

INTERNATIONAL TRADE AND THE WORLD ECONOMY

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Answers to * exercises in chapter 6 of the Study Guide

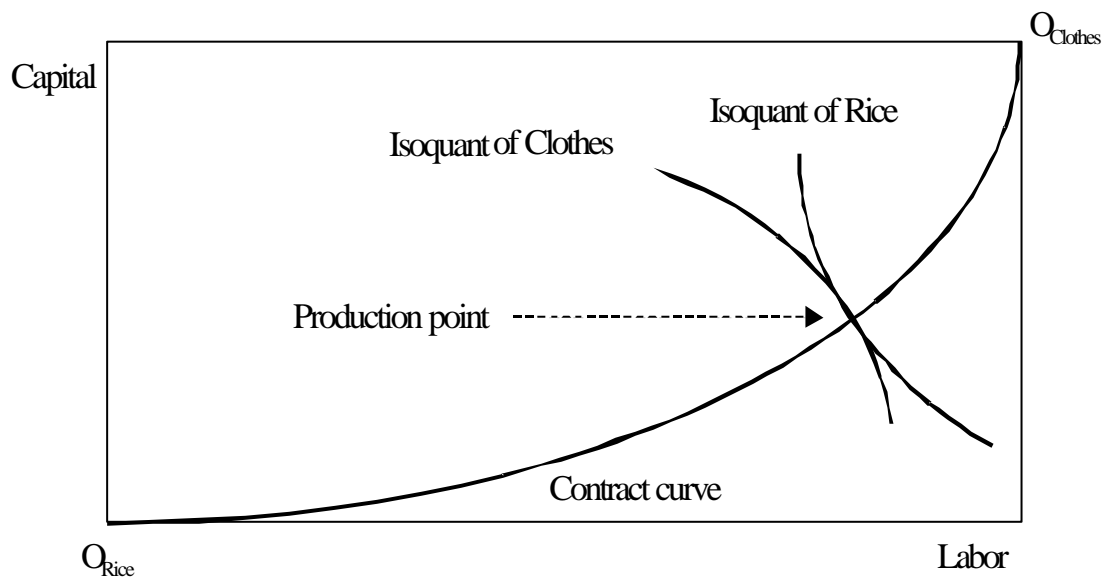
STEPHAN SCHÜLLER AND DANIËL OTTENS

The * exercises in chapter 6 are: 6.1 and 6.9.

Question 6.1

6.1A.

The Edgeworth Box consistent with the information given in the question is illustrated below. Note that the efficient production point and the contract curve should be below the straight line that connects both origins (this is caused by the labour intensity of rice and the capital intensity of clothes).



6.1B.

The output level of a good in the Edgeworth Box is indicated by the *isoquants*. The further away the isoquant is from its origin, the higher the production level.

It is very important not to confuse this with the straight lines drawn in the Edgeworth Box in section 6.5 of the book, which indicate the cost-minimizing capital-labor ratio in

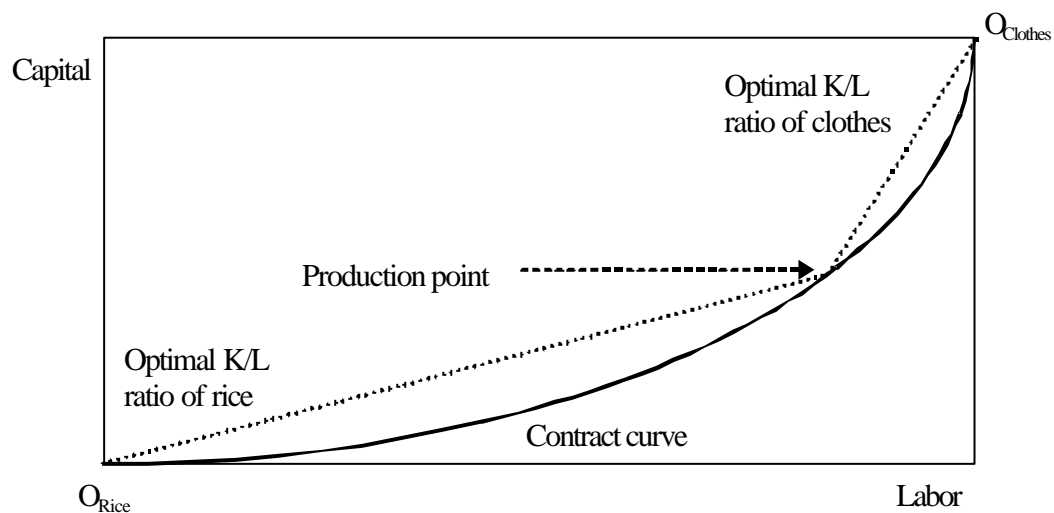
a sector for a given wage-rental ratio. Expansion and contraction in a sector for that particular wage-rental ratio takes place along these straight lines, where production obviously increases the further away the point is from its origin (that is, the longer the line). The point of intersection of such straight lines in an Edgeworth Box *must* be on the contract curve (not drawn in the figure above).

6.1C

As explained in section 6.5, we need to take three steps to derive the distribution of capital and labour over rice and clothing in the economy.

- Given the prices of the final goods we can determine the wage rate w and the rental rate r using the Factor Price Equalization proposition of chapter 5, provided both goods are produced in equilibrium.
- Once we know the wage rate w and the rental rate r , we can derive the optimal (cost-minimizing) capital-labor ratios for both goods. These capital-labor ratios do not change as long as the final goods prices do not change.
- Using the full employment conditions and the capital-labor ratios we can derive the equilibrium allocation of capital and labor in the Edgeworth Box, and thus the production levels in both sectors.

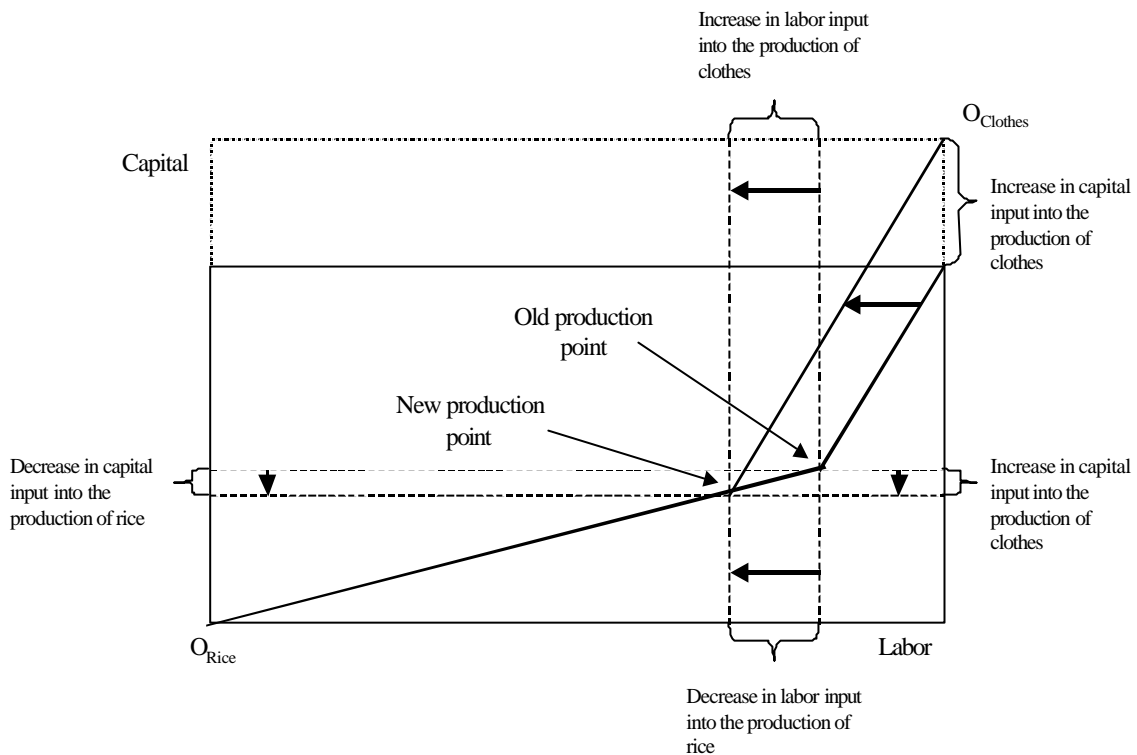
This is illustrated below.



6.1D.

An increase in capital (the new factory) will lead to an expansion of the Edgeworth Box in a vertical direction. The new production point can be found in the same way as

in question 6.1C. In this new production point the labour and capital input into the production of rice will have decreased and the input into clothes increased. Because production technologies remain equal this means that the production of rice decreases and of clothes increases.

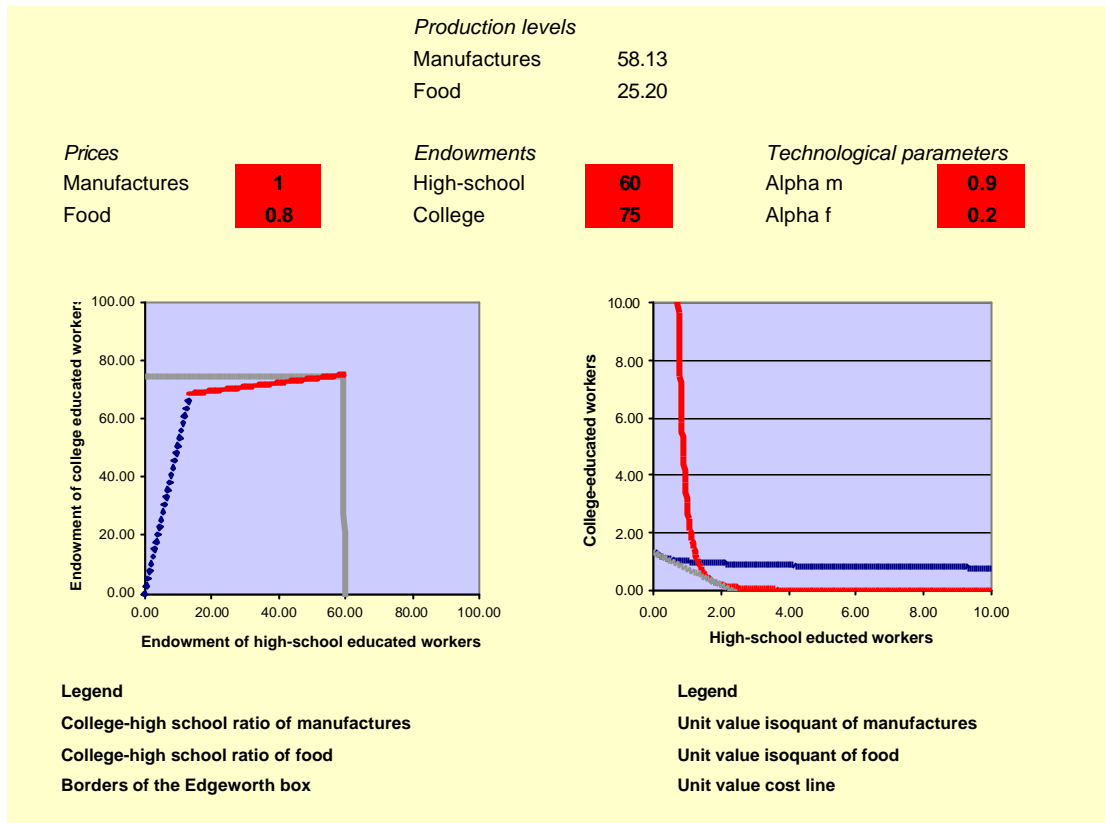


Question 6.9

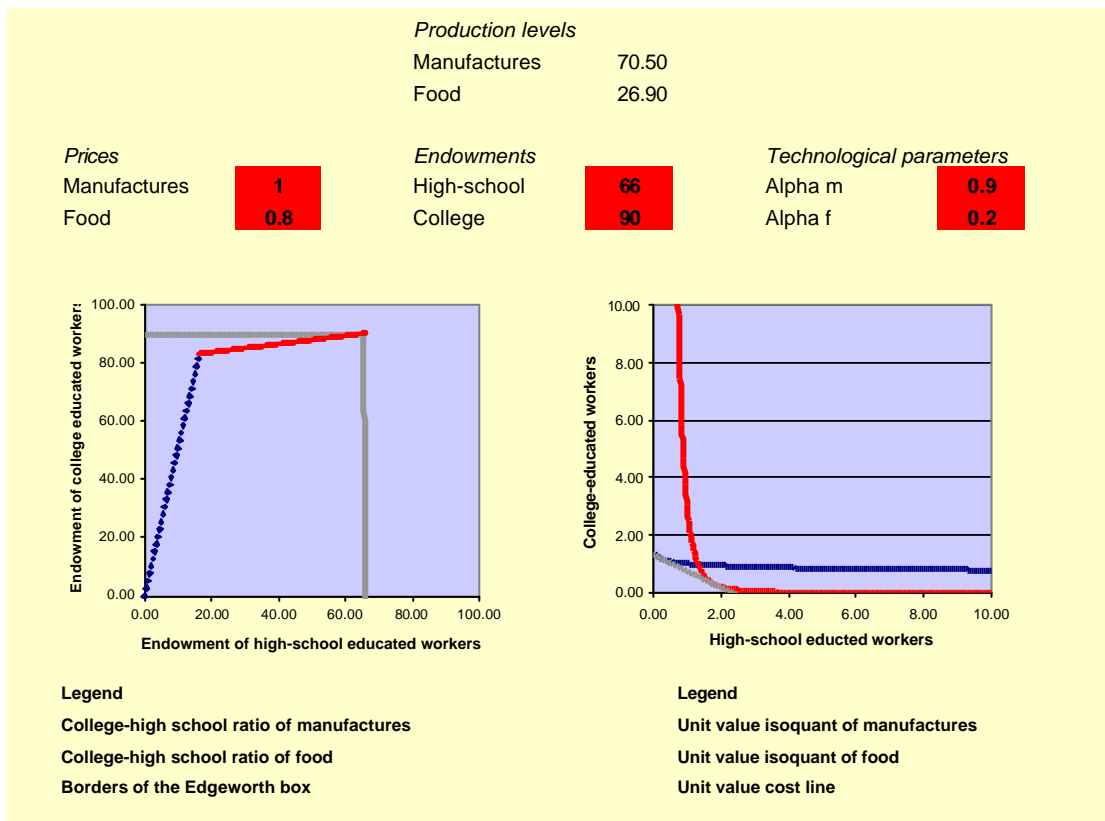
6.9A.

As a result of the immigration of Jews from Russia the available labour force increases both in the 'college educated' and 'highschool educated' directions. Since the Russian Jews were, on average, better educated than the Israeli workers there should be a larger increase in the college educated direction than in the highschool educated direction. The question allows you to be flexible in terms of the chosen increases, so let's suppose that the highschool educated workforce increases by 10% (from 60 to 66) and the college educated workforce increases by 20% (from 75 to 90). The figures below show the initial situation and the situation after the changes in the labour force as a result of the immigration of Russian Jews.

Initial situation



Situation after the immigration of Russian Jews.

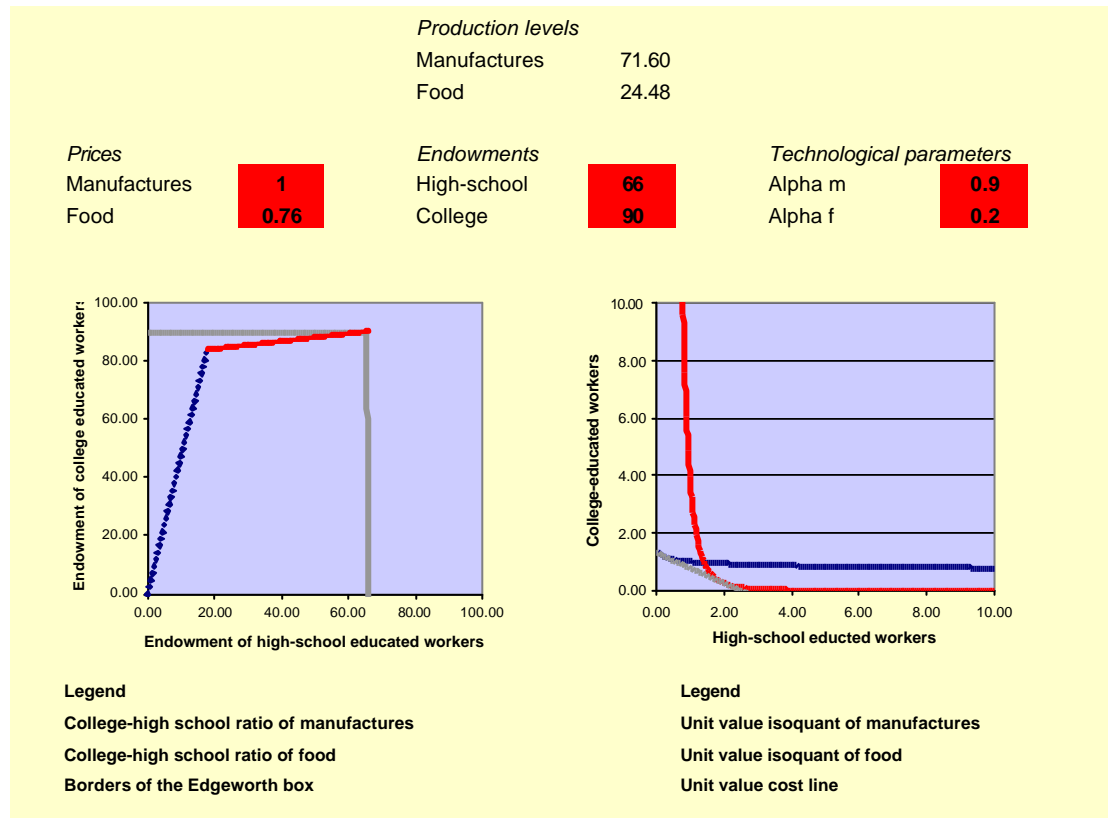


6.9B.

The Rybczynski proposition naturally also works when we have a decrease in certain factors of production. The reduction in college-educated workers in Russia will lead to a greater decline in the good that uses this factor relatively intensively (Manufactures) and will even increase output in the other good (Food). The reduction in high-school educated workers will decrease Food production and increase Manufactures production. Since the outflow of college-educated workers is greatest, this will have the greatest effect in Russia. Surely, Manufactures production will decrease, the total effect on Food production can either be positive or negative.

6.9C

Either an increase in the price of Manufactures, or a decrease in the price of Food will cause the wages of college-educated workers to rise. The question again allows you to be flexible in terms of the chosen changes, so let's suppose that the price of food decreases by 5% (from .80 to .76). The figures below show the effect of this change.



6.9D.

We can simulate the increase in the “college-educated labour intensity” for the production of manufactures by increasing the parameter "alpha m", say from 0.90 to 0.95. The figure below shows the effect of this change.

