Notes for Topic 4: World War II

1 Amateur History and Military Science

1. World War Two is usually dated from the Nazi invasion of Poland in September 1939 (an alternate start date is 1937 when Japan attacked China) until August 1945. Around 80 million people, including civilians, died. This is by far the most in history, although the Mongols' conquests may have killed a higher percentage of the global population (more on this later)

2. World War II ended in 1945 with the surrenders of Germany in May and Japan in August. World War II was followed by the Cold War (1945- 1991) between countries aligned with the United States and those aligned with the Soviet Union. These were the two nations left in the strongest geopolitical positions after World War II.

3. The War was also an unprecedented economic shock to the United States. It required an enormous amount of resources including both material and people, to wage. the U.S. government became much larger and has never returned to its pre-war size. 10 million American men were conscripted into the armed services.

4. For the defeated countries, especially Germany and Japan, the war was an economic catastrophe, with much of their productive capacity destroyed. For the victors, especially the United States, where physical destruction was almost zero, the economic implications are more complex. As we will discuss, it appears to have resulted in a more equal distribution of wealth. It also may have helped trigger a period of relative economic prosperity in the decades that followed.

2 Core Concepts for this Topic

1. *Government borrowing.* Like households and firms, governments borrow to help pay for their spending. In the United States, local, state, and the Federal government may all accumulate debt. Governments do not typically borrow through ordinary loans. Instead, they usually issue bonds. The U.S. government may sell you a bond for $950, for example, that promises to pay you $1000 in one-year. It uses the $950 to buy tanks, bridges, etc., but the government accumulates debt. The $500 gap between the bond price and what the government must repay is interest. Large corporations often borrow in a similar manner using corporate bonds.

Governments do not usually plan on repaying all of its debt when it matures (becomes due). Instead, it rolls over its debt by issuing new bonds to pay for the ones that mature. As long as there are people willing to buy the new debt, this process can continue for a very long time. If debt becomes so high that people are afraid that they will not be paid back, then they may refuse to buy new debt. This is known as a *debt crisis* where a government suddenly cannot pay for everything that it wants to buy and it may have to abruptly cut its spending or raise taxes. Debt crises often lead to major economic downturns.

A key question is how much debt is too high. We could ask a similar question for households: is $1 million a lot of debt? The answer depends. It is for me. It is not for Elon Musk. The same logic applies to governments. We can add up the value of all goods and services that an economy produces in a year, this is known as *gross domestic product,* a common measure of economic activity. For the United States, Federal debt was $24.7 trillion in 2023, while GDP was $26.5 trillion, or 93%. Although the U.S. is not in danger of a debt crisis in the near-term, this figure is quite high and many economists worry that it could constrain the U.S. in the future.

2. *Rationing and Price Controls.* We have seen two examples of supply and demand: the labor market and the goods market. In the latter example, note that nobody chooses the price or quantity. Rather, it is the joint result of the individual choices of all the sellers and buyers in the market. no person or government that gasoline would cost $3.79 per gallon this morning, it was the result of the market.

What happens if a government dictates that gasoline prices cannot exceed $2 per gallon. Because this price is lower than what the free market would result in, it will have a few bad effects (a price ceiling of $100 per gallon would be irrelevant). First, people may try to avoid the price ceiling through a black market that allows for higher prices. Second, because demand will be greater than supply at the mandated prices, there will be a shortage. Some people who want to buy gasoline at $2 per gallon will not be able to do so (unless they resort to a black market).

The government may then try to fix the shortage through *rationing.* This is where, in addition to choosing the price, the government also chooses the quantity. Individual households may only be allowed to buy a limited amount of the good. This increases the risk of a black market.

Price controls and rationing have a bad reputation among economists, mostly because governments have not proven to be any better (and are usually much worse) at choosing prices and quantities than markets. Nevertheless, there are some cases where economists generally support limitations on prices or quantities. Most economists support some degree of anti-trust law that prevents monopolies (goods for which there is just one seller) from charging an excessive price. Most economists, with the possible exception of Texas, support rationing the amount of hydrogen bombs a household can purchase. World War II saw the most extensive use of price controls and rationing in U.S. history. They seem to have worked at least marginally well.

3. **Education and Economic Growth**. One of the most important questions in economics (and hence the universe) is why some countries are so much wealthier than others.[1]. Economists have identified many factors that help explain these differences; technology, political stability, savings rates, etc. One especially important factor, however, is education, which is included in a term called *human capital* that economists use to make us look smarter than we really are.

It is clear that more educated countries tend to be wealthier. But this does not prove that education causes wealth. It is possible, for example, that wealthier countries are better educated because they can afford more schooling. This is why figuring out causation can be tricky. Nevertheless, economists do think education leads to wealth. A better educated workforce is more productive. More education leads to more innovation, increasing new inventions such as better software, cooler robots, and the decision to use honey as a pizza topping.

4. **Public goods** have two properties. The first is that people cannot be excluded from their use. The second is that one person's use of the good does not prevent another person from using it. Many goods fit these criteria imperfectly. Some fit them well enough (if not perfectly) to be agreed upon as public goods. National defense may be the most famous example. National defense protects all residents whether they like it or not. One person's benefit from national defense is not reduced because other people benefit from it.

A public good is prone to *free riding*. Suppose that everybody could choose how much they want to contribute to national defense. Because any single person's contribution would be too small to make a noticeable difference, people may free ride and not pay their fair share. Free riding results in not enough of the public good being produced. Other common examples include roads and clean air.

[1] Average income in the United States in 2023 was $75.2 thousand, over 300 times higher than the African nation of Burundi where average income was $258

One common solution to the public goods problem is for the government itself to provide it, and for it to be financed through mandatory taxes. This is why almost all governments have public armed forces and why taxpayers cannot opt out of financing them. Note that this does not mean that governments always provide the best amount of a public good. It is possible that they either provide too much or too little.

3 Big Questions

1. During World War II, the United States temporarily increased government intervention in the economy. How was this done and why was it seen as a way to help win the war.

Think of all the goods and services produced in an economy. What fraction of these are either produced by the government or purchased and consumed by the government. Before World War 2, in the United States, this figure was around 9% for the Federal government. This figure provided for a small (by today's standard) military and limited social spending.

This level of spending was inadequate to finance the military spending needed to wage the war. Fishback (2019) notes:[2]

> Defence spending rose from 1.4% of GDP in 1940 to over 37% in 1945 and the federal deficit rose from 3% of GDP in 1939 to 27.5% in 1943. Meanwhile, civilian unemployment rates fell from 9.5% in 1940 to below 2% from 1943 through 1945.

Overall, Federal spending rose to 41% of GDP by 1944-45. This is about double the usual post-war level of 20% and it is far larger than 2020, when spending rose to 31% in response to covid-19. Paying for such massive spending required additional policy changes. Taxes were raised dramatically, but taxation was not enough. The government borrowed massively as well. To encourage households to lend to the government, celebrities and war heroes were sent out to sell war bonds, a form of government debt.

The Federal government emerged from the War owing debt equal to 100% of GDP. While high, this debt did not do major damage to the U.S. economy in the following decades (although it did limit the government's ability to spend on other things). It was instead paid down in the decades that followed. Federal debt has just recently rivaled this level.

[2] Fishback, P. 2019. "World War II in America: Spending, deficits, multipliers, and sacrifice." *Center for Economic Policy Research.*

Another important intervention was conscription, where eligible men (good enough health, between 18-45 years of age, etc.) were available to be drafted and then required to serve in the armed forces. During World War II, 10 million American men were conscripted. This had a number of important effects. First, it was a very direct tool to reduce unemployment which, despite falling from a peak of 25% during the Great Depression, remained relatively high until the start of the war. Second, conscription reduced the male civilian labor force. As a result, an unprecedented number of women entered the labor force. This increase only partly subsided after the war and may have paved the way for a much broader increase in female labor force participation in the following decades.

To this day, male American citizens are legally obligated to register for conscription upon turning 18, although there has not been a draft since 1972.

2. Fighting World War required a massive increase in government spending, particularly on the military. Rather than simply raising taxes to pay for these, the U.S. instituted a complex system of rationing and price controls. Why?

Today, the U.S. government rarely intervenes in private markets by regulating prices or restricting who producers can sell their product to. There are a few reasons for this reticence, but a major one is that governments are not very good at setting prices and, when they do, the result tends to be shortages, surpluses, or other bad outcomes.

When the U.S. Federal government suddenly needs to spend more (*e.g.* covid-19), it usually does so either by borrowing more or by raising taxes. The problem in World War II was that both the magnitude of government spending, and the disruptions to markets was so large that the government felt that other measures were needed. Higgs writes:

> Supplies of some goods—including rubber products, sugar, and coffee—had been diminished by Japanese capture of supply sources (Malayan rubber plantations) or by naval warfare or scarcity of shipping services (German U-boats sank many U.S. merchant ships early in 1942). Government claims on rubber and tin cut further into supply, creating extreme excess demand for these goods. Shortages arose for automobile, truck, and tractor tires as well as for sugar and coffee—goods obtained largely from Latin American sources. Canned foods grew much scarcer because imports of Bolivian tin, used to coat the inside of cans, had been diminished by the increased shortage of shipping services. Therefore, many consumers could not

> obtain certain goods they normally consumed, and workers and housewives grew restive.

The Federal government feared that in a free market, shortages of rubber, sugar, and most importantly coffee, would be so severe that their prices would rise to unacceptable levels and that only wealthy households would be able to afford them. It thus decided to put price ceilings on certain goods where sellers could not legally charge a higher price. The basic problem with price ceilings is that they lead to shortages where there isn't enough of the good available at the allowed price. The government thus imposed rationing where households were only allowed to purchase a limited amount of the item.

Under ordinary circumstances, we would expect a rationing/price control system to lead to a black market- an illegal trade in a good that circumvents the rules. Today, there are black markets in goods like cigarettes (to avoid high taxes), crystal-meth (seems obvious) and other goods. Black markets were also a problem in World War II.

> Price controls and rationing created opportunities, however, for people willing to break the law. Active black markets developed all over the country. Substantial proportions of all transactions in some goods—especially beef and gasoline—occurred illegally. Housewives routinely bent the rules by trading, giving away, or selling ration stamps, which the law forbade. Mobsters entered the scene en masse, stealing ration coupons from OPA offices and reselling them, counterfeiting ration coupons and selling them, and hijacking trucks and selling their cargos without collecting ration stamps. Cattle rustling made a comeback.

Despite these black markets, economists have been relatively favorable about World War II rationing as a means of preventing widespread inflation and greater economic inequality. This is in sharp contrast to the profession's decidedly negative evaluation of later price controls (*e.g.* they were tried, with very poor results, to limit inflation in the 1970 and continue to exist as rent controls in some cities.) One possible reason is that appeals to patriotism as a means to limit black markets, may have been partly successful during the war.

3. After WW2, economic inequality declined. Was the war, or measures taken to finance it, responsible for the trend?

Scheidel makes the case that major wars are generally leveling. His analysis mixes the two world wars. (We will focus on the Second World War). The following summarizes his overall argument.

> Military mass mobilization, progressive graduation of tax rates, and the targeting of elite wealth on top of income constituted the the three main ingredients of fiscal leveling. Scheve and Stavage argue that mass mobilization wars are different in terms of taxation strategies not simply because they are very expensive but also, more specifically, because they increase the need for societal consensus that translates to political pressure for disproportionally heavy extraction of resources from the rich. Mass conscription was not by itself an equalizing force, considering that wealth elites were less likely to serve due to age or privilege and stood to profit from commercial involvement in the war industry. Fairness concerns required military conscription, as a tax in kind, to be accompanied by what the British Labour Party Manifesto of 1918 called the "conscription of wealth."

-Scheidel, Chapter 5, page 145

The first part of the preceding quote describes taxation. Paying for the war required much higher taxes. Furthermore, these taxes almost had to be highly progressive, meaning that wealthier households paid a higher *percentage* of their income. Progressive taxation was needed, because without high rates on the wealthy, the government simply could not raise the needed funds. Furthermore, Scheidel argues that because conscription (and ultimately casualties) disproportionately fell on the poor, fairness dictated that the wealthy pay higher taxes. The war was part of a longer-term trend towards highly progressive taxes that reduced economic inequality.

> Subsequent equalization was driven in part by by very high marginal tax rates on income an inherited wealth. The process commenced with the New Deal and culminated in further turns of the screw during the war years, In "this time of grave national danger, when all excess income should go to win the war," as Roosevelt put it, the top tax rates for income and estates peaked at 94 percent in 1944 and 77 percent in 1941, respectively, and the thresholds for the highest rates were greatly lowered, thereby ensnaring wider high-income circles.

-Scheidel, Chapter 5, page 149

> Across the Atlantic, the experience of the United States demonstrates that considerable war-induced leveling could occur in the absence of physical destruction and serious inflation. The country's top 1 percent income share fell on three separate occasions, by almost a quarter during World War 1, by the same proportion during

> the Great Depression, and by about 30 percent of what remained during World War II. Overall, this top bracket lost some 40 percent of its share of total income between 1916 and 1945.

-Scheidel, Chapter 5, page 148

Taxation was possibly the most significant cause of what Scheidel calls the "Great Compression," but there were others as well. The war spurred an increase in educational attainment with many war veterans attending college afterwards through programs such as the G.I. bill. Before the war, college was mostly aimed at wealthy households, but the decades following the war saw a major increase in the share of low and middle income students. This increased their wages leading to better incomes at the lower end of the wage scale. It also led to much higher enrollment at many U.S. institutions.

Scheidel also argues that the war encouraged unionization. Unions allow workers to bargain with their employers as a group rather than as individuals. They may use this power to negotiate higher wages. Once again, he argues that World War II acted in concert with World War I and the New Deal:

> In the United States, unionization rates which briefly rose then fell back at the time of World War I, soared in response to two shocks. The first was the Great Depression, which prompted the New deal and teh Labor Relations Act of July 1935 guaranteeing workers' rights to organize in unions and engage in collective bargaining. Once the initial surge had stalled a few years later, war provided another powerful impulse that caused union membership to reach an all-time high in 1945, followed by a fairly steady decline thereafter.

-Scheidel, Chapter 5, page 166

We conclude with a bigger argument that is harder to pin down. Scheidel argues that the Second War may have led to a general change in societal attitudes. The shared experience of the war may have caused the population to think more collectively which then made redistributive policies, such as progressive taxation, more politically acceptable:

> The massive violent shocks of modern mass mobilization warfare depressed inequality by a wide variety of means. postwar attitudes were shaped by the experience of these unique shocks. Conscription and rationing have been identified as ubiquitous and potent stimulus for change, and in many of the affected countries evacuation

> and exposure to bombing and other military activity direct against civilians further reinforced the social effects of conflict, most notably in the first half of the 1940s....
>
> The cataclysmic nature of World War II greatly accelerated the cause of social policy, as the need for postwar reform and redistributive policy came to be appreciated across the political spectrum.

-Scheidel, Chapter 5, page 169-170