

Name \_\_\_\_\_ Section \_\_\_\_\_

### Econ 370 International Trade Midterm

There are 40 T/F questions worth 2 points each, and 2 short answer questions worth 20 points each, for a total of 120 points. Please budget time accordingly. You have 75 minutes. Please write legibly in the short answer section.

**True/False:** Use computer bubble sheet. Fill “A” for True. “B” for False. (2 pts each)

#### **Warm up questions**

1. I have written my name and student number on each page of the exam and the bubble sheet.
2. You see a sink with two handles marked hot and cold, and you turn the handle marked cold. It is very likely that cold water will come out. (Hint: don't over think this question, or any other question on this exam.)

**Questions 3-9 refer to our class discussions and presentation of empirical evidence.**

3. The US trades a smaller fraction of its output than most other countries in the world.

**True. See week 1 notes.**

4. Since 1970, international trade in agricultural goods has grown faster than foreign direct investment.

**False. FDI has grown faster than trade as a whole (including manufacturing, agricultural, and mining), and agricultural trade has grown more slowly than trade as a whole.**

5. Growth in a country's labor productivity leads to growth in per capita income for that country.

**True. See evidence in Ricardian model notes.**

6. The US trade deficit with China is primarily caused by Chinese protectionism.

**False. The trade deficit is primarily caused by the gap between saving and investment.**

7. Consider five categories of educational attainment for a worker: less than high school, high school degree, college degree, masters degree, phd degree. Immigrant workers

represent more than a quarter of the US work force only in the “less than high school” category.

**False. Immigrant workers represent more than a quarter of the US work force in both the less than high school and more than college categories.**

8. The costs of complying with US environmental regulations resulted in a significant reduction in US comparative advantage in “dirty” industries during the 1980s and early 1990s.

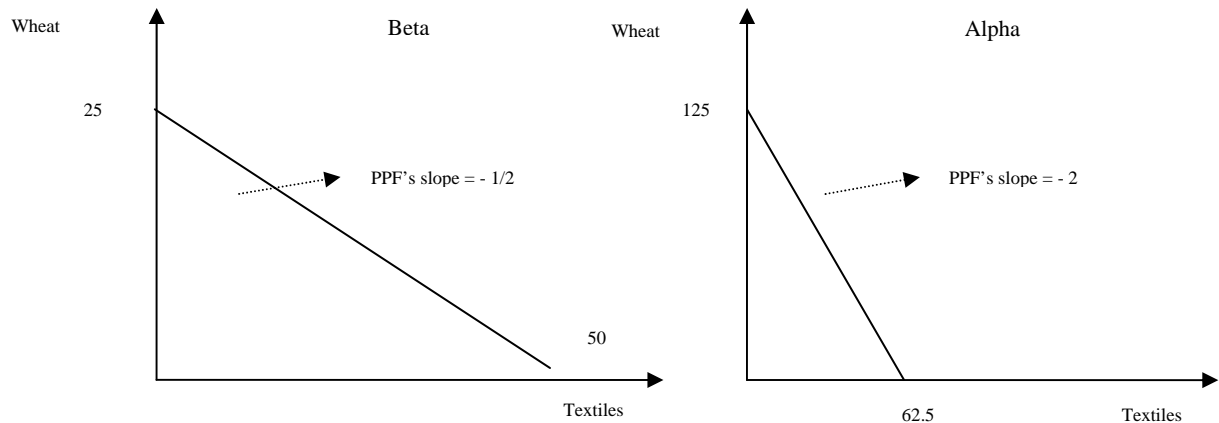
**False. However, this pattern began to change in the last decade.**

9. The environmental Kuznets curve shows that pollution levels always decrease as a country gets richer.

**False. The EKC shows that as a country goes from being very poor to middle income its pollution levels rise. As the country gets richer still, pollution begins to fall.**

**For questions 9-16 assume we have a Ricardian model of trade with two countries (Alpha, Beta) and two goods (textiles, wheat) produced with the following technology.**

	Alpha	Beta
Total Labor	250 million	100 million
Unit labor requirements		
Textiles	4	2
Wheat	2	4



*Alpha: Opportunity cost of textiles in terms of wheat = 4/2 This means that the relative price*

$$\frac{P_T^A}{P_W^A} = \frac{4}{2} = 2 \quad \text{or flipping this around} \quad \frac{P_W^A}{P_T^A} = \frac{2}{4} = \frac{1}{2}$$

*Beta: Opportunity cost of textiles in terms of wheat = 1/2. This means that the relative price*

$$\frac{P_T^B}{P_W^B} = \frac{1}{2} \quad \text{or flipping this around} \quad \frac{P_W^B}{P_T^B} = 2$$

*Alpha has comparative advantage in producing wheat and Beta has comparative advantage in producing Textiles.*

*Since there are relative productivity differences, there are gains from specialization. Countries will specialize and trade in goods in which they are relatively more productive (goods in which relative prices are low). Therefore, Alpha will produce and export wheat and Beta will produce and export textiles. The world price will be somewhere in this range.*

$$\frac{1}{2} \leq \frac{P_T^{world}}{P_W^{world}} \leq 2$$

10. In autarky, workers in Alpha's wheat sector will be paid more than workers in Alpha's textile sector.

**False. Labor market arbitrage will equalize wages across these sectors within Alpha.**

11. In moving from autarky to free trade, Alpha's wheat output should rise.

**True. Alpha has a comparative advantage in wheat production, so it will increase wheat output and export.**

12. In moving from autarky to free trade, the relative price of textiles/wheat in Beta should fall.

**False. Beta has a low relative price for textiles/wheat. Free trade should cause the price to rise.**

13. In free trade, Beta should import textiles.

**False. Beta has a comparative advantage in textiles and will export them.**

14. The wages of Beta workers relative to Alpha workers ( $W_B / W_A$ ) is highest when the free trade price of textiles relative to wheat equals 2. ( $P_t / P_w = 2$ )

**True. Again, using  $\frac{W^A}{W^B} = \frac{P_w^{world}}{P_T^{world}} \frac{a_T^B}{a_W^A} = \frac{P_w}{P_T} \frac{2}{2}$ . The highest the price ratio can get is 2, so that maximizes Beta wages.**

15. Trade allows Alpha to use resources more efficiently, which causes an expansion in Alpha's production possibilities.

**False. Trade does allow countries to use resources more efficiently, in the sense that they use all resources in the sector they are relatively good at. Production possibilities measured in terms of quantities produced are unchanged, but the value of the production and consumption it buys can change.**

16. Because Beta is the small country, free trade could cause Betan real wages to fall relative to what they were in autarky.

**False. In this model both countries gain from trade (or at least are no worse off from trade) regardless of their size or productivity levels.**

**For questions 17-28 suppose I have a specific factors model. France and Holland produce tulips and cheese. Tulips are made from labor and land. Cheese is made from labor and cows. The ratio of cows/land is higher in France than in Holland.**

Note: France is relatively abundant in cows, which means that

a. the output curve for cheese in France lies above the output curve for cheese in Holland – for the same amount of labor France produces more cheese.

- b. the MPL curve for cheese in France lies to the right of the MPL for cheese in Holland. For the same amount of labor, France has higher marginal product of labor.
- c. Draw a relative supply and demand schedule for cheese / tulips. (price of cheese/tulips on the vertical axis; quantity of cheese/tulips on the horizontal axis). The relative supply of cheese/tulips for France lies to the right of the RS for Holland.
- d. That means that France has lower autarky prices for cheese/tulips, will specialize in and export cheese.
- e. If you flip the axis (prices of tulips/ cheese against the quantities of tulips/cheese), then the RS of tulips/cheese for Holland lies to the right of the RS for France. Holland has lower autarky prices for tulips/cheese.

17. In autarky, the equilibrium price of tulips relative to cheese should be higher in France than in Holland.

True.

18. At the same relative prices (cheese/tulips), the relative quantity supplied of cheese/tulips is greater in France than in Holland.

True

19. At their autarky production points, the opportunity cost of cheese production is higher in Holland than in France.

True.

**Questions 20-24. Now let France and Holland trade with each other. In the move from autarky to free trade**

20. The price and output of cheese in France will rise.

True

21. France exports tulips and Holland exports cheese.

False.

22. French cow owners are better off under free trade than under autarky.

True. Cheese prices will rise, causing the value of the specific factor (cows) to rise.

23. Owners of cows in Holland are better off under autarky than free trade.

True. Free trade causes cheese prices to fall in Holland, causing the value of the specific factor (cows) to fall.

24. The opportunity cost of cheese production has risen in France and fallen in Holland.

True. As France produces more cheese, the opportunity costs of cheese production rise, and vice versa for Holland.

**Questions 25-27. Still in free trade, consumers world-wide get more health conscious and reduce their demand for cheese relative to tulips. As a result**

25 The world price of tulips should rise relative to the price of cheese.

True. As the demand for cheese relative to tulips falls the relative price of cheese/tulips falls.

26. Output of tulips relative to cheese should fall in France but rise in Holland.

False. Output of tulips relative to cheese should rise in both countries.

27. The value of land used to grow tulips should rise while the value of cows should fall in both countries.

True. As the price of cheese falls, the return to owning cows falls. Labor moves from dairy farming to growing tulips. This raises the marginal product of tulip growing land and raises its return.

**Questions 28 – 31. Global warming causes a rise in sea levels, floods low lying areas of Holland and destroys tulip-growing land.**

28. Wages in Holland will rise.

False. This reduction in land makes labor less productive in both sectors.

29. French exports of cheese will fall.

True. The destruction of land weakens Holland's comparative advantage in Tulips, which means there will be less trade between the two countries. If the land reductions are large enough they could actually switch the pattern of comparative advantage so that Holland could export cheese.

30. The value of French land will rise.

True. Because land is more scarce, the world price of tulips will increase, which will raise the return to French land.

31. Many pairs of wooden shoes will get wet.

True. But you get credit for saying false on the grounds that the Dutch don't wear wooden shoes anymore.

**Questions 32-38. Comparing the Ricardian and Specific Factors Models. For these questions, four responses are possible.**

**A = True only in the Ricardian model.**

**B = True only in the Specific Factors model.**

**C = True in both Ricardian and Specific Factors model.**

**D = True in neither model.**

32. A useful measure of the gains from trade is how far the consumption possibilities frontier shifts out due to trade.

**C**

33. The gains from trade are shared equally among all persons in an economy.

**A. In the SF model some factors gain, others lose.**

34. The returns to mobile factors may be unequal across two sectors within an economy.

**D. A mobile factor will arbitrage factor price differentials across sectors within the economy. An immobile factor can have unequal returns because it can't move to arbitrage the difference.**

35. The returns to mobile factors may be unequal for the same sector across two different economies in autarky.

**C. Ricardian model: absolute productivity differences give rise to wage differentials across countries. SF model: productivity or specific factor supply differences give rise to wage differentials across countries.**

36. As labor moves from one sector to the other, the marginal product of labor remains constant.

**A. In the SF model, the MPL changes because the amount of labor per unit of the specific factor changes.**

37. As a country increases production of one good, the opportunity cost of producing that good falls.

**D. In Ricardian model, the opp cost is constant. In SF, the opp cost rises.**

38. Countries specialize in producing goods that have high relative prices in autarky, because these goods guarantee the greatest returns on world markets.

**D. In both models you specialize in low relative autarky prices as arbitrageurs move the goods from low to high priced locations.**

Short Answer 1. Costa Rica is a small economy, meaning that changes in its supply or demand of capital have no effect on the world interest rate. In 1970 Costa Rica has a law banning international capital inflows or outflows. In 1980 Costa Rica relaxes that law and lets capital flow freely.

a. In 1970, can Costa Rica run a trade deficit? Explain.

**No. In order to run a trade deficit (imports exceed exports), a country must borrow capital from abroad. If CR bans international capital flows, it cannot finance the trade deficit and so must have balanced trade.**

b. In 1970, the interest rate in Costa Rica is 10%, while the world interest rate is 5%. Provide two possible reasons that the interest rate in Costa Rica is higher than the world rate.

**CR's autarky interest rate could be higher because CR's investment demand schedule is higher than the rest of the world (shifted out to the right), or because their savings supply is much lower (shifted to the left). The combination of the two result in higher autarky interest rates.**

**Reasons for Investment demand schedule: CR has higher returns on capital, due either to high productivity, very good political stability, or due to selling goods that are very valuable on world markets.**

**Reasons for saving supply schedule: If consumption prices are very low (could be due to low consumption taxes) CR will save less; also, if incomes are very low, or taxes on savings are very high.**

c. Assume there are no other changes in the Costa Rican economy other than allowing international capital flows. Between 1970 and 1980, what happens to Costa Rica's (i) quantity of domestic savings supplied ; (ii) quantity of domestic investment; (iii) balance of trade. Show these effects in a diagram.

**CR will begin to import capital at the lower interest rates, causing a move along (not a shift of)4. Savings supplied will fall. Domestic investment will rise.**

Short Answer 2 Many public figures have advocated changing our trade policies so that we would heavily tax (place tariffs) on imports from countries with lower labor or environmental standards.

(a) Suppose we are in a Ricardian world and the US is buying goods from countries like China with much lower wages and working conditions. How would a large US tariff on Chinese imports affect real wages in China, and in the US? Explain.

**For China to export a good to the US, then the price of Chinese-made goods sold in the US (including a tariff) must be less than the price of producing them in the US.**

$$p^{china} * tariff < p^{us}$$

$$w^{china} * a^{china} * tariff < w^{us} * a^{us}$$

**If the US increases tariffs, then one of two things can happen.**

- 1. China can't sell the good in the US market, in which case the workers who would have been employed in that factory will no longer be employed there. Labor demand falls.**
- 2. Chinese wages will fall far enough to offset the tariff increase.**

**Either way, Chinese workers face lower wages and are worse off.**

**There is no obvious effect on the nominal wages of US workers in the Ricardian model. However, shutting off purchases from China will raise US import prices and thereby lower the real wages of US workers. That is, the US will lose some of the consumption gains from trade.**

(b) The US imposes much stricter rules than China regarding the toxic chemicals that factories can dump into the local water supply. How would a large US tariff on Chinese imports affect water quality in the US and in China? Explain.

**Suppose that production costs are very similar for the US and China, except for large cost differences caused by the environmental rules. Then China will tend to export dirty goods to the US; output of those goods will rise in China and fall in the US, and water quality will rise in the US and fall in China.**

**Imposing a tariff will unravel these effects. A large enough tariff would prevent the Chinese from making use of their differences in environmental standards (as in the example above, just make the productivity coefficient "a" a function of environmental standards – high standards leads to a big "a"). Dirty goods output (and water pollution) rises in the US and falls in China.**

**(Might want to note here that historically that the US has had a comparative advantage in dirty industries and compliance costs were small, so the US wasn't importing dirty industries...but that is changing.)**