QUESTIONS - CHAPTER 14 GEOGRAPHICAL ECONOMICS

Question 14.1

14.1A What is ‘hysteresis’ or ‘path-dependency’, and what is its importance for geographical economics?

14.1B What does this imply for empirical research?

The two-region geographical economics model predicts that manufacturing activity will spread over the two regions or agglomerate in one region depending on the size of three economic parameters:

- The (iceberg) transport cost (T)
- The elasticity of substitution (\(\alpha\))
- The share of income spent on manufactures (\(d_m\))

14.1C Do high transport costs lead to spreading or agglomeration of manufacturing activity? Explain.

14.1D Does a high elasticity of substitution lead to spreading or agglomeration of manufacturing activity? Explain.

14.1E Does a high share of income spent on manufactures lead to spreading or agglomeration of manufacturing activity? Explain.

Question 14.2

This question reviews the general structure of the geographical economics model.

14.2A How do consumers decide how much to spend on food and manufacturing goods? What is the share of income they will spend on food?

14.2B Does every consumer spend an equal share of income on food? Why?

14.2C How do consumers decide on their consumption level for a particular variety of manufactures? What is the share of their income they will spend on one variety?

14.2D Is the wage rate for farm workers necessarily equal between the two regions?

14.2E Is the wage rate for manufacturing workers equal between the regions?

Question 14.3

Chapter 14 discusses the geographical economics model using graphs such as the one shown below.
Two-region base scenario

14.3A What does the line in the figure represent?

14.3B Identify the long-run equilibria in the figure. Explain.

14.3C How can you derive from the figure if a long-run equilibrium is stable or unstable?

14.3D Can you determine from the above figure if manufacturing activity will agglomerate in the long run?

14.3E Draw a new figure, similar to the one above but based on a different parameter setting, in which the agglomeration of manufacturing firms is the only stable long-run equilibrium.

14.3F Draw a new figure, similar to the one above but based on a different parameter setting, in which the spreading of manufacturing firms is the only stable long-run equilibrium.

Question 14.4

The figure below depicts a map of Vietnam with a special emphasis on the four cities that according to the United Nations had more than 750,000 inhabitants in 2010.
Excerpts from Wikipedia

Successive Vietnamese royal dynasties flourished as the nation expanded geographically and politically into Southeast Asia, until the Indochina Peninsula was colonized by the French in the mid-19th century. Efforts to resist the French eventually led to their expulsion from the country in the mid-20th century, leaving Vietnam divided politically into two countries. Fighting between the two sides continued, with heavy foreign intervention, during the Vietnam War, which ended with a North Vietnamese victory in 1975.

Emerging from this prolonged military engagement, the war-ravaged Communist nation was politically isolated. In 1986, the government instituted economic and political reforms and began a path towards international reintegration. By 2000, it had established diplomatic relations with most nations. Its economic growth has been among the highest in the world since 2000. It joined the World Trade Organization in 2007. The country still suffers from relatively high levels of income inequality, disparities in healthcare provision, and poor gender equality.
The figure and table above provide details of the developments in total population and the growth rate for the four cities identified on the map. Using the information you have learned by studying Chapter 14 and Part II of the book (or at least as much as possible) and your own previous knowledge base: write a (non-technical) essay explaining the differences in (relative) population developments during the period 1950-2010 and speculate on the likely future developments for the 4 cities in Vietnam listed above (explain why).
Question 14.5
The importance of transport costs in international trade is empirically illustrated in Figure 14.3, depicting the relationship between German exports and distance to the export market. This question investigates if a similar relationship holds for Japan. The Excel file for question 14.5 contains data on Japanese exports in 2010, the distance to the export markets, and the size of these markets as measured by GDP.

14.5A Which countries comprise the top ten export markets for Japan? Does distance play a role in the export behaviour of Japan?
Calculate the natural logarithm of exports and of the distance to Japan. Run a regression on the results, using a constant and the distance to the Japanese market to estimate the size of the Japanese export flow. Illustrate your result in a graph.

14.5B Does distance play a role in the export behaviour of Japan?
We will now correct for the size of the export market in this sample. To do this you have to estimate the following regression: \( \ln(\text{export}) = A + B \ln(\text{GDP}) \) in which A is the intercept and B the slope of your linear regression model. After that you can calculate the adjusted exports as:
\[ \ln(\text{adjusted export}) = \ln(\text{export}) - B \ln(\text{GDP}) \]

14.5C Make a graph in which you put \( \ln(\text{adjusted export}) \) on the vertical axis and \( \ln(\text{distance}) \) on the horizontal axis. What can you conclude from this new figure?

Question 14.6
Section 14.2 discusses and illustrates the empirical regularity called Zipf’s law. The Excel file for question 14.6 contains information for Argentina. Make a graph similar to Figure 14.2 for Argentina. Does Zipf’s law hold for Argentina?

Question 14.7
Mainstream economists have paid relatively little attention to geographic factors for a long time, despite the fact that even a quick look at the distribution of income in the world suffices to see that geography (location) plays some role. On the web or in the library you can find a paper entitled “Geography and Economic Development” by J.L. Gallup and J.D. Sachs with A.D. Mellinger.
14.7A What is the relationship between geography and economic growth according to the authors?

14.7B What is the implication of the analysis for the African nations?

14.7C What is the outlook for the future for the poorest nations on the planet according to the authors?

**Question 14.8**

Locate on the web or in your library the paper called "The location of European Industry", written by K.H. Midelfart – Knarvik, H.G. Overman, S.J. Redding and A.J. Venables. This empirical report describes the location and concentration of European industries. The answers to the questions below are given in the introduction of this paper.

14.8A Which economic theories are used in the report to explain the location of European industries?

14.8B The report compares the industrial structure of Europe and America. What does the report conclude? Can you explain this conclusion using the geographical economics model?

**Question 14.9**

Chapter 14 analyses a two-region version of the geographical economics model. The 'racetrack economy' briefly described in the appendix of the Study Guide identifies more regions in a neutral, clock-like space. The Excel file for question 14.9 uses (initially) a six region racetrack economy. In the simulation you can change the transport costs and the initial distribution of manufacturing workers. After pushing a button the simulation calculates the new long-run equilibrium distribution of manufacturing workers over the six regions.

First, assume that the six regions are distributed as in the standard racetrack economy, see the figure below. This transport system is called scenario 1 in the simulation. The transport costs are T=1.5. Assume that initially manufacturing workers are equally distributed among the six regions (you can fill in "= 1/6" in the simulation).
Scenario 1

14.9A Is the initial distribution a long-run equilibrium? Why?

14.9B Experiment with small deviations in the initial distribution. Is the initial distribution a stable equilibrium according to you? Why?

14.9C Increase the transport costs and then repeat your experiments of question 14.13B. How does this affect your results?

Of course the distribution network of scenario 1 can be changed. You can experiment with such changes below. Before we start, return the transport costs to their old level. Suppose that the transport system changes to the structure shown below, called scenario 2 in the simulation. This time regions 2 and 5 are connected with each other using a kind of "bridge", reducing the distance between them to one unit.

Scenario 2

14.9D Assume that the manufacturing workers are initially equally distributed among the six regions. What is the long-run equilibrium of scenario 2?

14.9E Experiment with changes in the initial distribution of scenario 2. Is the long-run equilibrium of question 14.13D a stable equilibrium?
Scenario 3 below assumes that region 2 is well connected to the other regions.

**Scenario 3**

14.9F Assume again that the manufacturing workers are initially equally distributed among the six regions. What is the long-run equilibrium of scenario 3?