

The Last War

Economics 1942-1945



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ECONOMICS

1942 - 1945

Version 25-9-05

Introduction

These rules are an attempt to simplify a massively complex subject. We have taken a huge number of liberties with the economics of the period – we hope players will understand why this is necessary.

We have tried to reflect not only the need for bulk raw materials, such as iron and coal, but also some of the ‘critical materials’ (such as tungsten) that whilst only needed in small tonnages were very influential on key processes (such as tank and aircraft production).

And, of course, the importance of manpower to industry. Interestingly, for nearly all belligerents, manpower employed in industry overall did not vary significantly during the period 1942-1945 – the main concerns were replacing losses to civilian manpower (through wastage and casualties), and increasing productivity. But creating enough trained and equipped manpower for the military was significant and this was often met by removing manpower from industry.

Sequence

1. Check materials available via sea routes from naval Players. Note quantity shipped. This should be based on state of access at the END of previous turn.
2. Check materials available by land routes on Land Map. Note quantity shipped. Collect Materials Counters from Control. This should be based on state of the routes at the END of last turn.
3. Work out which Industrial Zones have their requisite materials by placing counters on the IC appropriate card.
4. Hand over materials counters used this turn to Control.
5. Collect output counters representing industrial output (Tanks/Man/Ships etc) from Control
6. Distribute counters ‘manufactured’ to correct location on map (the location of the IZ) for use NEXT turn.

Manpower Availability

A certain fixed level of manpower is tied up in the industrial zones and in agriculture. These remain constant and will not normally be altered.

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The only exception is if an entire output type (such as, say, Civilian Goods) is cut from industrial output. This will generate a one-off bonus in manpower, typically 2 Manpower units per unit of production.

Slave labour from occupied countries can be used by some nations, but this is less efficient. National briefings provide details on this.

Industrial Output

Output is defined by specific 'Industrial Zones'. There are specific places on the map.

Each Zone has a pre-set list of outputs, usually something from each sort of thing that is needed for the war effort, such as military manpower, tanks, aircraft etc.

In the course of the war there will be no opportunity to 'build' new industrial zones.

In order to get the output from a Zone you must meet the entire zone's pre-requisites for Raw Materials, Oil, and Critical Materials. This is generally an 'all or nothing' calculation – either the pre-requisites are met or they are not.

The output of each zone is recorded on an Industrial Output Card for each turn.

These are completed by the players and checked by Game Control.

Changing Output

The mix of outputs reflect the way the zone is laid out and this is generally the same each turn.

An individual output can be changed, however, but there are penalties for doing this:

1. Changes are at the expense of another item being produced in the same zone. So, one could increase tank production at the expense of military manpower, or increase aircraft production at the expense of tanks.
2. In order to make a change, the affected productions lines are shut down for one turn. Then they restart the next turn with the new outputs.

A production line can be shut down altogether which will generate additional manpower resources the following turn. However, this sort of manpower gain is a one-time gain and the line may not be restarted at a later date.

INDUSTRIAL ZONE MILAN					
MATERIALS NEEDED PER TURN					
RM	W	Oil	Al	Rub	Food
10	1	5	1	1	n.a.
MATERIALS IN STOCK					
RM	W	Oil	Al	Rub	Food
50	2	30	5	7	
OUTPUTS PER TURN					
Tanks	A/c	Strat	Mil	Civ	LSP
1	1	0	1	1	1
NOTES:					

Materials

Raw Materials and Critical Materials are produced in Materials Zones.
A breakdown of the World's Material Zones is at Annex B.

Raw Materials are automatically available overland, so long as an uninterrupted path can be traced from the source to the Industrial Zone.

Overland this path is interrupted by front line counters of either side.

Raw materials, oil and food, moved by sea, can be transported port to port, at a rate of 1 material point per merchant tonnage point.
Tungsten, aluminium and rubber require 1 merchant tonnage point for any amount of the three critical materials combined from the same Materials Zone.



Some countries are self sufficient in some critical materials. If this is the case then that critical material is not listed as required for their industry.
Transport within a country is automatic so long as a path can be traced from the port of entry to the Industrial Zone, with no front line counters (friendly or enemy) intervening.
All materials may be stockpiled.

There are some other circumstances where access to materials might be limited.
Control will advise players as and when this happens.

Lack of Materials

If any of the necessary Raw material or critical material requirement for a given zone is not met, then that Industrial Zone **cannot produce anything at all**.
Where outputs do not require a critical materials then obviously that is not interrupted.

Critical materials use:

You need:

- Tungsten to produce Tanks
- Aluminium to produce Aircraft
- Rubber is needed for just about everything
- Oil to produce LSP
- Oil is needed to run the Industrial Zone.
- Food is needed to run the industrial Zone (Food shortage countries only).

Summary of Critical shortages of major powers:

CRITICAL SHORTAGES CHART

	Food	Coal	Iron	Oil	Aluminium	Tungsten	Manganese	Rubber
USA	Green	Green	Green	Green	Yellow	Red	Red	Red
USSR	Green	Green	Green	Green	Green	Red	Green	Red
UK	Red	Green	Yellow	Red	Red	Red	Red	Red
GERMANY	Yellow	Green	Red	Red	Red	Red	Red	Red
ITALY	Green	Red	Yellow	Red	Green	Red	Red	Red
JAPAN	Green	Yellow	Yellow	Red	Red	Red	Red	Red

Red = Deficient
 Yellow = Shortage
 Green = No problem

SHIP PRODUCTION CENTRES

A Ship Production Centre (SPC) consists of a collection of 'slips'. There are four kinds of Slip – Heavy, Medium, Light and Merchant. The heaviest ships need heavy slips the lighter ships, lighter slips. It is important not to get this wrong, as they say "Loose slips, sink ships" (sorry). The breakdown of Production Centres in 1942 is as follows:



	Heavy	Medium	Light	Merchant
USA				
US(East)	22	11	4	4
US(West)	0	0	3	1
UK & Commonwealth				
UK(Barrow)	2	1	1	0
UK(Tyne)	0	2	0	1
UK(Belfast & Clyde)	6	2	1	0
UK(Halifax)	0	0	1	0
UK(Victoria)	0	0	1	0
Japan				
Japan (Kure)	8	0	1	0
Japan(Yokosuka)	6	1	1	0
Japan (Nagasaki)	0	1	0	1
Germany				
Germany (Bremen)	4	0	1	0
Germany (Kiel)	0	1	0	0
Italy				
Italy(Trieste)	2	1	0	0
Italy(Genoa)	2	0	1	0
USSR				
USSR(Konsomolsk)	4	0	0	0

Each SPC requires Raw Materials and Critical Materials, and these requirements are given in your National Briefing. Like Industrial Centres, the entire SPC ceases production if its materials requirement is not met.

All of the listed slips have current production on them. Exactly what is being built and its likely time of completion is given in your National Briefing.

Time and Resources Needed

When slips become available at your SPC you can choose what to lay down next. This table tells you what you can do. You can build anything you can fit into the slips – the cost of new ships is built into the materials requirement for the SPC.

Type	USA Build Time (turns)	Rest of World Build Time (turns)	Slips required
Heavy Ship Group	18	24	4 heavy
Fleet Carrier	15	20	2 Heavy
Escort Carrier	9	12	1 Medium or 1 Heavy
Light Cruiser	12	18	
Escort	6	6	1 Light or 1 Medium or 1 Heavy
Subs	3	3	
Landing Craft	3	6	
Fleet Train	5	8	1 Merchant Slipway or 5 other slips
1 Tonnage Point	2	2	

Civilian Morale

This is influenced by three factors -

- **Food** – self explanatory
- **Civilian Goods** – stockings, cars and chocolate
- **Politics** – Confidence that the leadership is doing its best.

Food. Some countries are reasonably self sufficient for food, others (like the UK) are not. Details of necessary levels of food imports are given in the National Briefing. Lack of food is a Bad Thing.

Civilian Goods. Surprisingly, even in wartime these are important to people's morale. Some countries (such as the UK and the USSR) have already removed nearly all Civilian Goods from their people – others (such as Germany, Japan and the USA) have yet to take this step. See National Briefing for details.

Politics. It is hard to legislate for political actions, however the sorts of things that will increase civilian morale might be:

- Stirring speeches
- Military victories (no matter how small)
- Good policies (ones that the civilian population see as war-winning).



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Things that might reduce morale could be

- Sudden dramatic changes in policy (such as changing sides)
- Military defeats
- Alienating significant groups (i.e. Gauleiters in Germany, the military in Japan, grass roots opinion in the USA).
- Defeatist talk.
- Unopposed terror bombing by the enemy

Control will be noting all actions for their potential effect on civilian morale. Ultimately very low civilian morale can lead to the removal of the current government by vote of no confidence, assassination or rebellion as appropriate. If this happens game control will re-allocate players roles to reflect the change of government.

Strategic Bombing

This section is extracted from the Military Player's Brief, so that Economics players can see how it might affect their industries.

Bases

Strategic Bombers require a base in order to operate. The base is shown by a counter on the map.

One base can support any number of Bomber counters.

To be operational a Bomber base requires 1 LSP per turn of operations.

Operations then take place within the current effective range. This will increase as bombers and escort fighter technology improves during the game.

Bomber ranges

	1942
Bomber range in hexes	5

Strategic Bombers have three possible roles.

They must be allocated to one of these.

a. Suppressing industrial production

One bomber counter on an IZ causes on production line to be shut down for the coming turn (IZ owner's choice)

b. Terrorising the civilian population

This can be on any hex containing names towns or cities. Unopposed terror bombing saps Civilian morale.

c. Supporting the land or naval battle

In the case of Naval Combat, the bombers can be counted as Land-based Air in the appropriate sea area. To do this they must be handed over completely to the Naval Command structure and take one turn converting between land and naval roles.

In the case of Land combat, bombers count as the same as an Air point and can be added to any combat within range.

Air Defence.

Air Units can be used for air defence. These can be placed in any hex, not just the target hex, forcing the incoming bombers to engage or avoid them.

For each Air Unit allocated to Air Defence, ignore 1 bomber unit's effect on the protected zone.

Casualties: For each AD air unit the bombers encounter, roll 1d6, score 6 to remove the Bomber unit from play.

Protective Flak Zones can be created. These require 1 military manpower and 1 concrete to cover one hex (the concrete used does *not* count for defence of the hex from land attack).

It costs 1 LSP per turn to operate up to 3 contiguous zones.

These count as an AD Air unit, but roll their casualty roll against *each* Bomber attacking their hex or moving over their hex.

Merchant Warfare

This section is extracted from the Naval Player's Rules so that Economics Players can see how it works and how it might affect them.

This is a complex issue, which we have massively simplified. We have, for example, ignored route concurrence as well as a whole host of other factors.

Economic Route Chart

Merchant routes are marked on the map and recorded separately. For the route to be effective, both ends of it must be in your hands or the hands of your allies, and uncontested, at the start.

Each route is also recorded separately on a master chart. This chart shows the number of Tonnage Points allocated to that route. (Each tonnage point is approximately 100,000 tonnes), and the unit counters of the forces allocated to defending and attacking the route. This chart is maintained by naval map control. See example at Annex A.

In the case of a Fleet Train – the train itself must have a separate merchant route running to it from a mainland Fleet Base (see Fleet Train, above).

Some routes are longer than others, so the effective tonnage points are reduced accordingly.

Any type of unit can be allocated to the merchant warfare action in either attack or defence, though some are better at it than others.

New merchant routes can be created, and tonnages allocated as required.

This is particularly so when forward bases and military forces have to be supported overseas.

Supply Effectiveness

Length of Route in Sea Areas	Effect of on transportation
Start and finish in same sea	Double amount that can be transferred.
1 to 6 sea areas	Standard amounts can be transferred
7+ sea areas	Half capacity

Transportation and Supply

One Tonnage point on a route can:

- Move 1 Manpower / Tank / Aircraft point
- Transfer 1 raw material point (see economic rules)
- Any amount of tungsten, rubber and aluminium combined from the same Materials Zone (see economic rules)
- Move half a Logistic Support Point (LSP) (2 points needed per LSP)



Deployments

Forces allocated to the merchant warfare battle are allocated to one of the specific named routes. Each side places units counters on a card indicating the routes to be protected or attacked.

Surface raider attacks on shipping require a Naval Operations Flag, and are counted as Naval operations in every sense – for example they can be intercepted by any operational TF within range as well as have to fight the allocated escorts.

The forces attacking the merchant route can choose which sea area to operate . They will engage whatever defensive forces are within range of that area. So, in the Atlantic at the start of the game, the Germans might choose to intercept the trans-Atlantic merchant route in the mid Atlantic sea area, out of range of land-base air units. They would still, however, have to engage any escorts, which would be easily within range.

Calculating Losses

If there are interdicting forces allocated to a merchant route, then there is a combat between allocated escort forces and the interdicting force.

Combat is from the point of view of the interdictor. Take Escort CV and Interdicting CV as combat odds.

If the interdictor has odds of less than 1:3 then there is no combat.

Roll 1d6 per side, subtract escort score from interdictor's score.

Column shifts

Air Supremacy (3 : 1 or better) in area = 2 column shift in favour

Outclassed by surface raider = 2 column shift disadvantage. (Heavy Unit outclasses Light Cruiser Unit, Light Cruiser Unit outclasses Escort unit).

Advantage Cards count as die roll bonus shown on card.

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Dice result	1:3 or less	1:2	2:3	1:1	3:2	2:1	5:2	3:1	4:1 or more
-6 or less	R	R	R	R	O	O	O	Y	Y
-5 / -4	R	R	R	O	O	O	Y	Y	B
-3 / -2	R	R	O	O		Y	Y	B	B
-1	R	O	O	Y	Y	Y	B	B	G
0	O	O	Y	Y	Y	B	B	G	G
+1	O	Y	Y	Y	B	B	G	G	G
+2 / +3	Y	Y	B	B	B	G	G	G	G
+4 / +5	Y	B	B	B	G	G	G	G	G
+6 or more	B	B	B	G	G	G	G	G	G

	Raider Step Losses as % of enemy CV		Escort Step Losses as % of enemy CV	Tonnage losses from German Subs	Tonnage Losses from all other attackers
	Surface	Subs			
Red (bad)	40%	20%	10%	Nil Merchant losses	Nil Merchant losses
Orange	30%	10%	20%	Merchant losses 1 per 2 interdicting units (round down)	Nil Merchant losses
Yellow	20%	10%	20%	Merchant losses 1 per interdicting unit	Merchant losses 1 per 2 interdicting units (round down)
Blue	10%	10%	20%	Merchant losses 2 per interdicting unit	Merchant losses 1 per interdicting unit
Green (Good)	10%	NIL	30%	Merchant losses 3 per interdicting unit.	Merchant losses 2 per interdicting units
	ALL LOSSES IN STEPS				

Examples of Calculating Merchant Warfare Losses

Example One : 4 German Submarine Flotillas vs. 2 Escort Forces.

German Subs have a CV of $4 \times 3 = 12$

RN Escorts have a CV of $2 \times 2 = 4$

Odds 3:1 in favour of the subs.

On d6, Germans roll 1, RN roll 2, difference of -1, which is a BLUE result.

The merchants lose 4×2 per sub = 8 Tonnage points.

The escorts lose $20\% \times 12 = 2.4$ – round down to 2 step points loss.

The subs lose $10\% \times 4 = 0.4$ – round down to 0 step losses.

The RN Escorts take a damage on each and limp back to port for repair.

Example 2 : 8 German Submarine Flotillas vs. 1 Escort Carrier Group, Light Cruiser Force and 4 Escort Forces.

Germans Subs have a CV of $8 \times 3 =$ Total 24

RN Escorts have a CV of $4 \times 2 = 8$

Light Cruiser Force has a CV of 4

Escort Carriers have a CV of 6

Total 18

Odds 1:1, since the Subs haven't quite managed to achieve 3:2.
On d6, Germans roll 3, RN roll 1, difference of +2, which is a BLUE result.

The merchants lose 8×2 per sub = 16 Tonnage points.
The escorts lose $20\% \times 24 = 4.8$ – round down to 4 step points loss.
The subs lose $10\% \times 18 = 1.8$ – round down to 1 step loss.

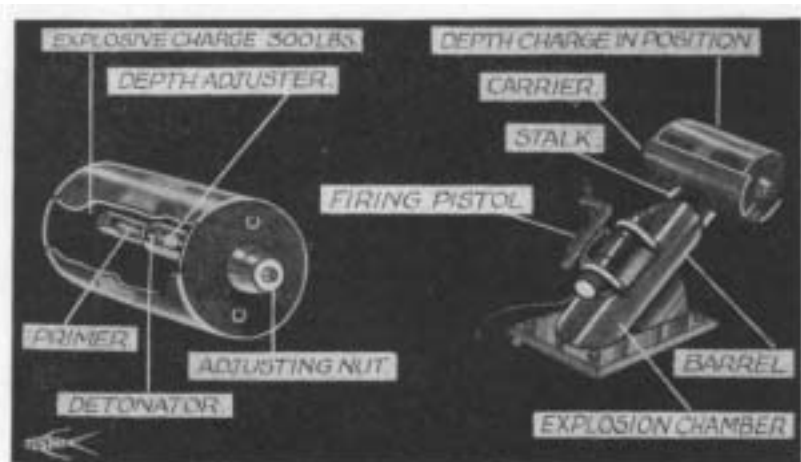
The RN player decides to take damage on the escorts - so all 4 take a single damage on each and limp back to port for repair.
One of the sub units is damaged.

Example 3: 4 US Submarines vs. unprotected Japanese merchant route.

US Subs have a CV of $4 \times 3 = 12$
Japanese have a CV of Zero.

This is automatically at the top of the scale, a 4:1 or more odds result.
Japanese roll 2, US Subs roll 5, a score of +3
This is a GREEN result

The Japanese lose 2 per sub $\times 4 = 8$ Tonnage points from the trade route.
The US Forces lose nothing.



CONSTRUCTION AND FIRING MECHANISM OF DEPTH CHARGE
Fig. 14. The depth charge is really a very simple mechanism, consisting of a container of high explosive set to explode at a given depth. (Right) Firing mortar and depth charge loaded.

ANNEX A : EXAMPLE MERCHANT ROUTES CHART

(Note: Figures shown are for example only)

Serial	Route	Tonnage Points	Length of Route	Effective Lift
1.	US/Can to UK Atlantic	50	Med (x1)	50
2.	UK/Alexandria Via Cape	10	Long (x1/2)	5
3.	UK - Argentina	20	Long (x1/2)	10
4.	UK – South Africa Via Atlantic	10	Long (x1/2)	5
5.	UK – Australia Via Panama	30	Long (x1/2)	15
6.	UK – India Via Cape	20	Long (x1/2)	10
7.	UK – Singapore Via Cape	30	Long (x1/2)	15
8.	UK - Gibraltar	0	Med (x1)	0
9.	UK – USSR Via Arctic	4	Med (x1)	4
10.	UK – Persia Via Cape	20	Long (x1/2)	10
11.	Japan – China / Port Arthur	20	Short (x2)	40
12.	Japan - Taiwan	10	Med (x1)	10
13.	Japan – Korea	15	Short (x2)	30
14.	Japan – Truk	4	Med (x1)	4
15.	Japan - Siam	4	Med (x1)	4
16.	Japan – Indo-China	8	Med (x1)	8
17.	Japan - Philippines	12	Med (x1)	12
18.	Italy – Libya	4	Short (x2)	8
19.	Italy – Albania	2	Short (x2)	4
20.	Italy – Sardinia	2	Short (x2)	4
21.	Germany - Norway	15	Med (x1)	15
22.	Germany – Sweden	2	Short (x2)	4
23.	Germany - Finland	2	Short (x2)	4
24.	USA West Coast – Australia	16	Long (x1/2)	8
25.	USA East Coast – Argentina	16	Long (x1/2)	8
26.	USA East Coast - Panama	4	Med (x1)	4
27.	USA West Coast - Panama	4	Med (x1)	4
28.	USA West Coast - Hawaii	4	Med (x1)	4



ANNEX B : The World's Materials

Zone	Raw mats produced	Special Materials produced				
		W	Oil	Al	Rubber	Food
UK & Commonwealth						
UK Newcastle	20	0	0	0	0	30
UK Cardiff	20	0	0	0	0	30
Canada	10	0	0	6	0	15
Australia	5	1	0	4	0	10
New Zealand	2	0	0	0	0	5
Burma	0	1	1	0	1	0
India	5	0	4	4	1	5
South Africa	5	1	0	0	1	5
North Borneo	0	0	2	0	2	0
Jamaica	0	0	0	1	0	0
Ceylon	0	0	0	0	3	0
Malaya	3	1	0	0	8	0
Italy						
Po Valley	10	0	0	1	0	10
Abyssinia	0	0	0	0	0	0
Libya	0	0	0	0	0	0
Austria	10	0	5	0	0	20
Hungary	9	0	5	3	0	5
Rumania / Ploesti	7	0	45	0	0	5
Bulgaria	8	0	0	0	0	0
Finland	8	0	0	0	0	0
France						
France North	6	0	0	0	0	5
French Indochina	1	1	0	0	1	0
France South	2	0	0	4	0	0
Germany						
Ruhr	30	0	20	1	3	30
Silesia	20	0	10	1	3	15
Northeast	5	0	0	0	2	45
South	10	0	0	1	2	35
Holland	0	0	0	0	0	5
Denmark	0	0	0	0	0	5
Spain	0	2	0	0	0	0
Portugal	0	4	0	0	0	0
Poland	15	0	0	0	0	0
USSR						
Ukraine (in German hands)	5	0	0	1	0	0
Belarus (in German hands)	0	0	0	0	0	0
Baltic (in German hands)	1	0	0	0	0	0
Don Basin	15	0	0	0	0	0
Moscow	5	0	0	0	0	0
Leningrad	0	0	0	2	0	0
Urals	50	0	3	10	0	0

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Zone	Raw mats produced	Special Materials produced				
		W	Oil	Al	Rubber	Food
Siberia	30	4	0	4	0	0
Baku	5	0	45	0	0	0
Maikop	1	0	5	0	0	0
Far East	10	0	2	0	0	0
USA						
USA	190	6	45	35	6	50
Philippines (in Japanese hands)	5	0	0	0	1	5
China						
Szechwan	3	0	2	0	0	0
Shensi	3	0	1	0	0	0
Shantung	9	0	0	0	0	0
Hopei	10	0	5	0	0	0
Hupei	4	0	0	0	0	0
Anhwei	4	0	0	0	0	0
Kiansi	0	8	0	1	0	0
Honan	5	0	0	0	0	0
Shansi	5	0	0	0	0	0
Sinkiang	5	0	3	0	0	0
Japan						
Japan Home	20	0	6	0	0	0
Korea	15	1	0	0	0	0
North China	10	0	1	0	0	0
Formosa	2	0	2	0	0	0
Manchuoka (Manchuria)	10	0	0	0	0	0
Palau	0	0	0	2	0	0
Sweden	15	0	0	0	0	0
Duth East Indies						
Sumatra	0	0	3	1	0	0
Java	0	0	3	0	4	5
Borneo	2	0	2	1	4	0
Celebes	3	0	1	1	0	0
Siam	0	0	0	0	2	5
Persia	0	0	15	0	0	0
Argentina	0	0	0	0	0	30
Brazil	5	0	0	1	0	10
Venezuela	0	0	15	2	0	0
Bolivia	0	5	5	0	0	5