Policy-makers should perform a cost-benefit analysis before initiating a war. This article describes a methodology for such assessment, and applies it post hoc to five military actions undertaken by the United States between 1950 and 2000 (the Korean War, the Vietnam War, the invasion of Grenada, the invasion of Panama, and the First Gulf War). The analysis identifies three broad categories of value: human capital, economic outcomes, and national influence. Different stakeholders (politicians, generals, industry, etc.) may assign different weights to these three categories, so this analysis tabulates each separately, and then, as may sometimes be necessary, monetizes them for unified comparison.

2. Five Conflicts

Military actions occur in complex contexts. This article cannot capture all of the issues that affected the decision to undertake armed interventions and wars. Nonetheless, a brief summary of the history is helpful in understanding our analysis.

2.1. The Korean War

The Korean War took place between June 25, 1950 and July 27, 1953, triggered by North Korea sending armies south of the 38th...
parallel—the boundary established at the end of World War II. North Korea was strongly supported by China and somewhat supported by the U.S.S.R., whereas South Korea was supported by the United States. Thus, the conflict was part of the Cold War struggle between communism and capitalism.

In response to the invasion, the United Nations Security Council called for a ceasefire. When it failed, the U.N. dispatched a security force; ultimately 21 countries contributed to that force, with the United States as the primary participant. More than 325,000 U.S. troops were involved, and casualties were significant.

At the end of the war, the Korean Armistice Agreement established a demilitarized zone very close to the 38th parallel. Following that accord, South Korea slowly matured into a major economic power, whereas North Korea stagnated, in part because the war destroyed most of its industrial infrastructure.

Subsequent sections will detail our assessment of the three categories of tradeoffs in this conflict. But this example is one in which the prestige category may be unusually important. One narrative holds that U.S. participation in the Korean War was a humanitarian response to a U.N. initiative, and one in which the United States gained soft power through leadership in a joint action with like-minded nations.

2.2. The Vietnam War

American participation in the Vietnam War ran from November 1, 1955 to the fall of Saigon on April 30, 1975. The United States supported South Vietnam against the communist north. Unlike in the Korean War, China and the U.S.S.R. provided little support to North Vietnam. Initially, U.S. involvement was minor, consisting of small numbers of military advisors. But starting in 1961, President Kennedy and subsequently President Johnson substantially escalated the conflict; in 1969, President Nixon began a cautious de-escalation. After the United States withdrew from Vietnam, it had essentially no trade relations with the country until 1995.

One major basis for United States involvement was the domino theory, which held that if South Vietnam became communist, then many other nations in southeast Asia would do so as well, damaging U.S. interests in the region. Although counterfactual speculation is difficult to justify, it is worth noting that when South Vietnam fell, only Cambodia became communist (in 1975), and its previous government had already been destabilized in various ways by U.S. interventions. Of course, if the United States had not been involved in Vietnam, it is possible that many more countries might have become communist.

From the United States perspective, this was a deeply unpopular war, which may have been the most significant intangible outcome. It diminished domestic trust in the government and divided the nation. Additionally, the United States conspicuously lost to a minor power, which presumably had reputational consequences.

2.3. The Invasion of Grenada

The invasion of Grenada (Operation Urgent Fury) followed the deposition and execution of its prime minister, Maurice Bishop. It lasted from October 25 to December 15, 1983, terminating with the installation of a temporary government appointed by Governor-General Paul Scoon, which was soon replaced by a new government chosen by a national election. This was the smallest military action of the five we consider, involving only 7300 U.S. soldiers.

The stated purpose of the invasion was to protect approximately 600 U.S. citizens who were studying medicine in Grenada. Additional factors included making Americans forget the Beirut attack, an aversion to a Stalinist government in this hemisphere, and an appeal from Scoon for military intervention to restore Grenada as a constitutional monarchy under Queen Elizabeth II.

The U.S. invasion was widely condemned abroad for its interference, but with little consequence or cost. The action was domestically popular; it probably boosted President Reagan politically, although it is unlikely to have affected the outcome of his 1984 campaign.

2.4. The Invasion of Panama

The Panamanian invasion (Operation Just Cause) began on December 20, 1989, and ended on January 31, 1990. It was a small conflict, involving about 27,000 U.S. troops, and resulted in the replacement of Panama’s ruler, Manuel Noriega, by his political opponent Guillermo Endara.

President Bush gave four reasons for the invasion (New York Times 1989):

- To protect the lives of about 35,000 U.S. citizens in Panama (civilians and military). A U.S. marine was killed shortly before the invasion, and there had been multiple clashes.
- To protect human rights and democracy in Panama.
- To stop drug trafficking, an activity with which President Reagan had charged Noriega.
- To ensure compliance with the terms of the Torrijos-Carter Treaties that had transferred control of the Canal to Panama. Many U.S. political leaders thought Noriega would violate neutrality conditions on shipping.

The antipathy between the United States and Noriega began under the Reagan administration, and was exacerbated when Noriega began to side with communist regimes in the region.

As with Grenada, much of the world condemned the U.S. action, but it was popular domestically. Democracy and human rights in Panama improved under Endara and subsequent presidents, but the drug market in the United States was unabated. It is unclear what would have happened to the 35,000 U.S. residents in Panama if Operation Just Cause had not been undertaken, or whether commerce through the Panama Canal would have been significantly different without the invasion.

2.5. The First Gulf War

The Gulf War began on August 2, 1990, with the United States entering the theater on January 17, 1991, and it ended on February 28, 1991. Codenamed Operation Desert Storm, it was a conflict with Iraq in response to the Iraqi invasion and
annexation of Kuwait. Forces from 35 nations were involved, led by the United States.

The Iraqi occupation had been met with significant international condemnation, and resulted in economic sanctions against Iraq from members of the U.N. Security Council. After Saddam Hussein refused to withdraw from Kuwait in response to Security Council demands, the combat phase commenced with U.S. air strikes, eventually leading to Kuwait's liberation and the advance of coalition forces into Iraqi territory.

The rationale for the U.S. intervention was that Iraq had violated Kuwaiti territorial integrity. The economic advantage of allying with Saudi Arabia, a key oil exporter, may also have been a motive. Additional concerns were expressed over Saddam Hussein's history of human rights violations.

The United States provided approximately 425,000 troops. Initially considered a major success for the United States and its allies, the ensuing instability in the region set the stage for the Second Gulf War that began in 2003. Notably, the United States enforced a strict trade embargo on Iraq, which lasted until the Second Gulf War ended in 2003. The effect on U.S. oil interests in the area, as well as the unanticipated staging for future conflict, stand as the most significant outcomes of this conflict.

### 3. The Cost of Casualties

A major cost or benefit of war is the number of lives lost or saved. Tallying the American deaths is straightforward. Table 1 gives, for each action, the official figures for the number of U.S. military personnel killed in battle, the number of non-mortal woundings, and the number who died in that theater but not during combat. All of the numbers except those for the Grenada invasion were obtained from the Department of Veterans Affairs. The Grenada figures are from Cole (1997, p. 62).

| Conflict          | Battle deaths | Woundings | Other deaths |
|-------------------|---------------|-----------|--------------|
| Korean War        | 33,739        | 47,434    | 19           |
| Vietnam War       | 47,434        | 153,303   | 116          |
| Grenada           | 26            | 325       | 0            |
| Panama            | 148           | 467       | 0            |
| First Gulf War    | 52            | 235       | 0            |

The counterfactual, the number of American lives saved, is more difficult. For the Korean War, the Vietnam War, and the First Gulf War, that number is certainly essentially zero. For the Grenada invasion, President Reagan expressed concern for the safety of 600 medical students; for the Panama invasion, President Bush expressed concern for 35,000 U.S. residents. For Grenada, there are conflicting views. On October 25, Ted Koppel telephoned medical students on *Nightline* who said they were not in danger; on October 26, in a second call, students said the invasion had probably saved their lives. For Panama, given that one U.S. marine had already been killed before the conflict, it seems likely that additional deaths would have occurred without some sort of intervention.

This analysis uses the Iranian hostage crisis as a guide for estimating the number of lives saved in Grenada. It seems the best parallel situation during this time period, and close to a worst-case outcome. During the Iranian hostage crisis there were 52 American hostages, who were held for 444 days, and all survived. Suppose the same outcome had happened in Grenada, but with 600 hostages. The hostages would have lost a total of 720 years, and if each student were to have lived an additional 50 years, then this is equivalent to 14.4 deaths.

For Panama, the situation is different. There were 19 U.S. military installations in Panama, and many of the 35,000 Americans in Panama were soldiers (Wikipedia 2017). Given that tensions were growing, additional mortality seems likely. As a likely overestimate, we will suppose that the decision to invade saved 20 U.S. lives that would otherwise have been lost in a violent outbreak.

Morally, one should also count the lives lost and saved among the citizens of Korea, Vietnam, Grenada, Panama, and Iraq. But this article takes an economic perspective, and a rational expected utility maximizing President of the United States cannot assign much monetary value to foreign lives—so our cold-blooded calculus ignores them.

The main finding here is that in all five conflicts, the net result to the United States was loss of life. None of these military actions saved more American lives than were lost.

#### 3.1. Monetizing a Statistical Life

To compare our three categories of costs and benefits, it is necessary to put things on a common footing. Money is convenient, and there are several standard ways to estimate the value of a statistical life: revealed preference (Viscusi and Aldy 2003), expected future income (Johnson and Flanigan 1984), and values used by government agencies to guide regulation (National Center for Environmental Economics 2015; currently, most official values center around $9.1 million). But we believe that these methods are inappropriate for a cost-benefit analysis of war. Instead, the actual cost to the United States should be the expected reduction in GDP due to death or injury.

A full analysis is impractical. One would have to look at the GDP in each year since the start of the conflict, convert to standard dollars, and use demography and other datasets to infer how much the dead or injured soldiers would have contributed. One would have to decide whether soldiers contribute more than the typical citizen, and if so, how much. (Men make more money, and soldiers tend to be male; soldiers are screened for physical and mental health; discipline and training add value; preferential hiring; and so forth. On the other hand, post-traumatic stress disorders occur, there may be elevated rates of alcohol and drug abuse, and soldiers are less likely to have gone to college.) Additionally, one would have to factor in the changing gender and skills mix in the workforce, and many other issues.

To sidestep this quagmire, we apply a very rough approximation. We assume that a soldier is typically 20 years old, and will retire at age 65. Salaries tend to increase over one’s career, and so we estimate their contribution 22.5 years after the midpoint of the conflict (the midpoint of their career). In that anchor year, we divide the U.S. GDP by the number of people in the workforce, convert to 2017 dollars, and multiply by 45 to find the estimated lifelong contribution to the U.S. economy. The data on the U.S. GDP comes from the U.S. Bureau of Economic Analysis.
Table 2. Components for the calculation of the value of a statistical life for soldiers of typical age during the time periods of the five conflicts.

| Conflict        | Anchor year | GDP       | Workforce | Worker value/year | Lifetime value |
|-----------------|-------------|-----------|-----------|-------------------|---------------|
| Korean War      | 1974        | 6.2       | 92        | 67                | 3.0           |
| Vietnam War     | 1987        | 9.5       | 120       | 79                | 3.6           |
| Grenada, Panama | 2005        | 16.4      | 149       | 97                | 4.4           |
| Panama          | 2012        | 17.6      | 154       | 111               | 5.0           |
| Gulf War        | 2013        | 18.0      | 155       | 116               | 5.2           |

NOTE: GDP is measured in trillions of 2017 dollars, workforce numbers are measured in millions, worker’s value in the GDP is measured in thousands, and lifetime contribution is measured in millions of 2017 dollars.

Table 3. Injuries by type.

| Injury type            | Record number | Percentage of total |
|------------------------|---------------|---------------------|
| Complete disability    | 23,214        | 0.08                |
| Severe disability      | 51,786        | 0.17                |
| Hospital care          | 78,329        | 0.26                |
| Nonhospital care       | 150,375       | 0.50                |
| Total                  | 303,704       |                     |

(2017), and the data on the U.S. workforce comes from the U.S. Bureau of Labor Statistics (2017). Table 2 shows the result of these calculations.

Accounting for the cost of the wounded is difficult. Recent wars tend to have more survivors who are severely wounded, as better medical technology saves people who would otherwise have died. The U.S. Department of Veterans Affairs has exact numbers, but these are difficult to access. Instead, we use rates on severity from the Vietnam War (Helicopter Veterans of the Vietnam War 2017) as approximations for all five conflicts. These figures are shown in Table 3.

Table 3 shows that 8% of the wounded are completely disabled, and 17% are severely disabled. Our monetization assumes that a completely disabled person does not contribute to the GDP, and that three severely disabled people are economically equivalent to one fatality in terms of GDP reduction. We do not assign costs to the other categories, in keeping with our goal to avoid overestimating the cost of war.

With these assumptions, and using Table 1, the effective economic mortality rate in the Korean War was 33,739 + 17,672 + (0.08)(103,284) + (0.17)(103,284)/3 = 77,232. And the lost contribution to the U.S. GDP is estimated from Table 2 as ($3,000,000)(47,854.48) = $143.6 billion in 2017 dollars. Similar calculations find that, for the Vietnam War, the invasions of Grenada and Panama, and the First Gulf War, the cost of the casualties was $285.0 billion, $0.15 billion, $0.25 billion, and $2.3 billion, respectively. This calculation credits the Panama invasion with saving 20 American lives.

4. Economic Costs

Wars have direct and indirect economic effects. Direct costs include actual money spent on the conflict, benefits for veterans, assistance to allies, and interest on war debt. Indirect effects include increased private sector income and employment, a fiscal multiplier effect from government spending that generates new consumption and new tax revenue, invention of new technology, complex interactions between inflation and the balance of trade, and opportunity costs. A full accounting would require detailed (and debatable) economic models, but practical approximation seems possible.

In this analysis, we shall focus on the following costs and benefits: direct military operations, veterans’ benefits, the effect on the domestic economy, and assistance to allies. There are many additional costs or benefits, but these are secondary effects. We do not attempt to estimate opportunity costs—it seems difficult to do this in a principled way. But we note that for the cases of Korea, Vietnam, and the first Gulf War, these would surely be considerable.

4.1. Military Operations

Daggett (2010) has calculated the cost of military operations for the Korean War, the Vietnam War, and the First Gulf War. In 2017 dollars, these come to $371 billion, $802 billion, and $111 billion, respectively. Using the First Gulf War (the most proximate in time and scale) as a benchmark for the relationship between force size and cost in recent conflicts, we estimate the costs of the actions in Grenada and Panama as (7300/425,000) $111 billion = $1.9 billion and (27,000/425,000) $111 billion = $7.1 billion, respectively.

4.2. Veterans Benefits

It is difficult to assess the costs of benefits to veterans. During this period eligibility rules change, benefits change, and medical care costs increase a lot; also, medical needs change with age, and the conflict mix changes as veterans in previous wars die off. It is beyond our resources to undertake the detailed bookkeeping needed to calculate an accurate estimate. But we can make reasonable approximations.

The Korean War and the Vietnam War both increased the size of the U.S. military through drafts and volunteers. This inflated the number of people who could claim benefits. In contrast, the number of military personnel did not increase during the invasions of Grenada, Panama, and (nearly negligibly) Iraq, so the costs for these conflicts are only the costs of injuries and death benefits.

For the Korean War and the Vietnam War, we estimated the increase in the size of the military attributable to those wars and prorated the share of the Department of Veterans Affairs (VA) budget for the subsequent 70 years, at ten year intervals. Our estimated expense for each decade is ten times the midpoint of their cost share in the VA budget at the beginning and end of that decade.

We assume that no draftee would have otherwise served, and that half of the volunteers would have served without the war (which is probably too high, but ensures our cost estimate is biased low). There were 1.5 million draftees in the Korean War and 1.3 million volunteers (Ingalls 2016), so we estimate the increase in veterans over the peacetime force as 1.5 + 1.3/2 = 2.15 million. For the Vietnam War, between August 5, 1964 to May 7, 1975, there were 9,087,000 military personnel, of whom one-third were draftees (U.S. Wings 2017). So our estimate of the increase in the veteran pool due to the Vietnam War is 9,087,000 (2/3) = 6,058,000.
The VA’s budgets were obtained mostly from Scott (2012). For 2015, we used Sotak (2014). For future budgets, we assumed that the amount allocated for 2018 (U.S. Department of Veterans Affairs 2017a), $186.5 million, would be unchanged. The number of veterans in each year is an estimate. Typically, we found these online in the annual reports of the VA (U.S. Department of Veterans Affairs 2017b). However, there was no posted annual report for 1992, nor for years later than 2016, and so we interpolated and extrapolated, respectively, using the chart on slide 4 of an official briefing (U.S. Department of Veterans Affairs 2014). To account for natural aging among Korean and Vietnam War veterans, we assumed that the typical soldier was 20 years old and used the life tables for males born in 1932 and 1950, respectively, calculated by Bell and Miller (2005). Thus, for Korean War veterans 95% would survive to age 30, 90% to age 40, 81% to age 50, 67% to age 60, 45% to age 70, 19% to age 80, and 3% to age 90. Analogous numbers apply to Vietnam veterans.

Specifically, for the Korean War, we take the years 1952, 1962, …, 2022 and find the size of the VA budget (in 2017 dollars), the estimated number of veterans, and the estimated number of veterans who joined because of the war (i.e., excluding those who would have joined the military had we been at peace). We can now calculate the percentage of veterans who receive benefits due to the Korean War, and prorate the VA budget to estimate their cost. Table 4 shows these results.

For each decade, the estimated cost is the average of the bracketing values, multiplied by ten. So, for the Korean War, the estimated cost between 1952 and 1962 is (10)(4.23 + 3.62)/2 = $39.2 billion. Summing over all decades gives the total cost of the Korean War VA benefits as $223.3 billion, in 2017 dollars.

Table 5 pertains to the Vietnam veterans. Replicating the previous calculation gives a total cost estimate of $1.075 trillion 2017 dollars.

For the other three conflicts, the additional costs were disability benefits, death benefits, and similar payments. Calculating these is difficult, because with age, many people with mild disability progress to complete disability (National Center for Veterans Analysis and Statistics 2015). As with previous assumptions, we will equate three severe disabilities with one complete disability. For simplicity, and with the goal of underestimating costs, we count only disability payments, and not payments or support for dependents.

From Table 3, 8% of wounded veterans are completely disabled and 17% are severely disabled. Assuming that three severely disabled people are paid benefits equal to one completely disabled person, then the data in Table 3 imply that the effective number of completely disabled veterans from the conflicts in Grenada, Panama, and the First Gulf War are 15.85, 44.42, and 63.82, respectively.

Bilmes (2007) reported that a fully disabled veteran receives $51,930 per year (in 2017 dollars). Since complete disability often reduces lifespan, we assume that those who are completely disabled at 20 will die, on average, at age 50. This implies that the VA costs for the Grenada invasion are (15.85)(30)($51,930) = $24.7 million. Similar calculations find the costs for the veterans of Panama and the First Gulf War to be $68.9 million and $99.4 million, respectively.

### 4.3. The Domestic Economy

Economic historians have theorized about the impact of war on the domestic economy. There is a Keynesian case that war can be beneficial. Some credit World War II with ending the Great Depression by providing essentially full employment; Krugman (2009) discussed the nuances. Higgs (2006) and others disputed this, arguing that although unemployment fell and factory output increased, soldiers do not build an economy and factories producing tanks rather than cars do not raise prosperity.

Clearly, full employment could have been achieved by other means, such as more aggressive use of New Deal programs, but the reality is that the United States had not done so. Economic historians have studied this in detail, and the consensus seems to be that although war is not the most efficient way to stimulate an economy, it can nonetheless have positive effects.

War can also stimulate new technology. World War II accelerated the development of radar, nuclear energy, computing, and rocketry. These innovations might have happened more rapidly if the United States had directly funded appropriate research rather than employing the incentive of war, but it is unlikely that a government is so presbyopic.

For the five military engagements considered in this article, we approximate the costs and benefits to the domestic economy in terms of the value of trade with relevant nations. This requires specification of sometime window, corresponding to what a rational expected utility maximizing President might reasonably foresee. We think it is generous to imagine that a President can forecast the value of trade partnerships as far as 20 years into the future.

We now estimate the value of maintaining a trade partner (e.g., South Korea) or losing a trade partner (e.g., Vietnam). Based on input from several economists (Edward Tower at Duke University, John Gilbert at Utah State University, and T. D. Wil-
Thus, the invasion brought in $10.2 million dollars in 2003. In millions of 2017 dollars, these were $10.3 and $92.2, respectively. For 2003 (the end of the 20 year record), we assume that 1989–1991 are equivalent to 1992. Maintaining Grenada as a trading partner means that our importswere approximately 10% cheaper and our exports generated approximately 10% more revenue than would otherwise have been the case. For Iraq, after the war the United States imposed a trade embargo that lost it a trading partner it had previously had.

For Grenada and Panama, the U.S. intervention arguably preserved a trading partner that might otherwise have been lost (e.g., if Grenada had gone Stalinist, and if Panama under Noriega were sanctioned like Cuba). For Iraq, after the war the United States imposed a trade embargo that lost it a trading partner it had previously had.

To illustrate the calculation for Grenada, we obtained import and export data from the U.S. Census Bureau (2017a). The records begin in 1992, so we assume that 1989–1991 are equivalent to 1992. Maintaining Grenada as a trading partner means that our imports were approximately 10% less expensive and our exports generated approximately 10% more revenue than would otherwise have been the case. For 2003 (the end of the 20 year span), United States imports and exports from and to Grenada, in millions of 2017 dollars, were $10.3 and $92.2, respectively. Thus, the invasion brought in $10.2 million dollars in 2003. Repeating this for all the years going back to 1989 we find the net benefit to be $92 million (in 2017 dollars).

The U.S. Census Bureau (2017b) also provides data on imports and exports to Panama. Replicating the previous calculation finds that the invasion of Panama may have benefitted the balance of trade by $6.31 billion. This assumes that choosing not to invade would create an outcome in which the United States had no economic interaction with Panama (aside from continued use of the Panama Canal).

Estimating the impact on the U.S. domestic economy from the First Gulf War is difficult. Following the war, the United States imposed trade sanctions which surely hurt the U.S. economy (while damaging Iraq's much more). Nonetheless, the U.S. Census Bureau (2017c) shows significant import and export traffic during the subsequent 20 years, especially after 2003. To estimate the impact on trade, we use Saudi Arabia as a proxy. Its population is about 10% smaller than Iraq's so we inflate the Saudi Arabia imports and exports by 1.094, subtract the imports and exports to Iraq in that year, convert to 2017 dollars, sum over the 20 years, and then take 10% of that as the cost to the U.S. economy of avoiding business with Iraq.

Specifically, from the U.S. Census Bureau (2017d), in 1992 the United States had $7,166.9 million dollars in exports to Saudi Arabia and $10,371.4 million dollars in imports. Adjusting those numbers for the population gives $7,840.6 million and $11,345.3, respectively. During the same period, there were $0.4 million in exports to Iraq, and no imports, for a net difference of $7,840.2 million in exports and $11,345.3 in imports. Converting to 2017 dollars gives $13,906.6 million and $20,123.7 million, respectively. If the inefficiency of sanctions makes comparable exports 10% less profitable and imports 10% more expensive, then it cost the U.S. domestic economy $3,403.0 million dollars. We replicate this calculation for each of the relevant years and sum to estimate the total cost as $62.86 billion (in 2017 dollars).

4.4. Assistance to Allies

Starting in 1953, the United States gave substantial economic and military aid to South Korea until 1974, at which point subsidies dropped almost to zero. In 2017 dollars, the total amount during this period was $69.1 billion (U.S. AID 2011, fig. 1). Had North Korea won, the United States would not have contributed this money. Part of the money spent in South Korea was probably related to South Korea’s support during the Vietnam War—it committed more soldiers than any of the other seven U.S. allies.

During the Vietnam War, the United States loaned money to Cambodia to defray the costs of feeding refugees. That money has not been repaid, and in current dollars comes to $500 million (Sullivan 2017). The United States also contributed at least $1.8 billion (in 2017 dollars) to Thailand for economic development and counterinsurgency (Muscat 1990, p. 159). It is possible the United States would have supported Thailand by as much as half that sum even without its strategic value in the Vietnam War, and so we conservatively estimate the contribution to be only $900 million.

Regarding the other three conflicts, we found no evidence of any substantial payments to allies. However, we expect that the coalition that the United States built in the First Gulf War probably entailed discreet financial arrangements, especially with Bangladesh, Syria, Egypt, and Czechoslovakia.

5. Prestige and Other Intangibles

War has other consequences than mortality and economic impact. Prestige, land, and reputation may be lost or gained. Tourists, students, immigrants, and foreign investment may be attracted or discouraged. Additionally, “soft power” describes a nation’s ability to persuade rather than coerce other nations, through prestige that is often based upon culture, values, or foreign policy. Such things are difficult to describe and harder to quantify, but they merit some accounting.

On these metrics, the invasions of Grenada and Panama were cost-neutral. The United States was lightly criticized by a number of other nations, but that was transient. Offsetting those criticisms, the United States prosecuted these military actions with unsurprising success, and both conflicts were popular domestically. Had the United States not intervened in Grenada, it is
difficult to identify any specific change in soft power. Perhaps Panama was slightly more positive. There had been vague international concern over the operation of the canal, Noriega’s rule, and the security of foreigners in Panama. But these were minor concerns, and the invasion was not consequential to U.S. status.

5.1. The Korean War

The United States was the leading partner in a U.N. alliance to oppose aggression by North Korea. This confirmed U.S. leadership in the aftermath of World War II, laid the foundation for its policy of opposing the spread of communism, and defined the role of the U.N. in geopolitics. It was a notable acquisition of soft power, and although it set the stage for future problems, it was a remarkable achievement.

Domestically, the Korean War was popular. The Gallup poll (Crabtree 2003) found that 78% of Americans approved Truman’s decision to go war. The following January it fell to 49%, but rebounded under Eisenhower. For the Korean War, the United States did not suffer the internal struggles that marked the Vietnam War.

The war also accomplished the U.N. objective of maintaining the national boundary of South Korea, and did so through the somewhat respectable mechanism of an international alliance. No doubt many in the United States would have preferred to have conquered North Korea outright, but the involvement of the U.S.S.R. and China made the draw a politically realistic outcome, and accorded with the mandate for the U.N. to respect national sovereignty.

There is no clear way to monetize the value of the soft power that accrued to the United States from the Korean War. One can compare the United States gain to that of Canada or Australia, both of whom participated in the Korean War, but without the cachet of leadership. In the interests of conservative underestimation of the cost of war, we shall assume (with very little basis) that the soft power advantages monetize to 1% of the 2016 U.S. GDP. The U.S. GDP was $18.5 trillion dollars in 2016, so a very impressionistic accounting values soft power and related benefits at $185 billion dollars.

5.2. The Vietnam War

The Vietnam War damaged U.S. prestige. The United States lost the war, and tore its own social fabric. Trust in all levels of government diminished, and that situation persists.

There were also deaths to be accounted for. Including the Sterling Hall Bombing, the self-immolation of Alice Herz, the Jackson State killings, the Kent State shootings, and the Chicano Moratorium, there were 12 protest-related deaths. From Table 2, this is a loss of $43.2 million in 2017 dollars.

Some portion of the increased cost of law enforcement during this time should be assigned to the Vietnam War. We do not have data that enables an estimate, but the calculation merits mention.

A benefit from the war is that college enrollment increased, due to both draft avoidance and veterans using the G.I. Bill for higher education. To estimate the number of college enrollments caused by the war, we use data from the National Center for Education Statistics (2013) to regress the number of men in college against the number of women in college, omitting the years 1966–1972. For those years, the excess male enrollment over the baseline predicted from the regression line is attributed to the war. (The draft ended on January 23, 1973, so avoidance was not pertinent to 1973 enrollments. And women were not subject to the draft, and thus provide a benchmark.) Figure 1 shows the regression. The estimated increase in college enrollment for men

![Figure 1. The red line is the predicted male enrollment in college as a function of female enrollment for the years between 1947 and 2014. The blue curve is the smoothed male enrollment that is observed. Female enrollment increased monotonically over this period, so the x-axis can be transformed to year.](image-url)
by year is shown in Table 6. We are working with enrollment figures, so someone who obtains a degree in four years will appear in four consecutive years. To correct this, we divide the total enrollment by 4, which slightly underestimates the number of college degrees because of the sliding window. To compensate, and to continue erring on the side of underestimating war costs, we assume that all those enrolled eventually graduated with a bachelor's degree. So about 270,000 extra men obtained college degrees.

To monetize the benefit of education, we should determine its impact on U.S. GDP. We see no sensible way to do that, so instead we calculate the estimated lifetime earnings, in 2017 dollars, from a college degree. Mitchell (2014, fig. 1) reports on the income trajectories of a sample of men with different education levels. For men born between 1945 and 1949 (the Vietnam War cohort), the average income advantage of a college degree versus a high school degree was $4000 at age 25, $14,000 at age 35, $22,000 at age 45, $26,000 at age 55, and (extrapolating from the trend), $26,000 at age 65. We convert to 2017 dollars, average the endpoints of each ten year period, multiply by 10, and sum to find the lifetime payoff of a male college degree. In 2017 dollars, it comes to an additional $1.35 million over what a high school graduate would make.

These calculations imply that the United States gained about $360 billion in extra income from college graduates due to the Vietnam War. The cost of 12 lives lost, $43.2 million, is relatively negligible, and so our monetary estimate of the intangible outcomes from the Vietnam War is a gain of $360 billion. But we believe this is a generous overestimate.

Table 6. College enrollment increase by year.

| Year | Actual values | Baseline | Difference |
|------|--------------|----------|------------|
| 1966 | 3,856,216    | 4,006,384| -150,168   |
| 1967 | 4,132,800    | 4,179,785| -46,985    |
| 1968 | 4,477,649    | 4,395,983| 81,666     |
| 1969 | 4,746,201    | 4,564,348| 181,853    |
| 1970 | 5,043,642    | 4,750,825| 292,817    |
| 1971 | 5,207,004    | 4,853,242| 353,762    |
| 1972 | 5,238,757    | 4,873,149| 365,608    |
| Total| 32,702,269   | 31,623,716| 1,078,553  |

5.3. The First Gulf War

Desert Storm was a successful cooperative international effort in response to Iraq's invasion of Kuwait. It sent a signal that nations should respect boundaries, and it affirmed U.S. leadership. Perhaps the First Gulf War destabilized the region and contributed to the 2003 Iraq War, but that could not have been reasonably foreseen.

After destabilization, the second largest intangible outcome was the effect upon the international oil market, and we have no clear sense of what this impact was. Immediately following Iraq's annexation of Kuwait, there was a sharp increase in oil prices, putatively due to uncertainty, that lasted nine months. Maybe U.S. military action calmed the market and led to declining prices. But maybe, if the United States had done nothing and allowed the annexation to stand, the market would have calmed even faster. And maybe OPEC felt gratitude to the United States for intervening, and tacitly agreed to keep oil prices lower than they otherwise would have been.

On balance, we cannot reasonably assign a monetary value to the cost or benefit of United States involvement in this war. Our sense is that it was probably a net loss—the Second Gulf War diverted resources from domestic projects, it likely temporarily increased uncertainty in the oil market, and it contributed to regional instability. But we have no basis for quantifying these abstract losses, and so we conservatively set them to zero.

6. Conclusions

War is expensive. This article has, at every opportunity, erred on the side of underestimating the costs of military conflict. But despite that conservative stance, each war cost the United States more than it gained.

In terms of American lives lost or saved, all five conflicts entailed a net loss of life. The Korean War cost 33,739 lives, the Vietnam War cost 47,434 lives, and the First Gulf War cost 148 lives. The Grenada invasion cost 19 lives but possibly saved an equivalent of 14.4 lives, for a net loss of 4.6 lives. The Panama invasion cost 26 lives but possibly saved 20, for a net loss of six lives.

If one monetizes the value of the lives lost and wounded during these five conflicts, in terms of their unrealized contribution to the U.S. GDP, one finds that the cost in billions of 2017 dollars for the Korean War, the Vietnam War, the invasions of Grenada and Panama, and the First Gulf War were $231.7, $285.0, $0.15, $0.25, and $2.3, respectively.

Regarding the economic costs, a full accounting is impossible. But, in 2017 dollars, the Korean War is estimated to have cost $371 billion, with an additional cost of $223.3 billion in veterans’ benefits, essentially no effect on the domestic economy, and $69.1 billion in economic and military aid, for a total loss of $663.4 billion. Similar calculation indicates the Vietnam War cost $1,878.0 billion. The invasion of Grenada cost $2.47 but gained $0.09 billion by preserving a trading partner, for a net loss of $2.38 billion. The invasion of Panama cost $7.17 but perhaps preserved a market worth $6.31 billion, for a net loss of $0.86 billion. And the First Gulf War, with its consequent trade embargo, cost $173.96 billion.

In terms of the intangibles, a very liberal guess indicates that the Korean War may have gained the United States as much as $185 billion (in 2017 dollars) in benefits from soft power, international leadership, and so forth. The Vietnam War cost $43.2 million in protest deaths, but this is offset by perhaps $360 billion that accrued from increased education. The other conflicts had negligible impact on this category of cost/benefit.

These results are summarized in Table 7.

| Net deaths | Loss due to deaths | Cost | Intangible costs |
|------------|-------------------|------|-----------------|
| Korea      | 33,739            | $231.7B | $663.4B | $185B  |
| Vietnam    | 47,434            | $285.0B | $1,878.0B | $-360B |
| Grenada    | 4                 | $0.15B  | $2.38B  | $0 |
| Panama     | 6                 | $0.25B  | $0.86B  | $0 |
| Iraq       | 148               | $2.3B   | $173.9B | $0 |
In short, for all five U.S. discretionary conflicts between 1950 and 2000, military action was a bad economic decision. The net cost to the United States of the Korean War, the Vietnam War, the invasions of Grenada and Panama, and the First Gulf War were at least $710 billion, $2,163 billion, $2.53 billion, $1.11 billion, and $176.26 billion, respectively.

It is natural to speculate whether there are wars that provide net gains to a society. Some have suggested the role of the United States in World War II might be such an example. We have not attempted to study that conflict, primarily because it was not discretionary. Pearl Harbor was attacked, and policy-makers were under strong pressure to retaliate. Additionally, to a larger degree than in our case studies, the Holocaust created a moral impetus for intervention.

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