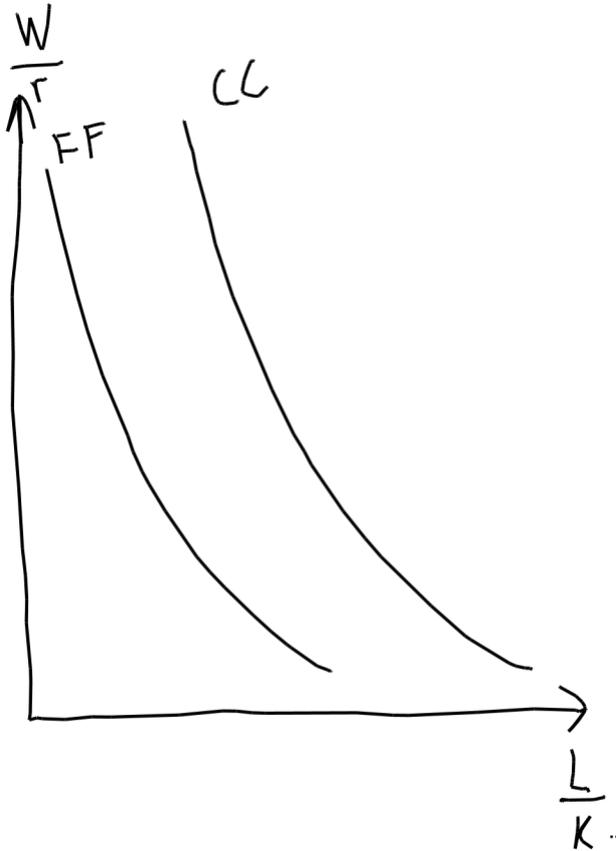# 1 Hecksher-Ohlin model

1.1

The relative labour-factor intensity is always higher in the sector that uses labour intensively in its production, which in this case is the cigar-sector, denoted by the CC-curve and compared with the FF-curve, who uses capital intensively in its production. As the factor price of labour, w, increase, the relative labour-intensity in both sectors will decrease, as they employ relatively less of the factor that becomes relatively more expensive. The slopes shows the diminishing returns to factors, in this case labour, as the MPL of labour becomes less the relatively more that is employed in the sector.

1.2
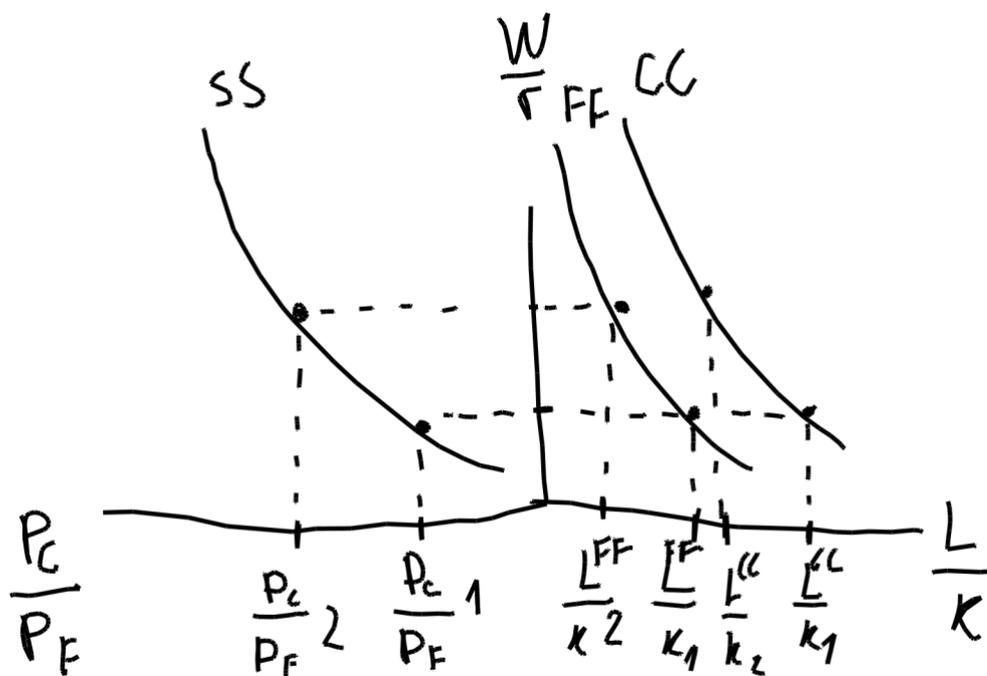
The model assumes that the factors are fully-mobile and further assumes full factor utilization.

When the relative price of cigars relative to faucets increase, the factor price of the factor that is used intensively in the production of cigars increases. For cigars, labour is used intensively and thereby the factor price of labour, w, will increase. This will make firms in the sector decide to use relatively less of that factor, describing the relationship that when the price of the labour-intensive good increases, the factor intensity of that good will decrease, as it is substituted for the other less expensive factor.

1.3

The model assumes that there is:

- Full factor utilization
- Fully mobile factors
- Since factors are fully mobile, labour and capital will move between markets, until the factor income w = w and r = r.

This implies that in the autarky equilibrium, there are two good markets that are determined by respectively, the relative price and quantity of cigars to faucets in Home and in Foreign. In each good market, the price of one good is determined to the relative price of the other good. Everything that is not used to produce one good, is used to produce the other, due to full factor utilization.

Further there are four factors market, namely the labour and capital in each country. In autarky equilibrium, the labour market in each country will have an equal factor income, w = w and the capital market in each country will have an equal r = r.

In free-trade, the countries now operate in one single good market and two factor markets. In the good market, the relative price of each good finds an equilibrium, such that the relative price of the good that you export increases and the relative price of the good that you import decreases.

Factors between countries, that is wage in Foreign and wage in Home, finds one equilibrium of w = w. Same goes for capital in Foreign and capital in Home, which finds one equilibrium of r = r

1.4

Must assume that labour and capital is fully mobile across countries. This is not what we see in the real world, where wages, and also the price of capital, differ in many countries, especially between less developed countries and developed countries.

2 Trade Policy Instruments

2.1

The world market price of beef will decrease, as the supply of beef for export from the large beef exporting country of Argentina increases. Domestic producers of Argentina direct their production of beef to the world market to gain the subsidy. This means that there will be supplied less to the domestic market, which will increase the price of the domestic market.

2.2

The effect of the export subsidy to Argentina's social welfare is negative. They will lose production and consumption distortion, because inefficient producers produce and because there is a decline in the demand from domestic consumers. Further, there will be a terms-oftrade loss, as the world market price of the good that they export will decline, while the world market price of the good that they import is assumed to be held constant.

2.3
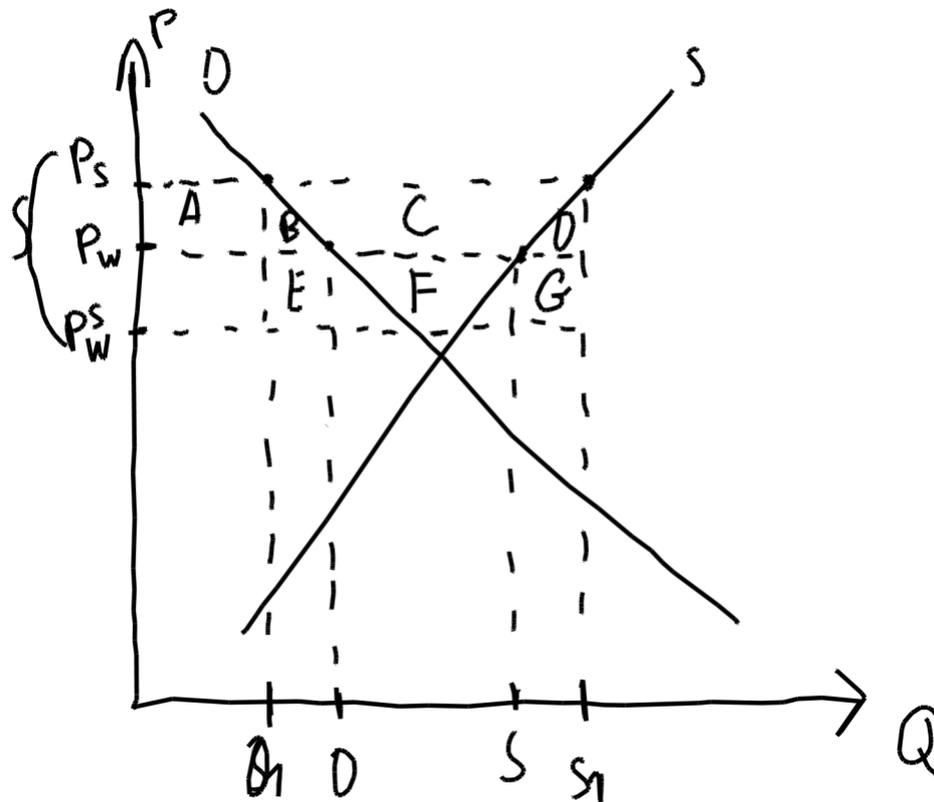
The effect of the subsidy is shown in the diagram above.

- A entails a transfer from consumers to producers, as domestic prices increase.
- C is a redistributive effect from government to producers due to the subsidy.

2.4

A production subsidy will not create consumer distortions, as the domestic price of beef will not increase, because producers has no reason to direct production to the exporting market. There will still be an over-supply of beef, which creates the producer distortion. There will still be a redistributive effect from government to producers, as producers are paid for each unit produced.

3 Internal Increasing Returns

1.1

In the autarky equilibrium:

$$: PP = C + \frac{1}{nb}$$

$$CC = \frac{F}{S} n + C$$

Denmark

$$2 + \frac{1}{n \cdot 0.01} = \frac{100}{2500} n + 2$$

$$\frac{1}{n \cdot 0.01} = 0.04 n$$

$$1 = 0.0004 n^2$$

$$2500 = n^2$$

$$\boxed{50 = n}$$

$$P = 2 + \frac{1}{(50 \cdot 0.01)} \qquad \boxed{P = 2 + 2 = 4}$$

Norway

$$2 + \frac{1}{(n \cdot 0.01)} = \frac{100}{400} n + 2$$

$$\frac{1}{(n \cdot 0.01)} = 0.25 n$$

$$1 = 0.003 n^2$$

$$-333,33 = n^2$$
$$18,26 = n$$
$$P = 2 + \frac{1}{18,26 \cdot 0,01} = 5,56$$

Something went wrong with the Norwegian number of firms and prices, but the intuition is that the Danish market is larger and more firms are therefore operating at a lower price. This creates greater product variety and lower prices for the consumers.

Firms operating in Denmark = 50 and P = 4

Firms operating in Norway = 18,26 and P = 5,56

3.2

Denmark

$$PP = C + \frac{1}{(n \cdot 0,0001)} \qquad CC = \frac{100}{2500} n + 2$$

$$PP = CC$$

$$2 + \frac{1}{(n \cdot 0,0001)} = \frac{100}{2500} n + 2$$

$$\frac{1}{n \cdot 0,0001} = \frac{100}{2500} n$$

$$1 = 0,00004 n^2$$
$$250.000 = n^2$$
$$500 = n$$

$$P = 2 + \frac{1}{0,05}$$
$$P = 21$$

For each producer
$$P = 2 + Q \frac{1}{(8500 \cdot 0,0001)}$$

$$P = 2 + \frac{Q}{0,25}$$
$$21 - 2 = \frac{Q}{0,25} \implies \boxed{Q = 4,75}$$

Rain Coat market $P=4$, $C=2$, $S=2500$
$P=C+\dfrac{Q}{S\cdot b}$ for each producer $b=0,01$

$P-C=\dfrac{Q}{S\cdot b}$

$4-2=\dfrac{Q}{2500\cdot0,01}$

$2=\dfrac{Q}{25}$

$\boxed{50=Q}$

Quantities in raincoat market is Q = 50, at a price of 2 for each firm. Price in the sneaker market is 21, with each firm producing 4,75 quantities. The raincoat market is much more price-sensitive, so they will produce at a lower price and a higher quantity, whereas the sneaker market produce at a higher price but with a lower quantity for each.

3.3

High-cost firm:

3.3 $MC_H=4$ $MC_L=0$

$P=40-2Q$

$MR=40-4Q$

$MR=MC_H$ Markup: $P-MC$
$40-4Q=4$ Markup $= 22-4 = \underline{18}$
$\quad 36=4Q$
$\boxed{9=Q}$ Operating profits
$P=40-2\cdot9$ $OP: (P\cdot Q) - (MC_i \cdot Q)$
$\boxed{P=22}$ $OP = 198 - 36 = \underline{162}$

Low-cost firm:

$$MR = 40 - 4Q \qquad \dot{M}C_L = 0$$

$$40 - 4Q = 0$$

$$10 = Q$$

Mark up: $P - MC$

$$P = 40 - 2 \cdot 10$$

$$20 - 0 = \underline{20}$$

$$P = 20$$

OP: $20 \cdot 10 = \underline{200}$

The most cost-efficient firms operate with the highest mark-up and thereby the highest operating profits. They are able to better scale their production, as they can set a lower price and produce a higher quantity.

3.4

Integrated market size $= 2500 + 400 = 2900$

$$MR = 39 - 3Q, \qquad P = 39 - 1{,}5Q, \quad MR_{LC} = 0$$

$$MR = MC$$

$$39 - 3Q = 0$$

Markup $= 19{,}5 - 0 = \underline{19{,}5}$

$$39 = 3Q$$

OP $= 19{,}5 \cdot 13 = \underline{253{,}5}$

$$\boxed{13 = Q}$$

$$P = 39 - 1{,}5 \cdot 13$$

$$\boxed{P = 39 - 19{,}5 = 19{,}5}$$

In the free-market equilibrium for low-cost firms, mark-ups are 19,5 and operating profits are 253,5. If we compare that to the autarkic Danish mark-up and profit of respectively 20 and 200. We see that in the free-trade equilibrium, market-size increase and low cost firms are able to scale up their production, by producing at a lower average cost, thereby bringing down prices and selling more quantities. This leads to a higher operating profit for the most cost-efficient firms.

Compared to the low-cost firms in autarky, they were able to charge a higher price and when they face the same low-cost marginal cost of 0, they had a higher mark-up, however, as demand is increased with the increase in market-size, low-cost firms in the free-trade are able to scale up their production, bring down AC and thereby P, and sell more quantities for a higher operating profit.

4 International Labor Mobility

4.1

With the prediction, I will use the assumptions of the Specific factor model and treat low-skill and high skill as the specific factors.

In such a scenario, if we assume that these factors are specific, with a lower level of lowskilled workers in the UK due to Brexit, each worker in the low-skill sector will face increasing wages, as there is a shortage of their factor, namely low-skill. This will also entail an increase in the MPL of low-skill workers, which essentially is a higher productivity. This is due to the fact that they become fewer employed in the sector.

2.

In the short run, when factors are specific, this will lead to decline in the welfare of the capital owners, as they will have to pay higher wages to workers, while refusing to increase the prices of the good. The lower level of unskilled-workers will decrease the output of low-skill industry in the short run, depending on how much more productive the remaining low-skill workers become. The article mentions that some firms considered cutting production or raising prices, which is exactly the prediction that I argue for.

"While some firms had considered cutting production, others were planning to raise prices"

3.
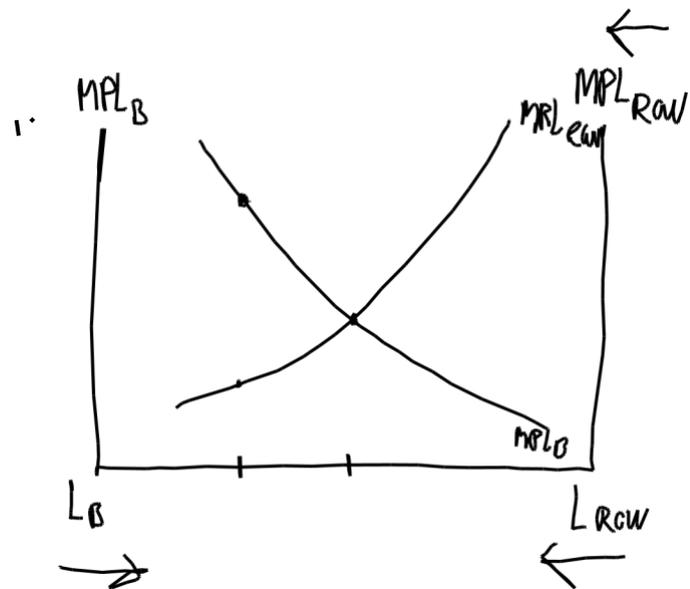
If we compare the MPL of Britain to the MPL of the rest of the world, in a situation, where goods are traded, there would be a higher initial MPL of Britain, as they has a shortage of low-skill workers due to Brexit. The medium-run effect and international labour mobility would make more low-skill workers move to Britain to be employed in the low-skill sector, in which there is a higher wage compared to the ROW. The movement will continue until the two MPLs were equal and Lb had increased sufficiently. The move in the medium-run, as migrants would enter the UK to work would mean that the welfare of low-skill workers would decrease, as their MPL would lower and this amount would instead go to the capital-workers, as they were able to lower their wages.

4.4

The second-best theory should be used to fix a market failure. As such, the lower wage of the low-skill workers in Britain was not due to the market failure, but instead due to the free-trade, where Britain might have had comparative advantages in other sectors, decreasing the wages in the low-skill sector. Instead of restricting free-trade, which they did by exiting the EU, they should instead have either tried to compensate the losers of free trade or tried to, in the longer-run, up-skill them to be able to work in the sectors, in which the UK has a comparative advantage.