Exam – Econ 4415 – January 2022

Problem 1 - Ricardian Trade Theory (1/3)

Up until 1913 there was an important barter trade between Norway and Russia in the north. This so-called *Pomortrade* was trade between Norwegians in Finnmark and Russian pomors who travelled to Finnmark from the Russian city Archangelsk. The pomors brought grain that was exchanged grain for fish with the Norwegians.

You may assume that the Russian pomors had the same unit labour requirement in fishing as the Norwegians (they crossed the ocean where the Norwegians fished), but lower unit labour requirement in grain production (Russia has very productive soil).

For instance, the unit labour requirements may have been:

	Fish (per kg)	Grain (per kg)
Norway	$a_N{}^F=1$	$a_N{}^G=2$
Russia	$a_R{}^F=1$	$a_R{}^G=1/2$

a)
Given that unit labour requirements were as in the table,

- which country had an absolute advantage in grain?
- which country had an absolute advantage in fish?
- what was the opportunity cost of fish in terms of grain in the two countries?
- what was the opportunity cost of grain in terms of fish in the two countries?
- which country had a comparative advantage in fish?
- which country had a comparative advantage in grain?

b)

Assume that the labour forces in Norwegian Finnmark and Russia (L_N and L_R) were fixed. Think of Finnmark as a country. Derive the production possibility frontiers (PPF) of fish for any quantity of grain (as a function of the two countries' labor forces). What is the interpretation of the slope of the PPF?

c)

The goods were produced under perfect competition. Prices equal unit costs. In country i (i=Norwegian Finnmark, Russia) autarky prices were:

$P_i{}^F=a_i{}^F w_i$

$P_i^G = a_i^G w_i$

Normalize the price of fish in both countries to be equal to 1. For each of the two countries, derive wages and the price of grain in autarky.

d)

Now assume that trade was introduced. We assume that trade was free so that prices became equal in the two countries.

With trade, either

- Norwegian Finnmark produced both goods and the Russia produced only grain, or
- Russia produced both goods and the Norwegian Finnmark produced only fish, or
- the two countries specialized so that Norwegian Finnmark produced only fish and Russia produced only grain.

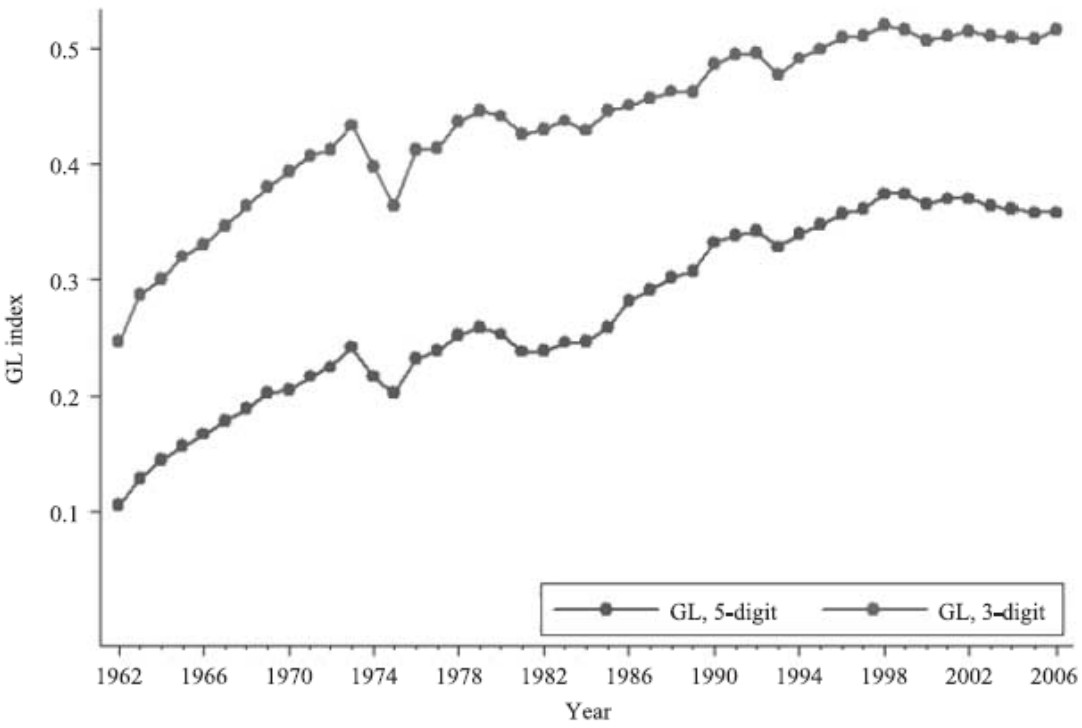
Explain why trade gives these three alternative outcomes. Which country gained from trade in the three alternative outcomes? Explain.

The second alternative may be the most realistic for trade between Norwegian Finnmark and Russia. Why is that?

Problem 2. Intra- and inter-industry trade (1/3)

Consider the graph below, taken from Brülhart, M. (2009) "An account of Global Intra-Industry Trade, 1962-2006" *World Economy*. The graph illustrates the share of intra-industry trade in the world economy in the period from 1962. Intra-industry trade denotes countries exports and imports of goods varieties in the same commodity groups. Inter-industry trade denotes exports and imports of goods that belong to different product categories.

FIGURE 4
Evolution of Global IIT, 1962–2006 ('Long Coverage' Sample)



a) Which group of trade theories can explain inter-industry trade? Explain.
b) Which group of trade theories can explain intra-industry trade? Explain.
c) What can be the reasons that intra-industry trade seems to become more important over time?
d) In the graph, the upper line represents goods aggregation at 3 digits and the lower line represents aggregation at 5 digits. The upper line therefore represents more aggregated commodity groups than the lower. Why does the share of intra-industry trade increase with commodity group aggregation?

Problem 3. Factor proportions theory (1/3)

Consider the text below. The text is the abstract of Autor, D. H, D. Dorn and G. H. Hansen "The China Syndrome – Local Labour Market Effects of Import Competition in the United States" (*American Economic Review*, 2013, 3 (6), pp 2021-2068).

We analyze the effect of rising Chinese import competition between 1990 and 2007 on US local labor markets, exploiting cross-market variation in import exposure stemming from initial differences in industry specialization and instrumenting for US imports using changes in Chinese imports by other high-income countries. Rising imports cause higher unemployment, lower labor force participation, and reduced wages in local labor markets that house import-competing manufacturing industries. In our main specification, import competition explains one-quarter of the contemporaneous aggregate decline in US manufacturing employment. Transfer benefits payments for unemployment, disability, retirement, and healthcare also rise sharply in more trade-exposed labor markets.

The main findings are:

Rising imports cause higher unemployment, lower labor force participation, and reduced wages in local labor markets that house import-competing manufacturing industries

Discuss how international trade theory can explain these findings in the article.