4. World War I: Economic Mobilization

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EC224 War and Economy in the Twentieth Century

War of Attrition

Stage 1: The Schlieffen plan for an attack on France.

- Commit 7/8 of German army to invade France through Belgium and Netherlands.
- Take the Channel coast to outflank French defences and prevent British intervention.
- Push the French army up against the Rhine and destroy it.

Developed by Moltke, Jnr, and carried out in August 1914:

- Narrow the advance, avoid conflict with Netherlands.
- Turn to Paris from Brussels, not Calais.
- Reduce forces, distance to travel, supplies required.

This plan gambled on winning the campaign before Russian or British intervention.

- There was no quick victory.
- The advance stopped; a war of attrition took its place.

War of Attrition

The focal point of WW1 was conflict in the East, between Germany and Russia.

But the decisive conflict took place in the West, among the industrialized powers, Germany and the Franco-British alliance and the Americans.

Industrialized conflict took the form of a war of attrition.

As predicted by Bloch (1899) and Angell (1910), who both warned:

- Modern war would be horrible (correct).
- And economically and socially intolerable (incorrect).

Britain entered the war, expecting a war of attrition (French 1988).

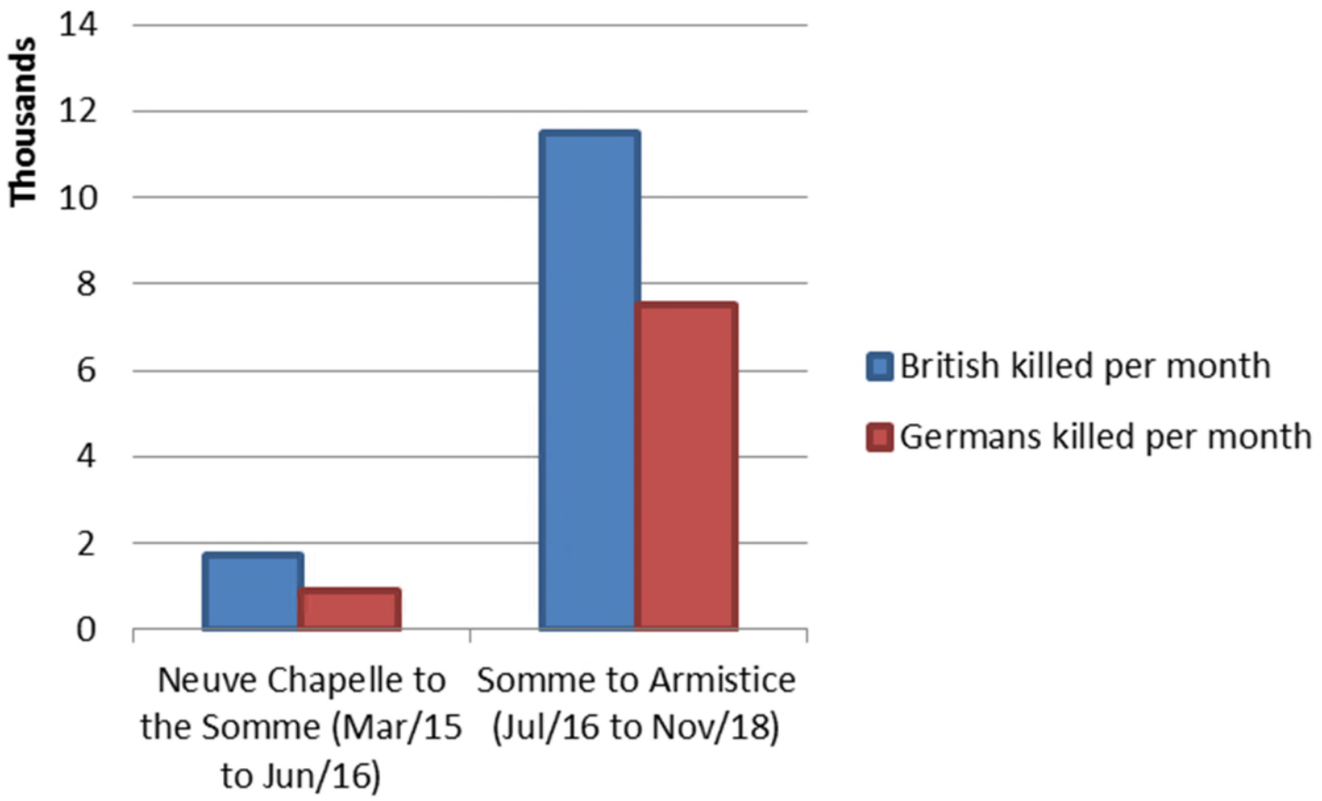
- The French and Russians would wear the Germans down for years until both sides were exhausted.
- Kitchener planned to intervene in 1917 with a fresh mass army.
- The “last million” men that would win the war.

But this concept did not happen.

Before 1914 was over, the British Army was fully engaged in the war of attrition.

Here is how the war of attrition worked out on the British sector:

War of Attrition



In the war of attrition, what mattered was lives—not territory.

Based on the attrition of manpower, Germany could expect to win.

Source: Harrison (2016). The Battle of the Somme, which began on 1 July 1916, saw the British Army's heaviest losses ever in a single day

War of Attrition

There was a search for alternatives to attrition; many were tried.

Outside options:

- Naval blockades: Slow and uncertain (next lecture).
- Attack the weakest link: Central Powers' weakest link was Turkey, but Gallipoli landings of 1915 were a costly failure. Allies' weakest link was Russia; making Russia collapse took Germany three years.
- Technological breakthroughs (poison gas, mobile infantry weapons, airplanes, tanks): Learning and production mobilization took time; instead of falling, casualties rose.

There was no alternative to a war of attrition.

War of Attrition

For much of the war, in the attrition of manpower, the Allies were losing.

Then how did the Allies win the war?

The key: attrition also had an economic dimension, and this turned out to be decisive.

- In addition to manpower, there was firepower.
- The great powers went to war with combat stocks for a campaign lasting a few weeks.
- Then the armies in the field ran out of guns and shells, which had to be re-supplied from industry.

This locked them into an economic contest: which side could produce more for firepower for the battlefield?

- In 1914 Kitchener said Britain would raise the “last million” (men) that would win the war.
- In 1915 Lloyd George said that Britain would raise the “last million” (pounds) (Macdonald 2006: 403).
- It was in the economic dimension of attrition that the stalemate was broken, leading to Allied victory.

Thus the war of attrition was eventually decided by the Allies’ greater fiscal capacity and productive capacity.

Capacity for War

Fiscal capacity: Through most of history, few countries could spend more than 5 percent of national resources on warfare.

The problem was insufficient capacity to tax and borrow.

- Kings had poor credit and limited borrowing capacity.
- If a king's territory was large, tax collection was decentralized.
- Much of the taxes collected was consumed by intermediaries (tax farmers and local warlords).

In England and Netherlands in the eighteenth century fiscal capacity was revolutionized.

- Public finance was separated from the king's private property.
- The government's taxing and borrowing was subjected to the rule of law.

It spread across Europe—gradually.

- By 1914 the revolution was incomplete in Russia and East-Central Europe.
- And had barely touched the Ottoman Empire.
- By 1917 France and Germany had mobilized 50 percent of national resources or more into warfare.

Capacity for War

Industrial capacity: after the fiscal revolution came the industrial revolution.

In the second half of the nineteenth century, warfare was industrialized.

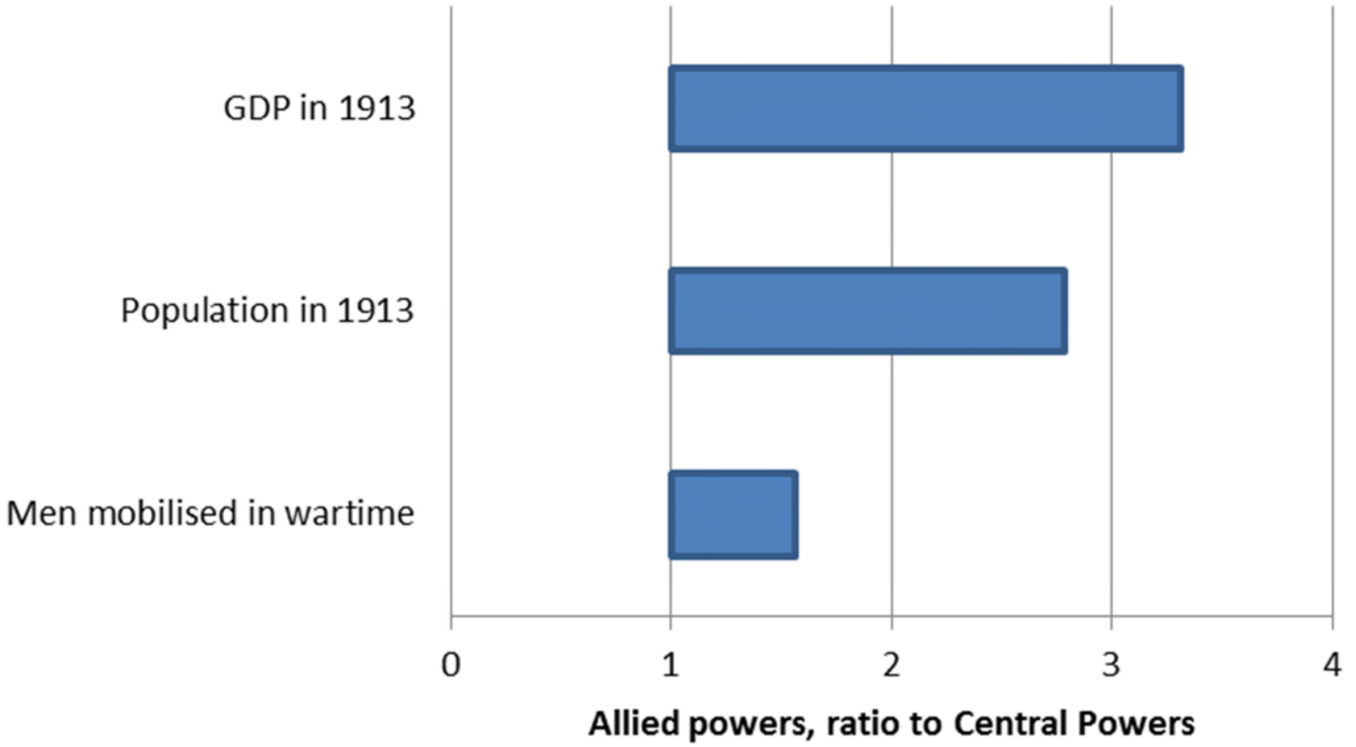
- Huge armies could be deployed by railway (Onorato et al. 2014).
- Demanding food in proportion – and, because railways alone did not suffice, fodder.
- The munitions requirements of the army multiplied much faster (e.g. van Creveld 1977: 141).

At the same time, agriculture still mattered:

- Food still mattered, even if it now represented only half of supplies!
- Armies still relied on horses for transport (to cover distance from railhead to front line).
- Agriculture still supplied horses, supplied the army's food and fodder, and fed the war workers.

War of Production

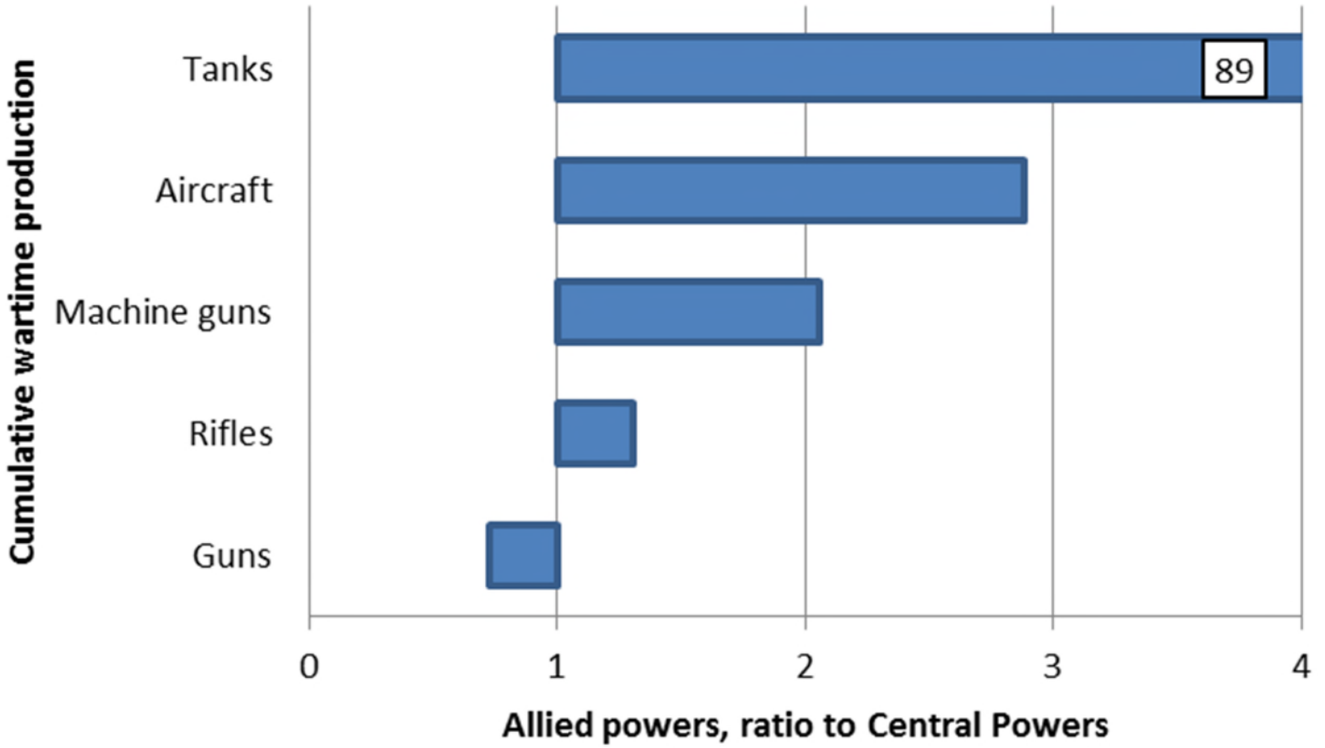
The Allied economic advantage: size mattered.



Source: Harrison (2016).

War of Production

The Allied advantage in fire-and-movement: the quality of resources mattered too.



Source: Harrison (2016).

War of Production

Three factors in Allied victory (Broadberry and Harrison 2005):

- Size (GDP and population) mattered.

But size was not everything.

- Level of development (GDP/population) mattered. The proportion of GDP that could be mobilized into the war and the quality of resources that resulted depended on level of development.

Ferguson (1999): The Allies' advantage in size of production and population was so large that they should have won in two years; why did it take four? Ferguson's answer: Allied incompetence. Really?

- Time mattered.

Total war took time. Mobilizing GDP for total war required learning and learning took time.

War of Production

Total war took time: British war production

War production after the Somme, monthly average, ratio to before the Somme: Britain

Source: Harrison (2016).

Mobilization: The Problem

Guns versus butter is too simple.

Think of the working population divided into three teams (Vickers 1943: 16-17):

- Team A: “the armed forces.”
- Team B: “the workers in armament factories.”
- Team C: “the rest who are to serve the minimum needs of all, getting the food and fuel and providing the minimum of goods and services needed to keep the wheels going round.”

Vickers goes on:

> “Mobilization of a country’s man-power for war means establishing in their right proportions these three teams … The size of the armed forces demanded, and the date by which they are demanded sets the problem; and now it remains for those in charge of mobilization to allocate as little as they dare to the basic team, which I will call Team C, and to divide the remainder between the fighting men and those who are to supply them.”

Mobilization: The Problem

Total war takes time:

> "How is this distribution to be made? The object is, not that the country shall be able to go on for ever, but that it shall develop its maximum fighting effort when it is wanted. In other words, mobilizing a country for war is an act of generalship, like deploying men before a battle; and inevitably the course of war causes this economic force to become more and more engaged. Team C has to be "combed out" into Team B, Team B into Team A, to fill the gaps caused by casualties, to make good the increasing demand, until the whole force of the country is completely deployed and engaged and further demands cannot be met. That is the point at which battles are won and lost in the field and wars are won and lost in the terms of which we are speaking.

Vickers concludes:

> "Time enters into the problem of mobilizing a-nation's war potential. A man running does not expect to run for ever, but only for long enough to win; the measure of his success is that when he has won – but not before – he shall have run himself out. So the problem of mobilization is to develop the maximum effort when it is wanted."

A Solution: Command Economies

WW1 saw the origin of modern command economies … what's that?

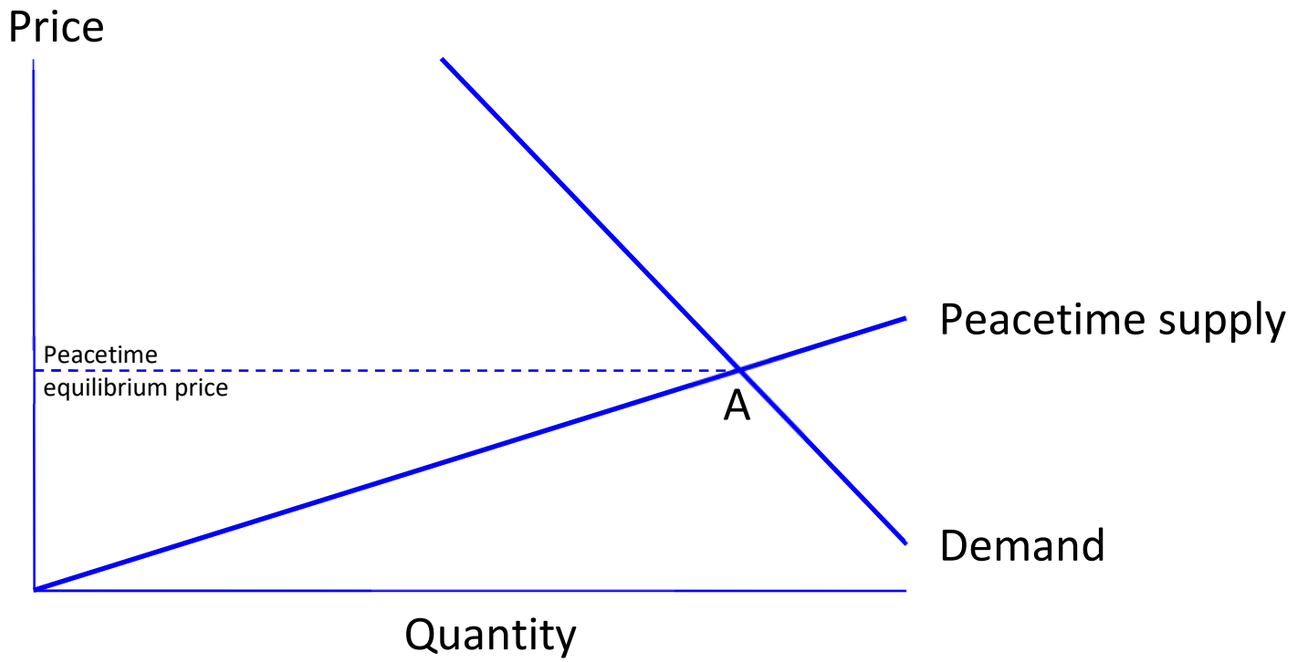
	Market economy	Command economy
Whose benefit	Private	Public: "one basic objective"
Most decisions	Households and firms	Government
Allocation	Prices	Quantity targets
Control of costs	Competition	Political pressure
Redistribution	Taxes and benefits	Prices

Examples:

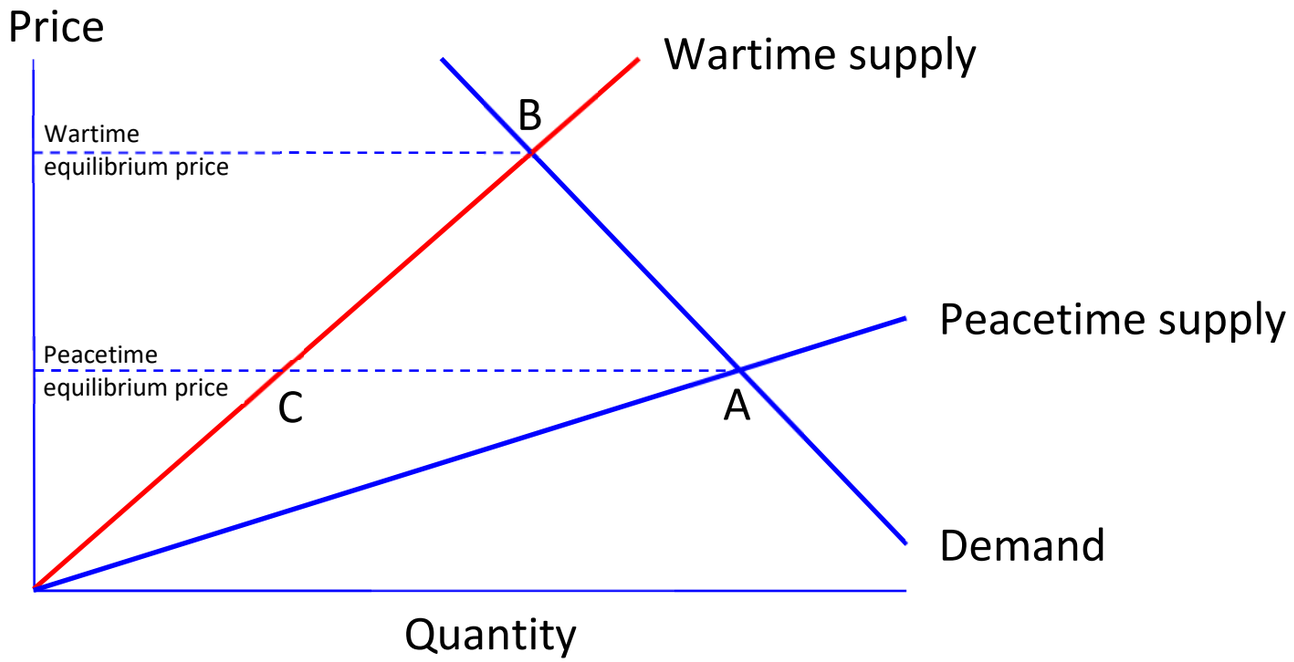
- Workers are conscripted into the army and paid a below-market wage.
- Butter is subsidized to make food affordable.

Like this?

A Solution: Command Economies



A Solution: Command Economies



If the government orders farmers to supply butter at prewar prices, then production and consumption fall to C and AC is the butter shortage.

- To keep the price down, the government must criminalize private trade.
- To raise the quantity supplied, the government must order farmers to incur a loss, or offer a subsidy.

So a command economy tends to be associated with food shortage, pressure for subsidies, and criminality.

Mobilization in Practice

Total war took time. In most countries war mobilization went through three phases:

Phase 1. Military mobilization:

- There was a rush to volunteer.
- Result: Too many soldiers, not enough war workers.
- The volunteers were skilled industrial workers and miners.
- There was a “shell scandal.”

Risk:

- Team A could become too large relative to Team B.

Examples:

- In August 1914 the German army put so many forces into the front line that the railways and horse troops could not supply them on the move (van Creveld 1977).
- By September 1914 armies on both sides of the western front found that so many skilled workers had left engineering factories and mines that those remaining behind could not produce guns and shells.

Mobilization in Practice

Phase 2. Industrial shortage:

- Not enough weapons: ministries of defence flooded industry with munitions contracts.
- Not enough materials, labour, and fixed capacity to meet direct-plus-indirect requirements.
- Supply-chain controls: The government set up cartels to allocate war materials, and committees to ration transport and shipping space and foreign currency.
- Plus controls on labour: Skilled workers were exempted from military service or were replaced by less skilled workers, usually women formerly in domestic service or factory work or men formerly in agriculture.
- Plus controls on investment: The government limited private credit and funded or built new war factories for a longer war.

Risk:

- Teams A and B could become too large relative to Team C.

Examples:

- From 1915, Germany (followed by other powers) was innovating supply-chain controls to build the first command economy.
- Economic mobilization began to encounter its ultimate limits.

Mobilization in Practice

Phase 3. Food shortages:

- Supply shock: young men and horses were conscripted from farms; sowing and harvesting declined.
- Demand shock 1: food prices rose, but prices of industrial consumer goods rose faster, so the **relative** price of food declined.
- Demand shock 2: governments responded to social discontent by imposing price ceilings on food.

Risk:

- Faced with unfavourable terms of trade, peasant (subsistence) farmers withdrew from the market (Broadberry and Harrison 2005).

Examples:

- By 1916, cities in Turkey, Russia, Austria, and Germany were experiencing food shortages; it was increasingly difficult to get food out of the countryside.
- By 1917, Germany had many half-built war factories that were intended to match Allied production, while thousands of civilians were dying of hunger (Armeson 1964; Feldman 1966).

What we have learned

The scope for a country's war mobilization depended critically on its fiscal capacity and industrial capacity for war.

As they set about economic mobilization, the powers at war tried to build command economies.

Direct economic controls helped to mobilize their economies, but there were damaging side-effects: shortages, unsustainable fiscal pressures, and law-breaking.

Most continental powers did not have a high level of industrial development or a substantial fiscal capacity to start with.

So everything that could go wrong **did** go wrong.

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