Economics 39F: Midterm

Please be concise and to the point. Print your name on your exam and turn it in with your blue books. You have 65 minutes. The exam has 50 points. Answer Part I and either question 1 or 2 from Part II. Good luck!

Part I. (30 points) You have just accepted a position as an intern at the Congressional Budget Office and your new boss is eager to get you working on things that she anticipates will come up soon after you arrive in Washington to start your job. She just read a story that the New York Times ran on October 5 with the headline “United States Trade Deficit Shrinks in August as Exports Rise.” As the article noted:

“...The trade deficit is closely watched and routinely cited by President Trump, who often points to the gap as evidence that global trade is not benefiting the United States in the way that it should. He has promised that his America-first trade policy will help to shrink the trade deficit, consistently citing bilateral deficits that form between two countries as a sign that the United States is losing when it comes to global trade. And he has typically blamed trade agreements and negotiators who failed to hammer out the best terms for American exporters.”

Your boss emails you the following question, which I have pasted in below (and which you should answer!):

As economists, we often explain to Congress that the US multilateral trade deficit reflects savings and investment decisions in the United States that have little to do with trade policy and trade agreements; and we claim that bilateral trade deficits are economically irrelevant and should not be the focus of policy, trade or otherwise. Can you check this second claim for me, by using a 3-country version of the Basic Trade Model?

More specifically, here is what I would like you to do. Suppose that initially the US is importing good y from Brazil and Italy and exporting good x to Brazil and Italy under conditions of free trade (Brazil and Italy do not trade with each other in the 2-good 3-country version of the Basic Trade Model). And suppose as well that US multilateral trade is balanced, and that initially this multilateral balance is achieved with bilaterally balanced trade between the US and Brazil and bilaterally balanced trade between the US and Italy. Finally, suppose that Italy consumes goods x and y in fixed and equal proportions (Leontief indifference curves with vertices along a line from the origin with slope 1) while Brazil consumes goods x and y in a fixed proportion of 2 y for every 1 x (Leontief indifference curves with vertices along a line from the origin with slope 2).

Using the above specifications for the Basic Trade Model, first depict the initial trading equilibrium for the three countries. Then consider the following change to the initial situation you have depicted: suppose that the US begins running a bilateral trade deficit with Italy and a bilateral trade surplus with Brazil of the same magnitude, so that the US multilateral trade balance -- which is the sum of its bilateral deficit with Italy and its bilateral surplus with Brazil -- is still zero (we don’t need to say how this happens, let’s just assume that it somehow happens). Is it true that this change would be economically irrelevant to the United States? Please advise.
Part II. Answer either question 1 or question 2 below.

1. (20 points) In the slides from the first day of class, we discussed James Meade and the Haberler Report that was written for the GATT. The portion of the Report quoted in the slides describes the impacts on other countries created when one country imposes an import tariff (described for illustrative purposes in the particular context of imports of an agricultural product), and says in part the following:

“…In general, if one considers any particular agricultural product, a protective stimulus to its production in any one country by increasing supplies relatively to the demand for that product will tend to depress the world market for that product. This will damage the interests of other countries which are exporters of the product on the world market. But it will be to the national interest of countries which import the product from world markets.”

Using a 3-country version of the Basic Trade Model, with country A importing good y from countries B and C and exporting good x to countries B and C (countries B and C do not trade with each other in the 2-good 3-country version of the Basic Trade Model), confirm that, beginning from the free trade equilibrium of this model, if country B imposes an import tariff on its imports of x, this will “damage the interests” of the country that exports good x (country A) but it will “be to the national interest” of the other country that also imports good x (country C). [In answering this question, you may assume that the tariff revenue generated from B’s tariff is redistributed to B’s consumers].

2. (20 points) Suppose we observe two countries that are trading with the world at the same international prices, have the same levels of GNP measured at those prices, and have the same volume of imports of the same good at those prices. But suppose we have also been told that country 1 has a very inelastic demand for imports while country 2 has a very elastic demand for imports. Using the 2-good Basic Trade Model as your guide, explain which of these two countries is likely to be enjoying the largest gains from trade.
Sketch of Answers
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Part 2: We are told to use a 3-country version of the 2-good Basic Trade Model to depict an initial situation in which the US imports good y from Brazil and Italy and exports good x to Brazil and Italy under conditions of free trade, with US multilateral trade balanced where this multilateral balance is achieved with bilaterally balanced trade between the US and Brazil and between the US and Italy.

We are also told that Italy consumes x and y in fixed and equal proportions (1y for every 1x) while Brazil consumes x and y in fixed proportions of 2y for every 1x.

The 4 figures on the next page depict the initial situation as described above.
Next we are asked to consider the impact on US welfare of the following change:

- The US begins running a bilateral trade deficit with Italy and a bilateral trade surplus with Brazil of the same magnitude, so that the US multilateral trade balance remains at zero.

According to this change, the US continues to neither be a net lender or borrower from the rest of the world (its multilateral trade balance continues to be zero), but Italy begins lending to the rest of the world (Italy now runs a trade surplus) and Brazil begins borrowing from the rest of the world (Brazil now runs a trade deficit).

Put differently, Brazil begins borrowing from Italy with the US playing the "middle man."

The 4 figures on the next page depict the impact of this on US welfare.
As depicted in the figures on the previous page, Brazil's trade deficit and Italy's trade surplus amount to a transfer of income from Italy to Brazil at the initial trading prices $p^T$ which leads to the transfer triangles depicted in the Brazil and Italy figures.

Given the preferences for Brazil and Italy specified in the problem, Italy will reduce its consumption of $X$ by more than Brazil will increase its consumption of $X$, implying a fall in world demand for $X$ at the initial prices $p^T$ and an inward shift of the world import demand curve $M_x = M_x(p^T)$.

As the US multilateral trade balance remains at zero, the US export supply curve of $X$ does not shift.

Hence, the world price of $X$ must drop $p^T > p^T$ as shown, and the US, being an exporter of $X$, is hurt.

So, it is not literally true that bilateral trade
imbalance are economically irrelevant to US welfare.

That said, it seems unlikely that the Trump Administration's fixation on bilateral trade imbalances has much to do with these "transfer problem" issues.

Part II

1. We are told to use a 3-country version of the 2-good Basic Trade Model, with Country A importing good Y from Countries B and C and exporting good X to Countries B and C. To confirm the claim by James Meade and the Haberler report discussed in the slides from the first day of class. This claim is that beginning from free trade, if Country B imposes an import tariff, then Country A will be hurt but Country C will be helped.

The 4 figures on the next page depict the initial free-trade equilibrium.
From the initial free trade equilibrium shown on the previous page, we are asked to confirm that A would be hurt and C would be helped if B imposes a tariff on its exports of X. And we are told that the tariff revenue is redistributed to B's consumers.

As the 4 figures on the next page show, at the existing world price $P^0$, B's tariff shifts in the world import demand curve for X. That is, at the existing world price $P^0$, we have

$$M^a_C = M^a_B < M^a_A + M^a_C.$$  

And A's export supply of X is unchanged by B's tariff at the existing world price $P^0$, hence B's export supply curve of X does not shift.

As depicted, the upshot of B's tariff is then a lower world price $P^1 < P^0$, which hurts country A but helps country B, as depicted in the figures.
2) We are told that Country 1 and Country 2 are trading with the world at the same international prices, that they have the same levels of GDP measured at those prices, and that they have the same volume of imports of the same good at those prices.

We are also told that Country 1 has a very inelastic demand for imports while Country 2 has a very elastic demand for imports.

Finally, we are told to explain which of these two countries is likely to be enjoying the largest gains from trade, using the 2-good Basic Trade Model as our guide.

Given that countries 1 and 2 import the same volume of, say, good X, and given that country 1 has a very inelastic import demand while country 2 has a very elastic import demand, the price change from autarky (where by definition import volume is zero) to the trading environment must have been relatively large for Country 1 to induce the
Import volume $M_1$, while it must have been relatively small for County 2 to induce the same import volume $M_2 = M_1$. But we know that the gains from trade grow as the price change from autarky to the trading environment grows bigger. So we can conclude that it is likely that County 1 is enjoying larger gains from trade than County 2.

The 2 figures on the next page illustrate this, with autarky prices and indifference curves drawn with dashes to indicate that we are inferring their position in each figure from the information we are given about each country.

Also depicted in the figures is a Compensating Variation measured in units of X at trading prices, $\frac{CV_1}{p_x}$ for County 1 and $\frac{CV_2}{p_x}$ for County 2. In the County 1 figure, notice that I have drawn this with $\frac{CV_1}{p_x} = M_1$, which we showed implies $\varepsilon = -1$. For the County 2 figure, $\frac{CV_2}{p_x} < M_2$, implying $\varepsilon < -1$. 