Econ 3600 International Trade
Quiz 1 September 12 2018
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Part I: 40 points total. True/false. Mark each answer with a clear "T" of "F." Each part is worth one (1) point. Make sure you write distinctively enough that there is no ambiguity about what is a "T" or an "F". Within each sub-group of questions arising from one stem, i.e., a, b, c, and d for any question-stem such as (1), or (2) , and so on, there may be multiple "true" (or false) answers that are correct.

1. Economists' basic model of human behavior

a. ___T__ assumes that people rationally pursue their own interests.

b. ____T_ predicts that the higher prices for such things as generators and chain saws that are observed in the aftermath of hurricanes will draw supplies of these goods from surrounding areas.

c. __T___ assumes that people exchange one thing for another.

d. __F___ is too crude too permit reliable *qualitative* inferences about people's behavior.

2. An important characteristic of economists that helps one understand their different perspective on international issues is

a. __T___ their use of formal models.

b. ___F__ their belief and understanding that knowledge is a social construct, and that all explanantions of international economic events reflect the political perspective of the existing power structure.

c. __T___ their understanding of the role of the price system in allocating resources in a commercial society.

d. __T___ their use of a few key, overarching ideas that run through almost all of their models.

3. The neoclassical perspective

a. __F___ is no longer adhered to by the mainstream of the economics profession.

b. ___T__ assumes the bulk of economic analysis can be dichotomized into a so-called "real" part and a so-called "monetary" or "nominal" part.

c. ___T__ assumes that money works so well in mitigating the transactions costs of barter that we can model the economy as if these costs didn't exist.

d. ___T__ assumes that microeconomics concerns itself with the

determination of things measured in units of real commodities, such as “the quantity of wine produced and consumed” or “the relative price of wine in terms of cloth”, that is, how many units of cloth exchanges for one unit of wine.

pp. 22-23.

4. During World War I, a German naval memorandum outlined how their U-boat campaign would destroy enough British shipping to starve England into submission. The German plan failed because

a. __F___ the British had protected their agriculture with "Corn Laws" and had an unusually robust agricultural system for an island of their size.

b. ___F__ the Germans failed to sink the targeted amount of shipping.

c. ___T__ the British undertook a series of economic substitutions that enabled them to get along without the merchant tonnage lost to the German submarines.

d. ___F__ the United States used the threat of economic sanctions against Germany to get them to stop their unrestricted U-boat campaign.

5. In most economic models encountered in undergraduate textbooks, the number of endogenous variables is two (2) because:

__F___economist’s have been unable to develop more complicated models.

___T__economists have attempted to make these models "graphically friendly" for expository and pedagogical purposes.

____F_most "real world" situations can be adequately analyzed by models having at most two (2) endogenous variables.

___T__economists have frequently used advanced techniques to prove that more complicated models addressing the same problem as does the two-variable model do not lead to different qualitative conclusions.

6. The Ice Trust melted away because

___F__unusually cold weather created an exceptional ice harvest

___F__of the aggressive trust-busting strategy of President Teddy Roosevelt.

___T__of an increase in the number of new suppliers of ice in response to the high prices created by the formation of the trust.

____F_ of all of the above.

pp. 32-33. This is to help you remember why economists believe in the

usefulness of the assumption of the

relentless pursuit of people of their self-interest. And BTW, the Ice Trust issue happened in 1900, before TR

became President.

7. Trade can occur because

__F___the World Trade Organization exists and coordinates the movement of goods and services among countries.

___T__things exchange for different prices in different locations.

____T_economic entities in different places have different tastes and different resources.

___F__the development of steam and diesel power.

8. Assume Alex receives an endowment of ten (10) units of tea per month and ten (10) units of coffee per month. The relative price at which Alex can exchange coffee for tea in the market place is six (6) units of tea per unit of coffee. Preferences for Alex satisfy the usual axioms, e.g., more is better, indifference curves slope downward and are convex to the origin and do not cross.

a. _____If Alex did not want to save any of his endowment for future consumption, Alex's most-preferred consumption bundle could be one at which he consumes exactly eleven (11) units of coffee per month and three (3) units of tea per month.

b. _____If Alex did not want to save any of his endowment for future consumption, Alex's most-preferred consumption bundle could be one at which he consumes exactly six (6) units of coffee per month and thirty (30) units of tea per month.

c. _____If Alex did not want to save any of his endowment for future consumption, and if Alex consumes more than ten (10) units of coffee, we can infer that he must like coffee better than tea.

d. _____Alex could save 2 units of tea and 2 units of coffee for future consumption and still be able to consume fifty-six (56) units of tea this month.

i. Answer: a. Construct Alex's budget constraint. His income, in currency units, is

$$Y = P_C\overline{C}_A + P_T\overline{T}_A.$$

In units of tea it is

$$\frac{Y}{P_T} = \overline{T}_A + p\overline{C}_A.$$

With our numbers, it is

$$\frac{Y}{P_T} = \overbrace{10}^{\bar{T}_A} + \overbrace{6}^{p} \cdot \overbrace{10}^{\bar{C}_A} = 70.$$

His expenditure in units of tea is

$$T_A + 6C_A.$$

Equating expenditure to income generates the budget constraint:

$$T_A = 70 - 6C_A$$

The Tea intercept is 70 (the maximum amount of tea Alex could consume if he consumed no coffee) and the Coffee intercept (the maximum amount of coffee Alex could consume if he consumed no tea) is $11\frac{2}{3}$. If he consumed 11 units of coffee per unit of time, he could consume four (4) units of tea: $70 - 6 \cdot 11 = 4$. The pair $(11,3)$ is below his budget constraint, so the answer is false: he could consume more of both.

b. If he consumed 6 coffee's he could consume as much as 34 units of tea (which is greater than 30), so this is also not true. He wouldn't choose to consume this bundle, because "more is better" and he would prefer to consume more of either coffee or tea, i.e., he is not on his budget constraint, but is within it.

c. False. Budget constraints tell us nothing about preferences.

d. True. If he saved these units of tea and coffee, his remaining income measured in units of tea would be

$$\frac{Y}{P_T} = \overbrace{8}^{\bar{T}_A^S} + \overbrace{6}^{P} \cdot \overbrace{8}^{\bar{C}_A^S} = 56$$

where the superscript "S" indicates this quantity is the endowment amount left after the savings decision. Clearly he could consume 56 units of tea per unit of time although it would mean he consumes no coffee.

9. In 2002, after President George W Bush imposed tariffs on steel, economist Gary Huffbauer argued that

a. __T___the higher steel prices created by these tariffs would hurt industries that used steel as an input such as auto manufacturing.

Note that history rhymes: the same (correct) arguments are being made today.

b. ___F__steel prices would be lower because domestic supply would be increased by more than the fall in imports.

Look at our analysis of tariffs: they *raise* prices. A diagram will help keep you from falling for this argument.

c. ___T__the net change in U.S. jobs would be about zero, as the steel industry expanded and the steel-using industries contracted.

p. 10.

d. ___T__higher tariffs would make the U.S. less "efficient."

p. 10.

10. Some Americans (among others) view China as a political rival with the potential for armed conflict with the U.S. *Economic* theory tells us that

a. __F___improving trade relations between the U.S. and China will make China less likely to risk these gains from trade by starting a military conflict.

b. ___F__improving trade relations between the U.S. and China will make Chinese society more amenable to democracy and therefore less likely to start an armed conflict.

c. ___F__improving trade relations between the U.S. and China will make China a wealthier country that can then use these extra resources to enhance their military power.

d. ___F__improving trade relations between the U.S. and China will make China a wealthier country that can then use this extra wealth to supress dissent from their citizens.

These ideas addressed on pp 12-13. Note again: history rhymes.

Part II. Short answers (a few sentences at most). 20 points total

1. 10 points. During the summer of 2005, on page 2E of an issue of *The Tennesean*, Mark Johnson of the Associated Press has an article titled "Study says ethanol not worth the energy." He reports "...researchers at Cornell University and University of California - Berkeley say it takes 29% more fossil energy to turn corn into ethanol than the amount of fuel the process produces." Speculate (with reasons) on whether, then, the 3.6 billion gallons of ethanol that were produced in the United States during 2005 would have been produced if there hadn't been $3 billion in state and federal government subsidies given to ethanol production.

Answer: Probably not, because in the absence of the subsidies the price paid for inputs into the production of ethanol and the prices received from the sale of ethanol wouldn't have made ethanol production profitable.

2. 10 points. If transport costs are zero, then arbitrageur profits are zero.

If arbitrageur profits are zero, arbitrageurs have no incentive to transport, so no arbitrage takes place and prices return to their autarkic levels. But then arbitrageurs have an incentive to transport again! How do we resolve this conundrum?

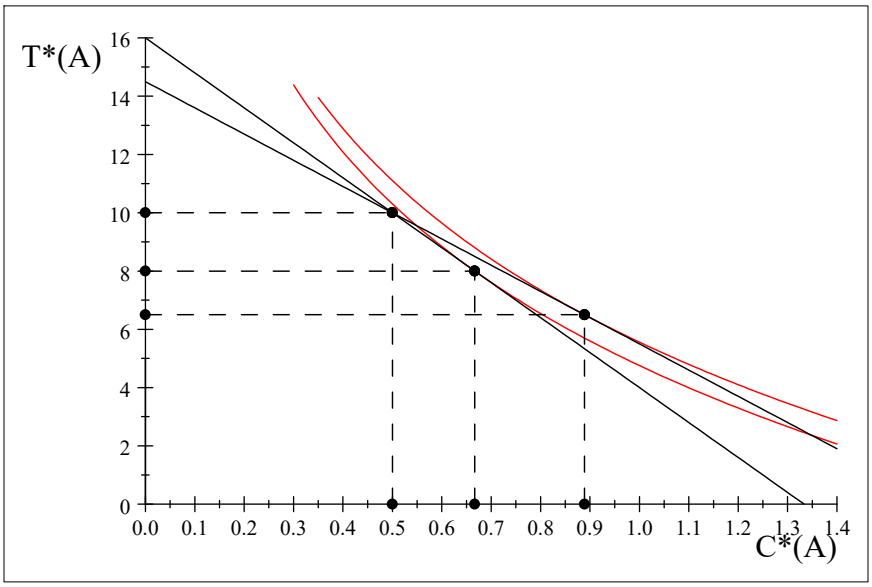
Answer: we think of "zero transport costs" as the limit as transport costs get arbitrarily close to zero. With any small but finite level of transport costs, arbitrageurs still make positive profits and still have an incentive to transport.

Graphical display of quantitative information. 20 points total.

Consider the following depiction of Antoine's preferences, endowment, some hypothetical budget constraints, and two most-preferred points asociated with these budget constraints. Antoine's preferences can be represented by the utility function:

$$U_A^* = T_A^* - 8\ln C_A^*.$$

Antoine's endowment is the coffee-tea pair $(\frac{1}{2}, 10)$. The budget constraints depicted are associated with the two relative prices $p^* = 12$ and $p^* = 9$. The most-preferred-pairs (one for each different budget constraint) are $(\frac{2}{3}, 8)$ and $(\frac{8}{9}, 6\frac{1}{2})$.



$$p_a^* = 12,\ 9; \gamma_A^* = 8$$

1. 10 points. Write down in slope-intercept form the (two) linear equations that express the budget constraint associated with the each relative price. Slope-intercept form means the equations should have the canonical form

$$T_A^* = mC_A^* + b$$

where m is the slope and b is the vertical intercept. For your answers, both m and b should be actual numbers.

Answer:

$$
\begin{aligned}
T_A^* &= -pC_A^* + \overline{T}_A^* + p\overline{C}_A^*; \\
T_A^* &= -9C_A^* + 10 + 9 \times \frac{1}{2} \\
&= -9C_A^* + 14\frac{1}{2}; \\
T_A^* &= -12C_A^* + 10 + 12 \times \frac{1}{2} \\
&= -12C_A^* + 16.
\end{aligned}
$$

2. 10 points. At which price is Antoine better off?

Answer: $p = 9$. From the diagram, we see his most-preferred point is on an indifference curve farther away from the origin when the budget constraint is flatter.

Problem 70 points total

Alex and Bobby

Alex and Bobby are the only two POW's in an English POW camp. They have the following preferences and endowments:

$$
\begin{aligned}
\overline{T}_i &= 10, \overline{C}_i = \frac{1}{2}; i = A, B; \\
U_A &= T_A + 4\ln C_A; \\
U_B &= T_B + 2\ln C_B.
\end{aligned}
$$

1. 15 points. Show that Alex's and Bobby's demand functions are:

$$C_A^d = \frac{4}{p};\ C_B^d = \frac{2}{p}.$$

A: Tangency condition

$$
\begin{aligned}
T_i &= U_i - \gamma_i \ln C_i; \\
\frac{dT_i}{dC_i} &= \frac{-\gamma_i}{C_i}; \\
-p &= \frac{-\gamma_i}{C_i}; \\
C_i^d &= \frac{\gamma_i}{p}.
\end{aligned}
$$

2. 15 points. Show that in autarkic equilibrium:

$$
\begin{aligned}
p_a &= 6, \\
C_A &= \frac{2}{3},\ T_A = 9; \\
C_B &= \frac{1}{3},\ T_B = 11.
\end{aligned}
$$

A:

$$
\begin{aligned}
C_A^d + C_B^d &= C^d; \\
C^s &= \overline{C}_A + \overline{C}_B = 1 \\
\frac{4+2}{p} &= 1; \\
p_a &= 6; \\
C_A &= \frac{4}{6};\ C_B = \frac{2}{6}; \\
T_A &= \overline{T}_A + p\overline{C}_A - \gamma_A p; \\
T_A &= 10 + \left(\frac{1}{2}\right)(6) - 4 = 9; \\
T_B &= 10 + \left(\frac{1}{2}\right)(6) - 2 = 11.
\end{aligned}
$$

3. 15 points. Show that the inverse market, or equivalently, aggregate, excess supply function is (typo in original!):

$$p^{ES} = \frac{6}{1 - ES}.$$

A:

$$
\begin{aligned}
ES &= \overline{C} - \frac{6}{p}; \\
pES &= p\overline{C} - 6; \\
\overline{C} &= 1; \\
p(ES - 1) &= -6; \\
p &= \frac{6}{1 - ES}
\end{aligned}
$$

Antoine and Baptiste

Antoine and Baptiste are the sole members of a French POW camp. They have the following preferences and endowments:

$$
\begin{aligned}
\overline{T}_i^* &= 10, \overline{C}_i^* = \frac{1}{2}; i = A, B; \\
U_A^* &= T_A^* + 8 \ln C_A^*; \\
U_B^* &= T_B^* + 4 \ln C_B^*.
\end{aligned}
$$

1. 15 points. Show that autarkic equilibrium in their camp is described by:

$$
\begin{aligned}
p_a^* &= 12, \\
C_A^* &= \frac{2}{3},\ T_A^* = 8; \\
C_B^* &= \frac{1}{3},\ T_B^* = 12.
\end{aligned}
$$

A: See Alex and Bobby for derivation of demand functions. Then.

$$\frac{4+8}{p^*} = 1;$$
$$p_a^* = 12.$$

And so on, just like Alex and Bobby.

2. 10 points. Show that the inverse excess demand function is:

$$P^{*ED^*} = \frac{12}{ED^* + 1}.$$

A:

$$ED^* = \frac{12}{p^*} - 1;$$
$$p^*(ED^* + 1) = 12;$$
$$p^* = \frac{12}{1 + ED^*}.$$