Economics from the Top Down

new ideas in economics and the social sciences

The Business of War and the Mismeasurement of Military Might

Blair Fix

May 22, 2026

America continues to confuse military spending with true strength.

— David Rothkopf

According to US warmongers, the American military is the most powerful fighting force that has ever existed — a war machine so vast and terrible that enemies everywhere tremble in its path. Boasts aside, the US military is surely unrivalled in at least one regard. It is by far the most expensive armed force on the planet.

In 2025, the US government funnelled $842 billion through Pentagon coffers. And if Donald Trump gets his way, that figure will rise to $1.5 trillion in 2027. No matter how you slice it, that's a staggering pile of cash. But what exactly does this money buy?

A recent New York Times piece complains that the Pentagon's enormous budget seems to buy "inertia and incompetence". And they have a point. Since external audits began in 2017, the Pentagon has notoriously failed every single one. Then again, charges of 'incompetence' assume that the purpose of the Pentagon is to spend money wisely — to maximize the war-making return on investment. But what if the Pentagon's purpose is something different?

In 2015, Senator John McCain made the case for sanctions against Russia by dismissing the state as "a gas station masquerading as a country". Turning closer to home, I think we can say something similar about the Pentagon; it's a bureaucratic regime for channelling public funds into private coffers —

a money funnel masquerading as a military. Of course, that's not to say that the US military has no firepower. (It does.) My point is that it's foolish to use Pentagon spending to judge US military might.

For an illustration of this foolishness, look to the ongoing debacle in Iran. Although the Pentagon outspends the Iranian military by more than two orders of magnitude, the US military has been unable to accomplish any of Trump's (quixotic) objectives.[1] Is this strategic defeat simply a matter of Iranian good luck combined with US poor planning?

I doubt it.

What seems more likely is that the US humiliation demonstrates that Pentagon spending is a misleading measure of US military power. The reason is simple: based on spending alone, we cannot differentiate between a military that's expensive because it is *powerful*, versus a military that's expensive because it (and its coterie of contractors) is *well paid*.

In this essay, I examine the problem of measuring military power. Along the way, I review the long-term history of US military spending, I analyze the rise and fall of US military hegemony, and I discuss how the 'war on terror' has foreshadowed US imperial weakness. Finally, I quantify the US military's transformation from a war-making machine into a money funnel for US business. All told, the evidence suggests that Pentagon spending vastly overstates US military power.

Big battalions

If there is a unifying lesson from military history, it's the maxim that "God always favors the big battalions".[2] Of course, the assumption here is that we know what it means for a military to be 'big'.

Throughout most of history, the definition of a 'big' military was obvious; it was a simple matter of manpower. Thus, when Napoleon invaded Russia with an army of over 400,000 soldiers, there was no question that he had

[1] According to the World Bank series MS.MIL.XPND.CD (military expenditure in current USD), Iran's 2024 military spending was $7.9 billion. In the same year, World Bank data pegs Pentagon spending at $997 billion, a factor of 126 higher. FRED series FDEFX puts 2024 Pentagon spending slightly higher, at $1.083 trillion, which is 137 times larger than Iranian military spending.

[2] This maxim seems to be a French proverb. Like many quips about war, it often gets wrongly attributed to Napoleon.

a massive military.[3] Yet as war became mechanized during the early 20th century, the question of military scale became more complicated. Suddenly, armies could be strong not just because of their manpower, but also because of their technological power.

This use of technology, in turn, made the measurement of military scale more difficult because it created an aggregation problem. That is, while manpower can be easily summed (just count soldiers), the quantity of technological power cannot be measured so readily. For example, if a military is armed with 1000 rifles and 2 aircraft carriers, what is its total stock of technology? To answer this question, we need a dimension of aggregation — a common property shared by both rifles and aircraft carriers.

Enter economists. For centuries, economists have solved their aggregation problems by turning to money. Looking at prices, economists put on their accounting hats and proceed to aggregate the monetary value of everything. But unlike accountants, who take monetary quantities at face (financial) value, economists pretend that money reveals something deeper about material stocks and flows. Thus, economists presume that GDP — a measure of aggregate *income* — is a meaningful measure of economic 'output'. (It's not.)

Back to the military. Using economists' aggregation trick, it's easy to 'discover' that the US military is the "greatest and most powerful [armed force] anywhere in the world" (Trump's words). To gaze at the superiority of the US military, we simply look at its gargantuan budget, which dwarfs all competitors. Figure 1 shows the spending disparity in 2024.

Backing out of this monetary foolishness, my goal in this essay is to demonstrate the problems with equating military spending with military power. In a world not dominated by economics dogma, the key issue would scarcely need stating. Military spending tells us about the *income* flowing to the armed forces (including its civilian bureaucracy and its private contractors). On its own, this income tells us nothing about military power.

[3] Spoiler: Napoleon still lost the war because his army was unprepared for the Russian winter. The upshot is that his spectacular failure gave rise to what is perhaps the greatest scientific visualization ever.

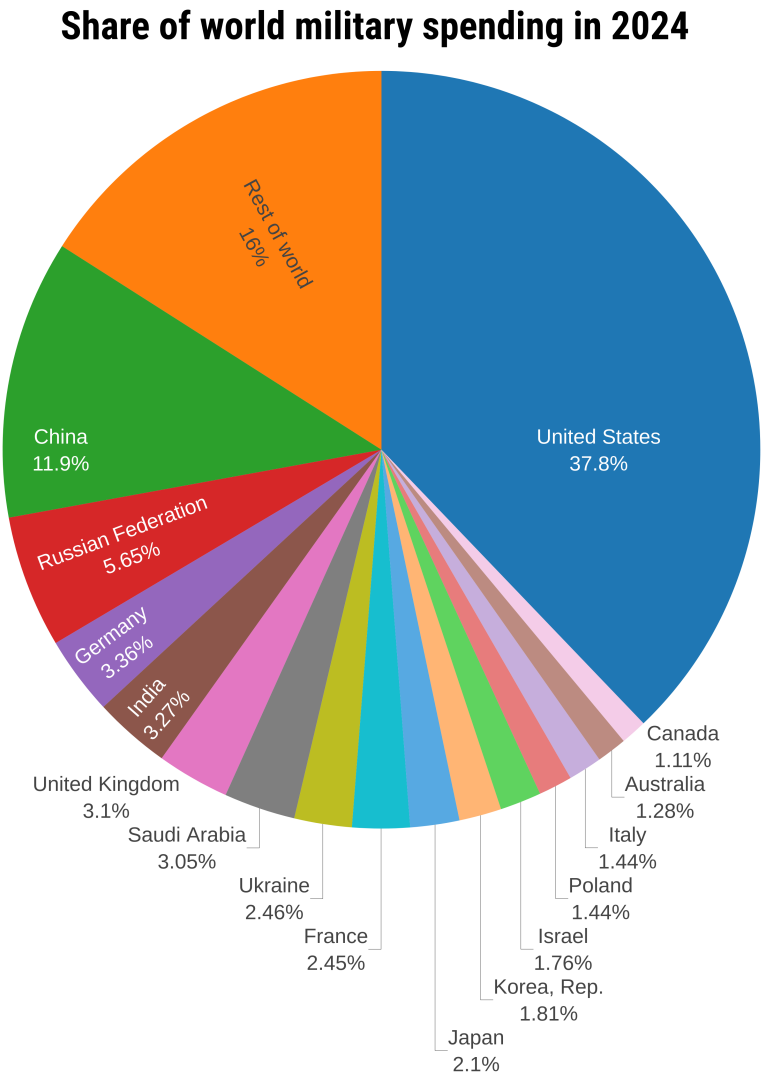

Figure 1: The 'greatest and most powerful' armed force as revealed by its share of global military spending in 2024

The pie chart shows military spending in 2024, measured in USD. Sources and methods

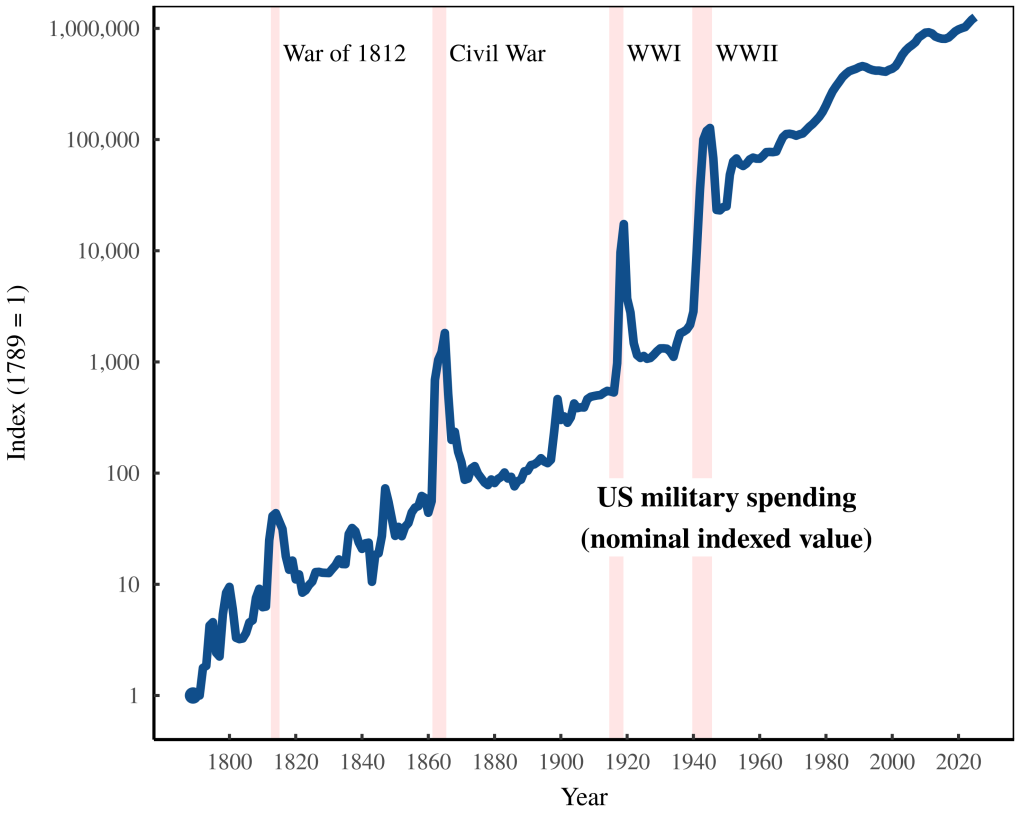

Figure 2: Two centuries of rising US military spending

This chart plots US nominal military spending, indexed to equal one in 1789. Note the spending bumps during periods of war. Also note the log scale on the vertical axis. Sources and methods

---

The history of US military spending

Diving into US history, let's look at the long-term trend in US military spending. From 1789 to 2025, the dollar value of US military expenditures rose by a factor of a million, with conspicuous bumps along the way during periods of war. Figure 2 shows the ascent.

Although this spectacular rise in nominal military spending might excite US warmongers, it's fairly meaningless on its own. To gain meaning, spending data needs *context*. So, with context in mind, here are three different views of the history of US military expenditures, each based on a different assumption about what the armed forces should purchase.

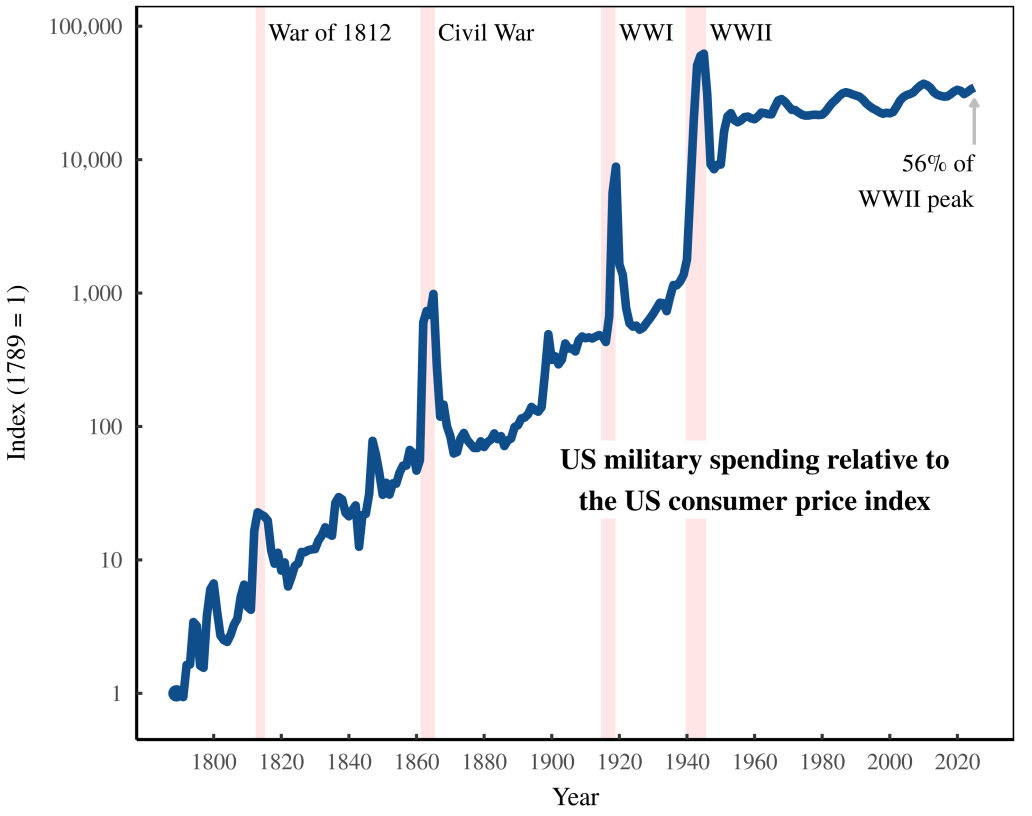

Figure 3: US military spending relative to the consumer price index

This chart measures the US military's ability to purchase consumer commodities. Yes, the metric is fairly meaningless … but since it's standard fare in economics, I feel obliged to include it. Note the log scale on the vertical axis. Sources and methods

---

The power to purchase consumer commodities

First, let's compare US military spending to the consumer price index. By doing so, we imply that the purpose of the military is to purchase consumer commodities. (This assumption is silly, of course, but let's see where it goes.)

Figure 3 shows the US military's power to purchase consumer commodities. Compared to nominal military spending (Figure 2) the notable difference here comes after World War II, where we see a conspicuous flatline. Today, the US military's consumer-commodity purchasing power is about half the value of its WWII peak.

The power to mobilize citizens

Since the purpose of a military is to wage war, its ability to purchase consumer commodities is fairly meaningless. Indeed, one could argue that the optimal military is a spartan one — an organization that spends the bare minimum on troops' living standards, leaving the maximum budget for warfare.

Of course, the problem with this spartan approach is that it becomes difficult to enforce if citizens' living standards rise. Sure, a totalitarian regime can build a spartan army based on compulsory military service. But in a capitalist society with a professionalized military, this method doesn't fly. If a professional military pays poorly, no one will join. Hence, when living standards rise, the military is forced to pay the going rate.

This necessity, in turn, gives rise to a form of cost disease; as living standards rise, mobilizing the population becomes more expensive. For example, a selling point of American living is that US income per capita is about six times greater than in China.[4] But the flip side of this greater income is that it makes a war effort more expensive. For the same level of spending, China can mobilize six times *more* of its citizens. So in terms of military power, high American incomes act as a dead weight that Pentagon planners must drag.

Figure 4 illustrates the impact of rising incomes on the US military's ability to mobilize American citizens. Here, I've pegged US military spending against American income per capita. From 1790 to 1945, the US military's mobilization ability grew nearly 5000-fold. But after World War II, it shrank steadily, as military spending failed to keep pace with rising American income. Today, the US military's power to mobilize citizens is less than 20% of its WWII peak.

The power to subsidize capitalists

While we're on the topic of military cost diseases, let's discuss the burden of paying for corporate profits. During World War II, Harry Truman rose to fame campaigning against war profiteers. "Their greed knows no limit," he said bluntly.

[4]According to World Bank data in 2024, US GDP per capita was $84,534 USD, while Chinese GDP per capita was $13,303 USD.

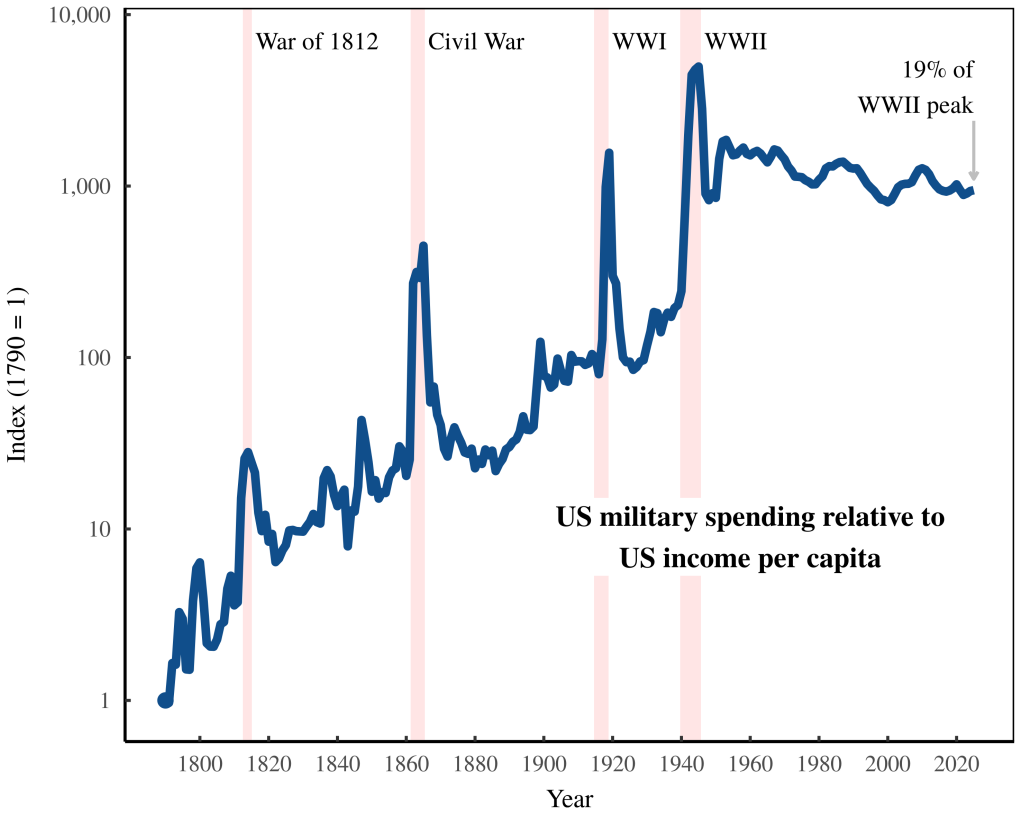

Figure 4: US military spending relative to US income per capita

This chart measures the US military's ability to mobilize Americans by paying them the average US income. Note the relative decline in this mobilization ability since the end of World War II. Also note the log scale on the vertical axis. Sources and methods

---

Ironically, today's military contractors are far more greedy than those of Truman's era. Yet there are no modern Truman Committees working to curb excessive profits. And that's largely because American culture has since been corrupted by neoliberal ideology, which rebrands fat profits as a sign of 'productivity'.

The roots of this cultural sea change date to the Reagan era in the 1980s. But it was in the mid-1990s when the US military officially donned a neoliberal hat. In 1994, the Pentagon created the 'Secretary of Defense Executive Fellows' program, which sent promising military officers to work for top defense contractors and other large corporations. When officers returned from this revolving door, journalist Freddy Brewster notes that they often had a predictable message: "outsource everything not core to DoD" (the Department of Defense).

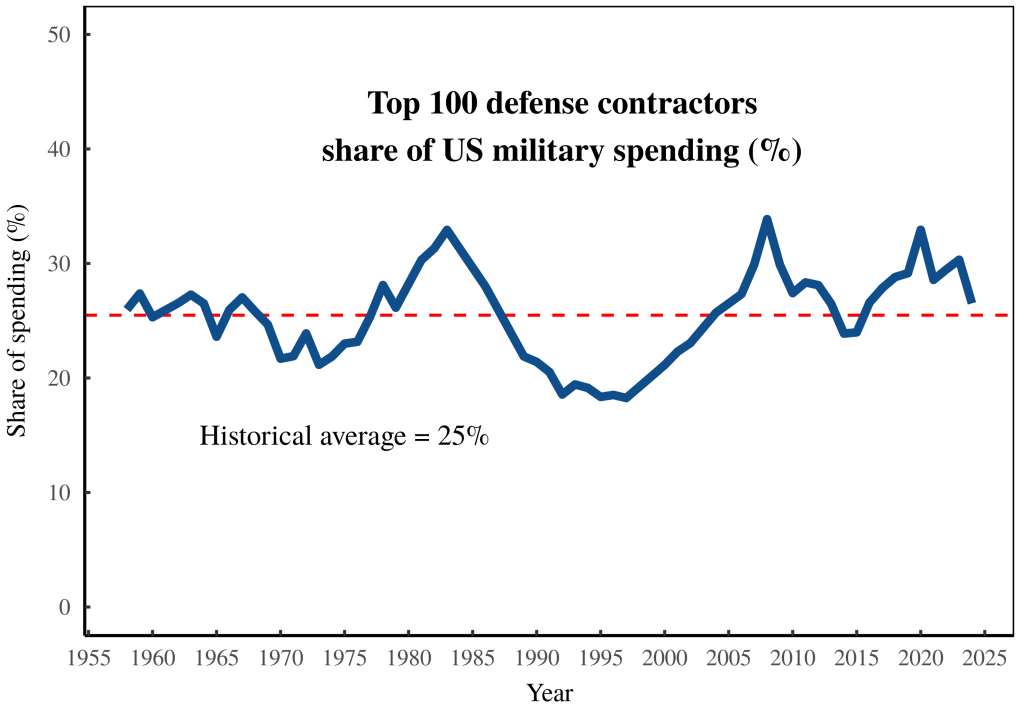

Figure 5: Share of US military spending flowing to the top 100 defense contractors

Over the last seven decades, the Pentagon has sent, on average, a quarter of its budget to the top 100 defense contractors. Sources and methods

Now in broad terms, there's nothing new about Pentagon outsourcing. Historically, the US military has relied heavily on corporate America for its procurement, typically sending about a quarter of its expenditures to the top 100 military contractors. (See Figure 5 for the picture since 1958.) However, in recent decades, there's been a significant change in what this outsourced spending can buy.

As corporate profits have fattened, the Pentagon's ability to pay for them has dwindled. Figure 6 illustrates this corporate cost disease. Here, I've pegged US military spending against the earnings per share of the S&P 500. The goal is to get a rough sense for the US military's ability to subsidize the returns to corporate shareholders.[5]

[5]A more precise comparison would be to track down the historical average earnings per share for the top 100 military contractors. I briefly thought about doing so, but then balked at the required legwork. (Most of the archival Pentagon data remains trapped in scanned PDFs. Liberating the data would take substantial effort.)

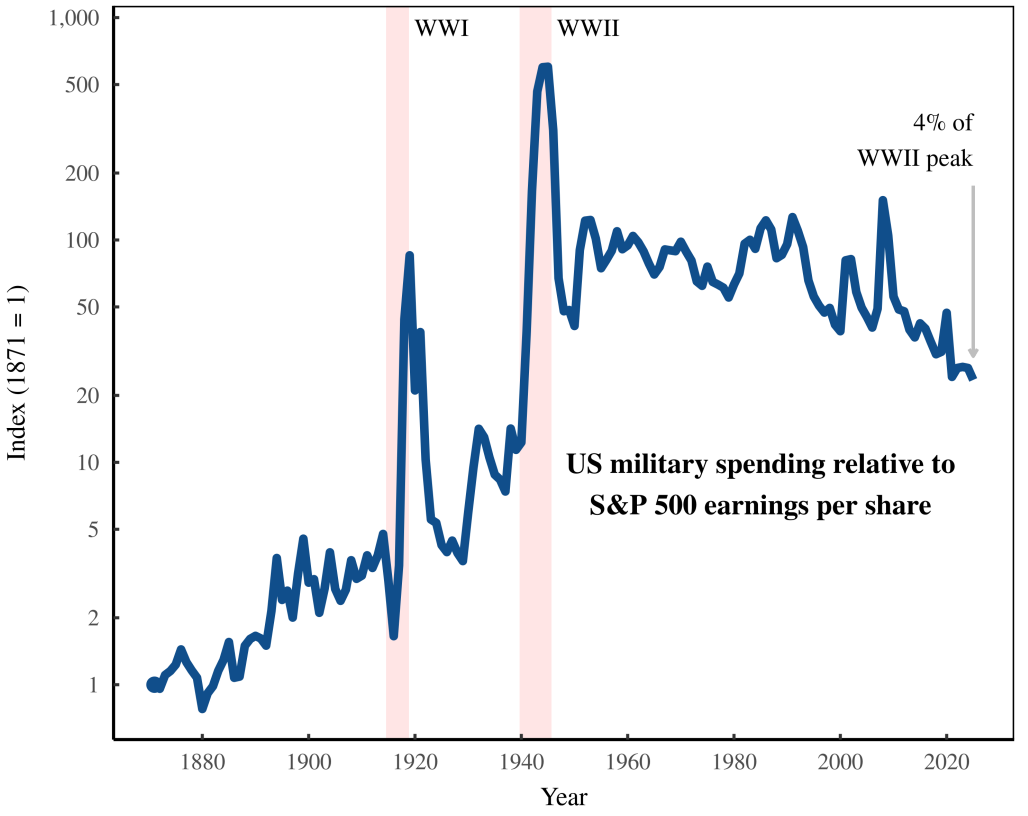

Figure 6: US military spending relative to S&P 500 earnings per share

This chart measures the ability of the US military to fund the returns to corporate shareholders. Note the conspicuous decline in this ability over the last few decades, a period marked by rapidly rising corporate profits. Also note the log scale on the vertical axis. Sources and methods

---

Looking at the trend, it seems that the military's ability to subsidize capitalists peaked in World War II, when spending was high and shareholder earnings were low. But since the 1990s, Pentagon spending hasn't kept pace with rising corporate payouts. As a consequence, the US military's ability to subsidize corporate owners now sits at just 4% of its WWII peak.

Spending big . . . or small

When journalists report government spending, they have a tendency to emphasize the big-number factor. (As in, the federal deficit is $1.8 trillion!) But the truth is that big numbers can turn out to be comparatively small, depending on the context.

Table 1: Spending big or small? Framing the 2025 Pentagon budget.

Observation	2025 Pentagon spending compared to WWII peak
Nominal spending	1000%
Spending relative to consumer price index	56%
Spending relative to average US income	19%
Spending relative to S&P 500 earnings per share	3.9%

For data sources, see the appendix.

The Pentagon budget is a case in point. Whether the current budget is 'large' or 'small' depends on the context. Of course, in nominal terms, Pentagon spending is larger than ever. But relative to consumer commodity prices, Pentagon spending now sits at about half its WWII peak. In terms of the ability to mobilize Americans, things are worse; the current budget sits at 19% of its WWII peak. And in terms of the ability to subsidize corporate shareholders, today's Pentagon budget is shockingly small — less than 4% of its WWII peak.

Table 1 summarizes these different viewpoints. The lesson here is that despite the eye-popping dollar values, the modern Pentagon budget is not the behemoth it once was.

The road to empire

Staying within the realm of military spending, let's pivot now and look at the road to US empire. Since the end of World War II, the US has maintained hundreds of military bases throughout the world, with US soldiers acting effectively as a global police force. Of course, under Trump, the US military has morphed into more of a pirate force for Washington plutocrats. But before we discuss this devolution, let's look at how the US empire was formed.

One way to view the US empire is that it emerged suddenly out of the ashes of World War II. The backstory here is that prior to WWII, American politicians favored an isolationist foreign policy (the Monroe Doctrine notwithstanding). And they had inherited from the constitutional founders a deep distrust of standing armies.[6]

Given this stance, US military spending tended to be quite modest. During periods of peace, it was typically close to 1% of US aggregate income (GDP). Of course, when war erupted, military ranks swelled, as did spending. But when peace returned, the military would shrink to its pre-war stature. Figure 7 shows this cyclical behavior, which lasted from 1790 to 1939.

Continuing to look at Figure 7, note how World War II brought a halt to the spending rhythm of war and peace. When the war ended in 1945, the United States retained, for the first time, a massive standing army that was stationed throughout the world. As a consequence, military spending didn't return to pre-war levels, but instead remained high. Thus was born the imperial epoch of US history.

Sort of.

The problem with this story of 'sudden' empire is that it ignores the colonial expansion of the United States itself. For example, in 1800, the US was a small nation of 16 states clumped along the Eastern seaboard. Its population was just 5 million — about 0.5% of the world's total population. Over the next century, a steady stream of immigration would swell the American population by a factor of ten, and a series of territorial conquests would see the country expand across the continent.

[6]To make sense for the US founders' distrust of standing armies, we have to understand English history. Following the birth of the Magna Carta in 1215, English aristocrats spent centuries trying to rein in the power of the monarchy. A chief problem was that kings controlled the military, and they tended to use this control to suppress their domestic competition.

Matters came to a head during the English Civil War (1642 to 1651), which saw a decade of conflict between Royalists and Parliamentarians. Although the Parliamentarians won the war, the monarchy remained intact, and English kings continued to test the limits of their military powers. In 1688, King James II went a bit too far and was deposed in the Glorious Revolution. A year later, Parliament passed the Bill of Rights of 1689, which, among other things, prohibited the king from keeping a peacetime standing army without parliamentary consent.

Fast forward to the American Revolution. When American colonists overthrew British rule, they framed their grievances in terms of the English Bill of Rights. In particular, the Declaration of Independence charged the British king with maintaining a peacetime standing army without the consent of colonial legislatures. When colonists later drafted the American Constitution, they made sure to guard against standing armies by giving Congress control over military spending, and by putting a two-year limit on all military appropriations.

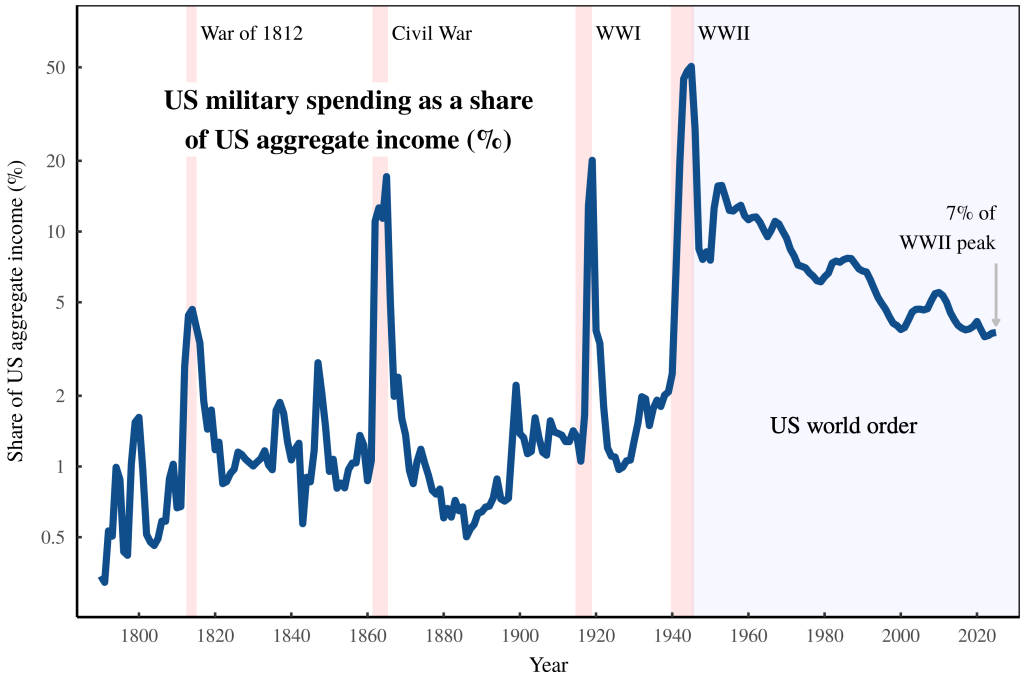

Figure 7: The sudden road to empire — US military spending as a share of US aggregate income

For more than a century after the US achieved independence, its military spending had a consistent rhythm of war and peace. During peacetime, military spending was typically around 1% of aggregate income. Periods of war brought increased spending, which would then subside as peace returned. This rhythm stopped after World War II, when the US retained a massive military, garrisoned around the world. Note the log scale on the vertical axis. Sources and methods

---

When we take into account the colonial expansion of the United States itself, we get the more gradual road to US empire shown in Figure 8. Here, I've measured US military spending as a share of world income (GDP). From 1789 to 1939, US military expenditures rose steadily, increasing their slice of world income by two orders of magnitude. During World War II, the US war machine bolstered this value another forty-fold. At its peak, the US war effort commanded something like a fifth of the world's income.

Now to the present. Listening to Trump and his cabinet of swaggering morons, we get the impression that the US is at the height of its military power. But then again, when the US was *actually* at the height of its power (during World War II), its leaders weren't blathering about their military supremacy. They were sowing the diplomatic seeds for the US-led world order that would follow the war.

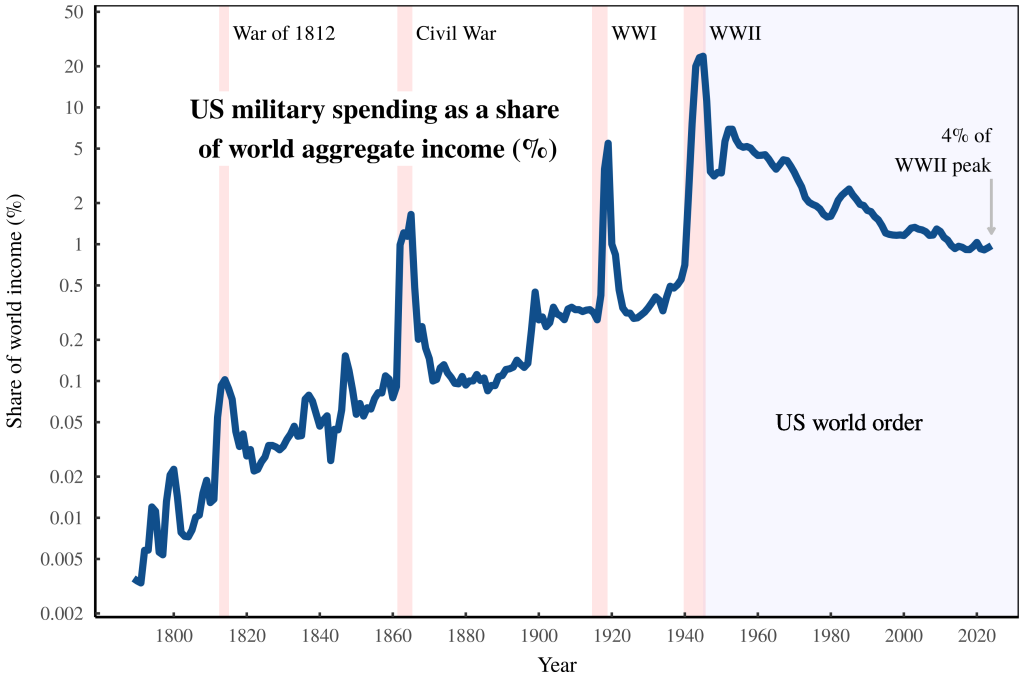

Figure 8: The gradual road to empire — US military spending as a share of world income

When we take into account the steady expansion of the United States itself, we see that its military rose to dominance slowly and consistently over the 19th and early 20th centuries. We also see that in global terms, US military spending is now a shadow of its former WWII hegemony. Note the log scale on the vertical axis. Sources and methods

---

For example, at the Moscow conference in 1943, the US drafted and signed (along with the United Kingdom, the Soviet Union, and China) the Four Power Declaration, which laid the groundwork for the United Nations. And in 1944, the US hosted the Bretton Woods Conference, which established the post-war financial order.

In short, it seems that the peak of US military power coincided with the peak of US diplomacy. And if you understand how power works, that's not surprising. You see, brute force is the most brittle form of power. Yes it works, if one maintains constant armed oppression. But the moment that weapons are sheathed, coercive power is prone to collapse. In contrast, power through diplomatic consensus is far more robust because it involves buy-in from local populations. Hence, through diplomacy, a powerful military can be transformed from a would-be oppressor into a legitimate international police force.

It was this combination of diplomatic and military power that led to the creation and maintenance of the US-led world order. And today, it is the *lack* of diplomatic and military power that is causing the US-led world order to collapse. In 2026, US statecraft reads like a dark satire. For Trump, the favored tactic is mafia-like extortion. Hence, we get US financial extortion through Trump's vindictive use of tariffs. And we get US armed extortion through Trump's mercurial use of the military. Both of these methods are likely to fail, for the simple reason that the US is not the hegemon it once was.

This decline in power is particularly severe for the US military. Yes, the Pentagon remains the world's most profligate military spender. But the truth is that in relative terms, the Pentagon's global spending power now sits at just 4% of its WWII peak. And as we will soon see, this monetary view likely overstates the US military's fighting power. First, though, let's look at the historical roots of Trump's imperial death throes.

The wrath of a dying empire

A consistent feature of world history is that when empires are strong, they preside over periods of relative peace. For example, from 27 BC to 180 AD, the Roman Empire ruled over a period of peace known as the *Pax Romana*. Similarly, the British Empire prevailed over the *Pax Britannica*, an era of global peace that lasted from 1815 to 1914. And from 1945 onward, the US empire presided over the post-WWII peace, sometimes called the *Pax Americana*.

Of course, the flip side of imperial peace is the chaos that comes as empires die. Not only do rival states fight over the ensuing power vacuum, but the empires themselves often lash out in vain attempts to resurrect past glory. Today, the US empire has entered its (attempted) resurrection stage.

Things are not going well.

Future historians will probably point to Trump's war in Iran as the moment when the US empire entered into terminal decline. Yet the roots of Trump's imperial debacle date back to 2001 — the year when George Bush declared his global 'war on terror'. In a way, Bush's language was as important as his actions. As Ian Welsh notes, the word 'terrorism' has become code for

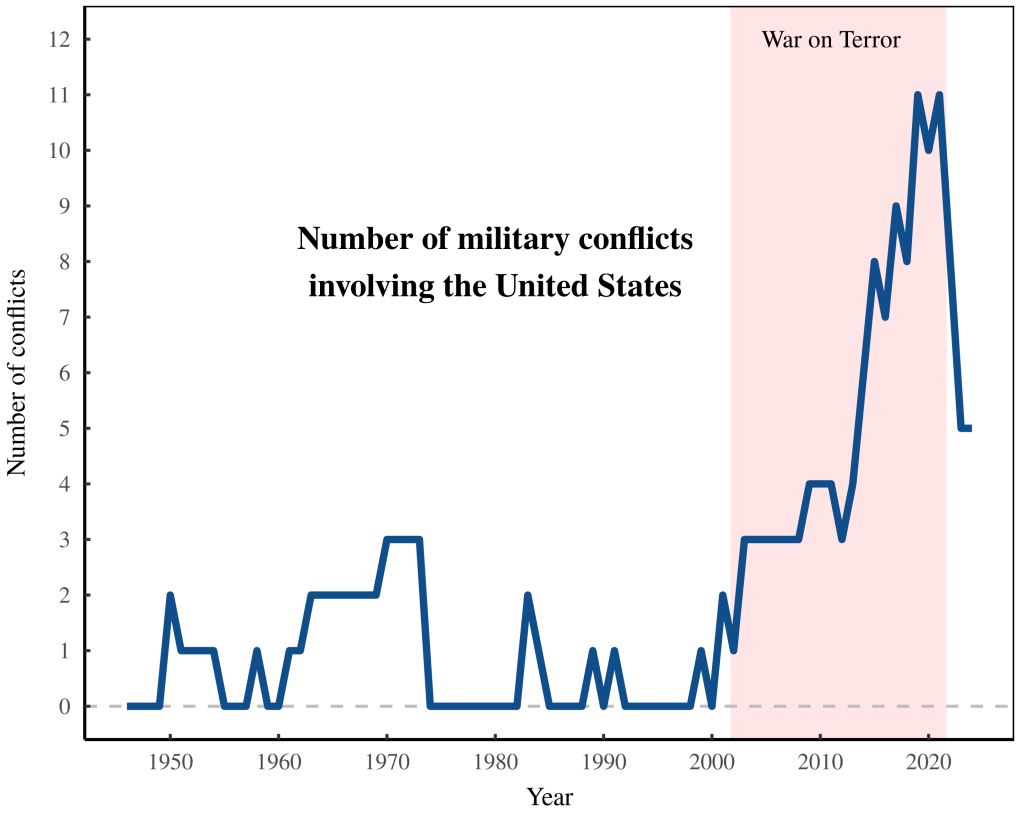

Figure 9: The war on terror as the end of US imperial peace

This chart plots the annual number of conflicts (worldwide) involving the United States, dating back to 1946. Note the conspicuous rise in the number of conflicts during the 'war on terror'. I suspect that future historians might cite this period as the end of the *Pax Americana*. Sources and methods.

"violence by people who are our enemies". The effect of this label is to take diplomacy off the table. (You can negotiate with a 'rival' or even an 'enemy'. But you can't negotiate with a 'terrorist'.)

With diplomacy negated by the threat of 'terrorism', the US began to ramp up its military interventions around the globe. Figure 9 shows the resulting explosion of conflict. From 1947 to 2001, the US military engaged in an average of 0.75 conflicts per year. (Admittedly, some of these conflicts were brutal wars, as in Korea in the 1950s and Vietnam in the 1960s). However, from 2001 onward, the number of US conflicts rose dramatically. At the same time, US military tactics changed. Airborne assassination became the norm, prompting all the public admiration that one might expect from an empire that conducts extrajudicial executions from the sky.

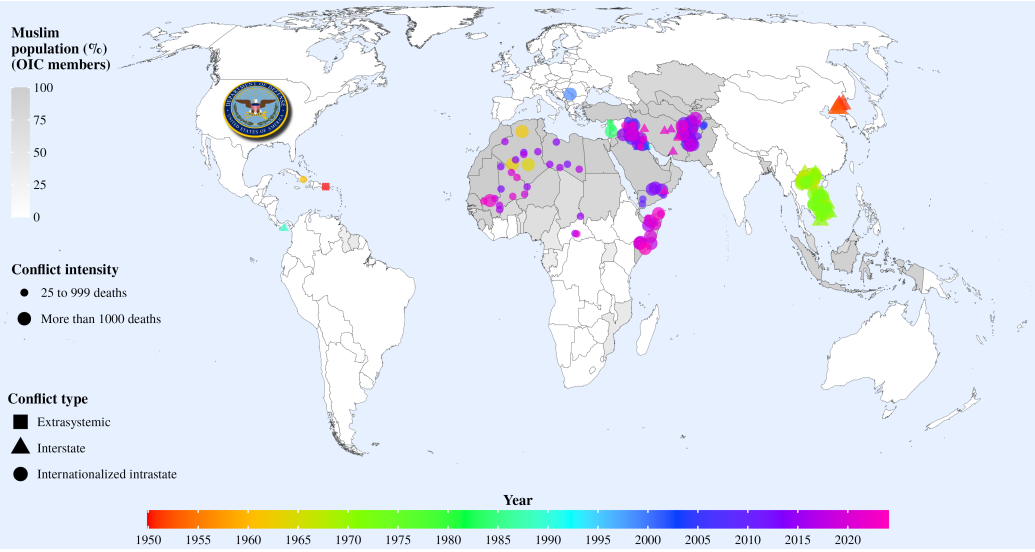

Figure 10: The evolving geography of violence — US military interventions since 1946

This chart illustrates how the 'war on terror' systematically changed the geography of US military violence, centering it on the Muslim world. Here, I've used gray-scale to indicate the Muslim populations within OIC (Organization of Islamic Cooperation) member states. Each point represents a US conflict, with the year indicated by color, the intensity indicated by size, and the conflict type indicated by shape. Note: the within-country location of each conflict point is random. Sources and methods

---

Even more evocative than the growing number of US conflicts has been the changing location of these military engagements. Once a tool for enforcing global peace (and suppressing the occasional communist movement), the 'war on terror' saw the US military become a cudgel for terrorizing Muslim populations in the Middle East and North Africa. Figure 10 shows this evolving geography of violence.

It's within this geographic (and demographic) context that we should understand Trump's war with Iran. After two decades of targeting ragtag militant groups throughout the Islamic world, the Iran War saw the US pick a fight with a major military power. Or at least, that's what the battle damage would suggest. In the Persian Gulf, many US military bases now lie in ruins, as does a significant portion of the oil-and-gas infrastructure (which the US military guaranteed it would protect, but apparently could not). And of course, the Strait of Hormuz is now controlled by Iran.

Looking at these battlefield outcomes, what's odd about the Iranian victory is that on paper, Trump's war had all the markings of a US blowout. In 2024, the Pentagon outspent the Iranian military more than 100-fold. In light of

this spending dominance, there are two ways to interpret the US humiliation. Either Iran got lucky and the US fell victim to remarkably poor planning, or Pentagon spending offers a gross mismeasurement of US military power.

Let me build the case for the latter scenario.

Thorstein Veblen's business

The belief that military spending indicates military power derives from the broader belief in neoclassical economics, which asserts that income (the flip side of spending) always stems from productive 'output'. This belief system is a lie.

A quick look at the real world shows that many types of income stem from doing nothing productive at all. Such is the case with copyleft trolls, who exploit loopholes in early Creative Commons licenses to extract money from people who've made minor attribution errors for content that's otherwise designed to be free. Now, we commonly call this extortion technique a 'scam' or a 'fraud'. But if the political economist Thorstein Veblen was alive today, he'd probably just call it *business*.

You see, Veblen (who lived through the 19th-century heyday of robber-baron capitalism) had a dark view of capitalist enterprise. For Veblen, the goal of 'business' was not to produce useful things, but instead to impose *property rights* onto society, thereby creating the institutional power to command income. So as Veblen would see it, copyleft trolls appeal to the purest form of 'business', which is to receive money by sabotaging an otherwise free activity. The point here is that when we look at income (and its flip side, expenditure), we're seeing the effects of 'business' success.

Now for Veblen, the antithesis of 'business' was the unmonetized human desire to create and produce useful things — a tendency that he called *industry*. Thus, when a farmer grows corn, he engages in 'industry'. But when a commodity trader speculates on the price of corn futures, he engages in 'business'. What's important about Veblen's distinction is that it allows for a divergence between the scale of 'business' income and the scale of social 'industry'. Or put another way, it allows for the existence of the modern United States.

The business-to-industry index

To frame the (seemingly) underwhelming returns to Pentagon spending, it helps to first understand the wider pathology of US power. Once the center of global manufacturing, today the United States more closely resembles a patent troll. It is a country where 'business' is booming but homespun 'industry' is anemic.

Tellingly, Trump's State Department boasts that about 40% of US income and 80% of US exports stem from the enforcement of intellectual property rights. So what's wrong with that? Well, in a business sense, nothing. For the person receiving money, all income is the same, no matter how it's generated. But in a broader social sense, the source of one's income matters. To put it crudely, income from professional murder is different than income from nursing.

In a slightly less pathological vein, IP-based income is socially detrimental because it inflates the price of goods and services that could otherwise be cheap, or even free. (Absent the copyleft troll, the use of Creative Commons images costs nothing.) In other words, intellectual property is a tool for extracting 'business' profits by choking off human 'industry'.

To have a closer look at this business chokehold, I'm going to turn to a metric that I call the *business-to-industry index*. The goal here is to quantify the relation between Veblenian 'business' (the act of profiting from property rights) and Veblenian 'industry' (the act of providing useful goods and services). For its part, Veblenian 'business' is the easier activity to quantify, because the goal is always to command an income stream. Hence, the success of 'business' can be measured in terms of some form of relative income.

In contrast, Veblenian 'industry' is more difficult to quantify, because it encompasses a wide variety of activities that resist simple aggregation. Here, I'll sidestep this problem by ignoring industrial 'output'. Instead, I'll measure the *input* of primary energy. The idea is that energy is essentially a biophysical currency — it's a thermodynamic transaction that must be paid (to the universe) to do anything materially useful. So with thermodynamic payments in mind, I'll measure the scale of 'industry' in terms of energy consumption.

The business-to-industry index consists of the ratio of these two views of society — the ratio of relative income to relative energy use. In the case of the United States, I define the business-to-industry index as the ratio between the US share of world income and the US share of world energy use:

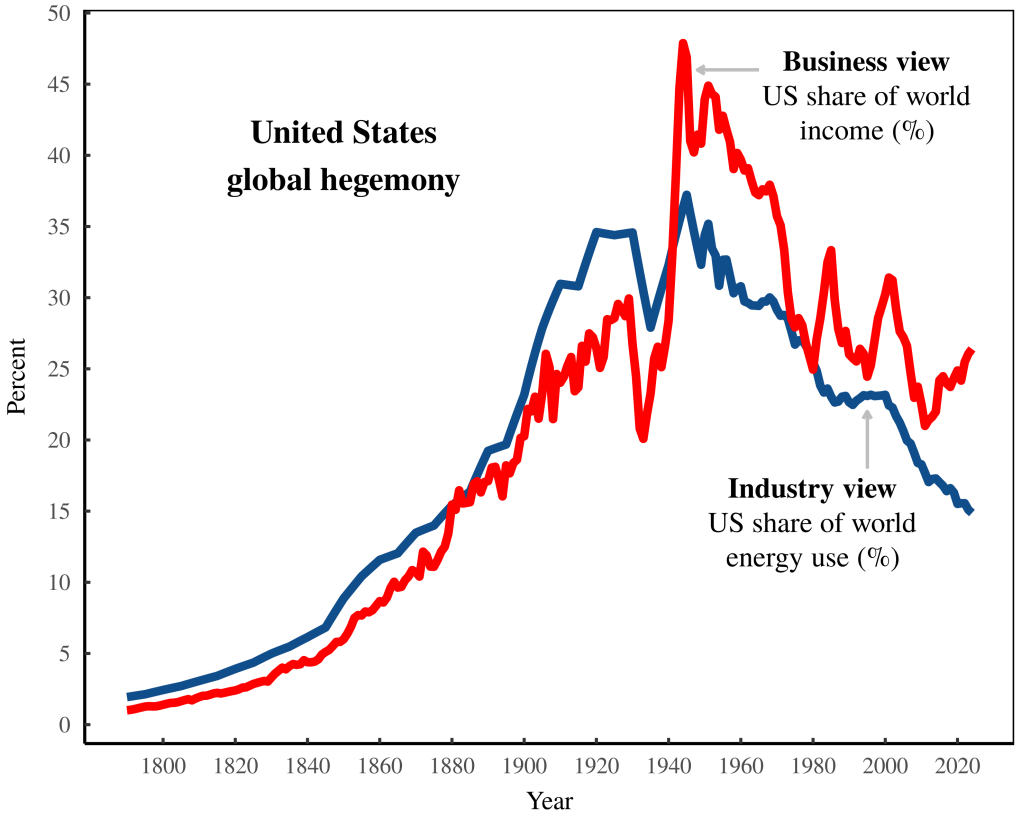

Figure 11: Two views of US hegemony

This chart shows two ways to measure the rise and fall of US global dominance. The 'business' view measures the US share of world income (US GDP as a share of world GDP). The 'industry' view measures the US share of world energy consumption. Sources and methods

$$\text{US business-to-industry index} = \frac{\text{US share of world income}}{\text{US share of world energy use}}$$

Figure 11 shows these two views of US power. The red curve plots the 'business view' — the US share of world income. And the blue curve shows the 'industry view' — the US share of world energy consumption.

Eyeballing Figure 11, it's clear that historically, the rise and fall of US 'business' power stemmed in large part from the rise and fall of industrial hegemony. And fundamentally, that makes sense. If claims on property rights aren't backed by material power, then they become tenuous to enforce and easily undercut.

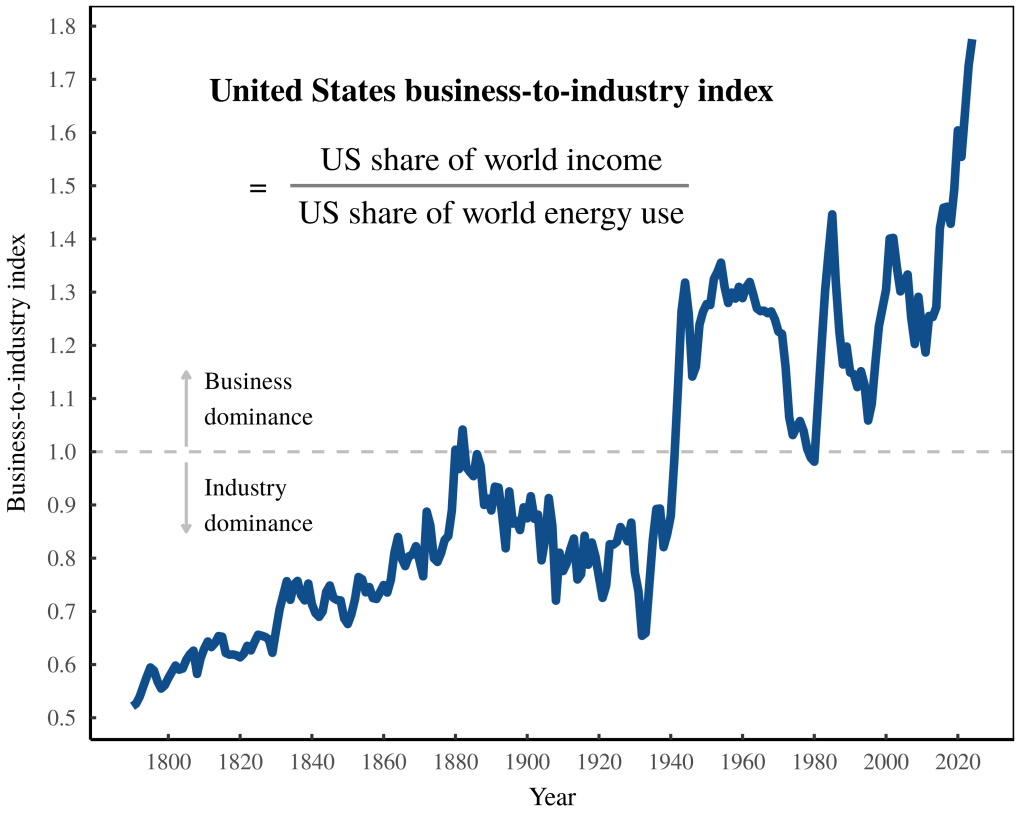

Figure 12: The business-to-industry index in the United States

In the early 19th century, the United States was an industry-dominated country — its share of world energy use outstripped its share of world income. But over the last 200 years, the US has become a business-dominated country. Today, its share of world income outstrips its share of world energy use. Sources and methods

---

That said, when we look more closely at the relation between the two views of US power, a fascinating long-term pattern emerges. Figure 12 illustrates the trend. Here, I've calculated the US business-to-industry index — the US share of world income relative to the US share of world energy use. What's remarkable (and in my mind unexpected) is that for over two centuries, this index has trended north.

In the early 19th century, the US was an industry-dominated country, meaning its share of world energy use was significantly larger than we'd expect from its share of world income. But by the late 20th century, the US had become a business-dominated country, meaning its share of world income significantly outstripped its share of world energy use. All told, the US business-to-industry index is now (as of 2025) more than three times higher that it was in 1790.

Now, since this essay is ultimately about the US military (and not US society in general), I won't dwell on the evidence in Figure 12. But I can't help but connect the trend in the business-to-industry index to a point that Steve Keen recently made about the double-edged sword of empire.

Note that it was shortly after World War II that the US business-to-industry index entered business-dominated terrain. And it was around the same time that the US dollar became the world's reserve currency. I doubt this mutual timing is a coincidence. Keen observes that although control over the world's reserve currency comes with well-known opportunities for profit, it also comes with a major downside, which is that it kills homegrown industry. That's because when a currency attains reserve status, it tends to become overvalued, thereby making exports in the currency-issuing country less competitive. The net effect, according to Keen, is that issuing a reserve currency is "not a spoil of Empire, but a spoiler of Empires."

Looking ahead, there's definitely more to be said on the theme of booming business and anemic industry. But for now, let's return to the topic at hand, which is US military power. If the United States as a whole has become 'business dominated', it seems plausible that the US military has undergone a similar transformation.

Let's have a look.

The Pentagon's problem: A growing mismatch between the 'business' and the 'industry' of war

Having defined the business-to-industry index for the United States, it's easy to apply this metric to the US military. Looking at the Pentagon, its business-to-industry (BTI) index consists of US military expenditures as a share of world income, relative to the US military's share of world energy use:[7]

$$\text{Pentagon BTI index} = \frac{\text{Pentagon share of world income}}{\text{Pentagon share of world energy use}}$$

[7] Note that it would probably be better to use world *military* income (spending) and world *military* energy use in the respective denominators of the military business-to-industry index. But the problem is that the energy use of most militaries remains unknown, and data for global military expenditures lacks historical depth.

Now, before we get to the data, it's worth noting that while the notion of a war 'business' (the act of profiting from violence) is fittingly Veblenian, the idea of a war 'industry' is ... not. You see, outside of capitalism, Veblen had a fairly optimistic view of human nature. Commenting on Veblen's thinking, political economists Jonathan Nitzan and Shimshon Bichler argue that the purpose of Veblenian 'industry' is the "efficient production of quality goods and services for the *betterment of human life*" [my emphasis].

Obviously, if we speak of a 'war industry', the notion of 'bettering human life' takes on a darker tone. Whereas Veblenian 'industry' is positive-sum for the whole of humanity, the notion of a 'war industry' is at best, zero-sum. The goal of the 'war industry' is to produce a powerful military that triumphs over rivals, thereby bettering the lives of the victors (by ruining the lives of the losers).

Acknowledging this dark side of human behavior, let's see how the 'business' view of the US military lines up with the 'industry' view. The short answer is that it *doesn't*. Figure 13 tells the story. Compared to the 'business' view of Pentagon expenditures, the 'industry' view of Pentagon energy consumption is far more anemic. Not only does the Pentagon consume significantly less energy than we would expect from its share of world income, this energy share has declined dramatically.

The net result, as Figure 14 demonstrates, is that the US military's business-to-industry index has more than doubled over the last fifty years. And if we take the absolute value of this index seriously (which is a speculative exercise), it suggests that the Pentagon's stupendous budget may overestimate its war-making power by more than a factor of seven.

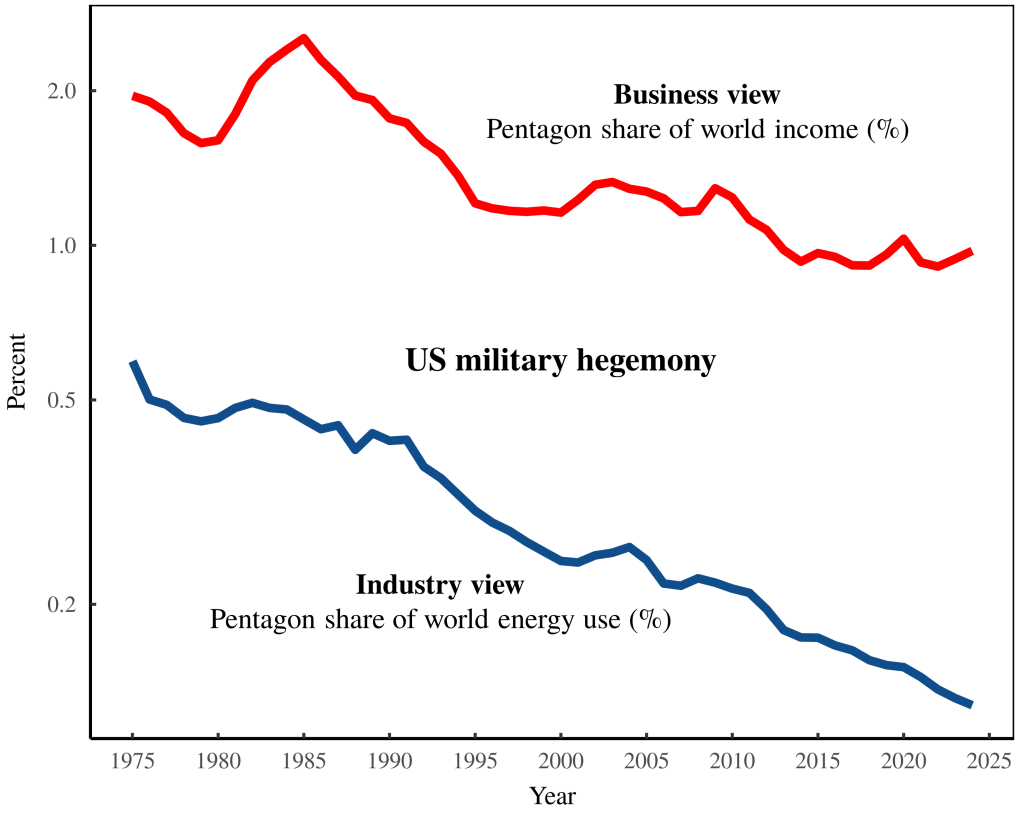

Figure 13: Two views of declining US military power

According to the 'business' view of US military power (Pentagon spending as a share of world GDP), the US military has seen a modest decline over the last fifty years. But according to the 'industry' view (Pentagon energy use as a share of the world total), the decline in power has been much more severe. I should add that I regard energy consumption as the more accurate measurement of military power. Note the log scale on the vertical axis. Sources and methods

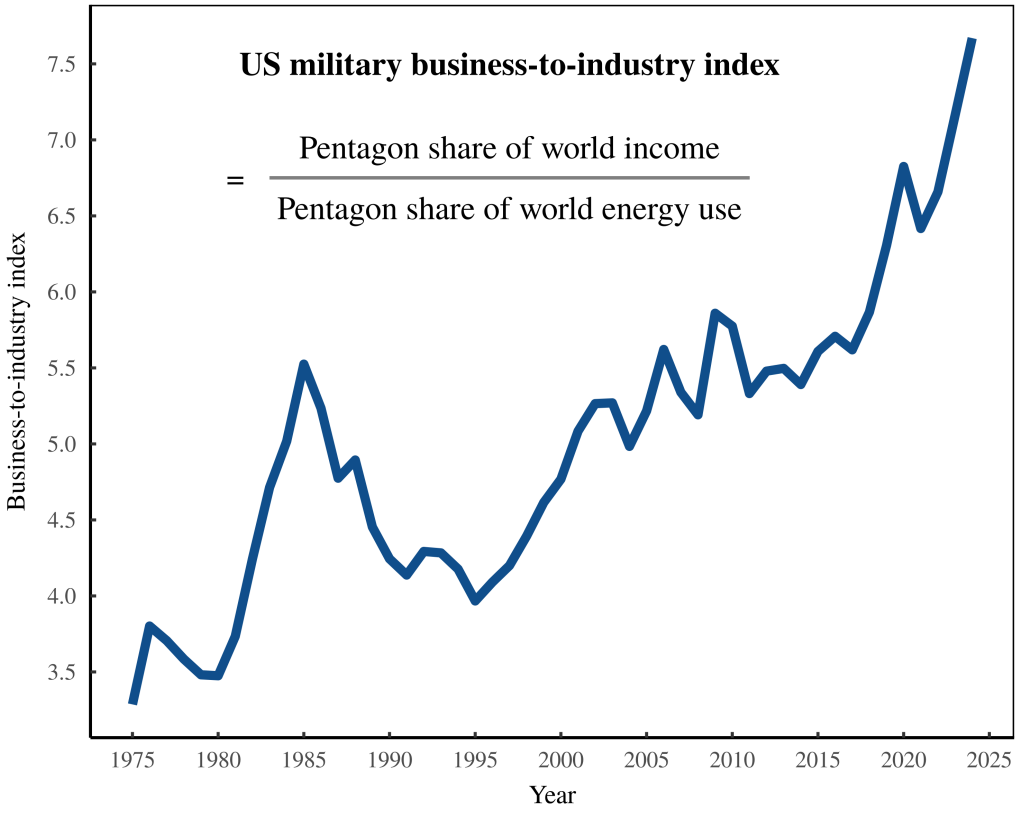

Figure 14: The business-to-industry index for the US military

Over the last fifty years, the US military has become an increasingly business-dominated institution, with its share of world income far outstripping its share of world energy use. If we take this measurement literally, it suggests that Pentagon spending overstates US military power by more than a factor of seven. Sources and methods

Conspicuous consumption

Since the United States is now a business-dominated country (Figure 12), it makes sense that the US military would exhibit similar behavior (Figure 14). But what's somewhat surprising is the degree to which Pentagon spending overstates its consumption of energy. (And to be clear, the use of energy is the more realistic indicator of war-making power.)

To characterize this mismatch, it seems fitting to borrow another idea from Thorstein Veblen. Actually, economist Michael Hudson beat me to the analogy. In a recent interview, Hudson compared US weapons to a Rolls-Royce. They're a technology that exists largely to be *seen*. Now, the military has a suitably stern phrase for this ostentatious behavior. They call it 'power projection'. But given the US military's apparent deficit of power, perhaps a better term would be *conspicuous consumption*.

This was Veblen's term for the behavior of Gilded-Age elites, who had a pathological need to put their wealth on display by parading around objects of great expense. Today, it seems that US military planners have a similar impulse. They feel compelled to procure weapons of ludicrous expense, and to parade them around as a show of force.

Of course, this is not to say that US weapons don't work. They do. But they 'work' in the same way that a Rolls-Royce 'works' as a commuter car. Yes, it gets the job done, but at a cost that doesn't scale. Or put another way, while the US military boasts about its ability to buy Rolls-Royce weapons, less wealthy armies are busy building unassuming weapons that can be manufactured cheaply at scale — the war-making equivalent of mass transit.

Let me demonstrate this weapons scaling problem with some simple math.

When Trump launched his unprovoked assault on Iran, it seems that US planners were not prepared for the effectiveness of Iranian drones. And one can understand why. In terms of their ability to 'project power', Iran's Shahed drones are unimpressive. They're built from inexpensive fiberglass and styrofoam, piloted by consumer-grade GPS, and deliver a modest explosive payload of up to 100 pounds. But as the US military learned the hard way, this unimpressiveness is the point. The Shahed drone can be mass-produced for as low as $20,000 each, which corresponds to roughly $200 per pound of delivered explosive. Nothing in the US arsenal can compete with this budget-based power.

As an example, take the famed Tomahawk missile, a mainstay of US air assault. Developed in the 1970s, each Tomahawk missile now costs about $2 million to procure. For that price, it delivers about 1000 pounds of explosive payload. Sure, that's more destructive power than the Shahed drone. But at $2000 per pound of explosive, the Tomahawk is also about ten times more expensive, pound for pound. Hence, for the same price, an arsenal of Shahed drones could deliver far more destruction than an arsenal of Tomahawks.

Upping the ante of conspicuous consumption, let's turn to the F-35 program. With a projected total cost of over $2 trillion, the F-35 project is expected to deliver about 2400 fighter jets. That corresponds to a lifetime cost of over $800 million per jet. Now, if we assume that these jets are used mostly for power projection, a reasonable estimate is that each plane might deliver 80,000 pounds of explosive during its lifetime. (See my calculations in the appendix.) Doing the math, that comes out to about $10,000 per pound of delivered explosive — a pound-for-pound price tag that's roughly 50 times more than the Shahed drone.

Now, the irony is that in the 21st century, the F-35 is a baroque technology that no one needs, but that US weapons contractors desperately want to build. And in a sense, that's the point. The F-35 exists not because it's an efficient war-making investment, but because it's an extremely *profitable* weapon to sell. Its bespoke construction allows monopolistic contractors ample opportunity for markup. And so the US military now finds itself in an odd situation. As analyst Alastair Crooke observes, the Pentagon wants not for money, yet is nonetheless plagued by "sclerotic supply-lines, long production cycles and minimal weapon inventories." In short, the Pentagon finds that its booming war 'business' is built on an anemic war 'industry'.

An embarrassment of riches

The gods of history no doubt had a sense of irony when they gave Donald Trump the keys to the world's most expensive military. Not every politician is so foolish to mistake stupendous military spending for great military power. But with Trump — a man who's never seen a room that couldn't use more gold-plated decor — the gods found their mark.

And so here we are. Convinced of its unmatched power, Trump let his Rolls-Royce military loose on a third-rate army, only to see it humiliated. The gods continue to laugh. While Trump may never understand the joke, we

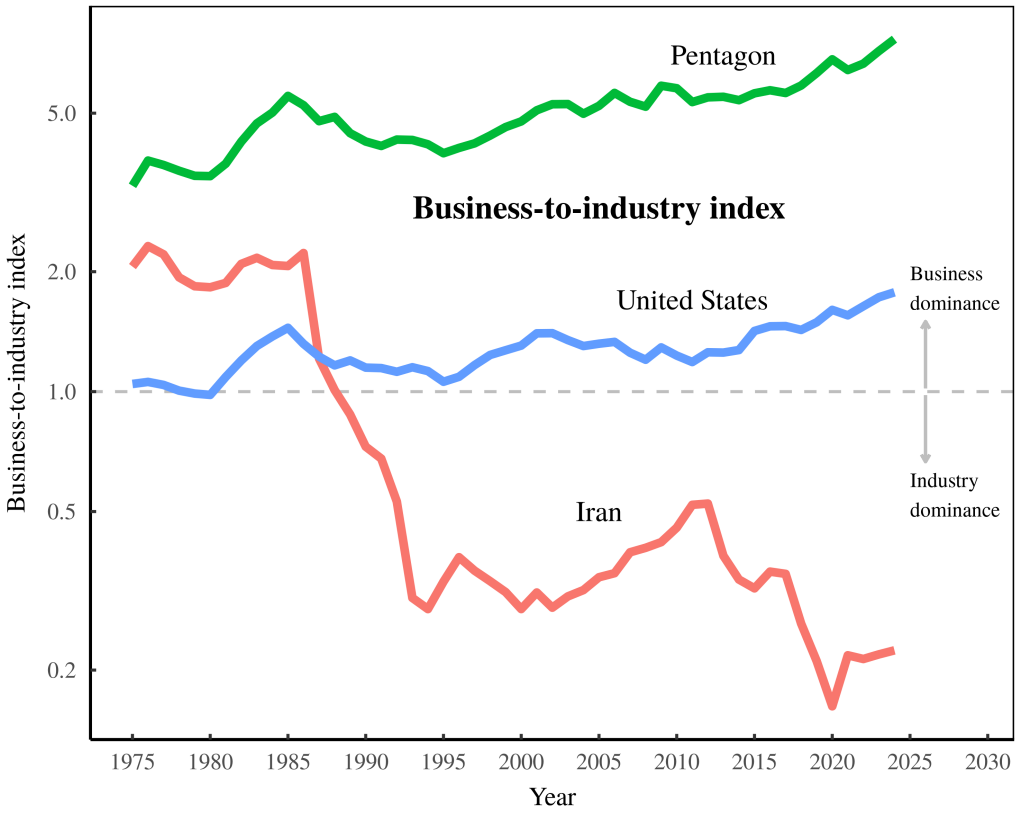

Figure 15: The business-dominated empire and the industry-dominated rebel

Unlike the Pentagon and the wider United States (which have both become more business dominated over the last fifty years), Iran has become more industry dominated. This transformation was almost surely pushed by US sanctions, which were first implemented in 1987. The net result is that today, Iran's share of world energy use dwarfs its share of world income. If Iran's military resides in the same industry-dominated territory as the country as a whole, we can infer that for every dollar of military spending, the Iranian military is able to mobilize about 30 times more energy than the Pentagon. Note the log scale on the vertical axis. Sources and methods

---

can easily unearth the punchline. You see, unlike the Pentagon, which is a business-dominated institution, the Iranian military is likely the opposite sort of organization — a place where 'business' is subservient to 'industry'.

Let me make the case by returning to the business-to-industry index. Figure 15 shows the business-to-industry index for the Pentagon, the United States, and Iran. Unlike the business-leaning United States and the business-dominated Pentagon, Iran is an industry-dominated country. After decades of trade-suppressing US-led sanctions, Iran's share of global income is now markedly less than its share of global energy use.

Of course, the business-to-industry index for the Iranian military itself remains unknown. But let's suppose that the Iranian military is similar to Iran as a whole. If so, we can immediately see why the Pentagon's spending power mismeasures its military advantage over Iran.

In 2024, the Pentagon's business-to-industry index was 7.7, while Iran's business-to-industry index was 0.22. If the Iranian military exists in similar territory, we can surmise that compared to the Pentagon, every dollar of Iranian military spending mobilized more than *30 times more energy*. Or put another way, although the Pentagon outspends the Iranian military by two orders of magnitude, its energy advantage is likely much smaller — potentially as little as a factor of four. If we add in Iran's fortress geography and the globe-spanning nature of US forces, we can see how Iran might prevail against a military that, in terms of finance, seems far more powerful.

At any rate, it's fitting that Donald Trump is the politician to discover this trick of accounting, because he's the last person who'll get the joke. Indeed, there seems to be no irony in Trump's proposal for a 'golden dome' — a missile-defense boondoggle that (if it ever gets built) will be a gilded prize for military contractors. And then there's the proposed Arc de Trump. Sure, it's a grotesque nod to Napoleon. But it's also an unwitting metaphor for Trump's unfolding Waterloo moment. Money may buy glittering gold, but it doesn't always buy military might.

Support this blog

Hi folks, Blair Fix here. I'm a crowdfunded scientist who shares all of my (painstaking) research for free. If you think my work has value, consider becoming a supporter. You'll help me continue to share data-driven science with a world that needs less opinion and more facts.

Sources and methods

Share of world military spending in 2024 (Figure 1)

Data is from the World Bank, series MS.MIL.XPND.CD (Military expenditure in current USD).

US military spending (Figures 2 – 4, 6 – 8, 13 – 15)

Data is from the following sources:

- 1947 to 2025: FRED series FDEFX (Federal Government: National Defense Consumption Expenditures and Gross Investment);
- 1789 to 1946: Historical Statistics of the United States, Millennial Edition, series Ea638 (army spending), Ea639 (navy spending), and Ea640 (air force spending). I take the sum of these series and index them to the FRED data in 1947.

US consumer price index (Figure 3)

Data is from the following sources:

- 1947 to 2025: FRED series CPIAUCSL (Consumer Price Index for All Urban Consumers: All Items in U.S. City Average);
- 1789 to 1946: Historical Statistics of the United States, Millennial Edition, series Cc1 (indexed to FRED data in 1947).

US GDP and GDP per capita (Figure 4, 7, 11, 12, & 15)

- 1947 to 2025: FRED series GDP;
- 1800 to 1946: Historical Statistics of the United States, Millennial Edition, series Ca10;
- 1790 to 1799: Historical Statistics of the United States, Millennial Edition, series Ca9. This is 'real' GDP data that I've converted to nominal GDP using the US consumer price index (see sources above). I have no idea why the nominal GDP data ends in 1800, but the 'real' GDP data goes back another decade. Let's chalk it up to economists' general neglect for the importance of nominal data.
- all data is spliced backwards from the FRED data

For GDP per capita calculations, population data is from:

- 1959 to 2025: FRED series POPTHM;
- 1790 to 1958: Historical Statistics of the United States, Millennial Edition (series Aa7, indexed to FRED data in 1959).

Pentagon spending paid to top 100 US defense contractors (Figure 5)

Spending data is from the following sources:

- 2006 to 2024: SAM.gov, Top 100 Contractors Reports, Department of Defense;
- 2000 to 2004: Scraped from various pages at govexec.com;
- 1958 to 1997: manually collected from Department of Defense 100/500 Top Prime Contractors, 1958-1997 (some years are missing);

S&P 500 earnings per share (Figure 6)

Data is from Robert Shiller's website.

World GDP (Figures 8, 11 – 15)

Data is from the following sources:

- 1960 to 2024: World Bank, series NY.GDP.MKTP.CD (GDP in current USD);
- 1820 to 1959: Maddison Project database, via Our World in Data;
- 1789 to 1819: Archived data from Angus Maddison. (I interpolate this data annually.)

Note that the data prior to 1960 comes with some major caveats. The Maddison database reports global 'real' GDP, measured in terms of purchasing power parity. That is, within each country, GDP is measured relative to some common basket of goods. Hence, the Maddison-database goal is not to measure nominal income, but rather to measure the standard of living, as captured by consumer purchasing power. Given this premise, it's not ideal to use the Maddison data as a measurement of nominal world income. Nonetheless, when it comes to deep historical GDP data, the Maddison database is the only game in town.

Here's how I convert the Maddison data into a measure of nominal world GDP. First, I assemble a long-term dataset for the US GDP deflator as follows:

- 1929 to 1960: FRED series A191RD3A086NBEA;
- 1800 to 1928: Historical Statistics of the United States, Millennial Edition, calculated using the ratio between nominal GDP (series Ca10) and real GDP (series Ca9);
- 1790 to 1799: Historical Statistics of the United States, Millennial Edition, CPI series Cc1. (I use the consumer price index as a proxy for the GDP deflator.)

- All data is spliced backwards from the FRED data

With this GDP deflator data, I re-inflate the Maddison 'real' GDP data (reported in PPP USD) to create a proxy for world nominal GDP, measured in USD. Like I said, this calculation makes some conceptual leaps that are not strictly valid, so treat it with a grain of salt.

US military conflicts (Figures 9 & 10)

Data is from the Uppsala Conflict Data Program, UCDP/PRIO Armed Conflict Dataset version 25.1. (I crawl the UCDP and search for any conflicts in which the United States is a belligerent.) For conflicts in which the US attacked a non-state actor, I've placed the conflict inside the country where this non-state actor was active. Note that in Figure 10, the location of individual conflict points is randomly generated by sampling within the geography of the host country.

US energy consumption (Figures 11, 12, & 15)

Data is from the following sources:

- 1949 to 2025: Energy Information Agency, Table 1.3, Primary energy consumption estimates by source;
- 1789 to 1949: Appendix E1 in the EIA 2009 Annual Energy Review (available here).

World energy consumption (Figures 11 – 15)

Data is from the following sources:

- 1800 to 2024: Our World in Data, Energy Production and Consumption;
- 1790 to 1800: Data is from Ian Morris' book The Measure of Civilization, Tables 3.1 & 3.4. Morris reports data for energy use per capita in the East and West. Using population data from Angus Maddison, I aggregate Morris' data to estimate world energy use. Then I splice this data to the OWID data from 1800.

Pentagon energy use (Figures 13 – 15)

Energy-use data for the Department of Defense is from the Federal Energy Management Program, Comprehensive Annual Energy Data, Table A-4: Primary Energy Use by End-Use Sector and Energy Type, by Federal Agency. (Note that I use data for 'primary energy', not the also-reported 'site-delivered energy'.)

Iranian GDP and energy use (Figure 15)

Data for Iranian GDP is from the World Bank, series NY.GDP.MKTP.CD (GDP in current USD). Data for Iranian energy use is from the Energy Institute Statistical Review of World Energy, series TES_EJ (total energy supply in exajoules).

F-35 calculations

Here is my calculations for the mass of explosives dropped by an F-35 during its lifespan. I assume that the vast majority (99%) of sorties are for power projection or training, and not for battle:

- F-35 service life: 8000 hours
- Length of each sortie: 2.5 hours → 3,200 total sorties
- Combat rate: 1% of sorties → 32 combat sorties per plane
- Explosives dropped per combat sortie: 2500 pounds
- Result: 80,000 pounds of explosive dropped per F-35 jet

Note: If war breaks out and F-35s are used intensively for dropping bombs, then the combat rate will increase significantly. But at the same time, flying into a battle zone involves the risk of getting shot down, which would reduce the average service life per plane. At any rate, strapping pilots onto flying bomb-dropping machines is a relic of the 20th century. Today, it's little more than an expensive stunt (much like manned space flight).

Further reading

Doctorow, C., & Giblin, R. (2022). *Chokepoint capitalism: How big tech and big content captured creative labor markets and how we'll win them back*. Beacon Press.

Fix, B. (2019). The aggregation problem: Implications for ecological and biophysical economics. *BioPhysical Economics and Resource Quality*, *4*(1), 1.

Nitzan, J., & Bichler, S. (2009). *Capital as power: A study of order and creorder*. New York: Routledge.

Veblen, T. (1904). *The theory of business enterprise*. New York: Martino Fine Books.

Veblen, T. (1923). *Absentee ownership: Business enterprise in recent times: The case of America*. Transaction Pub.