EC 380 Problem Set 02

Instructions: Answers must be submitted online through the designated Canvas assignment in a **PDF file**. Any other file type is not allowed. This Problem Set is due on **January 22 at 01:59pm**. Please write as legible and clearly as possible. You will not be given full credit if your answers cannot be easily understood.

Questions

1. Answer the following short questions

   (a) [4 points] In your own words, how would you define **Labor Abundance** in the Heckscher-Ohlin model setting?

   IT IS THE COUNTRY W/ THE HIGHEST L-K RATIO (SMALLEST K-L RATIO)

   IT MEANS THE COUNTRY HAS RELATIVELY MORE LABOR THAN CAPITAL

   (b) [4 points] How does the capital-labor ratio help us determine patterns of trade?

   IT HELPS US DETERMINE THE COMPARATIVE ADVANTAGE FOR EACH COUNTRY

   (c) [4 points] Describe the key difference(s) that separate the HO model from the Ricardian model

   1. HO HAS 2 FACTORS OF INPUT (L,K), RICARDO HAS 1 (L)

   2. PPFs ARE CURVED IN HO, RICARDO IS A STRAIGHT LINE

   3. RICARDO HAS CONSTANT TRADE-OFF, OH VARIES DEPENDING ON GOODS QUANTITIES

   4. IN OH, COMP. ADV. IS GIVEN BY FACTOR ENDOWMENTS, RICARDO USES TECH.

2. Suppose we are considering an **HO Model setting**, where countries have not yet opened up to trade. Two goods are produced: **Suits and Distilled Whiskey**. Suppose that tailoring **Suits** is **labor-intensive** in production as it is primarily done by hand and making **Distilled Whiskey** is **capital-intensive** in production as it requires exact and automated machinery. The countries, Country A and Country B, have the following **Labor (L) and Capital (K)** endowments.

Factor	L	K
Country A	1473	832
Country B	1261	853

(a) [4 points] What are the **Capital-Labor Ratios** for each country?

COUNTRY A

$\frac{K}{L} = \frac{832}{1473} = 0.56$

COUNTRY B

$\frac{K}{L} = \frac{853}{1261} = 0.68$

(b) [4 points] Which country has comparative advantage in producing Distilled Whiskey?

COUNTRY B

(c) [4 points] How do trade flows behave for each country once each of them specializes?

COUNTRY A WILL EXPORT SUITS & IMPORT WHISKEY

COUNTRY B WILL EXPORT WHISKEY & IMPORT SUITS

3. Consider the gains and losses experienced by owners of input factors. Assume that in this economy there is only **Capital and Labor**.

   (a) [4 points] How does trade affect owners of capital and owners of labor under a **Capital Abundant country**?

OWNERS	INCOME
CAPITAL	↑
LABOR	↓

   (b) [4 points] How does trade affect owners of capital and owners of labor under a **Labor Abundant country**?

OWNERS	INCOME
CAPITAL	↓
LABOR	↑

4. Consider the **Specific-Factor Model**. Assume that **Land** and **Capital** are the **Specific Factors**.

   (a) [4 points] What are the implications for domestic labor income of switching from autarky to open trade, when a given country is **land-abundant**?

THE EFFECTS ON LABOR INCOME IS INDETERMINITE

   (b) [2 points] Is this impact different if the country is **capital-abundant** instead?

IMPACT SHOULD BE NO DIFFERENT IN THIS CONTEXT → AMBIGUOUS

5. [12 points] Consider a small, open economy that produces two goods: **Exotic Flowers** and **Semi-conductors**. In order to make either good, producers must use both factors of production: **Labor** and **Capital**. Either good requires a specific mix of input factors:

Exotic Flowers	**Semi-conductors**
• 64% Labor & 36% Capital	• 23% Labor & 77% Capital

The economy initially operates under **autarky**. After opening to trade, the world relative price of **Exotic Flowers** increases from 10 to 12. Assume the economy adjusts fully to the new price ratios, with full employment.

Hint: The percentage change in the price of a good is given by:

$$\Delta P_x = \frac{P_x^{new} - P_x^{old}}{P_x^{old}} \times 100$$

Using the **Magnification Effect** we learned in lecture, find the percentage change in **wages** (Δw) for labor and the percentage change in **return to capital** (Δr) for capital

Flowers

$P_F = \alpha_L \cdot w + \alpha_K \cdot r$

$P_F = 0.64 \cdot w + 0.36 \cdot r$

Price goes from 10 to 12
↳ 20% increase

$\Delta P_F = 0.64 \cdot \Delta w + 0.36 \cdot \Delta r$

$20\% = 0.64 \cdot \Delta w + 0.36 \cdot \Delta r$

$20\% = 0.64(-3.35\Delta r) + 0.36\Delta r$

$20\% = -2.144\Delta r + 0.36\Delta r$

$20\% = -1.784\Delta r$

$\Delta r = \frac{20\%}{-1.784} = -11.21$

Semi-conductors

$P_S = \alpha_L \cdot w + \alpha_K \cdot r$

$P_S = 0.23 \cdot w + 0.77 \cdot r$

Prices does not change
↳ 0% increase

$\Delta P_S = 0.23 \cdot \Delta w + 0.77 \cdot \Delta r$

$0 = 0.23 \cdot \Delta w + 0.77 \cdot \Delta r$

$-0.23\Delta w = 0.77\Delta r$

$\Delta w = \frac{-0.77}{0.23}\Delta r = -3.35\Delta r$

$\Delta w = -3.35(-11.21)$

$\Delta w = 37.55$