International economics

Exercise 1

1.1

As we are now considering a market with multiple goods we need to compute a schedule of the goods in order to analyze the patterns of trade:

	a_{Li}	a^*_{Li}	$\frac{a^*_{Li}}{a_{Li}}$
Cars	10	100	$\frac{100}{10} = 10$
Shoes	1	8	$\frac{8}{1} = 8$
Apparel	6	12	$\frac{12}{6} = 2$
Machines	18	9	$\frac{9}{18} = 0.5$

We know that the wages are three times as high in England compared to Scotland. Therefore the relative wages must be: ^{w} = ^{3} = 3. Now that we have the wages we can determine what goods will

$w^* 1$

be produced in what country. We know that England will specialize in production when:

$$\frac{w}{w^*} < \frac{a^*_{Li}}{a_{Li}}$$

And that Scotland will specialize in the production when:

$$\frac{w}{w^*} > \frac{a^*_{Li}}{a_{Li}}$$

This differs from how we usually determine the specialization in the Ricardian model but this is because we now look at more goods.

Therefore, we can see that England will produce cars and shoes, whereas Scotland will produce apparel and machines.

1.2

Now we see how the wages will be the same in both countries making the relative wages equal to: ^{w} = ^{1} = 1. From this we see how the patterns of trade changes.

$w^* 1$

Now we can see how England will start producing apparel as well is it has become cheaper for them to so. Therefore, Scotland will also stop producing apparel, as it is now relatively cheaper for them to import the good from England.

1.3

When there is an increase in the transportation costs, then the cost of trading increases. Therefore it might not make sense to trade some goods anymore. I have assumed that the transportation costs are to be multiplied in the numerator.

	a_{Li}	a^*_{Li}	$\frac{a^*_{Li}}{a_{Li}}$
Cars	10	100*1.6=160	$\frac{160}{10} = 16$
Shoes	1	8*1.6=12.8	$\frac{12.8}{1} = 12.8$
Apparel	6	12*1.6=19.2	$\frac{19.2}{6} = 3.2$
Machines	18	9*1.6=14.4	$\frac{9}{18} = 0.8$

If we assume that the relative wages are still equal to 3, then there is only one good that will be affected enough to change the trade patterns, which is apparel. Apparel will now be non-tradeable, as it does not make sense for England to import this good anymore. Therefore, they will produce it themselves. For Scotland it will still make sense for them to produce the good themselves.

1.4

A country can either have an advantage in productivity or an advantage in costs of labor. In the

example of cars, we see how England is much more productive in producing cars compared to

Scotland: $a < a^*$. We see that they have an absolute advantage in the production of cars. Then $LC\ LC$

the difference in productivity is in this case enough to offset the difference in wages. Then if we look

at Apparel, we can see how England is actually more productive in producing this good. Here,

however, the wage difference offsets the productivity difference, which gives Scotland the comparative advantage in the production of apparel.

$\frac{w}{w^*} > \frac{a^*_{Li}}{a_{Li}}$.

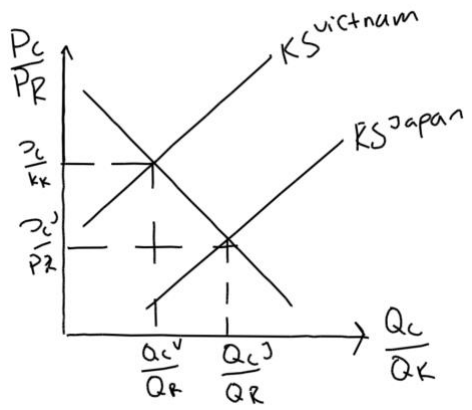
Exercise 2

2.1	B
2.2	D
2.3	B
2.4	B

Exercise 3

3.1

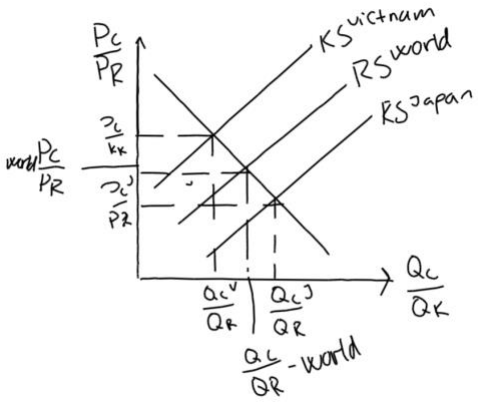
When we know that Japan is relatively skilled labor abundant and the production of cars is skilled labor intensive, then we also know that Japan will be able to produce relatively more cars compared to Vietnam. As Japan can produce relatively more cars, then their relative price of cars in terms of rice in autarky must also be lower. This is illustrated by the graph below. The relative demand curve we assume is the same in both countries.



The highest price shown on the graph is the relative price in Vietnam where the lower price is the relative price in Japan.

3.2

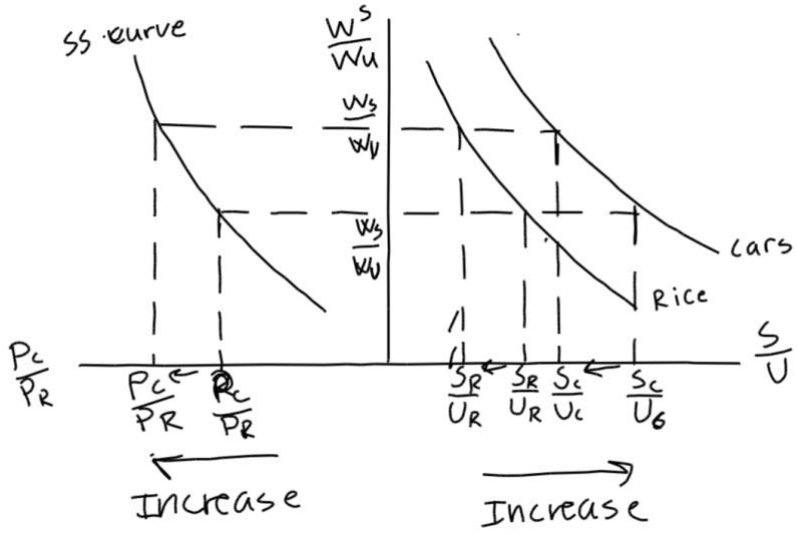
The Hecksher-Ohlin theorem states that the country abundant in a factor will export the good relatively intensive in that factor. Therefore, we must know that when the countries open up to trade Japan will export cars and import rice. As we know that Japan is skilled labor abundant, then we also know by intuition that Vietnam is unskilled-labor abundant. Therefore, from the H-O theorem we will also know that Vietnam will export rice and import cars. When the countries open up to trade we will see how the relative supply curve will place itself in the middle of the two autarky supply curves. So for Japan the relative prices or cars in terms of rice will increase, whereas it will decrease for Vietnam. As we take the aggregate supply for the entire world the relative quantities will also fall for Japan, and increase for Vietnam.



3.3

Labor intensities looks relatively at the inputs in production for a good. If we take the example of cars being skilled labor intensive and rice being unskilled labor intensive, we know that in the production of cars compared to rice, cars need relatively more skilled labor, where rice needs relatively more unskilled labor in the production.

In our example we see how the relative price of cars in terms of price increases when countries engage in trade.



On this graph we have the relative price of cars in terms of rice on the left side and the relative skilled labor intensities on the right side denoted ^{S_C} for the production of cars and ^{S_R} for the

production of rice. Then we have the skilled and unskilled wage ratio on the y-axis. Also, we see that for every wage ratio, cars have a bigger skilled-unskilled labor intensity. This is because cars are skilled labor intensive.

First of all, we see that an increase in the relative price will lower the intensities in both sectors. This is because we assume perfect competition in the H-O model, and therefore, the wages are equal to the price times the marginal productivity of labor:

$w^S = P * MPL_{SS}$

So an increase in the relative price will make the skilled wages more expensive, thus lowering the input in production, as this input becomes more expensive. By lowering the input of skilled labor in production, we see how the factor intensities of both goods decreases. Even though it is hard to see on the graph, the relative intensities of cars will fall more compared to rice, because cars are relatively more skilled labor intensive.

3.4

As I have already mentioned a bit above, the aggregate skilled labor intensities will fall in both countries. This is also illustrated on the graph. We know from the factor-price theorem that when countries engage I trade the factor returns will converge. The factor-price theorem is illustrated in the SS-curve. Therefore, we also know that the relative intensities will fall in both sectors, as a response to the increased relative prices.

Exercise 4

4.1

Monopolistic competition is a mixture of perfect competition and a monopolistic market structure. This is because there are many firms in the market, but the good of each firm is in the eyes of the consumer perceived as different from firm to firm. Therefore, firms has some market power, which enables them to act as price setters and gain an economic profit. The car industry is a perfect example of this. Even if cars actually are a single good, then the cars supplied by each firm are perceived as different goods in the eyes of the consumer.

4.2

Overall, we see how both countries gain from trade. Both countries experience an increase in the number of firms, thus increasing the varieties in the market. Furthermore, the price of cars falls in both countries, which benefits the consumer as they can now buy a car cheaper. However, looking as the numbers in absolute values, we see how the price decreases and the number of firms increases more in Italy than it does in Germany. For instance, the price falls from 10,000 dollars to 8,000 dollars in Italy, where it "only" falls from 8,750 dollars to 8,000 dollars in Germany.

However, it is important to note that both countries benefit from trade.

4.3

We know that prices and quantities are set by the monopolist where marginal costs are equal to marginal revenue. First, we need to find the marginal revenue. The marginal revenue is twice the slope op the inverse demand curve:

$$P = 200 - Q$$

$\Leftrightarrow$

$$MR = 200 - 2Q$$

Now we can set this equal to MC:

$$200 - 2Q = 20$$

And now isolating for Q=

$$\boldsymbol{Q = 90}$$

Now we can insert Q intro the demand function to find the price in the market:

$$P = 200 - 90$$

$\Leftrightarrow$

$$\boldsymbol{P = 110}$$

Assuming no trading costs, then the quantity sold in Italia will be 90 at a price of 110, and this would be the same in Germany.

4.4

For Germany:
Now we need to compute the new quantity of production and the new price for exporting: First, we must take into account how it is more expensive per unit:

$$Q = 200 - 1 * (P + 10)$$

⇔

$$Q = 190 - P$$

Now we find the marginal revenue of the new supply curve:

$$P = 190 - Q$$

⇔

$$MR = 190 - 2Q$$

And we set this equal to the marginal cost:

$$190 - 2Q = 20$$

⇔

$$\boldsymbol{Q = 85}$$

And the new price:

$$P = 190 - 85 = 105$$

Then adding the trade costs:

$$P = 105 + 10 = \mathbf{115}$$

The quantity sold and price will be the same in the Italian market as in 4.3.

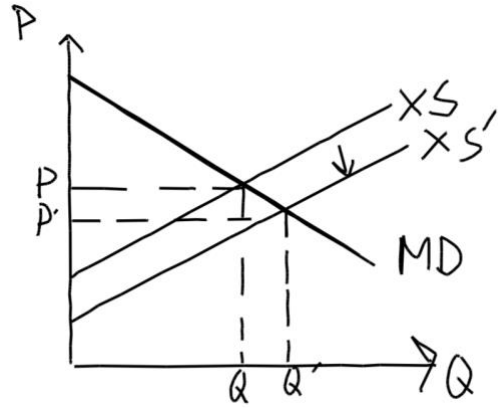
The price without trading costs (105) would be lower than the original market price (110), which could classify as dumping. However, this is not unfair in my opinion as the firm only acts according to the market. They set their price as they would have done otherwise, now they just need to take into account additional costs of trading. Therefore, dumping is a bit strange because the firms do not act in any unfair way so to speak.

Exercise 5

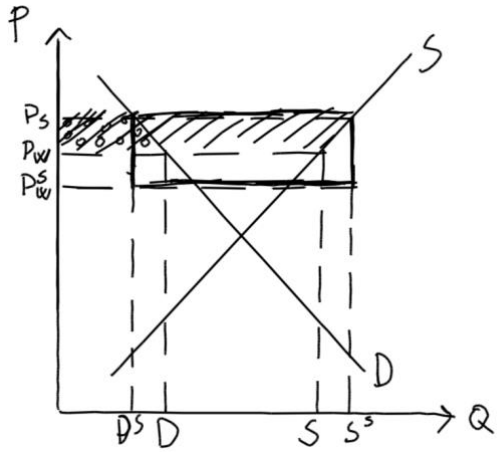
5.1

This is the effect of a subsidy in the world market. We see how the subsidy will cause a shift in the export supply curve. Then we also see that the quantity supplied in the world increases where the world market price decreases. This is because we assume that China is a large country, and they are therefore able to

affect the world market price. Furthermore, we are conducting a partial equilibrium analysis when looking at trade policies meaning that we ignore what happens in other markets, while analyzing the effects.



5.2



This is a graph of the domestic market.

On the graph we can see the initial world market price P_W. Then after China imposes a subsidy two things will happen to the price. First, as China is a large country they are able to affect the world market price, and we see how the world market price decreases, as the world supply now increases. This is because the Chinese producers are now incentivized to export more in the world market, as they receive a subsidy for doing so. The new world market price is P_S^W. Looking at the domestic market the effect is just the opposite. The price in the domestic market will increase, which we can see at P_S.

Looking at the demand and supply we can also see the effects on this graph. Demand/consumption decreases from D to D^S, as a result of the increased domestic price. The supply increases from S to S^S, as a result of the export subsidy. Now China will export the distance between D^S and S^S.

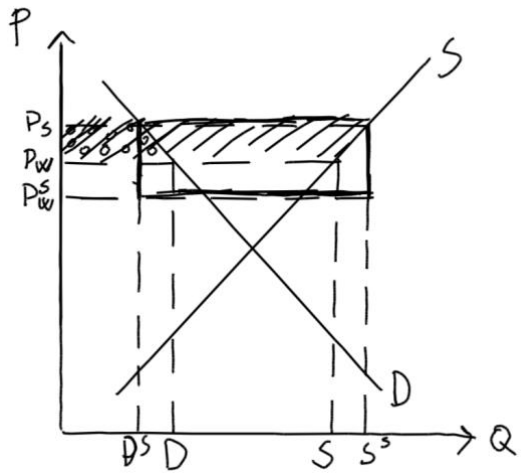
5.3

Terms of trade is the ratio of the world market price of the good a country exports over the good a country imports. In the case of China we see how they export toys. Also we saw from 5.1 that the subsidy decreases the world market price for toys. Therefore, we see how this subsidy worsens China's terms of trade, as the

world market price of the good they export decreases. This is if we hold the price constant for the good they would import.

5.4

I have decided to use the same graph as in 5.2 to answer this question, as this graph also illustrates the change in welfare.



An explanation of the graph:

- The "box" (the really thick lines) are the expenditure of the subsidy for the government
- The lines are producer surplus
- The bubbles are the consumer surplus loss.

From this graph we can see how producers are the only ones gaining from the subsidy. The consumers are facing a higher domestic price, and they therefore incur a loss. The government has an expenditure of: $Q^{Exported} * S$, where S is the size of the subsidy. Therefore, the net effect of the subsidy is a welfare loss. Furthermore, we must also not forget that China worsens their terms of trade.

Exercise 6

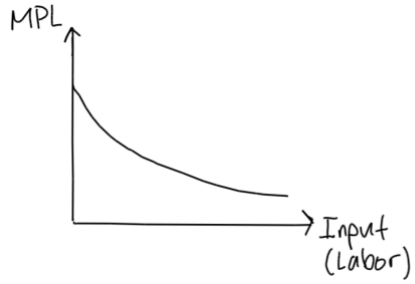
6.1

The specific factor model uses two goods, with three factors. For instance, we can assume the model looks at good X and Y, with the factors labor, capital, and land. In the specific factor model, one of the factors are completely mobile (labor), which entails that the factor can move freely from sector to sector. The two other factors, however, do not have factor substitutability. Meaning that they are "locked-in" in a specific industry. For instance, for the production of good X, there is used capital and labor, and in the production of good Y there is used land and labor. The reason that the model assumes that two of the factors cannot move freely from sector to sector is because this model, describes the short-run. In the short run, a machine used to produce cloth cannot be transferred from one day to another to the production of bananas. Therefore, two of the three factors cannot move from sector to sector, which is reasonable in the short run.

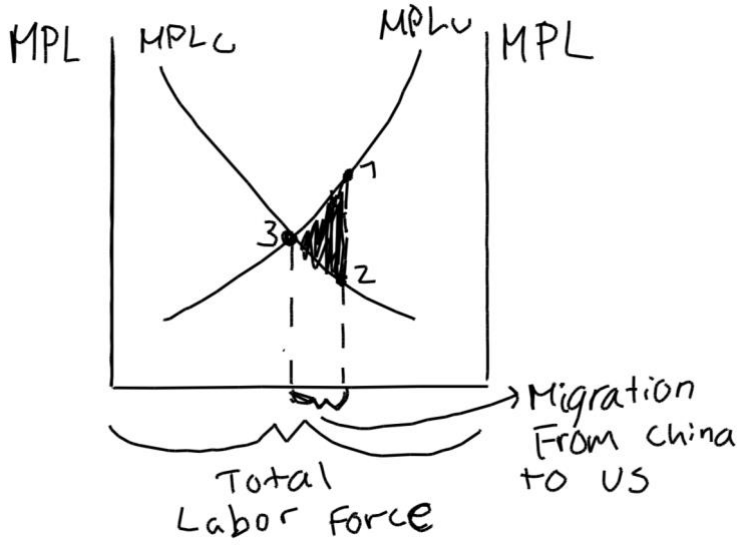
Furthermore, the model assumes perfect competition and constant returns to scale.

6.2

In the Ricardian model the slope of the PPF is constant meaning that it is a straight line. However, in the SF-model the PPF is concave. The difference lies in the assumptions of the models. The Ricardian model assumes that the marginal productivity of labor is constant, where the SF-model assumes that there are diminishing returns to the marginal productivity of labor. Breaking this down, the Ricardian model assumes that when hiring a new employee they will add just as much value/ be just as productive as the previous employee. In the SF model this works in another way. When hiring a new employee the value/productivity added will be lower of this new employee compared to the former employee hired. Therefore, when input increases in the SF-model then the MPL will fall. This can easily be shown in this graph:



6.3



First of all, I will quickly describe why the wage in US has decreased. This is, if we assume free labor mobility, due to the fact that international labor mobility predicts equalization of wages. Before in the US, the wage for low-skilled workers was high (dot 1) compared to China's low skilled wages (dot 2). Now workers from China will migrate to US until the wages in the two countries equalizes (dot 3). This entails a loss for the US as their wages decrease and a win for China as their wages increase. However, if the US where to impose restrictions on labor mobility the total world about would decrease, which the shaded area in the figure illustrates. So there are aggregate gains from trade if the winners can compensate the losers.

Also, we can look at this from a trade point of view. Trade entails that consumers can consume more, because their consumption is freed from their production. They can now import goods as well. When restricting trade, a country also restricts the consumption. Therefore, from a consumer point of view, there would be aggregate losses from pursuing a restrictive trade policy. If US keeps free-trade then there would be aggregate gains, and it would be the government's responsibility to distribute the gains, i.e. make the winners compensate the losers.

6.4

In real life it is more or less reasonable. If a production worker in the cloth industry were to get fired because the industry was competing with imports then the worker would need to find another job. If we then assume that an exporting industry, say the medicine industry was experiencing growth due to lower restrictions on trade, then he could take a job there. However, this is easier said than done. Before he worked in a production job which did not require any education. If he wants to work in the medicine industry he would need an education. This could take some years from him to get and it could probably also cost him some money to get the education, therefore he could not take a job in the medicine industry immediately. Therefore, the assumption of labor being fully mobile is more complicated in real life. I would say it depends on the time horizon one where to state the base the assumption upon. If the assumption states that workers can move from one sector to another on one day it would most likely be very unreasonable. However, if we look at labor mobility over some years, then it would be more reasonable.