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ECON100: Section A — Summer 2016

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Homework Week 1

Econ Principles, Variables Correlation, Positive/Normative Statements, & PPF-Trade

ECN100 HW Week 1: Econ Principles, Variables Correlation, Positive/Normative Statements, & PPF-Trade

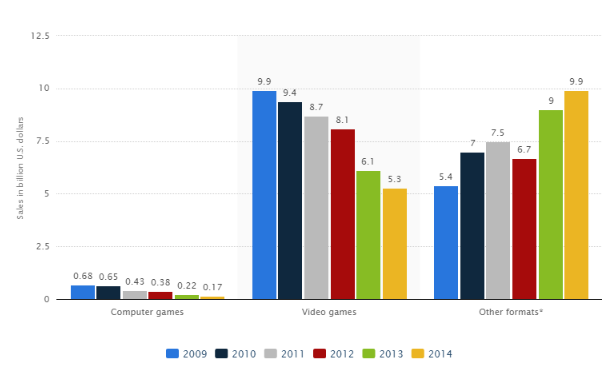
1.a) List your favorite three (3) Games. For each, write a brief description or scenario of the game (just a line or two). Out of the principles of economics (incentives, scarcity of resources, trade-offs, opportunity cost, trade creates value), write which one(s) of these economic principles that can be traced in each of the game.

**DoTA 2:** DoTA2 (Defense of the Ancients 2) is a multiplayer online battle arena video game that pits a team of players against another team of players where the goal of the game is to destroy your opponent’s ancient (base) before they destroy yours. Out of the principles of economics, there are incentives, scarcity of resources, and trade-offs. Incentives can be found in the way gold is collected in the game. Just attacking a creep does not give the player anything, while being the player to last hit a creep rewards the player with gold which can be used to buy equipment for your player. This places an incentive on only attacking a creep when it is at low health to ensure you will get the gold. Scarcity of resources can be found in the way neutral creeps are arranged in the jungle. There are only so many neutral creeps that spawn per minute making them valuable for their high gold and experience worth. Taking the neutral creeps away from your opponent lessens their ability to collect gold and experience while giving you and your team more gold and experience. Trade-offs can be found in the way fights play out in the game. If your team lost a few players in a fight but managed to destroy an enemy tower then the temporary loss of a teammate can justify gaining more map control.

**Dark Souls:** Dark Souls is an action adventure role-playing video game set in a medieval world that is notorious or its difficulty. The goal of Dark Souls is to collect the souls of enemies to level up your character so that they become strong enough to take on even more difficult enemies in the game. Dark Souls utilizes incentives, trade-offs, and opportunity costs. Incentives found in Dark Souls can be found in the way souls are acquired in the game. Difficult enemies provide the player with a large amount of souls making it tempting for the player to take on difficult enemies in order to acquire souls quicker, as opposed to the numerous weaker enemies that are worth much less souls. In this same manner, trade-offs exist in how the player chooses to approach the levels in the game. Difficult areas might give you more souls, but if you die in the game you lose all collected souls thus far in the game. This makes the player have to weigh their skills versus the difficulty of an area for fear of potentially losing all their souls. Opportunity costs can be seen in the leveling up mechanics in the game. Because leveling up costs souls you have to carefully choose which attributes you want to level up. Do you level up your maximum health so you can take more hits or do you level up your strength so you can use bigger weapons? You usually have to give up something, like the ability to cast spells versus or combat ability, if you want to specialize your character.

**Team Fortress 2:** Team Fortress 2 is a multiplayer first person shooter video game that focuses on class based team combat. Team Fortress 2 has had features added to the give the game scarcity of resources, opportunity costs, and trade creates value. Team Fortress 2 adds a lot of weapons and cosmetics to the game in various qualities, like common, uncommon, rare, and mythical. These values are related to just how many of these types of weapons and cosmetics exist, creating a scarcity of resources in the game. Opportunity costs exist in Team Fortress 2 in the form of micro transactions. Players can elect to either play the game for a long time, electing to give up time to get items, or spend real money to outright buy items in the game. Trade creates value is also found in Team Fortress 2 in the form of the Steam Marketplace. Players can both trade or sell their in-game items for either money or other game items, which has in turn created a form of economy in Team Fortress 2 that did not exist before.

1.b) Do a bit of research of the Game industry: find the last five years sales volume or market share; then your prediction about the next five years (just a line or two). Quote your sources.

Game sales in the United States of America from 2009 – 2014 are as follows:

According to *Statista.com*, the only growing category for game sales in the United States are the “other formats” which consist of social or mobile games, with total revenue falling from 9.9 billion in 2009 to 5.3 billion in 2014 (<http://www.statista.com/statistics/190184/us-computer-and-video-game-sales-by-categorie-2010/>). I predict that the next five years might see a similar decline in sales that may eventually level off a bit. I do not think we will see another resurgence in game sells until virtual reality hardware becomes more affordable, which might prompt a huge audience to invest in virtual reality games and expensive virtual reality hardware.

1.c) When you developed a game design, you also think of the potential customers/users. List five traits/characteristics of your games’ users (in terms of age group, income group, education group, gender, etc.)

People who play games can have a variety of traits or characteristics but there are a few key characteristics that I target when I make the games that I make. I tend to like to make games that are simple mechanically, but challenging. For this reason my users tend to be competitive, whether it is against other fellow players or the game’s AI. Another popular characteristics directly relates to competition in the form of achievements. Achievements give the player a sense of progress and ranking so they know just how well they are doing. Indirectly these games all tend to appeal to social gamers, regardless if they are competitive or not. I like to make co-op games that allow people to communicate with each other while playing games. Another characteristic that I target is the casual gamer in the form of games that are easy to pick up and play for a short burst of time. These types of gamers like quick and easy to learn controls and objectives and the ability to play the game quickly and still feel like they made progress. For this reason I tend to target the teen to adult age range, with a low to medium income group, high school to college education, and gender doesn’t really matter, but I suppose challenge games might tend to lend themselves more in favor of the male gender.

2. Determine the variables of the following situations, sketch a small graph to show which is on the x-axis (the independent variable) or on the y-axis (the dependent variable), and show a curve or a line that shows the relationship (positive or negative or anything else):

a) The more amount of property damage occurs due to fire hazard, the number of firefighters coming on the scene increases.

b) As Seattle grows economically, the number of newly constructed houses rises.

c) Improvement in education system is believed to have decreased the incidence of crimes.

d) The climate change due to the increase amount of carbon dioxide (CO2) has increased global temperatures by a few degrees

3. Positive or Normative Statements?

a) Society should take measures to prevent people from engaging in dangerous personal behavior.

Normative Statement

b) People who engage in dangerous personal behavior impose higher costs on society through higher medical cost.

Positive Statement

c) When people must pay higher taxes on their wage earnings, it reduces their incentive to work.

Positive Statement

d) We should lower taxes to encourage more work.

Normative Statement

4. Consumption and Income data as follows:

GDP ($bn) (Y) Consumption Spending (C )

2009 $10,722 $9,846

2014 $14,950 $12,120

a) Find the equation to represent the consumption function: C = a + b. Y

Consumption is on the y-axis, and GDP is on the x-axis.  
Slope = b = (y2 – y1)/(x2 – x1) = (12120 – 9846)/(14950 – 10722) = (2274)/(4228) = 0.538  
**2009 Data 2012 Data**   
C = a + 0.538 \* y C = a + 0.538 \* y  
9846 = a + 0.538 \* 10722 12120 = a + 0.538 \* 14950  
9846 = a + 5768 12120 = a + 8043  
4077 4077

b) Predict an estimate for 2020 Spending when the GDP reached $18,000 billion (or $18 trillion).  
  
0.538 \* 14000000000 = 7532000000

Part II. 20 points. Multiple Choice: Choose the best answer.

1) Which of the following describes the reason why scarcity exists?

c. Wants exceed the resources available to satisfy them

2) Economics is the social science that studies ……..

d. The inevitable conflict between self-interest and social interest

3) A rational choice is ….

c. Made by comparing marginal benefit and marginal cost

4) Which of the following best illustrates your marginal benefit from studying?

c. What you are willing to give up to study for one additional hour

5) Economic models are used to …

d. Focus on those features of reality assumed relevant for understanding a cause and effect relationship

Part III. 20 Points. PPF Model and Trade

1) Label the following: True or False?

a. An increase in the amount of resources available to Tom does not change his production possibility frontier. False

b. A technological change that allows Tom to catch more fish for any amount of coconuts gathered, results in a change in his PPF. True

c.The PPF is useful because it illustrates how much of one good an economy must give up to get more of another good regardless of whether resources are being used efficiently. False

2) Comparative Advantage and Trade between the U.S. and Canada. Two goods are traded: aircraft and tons of pork. The PPF of the US is assumed to be linear and shows: 1,500 aircrafts on the y-axis, and 3 million tons of pork on the x-axis. The PPF of Canada is also linear and shows: 3,000 aircrafts on the y-axis, and 1.5 million tons of pork. Create graphs of these two countries’ PPF, and answer the following:

a) Determine the per unit opportunity cost of 1 mil.ton of pork in the US and Canada.  
**US CANADA**1 million tons of pork = 500 aircraft 1 million tons of pork = 2000 aircraft

b) Determine which country should specialize in which product (the comparative advantage).

The US has a comparative advantage in the production of pork in that it only costs the US the production of 500 aircraft as opposed to the 2000 aircraft it costs Canada for the same production of pork. Canada has the comparative advantage in aircraft.

c) Determine the range of terms of trade that could be acceptable by the two countries

**US CANADA**aircraft = 0.05 tons of pork < aircraft = 0.002 tons of pork range = 0.048 tons of pork  
1 mil pork = 500 aircraft > 1 mil pork = 2000 aircraft range = 1500 aircraft

Both countries could be happy trading 750 aircraft for 0.024 tons of pork