Economics 433: Advanced International Trade

Final Exam

December 12, 2005

Please print name _____

This exam has two parts. **Please answer all questions in part I and <u>any 5 of the 6</u> questions in Part II**. If you attempt all six questions in part II, be sure to cross out the question you do not want to have graded. Otherwise, the first 5 questions will be graded. (There is no extra credit for doing all 6 questions.)

Each part will be weighted in proportion to its allotted time. Be sure to read the questions carefully, and provide concise explanations when they are solicited.

Part I: Multiple Choice (45 minutes)

1. Which of the following statements best summarizes recent trends in international trade and foreign direct investment (FDI)?
   a. Economies are becoming increasingly self-reliant, and so both trade and FDI have been falling.
   b. Increasingly, firms have been supplying their foreign buyers by building production facilities in these buyers' countries, so falling trade flows have been offset by rising FDI flows.
   c. Both trade and FDI have been growing more rapidly than global production, but FDI has outstripped trade.
   d. Both trade and FDI have been growing more rapidly than global production, but trade has outstripped FDI.

2. Suppose two countries begin trading with each other, and one of the goods they trade is subject to increasing internal returns to scale at the industry level. Which of the following statements is correct?
   a. These countries will gain from the trade *only* if they differ in their factor endowments.
   b. At least one of these countries must lose from trade.
   c. Both countries will gain from trade so long as they both continue to produce the good subject to increasing returns.
   d. Production of the good subject to increasing returns will tend to be concentrated in one country.

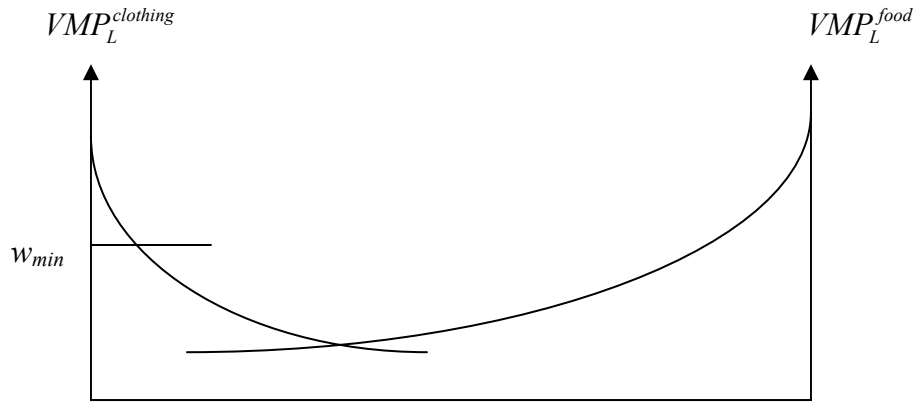
3. Suppose two countries produce and consume X and Y. If these countries go from autarky to free trade with one another, and the *ratio* of X consumption to Y consumption in each country is unaffected, the gains from trade must be coming from:
   a. gains from specialization.
   b. improvements in output per worker.
   c. increasing returns to scale.
   d. gains from exchange.

4. When a country's terms of trade improve:
   a. the global price of its exported good rises relative to the global price of its imported good.
   b. the terms of trade for its trading partners must have improved as well.
   c. it is usually a result of a global increase the supply of its abundant factor.
   d. it may suffer from immizerizing growth.

5. Evidence on the factor content of trade flows suggests that:
   a. countries typically export the factors in which they are poorly endowed.
   b. there is far less implicit trade in factors than the Factor Content Theorem predicts.
   c. globally, the factor content of exports exceeds the factor content of imports.
   d. countries generally their abundant factor.

6. Suppose a small country produces and trades two goods—food and clothing—using labor and capital. Food is relatively labor-intensive and, under autarky, the domestic price of food (relative to clothing) is lower than the global price of food (relative to clothing). If this country goes from autarky to free trade:
   a. food production will increase and clothing production will decrease.
   b. production of both goods will increase.
   c. wages will fall relative to return on capital.
   d. it will begin exporting clothing.

Questions 7 and 8 below refer to the following diagram. It depicts an economy that produces clothing and food. Capital and labor are used for clothing production, while land and labor are used for food production. Labor is mobile across sectors, but capital and land are only useful in the production of clothes and food, respectively. Both goods are freely traded.

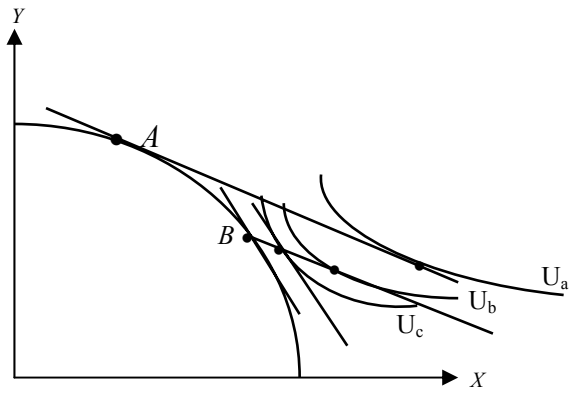


7. Ignore w_{min} for this question and assume that wages move freely to clear the labor market. If the country acquires more capital,
   a. the return on capital will go up relative to the prices of both food and clothing.
   b. the return on land will go up relative to the prices of both food and clothing
   c. the wage rate will go up relative to the prices of both food and clothing
   d. the wage rate will fall relative to the prices of both food and clothing

8. Now assume there is no change in the capital stock, but the Workers' Rights Consortium manages to impose a minimum wage (w_{min}) in the clothing industry, where production is dominated by multinationals. The probable effect is to:
   a. raise wages in both industries.
   b. raise wages in the clothing industry and leave wages in the food industry unaffected.
   c. leave wages in both industries unaffected.
   d. raises wages in the clothing industry, but reduce wages in the food industry.

9. The Multi-fiber Arrangement was:
   a. a program initiated by the World Trade Organization to stabilize global trade in textiles and apparel.
   b. a set of bilateral agreements that limited textile and apparel exports by developing countries to developed countries like the United States.
   c. implemented in January, 2005.
   d. a global accord that mandates more roughage in peoples' diets.

10. If the German company Krup were to sell its coffee makers to U.S. consumers at prices below those it charged to German consumers, and if U.S. producers of coffee makers were to seek tariffs on imported Krup coffee makers, what provision of U.S. law would they probably appeal to?
   a. Section 201 (safeguards).
   b. Anti-dumping laws.
   c. Section 301 (unreasonable practices).
   d. Roe vs. Wade.



11. The diagram above depicts the general equilibrium effects of a tariff on X imports. Which of the following statements concerning this diagram is *incorrect*?
   a. It shows that the welfare loss $U_b - U_c$ could have been avoided if a production tax had been used instead of a tariff to move the output mix from A to B.
   b. It shows that welfare falls from U_a to U_b when the country moves from free trade to the tariff .
   c. It shows that the domestic relative price of good X rises when the tariff is imposed.
   d. It shows that consumers respond to the tariff by reducing their consumption of X relative to their consumption of Y.

12. Which of the following is most likely to characterize an industry that makes *horizontal* multinational investments abroad?
    a. It produces standardized products using well-known technologies.
    b. Its production processes exhibit strong returns to scale at the plant level.
    c. Its products involve significant research and development.
    d. It faces negligible transport costs and policy-induced trade barriers when shipping its product to foreign markets.

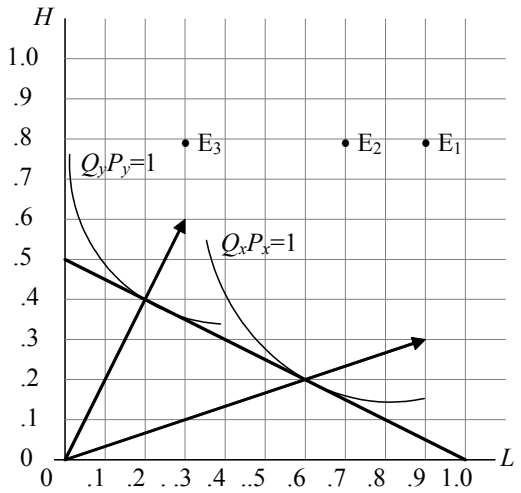
13. Which of the following statements concerning the WTO is *incorrect*?
    a. Unlike the GATT, the WTO deals with labor standards.
    b. The WTO is better able to enforce trade agreements than the GATT.
    c. The WTO deals with trade-related aspects of intellectual property rights.
    d. Like the GATT, the WTO incorporates the "most-favored nation" principle.

14. According Sachs and Warner (1995), countries with relatively low trade barriers (i.e., "open" economies):
    a. have grown more slowly than "closed" economies.
    b. have tended to have other macro problems.
    c. are located in Africa.
    d. have grown more rapidly than "closed" economies.

15. According to the model of strategic trade policy developed in class, the predicted effect of a production subsidy for Airbus is:
    a. an increase in production by both Airbus and Boeing.
    b. an increase in production by Airbus, and a reduction in production by Boeing.
    c. an increase in profits for both Airbus and Boeing.
    d. an increase in the global price of wide-body aircraft.

Part II: (65 minutes) Answer <u>any 5 of the following 6</u> questions. If you attempt more than 5 questions, cross out the question that you do not wish to have graded. (You will receive no extra credit for doing all 6 questions.)

1) The Lerner diagram below shows unit-value isoquants for the two traded goods—X and Y—that are produced in the small open economy of Zanadu. Each good is produced with human capital (H) and unskilled labor (L), and the isoquants are based on prices that are assumed to prevail throughout a world of many countries with free trade.



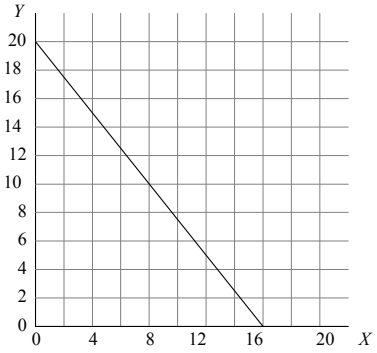
a) What is the unskilled wage rate in this equilibrium? w_L = ____ The skilled wage rate? w_H = _____.

b) Suppose Zanadu becomes more efficient in the production of one of its goods, while world prices remain fixed. In *which* good would it have to improve productivity in order for the skill premium, w_H / w_L, to fall? (X, Y) _____. Demonstrate this type of productivity gain in the graph above, choosing a large enough gain to drive the unskilled wage to \$1.25. Is the skilled wage affected at all? (yes, no)_____ . If so, in which direction? (up, down) _____.

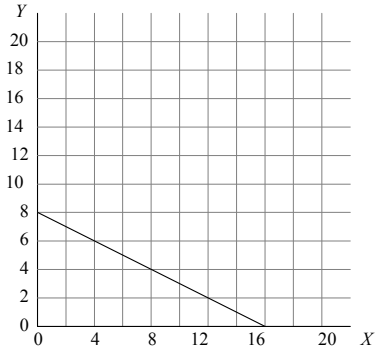
c) Now revert to the initial situation, before productivity gains, as depicted in the original graph. Suppose that a portion of the unskilled labor force in Zanadu decides to migrate to a country with a better name, shifting the endowment point from E_1 to E_2. How do factor prices and quantities produced adjust? Write "*goes up*," "*goes down*," "*unchanged*," or "*ambiguous*" in each cell of the first column in the table below. Now repeat the exercise for the second blank column, assuming that the endowment point moves all the way from E_1 to E_3.

	Zanadu's endowment moves from E_1 to E_2.	Zanadu's endowment moves from E_1 to E_3.
w_L		
w_H		
Q_X produced		
Q_Y produced		

2) Below are the production possibility frontiers for two Ricardian economies—home and foreign. They are the only countries in the world, and goods X and Y are the only goods. The home country has $L = 4$ workers, and the foreign country has $L^* = 2$ workers.



Home



Foreign

a) Fill in the table below indicating output per worker (h) for each good in each country. Note that asterisks denote the foreign country.

Output per worker

	X	Y
Home	$h_X =$	$h_Y =$
Foreign	$h_X^* =$	$h_Y^* =$

b) Which country, if either, has a comparative advantage in the production of good X? _____. Briefly defend your answer.

c) Assume that the home and foreign country trade freely with one another. Without any information on consumer preferences, what can you say about the *minimum* relative price of X and the maximum relative price of X that will prevail in world markets? $\left(P_X^w / P_Y^w\right)_{\min}$ = _____; $\left(P_X^w / P_Y^w\right)_{\max}$ _____.

d) Suppose neither country's labor supply changes over time, but labor productivity grows in each country according to the following learning-by-doing formulae:

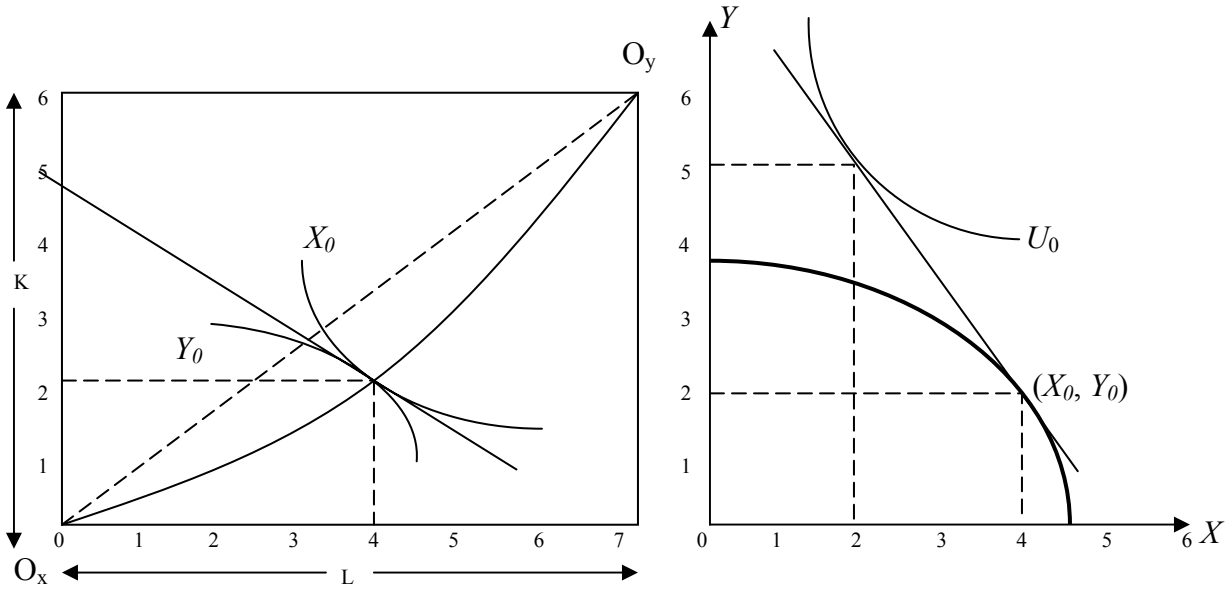
$$\frac{\Delta h_X}{h_X} = 0.04 \cdot s_X, \quad \frac{\Delta h_X^*}{h_X^*} = 0.04 \cdot s_X^*, \quad \frac{\Delta h_Y}{h_Y} = 0.01 \cdot s_Y, \quad \frac{\Delta h_Y^*}{h_Y^*} = 0.01 \cdot s_Y^*;$$

where s's denote the shares of labor devoted to each type of production:

$$s_X = \frac{L_X}{L}, \quad s_X^* = \frac{L_X^*}{L^*}, \quad s_Y = \frac{L_Y}{L}, \quad s_Y^* = \frac{L_Y^*}{L^*}.$$

Continue to assume that the two countries trade freely with one another, and further assume that the resulting relative price P_X^w / P_Y^w falls strictly between the two bounds you identified in part c above. How fast will labor productivity grow in each country? Home: $\frac{\Delta h_X}{h_X} \cdot s_X + \frac{\Delta h_Y}{h_Y} \cdot s_Y =$ _____; foreign: $\frac{\Delta h_X^*}{h_X^*} \cdot s_X^* + \frac{\Delta h_Y^*}{h_Y^*} \cdot s_Y^* =$ _____. If these countries were to shut down all trade but continue to consume both goods, how would their growth rates change? Home growth rate (increase, decrease, remain constant) _____. Foreign growth rate (increase, decrease, remain constant): _____

3) The figures below represents the allocation of capital and labor on the left, and output and consumption on the right, for an initial equilibrium of a small, open economy.



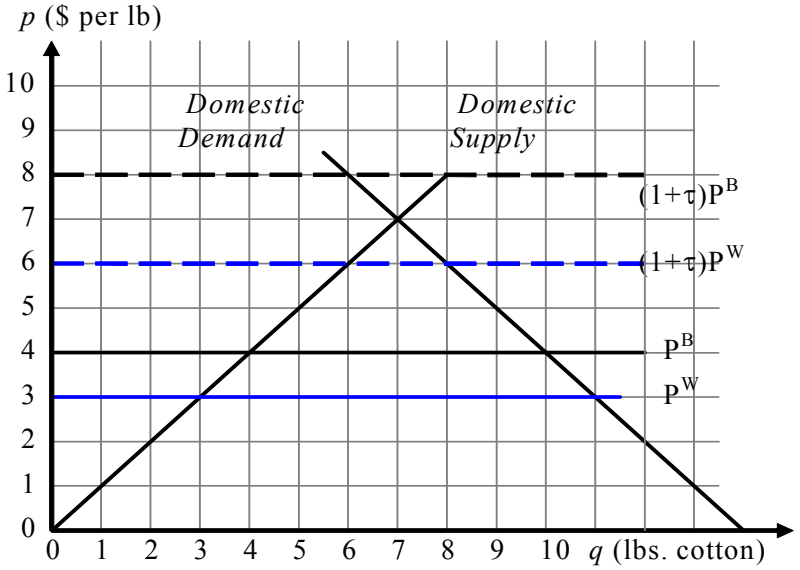
a) In this equilibrium, what good does the country export and good what does it import? Export: ____ Import: _____. What *quantity* does it export? ____ What quantity does it import? _____ What is the relative price of X in world markets? P_X / P_Y _____

b) How much labor does it allocate to the production of good X? _____ How much capital? _____ Which good is more capital intensive? _____

c) Assuming that this country and its trading partners satisfy the assumptions of the Hecksher-Ohlin model, and that factor price equalization occurs, is this country a net exporter of capital or of labor? _____

d) What is the ratio of wages to rental costs of capital in this equilibrium? $w/r =$ _____

4) Country *A* produces cotton domestically. It can also purchase cotton from country *B* at $4 per pound, and from the rest of the world at $3 per pound. Country *A* subjects its cotton imports to a 100 percent tariff ($\tau = 1.00$), so consumers within *A* face a price of $8.00 per pound for imports from *B*, and $6 per pound for imports from the rest of the world. Country *A*'s domestic cotton market is depicted below.

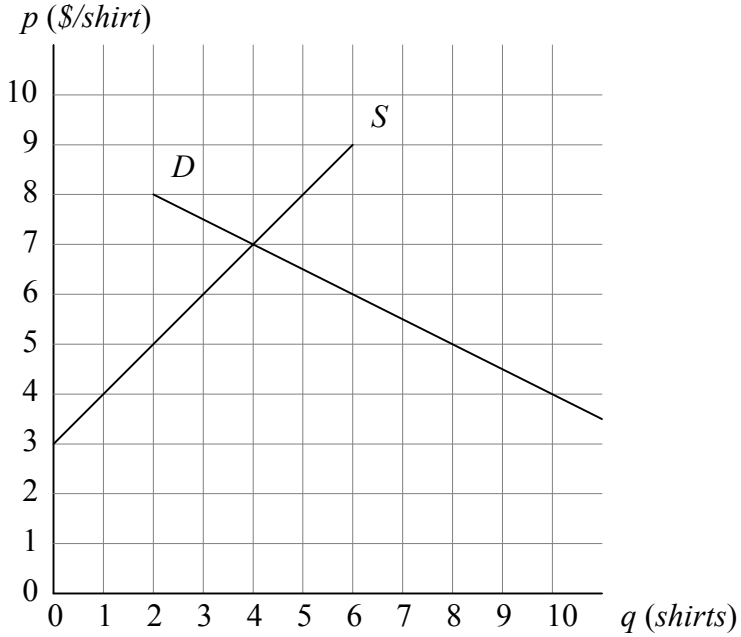


a) Given the conditions described above, how many pounds of cotton is country *A* producing? ____ How many pounds is it importing? _____ How much tariff revenue is it collecting? _____.

b) If country *A* and country *B* form a free trade area, how much will consumer welfare change? _____ How much will producer welfare change? _____ How much will tariff revenue change? _____ What is the net total welfare effect of the free trade area? _____. If the initial tariff rate had been lower, how would the net welfare effect have been different? (would have been larger, would have been smaller, would have been the same, can't say without more information) _____

c) In country *A*, how much trade creation would result from the formation of a free trade area between *A* and *B*? (Express your answer in pounds of cotton) _____. How much trade diversion would result? _____.

5) Domestic supply and demand for men's T-shirts are depicted below. The market is competitive, and the country is small. Suppose that the world price of a T-shirt is $4, but trade is not free because the government has imposed a quota limiting shirt imports to 3.



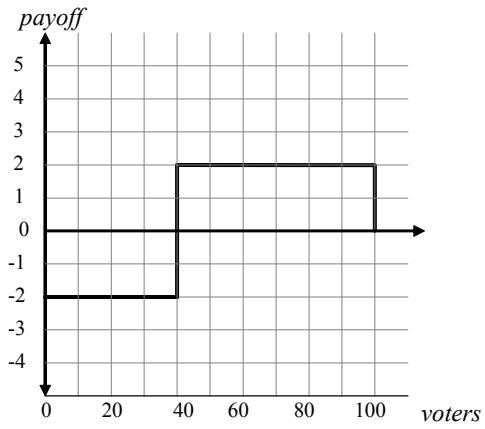
a. For this country, what is the autarky price of shirts? ____ The free trade price? _____ The price with trade subject to the import quota? _____

b. Relative to free trade, what are the welfare effects of the quota? Calculate the changes in surplus for consumers _____ , domestic T-shirt producers _____, and holders of import licenses _____ . (Assume that license holders paid nothing for their licenses.) Are there deadweight losses (yes, no) _____; if so, how much? _____

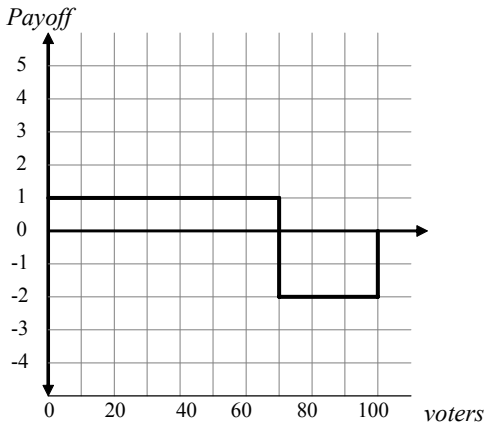
c. Suppose this country wants to replace its quota with a tariff, but it does not want to change the volume of imports coming into the country. What *ad valorem* tariff rate should it choose? _____ How much tariff revenue will this tariff generate? _____. If it had stuck with the quota, but auctioned off import licenses to the highest bidder, how much revenue would the auction have generated for the government? _____

d. Now suppose that domestic apparel workers begin to call random strikes, while foreign apparel workers remain reliable. If the domestic government wishes to minimize the volatility in domestic T-shirt prices while maintaining some protection, will it be better off with a tariff or with a quota? _____ Briefly explain.

6) The two diagrams below represent payoffs to voters from alternative policies. There are 100 voters. The first graph ranks voters from those who lose the most to those who gain the most, and the second graph ranks voters from those who gain the most to those who lose the most. Pay-offs in dollars are graphed on the vertical axis in each diagram.



Policy 1



Policy 2

a. Before policy 1 is enacted, it is not entirely clear which voters will be the winners and which voters will be the losers, once the policy is enacted. Suppose it is clear that a particular set of 40 voters will be winners (i.e., they will gain $2 each), and a particular set of10 voters will be losers (i.e., they will lose $2 each). The remaining 50 voters don't know which group they will fall into. Rather, they believe they will be randomly allocated across the 50 slots that are not clearly assigned to particular voters. Among those who don't know which group they will fall into, what is the expected loss or gain per voter? (Use negative signs to indicate losses.) _____ . If each voter who expects to lose from policy 1 votes against it, how many negative votes will there be? _____ What is the net welfare effect of the policy? (Use negative signs to indicate losses.) _____. If all voters had known in advance whether they would be winners or losers under policy 1, would the policy have won majority support? (yes, no) _____.

b. Suppose that it is clear who the winners and losers from policy 2 will be if it is enacted. However, also suppose that voters must gain or lose more than $1.50 in order to be motivated to vote on this policy. What will the bill's net welfare effect be for *all* voters combined? _____ Will this bill enjoy popular support? (yes, no) _____ .

c. Finally, imagine that there is no uncertainty about who the winners and losers are for each of the policies diagrammed above. Further, suppose that voters appear in the same order in both graphs. (For example, if Mr. Caucus is the 80th voter in graph 1, he is also the 80th voter in graph 2, so he gains $2 from policy 1 and loses $2 from policy 2.) Finally, suppose both policies are bundled together, and only those voters who stand to gain or lose something vote on this combined bill. What is the net welfare effect of the combined bill? _____ Will it pass? _____ Briefly explain why or why not.