5. World War I: Economic Warfare

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EC224 War and Economy in the Twentieth Century

Why and How

Economic warfare was the inevitable counterpart of wars of resources.

- Warfare means attempting to destroy the enemy's fighting power while preserving one's own.
- If my fighting power depends on my resources, the enemy's counteraction should not be limited to mobilizing their own resources but should include measures to attack my resources and so undermining my fighting power indirectly, not through combat.

Warning. Economic warfare does **not** mean "the use of resources in wars." It means "attacking the enemy's resources."

- Economic warfare, therefore, involves efforts to destroy the enemy's fighting power indirectly, by attacking the supply chain of war:

  Food and materials → weapons and soldiers → fighting power.

Why and How

Economic warfare is not new.

Traditional forms: Encirclement attached the supply chain of war at the enemy's perimeter.

- Armies that besieged castles or towns or cut off trade routes.
- Surface vessels that blocked coastal waters.
- Starvation and disease could destroy the will to fight.

Innovations in World War I: Siege and blockade by other means.

- The submarine.
- Blockade by proxy, enforced by accountants.
- Cutting off access to food and materials.

Innovations in World War II: Penetrating bombardment took economic warfare inside the enemy's perimeter:

- The heavy bomber.
- The ballistic missile.
- Destroying fighting power before it could be produced.

Why and How

Means and ends:

- In warfare, the key instrument was the ground forces, while air and naval forces were used to deploy and support the army.
- In economic warfare, the key instrument was the air and naval forces that were used attack the enemy's supply chain.

In economic warfare there was an important distinction between tactical and strategic success.

- Tactical success = enemy ships sunk or targets bombed.
- Strategic success = effect on the enemy's fighting power.

These turned out **not** to be the same.

Limits on Economic Warfare

Economic warfare always met with resistance from countervailing forces, starting with ideas of ethical action embodied in international laws.

In 1914, the international law on neutrality protected the right of neutral countries to trade in non-war goods with countries at war (Davis and Engerman 2006).

Countries at war were entitled to:

- Trade in non-war goods with neutral trading partners, e.g. Netherlands, Scandinavia, Switzerland, USA.
- Compete for neutral shipping to carry non-war cargoes.

In wars of resources, however:

- The entire economy supports fighting power.
- There are no non-war goods that do not support war capacity.
- So the distinction between war goods and non-war goods is ineffective.
- Specifically, food becomes a war good.

Limits on Economic Warfare

When hoping to disrupt the enemy's supply chain, politicians and soldiers typically shared two persistent beliefs:

- There exist essential or strategic commodities that are of critical importance for economic mobilization, especially oil, and metals and ores useful for steel alloys.
- When supplies of essential commodities are cut off, or key facilities are destroyed, the economy will suddenly break down.
- If so, maybe we can replace warfare by economic warfare.

Two centuries of evidence refute these beliefs and explain how they mistaken by identifying the countervailing forces that offset the immediate effects of economic warfare:

- Substitution.
- Nationalism.

Limits on Economic Warfare

Substitution:

- All goods are equally valuable at the margin; this means there are no strategic goods (Olson 1963).
- But there are strategic uses of goods.
- If the use of a good really mattered, non-strategic uses could always be reduced by means of economies, or alternatives always found by substitution.

Examples of wartime substitution in Germany: imported nitrates (for fertiliser, explosives) ⇒ nitrogen fixation; raw cotton ⇒ flax, hemp, and wood fibres; meat and butter ⇒ vegetables and vegetable fats; wheat flour ⇒ barley, oats, and corn meal; coffee ⇒ ground acorns.

Nationalism:

- Economic warfare caused collateral damage to the lives and interests of civilians (and sometimes neutrals).
- This stimulated hatred of the enemy, making people more willing to make the necessary economies and substitutions.

Economic warfare did not cause any economy to "break down."

Economic warfare was not a substitute for warfare.

But economic warfare did complement warfare by raising costs of (or limiting) economic mobilization.

Asymmetric Warfare

Superficially, Britain and Germany had shared vulnerabilities to economic warfare.

Both countries imported food, nonferrous metals for munitions, cotton fibres for textiles, and nitrates (agricultural fertiliser, explosives).

Other factors made economic warfare inevitably asymmetric.

Britain	Germany
• Island power, dominant navy.	• Continental power, dominant army.
• History of free trade.	• History of protectionism.
• Imported calories 60% (Davis and Engerman 2006, p. 193).	• Imported calories 20-25% (Kramer 2013, p. 471).
• Fully reliant on overseas trade.	• Trade over land and “inland sea” borders with Russia, Austria, Scandinavia, Netherlands, Belgium, France, Switzerland.
• Vulnerable to naval blockade.	• Able to trade with (or occupy) neighbours overland.

Asymmetric Warfare

Germany: Tactical success against Britain was easy at first.

- There were 20 million tons to aim at.
- Every ton sunk imposed an economic cost on Britain.

But submarine warfare was costly to Germany.

- Number of submarines climbed from 20+ at outbreak of war to 200+ in 1917.

Effectiveness depended on policies and countermeasures.

- Policies: Warn-then-sink was ineffective; only sink-without-warning worked.
- Counter-measures: only the convoy system worked.

There were indirect costs and unanticipated consequences

- Allied and neutral ships carried neutral passengers and crew.
- Every neutral casualty imposed a diplomatic cost on Germany measured by alienated neutral (especially American) opinion.

Asymmetric Warfare

Britain: Naval superiority gave Britain enough ships to keep German war fleet in harbour **and** police North Sea merchant shipping.

Allied merchant shipping was 60 per cent of world tonnage, compared with Germany (one eighth) and neutral countries (one quarter).

Under international law, Germany was entitled to:

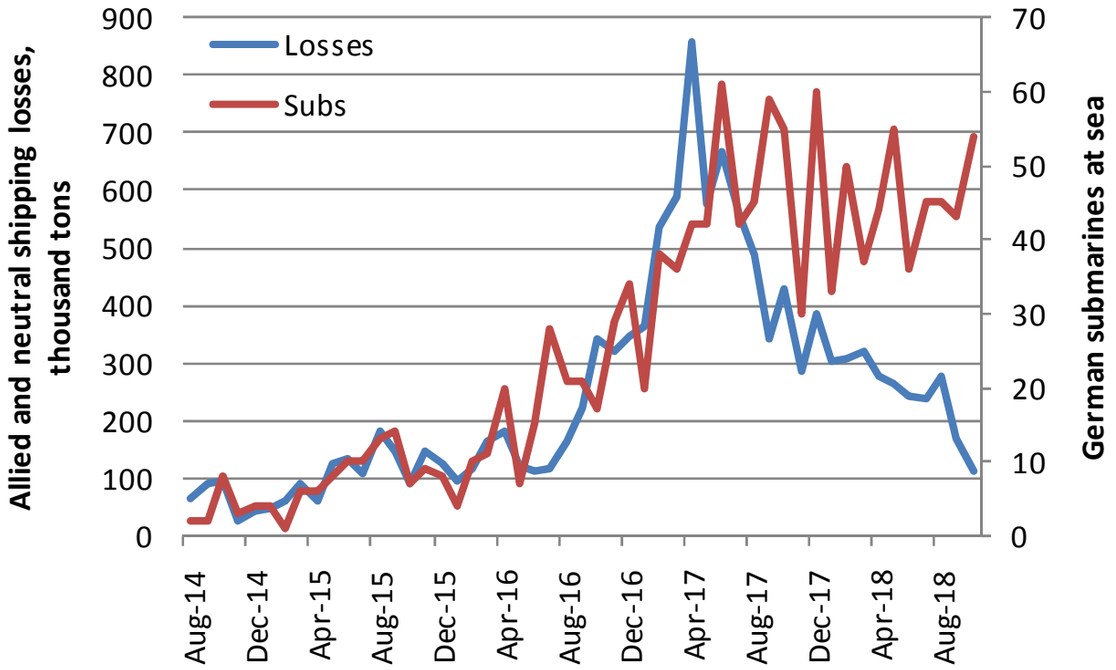
- Compete for neutral shipping to carry non-war cargoes.
- Trade overland in non-war goods with neutral neighbours: Netherlands, Scandinavia, Switzerland; legally, these goods could originate in U.K.

In reality, regardless of law:

- Royal Navy could control neutral non-war cargoes on the sea.
- British diplomacy could threaten Germany's neutral neighbours with trade isolation if they re-exported non-war imports or merely exported home goods to Germany.
- Without firing a shot.

Phases

Limited war, August 1914 to February 1915 (for narrative see Hardach 1981):



German submarine warfare relied on submarines to stop, search, disembark crew or passengers to lifeboats, sink; could not seize goods.

- In first six months, U-boats sank Allied and neutral shipping at 60,000 tons/month (but 1914 fleet was c. 20m tons).
- Royal Navy began to seize neutral cargoes bound for Germany.

Source: Davis and Engerman (2006, pp. 182-183).

Phases

Transition to unlimited war, February 1915 to January 1917:

Germany tried sink-without-warning in waters around the British Isles (February to August 1915, February to April 1916).

- Sinkings rose to a higher level, 300,000 tons per month by late 1916.
- On each occasion, the policy was predicted to finish the war in months.
- With rising Allied and neutral shipping losses, neutral casualties led to increasing confrontations with neutral powers, especially United States.

The Allies enforced unrestricted blockade during 1915, forcing neutrals agree to limit imports to levels required for own domestic use (no surplus for re-export).

Hence the role of played by accountants.

- Main pressure was threat of trade isolation. Main loophole was USA, largest neutral trading power.
- Germany continued to receive imports from domestic output of neutrals: chemicals, nonferrous metals, foodstuffs, plus Romanian oil after 1916.

Phases

Unlimited war, January 1917 to November 1918:

In January 1917 German leaders reinstated sink-without-warning; monthly target 600,000 tons, aimed at forcing British surrender by July.

- This brought USA into the war in April 1917. From a defender of neutrals' rights, the USA became a keen enforcer of the blockade of Germany.
- From peak of 630,000 tons per month in February to July 1917, the Allies more than halved losses by instituting escorted convoys.

Effectiveness

	Britain	Germany
Calories imported in 1913:	• 60 percent.	• 20-25 percent.
Price controls and rationing:	• Sugar from 1917; some meats and fats from 1918.	• Bread and flour, meats, fats, oil, from 1916.
Lower-income households' relative access to food:	• Improved (Gazeley and Newall 2013).	• Worsened (Blum 2013).
Hunger deaths:	• None	• 750,000 (Davis and Engerman 2006: 204).

Effectiveness

United Kingdom, billion calories supplied and demanded, 1909/13 to 1918:

	Average, 1909/13	1914	1915	1916	1917	1918
A. Potential demand	51.0	52.5	53.7	54.4	55.1	55.3
B. Effect of food controls	…	…	…	…	-3.7	-7.5
C. Net potential demand (A + B)	51.0	52.5	53.7	54.4	51.4	47.8
D. Home production	21.1	21.4	21.9	19.4	20.6	21.2
E. Imports	29.6	34.2	31.8	31.1	29.2	27.9
F. Total supply (D + E)	50.7	55.6	53.7	50.5	49.8	49.1
G. Surplus (F – C)	-0.3	3.1	0.0	-3.9	-1.6	1.3
H. % of net potential demand	-0.6%	5.9%	0.0%	-7.2%	-2.9%	2.4%

Source: Davis and Engerman (2006, p. 193), somewhat rearranged.

- In December 1916, German leaders believed that the British had only six weeks of food stocks and could be quickly starved out.
- But in fact 1916 was the only year in which the food market was seriously stretched.

Effectiveness

Food consumption per head, UK and Germany in 1918, lbs and %:

	Britain		Germany	
	lbs/week	% of prewar	lbs/week	% of prewar
Bread and flour	6.57	107.4%	4.06	63.0%
Meats	1.54	61.6%	0.49	21.8%
Sugar	0.50	…	0.33	…
Fats	0.45	88.2%	0.15	26.8%

Source: Davis and Engerman (2006, p. 210).

- In Germany, despite preparations, food supplies were badly affected and mortality and morbidity rose.
- The food weapon appeared to be decisive.
- Hitler's strategy for war in 1941: "I need the Ukraine, so that no one is able to starve us again, like in the last war" (cited by Collingham 2011).
- But do appearances deceive?

Effectiveness

Bloch (1899) and Angell (1910) argued that great powers heavily dependent on trade should not attack the sources of their own prosperity.

But this is just what Germany did.

- Future allies accounted for only 10 percent of prewar German trade (Gartzke and Lupu 2012: 131).
- Future adversaries – 36 percent.
- Britain alone accounted for more German trade than all the Central Powers.
- Russia a major source of German food and animal fodder.

Much of the “blockade” was therefore no more than an Allied decision not to trade with the enemy (Kramer 2013).

Trade vs Mobilization Losses

Germany's loss of trade was not the only supply shock in the food market (Harrison 2016).

Also, war mobilization stripped German farms of men, horses, machinery, and nitrates.

Hardach suggested we compare the trade loss with the mobilization loss.

His conjecture (1987: 34):

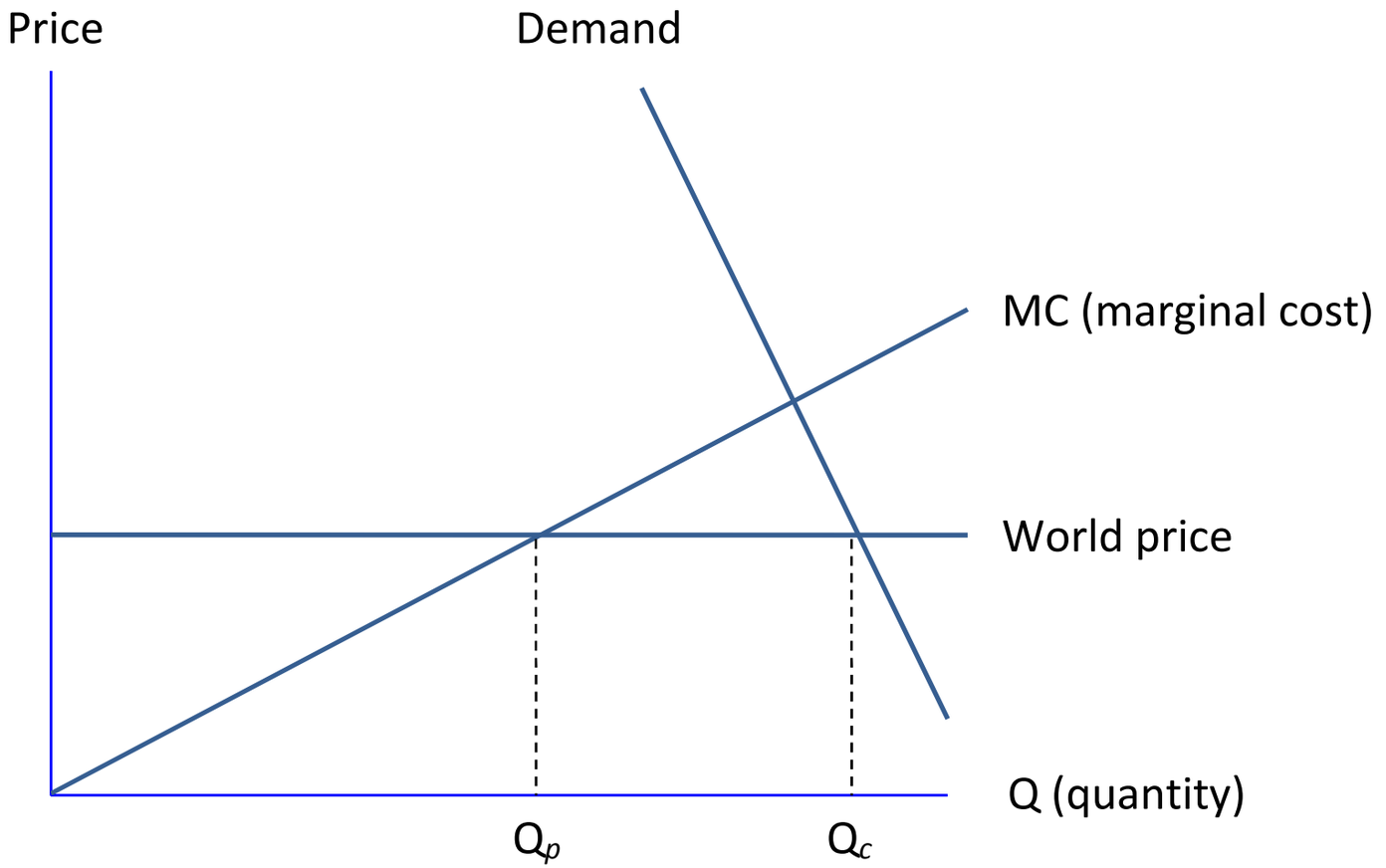
> "The tremendous economic decline of the Central Powers between 1914 and 1918 was caused less by the blockade than by the excessive demands made on their economies by the war."

How can we formalize this idea?

conjecture. A proposition that is unproven or based on incomplete information.

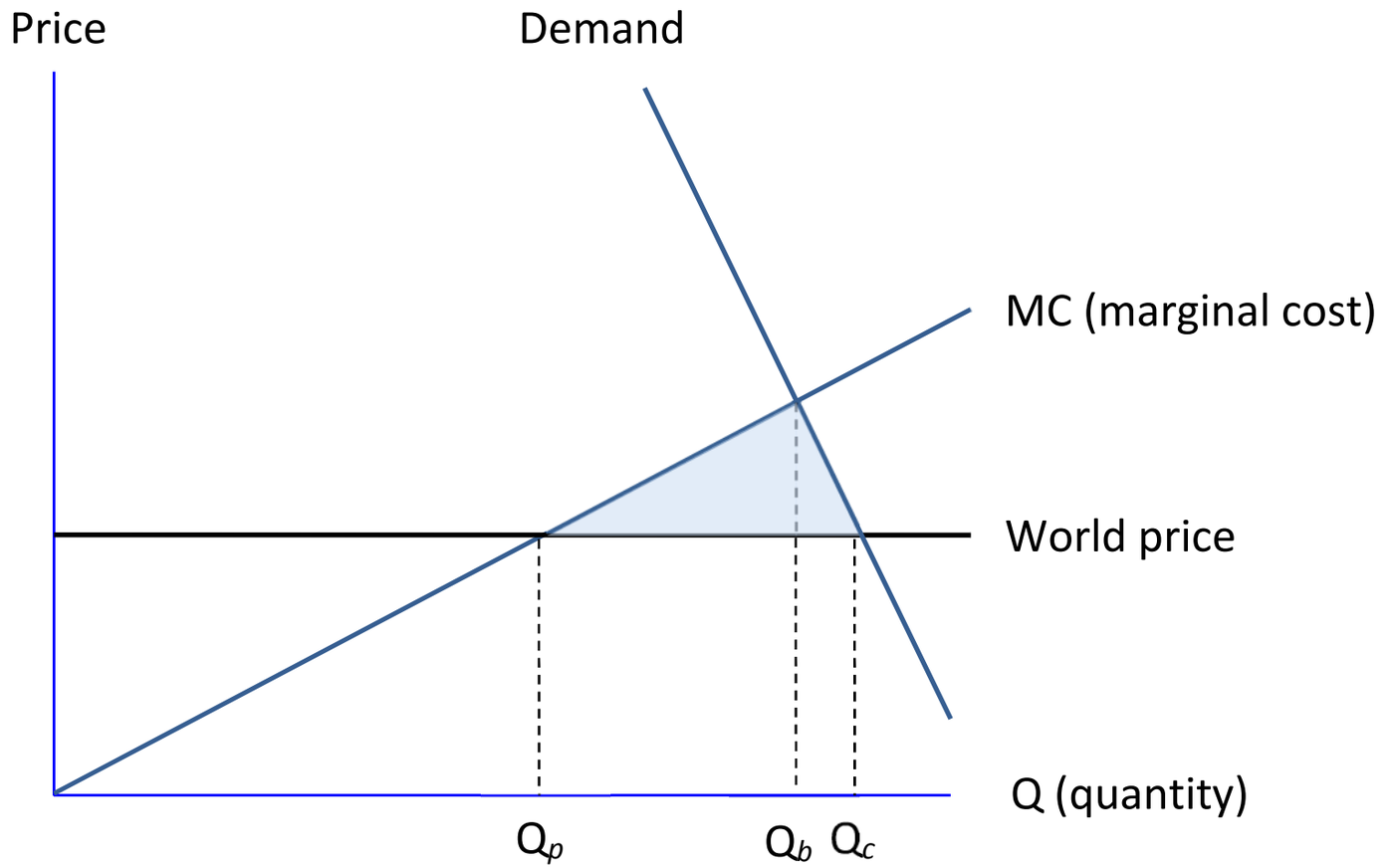
Trade vs Mobilization Losses

The civilian goods market, peacetime:



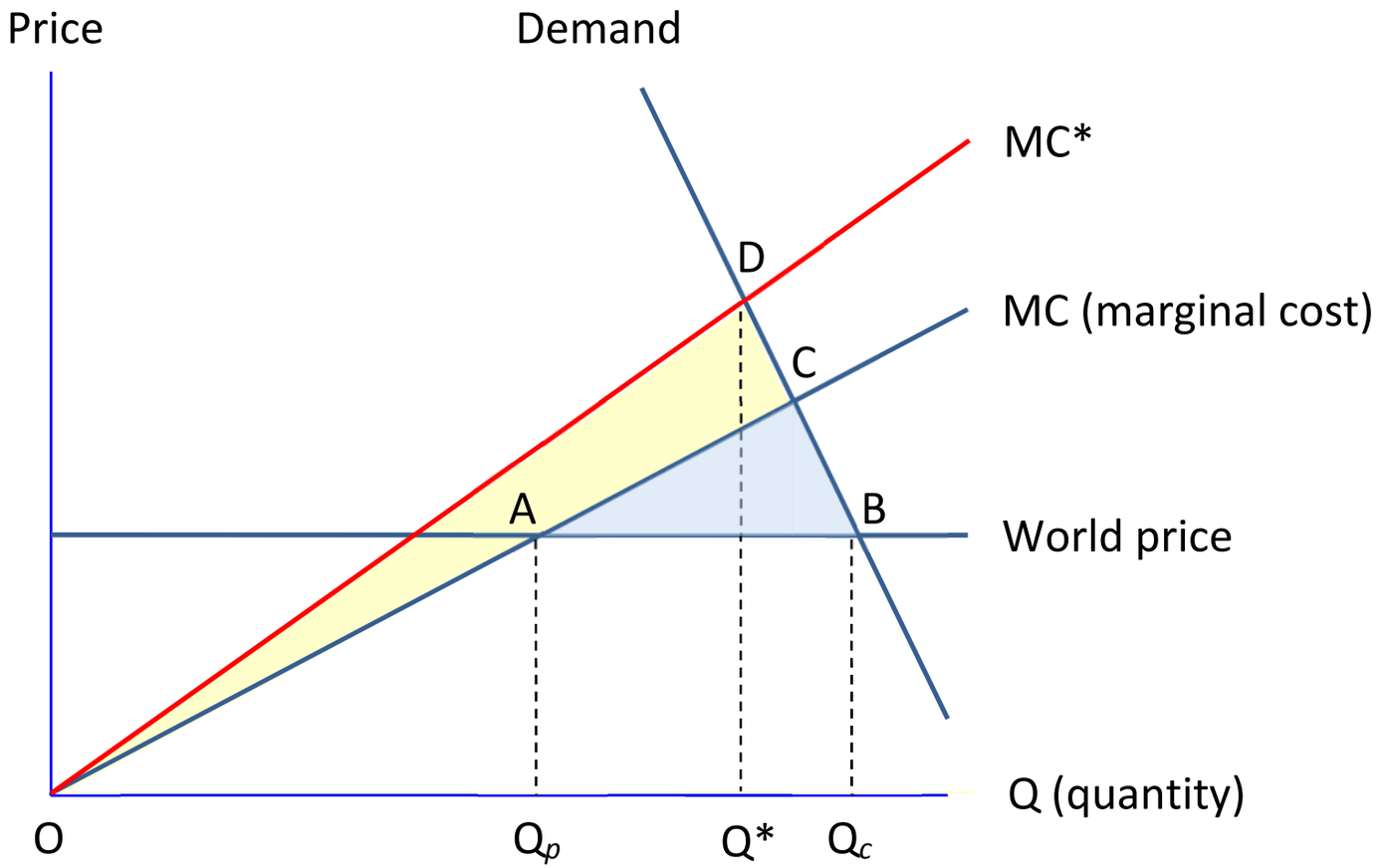
Trade vs Mobilization Losses

Blockade effect:



Trade vs Mobilization Losses

Mobilization effect:



Trade vs Mobilization Losses

The Hardach conjecture: “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.”

In other words, the conjecture states that trade effect < mobilization effect.

Our diagram shows that:

- Trade effect (ABC) was in proportion to traded output = 20 to 25.
- Mobilization effect (OCD) was in proportion to total output = 100.

On the balance of probabilities, ABC < OCD.

- More than likely, Germany’s own war strategy and mobilization policies caused more losses to the civilian population and morale than the external blockade.

What We Have Learned

Economic warfare could not take the place of warfare.

Olson (1963): In war there are no essential commodities, only essential uses.

- It's essential that people are fed, but there are many ways to do this.

Economic warfare was a complement to warfare.

Its power arose from interaction with general weaknesses of the target economy.

- Under blockade, an urbanized, industrialized country could find domestic substitutes for missing commodities to protect existing uses, although at increasing cost; the costs faced by a less developed, less integrated economy would rise more sharply.
- If substitutes were imperfect and cost of substitution was high, a rich country could cut back on inessential uses; a poorer country had less room for manoeuvre.

We see the result:

- Wealthy, industrialized Britain could feed itself from thousands of miles away without great difficulty.
- It was more difficult for Germany, Austria, Russia, and Turkey to mobilize food from their own farmers a few miles outside the cities.

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