

Exam Econ 4415 International Trade - Fall 2023

November 2023

1. **12.5 POINTS.** Consider a neoclassical economy facing a change from autarky to free trade. Explain and illustrate graphically which industries would become exporters and which importers, why would be that the case, what would happen with goods' prices and welfare.
2. **20 POINTS.** Based on the factor proportion theory, explain and illustrate graphically what you would expect to happen to a small open economy (e.g. production, prices) in the short term and long term in the following independent scenarios
 - (a) Active workforce reduces
 - (b) International price of a good that is being produced increases
3. **10 POINTS.** Explain the following:
 - (a) Forces of agglomeration
 - (b) Advantages that a larger market provides to consumers. Provide intuition from a world behaved as in an monopolistic competition model with love for variety, homogeneous firms and autarky.
4. **12.5 POINTS.** Explain the main ingredients, assumptions and results of Melitz (2003) "The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity". Provide graphical illustrations. Include predictions on firm entry, exit, sales, price index, productivity, gains from trade.
5. **15 POINTS.** Explain the main ingredients, assumptions and results of Krugman and Venables (1995) "Globalization and the Inequality of Nations". Include predictions on how trade in intermediate goods affects real wages and the size and type of economic activity in each location as trade costs reduce.

6. **10 POINTS.** About trade costs between countries:

- (a) Propose one method to measure (get an approximated value by observing data) trade costs. Specify which data you would need and how you would use it.
- (b) Propose a method to estimate trade costs (recover trade costs based on theory). Specify which data you would need and the underlying assumptions to recover trade costs.

7. **20 POINTS.** Derive the gravity equation presented below (equation (1)) and explain how each of its components affects trade flows

$$X_{ij} = \frac{Y_i Y_j}{Y_W} \left(\frac{\tau_{ij}}{P_i P_j} \right)^{1-\sigma} \quad (1)$$

Where $X_{ij} = p_{ij}q_{ij}$ is the value of trade flows from location i to location j , with price p_{ij} and quantity q_{ij} . The trade cost τ_{ij} is an iceberg trade costs between location i and j , and $\tau_{ij} = \tau_{ji}$. The nominal income of region i is Y_i , and $Y_W = \sum_i Y_i$ is the world income. P_i is the price index of region i . Assume preferences for goods are homothetic and identical across locations, each location produces one variety, locations are small and take other region's price as given. Then, $p_{ij} = p_i \tau_{ij}$. Assume that the equilibrium is unique (hint: the remoteness index $\Omega_i = (\sum_j \theta_j (\frac{\tau_{ij}}{P_j})^{1-\sigma})^{\frac{1}{1-\sigma}}$ of location i will be equal to the price index P_i of location i , where θ_j is the share of location j in world income).

Take q_{ij} the demand of location j for the variety of location i as given (you do not need to derive it):

$$q_{ij} = \left(\frac{p_{ij}}{P_j} \right)^{-\sigma} \frac{E_j}{P_j}$$

where $P_j = \left[\sum_i p_{ij}^{1-\sigma} \right]^{\frac{1}{1-\sigma}}$ is the price index in location j , σ is the elasticity of substitutions across varieties (common across all locations) and E_j is the total nominal expenditure of location j .