

Final examination (3 hours)**Scores add up to 100.**Your name: _____ SID: _____ Your
TA: _____**Answer 9 of the questions 1 to 11 (4 points each). Do not answer more than 9 questions. Only 9 will be read.****True/False. Give a concise but precise explanation (4 points each)**

1. (4) Suppose that California can be described as a small, free trade Heckscher-Ohlin economy that cannot affect world prices. There are two goods, wine and chips, that are both produced; the factors of production are labor and land. Then, migration of labor from Mexico will reduce the wage in California.
2. (8) If a small country wants to reduce imports to protect the import-competing sector, it is better off with a voluntary export restraint by the foreign country rather than a tariff on the import good. Its net welfare loss will be less under the voluntary export restraint than under the tariff.
3. (9) Suppose that the U.S., an importer of tomatoes, could import tomatoes from Chile at a price of \$1.50 or from Mexico for \$1. Then the U.S. may be worse off with NAFTA, a free trade area with Mexico, because of trade diversion.

Short answer questions

4. (2) What determines the pattern of trade in the Ricardian model?
5. (6) Why does the clustering of firms in certain regions such as Silicon Valley induce the development of comparative advantage in a particular industry?
6. (7) What is the relative price of future consumption to present consumption? Give a concise and precise explanation.
- 7 (8) Define effective rate of protection. How it differs from the rate of protection measured by a tariff rate.
8. (9) What is the optimum tariff argument in favor of protectionism?

When a large country introduces a tariff on its import, it lowers the international price of its imports, and thus generates a terms of trade benefit. This benefit must be set against the efficiency loss which arise because the tariff distorts production and consumption incentives. For a large country, one can show that the net benefit of a tariff first increases and then decreases as the tariff rate increases. Hence, there is an optimum level of tariff.

9. (9) What is the difference between a free trade area and a customs union?
10. (9) According to the New York Times article, why was the European ban of hormone treated beef from the United States declared illegal by the W.T.O. panel of experts?
11. (10) Give an example of market failure for which tariff protection could improve efficiency. What would be the first best policy in your example?

Answer the short answer questions 12 to 14 (4 points each).

12. (2) With one hour of labor, country A can produce 4 apples or 3 bananas and country B can produce either 1 apple or 1 banana. If the 2 countries trade, what is the range of the wage in country B relative to country A that ensure that trade is beneficial?

13. (3-4) The effect of free trade on the factors of production is different for the specific factors model and the Heckscher-Ohlin model. The following table summarizes the position of capital and labor employed in the same industry for 21 industries.

Position taken by capital and labor (21 industries in 1973)

<u>Position of capital</u>	<u>Position of labor</u>	
	Protectionist	Free-Trade
Protectionist	14	1
Free-Trade	1	5

Source: Leamer and Levinsohn in the Handbook of International Economics, Vol III. I

Argue whether this supports the specific factors model or the Heckscher-Ohlin model by comparing the predictions of these two models concerning the effect of free trade on income distribution.

14. (11) General Motors and Daimler-Benz consider producing environmental friendly fuel engines. Suppose that the pay-offs are:

<u>GM</u>	<u>Daimler-Benz</u>			
	produce		don't produce	
produce	100,	-50	1000,	0
don't produce		0,	850	0, 0

The European Union wants to secure this high-tech industry and gives a subsidy of 75 to Daimler-Benz. Would this strategic trade policy change the pattern of production? Would it benefit the European Union?

Answer the 3 of the following graphical questions 15 to 18 (4 points each)

Do not answer 4. Only 3 will be read.

15. (5) Suppose there is free trade between advanced and developing countries. Advanced countries have a comparative advantage in manufactures, developing countries in food. Adaptation of technology leads to a productivity increase in the food sector in developing countries. Show graphically the effect on the offer curve and terms of trade of developing countries. Will developing countries be better off?

16. (7) Suppose there are two countries, Germany and Italy. There are two factors of production, capital and labor, and there is one good. Initially, the real wage is higher in Germany. Establishment of the European Union gives not only free trade but also free mobility of labor between Germany and Italy. Show graphically the effect on wages and the return to capital in both countries. Give an intuitive explanation.

17. (8) Show graphically the effect of an export tax on the U.S., a large country, using partial equilibrium analysis. Could the U.S. gain from the export tax? Explain intuitively why.

18. (8) Evaluating the effect of PL480 wheat imports in Brazil

The P.L. 480 program is a food aid program under which the U.S. sells basic grains at concessional prices to some developing countries. In the early 1980s, Brazil was a major beneficiary of this program, as total imports of wheat averaged two and a half times domestic production. The institutional arrangement under which Brazil imported wheat and the extensive government intervention in Brazil's grain sector give an interesting case of the use of concessional food imports for agricultural development purposes.

What the Brazilian government did was: 1) to put a tariff on the PL480 wheat imports, and 2) to use this tariff revenue to offer a support price (a support price is like a minimum price paid to domestic producers) to domestic producers above the consumer price.

Draw a graph that represents this double intervention of the government. Note that the whole tariff revenue is used to subsidize producers and that imports are much larger than domestic production; this should tell you where the support price for producers lies relative to the consumer price. Show the efficiency and welfare effects of this policy by indicating corresponding areas on your graph.

Why would Brazil engage in this type of policy and what are the conditions for success?

Solve problems 19 and 20 (13 points each)

19. (6) Internal economies of scale and trade

This problem analyzes the effects of trade on consumers and producers in the American and European automobile industries. In the early and middle parts of the twentieth century, the United States faced very little domestic competition from foreign automobile producers. Suppose the fixed costs for a firm in the automobile industry (start-up costs of factories, capital equipment, etc.) are \$5 billion and variable costs are equal to \$8,000 per finished automobile that rolls off the assembly line. Because more firms increase competition in the market, the dynamics of the industry are such that the market price falls as more firms enter an automobile market or specifically that $P = 8000 + 50,000 / 156.25n$, where n represents the number of firms in a market.

Assume that the initial size of the U.S. automobile market, S , is equal to the population of 250 million people, and that the size of the European Union market is equal to its population of 391 million people. The share of production and sales for each firm is $s = S/n$, and in equilibrium the average cost of each firm is equal to the market price

- 19.1. Calculate the equilibrium number of firms in the American and European automobile industries without trade.
- 19.2. What is the equilibrium price of automobiles in the US, if the automobile industry is not exposed to foreign trade?
- 19.3. Now suppose that the United States decides to freely trade with Europe. The trade agreement with the Europeans adds 391 million consumers to the automobile market in addition to the 250 million in the United States. How many automobile firms will there be in the integrated market of United States and Europe combined? What will be the new equilibrium price of automobiles?
- 19.4. Why are prices in the US different in question 19.3 than in question 19.2? Are consumers better off with free trade? In what ways?

20. (8) Welfare effects of the sugar quota in United States

The supply S and demand D for sugar in United States are:

$$S = 3500 + 6.2 p$$

$$D = 10500 - 3.8 p$$

where p is the price of sugar in \$/ton, and S and D are in thousand tons. The world price is 300\$/ton. Assume that the U.S. is a small country in the sugar market.

- 20.1. If there was free trade, how much sugar would the United States import from the rest of the world?
- 20.2. The United States however puts a quota limiting imports of sugar to 2000 thousand tons. What is the domestic price that prevail under this quota. What ad-valorem tariff would have led to the same level of 2000 thousand tons of imports.
- 20.3 Draw a graph showing the sugar market in the U.S.. Assume that the import licenses are freely distributed to the importers. How much have consumer surplus and producer surplus changed compared to the free trade case? What is the net gain/cost to government? What is the net social gain/loss of this intervention?
- 20.4 Knowing that there are about 12,000 workers in the sugar industry, what is the gain per worker for the sugar industry? With 275 million customers in the U.S., what is the cost of the policy per customer? Explain very briefly the political economy of this policy, that is why it is implemented despite its inefficiency.

Answer question 21 (14 points):

21. (4) The responsibility of trade in the widening of the pay differentials between skilled and unskilled workers in United States

The explosion of international trade between the United States and the developing countries has raised concerns in the developed countries. The developing countries are abundant in low skilled labor while the United States is

abundant in capital and high skilled labor. Some people claim that competition from cheap third-world labor will force wages in the United States to decline. Use the Heckscher-Ohlin model, with two factors of production low and high skilled labor, to provide more specific arguments to that debate as follows:

Briefly justify all your responses

21.1. What does the theory predict about the effect of eliminating trade barriers on the price of the goods intensive in unskilled labor relative to the goods using mostly skilled labour in the U.S.?

21.2. What does the theory predict about the effect on the real wage for unskilled and skilled workers in the U.S.? What about the ratio of the unskilled wage to the skilled wage?

21.3. How would trade affect the ratio of skilled to unskilled labor used in each sector in the United States?

21.4. Here are two facts for the United States:

- a. The price of unskilled labour-intensive manufactured goods has increased relative to the price of skilled-labour manufacturing goods during the 1980s.
- b. Across all manufacturing sectors, the ratio of skilled to unskilled workers has risen.

Are those facts consistent with the predictions of the Heckscher-Ohlin model? What could be the reason for increased wage inequality in the U.S.?