Myths of the Great War

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Abstract. There are persistent myths about every aspect of the Great War of 1914 to 1918: how it began, how it was won, how it was lost, and how the peace was made. I consider and reject the arguments that the war broke out inadvertently, that the western front saw needless slaughter, that Germany was starved out of the war by the food weapon, and that the peace treaty that ended the war was the cause of another war.

Introduction

One hundred years later, perceptions of the Great War continue to resonate in today's world of international politics and policy.[1] Most obviously, does China's rise show a parallel with Germany's a century ago? Will China's rise, unlike Germany's, remain peaceful? The Financial Times journalist Gideon Rachman wrote last year:

> The analogy [of China today] with Germany before the first world war is striking … It is, at least, encouraging that the Chinese leadership has

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made an intense study of the rise of great powers over the ages—and is determined to avoid the mistakes of both Germany and Japan."[2]

The idea that China's leaders wish to avoid Germany's mistakes sounds encouraging, certainly. But what are the "mistakes," exactly, that they will now seek to avoid? It is not encouraging if social scientists and historians remain uncertain what mistakes were made and even whether they were mistakes in the first place.

While attention has been focused on China's parallel with the rise of Germany, Russia's present decline in some ways resembles that of Austria–Hungary and has no less disturbing implications: a multi-national empire struggling to manage a fall from past greatness in the face of rising ethnic tensions and powerful rivals competing for influence in bordering states.

The myths of the Great War challenge the skills of both historians and economists. Historians face the challenge of preserving and extending the record and contesting its interpretation—especially when reasonable people differ over the meaning. If anything challenges the economist, it is surely persistence in behaviour that is both costly and apparently futile or self-defeating.

Closer study of the historical record of the Great War reveals a story full of foresight, intention, calculation, and causation. Some consequences that are commonly thought to have been unintended were considered beforehand and fully discounted; others were not consequences at all.

Myth #1. How the War Began

Interviewed earlier this year at Davos, Japanese premier Shinzo Abe likened China and Japan today to Britain and Germany in 1913.[3] He commented on the similarity of their rivalry. He noted that they shared a strong trading relationship and that a century ago this had not prevented strategic tensions leading to the outbreak of conflict. Today, he concluded, any "inadvertent" conflict would be a disaster. A similar impression is

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[2] "The shadow of 1914 falls over the Pacific," Financial Times, February 4, 2013.

[3] "Davos leaders: Shinzo Abe on WW1 parallels, economics and women at work," Financial Times, January 22, 2014. Subsequently the Chinese foreign minister Wang Yi was quoted as rejecting the parallel on the following grounds: "1. The parallel is a misleading one. Military conflict is now unthinkable. 2. Japan caused the second world war. This is unambiguous." "Davos: China rejects Abe's WW1 analogy," Financial Times, January 24, 2014.

conveyed by Christopher Clark's (2012) bestselling account of the outbreak of war in 1914: "The Sleepwalkers."

The idea of an inadvertent war is sometimes traced to Lloyd George. In 1918 Lloyd George was in no doubt who bore responsibility for the war; he latter demanded "Trial of the Kaiser" (Purcell 2006: 75). By 1920 he had changed his mind. In a later memoir (Lloyd George 1938: 32) he famously wrote:

> The nations slithered over the brink into the boiling cauldron of war without any trace of apprehension or dismay.

In fact, several versions of the Great War now in circulation deny or qualify agency. These are stories of nationalism, imperialism, and coordination failure. According to them, national leaders were trapped into actions they did not intend by commercial interests, the demands of the mob, and alliance commitments.

Faced with the hypothesis of an "inadvertent" conflict, the social scientist has many questions. When the actors decided on war, did they not calculate their actions or intend the results? The economist's standard model of strategic interaction demands evidence of individual agency (rather than of unconscious collective drives), of unbiased "rational" expectations, and of backward induction of one's own best choice based on the expected best choice of the adversary.

It is a myth that such thought processes were absent from the decision for war. On the contrary the record shows that the war was brought about largely by design, and among those that designed it there was realistic foresight of the scale, scope, character, duration, and even outcome of the war.

In every country the decision for war was made by a handful—literally—of people at the apex of each political system (Hamilton and Herwig 2004: 238–241). Their councils were "saturated with agency" (Clark 2012: xxvii). The cliques themselves were not united, so that there were also waverers in every country including the German, Austrian, and Russian emperors, the German premier Bethmann Holweg, and the British finance minister (later premier) Lloyd George. At crucial moments, however, those that favoured war were able to sway the others.

An implication is that the war was not inevitable. Minor variations in the course of events and the personalities involved might have had different outcomes. The Sarajevo assassination killed a voice for peace in Vienna and also made it more difficult for similar voices to be heard (Fromkin 2007: 154). In the powerful words of Margaret MacMillan (2013: 605): "There are always choices."

No one was swayed by commercial interests, which were against the war in all countries (Hamilton and Herwig 2004: 241–248), or by public opinion more widely, which was taken by surprise (Ferguson 1999: 174–2011). Public opinion was considered, only to bolster the legitimacy of the actions the actors had decided to take anyway. In Germany, for example, Moltke (cited by MacMillan 2013: 480) wrote to Bethmann Holweg after the so-called "imperial war council" of December 1912 that "we can … face even the most difficult tasks with confidence, if we manage to formulate the casus belli in such a way that the nation will take up arms unitedly and enthusiastically." No one was trapped into war by alliance commitments. Instead, they considered carefully whether or not to honour them, or even went beyond them. Thus in its "blank cheque" to Austria, Germany went far beyond its alliance obligation. Italy, in contrast, went to war in 1915 against its former allies. Nor were they trapped into war by the pressure of mobilization timetables; in both Berlin and St Petersburg, the war advocates exploited the timetables to force the waverers to commit to war (e.g. Herwig 1977: 25).

What ruled the calculation in every country was the national interest as they perceived it. But on what was the "national interest" based? As everywhere, on shared beliefs and values.[4] These began with national identity, in which the well-being of the nation was commonly identified with persistence of the ruling order. They extended to shared values of power, status, honour, and influence, and then to shared beliefs about the forces underlying the distribution of power in the world. Strikingly, the decision makers in every country were subscribers to a virtual world where the zero-sum game of power was being played out, not the positive-sum game of commerce and development.

There is clear evidence that some of these actors had a specific intent to bring about a war. Two things muddy the water. One is the efforts made later to destroy the evidence and distort the record (Herwig 1987). Another is that those that intended war did not have the same war in mind—although they still understood the wider conflict that could follow (Fromkin 2007). In Vienna chief of the general staff Conrad and foreign minister Berchtold intended war with Serbia in order to assert the integrity of the Austro–Hungarian Empire—but they knew that the Russians might intervene and so widen the conflict. In Berlin chief of the general staff Moltke and war minister Falkenhayn planned war with Russia before the Russian rearmament would be completed—but they knew that this would also entail war with France.

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[4] On the "national interest" in 1914 see Hamilton and Herwig (2004: 239); on the leaders' "shared political culture" see Clark (2013: 560).

All this provides evidence that in 1914 the great powers followed the principles of strategic interaction, including backward induction by which each player chooses their own best move, taking into account the adversary's likely response. Within the governing cliques of the Great Powers, each had reasonable understanding of the others' war plans, based on open signals and confirmed by covert intelligence (Macmillan 2013: 314–352). That is, each government shared a broad understanding that, if Austria attacked Serbia, Russia would probably mobilize against Austria and Germany; Germany would probably attack France as well as Russia; and Britain would probably come in on the side of France (Herwig 2002). Austrian foreign minister Berchtold promoted aggression "even though our operations against Serbia should bring about the great war." From Berlin, Wilhelm II told Vienna to count on "Germany's full support"; he wrote that Germany fully expected war with Russia and for years had made all preparations with this in mind.

Each country's likely reaction was not known with certainty, and there are well known moments when they were misread. But the theory of deterrence (Schelling 1966 92–125) does not require certainty; indeed, deterrence is thought to be more effective when each side retains some discretion. Of course, leaving the adversary in a state of uncertainty is not the same thing as being uncertain oneself, and the latter condition reflected the influence of the waverers.

To bring war about, they also encouraged each other: when the Germans encouraged the Austrians to make war on Serbia in July 1914 among them were those that expected this would provide the best opportunity to attack France and Russia (Hamilton and Herwig 2004; Fromkin 2007). Similarly, the Russians and French egged each other on, although the Russians had their eyes on Austria and the French on Germany (McMeekin 2011: 54).

Is it true that everyone expected a short war? According to a Financial Times editorial for New Year's Day, 2014:

> In 1914 some European politicians and generals, their outlook shaped by the limited wars that had unified Germany and Italy half a century earlier, harboured this illusion.[5]

But it was not, in the main, "politicians and generals" that suffered from the illusion. It was the ordinary uninformed citizens that expected a short war. The "short war" illusion arose from the warnings of Bloch (1899) and Angell (1910) about the destructive force of modern warfare and the dependence of prosperity on economic interdependence. The military had

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[5] "Reflections on the Great War," Financial Times, January 1, 2014.

heard the warning and had discounted it (Macmillan 2013: 305–306). In reality the idea of a short war was not so much a shared illusion as a shared hope: starting from Schlieffen, everyone hoped the war could be short.

Military planners were ready not only for a great war but also for a long one. Schlieffen's own staff warned that quick victory might well be replaced by "a tedious and bloody crawling forward step-by-step" (Clark 2013: 561). Updating German war plans in 1905 and 1906, Moltke himself envisaged one possible outcome as "a people's war, one which would not be concluded in a single battle" but a "murderous European war," a "general European massacre, at whose horror one could only shudder," a "long and protracted struggle" that would continue until "the peoples' energy had been entirely broken"; if victorious, Germany would still be "exhausted in the extreme" (Herwig 2002: 688–692). Preparing for war, German administrators planned how to feed the population under blockade (Lee 1975). Moltke himself explained that respecting Dutch neutrality would provide Germany's "wind pipe," or neutral channel to overseas trade (Herwig 2002: 689. These considerations made absolutely no sense if they planned only for a short war.

Across the Channel in August 1914, while some others thought the war might be a brief commitment, war secretary Kitchener thought "if things go wrong the war might last two or three years at least" (cited by French 1988: 387). Prime minister Asquith anticipated "Armageddon." French and Russian generals looked forward to the "extinction of civilization" (Clark 2013: 561).

Was irrational over-optimism a factor? In this context over-optimism would have a precise meaning: that the sum of probabilities of expected victory among the great powers would exceed one. Evidence of over-optimism is strikingly absent among those that brought the war about in Berlin and Vienna. Possibly there was over-optimism in St Petersburg: both Russians and Germans overestimated the extent to which Russia was already stronger than Germany. In the present, however, both German and Austrian leaders had clear premonitions of defeat (Berghahn 1973; 2013; Ferguson 1999: 13; 2005: 19). As war began, German war minister Falkenhayn put it: "Even if we go under as a result of this, it still was beautiful." In Vienna Conrad told his mistress: "It will be a hopeless struggle, but … such an ancient monarchy and such an ancient army cannot perish ingloriously." The Austrian Kaiser Franz Joseph wrote: "If we must go under, we better go under decently" (from Herwig 1997: 11, 22, 37).

Far from optimism, their attitude is better described as *rational pessimism*: they did not expect victory, but they did evaluate the expected payoff from remaining at peace as worse than that from war. Thus Moltke

told Conrad on 12 May 1914: "To wait any longer means a diminishing of our chances" (from Herwig 1997: 51). Bethmann Holweg to Kurt Riezler, 7 July 2014: "Russia's military power growing fast … Austria grows ever weaker … The future belongs to Russia, which grows and grows into an ever greater weight pressing down on our chest" (from Erdmann 1972: 181–93).

Could the Great War have been avoided? The case continues to be made that avoidance of war in such circumstances can be achieved by mediation and accommodation. Gideon Rachman, for example, has contrasted "Munich" and "Sarajevo":

> If leaders warn against "another Munich", they are almost always advocating a tough response to aggression—usually military action. If they speak of "Sarajevo", however, they are warning against a drift to war.[6]

From the perspective of managing China's rise, Rachman continued:

> This year's centenary of the outbreak of the first world war could do the world a great service by persuading modern politicians to spend more time thinking about Sarajevo, and less time worrying about Munich.

But this assumes the Great War was the "inadvertent" conflict of legend. In fact there was no drift, no lack of foresight, communication, realism, or calculation. There was no lack of mediation, either. In the July crisis the British government made repeated offers to mediate, but in Berlin these were seen as a complication to be neutralized. German responses were designed only to avoid public blame for the onset of war when it came.

Rather, war came in 1914, unlike in previous crises, because in that moment the great powers did not deter each other. From this perspective the reality of 1914 looks surprisingly similar to 1939, when only a credible deterrent might have stopped Hitler in his tracks. As Margaret Macmillan (2013: 503–4) has shown, the Victorians understood deterrence perfectly well. War broke out in August 1914 because, in that moment unlike all the preceding moments, the Austrian and German governments were insufficiently deterred.

The breakdown of deterrence in 1914 was fostered by rational pessimism. Pessimism changed the balance of fear: there is no option

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[6] "Time to think more about Sarajevo, less about Munich," Financial Times, January 6, 2014. See also Skidelsky (2003).

value in waiting and no merit in avoiding risky adventures if you fear the future more than you fear your enemies. Today we should be grateful, perhaps, that China's leaders do not seem to fear the future. In today's world that fear is more likely a factor in the decisions of declining regimes in Moscow and Pyongyang.

In 1914 there was also a deeper cause of war. The war was instigated by unaccountable rulers meeting in secretive councils where the national interest was defined by military beliefs and values, and other values were excluded. In business and society, no one wanted war. The banker Max Warburg told the Kaiser: "Germany becomes stronger with every year of peace. We can only gather rewards by biding our time" (from Herwig 2011: 13). But the Kaiser did not listen.

Empirically, open political systems that aggregate widely held social preferences and exercise civilian control over military authority appear to engage in warfare more reluctantly and more selectively than their authoritarian counterparts (Levy 1988). There can be adverse side effects; for example, a democracy might be inhibited from undertaking decisive military action that would deter aggression by others. Thus a world where democracies and non-democracies coexist is not necessarily more peaceful. It seems beyond dispute, nonetheless, that if German and Austrian councils had had to listen to middle and working class opinions in 1914 there would have been no Great War.

Myth #2. Needless Slaughter

The Great War took place in an era of mass armies. This era began in the 1860s, when the railway technology first enabled the assembly and deployment of multi-million armies (Onorato et al 2014), and ended in the 1970s when battlefield nuclear weapons and cruise missiles deprived the same mass armies of their viability.

Angell and Bloch warned that warfare in the age of mass armies would be militarily horrendous and economically and socially unbearable. In this they were partially correct: the wars were certainly horrible, but European societies proved all too capable of carrying unprecedented war mobilizations for years at a time.

The focal point of the Great War was conflict between Germany and Russia, triggered by the gradual disintegration of the Austrian and Ottoman Empires. In fact, this was the point of the war: Germany went to war in the West, only in order to secure the conditions of victory in the East. In this sense there is an exact parallel between the two World Wars.

The two wars differ, however, in where the outcome was decided. In the Second World War, the Eastern front was decisive: this is where the main forces were concentrated and the main battles were fought. In the

first World War, in contrast, the decisive engagements took place on the Western front. In fact, Germany won in the East, and was then defeated in the West.

In the West, the decisive conflict took the form of a war of attrition. The original German war plan was for an offensive across Belgium and France, ending in destruction of the French army within six weeks. Although the French Army suffered its worst losses of the war, it did not collapse, dug in, and was quickly buttressed by a small British expeditionary force.

Britain went to war with a strategy of attrition, which required the immediate raising of a mass army. At first there was no intention to send the new army into battle on the Western front to kill and be killed; Kitchener planned to wait, perhaps until 1917, while the French and the Russians wore the Germans down, and then intervene with "the last million men" that would decide the war (French 1982; Bourne 2005: 129).

As things turned out, however, before 1914 was over the British Army was fully engaged. The first, second, and third millions went to war long before 1917. Once the front line of trenches and dugouts settled into place, attrition became the norm. Attrition is an ugly word, designed to conceal the attempt to exchange wounds and deaths with the adversary at a favourable rate. Generals on both sides accepted casualties on a scale unthinkable by modern standards in the hope that the enemy's loss would be greater. On an average day of a war that lasted more than four years, more than 6,000 soldiers died of all nationalities, including 2½ thousand of the Central Powers and 3½ thousand of the Allies (from Urlanis 1971: 209). Britain's worst day was the first on the Somme, 1 July 1916, with 20,000 killed and missing.

Attrition was a reality; was it pointless? That idea was founded on two rates of exchange: lives for lives, and lives for territory. Lives for territory: In most battles on the western front until 1918 only a few yards changed hands for thousands or tens of thousands of casualties, and this is often counted as a measure of waste. But an emphasis on movement mistakes the purpose of combat. The purpose of combat was not to capture territory or even to achieve local breakthroughs but to destroy the enemy's fighting power. Lives for lives: When the Allied armies traded lives with the enemy, they consistently came off worse. This was a deadly problem.

Figure 1 near here

For illustration, Figure 1 reports British and German casualties in the British sector as monthly averages. It separates the 16 months from Neuve Chapelle to the days before the Somme, and the 29 months from

the Somme to the Armistice. Two things are clear. First British losses increased by a multiple; at a monthly rate they were 2,000 a month in the first period and 12,000 a month in the second. The main factor in this increase was the great expansion of the British forces deployed. Second, British losses consistently exceeded those of the adversary in the same sector: by nearly two to one in the first period and still by 1.5 to one in the second.

At that rate, the Allied policy of attrition was irrational. When Falkenhayn launched the battle of Verdun in February 1916, he expected to lose two of his own men for five French soldiers. In the process he would drain France of blood (Herwig 1997: 182). Germany, not Britain, would have the last million.

Did the Allied generals see this? The British commanders' alleged failure to learn is embodied in Alan Clark's (1961) invented epithet: "Lions led by donkeys." Niall Ferguson (1998: 242–281) has also maintained that, given their great advantage over the Central Powers in economic capability, the Allies' failure to win the war more quickly must be explained by disorganization and incompetence: an "advantage squandered."

In fact, commanders on both sides made repeated efforts to escape the logic of attrition and avoid the slaughter. The problem was not that they did not try. The problem was that these efforts did not work.

Indirect routes to victory started with economic blockade, so Britain blockaded Germany, at first sea, and then by reducing Germany's neutral trade to a minimum, while Germany blockaded Britain using submarines. But there were many countermeasures and ways around a blockade; the effects on fighting power were slow to materialize (at best) or even counterproductive and there were many countermeasures. Another indirect route seemed to lie through the Near East, where British Empire forces attacked Gallipoli, and Germany tried to ignite jihad against British colonialism; both enterprises were costly failures.

Then there was the direct route to victory, the dream of a decisive breakthrough which started always from heavier and heavier artillery bombardment of the enemy trenches, and continued (as time went by) through bombardment that became more and more accurate in timing and placement to new weapons that cascaded onto the battlefield and eventually transformed it: gas, rifle grenades and trench mortars, portable automatic weapons, and eventually tanks and airplanes. These efforts did not fail; in the end they won the war for the Allies. But they did not put an end to attrition or avoid the slaughter because the casualties only increased (Strachan 2003).

Based on manpower alone, a strategy of attrition was self-defeating: the Allies could have expected to lose the war. Kitchener's last million

(men) turned out to come from America, which no one anticipated in 1914. During the war, however, the solution to attrition presented itself, and the Allies were better able to grasp this solution than the Central Powers. The stalemate on the Western front would be broken not by manpower but by firepower. Additional firepower was supplied by the Allied economies, which were much more productive than those of the Central Powers. First to grasp this was Lloyd George, who echoed Kitchener in 1915 by claiming that Britain would raise the "last million" (pounds) that would win the war (Macdonald 2006: 403).

Figure 2 near here

The balance of economic advantage is easily illustrated. Figure 2 compares the Allied advantages in prewar GDP and population, and in men mobilized in wartime. It is a snapshot, not a moving picture, so it rolls up Russian and American resources into a single number, ignoring the fact that Russia dropped out as America came in. Still, these were the resources available. Allied GDP was more than three times that of the Central Powers; population more than twice; men mobilized more than one and a half times. Figure 3 focuses on war production. In tanks (especially), airplanes, machine guns and rifles, the Allies comfortably out-produced the Central Powers; only in artillery did they fall short (we will see below that this margin was of doubtful benefit to the adversary).

Figure 3 near here

It was in the economic dimension of attrition that the stalemate was broken, leading to Allied victory. Their economic advantage allowed the Allies to compensate for heavy casualties by superior accumulation and diversification of firepower (Prior and Wilson 1992; Strachan 2003). Allied artillery bombardments became effective against opposing trenches when intensified above a calculable threshold. New infantry weapons, combined with armour and air support, allowed the infantry to get out of the trenches and fire and move at the same time. All this was based on a vast Allied production mobilization. American reinforcement in 1917 also mattered: it added a million men (but with little experience), and some elements of firepower (but few heavy weapons) (War Office 1922: 628).

Mobilization of the economy for total war took time (Broadberry and Harrison 2005b). The time factor is easily illustrated. For the British the Somme is the iconic battle of the war, based on its terrible casualties and minimal gains. We will see that in July 1916, the time of this battle, the

mobilization of Allied resources was still at an early stage.[7] Indeed the war after the Somme was larger in every respect. Losses were many times heavier (Figure 1) because there were many times more soldiers who fought many times more battles (Griffith 1994: 18). The Somme ceased to be an exceptional encounter; by the end of the war, moreover, the resources being deployed in every battle exceeded those of earlier battles by large multiples. This was enabled by very large increases in combat stocks. At the time of the Somme offensive, on 9 July 1916, the British Army held more than 6.5 million shells in France and a further 1.1 million at home. By the time of the 1918 spring offensive, on 9 February, the equivalent numbers were 16.5 million and 11.3 million (War Office 1922: 481).

Figure 4 near here

Behind this lay the expansion of production, illustrated in Figure 4. In the 30 months from the Somme to the end of 1918, British industry produced rifles at twice the rate, shells at 5 times, machine guns and aircraft at 9 times, and tanks at 33 times the rate of the similar period up to the Somme.

Figure 5 near here

Not surprisingly, there was an answering mobilization on the German side, most notably the "Hindenburg plan" of war-industry construction adopted in August 1916. The best account, almost half a century old, and with many gaps, is still that of Feldman (1966). The Hindenburg plan was focused on guns and explosive powder. Figure 5 infers that the monthly rate of powder production in Germany from the Somme to the Armistice was three times that of the first half of the war (the horizontal axis of this figure is scaled to match that of Figure 4). As for guns, it is known (Figure 3) that over the war period as a whole Germany alone outproduced the Allies (including both Russia and the USA), but we do not know the timing of this accomplishment. Figure 5 also reports Germany's submarine construction after the Somme at around twice the rate beforehand. These numbers, while hardly spectacular, are evidence of German production success to compare with that of the Allies.

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[7] Griffith (1994) has called the period after the Somme the "larger second half of the war." He criticizes much of the British history and literature of the war as suffering from an "early war bias": it has typified the conduct of the war, based on the experience of the early months of "amateurism, blundering, and fumbling" when most of the serious fighting was done by the French. At this time most of the English poetry was written (and perhaps the poets were able to write it because the British sector was quiet most of the time).

Two things undermine the German economic record, however. First, the German production programme was insufficiently diversified: it neglected the airplanes and tanks that could give supporting cover to the attacking infantry and would prove decisive in 1918.

Second, while the Hindenburg plan was too narrow, the huge efforts that it forced were also too much for the German economy. A textbook description of unsustainable mobilization is provided by the memoir of German interior minister Karl Helfferich (cited by Feldman 1966: 273), according to whom, by mid-1917, there were:

> Everywhere half-finished and finished factories that cannot produce because there is no coal and there are no workers available. Coal and iron were expended for these constructions, and the result is that munitions production would be greater today if no monster programme had been set up but rather production had been demanded according to the capacities of those factories already existing.

The excessive mobilization precipitated the disintegration of the German economy, the collapse of living standards, and an urban famine. As a result Germany could not reap the dividend from its victory on the Eastern front. By 1918 more than 2 million men available for military service were being held back from the front to work in Germany, alongside thousands of soldiers returned from the front (Bessel 1988: 24–25). By now the German Army had too many guns for the men available to fight, and still not enough food (Herwig 1997: 264, 410). On one hand "the new artillery, trench mortars, and machine guns rusted on loading docks." On the other hand, the troops were afflicted by "hunger and thirst," which drove them through the year's spring offensive: as they advanced they quickly exhausted their own supplies, which they made up by looting the abundance that they found in Allied stockpiles, but the search for food and wine slowed the advance.

In short attrition worked, not in the generals' understanding of the term which was indeed narrow-minded and pre-modern (Offer 1989: 352), but in Lloyd George's modernized interpretation: When the financial and industrial strength of the central powers was finally exhausted, the Allies still had the last million.

Should the Allied victory have come sooner? Ferguson (1998) argued that, given their material advantage, the Allies should have won in two years. Evidently "the Germans were significantly better at mobilizing their economy for war than the Western powers." The Allied advantage, he concluded, was squandered. But this is not a reasonable conclusion. Mistakes were made on both sides. The British failed to learn in time from

previous industrialized wars (Trebilcock 1975) and from early battles on the Western front (Prior and Wilson 1992; see also Griffith 1994: 192–200). But the German generals that ran the domestic war effort from 1916 also made terrible mistakes. They started from a position of material inferiority. They ended up with war factories they could not supply or operate and soldiers that they could not feed. These were mistakes they could not afford.

To conclude, in the Great War, despite material advantage, the Allies could not escape the war of attrition. Attrition began with mass killing. The scale of mass killing cannot be described as efficient; inhumanity was mixed with disastrous miscalculations and failures to learn. But this was war, and mass killing was the result of warfare in the era of mass armies, not of the particular form warfare took at this time. At the same time attrition was not only mass killing. There was also economic attrition. It was the combined attrition in both economic and military dimensions that defeated the Central Powers.

Myth #3. The Food Weapon

Food was an essential element of two world wars (Collingham 2011). Moreover, food security was a core element of German war preparations (Lee 1975). Despite such preparations, many believed, Germany was strangled by the British (later Allied) blockade. The food weapon appeared to have been decisive: Germany was starved into submission.

This belief has historic significance. After the war it helped to sustain the notion (attributed to Germany's wartime leaders Hindenburg and Ludendorff) that Germany remained unbeaten militarily; the army was betrayed by the surrender of the home front. The memory of the blockade also ran deep in the National Socialists' project to restructure Europe in Germany's interest by force, as when Hitler (cited by Collingham 2011: 37) remarked in 1939: "I need the Ukraine, so that no one is able to starve us again, like in the last war."

The idea that Germany was starved into defeat would have astonished prewar observers. The British and German prewar diets were quite comparable. At the outbreak of war Germany imported only 20–25 percent of calories for human consumption; for Britain the equivalent number was 60 percent. It was natural for Angell and Bloch to suppose that in wartime British consumers would starve first. Yet all measures of wartime trends show a contrast that was unfavourable to the German consumer. During the war British food supplies were somewhat constrained and their average composition deteriorated; in 1918, the average household consumed more bread, less fat, and substantially less meat than in 1913. In Germany, in contrast, in 1918 the average

household ate less of everything, and supplies of meat and fats had collapsed.

Germany also compares unfavourably in food distribution. There, it was families on lower incomes that were less protected from average trends. In Britain the access of poorer families to food improved relative to the average (Gazeley and Newall 2013); this is more likely attributable to the high demand for all kinds of labour than to rationing, which was introduced only at the end of 1917 (for sugar) or during 1918 (for some meats and fats). In Germany price ceilings and rationing came in 1916 and covered bread and flour, meat, fats, and oil. But rations supplied little more than half of required calories, so everyone had to find unofficial sources to survive. In this setting the wealthy had the advantage. Nutritional deprivation has been observed in the heights of soldiers and and the heights and weights of schoolchildren born before and during World War I (Blum 2013; Cox 2014). Both show average declines and increases in inequality.

Finally, excess mortality among German civilians wartime is put at around 750,000, most likely because of hunger and hunger-related disease (Davis and Engerman 2006: 204).

The blockade was the adversary's salient intervention in Germany's food supplies, and it is easy to leap to the conclusion that the blockade was therefore the cause of German hunger.[8] But this story is confounded by two factors. One is straightforward: Germany chose to go to war with its principal trading partners. Angell and Bloch had argued forcefully that great powers heavily dependent on trade should not attack the sources of their own prosperity. But this is exactly what Germany did (and Shinzo Abe was right to note the fact). The German economy was much more interlinked with its future adversaries than its future allies. In 1913, Britain, France, Italy, and Russia accounted for 36 percent of prewar German trade (Gartzke and Lupu 2012: 131).[9] The same figure for Austria–Hungary, Bulgaria, and the Ottoman Empire was only 12 percent. From this perspective, Alan Kramer (2013) has pointed out, much of the "blockade" was no more than an Allied decision not to supply the enemy across the front line.

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[8] This leap is illustrated by Mary Cox's (2014) title: "Hunger games: or how the Allied blockade in the First World War deprived German children of nutrition, and Allied food aid subsequently saved them." Nothing in her otherwise insightful and important article proves a direct channel of causation from blockade to hunger.

[9] Ferguson (1998: 253) gives a higher figure for the share of Germany's prewar imports from wartime adversaries: 48 per cent.

Another confounding factor is suggested by the fact that the loss of trade was not the only supply shock disturbing the wartime food market. Prewar plans for wartime autarky assumed that German farmers would farm more intensively to feed the nation (Lee 1975). But the opposite came about, because war mobilization stripped German farms of young men, horses, and nitrates. War mobilization also diverted domestic industries from producing the manufactured goods that farmers needed to supplying weapons for the front line. As food prices soared, farmers retreated into self-sufficiency. When civilian officials stepped in to control prices, the farmers' aversion to trade only increased.

In his economic history of the war Gerd Hardach (1987: 34) asked how the blockade interacted with Germany's economic mobilization. He conjectured:

> "The tremendous economic decline of the Central Powers between 1914 and 1918 was caused less by the blockade than by the excessive demands made on their economies by the war."

Hardach did not suggest how to implement this comparison in the German market; here is a simple way to think about it. Start from the fact that before the war Germany imported at most one quarter of calories for human consumption, producing the other three quarters on its own territory. In that context the war induced two welfare losses. One, arising from wartime obstacles to external trade, raised the costs of the one quarter of calories that was previously imported. The other, arising from wartime mobilization, raised the costs of the three quarters produced at home. Is it reasonable to suppose that the loss associated with the one quarter was larger than the loss associated with the three quarters?

Figure 6 near here

Figure 6 illustrates the point. P_w is the peacetime world price of calories; Q_p is peacetime calories produced and Q_c is calories consumed, the gap being filled by imports at the world price. Suppose that war cuts off all trade—an overstatement of the case. The welfare loss from the blockade is the triangle ABC. Suppose that at the same time war mobilization raises the costs of domestic production. Then the welfare loss from mobilization is the triangle OCD. While the height of each triangle cannot be ascertained, its base is known. The trade loss is proportional to prewar trade, whereas the mobilization loss is proportional to prewar consumption. Since the share of prewar trade in consumption was at most one quarter (and not all trade was cut off), we can reasonably presume that the welfare loss from mobilization was

greater than the loss from the blockade.[10] Further welfare losses could have arisen from price ceilings and rationing. On the evidence already cited they redistributed welfare adversely but are ignored in the figure.

Wartime mobilization ended well before the lifting of the blockade, which was maintained after the Armistice and, extended to the Baltic, became even tighter. Until Germany's acceptance of the Treaty of Versailles in June 1919, with the fighting over and German soil under German control, trade sanctions were the Allies' only coercive lever to ensure that Germany came to terms. Among Germans the continuation of the blockade was bitterly unpopular and became a source of lasting resentment. Yet, as Offer (1989: 388–391) reports, prices did not rise and rations did not fall. One explanation is that the end of war mobilization compensated for the intensified blockade.

It was both plausible and convenient for politicians of the war period and later to blame German's wartime economic difficulties on the Allied blockade. This must be largely a myth. The blockade was not the only factor in the disruption of German trade. The disruption of trade was not the only factor that disrupted the German internal market for food. Arguably, the military mobilization of agricultural resources into war, and the economic mobilization of industry, had a larger disruptive effect than the shock from foreign trade.

Myth #4. Folly at Versailles

The Treaty of Versailles of 1919 and the Reparations Commission that it established imposed heavy burdens on Germany. Having witnessed the negotiations Keynes (1920) condemned the outcomes on two grounds: they violated the terms of the Armistice (which limited German reparations to making good civilian damages arising from the war) and the resulting burden on the German economy was intolerable and would be counterproductive. The alleged repercussions could not have been more serious. According to the financier and philanthropist George Soros (2014), for example, the French "insistence on reparations led to the rise of Hitler." There are present-day implications for, Soros continues, "Angela Merkel's [similar] policies are giving rise to extremist movements in the rest of Europe."

Another supposed channel of causation is the German hyperinflation of 1923. According to Brookings vice-president (formerly a Turkish government minister and UN administrator) Kemal Derviş (2014), "had Germany's hyperinflation of the 1920's—a direct result of the war—been avoided, Hitler [might] well never have risen to power."

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[10] This line of argument has a precedent in Williamson (1968: 21-23).

On a sober evaluation the burden of German reparations determined in 1921 was certainly heavy and probably unwisely so. The evidence is plain to see in the better outcome of 1945, when the victors based retribution more on personal culpability than collective responsibility. Still, the mistakes of 1919 to 1921 should be seen in broader perspective.

In 1921 the Reparations Commission issued A, B, and C bonds. The C bonds were issued as a symbol to appease various Allied constituencies, and their redemption was deferred indefinitely; it was openly acknowledged that only the A and B bonds were within Germany's ability to pay. The A and B bonds together have been valued at 1.25 years of German GDP in 1921 (Eichengreen 1995: 129). If we add Germany's ordinary public debt, which Ritschl (2005: 69) puts at half of GDP in 1920, then we arrive at around 1.75 years of German GDP. This looks heavy but not overwhelming when compared with the sovereign debt liabilities of France and the United Kingdom in 1921 (2.6 and 1.5 times GDP respectively).[11]

Much has been made of the so-called transfer problem arising from the burden of current repayments. Taking into account Germany's Treaty losses of territory and capacity, and adding non-reparations obligations to the Allies, Webb (1986) estimated the current burden at around 10 percent of Germany's postwar GDP. The implied strain on the balance of payments would have been severe. It was expected, however, that Germany would smooth out repayments by commercial borrowing.

Germany's centre-left government did not want to smooth out reparations, however; it did not want to cover them at all. At this point the problem ceased to be the burden of attempts to comply, for Germany made few attempts (Marks 1978). The clash with the Allies led, in early 1923, to the occupation of the Ruhr as the French tried to extract reparations by compulsion. Now the German government wrote another blank cheque, this time to fund the efforts of the local population to frustrate collection. As Webb (1986) has described, the anticipation of unbounded future fiscal deficits triggered a disastrous hyperinflation.

In Germany, therefore, reparations led to hyperinflation, but through a channel that was political as much as economic. Moreover, while reparations contributed to hyperinflation in the German case, they were not a necessary condition elsewhere. For there were simultaneous hyperinflations across the region from Austria and Hungary to Poland, the Baltic, and Russia (Bresciani–Turroni 1937; Dornbusch 1991). As Keynes (1920: 223) presciently remarked, "The inflationism of the currency

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[11] Data from http://www.reinhartandrogoff.com/data/ (accessed 23 February 2014), described by Reinhart and Rogoff (2011).

systems of Europe has proceeded to extraordinary lengths. The various belligerent Governments, unable, or too timid or too short-sighted to secure from loans or taxes the resources they required, have printed notes for the balance." Regardless of their new and fragile constitutions, governments across central and eastern Europe spent beyond their means, and compliant central bankers monetized the resulting debts.

To generalize, every hyperinflation of the period began from a civil war of attrition (in the political-economy sense of Alesina and Drazen 1991) among the various classes of bondholder, debtor, and taxpayer, each of which preferred to postpone stabilization in the hope of shifting the burdens of stabilization onto others. The German meltdown was unique only in the role of the Allies as external bondholders.

After stabilization came the first of many reschedulings. There was also a peace dividend. Hantke and Spoerer (2010) note something that Keynes and others entirely neglected: the Treaty provisions that limited German interwar rearmament gave Germany fiscal breathing space. Restrictions on the size and equipment of Germany's armed forces reduced the burden of military spending. In equilibrium they probably also reduced military spending across Europe. To estimate the peace dividend requires a counterfactual hypothesis which is not straightforward, but in Hantke and Spoerer's most conservative scenario it was large enough to cover at least 90 per cent of the reparations actually paid in the years from 1924 to 1929.

If the economic implications of the Treaty have been oversold, the same is true of its political consequences. The electoral history of the Weimar Republic may conveniently be broken into three phases: 1919 to May 1924, with three parliamentary elections), a period that included the imposition of the Treaty of Versailles, the announcement of reparations, and the hyperinflation; December 1924 to 1928, marked by two elections, the first preceded by announcement of the Dawes Plan to reschedule Germany's debts and the second being the last before the Great Depression; and 1930 to 1933 (four elections, the first coming just after the second rescheduling of the Young Plan, and the last ending in the Hitler dictatorship.

Figure 7 near here

Figure 7 shows the evolution of votes for the German parliament through the life of the Weimar republic, from the first election of February 1919 to the last of March 1933 that put Hitler into power. The figure arranges Germany's parties from far left to far right. The parties of the far left aimed to overthrow the new parliamentary democracy in favour of a Soviet republic. The conservative right pressed for a return to monarchy.

A key fraction therefore was the share of support for the democratic parties of the centre and moderate left.

In the election of February 1919 the democratic parties swept the board. The imposition of the Versailles Treaty in the summer of that year hit them hard—although one must also take into account that some degree of disillusionment with the peace was inevitable. With the scale of reparations not yet fixed, in June 1920 the democratic parties lost 30 percent of their former support. The lost votes went to the extremes of the far left and right. This was a dangerous moment, because the supporters of the constitution were briefly in a minority.

The June 1920 election was followed by the announcement of reparations (in 1921) and the subsequent turmoil that ended in the 1923 hyperinflation. In the May1924 elections, the national socialists put in a first showing, winning nearly 7 per cent of seats. Yet their gain was entirely at the expense of the conservatives, who were against democracy anyway. At the same time the communists lost ground. The democratic parties recovered their majority. At a second election held in December 1924 the extremists' vote collapsed, the national socialists almost disappeared, and the democratic parties gained more ground.

In May 1928, three and a half years later, despite continued agitation on the reparations issue, the trend towards democratic consolidation continued. The communists gained little ground and support for the national socialists remained below 3 percent.

The economic hammer blow of the Great Depression fell in the summer of 1929. Unemployment among German workers rose year by year to a peak of 30 percent in the summer of 1932. German farmers' prices and incomes also collapsed. It was only now that the far right broke through to national significance and then to power (Van Riel and Schram 1993; King et al. 2008).

In other words, from the Dawes Plan to the Great Depression the German electorate showed a substantial and growing majority for constitutional rule by democratic parties. Neither the Treaty of Versailles, nor the announcement of reparations, nor the initial conflict over payments, nor the hyperinflation that followed, show any persistent effects on German politics. Were it not for the Great Depression, Hitler and his infamous co-conspirators would have lived to the 1960s and died in obscurity in their beds.

In setting out to punish Germany for the war the authors of the Treaty of Versailles lacked wisdom and enlightened self-interest. Contemporary critics of the Treaty in Germany and abroad made the most of this. But it is wrong to look here for the causes of the Hitler dictatorship and World War II. There were plenty of precursors of a future conflict before the Treaty was ever signed. Germany was still fighting in September 1918

when the high command launched its Fatherland Party demanding peace with annexations East and West (Howard 2002: 98). Germany was not only fighting but winning in September 1914 when Bethmann Holweg advanced his programme to restructure Europe as a German colonial empire (Hastings 2013: 100). It was the outcome of the war, not the terms of the peace, that Germany's far right would not accept. What is striking is how muffled and insignificant their voice became during the 1920s while most other Germans worked at becoming a normal country.

The most that can be held against the Treaty of Versailles is that it did not help. It was bad diplomacy and, given what diplomacy is supposed to achieve, that is bad enough.

Concluding Remarks

We have reviewed four widespread narratives of the Great War. Each is at the crossroads of economics, politics, and strategy. Myths are not necessarily baseless, and we have tried to distinguish truthful elements, but their part in the overall story was often relatively small.

A myth of the war's origin is that it was an inadvertent conflict that transpired without intention or calculation. In fact, the decisions that led to the Great War were calculated with considerable foresight of the wider costs and consequences. The spirit of those that started the war is usefully defined as "rational pessimism."

A myth surrounding the waging of the war sees the fighting on the Western front as needless attrition. There was attrition, and attrition was pursued deliberately on both sides. From the Allied standpoint this looks scarcely rational because the rate of exchange of casualties was always adverse. The missing dimension was economic: the "last million" was measured in productive resources, not only manpower. The Allies outproduced the Central Powers in firepower (and everything else) and this was the basis of victory. There was no escape from attrition, and no other way of winning the war.

A myth surrounds the end of the war: that Germany was starved out by the food weapon. It is true that German civilians suffered greatly, and that the Allied blockade contributed, but it seems likely that German actions contributed more. These included the decision to attack Germany's main trading partners and the impact of Germany's economic mobilization on the internal food market.

A final myth surrounds the peace: that the Treaty of Versailles, which concluded this war, laid the foundations for the next one. Many aspects of the Treaty would seem to fail the test of enlightened self-interest on the Allied side. Despite this, the electoral impact of the Treaty, the reparations issue, and the hyperinflation that followed were short lived. For most of

the 1920s, German society was set on a course of democratic consolidation.

The Great Depression, which struck Germany in 1929, brought back to life dark forces of violent nationalism. These forces were engendered far back in German history. The war let them loose; Germany's defeat put them back in a cage. Weimar democracy put them into a coma. It was the Great Depression that revived them, so that they sprang back into life.

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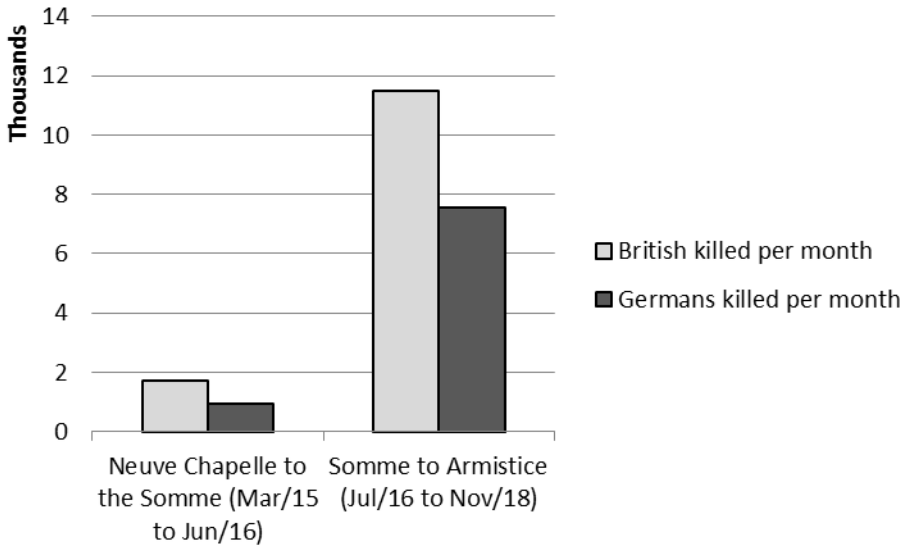
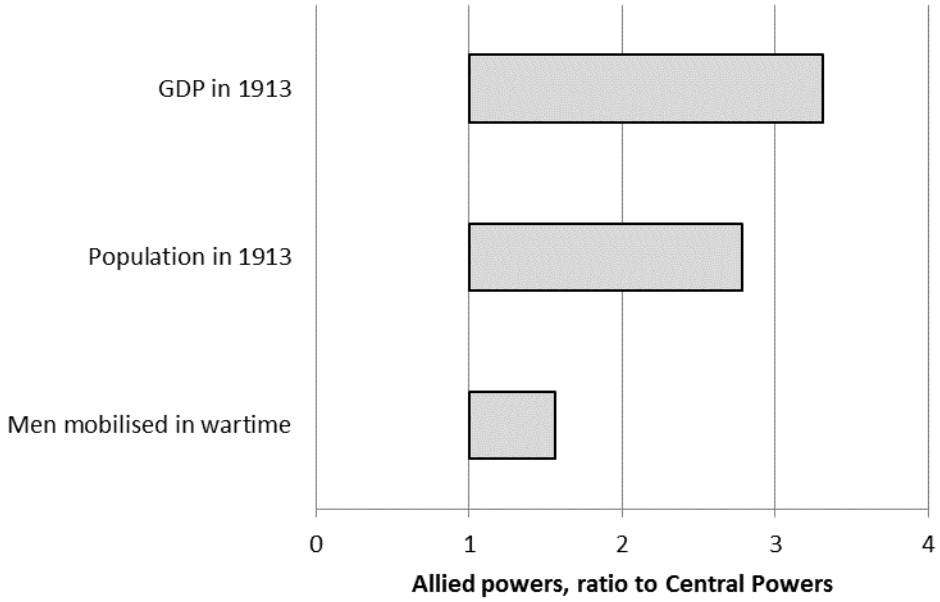
Figures

Fig. 1. British and German military deaths on the Western front, British sector, monthly average, before and after the Somme



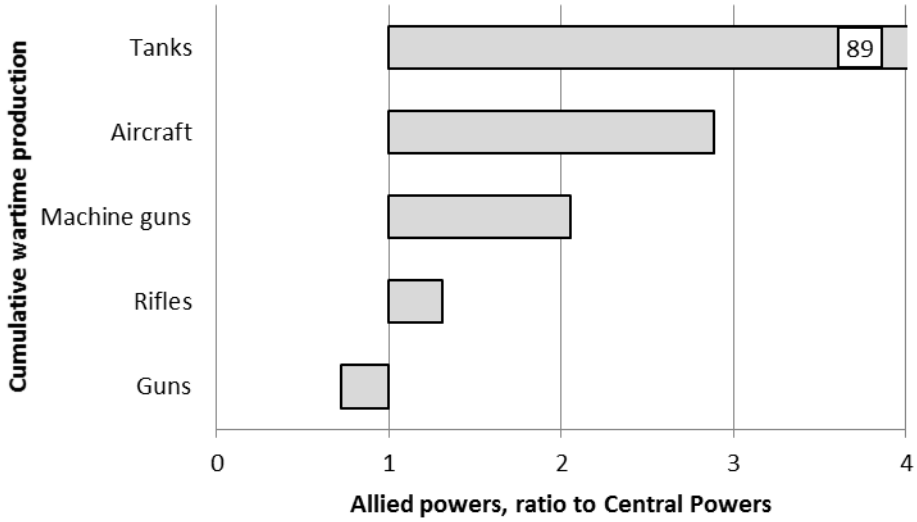
Source: Calculated from War Office (1922: 358–362)

Fig. 2. The Allied material advantage: Prewar GDP and population and wartime military mobilization



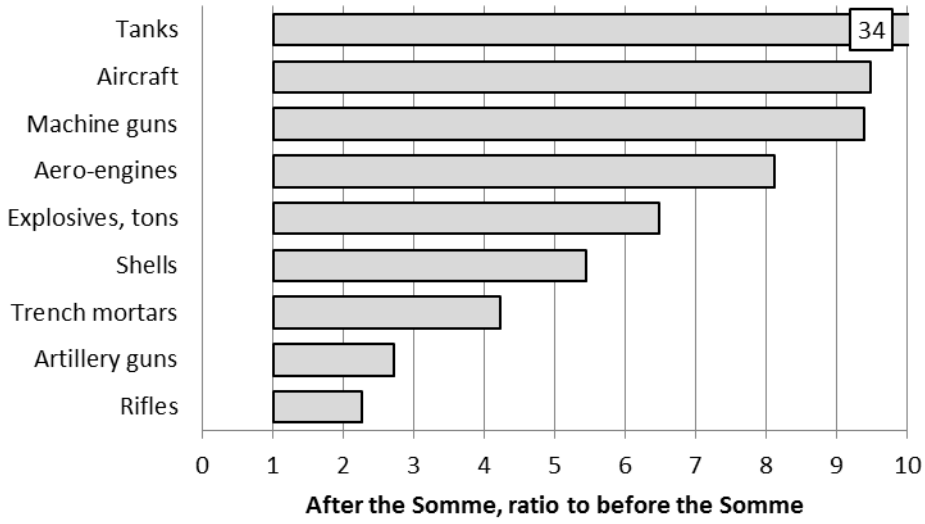
Sources: Prewar GDPs and populations from Broadberry and Harrison (2005: 7–8 and 10); men mobilized from Urlanis (1971: 209)

Fig. 3. The Allied material advantage: cumulative wartime production



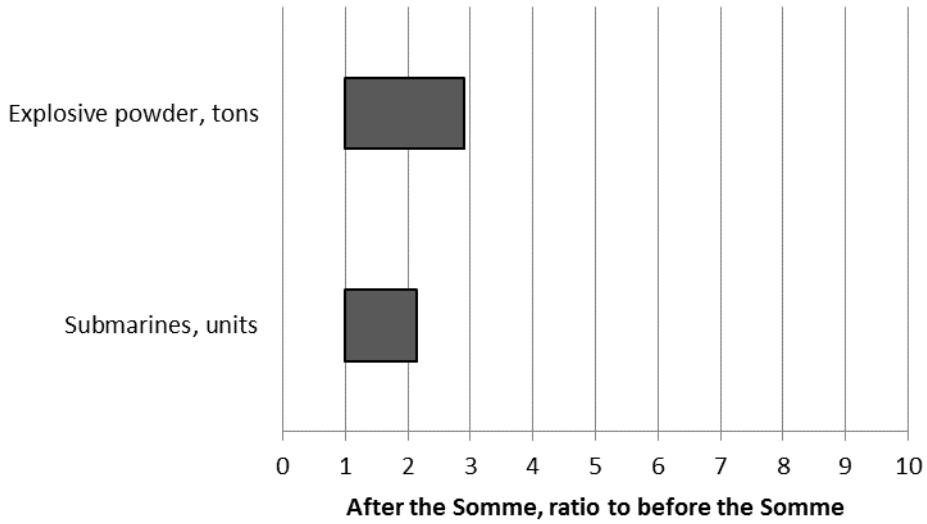
Sources: War production from Adelman (1988: 45), except UK from Broadberry and Howlett (2005: 212) and Austria–Hungary from Schulze (2005: 88)

Fig. 4. British war production after the Somme, monthly average, ratio to before the Somme



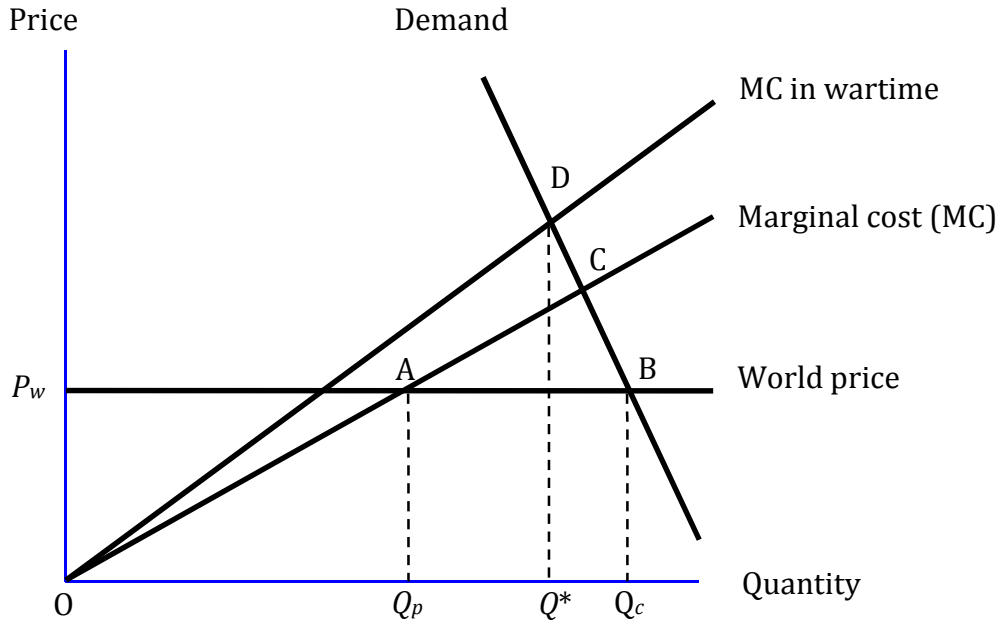
Source: Annual data from Broadberry and Howlett (2005: 212). Figures for 1916 are distributed equally between the first and second halves of the year

Fig. 5. German war production after the Somme, monthly average, ratio to before the Somme



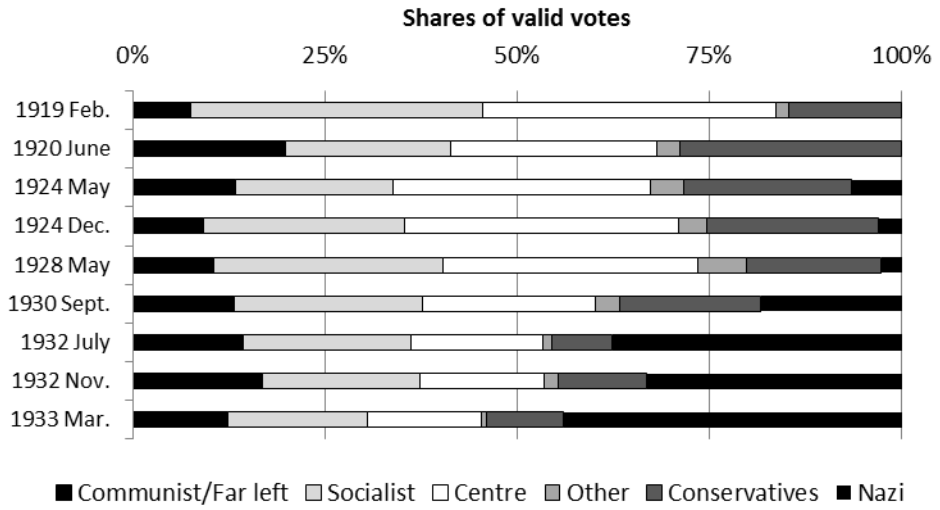
Sources: Explosive powder: Feldman (1966: 152–3, 268, 272, 494) gives figures for December 1915 (4,000 tons), July 1916 (6,000 tons), February 1917 (6,400 tons), April 1917 (8,000 tons), May 1917 (9,200 tons), and April 1918 (12,000 tons). I assume that these figures were selected because they are salient, and I interpolate linearly between them. I take 1,000 tons as the monthly figure for August 1914, and I assume that a monthly output of 12,000 tons (the target of the Hindenburg plan) was maintained through November 1918. Submarines: Davis and Engerman (2006: 232–233)

Fig. 6. The Hardach conjecture: The German market for calories



Note: The "blockade effect" is shown by the triangle ABC, and the "mobilization effect" by the triangle OCD

Fig. 7. Elections to the Reichstag, February 1919 to March 1933



Sources: Figures for 1920 to 1933 from Berghahn (1982: 284–285), supplemented by February 1919 from "German Federal Election, 1919" at http://en.wikipedia.org/wiki/German_federal_election,_1919 (accessed 23 February 2014). Votes for the German People's Party (DVP) under Stresemann are counted with the centre from 1923 to 1929, and with the conservative parties otherwise.