(1a.) Below is the standard special factors diagram without trade. On the left axis, we have the wage in the telecommunications sector and on the right axis, the wage in the business services sector. On the bottom, we have labor allocation. The two curves are demand curves for labor in each of the respective sectors. The point of intersection is the equilibrium and it tells us the wage in the two sectors (equilibrium occurs when the wages are equal across sectors and there is no excess demand or supply of labor). The distance between the left axis and the point of intersection gives the labor allocation in the telecommunications sector and the distance between the right axis and the point of intersection gives the labor allocation in the business services sector:

(1b.) The country is capital abundant and telecommunications is the capital intensive good. Therefore, when the country opens up to trade, the telecommunications sector will experience a rise in price. Following the rise in price will be a temporary rise in wages in the telecommunications sector which will induce labor migration into telecommunications. The result will be a higher wage and more labor in telecommunications. This is illustrated in the diagram below:
(1c.) The rental rate on capital is equal to the price of telecommunications multiplied by the marginal product of capital: \( P_T \cdot MPK_T \). Therefore, when the price of telecommunications rises due to opening to trade, the marginal product of capital rises proportionally. However, the rise in the price of the telecommunications sector induces labor migration into telecommunications, causing a rise in the marginal product of capital. Therefore, The rental rate on capital rises more than the price of telecommunications. These results can be shown in the following diagram:

![Diagram showing rental rate on capital and quantity of capital relationship]

(1d.) Finnish workers are more able to consume business services after trade because the wage rate goes up and the price of business services stays the same so that the real wage in terms of business services rises: \( \frac{w}{P_{bs}} \uparrow \). However, the wage rate rises less in percentage terms than the price of telecommunications goods. Therefore the real wage in terms of telecommunications goes down: \( \frac{w}{P_T} \downarrow \). On net, the real wage rises if workers consume a high proportion of business services as opposed to telecommunications. Since we don’t know the composition of worker consumption, the impact on wages in ambiguous.

(1e.) Following (1d.), if Finnish workers spend a large proportion of their income on telecommunications, then they are likely to suffer a loss in real income as a result of the opening to trade.

(2a.) Below is a diagram of the PPF. If all capital is used in corn, then the economy can at most produce 20 units of corn. If all capital is used in cars, then the economy can use at most 5 units of cars. Similarly for labor, the economy can produce at most 10 units of corn or 20 units of cars. The two arrows define the PPF where there is enough of both capital and labor to produce the various combinations of goods:
(2b.) Below, we see the diagram for the change in the PPF after a doubling of the amount of capital in the economy. The capital constraint moves out by a factor of 2 and the labor constraint stays the same. The results is an expansion of production possibilities which is biased towards the production of the capital intensive good: cars.

(2c.) As the influx of capital increases, Mexico is likely to export less corn and import fewer cars. Eventually, if enough capital migrates across the border, Mexico will become the capital abundant country and the pattern of trade will reverse: Mexico will export cars and import corn (this comes from the Hecksher-Ohlin Theorem).

(2d.) As the US continues to lose capital to Mexico, the opposite pattern will occur in the US. They will produce fewer cars and more corn. As they produce fewer cars and less corn, they will export fewer cars to Mexico. Eventually, the US will become the labor
abundant country and export corn while importing cars (this comes from the Heckscher-Ohlin Theorem).

(2e.) There is actually nothing we can say about whether the wage rate will fall or rise relative to the rental rate on capital in Mexico as a result of opening up to trade without knowing the rest of the world’s capital to labor ratio. If we assume that the rest of the world has 100 units of capital and 100 units of labor, then Mexico is capital abundant, in which case the price of capital will be relatively cheap before opening up to trade. As a result the price of the capital intensive good (cars) will be cheap before opening up to trade. Therefore, when Mexico opens up to trade, the price of cars will rise, bringing up the rental rate on capital relative to the wage rate. In other words, the wage rate will fall relative to the rental rate on capital. If Mexico has 200 units of labor and 100 units of capital then it will be a labor abundant country (under the assumption that the rest of the world has a 1:1 ratio of labor to capital). In this case, the logic is reversed and the wage will rise relative to the rental rate on capital (because now labor is the abundant factor).