

## Chapter for *An Economist's Guide to Economic History*

### Topic: **World Wars**

#### *Introduction*

The world wars were the most destructive conflicts in human history, both in terms of the economic cost and the human misery they inflicted. It is important to understand the origins, impacts, and outcomes of these conflicts, since they did not occur before or after the twentieth century. Thus, one of the questions we should examine is why the twentieth century? And whether the twentieth century was therefore a dismal century for mankind? To start with the latter question, we can definitely say that the twentieth century was not solely a period of misery, since the century featured rapid economic and technological growth, an increase in the number of democracies, and massive advances in living standards globally. Moreover, while the destruction brought on by the world wars suggests that the period was one of extreme violence, scholars have pointed out a global pattern of decline warfare and violence even in the twentieth century. And, in fact in comparison with previous centuries, the twentieth century in Europe was less violent.(Field 2003; Pinker 2011)

In general, we should look at the world wars to address the following questions: (1) why did these wars develop into such brutal conflicts and assume the most extreme characteristics of total war? (2) how have the impacts and outcomes been measured and what do those results tell us? and (3), what were the economic and societal conditions before and after the wars, and how long did those effects linger? Here we are discussing both Europe and the wider world, although the European theaters of war were often crucial in the context of these conflicts. Furthermore, a lot of the newer research into these wars embody quantitative methods, which enable us to assess the various dimensions of the war in a new way. A lot of this literature has emerged in the last

twenty years or so, and especially the centennial of the World War I has inspired a lot of new research on it. The reading list at the end of this chapter highlights some of that research.

### *Economic History of Warfare and Defense Economics*

The study of wars is one of the key issues for most social sciences, including history and economics. In economics, a separate sub-field called defense economics is dedicated to the study of military spending as well as the causes and impacts of wars, both from the supply and demand side perspectives. Typically, though, the contributions of defense economists are focused on current day conflicts, and even studies on the Cold War period appear fairly sporadically. Other fields that discussed the economic impacts of conflicts include sociology – such as Charles Tilly, who argued that warfare forced European monarchs to give up some of their power in return for funding for their wars – as well as conflict and peace sciences in the field of political science, which are focused mostly on analyzing the dynamics and causes of conflicts, often based on long-run quantitative data.(see e.g. Dincecco and Prado 2012; Dincecco and Onorato (2016)

Defense economics offers us tools with which to analyze the costs and impacts of conflicts. For example, they can highlight the negative impacts of military spending and wars on the supply side (including crowding out effects, political distortion, destruction of human and fixed capital, and so on) along with the positive demand side implications (increased government spending and investment, recruitment of, e.g., both women and minorities to work in war production during the world wars, increased government efficiency in handling crises, positive technological spillovers like the radar and nuclear power, and so on). Typically, the economic

growth impact of military spending even in peace time is slightly negative, let alone during massive conflicts like the world wars.(Sandler and Hartley 1995; Sandler and Hartley 2007)

There are many studies by political and military historians as well as economic historians that have also looked at long run economic impacts of wars and military spending. One of the most interesting new books is by Philip Hoffman (2015), in which he outlines how European states gained supremacy in the last 500 years due to military competition, or “tournaments” as he models these interactions. Hoffman’s model links the high probability that European rulers would go to war to the high value of the victor’s prize, similarity of resources, military technology, and ability to mobilize those resources (absence of a hegemon is crucial). Thus, Hoffman’s four conditions for Europeans’ path toward global dominance include frequent war, high military spending, adoption and advancement of gunpowder technology, and relative lack of obstacles to military innovations. Europeans enjoyed low fixed costs for going to war, distances were small, variable costs for mobilization were low, and there was a merchant base that helped with the financing of conflicts. For Hoffman, the analysis of military competition is the key to understanding how certain societies thrived and other did not.

Another example of using economic theory to analyze military history is a book by Jurgen Brauer and Hubert van Tuyll (2008). One of the issues they tackle is the location and layout of medieval and early modern castles. They employ the concept of opportunity costs and sunk costs to explain what were often inefficient fortifications, since castles were often expanded outward, especially after the 14th century, as a response to the emergence of gunpowder weaponry. Moreover, they argue that diminishing marginal returns set in for bigger castles, although more remains to be studied in this respect. Similar analysis could be applied to modern fortifications and certain types of military investments, which embody sunk costs.

Economic historians have also provided new perspectives into the analysis and the efficacy of economic warfare, which can range from fairly benign policy measures and pressure to outright warfare. Lance Davis and Stanley Engerman (2006) have studied one particular form of economic warfare, naval blockades, spanning several centuries. They also emphasize both the costs and challenges of sustaining a successful blockade. For example, during the Napoleonic wars, the legalities of blockades were rather unclear, especially the issue of neutrality. The success of a blockade, as they point out, is often difficult to assess as well. Periods of actual warfare, even blockades, can bring substantial opportunities, as well as disruptions, for trade. Similar lessons apply to modern forms of economic warfare too, including sanctions, which have been ineffective in effecting the changes that those states that imposed them would have wished for.

Similar to Napoleonic wars, the world wars were massive global conflicts, which can be classified as *total wars*.(Bell 2008) Such conflicts have included mobilizing the entire populations to fight for them both at the front lines and in the domestic economy, efforts to hurt the enemy's economy by any means necessary, and the acceptance of high civilian casualties. Moreover, as Kevin O'Rourke (2006) has argued, such conflicts also typically harm the economic growth of the participants the most. His results show that Great Britain was the least affected of the belligerents, whereas France and the United States suffered more. The welfare losses were around 5-6 per cent of GDP for the United States, which could be classified as substantial.

*Mobilization, Impacts, and Demobilization*

We know much more about the scale and scope of the world wars in 2018 than we did twenty years ago. With the introduction of two edited volumes by Mark Harrison and Stephen Broadberry, namely Harrison (2000) and Broadberry & Harrison (2005), the extent of the mobilization and the impacts of the world wars are fairly clear. First, the economic damages from the World War I amass to several hundreds of billions US dollars (in real terms), whereas the damages from World War II were likely 5-6 times higher. This includes losses of human life, destruction of capital, wasted resources, and so on. Second, these conflicts were the costliest wars in human history, regardless of the indicator we use to measure that. Third, these wars turned into much lengthier conflicts than they participants expected, which forced them to mobilize farther and farther. Fourth, the mobilization of richer, and more democratic countries (like the United States) was the most extensive and effective, which gave the Allies an edge also in the battlefield as the constraints of total war become more apparent. Fifth, the dislocation caused by the wars for individuals and nations were immense, and the demobilization from the conflicts was difficult, and the economies tended to be prone to fiscal, social, and political instability afterwards.

**Table 1. Resource Mobilization by the Great Powers in the First and Second World War**

<i>Country and years in the war</i>	<i>Average military burden</i>	<i>Average defense share</i>	<i>Military personnel as a percentage of population</i>	<i>Battle deaths as a percentage of population</i>
<b>France:</b>				
<b>1914-1918</b>	43	77	11	3.5
<b>1939-1945</b>	..	..	4.2	0.5
<b>Germany:</b>				
<b>1914-1918</b>	..	91	7.3	2.7
<b>1939-1945</b>	50	..	6.4	4.4
<b>Russia/Soviet Union:</b>				
<b>1914-1917</b>	..	..	4.3	1.4
<b>1939-1945</b>	44	48	3.3	4.4
<b>UK:</b>				
<b>1914-1918</b>	22	49	7.3	2.0
<b>1939-1945</b>	45	69	6.2	0.9
<b>USA:</b>				
<b>1917-1918</b>	7.0	47	1.7	0.1
<b>1941-1945</b>	32	71	5.5	0.3

**Sources:** see Eloranta (2016) for details.

The extent of the mobilization and the impact of the world wars are described in Table 1 above. The most losses in World War I were incurred in the brutal trench warfare of the Western Front; respectively, the most losses in World War II occurred in the Eastern Front, with the key battles like Stalingrad and Kursk. Civilian losses were less pronounced in World War I, given the more stationary nature of the conflict. In World War II, the extensive aerial bombings, various forms of genocide, and the more mobile and global nature of the conflict meant much higher civilian casualties, especially toward the end of the war. As Niall Ferguson has discussed, the “bang for the buck”, i.e. increase in the ability to kill per dollar, increased rapidly in the twentieth century as a result of the world wars. The ultimate step in this direction was, of course, the invention of the atomic bomb, which was used for the first time in Hiroshima and Nagasaki in August 1945.

On the aggregate, both world wars were won by the side with the superior economic resources. As Ferguson (1999) has argued, Germany did not mismanage its resources and thus lose the war. The Allies had a massive advantage in terms of total GDP, population, military

personnel, armaments production, and food supply throughout the conflict; a situation that became even more pronounced when the US finally entered the war on their side. In November 1914, the Allies had 793 million people under their control compared to 151 million for the Central Powers. By the end of the war, the Allies controlled 1,272 million in terms of population (or 70 percent of world total), whereas the Central Powers' total was still under 200 million. The Allies had a massive advantage in population, territory, and GDP throughout the war; this advantage became even more disproportionate as the war went on. Moreover, even though the Central Powers initially did quite well with the limited resources they had, the Allies were able to mobilize their far superior resources better both at the home front and to the front lines. Their more democratic institutions supported the demands of the total war effort better than their authoritarian counterparts. Therefore, the richer countries mobilized more men and materiel for the war, and their war industries proved quite capable of adapting to fulfill the needs of the war machine. Moreover, having a large peasant population turned out to be a hindrance for the production of food under wartime constraints. As Avner Offer (1989) has argued, food (or the lack of it) played a crucial part in Germany's collapse.

In World War II, the initial phase until 1942 favored the Axis as far as strategic and economic potential was concerned. After that, the demands of total war set in, with the United States and the USSR joining the Allies, turned the tide. For example, in 1943 the Allied total GDP was 2,223 billion international dollars (in 1990 prices), whereas the Axis accounted for only 895 billion. Also, the impact of the Second World War was much more profound for the economies of the participants. For example, Great Britain at the height of the First World War incurred a military burden of circa 27 per cent, whereas the military burden level consistently held throughout the Second World War was over 50 per cent.

Finally, the war had an immediate and long term impact on the economic development of these economies. In Germany, rationing began even before the war began. Furthermore, the cost of living steadily increased for the average family, particularly for food, and the dismantling of the German state and economy following the war left little doubt of the destructive power that World War II had on the economies of Europe. Even victors, such as the UK, experienced major losses. Based on physical capital, the British lost 18.6 per cent of its prewar wealth. This left many concerned that the state planned to continue nationalizing industries (though that fear never materialized). In the end, every nation in Europe felt the economic pain of war.

The demobilization from the world wars was quite difficult, although more so after World War I. The belligerents in World War II were better prepared for releasing soldiers back into the society. The men who fought displaced again the various minorities and women in the work force. The bigger consequences of the world wars pertained to their macroeconomic impact. For example, World War I was followed by an imperfect peace agreement and ineffective international efforts to limit military spending, immediate exogenous shocks that hindered economic recovery, poorly conceived return to the Gold Standard, and a fragile financial and monetary systems. Both world wars were part of the disrupted globalization and decline in world trade. The legacies of war debts, border adjustments, slow implosion of colonial rule, and overall political instability were hard to resolve. The situation after World War II was different insofar that the winners of the conflict actively engaged in rebuilding the countries that lost and built up international institutions to facilitate cooperation among states, albeit after 1945 within the confines of the emerging Cold War rivalries.

*Tips for the Classroom*



The topic of warfare is suited for interdisciplinary discussions in the classroom, given the very nature of the problem. Moreover, the world wars are good cases to study, since they have been the biggest conflicts in human history, and they offer plenty of topics for both theoretical and empirical discourse. One can discuss, for example, the effects and impacts of mobilization on the supply and demand side, or how to assess the damage arising from these wars, both in the short and the long run. I would also suggest that discussions of the world wars in the classroom can be effectively be linked to the events of the wars, e.g. how resources ultimately were decisive in the war (tactical versus strategic dimensions). Moreover, I would also recommend the study of the world wars in case you wish to analyze the evolution of government's role in the economy, and how the labor markets were shaped by the inclusion of minorities in the workforce.

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