

An Expanded View of Cost Imposition

Application to Personnel and Nondefense Policies

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Cost imposition warfare is a two-sided affair. Offensive cost imposition increases adversaries' cost burden per capability. Defensive cost imposition decreases our cost burden per capability. The cost burden of a given capability can be changed by changing the direct costs of the capability, such as decreasing the cost of the F-35 or by changing the burden of that cost, such as increasing the gross domestic product (GDP) and thereby decreasing the cost ratio of an F-35 relative to the GDP.

Cost imposition is most often viewed through an equipment lens. However, personnel costs comprise 37 percent of global military spending, and nondefense spending comprises nearly 98 percent of the world's economy.¹ We consider the United States' strategic position of relative to several competitors in terms of military personnel and nondefense policies, particularly regarding China's vast population and rapidly improving economy.

We find that the US's defensive position in personnel costs is relatively strong due to the US's large population and economic power. We suggest several policy changes to improve our defensive posture even more by reducing US military personnel costs, including a partner-focused approach to building personnel capacity. We also propose an offensive cost imposing strategy: an information campaign to pressure competitors to improve health care for their veterans to bring lifetime troop costs closer to the US's costs.

For nondefense policies, we broadly examine US policies on immigration and health care in terms of defensive cost imposition. We find that immigration is an extremely important factor in future national power. While the United Nations World Population Prospects (WPP) projects that the population of China, India, and the European Union will peak within the next 50 years, the United States population is projected to continue growing through 2100.² More immigration in the present means increased economic strength, a lower cost burden of defense spending, and a higher troop capacity in the future. The magnitude of the changes grows exponentially from the moment immigration reform is enacted, so near-term immigration changes have much stronger effects on future power than if the changes are enacted later. Projecting a simplified budgetary model into 2100, a

zero-migration model results in \$713 billion less in annual defense spending (FY20\$), whereas doubling the immigration rate results in \$1,025 billion more in annual defense spending (FY20\$). National health care reform would also significantly reduce the cost burden of defense spending with more immediate effect. If the United States reformed its health care system into one typical of other developed nations, it would substantially reduce health care costs. If these savings were distributed proportionally among nonhealth care expenditures, the defense budget could be increased by \$50B annually. Additionally, it would improve health care outcomes and increase American resilience. We also look at future global population trends to inform potentially strategic future alliances.

Personnel Cost Imposition

Early discussion on cost imposition focused on comparing direct cost (not cost burden) per capability. Although more recent treatments identify systemic costs of acquisition programs, the focus remains on platforms and weapons.³ Personnel costs, however, are 37 percent of global military spending. Although the proportion of the Air Force budget devoted to personnel has decreased from 24 percent in 2014 to 20 percent in 2019, plans to increase the size of the force and competition from civilian employers will likely increase the cost of Air Force personnel on both a per capita and an aggregate basis.⁴

America Has the Personnel Advantage

A strategy of building exquisite systems with a large technological offset against adversaries is vulnerable to cost imposition through technical espionage. An adversary can acquire sophisticated technological documentation without decades of research and development, achieving a near-equivalent capability at a fraction of the cost. China has been successful at stealing American technology, including some F-35 information.⁵ To maintain a technological offset, the US then has to invest further resources in research and development.

An offset in military personnel capability does not share the same liability. Our professional development curriculum is already publicly available on the internet, but one cannot steal an experienced avionics maintainer. Adversaries must build up their personnel. The capability offset in the personnel space is as crucial as the capability offset in technology.

Global Personnel Context

At first glance, the US appears to be poorly positioned in the personnel space. In 2017, China had more than twice as many troops as the US and spent about

one quarter as much per troop.⁶ If the US were to spend as much per troop as China, we could have 1.2 million more Airmen without increasing spending.⁷ In 2017, the United States fielded the fourth largest armed forces in the world by the total number of personnel. The three above us, in order, are India, China, and Russia (see fig. 1a).⁸

A different picture emerges if we consider a more expansive view of cost burden in the personnel space: labor force burden or the size of the armed forces relative to the size of the labor force. A labor force varies with the overall population size and the demographic structure of the population. Countries with large military-age populations can field larger armed forces with less burden and competition from nonmilitary employers. Figure 1b shows that, despite the large size of the armed forces of the United States, China, and India, their military forces make up a relatively small proportion of the labor force at less than 1 percent of all working-age people. On the other hand, Iran and Russia, rank relatively high in terms of both absolute size and percent of the labor force. The relatively high military burden on the labor force in Iran and Russia may constrain their abilities to increase the size of their armed forces from current levels.

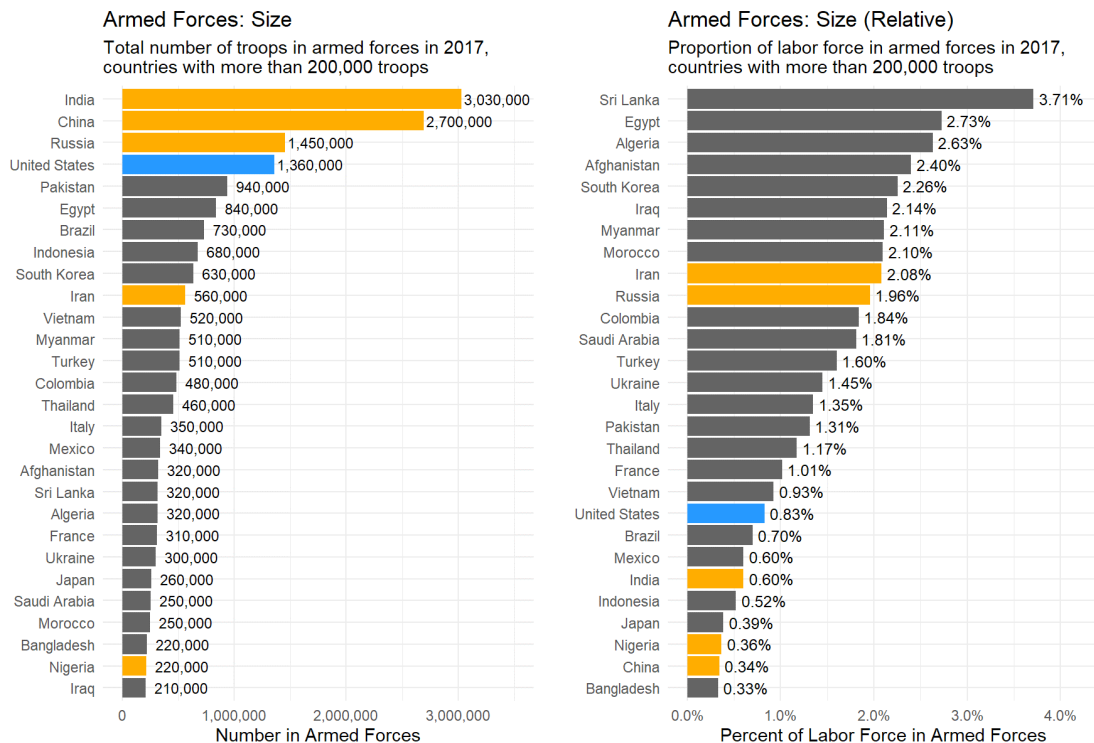


Figure 1. Total size of armed forces in 2017 for countries with more than 200,000 troops
Janes, "Defence Budget Trends"

The armed forces cost also varies considerably across nations. If we consider countries with more than 200,000 troops in their military forces, the United States ranks second for spending per troop (see fig. 2a).⁹ Only Saudi Arabia outspends the United States on its military personnel. Japan, France, and Italy, also wealthy countries, are respectively the third, fourth, and fifth in spending per troop. China, in sixth, spends nearly 50 percent less per troop than Italy. Saudi Arabia spends over \$100,000 per troop, while the poorest countries spend less than \$5,000 per troop.

However, if we again put the raw metrics in context, we see a more meaningful relationship across countries. Converting the raw spending into the percent of GDP spent per troop better measures the financial burden associated with military personnel (see fig. 2b). Some countries, like Saudi Arabia, Iran, and Nigeria, rank similarly in terms of raw spending and relative spending. However, the US, China, and India all rank much lower in relative personnel spending than in raw spending.

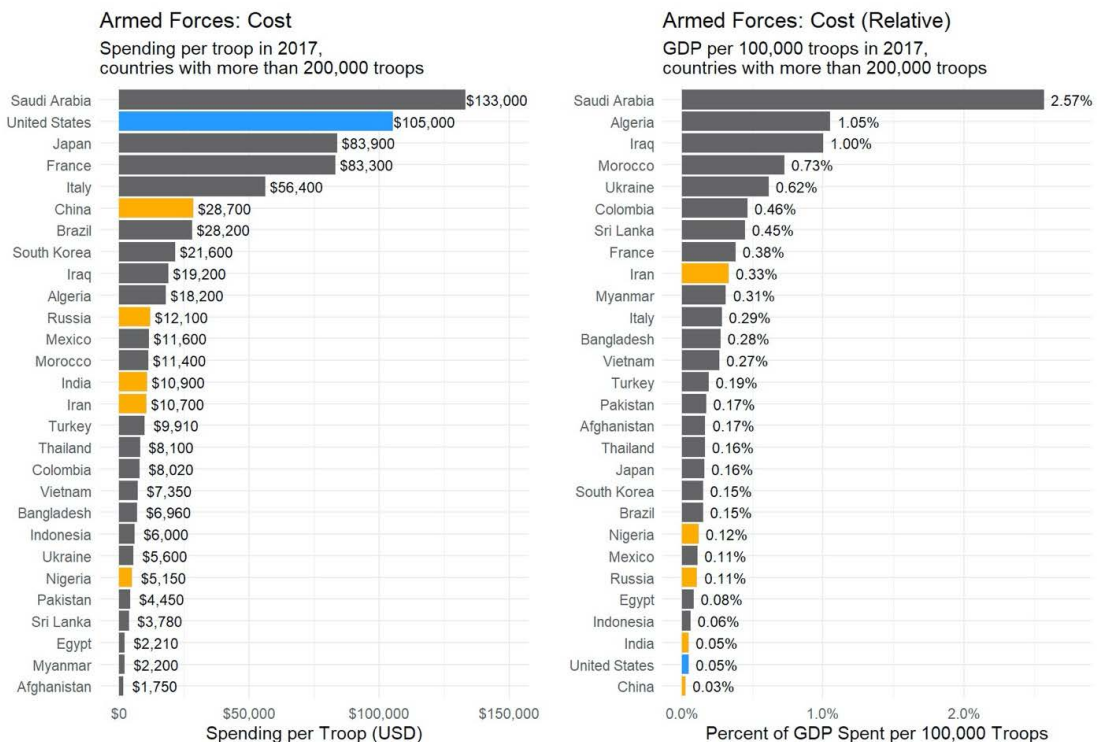


Figure 2. Total cost of armed forces in 2017 for countries with more than 200,000 troops
Janes, “Defence Budget Trends”; and *World Bank*, “World Bank Open Data”

The low relative burden for US troop spending weakens the argument that military personnel spending is crowding out modernization or readiness. Personnel spending relative to defense budgets is also favorable for the United States. In 2018, the US spent 19.7 percent of its Air Force budget on personnel, while China spent 28.7 percent, and Russia spent 34.1 percent.¹⁰ Health care costs, and particularly veterans' health care costs, should be addressed, but the US has more room for improvement than any other rich nation, which is further examined later. From a financial and capacity perspective, the US is better positioned than many competing nations to bear the costs of shocks that require increased troop levels.

More American Boots for the Buck

In the face of these global trends, there are several whole-of-government strategies the US can take to defend against cost imposition strategies in the personnel space. The department has already started several personnel cost reduction efforts that should expand. A disproportionately small group of military members bear the most severe psychological and physical costs of combat. By focusing our compensation system more directly on those members, we can achieve lower personnel costs in a fair and honorable way.

The blended retirement system is a principal example of a system that reduces costs while increasing fairness. In 2012, 83 percent of military members served their country without retiring and receiving a pension.¹¹ The majority of service members are now eligible for matching savings to support retirement funding. This program should continue to be expanded by shifting more funding from the defined benefit to matching retirement savings with early vesting.

Veterans' health care costs could be reprioritized in a similar way. Since 11 September 2001, about 1 percent of troops have been wounded in action.¹² Shifting spending from the large majority of troops that have not been wounded in combat or training to those that have would focus our care on those that need it most. Deciding the disability status percentage for a veteran or making trade-offs between different types of veteran care is ethically and politically challenging. The Arlington National Cemetery's careful outreach to stakeholders and deliberative, public process provides a model for overcoming the hurdles associated with prioritizing veterans' equities. However, the best way to reduce the cost of veterans' health care is to reduce the cost of all Americans' health care, which is discussed later.

The lack of differentiation in military pay is another opportunity for cost savings while improving fairness. Recent innovations in Air Force talent management move in this direction: merit-ordered promotions, zone agnostic promotions, and

competitive categories. As the Air Force measures the impact of the changes, further expansion may be beneficial. For example, the promotion pool could be expanded from five to seven years to allow further flexibility in the promotion process. Differentiation through competitive categories could also be expanded with differential pay between career fields and within career fields. The Congressional Budget Office estimates that the Department of Defense could replace 0.5 percentage points of annual raises in base pay with bonuses to save more than \$3 billion from 2021–25 without negatively impacting force strength.¹³ Savings of that size equate to approximately 30,000 additional troops at recent per capita costs.

Career field-based bonuses allow for rudimentary distinction between career fields, but there remain large differences in supply, demand, and talent among the career fields. Shifting from the same base pay for all members of a given rank would allow the Air Force to optimize its compensation structure to attract talent in career fields that are most stressed while taking risks elsewhere. Similarly, the Air Force civilian performance-based bonus system could be expanded to uniformed officers. Performance-based bonuses incentivize better results and can be used to retain critical talent. For both civilians and uniformed members, the bonus system could be expanded from the current standard of 10 percent of base pay.¹⁴ For any of these reallocation strategies to reduce cost, we need to slow the growth in base pay.

The current military pay system mirrors civilian federal pay. A CBO report shows that the least educated federal workers (high school diploma or less) make 53 percent more in total compensation (salary plus benefits) than similarly educated private sector employees, while the most educated federal workers (professional degree or doctorate) make 18 percent less than similarly educated private sector employees.¹⁵ The low salary for the most educated workers is frequently cited as a major reason why the federal government fails to hire and retain highly skilled workers.¹⁶

Building a Partner Force

While US troops are relatively expensive in absolute terms, many of our partner nations have affordable troops and currently spend a low proportion of their GDP on each troop. In the Indo-Pacific theater, Indonesia, India, and South Korea spend 6 percent, 10 percent, and 21 percent as much on each troop as America, respectively. India and Indonesia also rank low in the percent of GDP spent per troop. By increasing troop capacity in low-cost partner nations, we can decrease the average cost burden of a troop from our combined network of alliances. In addition to traditional foreign military sales and funding, agreements on the size of partner nations' armed forces would allow us to achieve a mix of affordable and

expensive military personnel to address shared challenges. This is analogous to a high-low mix in the equipment realm.

Furthermore, although it is not easy for a competitor to copy a fully trained troop, we can add partner personnel to our training and education programs at a very low marginal cost. Thus, in addition to funding personnel capacity affordably through partners, we can also improve partner capability affordably through our existing training and education institutions. This approach carries risks as partner interests and US interests will never completely align, but in areas of shared interest, the opportunity outweighs the risks. This partnering strategy allows the US to expand both combined allied capacity and capability in a cost-effective way. The Air Force has a long history of partner aircrew training. Despite recent security challenges, these programs should be expanded in quantity and breadth, applying to cyber, space, acquisitions, support, medical, and legal career families.

Competitors that lack our robust network of alliances will not be able to respond in the same way and will instead have to invest heavily in their own personnel capacity and capability. Like all cost imposition strategies, however, there are second-order risks. Adversaries may instead try to build their own alliance network, which could pose new threats.

Cost Imposition on Adversaries

In many respects, technologically advanced nations are in a defensive posture with respect to cost imposition. In the personnel space, however, we have an opportunity to go on the offensive and impose costs on our competitors. This opportunity requires a delicately balanced response that imposes financial costs without disregarding American values. There are diplomatic and informational actions the US can design to impose personnel costs on competitors.

We propose the use of diplomatic and informational actions to wage an influence campaign on competitors to pressure them to provide higher-quality health care for their veterans. This approach imposes costs on adversaries without increasing their military capabilities or conflicting with American values and international law.¹⁷ In the diplomatic sphere, the US should publicly pressure competitors to improve veterans' health care in trade negotiations and political meetings. It will be politically difficult for foreign leaders to explicitly push back against improving veterans' health care. Concurrently, an inform, influence, and persuade campaign to highlight failures or lapses in veterans' health in competitor countries would further increase domestic pressure to divert spending from other military efforts to veteran care. Improved health care may make military service

more attractive and improve the quality of recruits, but this is a relatively mild second-order effect.

Nondefense Policies' Effect on National Power

A nation's strength lies in much more than pure military muscle. An effective cost imposition strategy must therefore take into account whole-of-government instruments of power in addition to military policies. A significant component of national strength is economic strength, and the economic strength mostly derives from the size, income, and wealth of the national population.

Lasting national strength comes from a strong society and a strong people. This strength is illustrated throughout the twentieth century. Protracted conflicts, like World War I and World War II, require a whole-of-society effort. Accordingly, to win a long military conflict, whole-of-government policies can become the key to winning. Protracted strategic competition, like the Cold War, also requires a whole-of-society effort. This war was fought almost entirely on a national strategic level rather than through direct military conflict. Defense policies played an obvious role, especially in deterring direct conflict, but nondefense policies won the day. In both military and societal conflict, population size is a force unto its own. The Korean War exemplified the power of sheer numbers as the combined North Korean and Chinese forces were able to advance against a technologically superior, but smaller, United Nations force, eventually fighting the war to a draw. Finally, every major American war in the twentieth century relied on a strong network of allies. As the world moves from a unipolar world back to a multipolar world, strong, strategic alliances will only become more important.

Maintaining long-term American *military* superiority and competitiveness requires strong *nondefense* strategic policies. We look at how population trends, immigration, alliances, and health care can affect a nation's future military power and overall power through a cost imposition lens.

The World is Getting Older

The 2018 *National Defense Strategy* (NDS) finds the world entering a new era of competition with China and Russia identified as strategic competitors. Although there is a strategic imperative to compete, the overarching NDS objective is to achieve "transparency and non-aggression" in the military relationship between the US and China.¹⁸ China's enormous population and rapidly growing economy make it a new and unique challenge to America's post-Cold War national security

position. China's ascendance necessitates a carefully balanced whole-of-government strategy to compete strategically while avoiding mutually destructive military aggression. However, China faces a suite of its own, unique challenges in regard to its demographic structure. Long-term population projections also suggest the emergence of new great powers decades into the future, particularly India.

The United Nations releases periodic estimates of past and future populations by country for the time period 1950-2100. For this study, we used the United Nation's 2019 Revision of World Population Prospects.¹⁹ Past population estimates are usually based on official national data sources, such as censuses. Several future projection variants are also calculated based on varying values of fertility rates, mortality rates, and migration rates. For our standard future projection, we use the medium-variant projection, which is the median of thousands of individual projections and is generally recommended for standard projection.

In the remainder of the twenty-first century, most countries are projected to enter into population decline, from which only a few will stabilize or reverse back into slight population growth by 2100. Population decline will challenge national economies and introduce significant cost pressures on defense budgets. Nearly all countries that experience population increases throughout the twenty-first century are developing, although many currently developing countries will also see population decline later in the century. China is one such nation.

China

China is now the most populous country in the world at 1.47 billion people (including Macau and Hong Kong but excluding Taiwan). According to WPP projections, however, China is nearly at its peak population (see fig. 3a).²⁰ After reaching a peak of 1.50 billion people in 2031, China's population will begin a decades' long decline primarily due to a low fertility rate. Emigration also plays a minor role in China's imminently shrinking population.

A few other countries have already entered population decline, most notably Japan, which has been shrinking since it peaked in 2009. The European Union (EU), based on current membership, is expected to peak in population in 2021. The United States, on the other hand, is expected to experience population growth throughout the twenty-first century; this is examined further later. Under current projections, the North Atlantic Treaty Organization's (NATO) population will almost match China's by 2100.

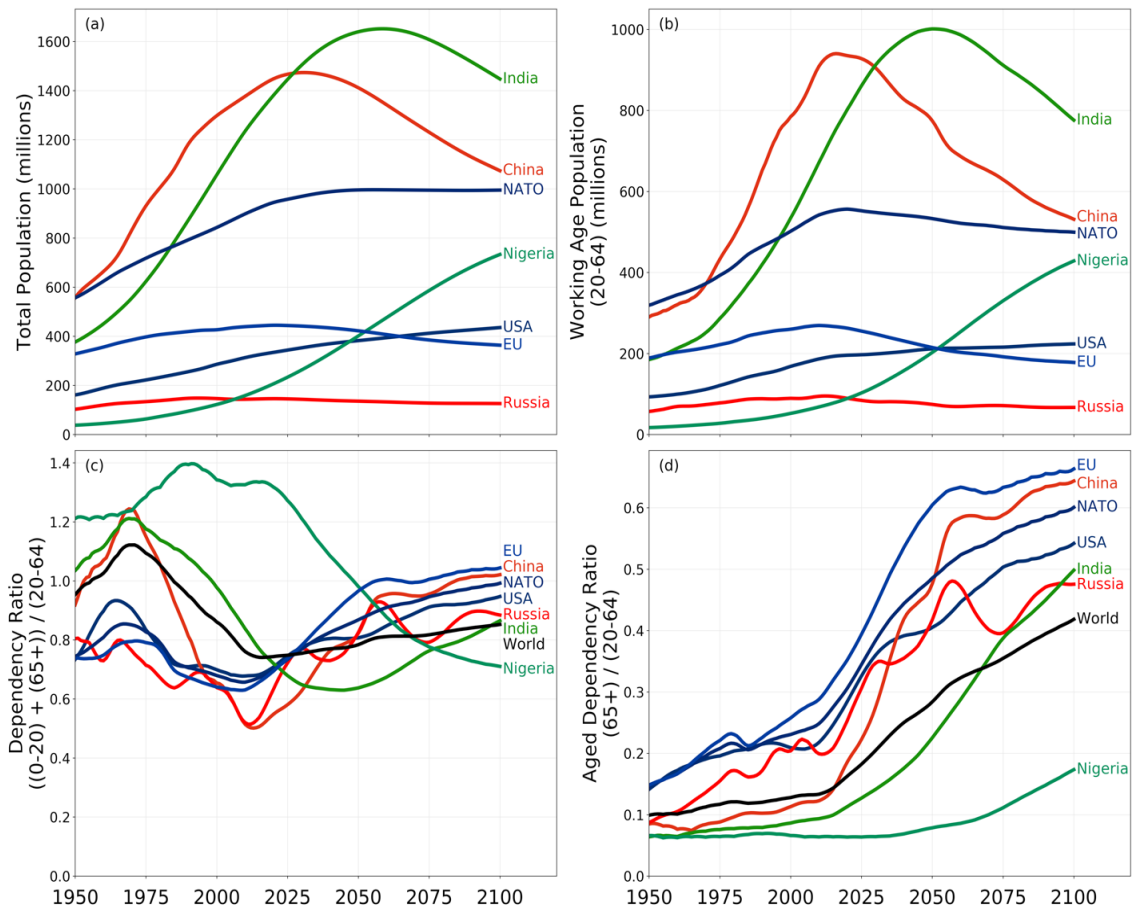


Figure 3. Historical population estimates and future population projections for selected major countries, NATO, and the EU

Note: NATO's composition overlaps with the United States and most of the EU.

Source: UN, *World Population Prospects*

However, looking at total population growth masks a larger problem for China. China's working age population, defined in this article as people between the ages of 20–64, already peaked in 2016 and is not expected to increase for the full span of the projection (see fig. 3b). In the latter half of the twentieth century, rapid changes in China's fertility rate, at least partially attributable to the well-known One Child Policy, and the rapidly decreasing mortality rate has left China with a population that is aging quickly. China's aged dependency ratio, defined in this article as the aged population (65 and older) divided by working age population (20–64), has been rapidly increasing since 2010 (see fig. 3d). China's

aged dependency ratio increased to 18.6 percent in 2020, a 51 percent increase from 2010. It will continue to grow to 58.4 percent in 2060, passing the United States in 2038. For reference, Japan, the world's oldest country, has an aged dependency ratio of 52 percent as of 2020. In undergoing this demographic shift, China will be the poorest large society to become an aged society, one that experiences population decline due to aging.

Studies have shown that an aging population inhibits growth in both GDP and GDP per capita.²¹ Not only does an aging population entering retirement increase the economic burden on the working age population, but older populations of workers have also been shown to be less productive than younger populations of workers.²² Additionally, the health care costs of people aged 65 and older are about 2.5 times higher than those of the working age population.²³ A possibly countering effect is that an older population generally has more capital for investment, which can help economic growth.²⁴ However, due to China's low GDP per capita and high income and wealth inequality, it is poorly situated in this regard.

According to the World Bank, China is still a developing country.²⁵ Its 2018 GDP per capita was just \$18,236.60 in purchasing power parity (29 percent of the US), or just \$9,770.80 at market exchange rates (16 percent of the US). However, both its GDP and GDP per capita are rapidly increasing, each growing more than 6 percent per year (pre-COVID-19), although its growth rate is universally expected to decrease as China develops and its population stagnates. However, to illustrate the power of exponential growth, if China could maintain a 4.5 percent growth in GDP per capita throughout the remainder of the twenty-first century, and assuming the US would maintain its typical 2 percent growth, China would match the US's GDP per capita by 2100.

The aging of China is a threat to future Chinese power. In general, it will be a strong downward pressure on the economic strength of China, in which China will soon be dominant. From a military cost imposition perspective, it will increase the labor force burden of Chinese troops and the financial burden of defense spending as the working age population of China shrinks. Therefore, China's major challenges are how to maintain large increases in GDP per capita to become a richer society while their working age population decreases and their aged dependency ratio explodes, or they must reverse their impending population reduction.

Keeping the United States Competitive

How China confronts its demographic problem will be a major determinant of its future power and cost imposition posture. While China may falter, the United States should develop cost imposing strategies for the possibility that China will solve its demographic problem and create a rich, stronger society.

According to the WPP, the United States is expected to steadily grow from a population of 334 million in 2020 (23 percent of China) to 382 million in 2050 (27 percent of China) and then to 435 million in 2100 (41 percent of China). If China can indeed continue to make large increases in its GDP per capita and can significantly reduce its gap relative to the United States, then population size becomes one of the dominant measures of comparative power and cost imposition posture. Population size directly determines the labor force burden of troops and builds troop capacity. It also correlates very strongly with GDP, which decreases the financial burden of defense spending.

As countries around the world have discovered, it is difficult to stimulate fertility rates once they have dropped below replacement rates (~2.1 births per woman).²⁶ Both the United States (1.8) and China (1.7), and most developed countries, have fertility rates below replacement level. Increasing government benefits for having children, such as mandated parental leave and free or subsidized childcare, although they may be good policies in general, likely have only a modest positive impact on fertility.²⁷

Immigration. Once a country's fertility rate drops below the replacement rate, the most powerful method to increase population is through immigration. There is universal acknowledgment that immigration, assuming it is not managed disastrously, increases national GDP for the simple fact that more people means more workers.²⁸ Furthermore, many studies additionally show that immigration may even increase GDP per capita, or at the very least, not decrease GDP per capita, although the consensus on the direction and magnitude is not yet settled and may depend on specific immigration policies.²⁹

Given this body of research, we assume that, when comparing across different future projections, population growth via either native population changes or immigration has a one-to-one relationship to GDP growth. Defense appropriations are routinely budgeted as a percent of a nation's GDP. For example, NATO policy currently recommends a defense budget of 2 percent of GDP. We assume that any changes in GDP will cause the same percent change in the defense budget. Therefore, we assume that percent changes in population have an equal effect on defense spending (e.g., a +10 percent change in population results in a +10 percent change in GDP and a +10 percent change in the defense budget). Under these assumptions, we look at three scenarios:

- zero-migration projection,
- current immigration projection, and

- doubling the immigration rate.

For the first scenario, the WPP also estimates world populations in a scenario that assumes zero net migration. To estimate the US population in scenario 3, we multiply scenario 2's population estimates by the population ratio between scenarios 2 and 1. To translate all scenarios' numbers to defense budgets in constant year dollars, we assume 2 percent real GDP growth and use the (pre-COVID-19) estimated 2020 defense budget to GDP ratio.

The population differences are stark (see fig. 4a; also, the solid lines in Figure 4c are equivalent to population ratios between the scenarios).³⁰ Under the current immigration projection, the US population in 2100 will be 435 million. Under a zero-migration model, it would be 303 million, 30 percent lower than the current projection and 9 percent lower than today's population. On the other hand, doubling the immigration rate results in a population of 626 million, 44 percent larger than the current projection and more than double that of the zero-migration scenario.

The current US population is 23 percent the size of China's population. As China's GDP and GDP per capita grow, the population gap between the US and China will get progressively more concerning even with a modest reduction of the population gap. Reducing that population gap increases relative American power. Under a zero-migration model, the US population in 2100 would be 28 percent of China's population. Under the current immigration scenario, it would be 41 percent. If the US doubled the immigration rate, it would be 58 percent.

The United States under a zero-migration model would not be alone in shrinking. For example, the EU's population would be 15 percent smaller in 2100 under a zero-migration model relative to the current immigration estimates.

Differences in the 2100 defense budget are also vast (see fig. 4b-d). A zero-migration model results in \$713 billion *less* in *annual* defense spending (FY20\$), whereas doubling the immigration rate results in \$1,025 billion *more* in *annual* defense spending (FY20\$).

This simple analysis makes it obvious that future power, both as a society and as a military power, is strongly dependent on immigration. Policies that competently increase immigration result in a significantly enhanced future strength by increasing economic power, defense budgets, and troop capacity while decreasing the labor force burden and financial burden of troops.

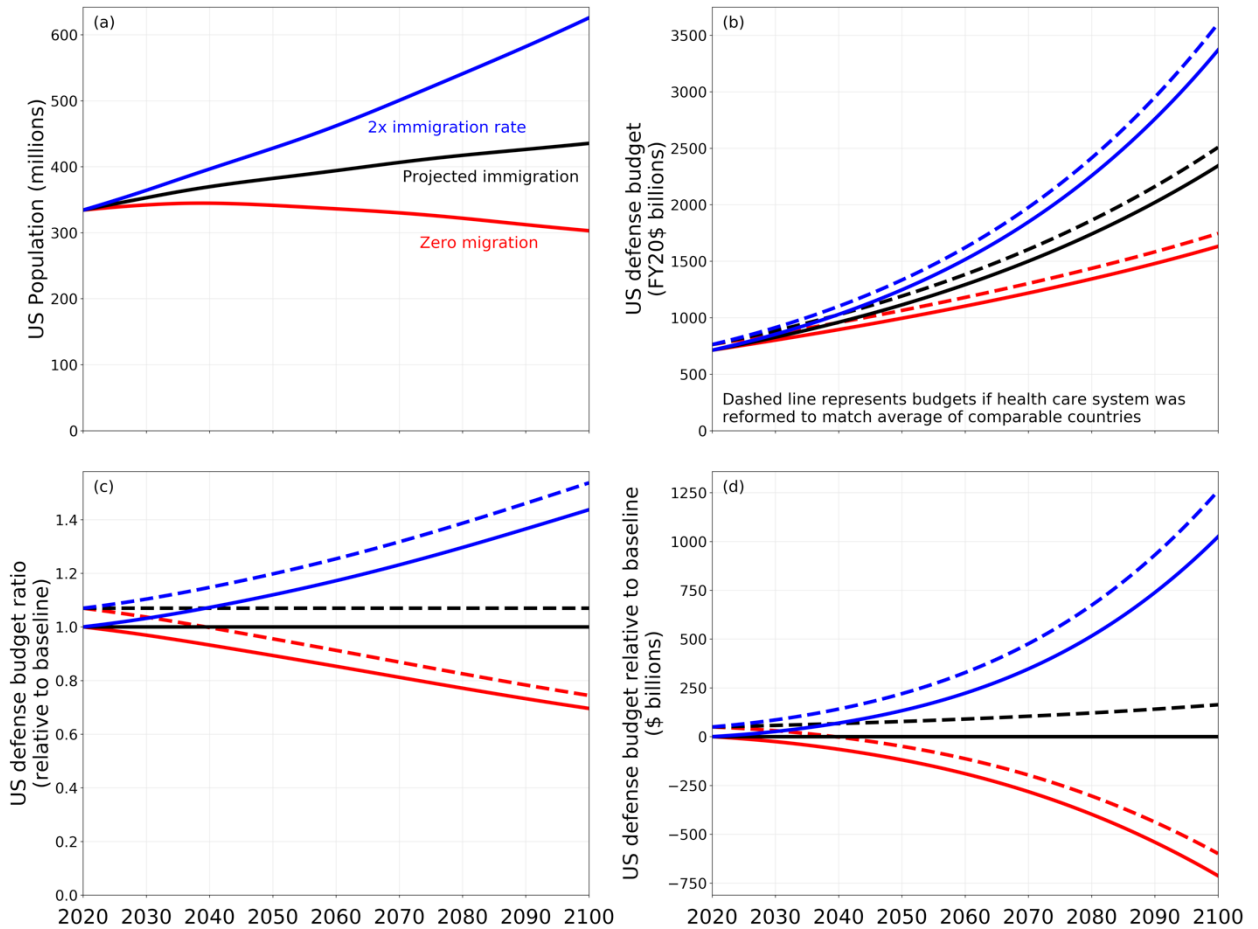


Figure 4. US population and defense budget under different immigration and health care scenarios. The “baseline” scenario in (c) and (d) represents the current projection from the WPP as described in the text and assumes no significant health care reform.

Alliances (with a little help from our friends). As seen above, population is power. Our traditional allies in the EU and NATO will mostly see population decline and then, for some, stabilization. The only developed countries that are expected to experience constant population growth throughout the twenty-first century are the United States, Australia, Canada, Denmark, Israel, Luxembourg, New Zealand, Norway, Sweden, Switzerland, and the United Kingdom. Of these, only the United States, Australia, Canada, Israel, Luxembourg, and Norway are expected to experience constant working age population growth through 2100, and of them, only Australia and Israel can do so without immigration.

While the populations of our traditional allies will mostly shrink, many developing countries will explode in size, although some will then fall into population decline as well. India is projected to pass China in 2028, peaking in 2059 at 1.65 billion, until it too begins a decades' long shrinking. The US's change from United States Pacific Command to United States Indo-Pacific Command emphasizes this importance of South Asia. Since India is the world's largest democracy and a long-term rival to China, US-Indian relations are important for competing strategically with China, especially if China can solve its demographic problems while raising its GDP per capita.

While India could be the next juggernaut brought about by huge population increases, Asia's population, while growing now, is projected to later shrink to approximately its current population by 2100. On the other hand, Africa's population is expected to be three times larger in 2100 than it is now. Europe is the only continent projected to experience significant shrinking; South America, like Asia, will grow before shrinking back to approximately its current size. While a near term rebalance towards Asia makes sense now given China's growing might and India's swelling population, Africa will be the fastest growing region for the remainder of the twenty-first century. The African-to-Asian population ratio increases from 29 percent now to 91 percent in 2100. Nigeria, Africa's most populous country, will increase to 3.6 times its current size by 2100, from 206 million to 733 million (see fig. 3a). In 2100, five of the top 10 countries by population will be African.

While all populous African and Asian countries are likely to have moderately to significantly lower GDP per capita than the US and our traditional allies throughout the twenty-first century, developing countries are likely to significantly lower the gap over the coming decades. Developing countries typically have a higher GDP per capita percent growth than developed countries, although they are also subject to more instability, which can result in slower growth or even a shrinking GDP per capita.³¹

As these growing nations become more powerful through economic development and population growth, and as relative American power likely shrinks in the face of these changes, especially under a low immigration scenario, alliances will become all the more important in maintaining a secure global position. As discussed earlier, allying with nations with lower cost burdens would decrease the average cost burden of the whole alliance while increasing troop capacity. Holistic personnel-partnering strategy increases troop capacity at a lower cost for the more developed partner and introduces advanced capabilities to the less developed partner.

Early commitment to friendlier relations with developing countries, particularly in Asia and Africa, and especially with India and Nigeria, could yield significant benefits decades down the road. For durable results that align with

American values, these relations should focus on the whole well-being of the developing country rather than just defense interests or direct American economic interests. A history of colonialism, imperialism, economic exploitation, political meddling, and war by powerful countries has left developing countries with a natural distrust of overtures from great powers. For example, the Middle East is the developing region that the US has most strongly interacted with during the last three decades. It is also the region in the world with by far the least favorable views of the US.³² This contrasts to the favorable views during the Cold War in European countries which received large amounts of economic aid after World War II under the Marshall Plan.³³

Health Care. Health care is one of the largest sectors of GDP for developed countries, and as countries age, health care costs are expected to rise.³⁴ As discussed earlier, health care has direct connections to defense. Health care for current Soldiers is reflected in the defense budget, while veterans' care is treated as nondefense spending and can be substantial. The Department of Veterans' Affairs FY2020 enacted budget for medical care was \$80 billion.³⁵

According to 2016 World Bank data, the United States has the second most expensive health care system in the world by percent of GDP (17.1 percent) behind only the Marshall Islands (23.3 percent),³⁶ which has high rates of cancer and other diseases that can at least partially be attributed to US nuclear testing in the 1940s and 1950s.³⁷ To illustrate just how extreme the US's health care costs are, the fifth most expensive health care system in the world, Micronesia at 12.6 percent, is 26 percent less expensive by this metric.

While US public spending on health care approximately matches that of other developed countries, the US's high level of private spending on health care is an extreme outlier.³⁸ The high cost of health care in the United States cannot be attributed to having better health care. In fact, across a broad spectrum of metrics, the United States routinely has worse health care outcomes than similarly developed countries.³⁹ Americans are paying more money for worse health care.

The Peterson Center on Healthcare and the Kaiser Family Foundation (KFF) compared the US health care system costs with other comparable countries: Australia, Austria, Belgium, Canada, France, Germany, Japan, Netherlands, Switzerland, and the United Kingdom.⁴⁰ In terms of health care spending per capita (purchasing power parity), the US spent \$10,224 per capita in 2017 on health care, which is 94 percent higher than the average of the other 10 comparable countries, which was \$5,257. In terms of health care spending as a ratio of GDP, the US spent 17.1 percent of its GDP on health care. Comparable countries spent just 10.5 percent of their GDP on health care.

We create a simple model to illustrate the large effect health care reform could have on defense. We imagine that, starting in 2020, the US instituted a health care system that matches the average of comparable countries. In other words, instead of paying 17.1 percent of GDP for health care, we assume the US now pays 10.5

percent of GDP on health care. This decrease frees up 6.6 percent of GDP to be spent on other things and reduces the financial burden of US defense spending. We assume that this is spread proportionally throughout all other sectors of the economy, including defense spending. After distributing the health care savings, each nonhealth care sector of the economy gets a 7 percent boost in spending.

In 2020 under this model, defense spending gets an annual boost of \$50 billion (see fig. 4b-d). Assuming constant defense spending as a percent of GDP, now at a 7 percent higher level due to health care reform, and 2 percent annual GDP growth, the annual defense spending boost from health care reaches an annual increase of \$164 billion in 2100 (FY20\$). Importantly, while immigration's effect on power starts small and grows stronger, health care reform's effect on power takes only as long as the implementation of the new system.

Further, health care reform to the average of comparable countries would also improve health care outcomes. The Peterson Center on Healthcare and the KFF analyzed differential outcomes in quality between the US and comparable countries: Australia, Austria, France, Germany, Japan, Netherlands, Sweden, and the United Kingdom.⁴¹ Among these countries, the US has, by far, the worst rate of preventable deaths, potential years of life loss, disease burden, and medical errors. The US typically has worse outcomes in other metrics too. Improving our health care system to the average of comparable countries will improve health care outcomes for all Americans, including veterans and recruits, and build American resilience.

Conclusion

The United States has the ability to leverage both offensive and defensive cost imposition strategies in the military personnel space. Such a strategy constrains competitors from imposing costs on the United States in traditional areas of technology and also limits the capacity advantage of large countries. Further, by looking at the role of nondefense policies in national power, the United States can act defensively by dramatically improving its relative cost imposition posture through immigration policy and health care reform. By taking a broad view of cost imposition dynamics, we expand our maneuver space and capitalize on America's inherent advantages.

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Notes

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