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War and the American Economy

Preliminary: Comments are welcome.

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War and the American Economy

To cover fully the economics of war would require encyclopedia unto itself. Here I will provide brief introductions to four questions: (1) to what extent did economic forces cause America's wars, (2) after going to war, how has the United States managed the reallocation of resources, (3) how has the United States financed the reallocation of resources, and (4) what have been the economic legacies of the war.

1. The Economic Causes of America's Wars

Although economic forces are not the only causes of wars, perhaps not even the primary causes, all of the wars that the United States has fought have had important economic causes. The Revolutionary war had its origins in a wide range of political even cultural causes. But the Revolutionaries, as we all know, were outraged by the taxes that were imposed without their consent, and perhaps also, simply by taxes. They were also irritated by mercantilist policies that limited the right of the colonials to trade freely with the rest of the world, although research by economic historians has tended to minimize the actual costs imposed on the colonists by these policies. The most important economic cause of the Revolution, however, may have been British restrictions on western settlement. The *Declaration of Independence* alludes to these restrictions in its bill of particulars:

He has endeavoured to prevent the population of these States; for that purpose obstructing the Laws for Naturalization of Foreigners; refusing to pass others to

encourage their migrations hither, and raising the conditions of new Appropriations of Lands.

The war of 1812 had its origins partly in the belief that the United States had the right as a neutral to trade with both France and England during the Napoleonic war. Both nations were trying to enforce blockades, and capturing American ships to enforce those blockades, and relations with both were strained. Equally if not more important was war fever in the west. A successful war with Britain, the westerners thought, would lead to the annexation of Canada and to a fatal weakening of Native American resistance, thus opening vast new lands for settlement. In the end, after considerable diplomatic manoeuvring, the United States decided to go to war with England and not France.

Land hunger, in particular the hunger of President James K. Polk for California, was also a factor behind the Mexican war (1846-48). Polk had made the acquisition of California a high priority from the beginning of his administration. When Mexico refused an offer of purchase California, Polk found another way.

A complex amalgam of political and moral motives lay behind the Civil War. But these motives were entwined with important economic motives. At one time economic historians focussed on the idea made famous by Charles and Mary Beard (1927, 166-92) and Louis Hacker (1940, 200) that Northern industrial interests pushed for the war. Partly this was because they believed that ending slavery would significantly expand the market in the American South for northern industrial goods. The argument was that the skewed income distribution in the South limited demand for the simple products of northern industry, clothing, shoes, matches, and so forth. Slaves were provided with very little; their masters with imported luxury goods. The Beards and Hacker also argued that Northern industrial expansion required legislation that could not be passed until Southern political power was broken.

Subsequently, however, significant doubts were raised about "Beard-Hacker thesis." Stanley Engerman's (1966) critique was especially influential. After the war the former slaves were poor, often scratching a living from sharecropping; they did not form a thriving market for Northern industrial products. And close inspection of the major institutional changes resulting from the war – the National Banking Act, the Union Pacific Railroad, the Land Grant Colleges, and so on – showed that although they were important to their respective sectors of the economy, they do not seem to have produced a significant acceleration in economic growth.

More recently economic historians have stressed slavery itself as the economic cause of the war. Ending slavery would have meant a huge loss of capital for slave owners. As first shown by Yasukichi Yasuba (1961) the value of an individual slave at maturity far exceeded the cost of rearing that slave. The southerners, moreover, knew that the political triumph of Northern Republicans meant that the further expansion of slavery within the United States had become highly unlikely. As an independent nation the southerners, as recently stressed by Robert W. Fogel (1989, 414-15), would had a chance to expand their version of slavery within the Americas. The Panic of 1857, a severe financial crisis, as shown by James L. Huston (1987), may have also taught the southerners some lessons about the potential value of independence from the North: the crisis was less severe in the South, cushioned, or so it appeared to many southerners, by a relatively strong market for cotton. "Cotton was King."

Economic forces, it is usually assumed, and with some justice, were less important in the Spanish American War than in other wars. Clearly, the sensationalist press, which inflamed public opinion by drawing attention to Spanish oppression in Cuba, played the major role. Yet a number of historians, Walter Lafeber prominent among them, see the Spanish-American war as the end result of American efforts to expand overseas markets. The McKinley

administration, moreover, decided to ask Congress for a declaration of war only after it had become convinced that Spain could not halt the Cuban Revolution and that the continued attention by the press to Cuba was hurting the securities markets and slowing the nation's recovery from the depression inaugurated by the Panic of 1893. As a result of the war Cuba was freed but Puerto Rico, Guam and the Philippines became American possessions. The war to subjugate the Philippines, the Philippine insurrection, proved to be long and brutal. America's involvement in World War I (1917-1919) on the side of Britain, France, Italy, and their allies, reflected ties of culture and politics, but as in other cases, these motives were entwined with economic motives. First and foremost was Germany's attempt to starve Britain out of the war through submarine attacks on Britain's maritime trade.

U.S. Trade with the Allies, who were running short of labor and raw materials, skyrocketed between 1914 and 1917. And the Wilson Administration was determined to defend our "neutral rights," refusing even to warn Americans against boarding vessels bound for the war zone. This policy, and the inevitable sinkings and losses of American life, brought the United States into repeated confrontations with Germany and helped propel the United States into World War I, just as Britain's blockade of the European continent during the Napoleonic wars had helped propel the United States into the War of 1812.

The rise of Nazism in Germany and extreme nationalism in Japan during the nineteen thirties were predicated in part on the idea that each nation could attain first power status only by creating economically self-sufficient empires. Germany had lost the World War I in part because the British naval blockade had deprived central Europe of fertilizers crucial for crop production resulting in widespread hunger that undermined support for the war. It was clear to German military planners in the 1930s that Germany would have to have produce fertilizers artificially

and control agricultural areas in Eastern Europe if she was to be sure of winning another war. But her attempt to achieve autarky went beyond this concern. For example, Germany tried to expand her economic interests in Spain in order to assure herself a continuous supply of raw materials, tungsten in particular. Ultimately, it was Japan's attempt to carve out an economic empire in Asia, and America's attempt to stop Japanese expansionism, that brought the United States and Japan into conflict, and led to Pearl Harbor.

The Anti-communist War that followed World War II, it could be argued, lasted some 45 years, from 1946 to 1990. For most of the time it was a "Cold War." The United States maintained military spending at unprecedented levels for peacetime and wrestled diplomatically with the Soviet Union. On two occasions, the Korean War and the Vietnam War, the Cold War turned hot. During all of this time one of the *central* question was economic: Should economies be organized on the basis of private ownership of property and coordinated through markets, or should the state be the main owner of property and coordinator of economic activity.

2. Reallocating Resources

The basic economic problem in wartime is how to transfer resources from the civilian sector to the military sector. Economists often analyze this transition with a "production possibilities curve" of the type shown in figure 1 which shows the amounts of civilian goods (butter) measured on the vertical axis and military goods (guns) measured on the horizontal axis. The curve shows the maximum amounts a country could produce depending on how it allocated its resources. The contrast between the Peace point on the curve and the War point illustrates the basic problem of mobilization: increasing war production normally means reducing civilian

consumption. One measure of the cost of the war, to put it differently, is the civilian production that is thereby foregone.

Some of America's wars have involved relatively small reallocations of resources; the war point on the curve was close to the peace point. The Spanish-American War is an example. From 1895 to 1897, the three years before the war, spending by the army and navy averaged about .62 percent of GDP. This ratio rose to a peak of 1.40 in 1898; averaging 1.27 percent from 1898 to 1900. On the other hand, some wars required a far more dramatic reallocation of resources. World War I is an example. From 1914 to 1916 spending by the Army and Navy (the newly created Air Force was then part of the Army) averaged about 1.00 percent of GDP. That figure rose to 6.17 percent in 1917, and to a peak of 12.37 percent in 1918. That percentage would be even higher if one took into account other forms of production: ships built for the government, munitions purchased by our Allies, and so on.

If the country is at less than full employment when the war begins, unemployed resources can be allocated to the war effort, so more guns can be produced without reducing consumption of butter. This is illustrated in figure 1 by the economy at C. This economy can move horizontally to the right. It faces no trade-off until the production possibilities curve is hit. World War II is an example. The war, as is frequently said, "Got us out of the Depression." The thrust of this idea can be seen if we compare 1939 with 1943. In 1939 the official unemployment rate was 17.2 percent and the total labor force was 55.8 million; in 1943 the unemployment rate was 1.9 percent and the total labor force was 64.6 million.

It is important to keep in mind, however, that much of the movement toward full employment during World War II occurred before the United States entered the war. By December 1941 the unemployment rate had fallen to 5.94 percent. (Dewhurst 1947, 690). In

1941, to take an extreme but important example, American automobile companies sold 3.78 million automobiles. This was below the amount sold in 1929, the best year before the Great Depression, but about the same as in other outstanding years such as 1925 and 1928. (U.S. Bureau of the Census 1975, 716). After Pearl Harbor civilian automobile production was terminated, and the automobile companies were converted to the production of military vehicles, clearly a movement along the production possibilities curve. World War II, moreover, was an exception. Other wars began in more normal circumstances and the potential for expanding production of military goods by employing previously unemployed resources rather than by reducing production of civilian goods did not exist on the same scale. The unemployment rate in 1916, the year before the United States entered World War I for example, was 5.1 percent.

Measuring the costs of war John Maurice Clark (1931, xi) wrote in his still definitive investigation of the costs of World War I "is either a relatively simple matter of tabulation and fiscal allocation; or else it is an economic problem of insoluble difficulty." We can add up the amount spent by the Army, the Navy, and the Air Force, and if we are careful we can add the other war related expenses of the government. All these numbers are available in the budget documents of the federal (and state and local) governments. But how do we value the lives lost? How, to take a narrower economic view, do we measure the loss of human capital?

Some idea of the costs of wars can be gleaned from table 1 which shows estimates of the human and financial costs of the Civil War, World War I, World War II, the Korean War, the Vietnam War, and the Cold War.

Table 1 Human and Resource Costs of Six Wars

	Civil War	WWI	WWII	Korea	Vietnam	Cold War
Start	April 1861	April 1917	December 1941	June 1950	August 1964	March 1947
End	April 1865	October 1918	September 1945	July 1953	January 1973	October 1989
Months	48	20	45	37	102	512
Combat Deaths	214,938	53,402	291,557	33,629	47,356	NA
Other Deaths	311,894	63,114	113,846	20,617	10,795	NA
Non-mortal Wounds	407,406	204,002	671,846	103,284	153,303	NA
Total Cost of the War in billions of current dollars	3.70	32.4	306.7	49.9	122.3	4061.8
Average GDP in Billions of current dollars	7.0	62.1	186.0	359	968.3	1611.1
War Costs as a Percentage of GDP	53.1	52.20	164.9	13.9	12.6	252.1

Sources: Deaths and Non-Mortal Wounds. <http://www.va.gov/pressrel/amwars01.htm>, accessed April 10, 2005. The Civil war figures include both the North and South. Non-mortal wounds for the South during the Civil War are unknown and were estimated by applying the ratio of non-mortal wounds to deaths for the North to the number of deaths for the South. Total Costs. Civil War. (Goldin and Lewis 1975, 304, 308). Total cost for the Civil War is the sum of Northern and Southern direct military expenditures during the War. The Goldin and Lewis figures were adjusted upward to offset the discounts they applied to the data, and thus to make the figures more comparable to those for subsequent wars. Total Costs. Other Wars. Edelstein (2000, table 6.1). Nominal GDP. Johnston and Williamson (2004). The estimates of GDP for the Civil War era are essentially trend values between more secure estimates for 1860 and 1869, and presumably include the South.

It is clear that the most sanguinary war was the Civil War followed by World War II. The other wars produced a distinctly smaller number of deaths and non-mortal wounds. It is also clear that

the wars varied a great deal in terms of the amount of resources devoted to them. World War II was the most costly of the hot wars in terms of resources devoted to it. The high cost of World War II reflected the intensity of the conflict, the location of the battlefields, and the capital intensity (amount of capital per fighter) of the war. Altogether, about a year and a half's worth of GDP was funnelled in to the war effort during World War II.

Perhaps somewhat surprising is the high cost of the Cold War. Similar factors – the length of the war, the distant location of the battlefields, and the capital intensity of the war – account for the high cost of this conflict, two and one half year's worth of GDP. The other wars were distinctly less costly, although World War I despite its quick resolution used up about a half year's worth of GDP. The expenditure and GDP estimates for the Civil War are not as precise as the estimates for later wars. Nevertheless, the impression conveyed by the table of a more labor intensive war – higher casualties but lower spending on the military – makes sense. Although five times as many men died in the Civil War as in World War I, in each case about a half a year's worth of GDP was allocated to the war effort. Battlefields that could be reached by marching or by railcar and the low capital intensity of the armed forces account for the relatively small share of GDP allocated to the war effort.

In every war the flood of contracts coming from the military services or civilian supply agencies was at the core of the reallocation of resources from the civilian sector to the military sector. War contracts were always highly profitable and war contractors simply bid away the materials and services they needed from others. In World War II, the war that required the most extreme mobilization of the economy, the United States relied, after some experimentation, on "cost plus" contracts negotiated individually with the munitions makers. This system assured contractors very high profits at almost no risk because any unexpected increases in costs would

be absorbed by the government. Before the war the government had relied on competitive bidding to help hold costs down. But during the war competitive bidding was deemed to be too slow and cumbersome to achieve rapid mobilization.

The flood of highly profitable contracts always attracted its share of crooks. Every war, as amply documented by Stuart Brandes (1997) in his provocatively titled but scholarly book *Warhogs*, had its scandals: shoddy merchandise sold to the military at exorbitant prices and contracts awarded to friends and business associates. These scandals have drawn more attention and have often been exaggerated because of the unique moral stigma that attaches to profiteering during wartime. In the extreme case shoddy merchandise could lead to the loss of life on the battlefield. This extreme case is the theme of Arthur Miller's play "All My Sons" (1947) about profiteering in World War II. Perhaps the best known attack on war profiteering was launched in the 1930s by the Senate Special Committee to Investigate the Munitions Industry (1934-1936), the Nye Committee, which blamed American munitions makers for drawing America into World War I.

Much can be done, and has been done in various wars, to minimize profiteering. A vigilant press was the first line of defence. And investigations by government committees uncovered problems and created incentives to avoid them. It is notable that Presidents Andrew Johnson and Harry S. Truman earned their position on the public stage by heading senate committees investigating war contracts. Excess profit taxes and provisions for the renegotiation of contracts after the war have been used as a final line of defence. Still, it seems likely given the special circumstances in which wartime contracts are signed – speed is of the essence and both the people responsible for issuing contracts and the firms they are dealing with are often

unfamiliar with the work to be done – it seems likely that some corruption will attend every mobilization.

In the colonial wars of the nineteenth century governments relied almost entirely on the private incentives created by these contracts to coordinate the mobilization. During World War I, World War II, and the Korean War, however, the government created centralized bureaus – the War Industries Board, the War Production Board, and the National Production Administration respectively – to coordinate the process. These agencies were charged with several tasks. The main one, however, was to provide answers to some basic questions. Which contracts should be filled first? Which raw materials should be given the highest priorities because they were used as inputs in the production of war goods? In part the creation of these coordinating agencies reflected the complexity of modern warfare. But it also reflected broad changes in ideology. Many Americans, including the administrations responsible for managing the war efforts in the twentieth century, were sceptical of the ability of the market to achieve a swift and efficient reallocation of resources.

The reallocation of labor to the production of war goods, unlike capital, was left to a much greater degree to pecuniary incentives. Although agencies were created to deal with wages, working conditions, and similar matters, it was assumed that there were wages sufficiently high to quickly achieve the needed reallocation of labor and yet low enough that taxpayers – who ultimately paid the wages when they paid for munitions – were willing to pay. The flood of workers into Detroit, Los Angeles, San Francisco, and other war production centers during World War II is testimony to the attractiveness of jobs and high wages. Marilyn Johnson's (1993) book on Oakland and the East Bay area in World War II, is accurately titled *The Second Gold Rush*.

The military services were another matter. To fill the ranks of the army the government usually turned to a draft. This was the story in the Revolution, the Civil War, World War I, World War II, Korea, and Vietnam. It was assumed that a point would be reached in a major war where more soldiers could not be had at any price, or at least at any price taxpayers were willing to pay. In the Revolution and the Civil War draftees were allowed to hire substitutes to serve in their place. This is one of those policies that throw into sharp relief the distinction between economic efficiency and economic fairness. An economist focussed on efficiency would point out that permitting the hiring of substitutes permitted a potential soldier with valuable skills to remain at home while someone with lower skills served in their place. Such a system, however, also permitted someone who had inherited wealth to remain at home, while someone without means had to serve. In short the system of substitutes magnified the feeling, to take a phrase that became popular during the Civil War, that it was a "rich man's war and a poor man's fight." The Draft Riots of 1863 were partly a reflection of the feeling that a draft in which men of means could buy their way out was unfair. The draft was quickly revived when the United States entered World War I, but without the divisive system of substitution. And in World War I, and in World War II when the draft was reinstated, the draft was generally, despite some criticism, accepted as a necessary step toward winning the war.

The draft was ended after the U. S. withdrew from Vietnam in 1973. Widespread protests against the war by college age youths had raised important political questions about the draft. Libertarian economists, in particular Milton Friedman and Walter Oi, also had some influence at the margin by questioning the economics of the draft. Their main point was that a draft didn't really "save" resources. The difference between what would have to be paid to get a person to serve voluntarily and what was paid to them as a draftee was simply a transfer from the draftee to

the taxpayer, a tax if you will on the draftee. In either case the real cost to the economy -- what the potential soldier could produce in the private sector -- was the same. In March, 1969, President Nixon established the Commission on an All-Volunteer Force, the Gates Commission, to study the feasibility ending of the draft. The Commission, dominated by the economists, issued a report early in 1970 strongly advocating an all-volunteer force. In 1973, Congress, drained by antiwar protests, harassed by middle class parents afraid for their sons, and impressed by the Gates Commission report, refused to extend the draft law. It expired on July 1, 1973, effectively establishing all-volunteer armed forces.

The technology for fighting wars has evolved rapidly and repeatedly challenged the ability of military commanders and politicians to adjust to new battlefield realities. During the Civil War, for example the development of rifled muskets accurate at long range undermined the usefulness of straight ahead infantry charges as a military tactic. This change not only influenced the outcome of particular battles, for example the failure of Pickett's Charge at Gettysburg, but also produced the enormous casualty rates that tried the patience of a nation. World War I saw the widespread use of the machine gun, a Civil War era invention much improved on by Hiram Maxim in 1884, which further reduced the effectiveness of the infantry charge, and condemned soldiers to the horror of the trenches. Trench warfare in turn led to the development of tanks and poison gas, the latter becoming a new symbol of the inhumanity of war.

New civilian technologies were also adapted to warfare with devastating effect. During the Civil War both sides made use of the telegraph and the railroad, then relatively new technologies. The Union general Ulysses Grant may have been the military leader who best grasped the potential of these new technologies. With them he was able to coordinate troop

movements and attacks over half a continent. In World War I barbed wire, developed shortly after the Civil War, created a new nightmare for soldiers attacking enemy lines.

The airplane, then only a decade old, was also widely deployed in World War I. And it was widely, if not universally recognized, that it would be a major factor in any future war. From the beginning it was recognized that there were two distinct ways in which aircraft could be used. One was as a tactical weapon: aircraft could be used on the battlefield as a form of long range machine-gun and artillery. The other was as strategic weapon: aircraft could be used to attack the enemy's economy by destroying mines, factories, and the transportation network, *and* it could be used to terrorize urban dwellers who, it was posited, would pressure their government to negotiate an end of hostilities.

A further distinction needs to be made between bombing aimed at sensitive points in the enemy economy and aerial bombing aimed at mass destruction. In the years leading up to World War II and during the early years of the war some advocates of strategic bombing hoped that by hitting key points in the enemy economy it might be possible to undermine the enemy's war making capacity without creating mass casualties or even doing much long range damage to the enemy's economy. It was thought, for example, that ball bearings were crucial to a wide range of industrial processes and that by destroying Germany's ball bearing factories one could damage a wide range of industrial processes and undermine the enemy's war making capacity. Gradually, however, it became clear that the role that could be played by destroying sensitive points in the German economy was limited, and bombing turned increasingly simply to mass destruction.

To some extent the disappointing results of the strategy based on sensitive points reflected military realities. Sensitive points were well protected and high priorities for repair. The failure of the sensitive-points strategy also reflected an economic reality: industrial

processes often seem unique, but when pressed creative substitutes can often be found. When the United States attempted to deny Germany supplies of tungsten, a metal that can be used to produce hardened steel, by buying up supplies in Germany and bombing facilities that refined the ore in Germany, the Germans responded by developing new alloys that minimized the use of tungsten. Oil is perhaps something of an exception in that the ability to find substitutes for oil, especially in aviation fuel are relatively limited. The ultimate form of strategic bombing, of course, is the use of nuclear weapons.

3. Financing Wars

"Endless Money," said the Roman statesman Cicero, "forms the sinews of war." The list of ways that governments can acquire resources to fight wars is a long one. Governments can get money by taxing the public, borrowing from the public, or even printing the money. But they have many other options. Governments can, sell existing assets, ask for donations, draft men or other supplies, and win resources on the battlefield. And all of these non-financial means, especially the draft, have been used to some degree. During the Revolution, for example, the government encouraged the families of soldiers to help supply the soldiers with blankets and food. In the Revolution, moreover, the government issued so-called letters of marque. These allowed privateers to capture British ships and sell the goods on American markets provided the profits were shared with the Revolutionary government. It was an economical alternative to building naval vessels. And, as noted above, the draft was used until recent times to fill the ranks and help defray the visible costs of war by pushing the financial burden on to the draftees.

Once we enter the financial field, however, there are only three basic ways that a modern government can provide the financial resources it needs: taxes, borrowing, and printing the

money. All of these come in different forms: taxes may be excise taxes or income taxes, borrowing may be from domestic or foreign sources, and money may be paper currency or bank deposits. But these are the three basic means by which the United States has acquired the sinews of war.

The central financial question is how much of each of these should be used. Should we rely mainly on taxes or borrowing or simply printing money? The classical economists taught that wars should be financed mainly by taxation. Adam Smith argued that debt finance was bad mainly because it hid the costs of war. Taxes would only be raised by a small amount, the amount needed to pay the interest on the debt, and the total cost of the war would not be brought home to the taxpayer

At the end of the classical period John Stuart Mill modified Smith's position. Mill thought that some borrowing would be appropriate. The test was whether or not interest rates rose. If rates rose it was a sign that borrowing had been pushed too far. Today, however, many economists, following the lead of Robert J. Barro (1987, 1989) tend to argue nearly the opposite: that taxes should be smoothed through the use of borrowing. The argument is that high tax rates discourage economic activity (taxes on wages for example discourage work) and that it therefore makes sense to limit wartime increases by resorting to borrowing. Debt, it is said, is useful because it permits the government to "smooth" taxes over time.

Financing a war by simply printing the money, most authorities agree, is a mistake because it produces inflation. Governments, however, often find it expedient to rely to some degree on printing money. The Continental dollar was the main vehicle for financing the Revolutionary war. The Continental Congress lacked the authority and administrative machinery to raise large amounts of money by taxes, and the still embryonic U.S. capital market was not

ready to absorb large amounts of debt. For similar reasons the South relied mainly on the Confederate dollar during the Civil War. The North began by relying on paper money -- the famous greenback, named for the green ink with which it was printed, and for lack of gold "backing" the note! -- but eventually was able to raise taxes and issue debt. Indeed, during the Civil War the North instituted the first national income tax (later declared unconstitutional), a tax on corporate profits, and taxes on alcohol and tobacco that are still with us. The South, not surprisingly, experienced far more inflation than did the North because of the South's reliance on printing money.

Once the Federal Reserve was established in 1913 the method of creating money changed. During the Civil War the government simply printed the notes and used them to pay soldiers and suppliers. During World War I, however, the process was less transparent. The government sold bonds. These were purchased by the Federal Reserve which created new deposit accounts in order to purchase them. In either case the result was the creation of new purchasing power and inflation. Indeed, the inflation during World War I was, if anything, a bit more than in the North during the Civil war, even though the Civil War was a longer and in terms of casualties a far more costly affair. The inflation during World War I was also greater than World War II. Milton Friedman (1952) may have been the first to draw attention to the unusually high degree of inflation during the World War I era (much of the inflation came in the immediate postwar years) and its origin in monetary policy.

Although our modern economy could get by without financing wars through money creation, the temptation to rely at least partly on money creation is strong. Only in the Korean War, thanks to early and sufficient tax increases, and in the First Gulf War, thanks to major contributions from our allies, were we able to avoid inflationary finance.

Figure 2 shows the price level from 1790 to 1946. As you can see prices during the nineteenth century remained more or less stable over the long run. The two wartime peaks, the War of 1812 and the Civil War, stand out in bold relief. During both wars it was assumed that the departure from the bimetallic standard and the printing of fiat paper money was temporary, and that after the war the United States would return to the bimetallic standard at the prewar exchange rate and at the prewar price level. After the Civil War the debate over returning to the prewar standard was heated. Democrats argued that the necessary deflation would hurt workers who might lose their jobs during a recession and farmers who were generally debtors. The Democrats favored various policies ranging from a slowdown in the retirement of the greenbacks to making the greenback a permanent feature of the economy. The Republicans, on the other hand, argued that returning to the bimetallic standard (at the time a de facto gold standard) was a matter of national honor, and that it would impress European capitalists who would then be more willing to invest in the United States. The Republicans prevailed and in 1879 the United States returned to the gold standard at the prewar exchange parity and the prewar price level.

World War I, as figure 2 shows, was somewhat different than the nineteenth century wars: the inflation was greater and the price level, although it fell from its peak during the 1920-1921 recession, never returned to its prewar level.

Although our first reaction might be to condemn absolutely the use of money creation to finance wars, there are some possible justifications. As Benjamin Franklin pointed out during the Revolutionary War, inflation is a form of taxation; the tax base is the amount of money you have and the tax rate is the rate of inflation. In other words, if you own \$100 and the rate of inflation is 10 percent per year, then in a year's time your money will be worth only \$90 at the initial prices. And as Franklin also pointed out, inflation does have some advantages as a tax: the

administrative costs are low, and it taxes something that nearly everyone owns. Another advantage to the government, which Franklin did not mention, is that it may not be obvious to the general public. An increase in the income tax will immediately be recognized as a cost being imposed on the individual by the government because it went to war. An increase in inflation might be blamed on wartime profiteers or labor unions or some other source.

4. The Economic Legacies of America's Wars

America's wars have produced numerous long-term changes in the American economy. Here we will briefly draw attention to five of the most important: (1) the provision of veterans benefits, (2) changes in the financial system, (3) Changes in America's role in the world economy, (4) changes in labor markets, and (5) changes in the realm of economic ideas.

The most obvious and possibly the most important legacies of wars are the benefits paid to veterans. To some extent veterans benefits represent resources that are devoted to ameliorating the long-term costs of wars such as money spent to treat physical or psychological damage caused by wars. But to some extent veterans benefits represent a transfer of resources from taxpayers to veterans to express the nation's appreciation for what veterans have suffered and accomplished. One might assume that veterans benefits would be a relatively uncontroversial part of the Federal Budget, but veterans benefits have often been the subject of bitter controversy.

There was a tradition dating from the Colonial period that the government would provide relief for soldiers and sailors who became sick or disabled as a result of military service, and similar legislation was passed by the Continental Congress during the Revolution. The demand by Revolutionary officers, however, for half pay for life contingent solely on service until the

end of the war, a British practice, proved far more contentious. Eventually, the officers were offered government bonds in lieu of an annuity. The interest on these bonds remained unpaid until the Constitution established a more effective government. Pressure to enlarge the benefits and reduce the service requirements continued after the war. Legislation in 1828 and 1832 created lifetime pensions, and the Widows Pension Act of 1836 created pensions for widows.

In addition to pensions paid in bonds or cash, veterans of the Revolution, the War of 1812, the Indian Wars, and the Mexican War, received substantial grants of western lands. Land grants were given in part simply because this was the main asset of the Federal government, but also in part because it was believed that settling military veterans on western land would provide protection from Native Americans. Land grants to veterans became controversial in a number of states where a substantial portion of the available land was given to the veterans. Making the land warrants negotiable was clearly a benefit to those soldiers who did not want to move to the frontier, but it also added to the controversy because it led many soldiers to sell their claims to "speculators."

In 1862 Congress provided pensions for disabilities caused by the war, and pensions for widows, orphans, and in some cases dependent mothers and sisters. In addition, in 1865 Congress authorized the establishment of a "National Asylum" for Disabled Veterans. In the post war era, the Grand Army of the Republic, a Union veterans organization, and others sympathetic to the veterans, lobbied for a more generous law. As with the Revolutionary War and the War of 1812, liberalization did come, although only after time had winnowed the roles. Under legislation passed in 1890 the qualifying disability no longer had to be the result of military service, and under legislation passed in 1904, age itself became a qualifying disability. One of the features of the later versions of the Civil War pension that drew considerable criticism was

the provision for pensions for widows in cases where the marriage took place after the war. This provision, as just as it was in many cases, opened the possibility of marriages of convenience between aged veterans and much younger women. Although limited in many ways, the Civil War pension has been described as America's first social security system. By 1900, according to Dora L. Costa (1998, 197), a leading authority on the Civil War pensions, "21 percent of all white males over the age of 55, were on the pension roles," and "the average pension paid to Union Army veterans from 1866 to 1912 replaced about 30 percent of the income of an unskilled laborer, making the Union army pension program as generous as Social Security retirement benefits today."

After World War I, perhaps in reaction to the perceived abuses of the Civil War pension, the emphasis shifted from cash benefits to in-kind benefits: housing, medical care, and education. Pressure was brought to bear, however, for a "bonus" to be paid to veterans. One persuasive argument was that the wages paid to soldiers had been eroded by the wartime and postwar inflation. In 1924 a "bonus" was awarded, but one that was not scheduled for payment with interest until 1945. When the Great Depression hit many veterans joined a campaign for an early payment of the bonus. In 1932 and 1933 thousands converged on Washington to demand immediate payment of the bonus. But neither the Hoover nor the Roosevelt administrations were willing to support an early payment of the bonus. In 1936, however, legislation was passed, over a presidential veto. Roosevelt, although sympathetic to the veterans, believed that the bonus drained political support from more comprehensive relief programs.

The clear-cut victory over the Axis, the return to prosperity, and the large number of veterans returning to civilian life, assured that the United States would do well by the veterans of World War II. The famous Servicemen's Readjustment Act (1944), colloquially known as the GI

Bill, provided a wide range of benefits including health care; mustering out pay; job placement; unemployment insurance; loans to buy a home, farm or business; reemployment rights and other employment preferences; and educational benefits. The latter have received considerable attention. The number of Americans going to college would undoubtedly have soared in the postwar era in any case. But the enrolment of veterans in colleges and universities under the G.I. Bill and their success as students accelerated the process.

The G.I. bills for subsequent wars were modelled on the World War II bill. One might have expected them, given the rise in real per capita income, to have become increasingly generous, but this does not appear to have been the case. In 1973, as we noted above, the United States adopted an All-volunteer armed force. From that time on the need for pension benefits as a tool for recruiting volunteers became the paramount determinant of the level of benefits.

The disruptions to the financial system created by wars have had long-term impact on the financial system of the United States. The taxes on alcohol and tobacco installed during the Civil War were never removed. The high income tax rates established during World War I were cut back during the 1920s, but were never returned to the prewar levels. The attempt to market government bonds to the middle class during the Civil War and during World War I may have broadened the capital market and paved the way for expanded investment in private security markets after the wars.

The effects of wartime inflations on the social fabric are not easy to document, but may have been important. In an unanticipated inflation the main gainers are debtors, assuming that their debts are fixed in nominal terms, because they can pay back their debts with lighter dollars, and the main losers are creditors. It seems obvious that the violent price movements associated with America's wars should have had a large impact through this channel, sending some long-

established families down the social ladder and other up. But there are no studies, that I am aware of, that document the long-term effects on debtors and creditors through wartime price changes.

America's wars, especially the wars of the twentieth century, have significantly altered America's role in the world economy. Before World War I Britain was the major source of capital for much of the developing world, and London was the world's financial center. America was a debtor nation that relied on Britain and to a lesser extent other European countries for the capital needed to achieve rapid growth. During the war Britain was forced to sell a large portion of her foreign securities in order to finance her war effort. After the war the United States emerged as the major source of capital for much of the developing world, and New York became the world's leading financial center. This transition would probably have occurred in any case, but it was accelerated by the war.

The war did more than simply transfer financial hegemony from Britain to the United States: the entire architecture of the international financial system was rebuilt after World War I, but on a precarious foundation. A decision was made to maintain high wartime price levels and to return to the gold standard with currencies that maintained high gold contents. Both decisions were understandable. Deflation, when it was tried, produced severe economic contractions. Upholding the gold standard, it was widely believed, was the cornerstone of financial respectability. The result, however, was a fragile international financial system in which a large amount of fiduciary money was balanced on a small amount of gold. It was a system which required aggressive action by central banks, and international coordination of their efforts, in order to quash any widespread attempt to convert fiduciary money into gold. In addition, Germany emerged from World War I saddled with long-term reparations payments that were

difficult to meet for both economic and political reasons, and that became an ongoing problem for the world's financial system in the 1920s and 1930s. The international financial system, in other words, was vulnerable to panics, a vulnerability that was amply demonstrated by what unfolded during the 1930s.

After both World Wars the United States emerged with its capital intact, indeed increased, and as a result in a unique position in world markets. Traditional competitors such as Britain, France, Germany, and Japan were at a distinct disadvantage in third world markets. On the other hand, our trade with these leading industrial countries, a trade that was a benefit to both sides, was severely reduced. The decision by the United States to avoid the punitive actions toward Germany taken after World War I and instead to help rebuild Germany and other European countries through the Marshall plan made economic as well as political sense.

It is popularly believed that wars, especially World War II, have had an immense effect on the structure of the labor force. During major wars the labor force has been maintained and expanded by turning to those groups that were often left out: seniors, minorities, and women. The war changed attitudes on the part of both employers and employees and tended to make wartime changes more or less permanent. There is undoubtedly much truth in this observation. The performance of "Rosie the Riveter" during World War II undoubtedly convinced many employers of the value of women workers, and gave many women a taste for work in the paid labor force. World War II also accelerated the movement of African Americans from the South, where economic opportunities were limited, to war production centers such as Los Angeles, which would grow rapidly and provide employment opportunities after the war.

It is important, however, to avoid attributing too much to the war and too little to long-term changes in the economy. This is especially true when it comes to the role of women in the

labor force. As Claudia Goldin (1991) has pointed out, almost half the women who entered the labor force during World War II left after 1944, either voluntarily or because they were pushed to make room (or so it was inevitably claimed) for returning servicemen. Goldin suggests, however, that factors other than the war, such as the rise of the clerical sector and increased education, account for the postwar rise in the participation rate of women in the paid labor force. The eliminating of "marriage bars" – rules that forced women to quit their jobs when they married – owed more to the decrease in the supply of unmarried women than to the changes in ideology brought about by the war.

Finally, America's wars have also left a deep imprint on ideas about the appropriate role for the state in the economy. The Civil War empowered the Republican Party which at that time believed in a wide range of government programs aimed at unifying national markets and strengthening the industrial sector: the transcontinental railroads, the national banking system, a tripling in the number of federal district courts armed with greater powers, the land grant college system, and high tariffs. In World War I the Federal government attempted to manage the economy through a range of government agencies such as the War Industries Board, the Food and Fuel Administrations, the Railroad Administration, and the War Labor Board. The success of the United States during the war created a halo effect around these agencies. Bernard Baruch, in particular, who headed the War Industries Board during the last part of the war, saw the top down management of the war economy as a brilliant success, and argued that it clearly provided a good model for future wartime economies and in some ways for peacetime economies as well. After the war these ideas remained largely dormant, with the exception of the creation in 1924 of the Army Industrial College. But in the Great Depression advocates of governmental solutions to

the problem of the Great Depression could point to the war as an example of the success of centralized planning and control.

The apparent success of deficit spending during World War II in ending the Great Depression provided, or so many economists believed, practical proof for Keynes's idea that the economy could be brought to full employment, and kept there, through the judicious use of fiscal policy. The apparent success of price controls and other forms of government regulation strengthened the belief, at least on the left, that government planning was the key to full employment and price stability.

Both the military failures in Vietnam and the associated "stagflation" (simultaneous inflation and unemployment) on the home front had an opposite effect. Now it seemed that government planners might make serious errors, and that the ability of planners to keep the economy on an even keel through fiscal policy, were limited. Just as World War I and World War II helped make the case for big government, the Vietnam War helped to undermine it.

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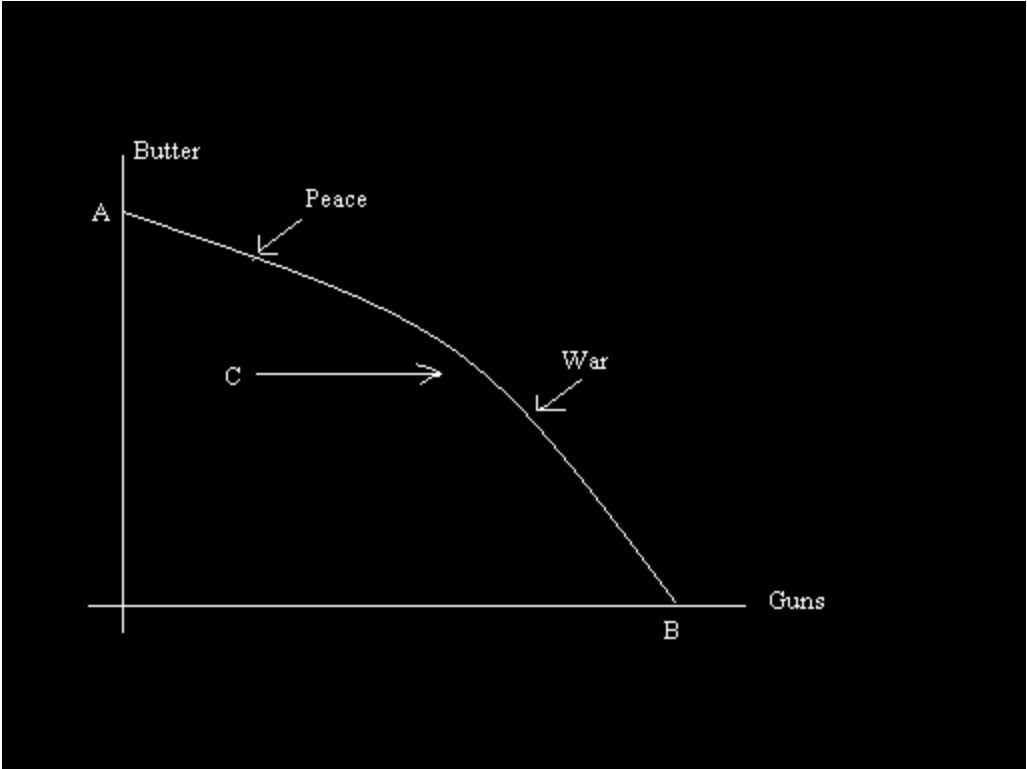
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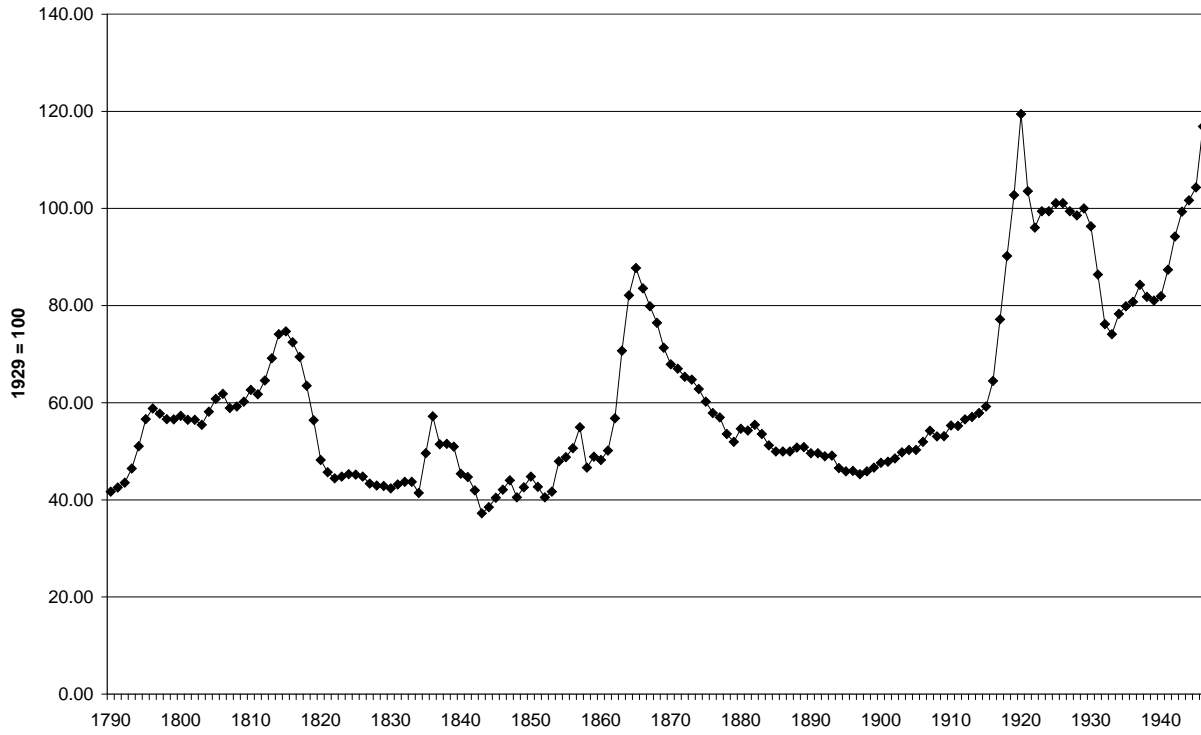
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Figure 1 – The Production Possibilities Curve



Prices (GDP deflator), 1790-1946



Source: Johnston and Williamson (2004).