

Name: SOLUTIONS

Student number: _____

ECO1104B INTRODUCTION TO MICROECONOMICS
MIDTERM EXAMINATION

Professor: David Gray

Fall 2010

INSTRUCTIONS

- a) The allotted time is one hour and twenty minutes. There are a total of 80 points, or one point per minute.
- b) Turn off all cellular telephones.
- c) You may not consult with any written materials whatsoever, including other students' papers, and no conversation is permitted while the examination is in progress. You may not use palm pilots. The only electronic devices that are permitted are non-programmable calculators and dictionaries for students whose native tongue is not English. Any contravention of these rules will be treated as an infraction to the honour code of the university.
- d) Good luck. I anticipate that some of you will be pressed for time. Please pace yourself accordingly, and respond carefully. **DO NOT SPEND TOO MUCH TIME ON ANY ONE QUESTION.**
- e) All of the questions which follow are very straightforward, and can be answered in a few sentences. The responses that I hope to elicit have been repeated by me several times in class. Please take a minute to concentrate on the question being asked, as opposed to writing down everything which comes to your mind about a certain topic. I have tried to pose the questions in such a way that you focus correctly.

PART I – SHORT ANSWER, CONCEPTUAL QUESTIONS

1) (4 points; 2-3 sentences) Identify and give the significance of the price elasticity of demand. In other words, what is its purpose? In still other words, why do we bother studying it? Do not give details concerning the price elasticity of demand, such as the formula that we use to calculate it. What I am looking for here is a brief discussion of how it fits in with supply and analysis.

IT INDICATES THE RESPONSIVENESS OF QUANTITY DEMANDED TO CHANGES IN PRICE. THE LAW OF DEMAND SAYS THAT THERE IS ALWAYS A NEGATIVE, INVERSE RELATIONSHIP BETWEEN PRICE AND QUANTITY DEMANDED. THE PRICE ELASTICITY OF DEMAND IS A TOOL THAT MEASURES THE DEGREE OF RESPONSIVENESS BY GIVING IT A PRECISE MAGNITUDE.

2) (4 points; 2 sentences) How does the model of supply and demand relate to the first central coordination task that faces any economy - what goods and services should be produced, and in what quantities? Do not draw the graph, as this is strictly a verbal question.

THE EQUILIBRIUM QUANTITY THAT IS GENERATED ON THE QUANTITY AXIS BY THE FORCES OF SUPPLY AND DEMAND SHOWS HOW MUCH OF A GOOD WILL BE PRODUCED IN A FREE MARKET ECONOMY.

3) (8 points)

a) Explain why governments regulate the prices and quantities of certain commodities, particularly in the agricultural sector.

FOR CERTAIN MARKETS, SOCIETY DECIDES (OR THE GOVERNMENT DECIDES) THAT THE MARKET PRICE (THAT IS GENERATED BY THE FORCES OF SUPPLY AND DEMAND) IS NOT SOCIALLY FAIR AND/OR EQUITABLE. SOCIETY DEEMS THAT EITHER THE DEMANDERS OR THE SUPPLIERS (BUT NEVER BOTH IN THE SAME MARKET) WOULD SUFFER GREAT HARDSHIP IF THE MARKET PRICE WERE TO PREVAIL. IN THE CASE OF AGRICULTURAL PRICE SUPPORTS, IT IS THE PRODUCERS WHO ARE DEEMED NEEDY.

b) Explain why most economists tend to be very critical of interventions such as price floors and price ceilings. You do not need to give any graph. What I am looking for is an explanation of the economic behaviour that follows the imposition of these policies, and a description of the economic outcome.

TAMPERING WITH PRICES DISTORTS THE CHOICES OF BOTH SUPPLIERS AND DEMANDERS. BOTH SIDES OF THE MARKET REACT TO PRICE CHANGES BY ALTERING THEIR BEHAVIOUR, AND THEY DO SO IN A WAY THAT WORKS AGAINST THE INITIAL OBJECTIVE OF MAKING ONE PARTY BETTER OFF. MARKET IMBALANCES IN THE FORM OF SURPLUSES OR SHORTAGES ALWAYS

ARISE. TRYING TO DEFEY THE NATURAL FORCES OF SUPPLY AND DEMAND ALWAYS HAS UNINTENDED – BUT PREDICTABLE - CONSEQUENCES.

c) What type of alternative policy instrument do economists recommend if the objective is to make a certain group of economic agents better off?

THE NEEDY, DESERVING GROUP, WHETHER IT IS EITHER SUPPLIERS OR DEMANDERS, SHOULD BE GIVEN A SUM OF MONEY THAT SUFFICES TO MAKE THEM BETTER OFF. THIS SO-CALLED LUMP-SUM PAYMENT SHOULD BE INDEPENDENT OF THE PRICE RECEIVED OR THE QUANTITY BOUGHT OR THE QUANTITY PRODUCED. IT IS BETTER TO JUST GIVE THEM THE MONEY WITH NO STRINGS ATTACHED, WHICH MEANS THAT THEY CAN SPEND IT AS THEY PLEASE. THE KEY IS THAT THE LUMP-SUM PAYMENT SHOULD NOT AFFECT EITHER THE QUANTITY DEMANDED OR THE QUANTITY SUPPLIE

4. (3 points, 2-3 sentences) Explain briefly the nature of the difference between microeconomics and macroeconomics.

THE PRIMARY DIFFERENCE LIES IN THE SCOPE. WHILE BOTH DISCIPLINES DEAL WITH EQUILIBRIUM PRICES AND QUANTITIES, IN MICRO WE ANALYZE PRICES AND QUANTITIES AT THE LEVEL OF INDIVIDUAL FIRMS, CONSUMERS, WORKERS, OR MARKET. IN MACRO, BY CONTRAST, WE ANALYZE PRICES AND QUANTITIES AT THE GLOBAL OR AGGREGATE LEVEL, CONCERNING OURSELVES WITH VARIABLES SUCH AS UNEMPLOYMENT, INFLATION, AND GROSS DOMESTIC PRODUCT.

5. (3 points, 2 sentences) What is generally the role of models in economic analysis? In other words, what is their function?

THEY ARE AN ANALYTICAL TOOL THAT IS USED TO EXPLAIN HOW THE ECONOMY FUNCTIONS. TYPICALLY THE CHANGES IN ONE ECONOMIC VARIABLE ARE RELATED TO CHANGES IN ONE OR SEVERAL OTHER ECONOMIC VARIABLES. THEY ARE OFTEN STATED IN HYPOTHESIS FORM – IF THERE IS A CHANGE IN ONE VARIABLE, ALL OTHER FACTORS HELD CONSTANT, WHAT IS THE CHANGE IN ANOTHER ECONOMIC VARIABLE? SEE PAGE 24 IN THE TEXT.

6. (7 points) These questions are easy.

a) Explain why the production possibilities frontier has a concave shape.

IT REFLECTS THE LAW OF INCREASING OPPORTUNITY COSTS. AS MORE AND MORE RESOURCES ARE ALLOCATED AWAY FROM THE PRODUCTION OF ONE GOOD TOWARD THE ALLOCATION OF THE OTHER GOOD, THE TRADEOFF BECOMES LESS AND LESS FAVOURABLE. THIS MEANS THAT IN ORDER TO PRODUCE ONE MORE UNIT OF GOOD A, WE HAVE TO GIVE UP MORE AND MORE UNITS OF PRODUCTION OF GOOD B. THE LAW OF INCREASING

OPPORTUNITY COSTS IN TURN IS DUE TO THE FACT THAT THE ECONOMY'S RESOURCES ARE NOT EQUALLY WELL-SUITED TO THE PRODUCTION OF BOTH GOODS.

b) What would be implied if the frontier has the form of a straight line?

THERE WOULD BE CONSTANT OPPORTUNITY COSTS, SO THE TRADEOFF BETWEEN THE TWO GOODS IS EVEN. THIS DOES NOT MEAN THAT THE TRADE OFF IS ONE-TO-ONE. THIS WOULD IMPLY THAT THE ECONOMY'S RESOURCES ARE EQUALLY WELL SUITED FOR THE PRODUCTION OF BOTH GOODS. IT CERTAINLY DOES NOT MEAN THAT THE FRONTIER HAS A POSITIVE SLOPE.

c) Explain why the production possibilities frontier has a negative slope.

IT IS DUE TO SCARCITY. IF WE WANT TO INCREASE PRODUCTION OF ONE GOOD, WE MUST SACRIFICE SOME OF THE OTHER GOOD. IN OTHER WORDS, THERE IS A TRADEOFF ONCE WE ARE ON THE FRONTIER. IT HAS NOTHING TO DO WITH THE LAW OF INCREASING OPPORTUNITY COSTS. IT DOES MEAN THAT OPPORTUNITY COSTS EXIST.

7. (4 points) Explain the relationship between comparative advantage, specialization, and the pattern of international trade (this means which country imports and/or exports which good).

A COUNTRY SHOULD SPECIALIZE IN THE PRODUCTION OF THE GOOD IN WHICH IT HAS A COMPARATIVE ADVANTAGE. IT SHOULD DEVOTE EITHER ALL OR MOST OF ITS RESOURCES TO THE PRODUCTION OF THAT GOOD, AND LITTLE OR NONE OF ITS RESOURCES TO THE PRODUCTION OF THE OTHER GOOD. IT SHOULD CONSUME SOME OF ITS PRODUCTION OF THE GOOD IN WHICH IT SPECIALIZES, AND IT SHOULD THEN EXPORT THE REST. IT CAN USE THE PROCEEDS FROM ITS EXPORT SALES TO PURCHASE IMPORTS FROM ITS TRADING PARTNER. IT IMPORTS THE GOOD IN WHICH IT HAS A COMPARATIVE DISADVANTAGE. SEE PAGES 57-58 OF THE TEXTBOOK.

8. (6 points) This question is drawn from the assigned readings – the one-page document that I authored and posted on the website.

a) Explain why most economists believe that free trade is beneficial from an economic point of view.

SEE THE DOCUMENTS THAT I HAVE POSTED WITH THE LECTURE SLIDES FOR CHAPTER 3. IT LEADS TO A GREATER VARIETY OF GOODS AVAILABLE TO CONSUMERS. IT LEADS TO LOWER PRICES FOR CONSUMERS. MOST OF THE POPULATION CAN EXPECT HIGHER LIVING STANDARDS STEMMING FROM THE LOWER PRICES. IT GIVES AN INCENTIVE FOR DOMESTIC PRODUCERS TO BECOME MORE COST EFFICIENT, AND THE LEAST EFFICIENT FIRMS ARE

DRIVEN OUT OF BUSINESS. IT CAN ALSO OPEN UP NEW MARKETS FOR CANADIAN GOODS THROUGH EXPORTATION.

b) Explain why anti-globalization types, such as those who were demonstrating in Toronto at the G20 summit this past summer, firmly believe the opposite. In other words, they HATE free trade. Why?

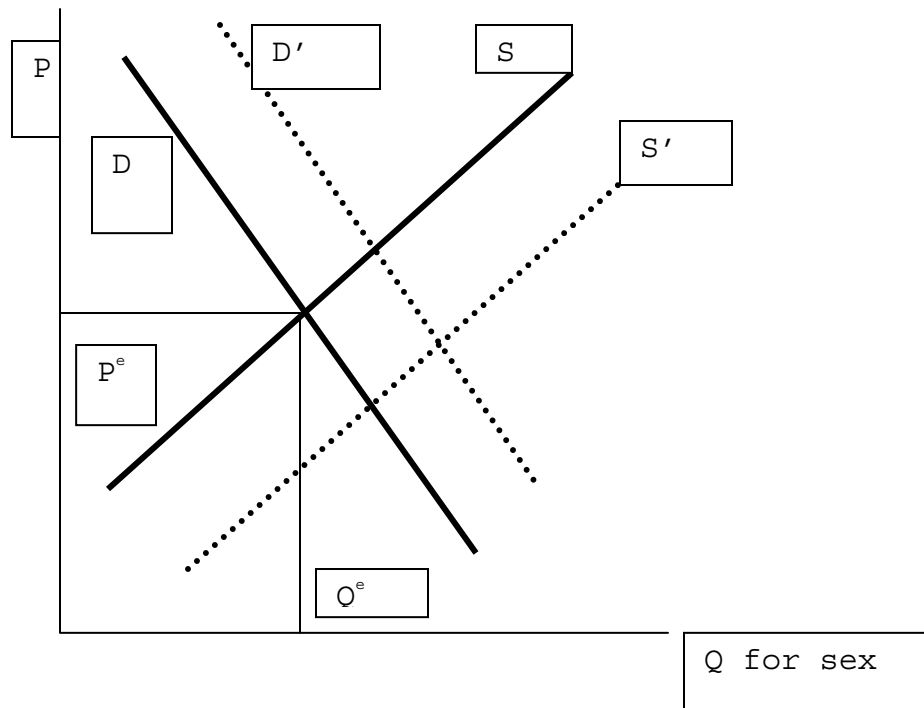
IN THE RICHER COUNTRY, CERTAIN PRODUCERS ARE DRIVEN OUT OF BUSINESS, WHICH CAUSES THEIR WORKERS TO BE DISPLACED. IN THE RICHER COUNTRY, THERE IS INCREASED PRESSURE TO LOWER TAXES AND REDUCE REGULATION, WHICH COULD PUT STRAIN ON SOCIAL PROGRAMS AND SEVERELY DAMAGE THE SOCIAL AND ECONOMIC FABRIC OF THE RICHER COUNTRY. THE GOVERNMENT IS LESS SUSCEPTIBLE TO PRESSURE TO INTERVENE IN ORDER TO SOFTEN THE HARD EDGES OF MARKET FORCES DUE TO INTERNATIONAL TRADE AGREEMENTS. (YOU DID NOT HAVE TO WRITE THAT LAST SENTENCE).

THE POORER COUNTRY IS ALWAYS EXPLOITED BY THE RICHER COUNTRY, AS THE RICHER COUNTRY OVERCHARGES FOR WHAT IT EXPORTS TO THE POORER COUNTRY AND UNDERPAYS FOR WHAT IT IMPORTS FROM THEM (THINK OF 'FAIR TRADE' COFFEE). IN BOTH COUNTRIES, POVERTY AND INEQUALITY ARE WORSENERD.

PART II – PROBLEMS AND GRAPHING

9. (12 points) Consider the market for sex offered through prostitution. Currently, this market definitely exists, but it remains part of the underground economy.

a) Depict this market in equilibrium using the axes below. Label all axes and curves.



THE ORIGINAL EQUILIBRIUM IS (Q^e, P^e) .

b) Now assume that the government legalizes prostitution, which is exactly what has occurred recently. What impact would we expect this to have on the market? Indicate which curve(s) shift(s), if any. Explain your work. For example, if you decide that the supply curve shifts, explain the cause (in words). Depict the changes and the new equilibrium on the graph.

BECAUSE THE COSTS OF OPERATION DECLINE A LOT, SUPPLY SHIFTS RIGHTWARDS TO S'. AT EACH POSSIBLE PRICE, BROTHELS ARE WILLING TO OFFER AND SELL MORE THAN THEY WERE BEFORE THE LEGALISATION. BECAUSE THERE IS NO LONGER ANY PENALTY FOR CONSUMING THE SERVICES RENDERED, CONSUMER TASTES BECOME SLIGHTLY MORE FAVORABLE. D SHIFTS RIGHTWARD to D'. AT EACH POSSIBLE PRICE, CONSUMERS (THE CLIENTS) ARE WILLING TO BUY MORE THAN THEY WERE BEFORE THE LEGALISATION. THE NEW EQUILIBRIUM PRICE COULD BE HIGHER OR LOWER DEPENDING ON THE MAGNITUDES OF THE SHIFTS OF THE TWO CURVES, BUT EQUILIBRIUM QUANTITY WILL DEFINITELY RISE. ONE ONLY HAD TO SHIFT THE CURVES IN TE RIGHT DIRECTION TO RECEIVE CREDIT.

c) Return to the initial equilibrium. Suppose that the government does legalize prostitution, and then decides to lower the going price that the 'johns' have to pay. What impact would we expect this to have on the market? Indicate which curve(s) shift(s), if any. Explain your work.

NEITHER OF THE CURVES WILL SHIFT. INSTEAD, WE WILL END UP WITH A SITUATION OF EXCESS QUANTITY DEMANDED, OR A SHORTAGE. EVENTUALLY WE WOULD EXPECT THE TRANSACTIONS PRICE TO START GRAVITATING BACK TOWARDS EQUILIBRIUM.

10. (8 points) Here is a problem concerning elasticities that are drawn from the textbook. For each of the following pairs of goods, which good would you expect to have more elastic demand, and why?

i) required textbooks versus mystery novels

MYSTERY NOVELS BECAUSE THEY ARE SOMETHING OF A LUXURY WHILE THE REQUIRED TEXTBOOKS ARE A NECESSITY

ii) Beethoven recordings versus classical music recordings in general

BEETHOVEN RECORDINGS BECAUSE THAT MARKET IS MUCH NARROWER THAN THE MARKET FOR CLASSICAL MUSIC. THERE ARE CLOSER SUBSTITUTES FOR BEETHOVEN THAN FOR CLASSICAL MUSIC OVERALL.

iii) heating oil during the next six months versus heating oil during the next 5 years

HEATING OIL OVER THE NEXT FIVE YEARS BECAUSE OF THE LONG ADJUSTMENT PERIOD – PEOPLE CAN FIND MORE SUBSTITUTES

Iv) return tickets on the Eurostar train (from London to Paris and back) versus one-way tickets (from London to Paris). (This is my question drawn from my personal experience. The fare per kilometer for the return fare is much, much lower).

RETURN TICKETS BECAUSE THE TRAVELLER HAS A MUCH GREATER DEGREE OF FLEXIBILITY. SHE HAS TWO OPTIONS – TAKE THE TRIP OR STAY PUT, AND IS LIKELY TO BE ABLE TO CHANGE PLANS EASILY. IN THE CASE OF ONE-WAY TICKETS, USUALLY STAYING PUT IS NOT AN OPTION FOR THE TRAVELLER. HE PROBABLY DOES NOT HAVE MUCH FLEXIBILITY. THEY ARE USUALLY DESPERATE TO GET FROM POINT A TO POINT B.

11. (10 points) Suppose that you are given the following two points on two different demand schedules.

Price	Quantity demanded Schedule A	Quantity demanded Schedule B
\$ 20	9,000	10,000
\$ 26	7,000	8,000

a) Use the midpoint method to calculate the price elasticity of demand between these two points for schedule A. Show your work.

PED = % CHANGE IN Qd / % CHANGE IN P = (change in Qd / average Qd) / (change in P / average P) = (-2000 / 8000) / (+ 6 / 23) = - 46 / 48 = 0.96 IN ABSOLUTE VALUE (NOTE THAT THE FACTOR OF 2 CANCELS.)

b) Determine whether this demand is price elastic or inelastic based on your calculated value.

INELASTIC BECAUSE IT IS LESS THAN 1.0 IN ABSOLUTE VALUE

c) Determine whether this demand is price elastic or elastic based on the relationship between the price elasticity of demand and total revenue. Show your work.

$$\text{OLD TR} = P * Q = \$ 20 * 9,000 = \$ 180,000$$

$$\text{NEW TR} = P * Q = \$ 26 * 7,000 = \$ 182,000$$

AS THE PRICE INCREASED, SO DID THE TOTAL REVENUE, ALBEIT SLIGHTLY. THIS IMPLIES THAT THE DEMAND IS PRICE INELASTIC.

d) Does the law of demand hold in this case? Why or why not?

YES – THERE IS AN INVERSE RELATIONSHIP BETWEEN P AND Qd.

e) Now consider demand schedule B. Is this an increase or a decrease in demand compared to schedule A? Explain why (one sentence)

NOTE THAT THESE ARE TWO DEMAND CURVES FOR THE SAME PRODUCT. THIS IS AN INCREASE BECAUSE AT EACH OF THE TWO PRICES, QUANTITY DEMANDED IS NOW HIGHER THAN IT WAS BEFORE. THERE IS A GREATER WILINGNESS TO PAY.

f) Suppose that this shift is caused by an increase in the price of a related good. Is this good a substitute or a complement in consumption? Why?

DEMAND HAS INCREASED. THERE MUST HAVE BEEN AN INCREASE IN THE

PRICE OF A SUBSTITUTE GOOD. AS THE PRICE OF THE SUBSTITUTE GOOD INCREASES, THE QUANTITY DEMANDED OF THE SUBSTITUTE GOOD FALLS DUE TO THE LAW OF DEMAND. THIS CAUSES CONSUMERS TO SWITCH TO THIS PRODUCT, WHICH IN TURN CAUSES AN INCREASE (SHIFT RIGHTWARD) IN DEMAND.

12. (11 points) This problem is quite similar to one that is in the study guide, and is identical to one in the textbook. The following table shows the units of output a worker can produce per hour in Montreal and Toronto.

	Red sweaters	blue sweaters
Montreal	3	3
Toronto	2	1

a) Which city has the absolute advantage in the production of red sweaters? Why? What is the economic interpretation of that result, if any? (2 points)

MONTREAL AS IT IS 50 % MORE PRODUCTIVE IN THE PRODUCTION OF RED SWEATERS AND 200 % MORE PRODUCTIVE IN THE PRODUCTION OF BLUE SWEATERS. OVERALL MONTREAL HAS HIGHER LIVING STANDARDS. ITS PRODUCTION POSSIBILITIES FRONTIER LIES ABOVE TORONTO'S.

b) Toronto has the comparative advantage in the production of red sweaters. Demonstrate why that is the case. It necessarily follows that Montreal has the comparative advantage in the production of blue sweaters. (3 points)

1. Montréal is equally efficient in the production of each colour of sweater, but Toronto produces red sweaters twice as efficiently as it produces blue sweaters

OR

2. Toronto has an opportunity cost of minus one-half of a blue sweater for plus one red sweater, while Montreal has an opportunity cost of minus a whole blue sweater for plus one red sweater

c) We know that in Montreal, they like red sweaters more than blue sweaters. What is the trade-off rate between blue sweaters and red sweaters (giving up blue ones in order to obtain red ones) if Montreal were not to engage in trade? (2 points)

IT WOULD BE ONE-FOR-ONE. MONTREAL WOULD BE FORCED TO TRADEOFF ALONG ITS OWN PRODUCTION POSSIBILITIES FRONTIER. THOSE ARE THE TERMS OF TRADE IN AUTARKY.

d) If the two cities were to engage in free trade in these sweaters without restrictions, what would be the best rate of exchange that Montreal could possibly attain (giving up blue ones in order to obtain red ones)? (2 points; this question is a little hard).

THE MOST IT COULD EVER OBTAIN IS 2 RED SWEATERS FOR EACH BLUE SWEATER, AS THAT IS THE RATE OF EXCHANGE IN TORONTO. TORONTO WOULD NEVER AGREE TO GIVE UP MORE THAN TWO RED SWEATERS FOR ONE BLUE ONE. THE RATE OF EXCHANGE THROUGH TRADE WILL LIE SOMEWHERE BETWEEN ONE BLUE FOR ONE RED AND 1 BLUE FOR TWO REDS. (YOU DID NOT HAVE TO RAISE THAT LAST POINT.)

e) According to the theory of trade, free trade allows countries or production units to consumer at points that lie beyond their production possibilities frontiers. Exactly what is the source of the gains from trade? (2 points)

THE RATE OF EXCHANGE ON THE INTERNATIONAL MARKET THROUGH TRADE IS MORE FAVOURABLE THAN THE RATE OF EXCHANGE IN AUTARKY (ALONG THE PRODUCTION POSSIBILITIES FRONTIER.)

