

Costs of the War in Iraq

Lucy Law Webster, July 2007

The Iraq war has involved increasing costs ever since it began in March 2003. Although this is recognized by all commentators, the scale of the full economic costs to the nation has only been appreciated within the past few years; prior to that most people thought of the costs of the war in terms of allocations appropriated by Congress. We now know that the *economic* costs are much larger. The first section of the paper reviews some of the statements and official documents about current and expected costs from the first two years of the war. In the main body of the paper we focus on three academic studies; this shows how they each estimated the economic costs of the war and addressed questions concerning its potential macroeconomic impacts. Only one of the three studies addresses the core question as to whether the war has reduced or increased the risks to the United States and to the world from potential acts of terrorism. We comment on this issue in a final section of this paper.

Early Statements and Reports on Potential Costs of a War in Iraq

In the months prior to the United States led invasion of Iraq, the future costs of a war in Iraq were discussed as probably ranging from the \$60 billion the U.S. spent on the Persian Gulf war in 1991 (OMB estimate of Dec. 31, 2002) to the \$200 billion estimate made by Lawrence Lindsey in a September 15, 2002 interview with the *Wall Street Journal*. His estimate that an attack on Iraq would cost the United States \$100 billion to \$200 billion was met with the comment from Mitchell Daniels, director of the White House Office of Management and Budget as being “very, very high.” But an analysis by the House Budget Committee Democratic Staff reported on September 23, 2002 that a new war in Iraq “could easily total as much as \$200 billion,” and could also lead to additional economic consequences such as a spike in oil prices. In another pre-war estimate, William D. Nordhaus wrote on October 29, 2002 that the cost of a war in Iraq would depend mainly on how well it went and how short it could be; he thus gave a wide range estimate of \$120 billion to \$1.6 trillion, which he later revised upward to \$1.9 trillion. The impact of a war on oil prices would be an important factor. Nordhaus totally rejects the Lindsey comment to the *Wall Street Journal* that regime change in Iraq could add three to five million barrels to oil supplies each day. The various pre-war cost estimates and a Congressional Budget Office report of September, 2002, discussed in the next paragraph, are listed in Table 1 below.

Table 1: ESTIMATES OF THE COST OF A WAR IN IRAQ MADE PRIOR TO MARCH 2003

SOURCE AND DATE OF ESTIMATE (in chronological order)	COST ESTIMATES (in billions \$US)	DURATION
Sept. 16, 2002 Lawrence Lindsey	100 to 200	No duration specified
Sept. 23, 2002 Democratic Caucus of the House Budget Committee	100 to 200	2003 to 2012
Sept. 30, 2002 Congressional Budget Office	9 to 13 to deploy + 6 to 8/mo to prosecute	Duration important, but not known
Oct. 29, 2002 William D Nordhaus	120 to 1,600	2003 to 2012
Dec 31, 2002 White House OMB	50 to 60	No duration specified

The Congressional Budget Office report referred to above does not assume any specific duration or range of possible durations for a war in Iraq. It examines two examples of possible deployments, one with a heavy ground troop option and the other with a heavy air option and a smaller ground force. With the heavy ground option, deployment over three months would cost \$13 billion and the monthly costs would be \$8 billion after the first month at \$9 billion. With the heavy air option, the cost of deployment would be \$9 billion and the monthly cost of the war would be \$6 billion after an initial month at \$8 billion. These monthly estimates include CBO calculations of the costs associated with an occupation force, which would be between \$1 billion and \$4 billion per month depending on the assumptions used for force sizes and operations. The report says that some military experts suggest that about 75,000 peacekeepers might be needed while another plan discussed by the U.S. Central Command calls for up to 200,000 troops.

To monetize these force structure numbers, CBO used an average cost for a U.S. Army peacekeeper based on experiences in Bosnia and Kosovo. The report also notes that costs would vary depending on whether operations included the construction of bases, bridges and roads, or was mainly limited to providing logistical support “to another country’s peacekeeping forces.” The CBO report stresses the fact that its costs represent the incremental costs caused by a war in Iraq, and do not include any regular costs of maintaining the United States military capacity. This is the case, or essentially the case, for all the estimates of the costs of war in Iraq, but many studies do not state this fact as explicitly as does this CBO study.

Of the five reports listed in Table 1, only the Nordhaus (2002) study makes a serious effort to assess the full economic costs of a war as opposed to just looking at the costs of budgeted appropriations, and in doing this his estimates of the costs of a protracted war anticipate upward changes in oil prices and significant macroeconomic costs, which could lead to a trillion dollar or two trillion dollar war, as is discussed later in this paper.

The opposite idea, the possibility that Iraqi oil revenue could pay for some significant part of the costs of the war was one element in the debate prior to the war. Addressing this idea, the CBO report of September 30, 2002 states that “Iraq is already a major exporter of oil and until recently has been producing at close to its peak sustainable production capacity of 2.8 million barrels a day (BPD).” CBO said that about 80 percent of Iraq’s oil production was being used to buy imports under the UN Oil for Food Program or for domestic consumption, and that in the near term its oil exports could not be expanded without extensive investment in its infrastructure. CBO thus concluded that the only oil revenue that might be available for reconstruction would be the proceeds from some 400,000 BPD (worth about \$3 billion a year at the time of the report) being smuggled out of the country to buy items that violated UN sanctions.

As the 2004 U.S. presidential election approached, a number of studies and reports focused on the actual and potential cost of the war. Table 2 lists three items that relate to that period.

Table 2: ESTIMATES ON IRAQ WAR COSTS LEADING UP TO THE 2004 U.S. ELECTIONS

SOURCE AND DATE OF PUBLICATION (in chronological order)	COST ESTIMATE (in billions \$US)	OTHER INFORMATION
May 13, 2004 <i>USA Today</i> Susan Page piece	152 thru 2005	Cites analysts
June 24, 2004 Institute for Policy Studies	151 thru 2004	Cites non-budget costs
Sept. 13, 2004 FactCheck.org	Says 200 is wrong	Debates Kerry campaign

The article in *USA Today* by Susan Page drew attention to other reports and articles published at the time. One by Andrew Krepinovich a former Pentagon aide who was now executive director of the Center for Strategic and Budgetary Assessments stated that the unrest in Iraq “is going to extend the time horizon over which we’ll need to be involved in stabilizing Iraq.” The *USA Today* article also cites a comment by Anthony Cordesman, a former Defense Department official now at the Center for

Strategic and International Studies who said that officials were “decoupled from reality” when they made their early predictions about the war in Iraq. “The truth of the matter is . . . we have seen a whole group of factors come together to raise our costs,” he continued.

In similar vein, the study of June 24th by the Institute for Policy Studies presents an array of non-budgetary costs relating to the war in Iraq. Costs to the United States are classified as Human Costs, Security Costs, Economic Costs and Social Costs. The economic costs include the budget appropriations of \$151.1 billion, and the long-term impact on the U.S. economy where Doug Henwood is cited as saying that the bill will average at least \$3,415 for every U.S. household and James Galbraith as predicting that while the war spending may boost the economy initially, over the long term it is likely to bring a decade of economic troubles, including an expanded trade deficit and high inflation. The report also predicts high gas prices (which topped \$2 per gallon in May 2004), and rising crude oil prices which the study says will lead to a decline in the U.S. GDP of \$50 billion if gas stays at around \$40 per barrel for a year. The security costs predicted for the United States include increased recruitment of terrorists, which they report had already led to more suicide attacks around the world in 2003 than in any previous year plus 390 deaths and 1,892 injuries as documented by a former CIA analyst and State Department official as due to terrorist attacks in 2003. The IPS report gives similar information for the costs to Iraq and costs to the World.

The debate about the costs of the war sparked by the Kerry campaign led to a public airing of the idea that the costs were some \$152 billion and not the \$200 billion cited in the Kerry campaign commercials. The lower number was the one being used by most analysts who added up the congressional appropriations, and the Kerry campaign responded to the criticism from FactCheck.org and others by pointing to the various appropriations that could be added in different ways to reach the higher totals they had cited. This sort of discrepant set of calculations is quite easy to do because of the different stages in Congressional decision making and the fiscal year versus calendar year time options. The important point is that there was no real effort made to undertake and communicate a more comprehensive accounting for the total economic costs to the nation or to assess the longer term costs likely to arise from the war. If the difference between budgeted appropriations and economic costs had been much more fully and widely understood at the time, it might have changed the outcome of the election. In the section that follows all three papers focus on economic costs.

A Comparative Examination of Three Studies of the Costs of the War

In this part of the paper, we present the way three major studies assessed various types of costs being incurred and expected. The three studies are more alike than different from each other and differ primarily in what they omit and in the perspective they bring based on the dates at which they were each written. The three papers covered are summarized in the table below. All three studies summarized in Table 3 focused on current and prospective direct costs to the United States economy. In each case the studies cover the incremental costs that are additional to the ongoing budget of the Department of Defense. All three try to calculate the full economic costs of the war, as distinct from just examining the direct budgetary costs of government appropriations and expenditures.

This focus on economic costs is the main difference between these studies and most of the relatively informal studies and reports referred to in the Table 1 and Table 2. Economic costs include the loss of the productive capacity of the soldiers killed or seriously injured in Iraq, the loss of the civilian earnings that would have come to Reservists and Guard members who were called away from their civilian jobs and the loss of essential services to the nation of their work as first responders, nurses, etc. The Wallsten/Kosec study calculated that the opportunity costs of using Reserve troops at the levels used in 2005 was \$3.9 billion up through August 2005. It should also be noted that many of the Reserve troops work in “first responders” jobs relating to homeland security needs. When they are at their home base they are fire-fighters, police and emergency medical staff who are trained to deal with emergencies such as Hurricane Katrina. At the time of that emergency, 7,000 Guardsmen from Louisiana and Mississippi were in Iraq.

Both the Nordhaus study and the Bilmes/Stiglitz study attribute a part of the high price of oil to the instability and risks inherent in investing in the Middle East and Persian Gulf region. Also, the fact that one cannot predict when the Iraqi wells will flow at full capacity was seen as meaning that people were not likely to invest heavily in alternative fuel projects, which would tend to become unprofitable once there would be safe and stable access to the oil in the Iraq region where the cost of extraction of top quality oil is exceptionally low. This situation is seen in the Nordhaus and the Bilmes/Stiglitz studies as constituting a major macroeconomic effect of the war.

Table 3: MAPPING CATAGORIES, DEFINITIONS AND RESULTS IN THREE MAJOR PAPERS

Nordhaus (2002)	Wallsten and Kosec (2005)	Bilmes and Stiglitz (2006)
DIRECT ECONOMIC COSTS AT MINIMUM LEVELS AS DEFINED BY THE RESPECTIVE AUTHORS		
Direct costs of a short, successful war would be some \$50bn. which is similar to the \$80bn (in 2002 dollars) spent for the First Persian Gulf War.	Direct costs defined as budgetary allocations, lives lost, injuries, and lost civilian productivity of Guard and Reserve troops. Minus costs such as maintaining no-fly zones.	Direct budgeted cash costs thru Nov, 2005: \$251bn. Minus No-fly-zone costs. Monthly average operations costs went up from \$4.4bn to \$7.1bn from 03 to 05.
DIRECT TOTAL ECONOMIC COSTS FOR A LONGER WAR INCLUDIING ADDED DIRECT COST ELEMENTS		
Direct costs of a war with urban fighting and restricted over-flight rights would be a lot more than \$50bn and would cost at least \$140bn with Longer deployments raising direct costs to	Total direct costs for the first 16 months of the war came to \$429bn. When avoided costs of \$116 are subtracted, the net is \$313bn. Total present value costs thru 2015 are put at 1 trillion.	Direct budgetary cash costs including VA costs and veteran disability payments: expected to total \$750bn to \$1.2 trillion if troop levels started to be reduced in 2006.
ECONOMIC COSTS OF U.S. DEATHS AND CARE FOR THE U.S. WOUNDED		
Veterans' benefits and health costs are said to be important and appropriate to include, but were omitted from the study due to the difficulty of calculating them.	The "value of a statistical life" monetizing 1,974 deaths of U.S. troops and contractors for 16 months put at \$14bn and the 14,120 seriously wounded was put at \$18.2bn All U.S. costs thru Aug 2005: \$255bn; current value costs to 2015: \$603bn.	Totals include \$500,000 death gratuity payments plus survivors insurance for the 2256 fatalities thru 2005. The \$750bn estimate assumes all troops leave Iraq by 2010; \$1.2 trillion assumes they leave by 2115 although partly replaced by contractors.
ECONOMIC COSTS OF THE WAR TO IRAQ		
The study does not discuss the costs for Iraq of the envisioned war in Iraq.	Iraqi costs: \$134bn with \$20bn on infrastructure; \$106bn on deaths of 28,745 military, police and civilians; \$8bn for economic cost of injuries. And \$306bn thru 2015.	The costs for Iraq are not covered in the report although it states that "these would increase the cost of the war substantially."
ECONOMIC COSTS OF THE WAR TO COALITION PARTNERS		
Costs to coalition partners are not covered in this study.	Coalition partners: \$40bn thru 08/05 for deaths and \$2bn for injuries; total thru 2015: \$95bn	Omits costs for other countries, directly in war or indirectly due to increased oil prices.
COSTS OF PEACEKEEPING, OCCUPATION, RECONSTRUCTION AND HUMANITARIAN ASSISTANCE		
Occupation and peacekeeping, plus reconstruction, humanitarian assistance and nation-building costs from \$100bn to \$600bn.	When this study was written, the costs of occupation had merged with the war costs and are not considered separately.	When this study was written, the war <i>was</i> the occupation; all the costs are discussed as ongoing war costs.
GRAND TOTALS FOR THE ECONOMIC AND ECONOMETRIC COSTS THAT WERE ESTIMATED		
New oil costs up to \$500bn if an oil-price shock lasts 1.5 years and other macroeconomic impacts expected at \$600bn totaling 1.6 to 1.9 trillion.	Study excludes effects such as oil price changes, but includes death and injury costs thru 2015: totaling \$1 trillion for the U.S., Iraq and the coalition partners.	Direct costs of 1.2 trillion, plus some \$450bn from oil-price shocks, as well as other macroeconomic effects of some \$450bn totaling about \$2 trillion.

To summarize the results of the individual papers in Table 3, we can say that Nordhaus concluded that the cost of a short, successful war would be about \$50 billion and that a longer, less successful war involving urban warfare and major constraints on the support given to U.S. forces by other countries would range from \$140 billion to \$600 billion, including peacekeeping and occupation, and that macroeconomic impacts up to \$500 billion and above would add to the total costs of the war. The length of any oil shocks that would last for more than a year or two would determine the size of these effects, and thus bring the total to at least 1.3 trillion. The reason for the wide range of estimates is important. As Nordhaus explains, the cost of a short war “is likely to be surprisingly small because most of the costs are already paid for in the defense budget.” On the other hand a long, difficult war would tend to be very expensive because a large number of economic and macroeconomic effects relating to the total U.S. and the total world economy would come into play. He refers to a number of potential scenarios and says that his “unfavorable case is a collage of potential unfavorable outcomes. . . . that might be incurred if the war drags on, occupation is lengthy, nation building is costly the war destroys a large part of Iraq’s oil infrastructure, there is lingering military and political resistance to U.S. occupation in the Islamic world, and there are major adverse psychological reactions to the conflict.” In that situation his study dated October 29, 2002 would predict the outer limit of costs to be around \$1.6 trillion, most of which would come from sources outside the direct military costs.

However Nordhaus then adds that even this “is not the limit of fortune’s frowns” since these estimates exclude any costs to countries other than the United States and omit the sorts of extreme outcomes that might follow the use of chemical or biological weapons by Iraq or from extreme reactions “against perceived American disregard for the lives and property of others.”

The Wallsten/Kosec study concluded that direct costs for the United States were \$255 billion through August 2005, \$134 billion for Iraq and \$40 billion for coalition partners, and that the total net value costs including the expected costs of deaths and injuries through 2015 would be one trillion dollars. This is based on a careful examination of the “real, direct economic costs” that included budgetary allocations and also the costs of lives lost, the costs of treating wounded soldiers, and lost civilian productivity of National Guard and Reserve troops mobilized to Iraq. The paper places monetary values on all these expenditures and on some costs that were avoided. It does not address indirect effects of the war such as the effect on gas prices or other macroeconomic effects.

The Wallsten/Kosec study is the only one of the three examined closely here that provides data and costs for Iraq and for the non-U.S. coalition partners. The analysis covers what actually happened between March 20, 2003 and August 31, 2005, and based on CBO projections regarding budget allocations and numbers of troops to be sent to Iraq, it also estimates the net present value costs for the numbers of soldiers, police and civilians that would be lost or wounded through 2015. Using “value of a statistical life” (VSL) calculations, which are explained later, the paper combines the expected net present value of future costs with the net present value of costs through August 2005 to estimate the total net present value of the conflict from 2003 through 2015 to be \$1 trillion for the United States, Iraq and the coalition partners. The study also subtracts avoided costs; for the United States the main avoided costs arose because it no longer needed to enforce UN sanctions and no-fly zones in northern and southern Iraq, and for Iraq the main saving was from people no longer murdered by Saddam Hussein’s regime.

The Bilmes/Stiglitz study found that direct costs would be between \$750 billion and \$1.2 trillion and that the macroeconomic effects of regional instability in the prime-oil regions affected by the war would lead to an additional cost of \$450 billion to Americans. Another \$450 billion in macroeconomic costs is attributed to the fact that money spent in Iraq cannot be spent in the United States where it would stimulate production, create jobs and bring value to the U.S. economy. Thus the writings of Bilmes/Stiglitz in the study cited here and in some subsequent publications predict a \$1.2 trillion cost coming from direct costs, plus oil-price effects plus other macroeconomic effects, which would add another \$900 billion—just for the United States. In principle, one could take the ratio of U.S. costs to Iraqi costs and coalition costs from the Wallsten/Kosec study and apply that to estimate what total costs would be for Bilmes and Stiglitz if one used their relatively high estimates for the United States as the basis. However, given that both the Wallsten/Kosec study and the Bilmes/Stiglitz study involve calculations that depend quite heavily on estimated numbers of deaths and injuries, and given that these numbers range very, very widely, it is not likely that any clear conclusion would be reached. Considering just Iraqi deaths, the estimates are extensively debated and even the base-line data used in the respected Burnham et al (2006) study that was published by *The Lancet* have been questioned. See Daponte (2007) on “Counting Iraqi Casualties.” Consequently, it was probably wise for Bilmes and Stiglitz to limit the scope of their work and to not try to provide cost data for Iraq.

Direct Full Economic Costs

Prices paid by the government in the form of budgeted allocations are the figures most often cited in cost estimates. In contrast, in each of the three studies discussed here, the objective was to report on the full economic costs to the nations affected. Thus, for example, in the study by Scott Wallsten and Katrina Kosec for the American Enterprise Institute and Brookings Joint Center for Regulatory Studies, the direct costs reported include congressional budgetary allocations, the cost of lives lost, the cost of injuries and the cost of the civilian productivity lost by Guard and Reserve troops. As explained in the Bilmes, Stiglitz study, in their work they give “an estimate of the “direct” expenditures, and provide adjustments to reflect the true social costs of the resources deployed.” In another place in their paper they say they are interested in “finding the *total economic cost*, the value of the resources used.”

A footnote in the Bilmes/Stiglitz study describes a 2005 report of the Government Accountability Office (GAO-05-767) which shows some of the problems in obtaining basic official data. The GAO states that the Defense Department has “lost visibility” on over \$7bn of funding and reports several cases where obligations exceeded appropriations in 2004, including \$4.3bn in Army operation and maintenance. The footnote also cites a Congressional Research Service report (CRS, 10/7/05) that explains the difficulty of tracing Pentagon expenditures in Iraq because (unlike the State Department and other agencies), DOD does not allocate funds by operation or mission until after the fact. These practices clearly make it difficult to find even the most basic information on direct budget costs.

When moving from the first step using budget allocations to then assess total economic costs, one needs to take account of a number of considerations as for example the question of depreciation, which should be treated according to standard accounting practice to recognize that equipment already owned by the government depreciates faster when used in a war than when it is held in inventory and that this usage is thus part of the cost of the war. Likewise standard cost allocation procedures would assign a significant part of the overheads in the Pentagon to the war since by giving its attention to Iraq it needed to reassign time from other work. Nonetheless, the specific task of planning the Iraq war was explicitly excluded from the costs covered in the Bilmes/Stiglitz study. They do not explain why.

The Congressional Research Service Report for Congress entitled “The Cost of Iraq, Afghanistan, and Other Global War on Terror Operations Since 9/11” updated March 14, 2007 and published on the CRS

website notes that it is potentially controversial to include front-loaded “reset funding” in an Administration request to Congress for emergency supplemental funds. Reset funding refers to allocations for the replacement of war-worn equipment. This is a clear economic cost of the war. However there is a question as to whether such funding should be viewed as emergency funding given that it is well known and predictable that using military equipment in war wears out the equipment more quickly than would otherwise be the case.

The CRS report also draws attention to the fact that Army Chief of Staff, General Peter J. Schoomaker had referred to reset funding of an estimated \$12 billion to \$13 billion a year as long as the conflict lasts at the current level and “for a minimum or two to three years beyond.” The CRS report says that the armed services may be hoping to front load these costs in order to avoid making such requests after U.S. troops have started to withdraw from Iraq. The report also points out that the General Accountability Office had recently testified that the Army could not track reset allocations or ensure that funds appropriated for reset were in fact spent for that purpose. This shows that tracking the full range of economic costs is difficult and confusing. For Congress it is more normal to make appropriations for equipment and expenditure projects that are more tangible and visible than replacement costs.

Another confusing aspect of assessing full economic costs concerns the fact that U.S. troops are not paid a full market wage. This is clear when one takes account of the risks involved in the work and the fact that contractors doing the same work are paid up to \$1,000 per day. When troops volunteered for the regular armed services they may or may not have taken account of the negative aspects of the commitment, but clearly the Reserves and Guard units have not really volunteered for what they are being required to do. There was no precedent upon which to base the actual current risk of being sent to a war zone, or the risk of being required to serve several tours of duty in such a dangerous environment. In the study discussed here by Wallsten and Kosec the actual military pay of the Guard and Reserve units is not used to assess the economic cost of these units, but rather the civilian wages of the jobs they leave behind, which were found to average about \$33,000 per year. Using these wage numbers means that the calculations made can more fully reflect the economic costs of the troops.

At the same time the economic cost of a life lost is now somewhat better reflected in the official accounting than at the beginning of the war since the death benefit paid to the family of a soldier who

is killed was raised from \$12,240 to \$100,000 and the life insurance payment was raised from \$250,000 to \$500,000.

Social Cost Aspects of Full Economic Cost Assessments

The economic cost of injuries is a topic of major assessment and reassessment. According to the Wallsten/Kosec study, an article in the New York Times in 2005 by Linda Bilmes used the 1991 Gulf War experience of injuries and their costs to estimate the costs of injuries in the current war in Iraq. Assuming that the payments made would be required for 45 years she concluded that these costs could ultimately reach \$1.3 trillion. This evidently inspired Wallsten and Kosec to obtain more precise information on the cost of caring for brain injury patients and amputees, which findings are included in their September 2005 study. Subsequently then, Bilmes obtained fuller data on the cost of long term care for a larger range of serious injuries, which were then used in her 2006 study coauthored with Stiglitz.

A later paper by Bilmes presented to the AEA/ASSA in January 2007 provides further information on the economic cost of seriously wounded veterans from the war in Iraq. She reports that as of September 30, 2006, more than 50,500 U.S. soldiers had suffered non-mortal wounds in Iraq, Afghanistan and nearby staging locations, which represents a ratio of 16 wounded troops for every soldier killed, including 8 of each 16 who were wounded by shrapnel and bullets and were thus likely to need extensive care. These ratios of wounded troops to fatalities are the highest in U.S. history. The ratios available from the Department of Veterans Affairs report, "America's Wars", show that in the Persian Gulf War of 1990-91 the ratio for non-mortal wounds was 1.2 wounded per fatality; Vietnam: 2.6 to one; Korea: 2.8 to one; World War II: 1.6 to one; World War I: 1.8 to one; Civil War (Union troops): 0.7 to one; War of 1812: 0.5 to one; and in the American Revolution the ratio was 0.7 to one fatality. Medical and surgical equipment, knowledge and skills have clearly improved so that many lives are saved that would have been lost in earlier wars. However as the Bilmes (2007) study notes, the lifetime costs of these injuries are enormous, not only in direct costs but also in life-long pain and suffering for the veterans and their families who very often end up providing a significant part of the care required. There is also pain and frustration dealing with the bureaucracy that relates to obtaining government support; and Bilmes identifies many bottlenecks in the system which she proposes can and should be removed.

The series of studies referred to that were undertaken by Bilmes and by Wallsten and Kosec has ratcheted up the accuracy and also the level of the cost estimates in a way that makes a real difference to the total assessment of the war, especially because the long-term care of seriously wounded troops is very expensive, not only in the case of brain injuries and amputees, but also in the case of “diseases of endocrine/nutritional/Metabolic systems,” digestive system diseases, and especially for mental disabilities. Since conditions such as acute depression, post-traumatic stress disorder and spinal cord injuries are both controversial and expensive to treat; long delays in diagnosis and treatment frequently lead to problems such as substance abuse, family violence and homelessness. This is an important social aspect of the cost of the war.

To a large extent the differences between the three studies examined here is a function of the time when each study was written. It should also be stressed that the three studies are in many ways complementary with each other. Topics covered in one or two of the studies are often not covered in the third, and only one of the three reports addresses the costs to Iraq itself and to the non-U.S. coalition partners. Other topics are covered more fully in the later studies because there is more awareness of the issues involved. For example, the increased interest in long-term care issues raised by large numbers of veterans returning from Iraq with serious injuries is an especially salient aspect of the cost assessments. This is obviously not covered in the Nordhaus study, which was written before the war started, but it is a special focus of the series of studies by Bilmes and by Wallsten and Kosec. Nordhaus, on the other hand, explicitly states that he omitted “veterans’ benefits and health costs, which are appropriate budgetary items and have sometimes added substantially to costs but [are] difficult to reckon.” Nonetheless his paper includes a table on American casualties, which gives fatalities, but nothing on the wounded:

TABLE 4: AMERICAN CASUALTIES FROM MAJOR AMERICAN WARS

Conflict	Population (millions)	Military personnel (thousands)	Ratio (% of population)	Fatalities	Ratio (% of population)
Revolutionary War	3.5	200	6.7%	4,435	0.127%
War of 1812	7.6	286	3.8%	2,260	0.030%
Mexican War	21.1	79	0.4%	1,733	0.008%
Civil War					
Union	26.2	2,803	10.7%	110,070	0.420%

Confederate	8.1	1,064	13.1%	74,524	0.920%
Combined	34.3	3,868	11.1%	184,594	0.538%
Spanish-American War	74.6	307	0.4%	385	0.001%
World War I	102.8	4,744	4.6%	53,513	0.052%
World War II	133.5	16,354	12.2%	292,131	0.219%
Korean War	151.7	5,764	3.8%	33,651	0.022%
Vietnam War	204.9	8,744	4.3%	47,369	0.023%
First Persian Gulf War	260.0	2,750	1.1%	148	0.000%

Quoted from Nordhaus who took it from Al Nofi, Statistical Summary: America's Major Wars at www.cwc.lsu.edu/cwc/other/stts/warcost.htm

This table is of interest both for what it does not include and for what it does show. It shows that the percent of the U.S. population killed in wars has been very low. Only once in the history of the nation did fatalities approach one percent of the relevant population—for the Confederate states during the Civil War. What the table does not show is that the numbers of seriously wounded troops has become very high in the current war in Iraq. The attention given to this problem following the initial work of Linda Bilmes and the parallel efforts by the Veterans Administration to bring these issues to the attention of Congress and others will probably provide a new perspective on war costs.

If we look at the data reported earlier in this paper from the Department of Veterans Affairs we see that the ratio of wounded to those killed has increased greatly in the present Iraq war as compared with any previous American war. Although the VA defines non-mortal wounded as those who are “medically evacuated from theatre”, a narrower definition used by the Pentagon referring to those wounded by shrapnel, bullets, etc. leads to a ratio of 8 wounded to one fatality for the current war in Iraq as compared to a ratio of 16 to one fatality for those wounded badly enough to be evacuated from theatre. To have 8.0 wounded per fatality is a very high ratio compared with the data in the last column of the table below.

TABLE 5: THE RATIO OF WOUNDED TO FATALITIES FROM MAJOR AMERICAN WARS

Conflict	Population (millions)	Military personnel (thousands)	Fatalities	Number wounded per fatality
Revolutionary War	3.5	200	4,435	0.7
War of 1812	7.6	286	2,260	0.5
Civil War (Union)	26.2	2,803	110,070	0.7
World War I	102.8	4,744	53,513	1.8

World War II	133.5	16,354	292,131	1.6
Korean War	151.7	5,764	33,651	2.8
Vietnam War	204.9	8,744	47,369	2.6
First Persian Gulf War	260.0	2,750	148	1.2

Quoted from Nordhaus who quotes it from Al Nofi, Statistical Summary: America's Major Wars at www.cwc.lsu.edu/cwc/other/stts/warcost.htm plus data on numbers wounded per fatality taken from the Department of Veterans Affairs, Office of Public Affairs as quoted by Linda Bilmes in "Soldiers Returning from Iraq and Afghanistan."

Cost of the War to Iran and to Non-U.S. Coalition Countries

Only one of the three studies examined here reported on the cost of the war in Iraq to Iraq and to the non-U.S. coalition partners although both the Nordhaus paper and the Bilmes/Stiglitz paper point out that the cost to Iraq is a major element in the total cost of the war. The study by Scott Wallsten and Katrina Kosec for the AEI-Brookings Joint Center for Regulatory Studies has sections on both the cost to Iraq and on the cost to the 15 coalition countries that were providing troops in August 2005. On the basis of assuming that real military costs for non-U.S. coalition countries were proportional to costs for the U.S., then their costs were \$36 billion through August, 2005.

The non-U.S. coalition partners provided troops that were, on average, 17% of the numbers of U.S. troops during the period May 2003 to August 2005. The table below shows the numbers of fatalities for participating countries. The VSL (value of a statistical life) loss figures shown in the table are based on the per capita income of the countries, calibrated to the U.S. VSL figure of \$6.5 million per statistical life. This tabulation shows that during the period covered, the cost of lost lives to non-U.S. coalition members was 1.4 billion.

TABLE 6: COST OF LIVES LOST IN COALITION COUNTRIES

From May 2003 through August 2005

Country	Total killed	2005 nominal GDP (2005\$)	VSL relative to U.S. (using Viscusi-Aldy elasticity estimate of 0.55)	VSL (million 2005 \$)	Total VSL loss (millions 2005\$)
United Kingdom	124	38098	0.950	6.7	831
Bulgaria	19	3347	0.494	3.5	66
Denmark	2	49182	1.095	7.7	15
El Salvador	2	2410	0.482	3.4	7
Estonia	2	9112	0.570	4.0	8
Hungary	2	10978	0.594	4.2	8
Italy	28	31874	0.868	6.1	172
Kazakhstan	1	3453	0.495	3.5	3
Latvia	1	6559	0.536	3.8	4
Netherlands	3	38320	0.953	6.7	20
Poland	19	8082	0.556	3.9	75
Slovakia	3	9305	0.572	4.0	12
Spain	11	27024	0.805	5.7	63
Thailand	2	2665	0.485	3.4	7
Ukraine	18	1748	0.473	3.3	60
Total					1,351

Source: Table 6 of "The Economic Costs of the War in Iraq" Working Paper 05-19, September 2005, Scott Wallsten and Katrina Kosec for the AEI-Brookings Joint Center for Regulatory Studies. The U.S. VSL figure of \$6.5 million per statistical life on which the tabulated VSL numbers are based, is itself derived by Wallsten and Kosec from the work of Viscusi and Aldy in 2003 where they reviewed a large body of literature on the subject.

The cost of the war in Iraq to Iraq is clearly a topic of major importance, and it is only covered in one of the three studies examined here. The analysis by Wallsten and Kosec looks at both the gains and the losses. In terms of gains to Iraq, they point to the benefit of not having people murdered by Saddam Hussein. Making use of the findings reported in the Davis, et al. (2003) paper, "War in Iraq versus Containment: Weighing the Costs", which is based on a large number of other sources, the Wallsten/Kosec study assumes that about 10,000 people died premature deaths annually under Saddam Hussein's regime and that there was a three percent chance of regime change each year. With those assumptions and using their previously described method of calculating the appropriate Iraqi

VSL, and with a five percent discount rate, they estimate that removing Saddam Hussein has saved, in expected terms, 83,018 lives over the subsequent ten years, for a net present value of \$228 billion between September 2005 and December 2015.

On the cost side, Wallsten and Kosec say that direct costs include infrastructure destroyed, deaths, and injuries, where they note available data is questionable. In assessing the cost of destroyed infrastructure they use World Bank estimated reconstruction costs (O'Hanlon 2005; World Bank 2003), which show that infrastructure and agriculture and water resources would need investments of \$27.2 billion between 2004 and 2007. Of this, at the time of their report, \$7 billion had been allocated from the United States for infrastructure and water resources, with \$20 billion being costs to Iraq. Clearly the information on this point is now drastically out of date, but provides a base of information for the period it covers.

Death and injury data in the Wallsten/Kosec study come from the Iraq Body Count Database, which is an independent compilation from published reports. As of August 16, 2005, the number of deaths of Iraqi military and police officers was reported as 5,091, and the number of civilian deaths since the war began was 23,654. The data base now (July 10, 2007) reports that the total is between 66,939 and 73,253. Using the 2005 data and the monetizing system discussed earlier with respect to coalition troops, the Wallsten/Kosec study estimates that the cost from fatalities was about \$106 billion in August 2005.

To estimate the cost of injuries, the study assumes that Iraqi troops face the same type of injuries as U.S. troops and it then calculates the cost of treatment in Iraq as proportional to U.S. costs where the proportion is the ratio of Iraq's pre-war GDP to U.S. GDP. On this basis they give the 2005 net present value of the cost of injuries "to Iraqis" as \$8 billion. The study does not explain how they switched from estimating the types of injuries to Iraqi troops to finding the cost of such injuries to all Iraqis who were injured, but this is not very important because in fact it is likely that most Iraqis face the same risk of injuries of the same types as are faced by U.S. troops.

Although much of the Wallsten/Kosec study provides findings only up through August 2005, their calculations relating to the cost of deaths and injuries go through 2015, which is the date for which the U.S. Congressional Budget Office in 2005 projected budget outlays and numbers of U.S. troops in Iraq. Thus, assuming that the death and injury rates will be the same as the average for the first two years of

the war, they estimate that the expected net present value of the cost of the conflict from September 2005 through 2015 could be \$349 billion to the United States, \$55 billion to its coalition partners and \$173 billion to Iraq, after subtracting the gain from not having Saddam Hussein in power. Combining the expected net present value of these future costs with the net present value of the costs through August 2005, they estimate that the net present cost of the conflict through 2015 to be \$603 billion to the United States, \$95 billion to coalition partners, and \$306 billion to Iraq, for a total expected net present value cost of \$1 trillion.

Indirect Costs of the War

One of the indirect effects of the military commitment of the United States to Iraq is the impact this has had on other potential uses of the same resources—an economic cost of the war as well as an indirect cost. The Congressional Research Service Report for Congress referred to earlier makes a number of points on this issue. It states that “According to reports, current Army readiness rates have declined to the lowest levels since the Vietnam war with roughly half of all Army units, both active and reserve, at the lowest readiness ratings for currently available units.” However the report explains that these readiness ratings are based on what would be needed for full war scenarios and do not necessarily reflect the readiness or lack of readiness of a unit to deploy for counterinsurgency operations. Nonetheless there clearly are displacement issues involved in having a very large part of the U.S. military capacity, both material and personnel in Iraq.

This is an especially acute problem with respect to the Reserve and Guard units that are normally available as first responders in cities and states throughout the United States. As mentioned earlier, at the time of Hurricane Katrina, 7,000 Guardsmen from Louisiana and Mississippi were in Iraq. It would probably be meaningless to try to monetize the proportion of the losses to the Katrina victims and to the property affected that could be attributed to Guardsmen being in Iraq unless one were to do a detailed survey of their assigned duties and the personal character of the various Guardsmen who were in Iraq and not available as first responders, but in fact there are economic costs, and in principle it would be possible to place a monetary value on these.

Another indirect cost is the cost to the present and future economy of Iraq due to the large numbers of Iraqis, especially skilled and educated Iraqis, who are now refugees outside the country. This is a cost that could be estimated.

Overstretch Strains on Military Capacities

It would also be possible to place a monetary value on the increased costs of recruiting to the U.S. military and to the Reserve and Guard units. What is required of people who join up in any of these services has been changed with more service in war zones and more repeat deployment required than previously. As of June 22, 2004, the Army's Individual Ready Reserve consists of trained soldiers who may be called up on as little as two weeks' notice to fill specific vacancies in both active and reserve units, which in effect means these reserve individuals may be sent to a war zone on two weeks' notice. Incentives have already been increased and will almost certainly need to be increased further, and the number of recruiters that has been increased will also need to be increased further. When the involuntary mobilization of Reservists was first authorized it was part of the conditions for doing this that the prior service of the individual involved would be taken into account. Nonetheless Reservists are being called up for fifth tours of duty in war zones and this is leading to requests for deferment and to at least one law suit. In the case of Reservist Erik Botta who had served one tour of duty in Afghanistan and three in Iraq, his request for deferment of a fourth tour of duty until he had finished his present engineering studies was turned down even though he was employed by a military contractor and he and his wife said they would lose their house if he was deployed a fourth time. Consequently he has sued the Army on the grounds that adequate consideration had not been given to his prior service.

As early as 2005, the annual report of the International Institute for Strategic Studies stated in its annual report, *The Military Balance*, "Operations in Iraq in particular have shown that the U.S. military lacks the necessary quantity of personnel with the skills needed in those tasks which have dominated operations in the post-conflict phase." In the "Iraq Quagmire" document prepared by the Institute for Policy Studies, Phyllis Bennis and Erik Leaver say that this judgment has been confirmed publicly in the United States by the highest military authorities. "In the Pentagon's annual risk assessment, presented to Congress on May 2, 2005, Gen. Richard B. Myers, Chair of the Joint Chiefs of Staff, testified that these wars are making it difficult for the military to maintain high standards in conflicts elsewhere around the world, including in the military war against terrorism. (Cited from a *Washington Post* article of May 3, 2005 by Ann Scott Tyson, "Two Years Later, Iraq War Drains Military: Heavy Demands Offset Combat Experience")

Loss of Respect and Credibility for the United States

Some indirect costs of the war are not clear economic costs partly because they are very difficult to monetize. None of the three studies discussed here attempted to take a comprehensive look at such issues. We will look at one to provide a more comprehensive picture of the costs of the war.

The loss of respect and credibility for the United States as a legitimate leader in international relations is an important indirect cost of the war. This is not simply because there were no weapons of mass destruction found in Iraq or because of the shocking violation of international norms condemning torture, but because the entire war effort and the inept peacekeeping occupation is widely perceived by many as a violation of international law and a reckless display of disrespect for an Arab, Muslim nation and for Islam worldwide.

The 2004/2005 Institute for Policy Studies report co-authored by Phyllis Bennis and Erik Leaver, entitled "The Iraq Quagmire" documents this loss of respect for the United States. It reports that a Pew Global Attitudes Survey of June 2005 found that "The United States remains broadly disliked in most countries. . . .The magnitude of America's image problem is such that even popular U.S. policies have done little to repair it."

An April, 2005 survey of opinion in 23 nations by GlobeScan, which is associated with the BBC, and by PIPA (Program on International Public Attitudes at the University of Maryland) found that the country most frequently viewed as having a negative influence on the world was the United States. More recent polls provide results which add to a picture of disaffection toward the United States and a predominant desire to see the United States troops leave Iraq, although a sizable minority of the people surveyed felt that now that the United States was in Iraq, it should not leave until things had been stabilized, at least if the U.S. troops are asked to stay. Evidently the intentions, motives and plans of the United States are very unclear to people in Iraq and worldwide, which probably contributes to the apparent lack of trust and good will toward the United States.

A PIPA survey of 1,150 Iraqis in January, 2006 found that a large majority of respondents thought the United States intends to maintain bases in Iraq permanently even if the elected government of Iraq asks the United States to leave. Published on January 31st, 2006, the survey was conducted by Research Limited/D3System, Inc with a nationwide sample covering all 18 Iraqi governorates. A large

majority of informants favored setting a timeline for the withdrawal of troops and most believed that many aspects of their lives will improve after the U.S. troops leave, although they were not sure that Iraqi security forces were ready to stand on their own. From this it would seem that the United States has created a problem for itself and for the people of Iraq, and that consequently many people of both countries are uncertain what to do about the insecurity in Iraq and the risk of acts of terrorism worldwide.

Another poll conducted in 35 countries between October 2005 and January 2006 by GlobeScan and PIPA for the BBC questioned over 41,000 people. Several questions related to whether and when the United States should remove its troops from Iraq. In 20 of the 35 countries covered, a majority of the informants thought the United States should withdraw in the next few months, while in 9 countries a majority thought the U.S. troops should stay until the situation is stabilized. In six countries informants were divided in their opinions. The countries most eager for the U.S. coalition to withdraw were Argentina (80%), Egypt (75%), China (65%), Brazil (67%), Saudi Arabia (64%), and Senegal (64%). The countries that were most inclined to favor having the United States troops remain until Iraq is stable were the U.S. (58%), Afghanistan (58%), Australia (57%), Great Britain (56%) and Germany (55%).

An in-depth poll of four major Muslim countries found that in all of them large majorities believed that undermining Islam is a key goal of U.S. foreign policy. Most respondents wanted U.S. military forces out of the Middle East and many approved of attacks on U.S. troops there. Most respondents had mixed feelings about al Qaeda. Large majorities supported its goals, but believed that terrorist attacks on civilians are contrary to Islam. These findings came from surveys in Egypt, Morocco, Pakistan and Indonesia, conducted from December 2006 to February 2007 by WorldPublicOpinion.org.

All of these surveys point to the fact that there are many people who have a very negative view of the United States. We do not have direct before/after evidence as to whether these opinions and attitudes came to these people primarily after the war began, but the text of the questionnaires makes it clear that many of the negative views expressed about the United States are based on individual views relating to the war in Iraq. In the present era of direct action by individuals, including by terrorists who can turn planes into missiles, it is clearly a serious problem that large numbers of people in Muslim countries think the United States intends to stay in Iraq indefinitely and that many believe that a major goal of U.S. policy is to undermine Islam.

Concluding Comments about the Long Term Costs of the War in Iraq

As noted earlier, both the Nordhaus study and the Bilmes/Stiglitz study attribute a part of the high price of oil to the instability and risks inherent in investing in the Middle East and Persian Gulf region and see this as intertwined with the total macroeconomic costs of the war. While the Wallsten/Kosec study does not make any predictions regarding the macroeconomic costs of the war, they do say that “the war may influence oil prices, for example with ripple effects through the economy.” They also say that “estimates of the conflict’s macroeconomic impact to date will depend crucially on assumptions regarding how much of this increase [in oil prices] is due to Iraq”.

More specifically, as stated earlier, Nordhaus found that a relatively long war would add major macroeconomic impacts to the direct costs of the war, and would be related to the length of the war and to the length of the expected related oil shocks, which would tend to add at least \$500 billion to the direct costs of the military operation and the peacekeeping and occupation requirements thus bringing the total economic cost of the war to at least 1.3 trillion. The Bilmes/Stiglitz study found that the macroeconomic effects of regional instability in the prime oil-region affected by the war would lead to an additional cost of \$450 billion to Americans and that another \$450 billion in macroeconomic costs would be likely because money spent in Iraq cannot be spent in the United States. Thus the writings of Bilmes/Stiglitz in the study cited here and in some subsequent publications predict a \$1.2 trillion cost coming from direct costs, plus oil-price effects plus other macroeconomic effects bringing the final total to approximately 2 trillion.

In any case it is clear that the current security risks in Iraq are too great to allow economic investments to move forward now. On the one hand the risks to pipelines, equipment and personnel are too great for most investors to venture into Iraq to any large extent. And on the other hand, the potential prospect of eventually having new quantities of oil from Iraq where the oil quality and ease of access are exceptionally good prevents some people from investing in alternative energy, at least as much as would be wished from the perspective of reducing prices and reducing dependence on Middle East, Iraqi and Persian Gulf oil.

This reality—the reality of the lack of security in the region and the consequent reluctance to energetically address the energy needs of nations that are “addicted” to oil, but nonetheless wish to

be relatively independent of major oil-producing states—this insecurity reality is probably the major macroeconomic effect and the major cost of the war. This is probably the case even though it can be shown that the United States itself does not obtain a very large part of its own oil from Iraq. Thus one can surmise that the continuing very active role of the United States in the region is at least partly because the United States is not only addicted to oil, but is also addicted to its big brother foreign policy leadership role whereby it uses its overwhelming military prowess to protect access to dangerous sources of oil for the sake of Europe and other parts of the world that are much more dependent on Middle East, Iraqi and Persian Gulf oil than is the United States itself. The most positive aspect of this situation is the fact that playing big brother in oil regions is less highly respected now than before the war.

Another major macroeconomic aspect of the lack of security that constitutes a major cost of the war relates to the core question of the entire Iraq-war project. The core question is whether the United States and the world are less at risk of terrorist attacks or more at risk due to the war. From the beginning, President Bush and others have stressed the idea that it is better to take the war against terrorism to the enemy rather than risk having terrorists attack U.S. territory. If this was a major objective, we can ask to what extent it has been achieved.

None of the three studies answered the question as to whether acts of terrorism have been made more or less likely by the war in Iraq. The Wallsten/Kosec study addresses this core question, but does not answer it. It cites the estimate of Bram and Orr (2002) that the 9/11 terrorist attacks cost between \$33 and \$36 billion, and the Wallsten/Kosec study then goes on to say that, if removing Saddam Hussein from power reduced the probability of such an attack by 10 percent in each year, this would result in expected benefits of about \$3.5 billion per year. On the other hand, they continue, “if the war has increased the probability of a major terrorist attack by 5 percent in each year, then this becomes an extra cost of \$3.5 billion per year.”

This calculation seems somewhat irrelevant and superfluous in view of the fact that it was clear well before September 2005 when Wallsten and Kosec published their study that Saddam Hussein had nothing to do with the 9/11 attacks and that the presence of most al Qaeda activists in Iraq only occurred after the chaos of the war produced a fertile space for inciting hatred of America and much of what it and its allies represent.

In any case, the idea that the war would have reduced the risk of terrorist attacks on U.S. territory and elsewhere would seem to have been rejected by many people throughout the world. If the widely held public opinion perspective on the question is of any value, there seems to be a clear verdict that the war in Iraq has not reduced the risk of terrorist attacks.

The GlobeScan poll referred to above which interviewed over 41,000 people in 35 countries found that in 33 of these countries the most common view of the informants was that the Iraq war has increased the likelihood of terrorist attacks around the world. On average, 60 percent of respondents expressed this view, while 12 percent thought the Iraq war has decreased the likelihood of terrorist attacks. Fifteen percent thought it had no effect either way.

The information and writings referred to in this paper show that most people in most countries worldwide do not think that the war has achieved the major goal of reducing the risk of terrorist attacks. In fact it is clear that terrorists are being recruited on the grounds that the war in Iraq is a war designed to reduce the legitimacy of Islam. Nor has the war improved the situation regarding the price of oil for most people in most countries that have depended on oil for the expansion of growth. In fact the fixation on oil has only benefitted those who buy and sell oil, but it has not benefitted the ultimate consumer whose standard of living is undermined by high gas and other energy costs. Nor have consumers benefitted from any major effort to shift from oil dependence to a wider range of energy sources.

At the same time wealthy people in the wealthiest countries have benefitted from low taxes and an active climate for investments. One could speculate that, in spite of the concern regarding the impact of petro-carbon fuels on increasing climate change, the lack of real commitment to do anything about this problem is in part due to the fixation on oil and on the war in Iraq. The stalemate and relatively static state of affairs as regards oil prices, climate change and the war can be seen as providing a platform upon which other less socially important investments are made with impressive flair to the benefit of wealthy investors. It is also notable that especially in the United State where the proportion of the population whose lives have been lost in wars has always been very low, and where in the current war the people who suffer are not on the whole the people who make the decisions that prevail, the war, in some sense, does not matter in real terms. It is a topic for debate, but not a subject

for decisive action. This assessment is supported by the low cost of the war as a proportion of GDP and by the fact that the war has not appeared to have any clear negative effect on the stock market.

Given these gloomy assessments, it may be that the most valuable lesson that will emerge from this war will be found in the new facts and the new focus on the horrendous suffering and costs of life-long disabled veterans. It may be that if people do not care, in any way that has consequences, about the money involved, even when it is grossed up to pay for the care of the seriously wounded soldiers, they will care about the people. Lives lost are mourned and honored, but lives diminished are constant reminders of the tragedy that inflicted the wounds.

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