies China Power Project, "What Does China Really Spend on Its Military?" 2019; Members of Center for Strategic and International Studies China Power Project, interview with Commission staff, October 15, 2019. Note: All values in nominal U.S. dollars. SIPRI stands for Stockholm International Peace Research Institute. IISS stands for International Institute for Strategic Studies. Estimated figures from IISS for 2018 and 2019 and from SIPRI for 2019 are not available. Adapted from *China's National Defense in a New Era*, July 2019, http://www.xinhuanet.com/english/download/whitepaperonnationaldefenseinnewera.doc

Measuring the Quality and Efficiency of Defense Spending (and Civil Competition)

These data raise another critical question for U.S. strategy and for improving U.S. capability to compete: the relative efficiency in which each power uses its defense resources. There has been remarkably little to no available net assessments on how well the U.S., China, and Russia spend their money or on how efficient their systems are in supporting given aspects of military forces and competition in national security.

It is far from clear which nation spends most efficiently. The annual Congressional Budget Office (CBO) studies of the trends and cost escalation in U.S. defense spending are not reassuring in indicating how well the U.S. competes. Neither are the many Inspector General, General Accountability Office, or Congressional studies on the defense spending in key areas.

The U.S. Army's failures in its Future Combat Systems effort, the U.S. Navy's cost escalation and delays in ship building, the U.S. Air Force's problems with the F-22 and F-35, and the long past delays in key areas of the Marine Corps modernizations raise questions as well. So do the major rises in operation and maintenance (O&M) and contracting costs, as well as the specialized areas like military health care and Veteran's programs.

The lack of any clear effort to go beyond the endless annual claims by the Department of Defense (DoD) that it is again reorganizing, becoming more inefficient, and reducing costs – but then also asking for yet another increase in defense spending – are not a substitute for comparative analysis.

Key Areas of Civil Economic Competition and Their Impact on Military and Strategic Competition

Much depends on how well each state uses its assets to compete. Here, the two chronologies that support this analysis show that Russia and China have long used their economic power to directly serve their strategic interests while the U.S. has rarely done so. In most cases, the Coronavirus crisis is also likely to make China and Russia put more emphasis on such form of competition, not hinder their ability.

There has never been a clear separation between Chinese and Russian civil and military economics and investments, and it is not surprising that many aspects of Chinese and Russian economic activity match their regional military efforts. China's "Belt and Road" (BRI) efforts are a good example. Both China's strategic position and its economy benefit from many BRI activities ranging from new Indian Ocean ports to building up a major business, construction, or infrastructure presence in a given country that can provide China strategic influence as well as economic opportunities.

The same is true of China's role in the Shanghai Cooperation Council in Central Asia, its growing economic role in South Korea and Taiwan, its creation of port facilities (and also a separate naval base) in Djibouti, its "string of pearls" port facilities, its role in the Trans-Pacific Partnership (TPP), its investments in Iran and Cambodia, and its growing economic links to Australia.

China's expanding economic power is almost always tied to Chinese efforts to increase its influence and strategic leverage. In many cases, like arms transfers, loans, major infrastructure projects, and major local investments, it has increased its strategic profile simply through its growing global economic role and presence.

Russia may now be a much smaller economic power than China, but it too has focused more on gray area operations and economic options than on its military build-up. It has shown that it can combine its military and economic goals by the way it exports gas and oil, ties aid to investments in developing states, and shapes its trade patterns and restrictions. Arms sales and selling military production equipment have become a tool for expanding civil sales and vice versa. Russia has expanded its use of private military companies, specifically Wagner, to countries in Africa – such as the Central African Republic and Libya – while also signing with them exclusive mining deals.

Many technologies and high technology firms are dual capable, and advances in the civil sector offer military and civil benefits as well as the ability to collect intelligence and support information warfare. Russia targeted a key NATO partnership by selling its S-400 air defense system to Turkey. With the U.S. F-35 fighter jets operating in the same zone as the Russian S-400, Russia would have the capability to gain highly sensitive information on the U.S. development of its fighter jets, and it also strained a critical relationship between the U.S. and Turkey.

Current Russian operations in Georgia and Ukraine have focused on the political dimension while making relatively limited use of military force. Russia's use of separatist forces in South Ossetia and Donbass give Russia leverage to create domestic tensions in Georgia and Ukraine while also evading full blame.

At the same time, Russia has used its economic power, role as a gas provider, and trade restrictions to increase its pressure on these regions. Its other efforts in the "near abroad of NATO" – the NATO countries close to Russia's borders – have also mixed politics and economics with intimidation, support of Russian minorities, and the use of information and covert political warfare.

More broadly, Russia has successfully used civil media and the Internet to attack the U.S. and many other Western counties through political and information warfare. It has also exploited its role as a major energy supplier to Europe. It has used aid – alongside political efforts to manipulate international aid and peace negotiations – to play a political and military spoiler role in Syria and Libya. It has joined with China in the Shanghai Cooperation Council by shaping its trade and investment policies to retain its influence in Central Asia, send both political and military aid to play a spoiler role in Venezuela, and use arms transfers and loans broadly in order to gain strategic leverage.

Russia and China have both used their civil and economic activity to create forms of dependence by – and influence over – other states. Although there may not be a direct military advantage when Russia creates a significant gas pipeline bypassing Eastern Europe or when China fronts a zero-interest loan in Africa, these tactics are key parts of gray-zone warfare that can be leveraged and used as needed.

Meanwhile, the United States government has focused heavily on one economic tool in linking economics to its military competition with China and Russia: *sanctions*. These are now being applied primarily to Russia, Iran, and North Korea. The U.S. does not provide meaningful foreign aid to China or Russia, although it does to some other countries in ways that affect Chinese and Russian military and strategic interests. U.S. tariffs and "trade wars" have been targeted largely to only support U.S. civil economic interests.

There are, however, few comparisons of such efforts, and this remains another key area for further analysis and future net assessments.

Competition in Technology

The U.S. still retains a lead in many areas of civil and military technology, but China is catching up in terms of its overall R&D efforts – as is shown in the different estimates in **Chart Twenty**, **Chart Twenty-One**, **Chart Twenty-Two**, and **Chart Twenty-Three**. While such data have the usual uncertainties and differences, it is clear that Russia has been forced to limit key areas of spending to the point where some of its current military and civil efforts are now a legacy of its past achievements.[37]

China, however, has made an immense investment in its civil and military technology on a national level over the last few decades, and China's leader – Xi-Jinping – set four key goals at a National Science and Technology Conference in May 2016:[38]

- 2020: Advance domestic competence for global innovation competition.
- 2025: Reduce reliance on foreign technology.
- 2030: Make milestone contributions to the global scientific community.
- 2050: Lead and dominate in the science and technology powerbase.

As **Chart Nineteen** to **Chart Twenty-Two** show, these efforts are making China the lead competitor with the United States, although Russia has a long history of innovation and technological progress to draw upon. Many studies indicate China also seems to be catching up in civil and military technology – partly through espionage and also through its manufacturing capability. Given current trends, the differences in other estimates will largely have vanished at some point no later than 2030-2045. The impact of the Coronavirus may change this progress – both preliminary World Bank and IMF estimates now indicate that it will only alter such trends by several years.[39]

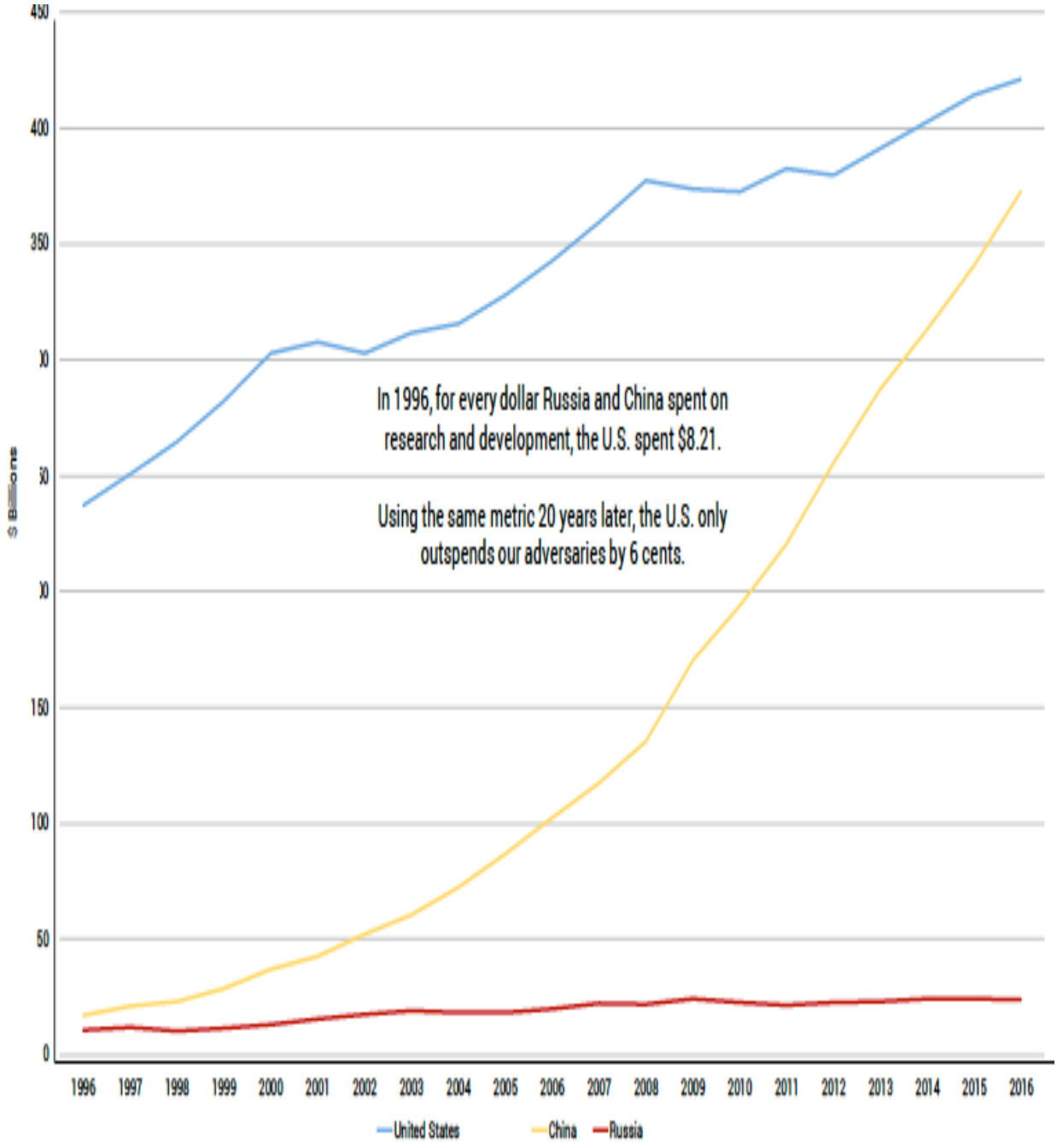
China will have little incentive to cutback in these areas in recovering from the Coronavirus crisis. In contrast, Russia will face significant resource constraints, and the U.S. has talked far more about investing more in technology than it has actually executed. The U.S. has failed to implement many of its stated goals before the Coronavirus crisis, and once again, its transparent politics and civil demands for economic relief may now limit its future efforts. This is a critical area for U.S. national security and for both military and economic competition, but studies and good intentions are a miserable substitute for action.

China and Russia have also benefited from the fact that both the U.S. defense sector and virtually every sector of advanced technology in America's civil economy are open enough to be highly vulnerable to industrial and military espionage. The impact of such espionage should not, however, be exaggerated, and posturing to condemn it is not a substitute for preventing it. Industrial and technological espionage has been a normal part of interstate competition throughout military history and especially since the Napoleonic wars. Condemnation may serve some propaganda purpose, but it can generally be countered with even the most implausible deniability.

Again, there is a lack of detailed open source analysis comparing the three very different civil-military approaches that the United States, China, and Russia take to technology development, the military industry, and the linkages between civil and military efforts. Much of the analysis that does exist covers only limited sectors or topics, and many of them attempt to make broader comparisons to significant ideological biases – some of which the U.S. side simply assumes that

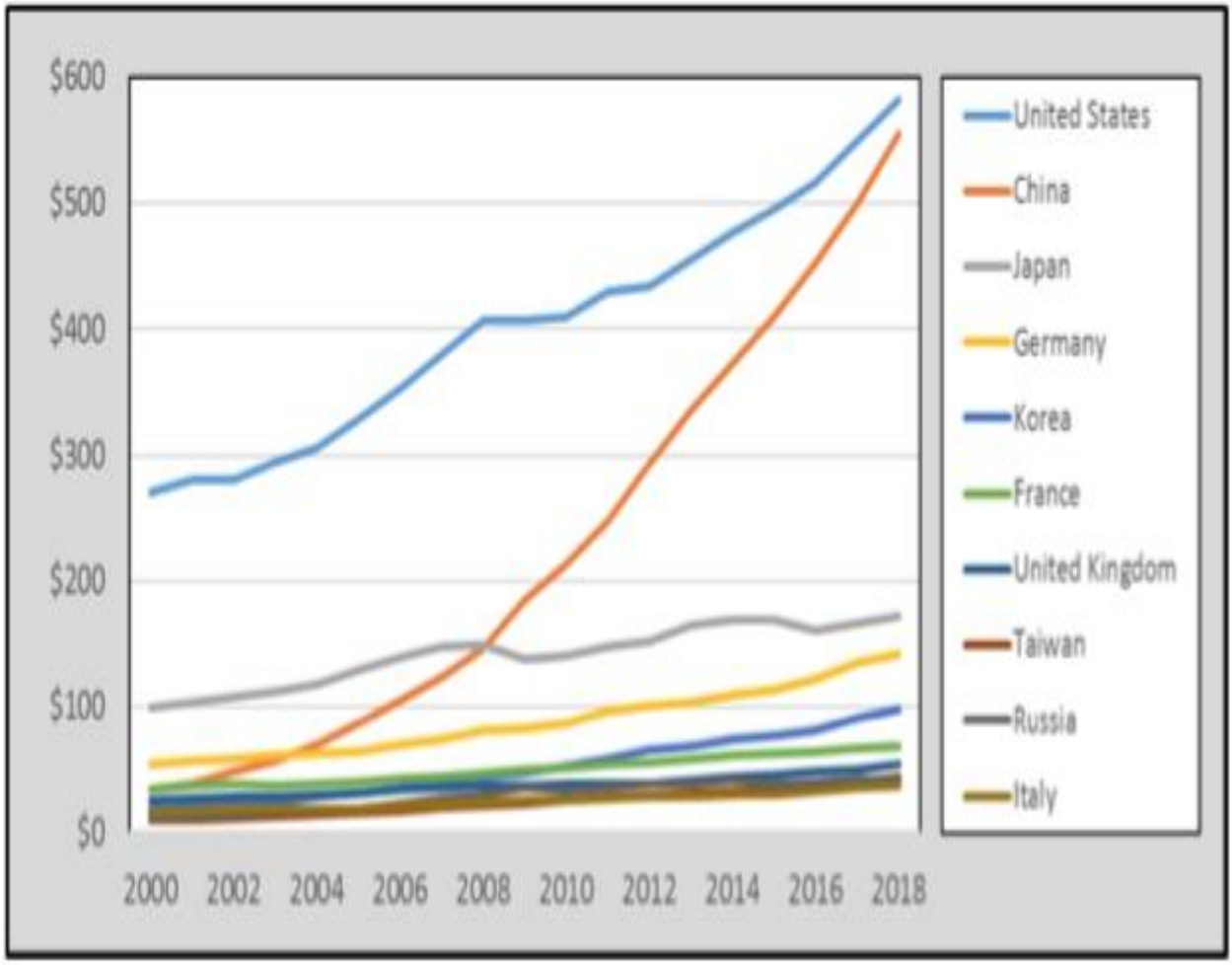
capitalism will be more successful. As is always the case, ideology is no substitute for objective analysis.

Chart Twenty: Comparison of U.S., Chinese, and Russian Spending on Research and Development: 1996-2016
(Annual Expenditure on Research and Development (Adjusted for Purchasing Power Parity)



Source: United Nations Educational, Scientific and Cultural Organization R&D Database; IISS Military Balance; and World Bank (For gross domestic product, See Providing for the Common Defense, p. 29, 2018).

Chart Twenty-One: R&D Expenditures of Russia, China, and the United States from 2000-2018 (In $US Current PPP Billions)

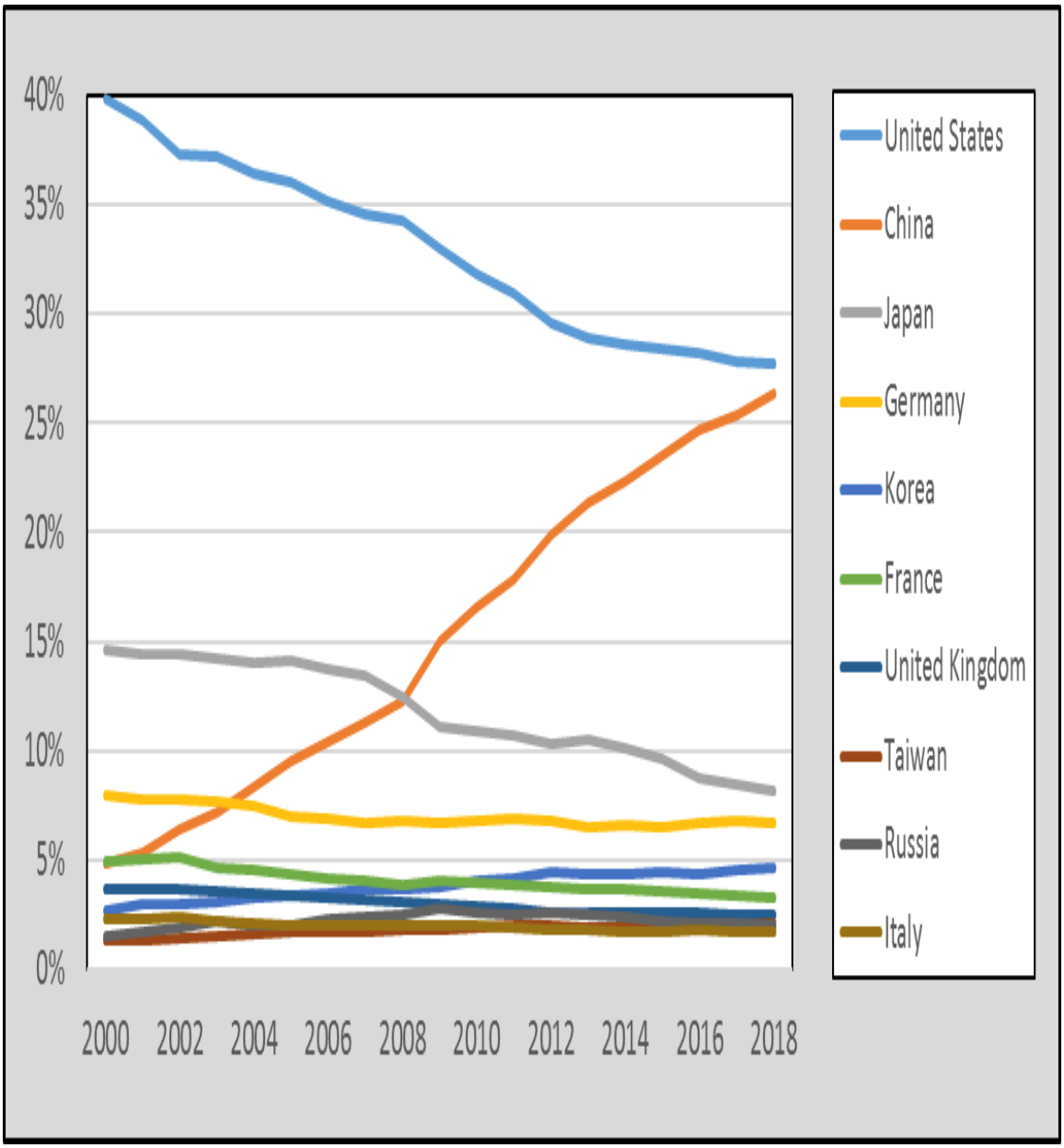


Countries with Highest Expenditure in 2018

Rank	Country	Amount	Rank	Country	Amount
1	United States	$581.6	11	Canada	29.0
2	China	554.3	12	Spain	23.6
3	Japan	171.3	13	Australia	22.6
4	Germany	141.4	14	Turkey	21.7
5	South Korea	98.5	15	Netherlands	21.5
6	France	$68.4	16	Switzerland	19.1
7	United Kingdom	53.1	17	Sweden	18.1
8	Taiwan	43.3	18	Israel	17.7
9	Russia	41.5	19	Belgium	16.5
10	Italy	36.0	20	Austria	16.0

Source: John F. Sargent Jr., "Global Research and Development Expenditures: Fact Sheet," *Congressional Research Service*, April 29, 2020, https://fas.org/sgp/crs/misc/R44283.pdf ; CRS Analysis of Organization for Economic Development and Cooperation, OECD.Stat Database, https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB

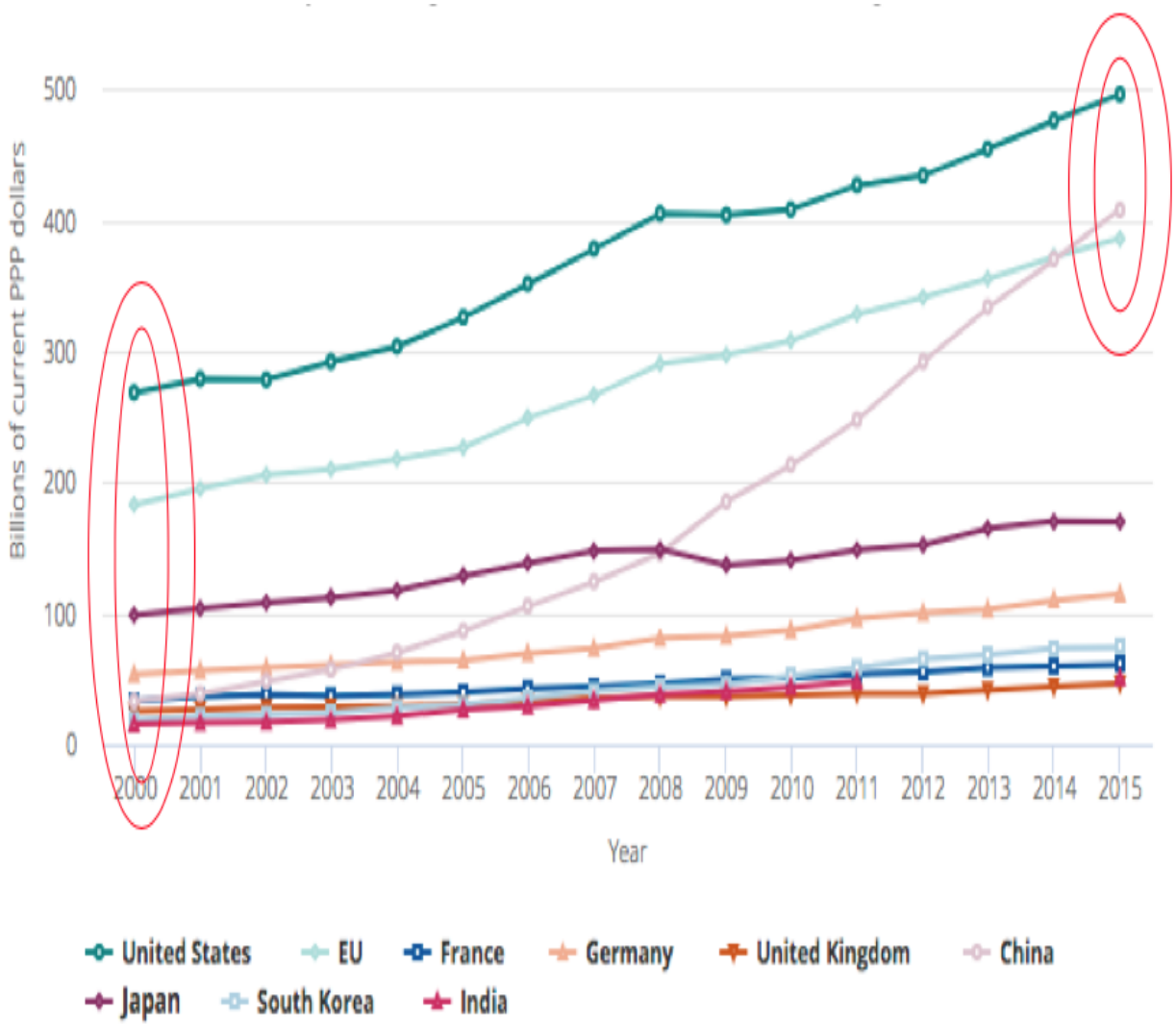
Chart Twenty-Two: Share of Global R&D of Selected Countries, 2000-2018



Notes: Global R&D includes the expenditures of the OECD countries, Argentina, China, Romania, Russia, Singapore, South Africa, and Taiwan. Share computed in PPP terms. PPP = Purchasing Power Parity. PPP is used to determine the relative value of different currencies and to adjust data from different countries to a common currency allowing direct comparisons among them.

Source: John F. Sargent Jr., "Global Research and Development Expenditures: Fact Sheet," *Congressional Research Service*, April 29, 2020, https://fas.org/sgp/crs/misc/R44283.pdf ; CRS Analysis of Organization for Economic Development and Cooperation, OECD.Stat Database, https://stats.oecd.org/Index.aspx?DataSetCode=MSTI_PUB

Chart Twenty-Three: Chinese R&D Spending Rises Above that of EU, Challenges U.S.



United States and Europe experienced substantial declines in their shares of global R&D (from 37% to 26% in the United States and from 27% to 22% in Europe between 2000 and 2015). During the same period, the economies of East and Southeast Asia—including China, Japan, Malaysia, Singapore, South Korea, Taiwan, and India—saw an increase in their combined global share from 25% to 40%, thus exceeding the respective U.S. and the European R&D shares in 2015.

Source: National Science Foundation, National Center for Science and Engineering Statistics estimates, August 2017. Based on data from the Organization for Economic Co-operation and Development, Main Science and Technology Indicators (2017/1), and the United Nations Educational, Scientific and Cultural Organization (UNESCO), Institute for Statistics database, data.uis.unesco.org.National science Board, Science& Engineering Indicators, 2018, https://nsf.gov/statistics/2018/nsb20181/report/sections/overview/research-publications.

Competition in Civil Multi-Domain, IS&R, Cyber, Information Warfare and Political Warfare

There is no clear way to separate civil economic competition from political competition in several other key areas of U.S., Chinese, and Russian operations. Here again, however, China and Russia have been highly proactive, while the U.S. has made relatively limited efforts. Once again state-driven efforts allow them to closely link their civil efforts to their broader strategic goals, while the U.S. relies far more on private sector efforts:[40]

- *Focus on critical lead technology research, development, technology, and evaluation (RDT&E) and deployment*: China in particular has shown that targeting investments in key areas of technology can offer major advantages like 5G, artificial intelligence, monitoring of the population, and many areas that enhance state control of the civil population, and potentially in new areas like "smart city" warfare.
- *Multi-Domain Competition in civil technology and deployed programs* affects area of space like Global Positioning Satellites (GPS), communications, commercial imaging, data transmission, boosters, and many areas of antisatellite operations.
- *Political warfare and propaganda* affect civil media, use of the internet, deception operations in civil communications, limits on U.S. media and news collection, commercial transactions, and financing.
- *Financial operations* can range widely from fraud and low-level cybercrime to major attacks on banking and stock market operations, to broad economic sanctions and barriers, to trade, global bank and financial operations.
- *Information "warfare"* can be covert or overt, political and/or economic, accurate or based on disinformation, and targeted at a range going from attacks or support of individuals to broad operations affecting nations and key economic and political systems – including national elections.
- *Infrastructure operations and vulnerability:* A wide range of critical infrastructure can be attacked or affected by economic competition or attacks through means like civil warfare. Peacetime analysis of critical operations and targeting can also have a major impact on capabilities for gray areas operations.
- *Internet operations* can occur at every level from the use of social networking to censorship and monitoring of the Internet, to attacks on the ability of the Internet to operate.
- *Cyber competition* can be used at virtually every level from tolerating and encouraging private hacking and cracking operations to state efforts that affect critical cyber operations at the civil level whose potential impact cannot be distinguished from military attacks on cyber systems and the economy.
- *Investment, foreign aid and loans, and major foreign business operations*: A wide range of investments, foreign aid and loans, and major business operations can be tailored to serve the objective set for international competition.
- *Sanctions, trade barriers, domestic investment and foreign investment controls, immigration and migration control*: Manipulation, limits, and incentives can be applied to

> a wide range of civil activities ranging from trade barriers to singling out given nationals, ethnic, or sectarian groups, and favoring given foreign elites and power brokers.

As the Chinese and Russian chronologies that support this analysis show, these are all areas where the effective difference between competition and warfare can be pushed to the point where it only can be distinguished by the use of weapons in physical violence. These also are areas that are far harder to deter, and where the U.S. has often been slow to detect such operations to try to counter them effectively.

In general, the U.S. has limited such efforts in competing with China and Russia to trade barriers and sanctions designed largely to achieve narrow economic objectives. China and Russia have operated on a much broader level. The U.S. also has tended to highly compartmentalize the analysis of such Chinese and Russia operations, rather than assess them on a grand strategic level. The Coronavirus crisis again will make changes to U.S. planning and behavior more urgent.

The Economic Future and the Impact of the Coronavirus

There is no way as of yet to assess how the current crisis over the Coronavirus will change the domestic economies of China, Russia, and the United States; the character of their interactions with other states; or the level of civil competition and military spending.

Early estimates by the World Bank and IMF predict a serious downturn in 2020, but they are so tentative for the lasting impact that at least the IMF has presented three different cases ranging from a significant recovery in 2021 to a prolonged crisis through 2020. Similarly, reporting of the comparative responses to the crisis to date have tended to show that the U.S. fell badly behind in dealing with this kind of contingency from 2008 on, while China consistently planned for such a contingency over time.[41]

The U.S., Chinese, and Russian systems are so different that there is no reason to assume that the Coronavirus will have the same impact on each power, and there is no clear way to estimate the differences. It should be noted, however, that so far China claims to have made earlier steps toward recovery. It also is the one power that did try to consistently implement a plan to deal effectively with a Coronavirus-like contingency before the virus appeared and reached pandemic proportions.[42]

If anything, the global opportunities opened up by the Coronavirus crisis make it more likely that China and Russia will continue to compete in strategic terms.

The Need to Integrate U.S. Military and Civil Strategy and to Focus on Global Competition

> "All men can see these tactics whereby I conquer, but what none can see is the strategy out of which victory is evolved...Be extremely subtle, even to the point of formlessness. Be extremely mysterious, even to the point of soundlessness. Thereby you can be the director of the opponent's fate." – Sun Tzu, The Art of War

Far too much current U.S. planning focuses on "worst case" wars rather than the ongoing reality that lower levels of military competition are now more common, far safer, and have demonstrated considerable success. This analysis has shown that the U.S. needs to revise its strategy to focus at least as much on the use of its military forces in gray area and limited operations by country and region on a global level. It has also shown that competition with China and Russia must be assessed on a civil-military level, and in ways that provide clear assessments of current trends and the requirement for the U.S. to act on grand strategic terms.

This requires major changes in the way the Department of Defense (DoD) now approaches the planning, programming, and budgeting, process (PPB) and in the ways the NSC, State Department, Homeland Defense, and the other civil departments and intelligence operations of the U.S. government now operate. It requires far better classified and open source analysis of all the ways in which China and Russia compete with the United States.

It requires better analysis of how their leadership and structures of government in China and Russia plan and operate such efforts. Key U.S. intelligence assessments – like the DIA's annual assessment of China's military power – do highlight the critical importance of China's economic growth. There does not seem to be any clear open source literature on how the Chinese and Russian government's plan and operate, other than their broad statements about national intentions and those of Xi and Putin.

A Look into Chinese and Russian Strategy

The assessment provides a wide range of Chinese and Russian gray zone operations. Although the strategies of each nation cannot be identified definitely, it is clear that both China and Russia are using gray zone operations to expand their influence as a great power.

To better understand the integration of civil, military, and economic gray zone operations by China, the following Burke Chair chronology on Chinese gray zone operations divides Chinese activities into the following campaigns,

> *The Belt and Road Initiative (BRI) campaign* is China's large-scale project to connect Asia, Africa, and Europe through both economic networks and physical infrastructure. China has partnered with the following countries for its Belt and Road Initiative: Russia, Pakistan, Bangladesh, Sri Lanka, Afghanistan, Nepal, Maldives, Bhutan, India, Mongolia, Indonesia, Thailand, Malaysia, Vietnam, Singapore, Philippines, Myanmar, Cambodia, Laos, Brunei, East Timor, Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, Tajikistan, Saudi Arabia, UAE, Oman, Iran, Turkey, Israel, Egypt, Kuwait, Iraq, Qatar, Jordan, Lebanon, Bahrain, Yemen, Syria, Palestine, Poland, Romania, Czech Republic, Slovakia, Bulgaria, Hungary, Latvia, Lithuania, Slovenia, Estonia, Croatia, Albania, Serbia, Macedonia, Montenegro, Bosnia and Herzegovina, Ukraine, Azerbaijan, Armenia, Belarus, Georgia, and Moldova.
>
> *The Trade War* campaign is the use of economic gray zone operations against the United States, which has devolved into a tit-for-tat exchange on traded goods between China and United States.

The Espionage campaign has historical pretense; however, China is now targeting the development of technological innovation from the United States, specifically, the Chinese tech giant, Huawei, is in direct competition with the United States to develop a 5G network.

The Disinformation campaign takes place in the United States, the European Union, Australia, and even South America to target any condemnation on China's role in the spread of Covid-19. The campaign is a larger sustained effort to manipulate information on social media platforms.

The Maritime campaign is China's geopolitical claim to artificial islands and maritime zones in the South China Sea. China conducts mostly negative gray zone operations, including aggressive military demonstrations of force and illegal construction of reefs.

The Russian-Relations campaign is China's attempt to align itself with Russia to compete with the United States and the West.

The Separatist campaign is China's response to separatist movements in Xinjiang, Hong Kong, Taiwan, and Tibet. These gray zone operations use economic deterrence, military shows of force, and political demonstrations of disapproval.

The Africa campaign enables China to exploit an expanding market in the African continent including access to natural resources and a port in Djibouti. Many of these countries are already part of the Belt and Road Initiative (BRI) however not all of these projects are part of the BRI campaign.

The Arctic campaign, which China sometimes refers to as the "Ice Silk Road," is the cooperation and development of science and trade with Arctic countries, specifically Russia.

The Burke Chair chronology on Russian gray zone operations also identifies Russian civil, military, and economic gray zone tactics into the following campaigns,

The Active Measures campaign is a broad influence campaign specifically against the United States. These gray zone operations range from espionage to cyber-attacks to election meddling.

The Broader West/EU campaign is similar to the Active Measures campaign, but it targets mainland Europe, and more specifically NATO. Gray zone operations also include espionage, cyber-attacks and meddling, but they also heavily use trade coercion and military demonstrations near NATO sites.

The Southeastern Europe/Western Balkans campaign is a more targeted campaign towards the geographical and cultural region that can be coerced to sharing favorable relations with Russia. Many of these countries either already have membership to the European Union and NATO or they have attempted to join, but these countries also have the opportunity to be influenced more heavily by Russia.

The Western Border campaign includes the Baltic states, Ukraine and Georgia. This campaign is more specific than the Near Abroad campaign because although these countries are also post-Soviet states, Russia uses more aggressive and negative gray zone operations, specifically the threat of territorial occupation.

The Near Abroad campaign use gray zone operations on states of the former Soviet Union (FSU) including Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan, Uzbekistan, Armenia, Azerbaijan, Belarus, and Moldova. Many of these operations involve positive trade unions and diplomatic relations.

The Syrian campaign is Russia's military efforts in the Syrian Civil War, which also involves Russia's relations with Turkey.

The Middle East campaign is Russia's attempt to expand its influence in the Middle East with the Gulf States, Israel and the Levant. There has been limited progress in this campaign, but it is still notable to track with Russia's presence in Syria.

The Sino-relations campaign is the Russia's attempt to develop a stronger relationship with China.

The Africa campaign has recently received high levels of attention by the Kremlin to expand its influence on the African continent. This campaign includes debt forgiveness, Russian access to natural resource, military training, and a practice ground for Russian private military companies (PMCs).

The Latin America campaign is Russia's expanding influence in the backyard of the United States. Although Russia has very novel relationship with most countries in Central America and South America, it has already developed notable relations with Venezuela, Cuba, and Nicaragua.

The Southeast Asia/India campaign is another upcoming campaign that expands Russia's relationship in the region. However, due to China's strong presence, Russia has only formed initial relationship although they do include some arms sales.

The Arctic campaign focuses on Russian gray zone operations to stake a claim to the natural resources and strategic military position in the Arctic.

Integrating U.S. and Civil Strategy

Above all, this requires a rethinking of how the U.S. government operates and what it needs to change to compete more effectively. The United States has never had the same focus on a state-driven exploitation of economic power as that of China and Russia. The U.S. focus on capitalism has tended to drive U.S. economic strategy to rely on making independent market forces as efficient as possible, rather than on setting government-driven strategies and programs for development, technology, and international competition.

This compartmentalization of strategy and the roles of government has been the American norm. The major exceptions have been World War I, the Great Depression, World War II, and the Great Recession. In all four cases, the U.S. federal government was forced by events to create a more unified approach to national strategy to at least some degree. It also did so to a lesser degree during the Cold War and in dealing with the Former Soviet Union (FSU).

There have been few signs, however, that the U.S. has adapted properly to the emergence of China and a more hostile and competitive Russia. The U.S. has only made limited efforts to integrate its military and civil strategy at a planning, analytical, or real-world level since the break-up of the FSU and the rise of China. American civil spending has focused on entitlements and mandatory spending. American politics have focused on relatively short-term domestic issues – mixing hot button ideological issues, partisan squabbling, and ongoing short-term adjustments in entitlement programs in dealing with the federal budget.

The "Great Recession" in 2008 – the main pre-Coronavirus crisis challenge in the post-Cold War era – did briefly force the U.S. to create a national recovery effort, but the effort focused almost completely on the recovery of the U.S. economy, rather than on politics and social issues instead of any effort to balance domestic civil spending and national security. If anything, the end result of the efforts to counter the recession was a period of high growth and economic success that focused the U.S. on the market and private sector development and growth of the domestic economy.

Focusing on the Right Aspects of Global Competition

As noted earlier, U.S. national security focused largely on the threat posed by terrorism and extremism, and it did so from roughly 2001 to 2017. This had a massive impact on U.S. defense spending and the U.S. economy, as well as on the readiness and structure of U.S. forces – an impact that was combined with the other limits and caps on spending imposed by the Budget Control Act.

As **Chart Twenty-Four** shows, an official Department of Defense (DoD) estimate of the direct military cost of the U.S. engagement in Afghanistan and Iraq from FY2001-FY2019 involved total obligations of over $1.8 billion, and this chart does not include the costs of State Department, USAID, CIA, or other civil department and agency spending. Actual direct spending came close

to $2 trillion by the end of FY2019, and the proposed Department of Defense budget for FY2021 indicates the Department requested $66 billion more in FY2020 and $53 billion more in FY2021.[43]

NGO estimates can be much higher. The Watson Institute at Brown University puts total military spending on Overseas Contingency Costs (OCO) at $1,959 billion during FY2001-FY2020, and it adds $131 billion in State Department costs; $8083 billion for added costs to the rest of the Defense budget; $926 billion in federal interest payments; $437 billion in Veteran's care; and $1,054 billion for Homeland security.[44] These costs go far beyond any normal way of counting federal expenditures, but both their analysis and the DoD's analysis compared to the amount of some $3.7 trillion in U.S. spending on the Coronavirus crisis as of May 10, 2020.

The net strategic impact of the Afghan and Iraq wars is still uncertain, but they have had an immense cost in lives and dollars. It is all too clear that they were conducted without any consistent strategy and little regard for strategic competition. The U.S. became involved in two decades of combat in Afghanistan, in a country where Russia, China, Iran, and Pakistan all have major strategic interests in Afghanistan's stability. The grand strategic need for a U.S. commitment of the kind that the U.S. made is dubious at best, and the current peace efforts offer little hope of lasting stability for Afghanistan. The net regional impact has resulted in pushing Pakistan closer to China and easing regional pressure on both China and Russia.

The strategic impact of the invasion in Iraq for the wrong reasons have been equally uncertain. It has greatly increased Iran's relative military position in the Middle East and its influence in Iraq and the Levant. The U.S. failure to act decisively in Syria opened it up to a major Russian presence and increase in regional influence. The net strategic benefits to the U.S. will only exceed the net strategic benefits to Russia if the U.S. can establish a lasting and stable relationship with Iraq.

More broadly, the lack of any consistent U.S. approach to the region and competition with Russia has produced at least some impact on Russia's actions in the Ukraine, its growing influence in Turkey, its arms sales to Iran, the instability in Libya, and China's decisions to increase its presence in the Red Sea and Djibouti.

The changes in the U.S. strategy in 2017 have led the United States to increasingly focus on Chinese and Russian military forces, but it is far from clear that they have had a positive effect in dealing with these critical real-world challenges. The U.S. has not demonstrated that it can effectively tie is regional strategies to its strategies for competing with China and Russia. This will be even more critical in the world that will emerge from the Coronavirus crisis. Nation after nation will have major new stability problems as a result of the economic cost of the crisis, and they will be more vulnerable to outside investments and to spoiler operations by China and Russia. Nature may abhor a vacuum, but power exploits one.

The U.S. has also largely separated its military and economic efforts in dealing with each state, and it has largely decoupled its strategy for fighting its current wars from this competition. The U.S. has talked about rebalancing U.S. strategy and military forces to deal with China's emerging military power, but it has focused separately on trade issues in dealing with China's economic rise.

The U.S. did react to Russia's increased military pressure once Russia seized Crimea and sent "green men" into the Ukraine in late February 2014, and it also did combine economic sanctions and a shift back to a concern with NATO, but its strategic focus on Russia has been relatively narrow and is still short term.

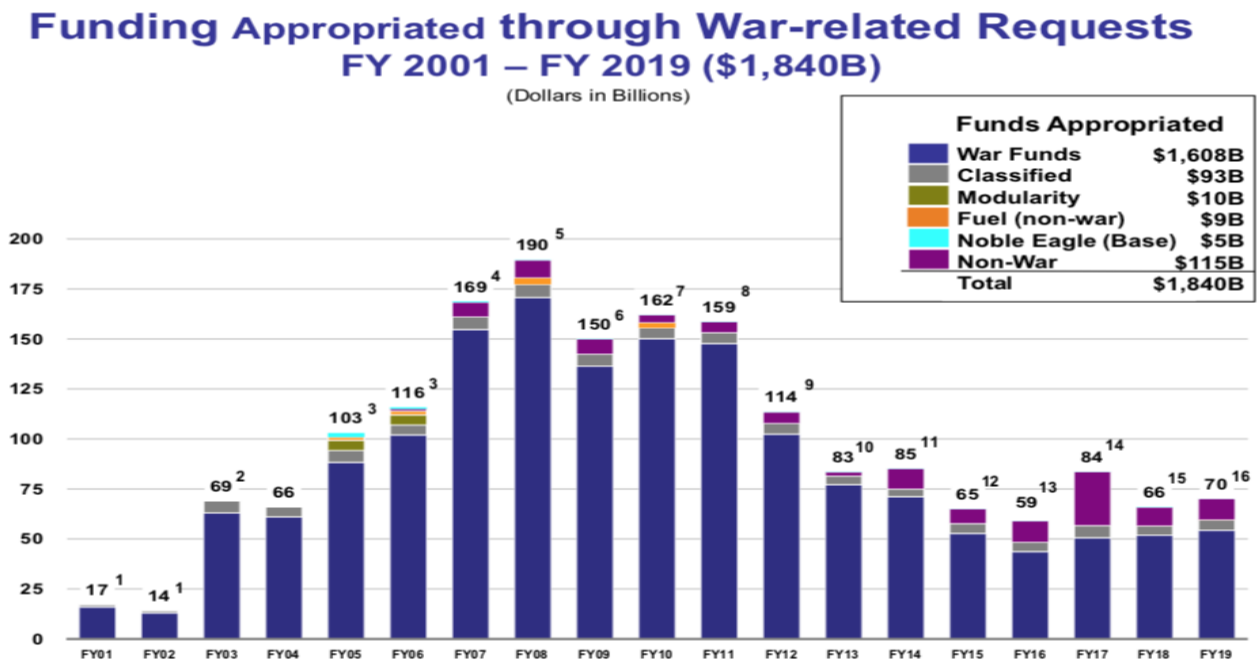
At the same time, for all the alarms this analysis raises about Chinese and Russian capabilities in gray zone operations, Russia and China have their own vulnerabilities, which the United States must exploit. For example, China's Belt and Road Initiative often provides loans or projects that exploit the country involved, providing an opportunity for a U.S. response. These include a wide range of Chinese deals with African and Asian nations, that are outlined in the **Chinese Chronology**, that may provide leverage in one country or area but provoke anger in other states.

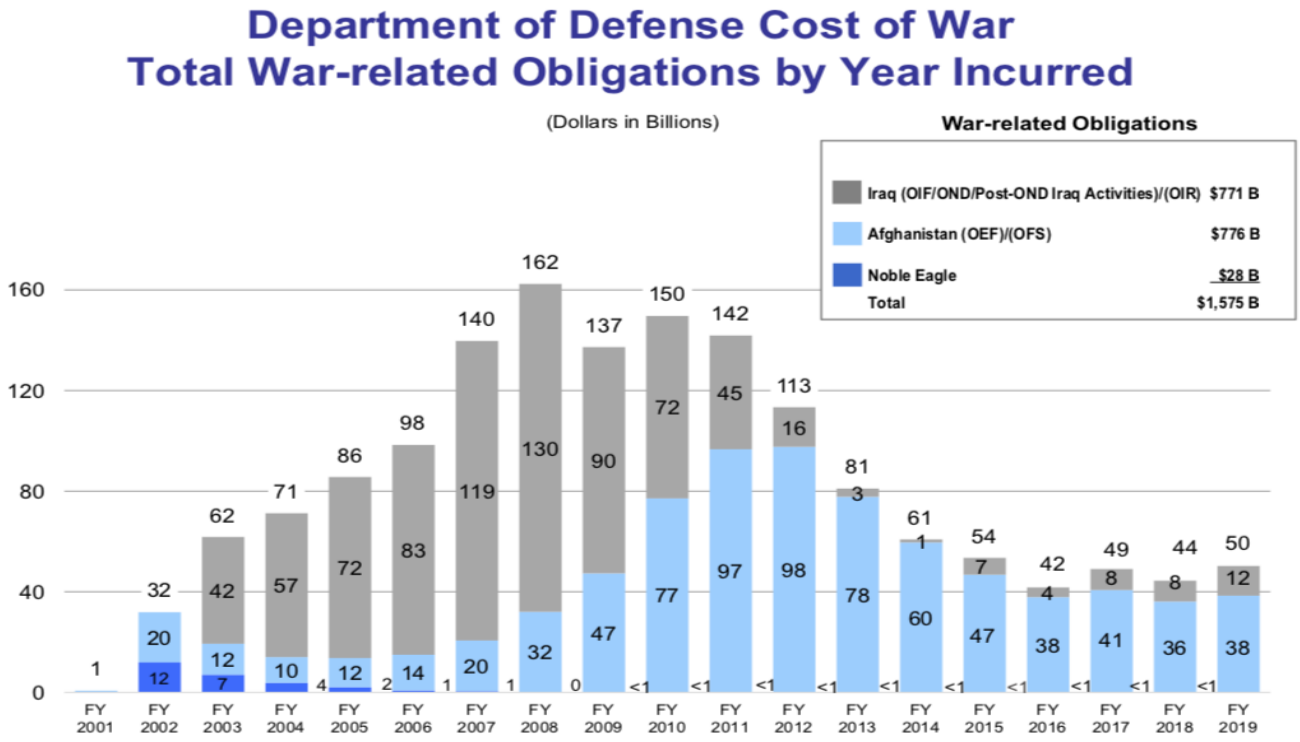
Russia is attempting to claim a role as an international mediator, but by doing so, it has taken on the difficult task of appeasing both its Syrian and Turkish relations in a volatile war in Syria. Russia cannot operate in the Balkans, export gas, attempt to manipulate world energy prices, carry out information warfare, or interfere in foreign elections without provoking other states, thereby offering the United States an opportunity to strengthen U.S. strategic partnerships and take countermeasures.

The U.S. has the advantage when it comes to having strategic partners and operating in free markets. It does not have to imitate Chinese and Russian gray zone tactics, and it can often take advantage of its already existing military strengths, allied partnerships, and development programs. Arguably, most nations would rather work with a willing U.S. than a less capable Russia or China, but it is clear that some countries have accepted to partner with the "next best thing" after observing an increasingly neo-isolationist United States.

At the same time, the United States should actively counter aggressive Chinese or Russian gray zone operations. For example, the U.S. should actively resist Chinese aggression in the South China Sea and Russian intimidation in Europe and Central Asia where U.S. allies or interests are threatened. It should also assign a high priority to recognizing and identifying gray zone operations, which sometimes can be concealed as harmless forms of competition. However, it is clear that the U.S. is losing significant status as a global competitor by turning a blind eye to acts of gray zone operations.

Chart Twenty-Four: Department of Defense Cost of War Report as of September 30, 2019: FY2001-FY2020





Source: Department of Defense, "FY 2019 Quarter 4 Cost of War Update as of September 30, 2019," September 30, 2019, https://fas.org/man/eprint/cow/fy2019q4.pdf

The Role of Cooperation amidst Great Power Competition

Great power competition and cooperation are not mutually exclusive. With the nature of gray zone and hybrid "warfare" not operating in a clear state of war, the United States will need to engage in both competition and cooperation in order to assert and keep its influence.

In 2018, the Joint Chiefs of Staff released the *Joint Concept for Integrated Campaigning*, which defines the current operating space in three states of relations:

1. In *armed conflict*, the use of violence is the primary means by which an actor seeks to satisfy its interests. Armed conflict varies in intensity and ranges from limited warfare to major wars between great powers.
2. *Competition* below armed conflict exists when two or more actors in the international system have incompatible interests but neither seeks to escalate to armed conflict. The Joint Force will have a great deal of utility in securing strategic objectives in competition, but it will typically offer support to other USG departments and actors.
3. *Cooperation* includes mutually beneficial relationships between strategic actors with similar or compatible interests. Although interests will only rarely be in complete alignment, relations that are fundamentally cooperative are strategically important for the United States because they underpin the international order, enhance collective security, help to ensure access, enable burden-sharing, and deter conflict.

The U.S. is increasingly focusing its efforts on competition, and it is neglecting the opportunities provided by cooperation with Russia and China. Not only does the current U.S.-China trade war severely undermine the global economy, but it severs China's dependence on U.S. industries and supports China's growing relationship with third parties like Russia or the Gulf countries. The U.S. also recently announced it would leave the Open Skies Treaty (OST), thereby cutting off another channel of communication with Russia.

The U.S. can simultaneously carry out competition and cooperation in ways that both reduce an escalation of conflict and assert U.S. priorities. Against China's growing maritime power, the U.S. can renounce the development of artificial islands in the South China Sea while also partnering with Chinese counter-piracy operations in the Indian Ocean. The U.S. can enhance its competition with Russia's nuclear development program by cooperating with Moscow to enact the New START accord.

Looking Beyond Competition with China and Russia

This analysis – and the chronologies that support this study – show that Russia and China have chosen very different approaches. It shows that they have made a more effective effort to use gray area and low-level operations, and to combine military and economic strategy. This is particularly true of China, which has become the main rival of the United States.

Here, it is critical to note that this is a study of competition between the U.S. with China and Russia – the world's two leading powers. It has touched upon global and regional issues largely in terms of how the three nations compete – and focused on Europe, Asia, and the Middle East in these terms. It is not a study of the overall patterns in international relations and the broader global balance of power

Chart Twenty-Five helps put the differences of this competition between the world's major military powers into a global perspective. The data are subject to all of the same types of problems in data collection, definition, and methodology cited earlier, but it is still clear that the only area where the U.S., China, and Russia truly dominate global activity is in their holdings of nuclear weapons – in which the estimates shown indicate that they hold 81.2% of deployed weapons and 93.8% of all nuclear weapons.

The U.S., China, and Russia only account for 42% of the estimate shown for the world's GNI and only 24.2% of the world's total population, although the three major powers do account for 56% of the IISS estimate of the world's defense budgets and 55% of the SIPRI estimate of the world's total defense spending.

It is important to note that the United States has major current advantages when competition is judged at the global level, rather than on a power to power basis, only *if* the U.S. acts to preserve these advantages and deal with the massive global impacts of the Coronavirus. The U.S. has a wide range of allies and trading partners, and far stronger networks of alliances than China and Russia. These are reflected in the structure of its combatant commands and every aspect of its trade, economy, and diplomatic relations. These partnerships with other states are not – as U.S. actions have recently tended to assume – transactional burdens. They offer major strategic advantages and further reasons to look beyond designing U.S. forces to deal directly with the potential threat from Russia and China.

As such, they are the proper focus of a much broader analysis of U.S. civil and military strategy, but a few key points illustrate their importance. Once again, such comparisons do not reflect the major uncertainties in quantifying the data involved and in addressing all of the strengths and weaknesses of such relationships. They do not reflect key issues like interoperability and the credibility and capability of given partnerships and alliances. They do not examine the changing patterns of trade and economic relationships.

But, even simple comparisons of GDP and military spending illustrate their importance. To put such burden sharing efforts in real world perspective, the International Institute of Strategic Studies (IISS) estimates that Russia had a defense budget of $48.2 billion in 2019 and defense expenditures of $61.6 billion.[45] These figures are not directly comparable to NATO official figures, but they still provide a good indication of the relative size of Russian and NATO efforts.

If one uses the $61.6 billion total figure for Russian military spending with NATO estimates that the U.S. spending alone was $730.1 billion in current 2019 $US, then the U.S. spending was 11.9 times higher than the IISS figure for Russia's spending. This makes it a far better case for examining the comparative allocation of resources – and the effectiveness of such spending on each side – than just asking for more money for the U.S. defense budget.

But here, NATO Europe also compares remarkably well with Russia. NATO reports that NATO Europe spent $284.0 billion on defense in current dollars in 2019. This was 4.6 times more than total Russian spending. It is also worth pointing out that Germany alone spent $54.1 billion (88% of the Russian total), France spent $50.7 billion or (82% of the Russian total), and the U.K. spent $60.7 billion or (99% of the Russian total). And, if Canada is included among our allies, the total comes to $305.9 billion or 5.0 times more than Russia.

The official NATO estimate of total spending in 2019 was $984.2 billion or 16.0 times higher than Russia's spending.[46] Russia has no meaningful strategic partners in terms of military spending.[47] The closest thing Russia has to a direct ally is Belarus, and it only spent $.136 billion on military forces in 2019. Given these figures, the value of our NATO strategic partners becomes far more clear, and the priority for effective force planning again is obviously far greater than meeting arbitrary percentage of GDP goals for burden sharing.

When it comes to economic resources, the issue is equally clear. The NATO estimate of the size of each member country's economy or GDP is reported in constant dollars, and uses a metric called

"Real GDP" based upon 2015 prices and exchange rates. It estimates the U.S. GDP as being $20.004 trillion in 2019, and the GDP of its NATO European allies GDP as being $17.568 trillion – raising the U.S. total to $37.572 trillion or by 88%.[48] The IISS puts Russia's GDP in 2019 at only $1.64 trillion in 2019 – a little over 4% of the total NATO GDP of $39.243 trillion and 9.3% of the NATO European total.[49] Belarus only had a GDP of $62.6 billion.

And the dollar value of strategic partners is scarcely confined to Europe. The figures for Asia are less clear because there are no equivalent official sources of comparable data as there is for NATO. The IISS estimates, however, show that key strategic partners like Australia spent $25.5 billion on defense in 2019, Japan spent $48.5 billion, South Korea spent $38.8 billion, New Zealand spent $2.7 billion, Singapore spent $11.3 billion, and Thailand spent $7.1 billion. Defense spending by these U.S. strategic partners totals to $133.9 billion, and this compares with an IISS estimate of $181.1 billion for China.

Two other key powers that have security issues with China include India ($60.5 billion) and Vietnam ($5.2 billion). If they are added to the total, China faced other Asian states that spent $199.6 billion compared to $181.1 billion for China. And the IISS estimates that China only accounted for 42% of all Asian defense spending in 2019.[50] Even allowing for Chinese underreporting of its military spending – and other estimates for China that go as high as $250 billion a year – these strategic partner spending levels are still very significant figures.

The figures for the Middle East show the same trends. Key strategic partners like Bahrain spent $1.5 billion in 2019, Egypt spent $3.4 billion, Israel spent $19.7 billion, Jordan spent $1.7 billion, Kuwait spent $6.4 billion, Morocco spent $3.6 billion, and Saudi Arabia spent $78.4 billion. Two other key partners with high spending levels – Qatar and the UAE –- did not report, but this still produces a total of $114.7 billion. Iraq – which may become a U.S. partner – spent another $20.5 billion. This compares with $17.4 billion for a hostile Iran.[51]

To put it simply, the U.S. is far better off working with its allies and other states – particularly in view of the Coronavirus crisis – than it is by ignoring them, by alienating them through burden sharing bullying, by arbitrarily cutting the forces the U.S. deploys, or by dropping out of treaties and regional agreements like the Trans-Pacific Partnership (TPP) Agreement.

Chart Twenty-Five: U.S., China, and Russia Compared to the World in 2019

Category	U.S.		China		Russia		World
	Value	%of World	Value	%of World	Value	%of World	Total
Nuclear Weapons							
Retired	2060	52%.	-	NA	2,000	49%	4,060
Stockpiled	4,310	53%	-	-	3,800	47%	8,110
Deployed	1,572	35%	320	7.2%	1,750	39%	4,442
Total [a]	6,370	48%	320	2.4%	5,800	43%	13,410
Defense Budget							
IISS	684.6	40%	181.2	10.5%	48.2	2.8%	1,732.2
Defense Spending							
SIPRI	731.8	38%	261.1	13.6%	65.1	3.4%	1,917.0
GDP							
$US current Trillions	20,554	23.9%	13,698	15.9%	1.658	1.9%	85,910
Population							
Millions	332.6	4.3%	1,394.0	18.1%	141.7	1.8%	7684.3

[a] **Adds France (290), UK (195), Pakistan (160), India (150), Israel (90), and DPRK (35).**

Source: Hans M. Kristensen and Matt Korda, "Status of World Nuclear Forces" https://fas.org/wp-content/uploads/2020/04/WarheadInventories2020-1.jpg; IISS "Defense budget data," *Military Balance, 2020*, pp. 529-530.; SIPRI, "Military Expenditure in Current $US millions," SIPRI Military Expenditure Database; SIPRI "Fact Sheet April 2020: Trends in world military expenditure," April 27, 2020.; World Bank, "GDP (current US$)" https://data.worldbank.org/indicator/NY.GDP.MKTP.CD; CIA *World Factbook*, Country Sections, https://www.cia.gov/library/publications/the-world-factbook/

Five Critical Priorities for Strategic Competition

The renewed focus on gray zone operations has opened up discussions for a new U.S. approach to global competition. It is apparent that these tactics run the whole gamut of competition from the non-violent civil sector to the low levels of violence in the military sphere. Whether the strategists and policymakers intend to label gray zone operations as a new form of war, it is most important to recognize and react to *all* the gray zone operations conducted by China and Russia that aim to challenge U.S. influence.

If the United States is to develop a more effective approach to national security strategy, it needs to look beyond the need to focus on military competition. *It needs to focus on all gray area civil and military operations and develop suitable strategies for each country and region by using major combatant commands.* It needs to give the right priority to the abilities of the functional commands to support such operations – including the Strategic and Space Commands to provide mutual assured deterrence (MAD).

The United States needs to focus on building and strengthening strategic partnerships in ways that look far beyond the narrow area of direct U.S. competition with China and Russia. It needs to seek a broad allied recovery from the Coronavirus crisis as a key strategic objective and to find ways to work with its strategic partners and allies to contain and deter Chinese and Russian competitive efforts and push them towards global cooperation where possible.

The U.S. must first identify the Chinese and Russian use of all civil, military, and economic gray zone tactics and their accumulating impact on a given strategic interest. The U.S. cannot ignore the destabilizing activities of Russian and Chinese gray zone operations due to its own compartmentalization of civil, economic, and military actions.

Above all, the U.S. needs to focus on military, civil, and economic competition in order to develop integrated strategy based on net assessments that address all areas of competition together. The U.S. needs to respond by directly comparing its capabilities to deter, conducting gray area and lower-level military operations, and providing economic growth and development.

Finally, the United States needs a whole of government approach to making joint military and economic assessments in the ways similar to which China, Russia, and other states compete with the United State and its strategic partners. These are not priorities the U.S. can ignore because of the Coronavirus crisis. If anything, the crisis makes them far more urgent.

The issues in the U.S. strategy and the present U.S. planning, programming, and Budgeting process (PPB) are addressed in more detail in four other Burke Chair studies:

- ***The FY2021 U.S. Defense Budget Request: A Dysfunctional Set of Strategic Blunders***, February 13, 2020, https://www.csis.org/analysis/fy2021-us-defense-budget-request-dysfunctional-set-strategic-blunders.

- ***America's FY2020 Defense Strategy and Programming Crisis***, November 13, 2018, https://www.csis.org/analysis/americas-fy2020-defense-strategy-and-programming-crisis

- ***China and the U.S.: Cooperation, Competition and/or Conflict: An Experimental Assessment*, October 1, 2019, https://www.csis.org/analysis/china-and-united-states-cooperation-competition-andor-conflict.**

- ***China and the New Strategic Nuclear Arms Race: The Forces Driving the Creation of New Chinese Nuclear Delivery Systems, Nuclear Weapons, and Strategy*, November 15, 2018, https://www.csis.org/analysis/china-and-new-strategic-nuclear-arms-race.**

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