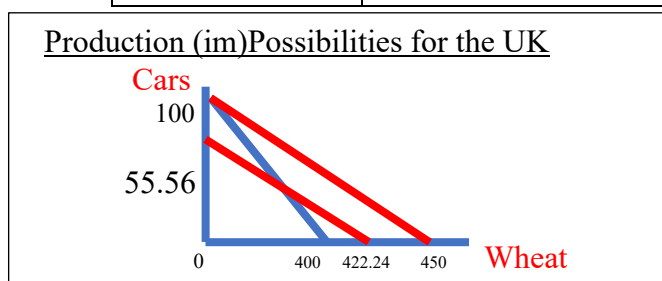# Comparative Advantage

UK and Portugal have 20 X of resources.

UK specializes in Cars.

Opportunity cost to UK is lower. Portugal specializes in wheat.

Comparative advantage calculated using opportunity cost analysis		
Each country has 20 X of resources (L, L+C)	**UK** **Wheat**	**Portugal** **Cars**
Wheat output per x resources	20 **or**	5 **or**
Car output per x resources	10	4
Opportunity cost of producing	1 car = 4 wheat 1 wheat = 0.25 cars	1 car = 5 wheat 1 wheat = 0.20 cars
Result	UK specializes in cars. Full specialization.	Portugal specializes in wheat. Full specialization.
Total Output	400 wheat **or** 100 cars	200 wheat **or** 40 cars
Analysis	In the UK 1 car has an OC value of 4 wheat. Therefore, if the UK can agree an exchange ratio (barter rate) with Portugal of 1 car for 4.5 wheat trade + specialization works.	In Portugal 1 car has an OP value of 5 wheat. Therefore if Portugal can agree an exchange ratio (barter rate) with the UK of car for 4.5 wheat.
Example	UK trades 44.44 cars for 200 wheat. UK now has 200 wheat and 55.56 cars Is the UK better off? 200 wheat has an OC value in the UK of 50 cars (200*0.25). • Total car value for UK is now 105.56 cars as a result of trade. • Total wheat value of UK = 200 (trade) + 222.24 (55.56*4 – low value as traded value with Portugal was 4.5). UK now has a wheat equivalent of 422.24 wheat.	Portugal receives 44.44 for 200 wheat. Portugal now has no wheat but has 44.44 cars and therefore 4.44 extra cars and is better off from trade. • Total wheat value to Portugal of the 44.44 cars is 222.2 wheat
Conclusion	Trade + specialization works as long as exchange rate is between the relevant opportunity cost values. UK must receive between	

Production (im)Possibilities for the UK

Note: this diagram shows the possible output of the UK in RED and the trading (im)possibility for trading 100 cars for 422.24 wheat. Is 422.24 Wheat possible? What other exchange rates would work between cars and wheat using a barter system?