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10/30/2020

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Econ 202

Mid Term 1

In Econ 202, we had a math review as a refresher, then covered chapter 4 and the beginning of chapter 5. The topics we covered for chapter 4 were The Consumers Preferences and the Concept of Utility, Indifference Curves, The Consumers Income and the Budget Constraint, and Combining Utility, Income, and Prices. The topics we covered in chapter 5 were How Income Changes Affect an Individual’s Consumption Choices, How Price Changes Affect Consumption Choices, And a little bit about Consumer Responses to Price Changes: Substitution and Income Effects. Both chapters required knowledge from the math review to execute various equations

In chapter 4, the main focus was on how consumers made purchases. To understand how consumers make purchase, the theory of consumer behavior is introduced and investigated. The theory of consumer behavior explains consumers are assumed to optimize their utility given scare units. Utility is a measure of how satisfied consumers are. It’s a measure of happiness or well-being and not a measure of consumer income. The theory of consumer behavior also is basis for the demand side of the supply and demand model. In section 1 of chapter 4, the consumers preferences and the concept of utility was explained. Economist assume consumers are rational and able to optimize consumption decisions given scarce resources. There were four assumptions about consumer preferences that we learned. The first assumption we learned was completeness and rank ability. Completeness and rankability is based off consumers being able to compare bundles of goods and rank them based on preference. The second assumption is for most goods, more is better than less. This means a consumer should want more of a good rather than less to fit the criteria of consumer preferences. The third assumption of consumer preferences is transitivity, which imposes logical consistency on preferences. This assumption was taught in depth but was shown just so that we knew about it. The fourth and last assumption about consumer preferences is the more a consumer has of a particular good, the less the consumer is willing to give up something else to get even more of that good. The idea behind this is that consumers like variety, so they will be willing to give up an x amount of some good for another if they have an abundance of one over the other. After understanding those assumptions, the next material covered was the utility function. The utility function mathematically describes the relationship between what consumers actually consume and their level of well-being. An example of the utility function would be considering the amount someone prefers drinking soda vs them drinking juice. The function would look like this, U = S0.6 J0.4 . The utility of soda is greater than the utility of juice because the exponent is larger than that of juice, therefore the consumer prefers soda over juice. The next material is the marginal utility function, which is the additional utility a consumer receives from an additional unit of a good or service. This means it is the derivative of utility with respect to the good. The math review comes into to play for the marginal utility because we have to calculate derivatives. For example, if you wanted to find the marginal utility of soda from the previous function, you would have to take the partial derivative with respect to S (soda). That would give you the answer of MUs = 0.6S-0.4 J0.4. The last material learned in section 1 was the rules for utility allows only for an ordinal ranking of consumption bundles Ordinal rankings mean we care about relative outcomes. In section 2, Indifference curves were introduced. An indifference curve plots out all of the consumption bundles that provide a consumer with the same level of utility or satisfaction. Here is an example of an indifference curve.



The ways you can tell that this is an indifference curve is by it’s characteristics. The characteristics of the indifference curve that stem from the four assumptions about consumer preferences are that they can be drawn, curves further from the origin represent higher utility, curves for an individual person never cross, and it is convex to the origin. Indifference curves describe tradeoffs of certain goods to another. It shows how much of one good someone is willing to give up for one more unit of another good. The tradeoff is found from taking the slope of the indifference curve and the slope of the indifference curve is called the marginal rate of substitution. The function for marginal rate of substitution is expressed as

MRSXY = -ΔY/ΔX . Another derivation of formula for marginal rates of substitution is by taking the derivative of x over y, which is written as MRS = Mux/MUy. The shape of the indifference curves also reveals information about the relationship between products. If the curvature of an indifference curve is relatively straight it describes goods that are more easily substitutable for one another and if the indifference curve is more convex to the origin it describes good that are more complementary to one another. In section 3 of chapter 4, the consumers income and the budget constraint were covered. The budget constraint is a curve that describes the entire set of consumption bundles a consumer can purchase when spending all their income. It is generally plotted alongside indifference curves. For example, for two goods (X and Y), Income = PXQX + PYQY, where P equals price and Q equal Quantity, to find the slope of the budget constraint you would have to solve for QY. Therefore you would rearrange the function to look like this : QY = Income/PY – PX/PY Qx. To use this to find the slope of the budget constraint and solve for Qy, we can say the setting income is 100, the price of good x is 5 and the price of good y is 10. We would then input 100 for the income over 10 for the price of good y and input 5 for the price of good x. The function should equate to Qy= 10 – 1/2QX. Since the slope of the function is - ½ it means purchasing more of good x means less income for good y. There are a couple factors that affect the budget constraints position. One is change in income shifts the budget constraints by changing the intercepts and the factors that affects the budget constraints position is change in the price of one good pivot the budget constraint by changing the slope. There are also nonstandard budget constraints like quantity discounts and quantity limits. Quantity discounts sometimes may cause consumers to secure a discounted price if a minimum quantity of a good is purchased. This results in a kink in the budget constraints. Quantity limits mean that alternatively, there may be limits on how much of a good can be purchased. In section 4 of chapter 4, we learned about what the consumer will consume. Tangency is used to finding the optimal bundle and it occurs where the slope of the indifference curve is equal to the slope of the budget constraint. That’s when the marginal rate of substitution is equal to the price ratio. It’s expressed mathematically as slope of indifference curve = slope of budget constraint. It is written out as 



This implies that the consumer finds the consumption bundle that provides the most benefit on a cost-adjusted basis and it occurs when marginal utility per dollar spent is equalized across all products. In chapter 4 is was introduced the underlying mechanisms behind consumer choice are preferences, prices and income.

In Chapter 5, the topics that were covered were how income changes affect an individual’s consumption choices, how price changes affect consumption choices, and consumer responses to price changes. In section 1 of chapter 5, we learned about how income changes affect an individual’s consumption choices. We learned that the income effect is the change in a consumer’s consumption choices that results from a change in the consumer’s income, holding relative prices constant. For normal goods, higher income is associated with rising consumption, for instance, consider vacations and basketball tickets, both of which are considered normal goods. Then for inferior goods, higher income is associated with falling consumption. Income elasticity was then discussed, it describes the response of demand to changing income, specifically the percentage change in quantity consumed associated with a percentage change in income. Income elasticity is written as 

Where I is income and Q is the quantity of a good demanded. The income effect is given by ΔQ/ΔI. We also covered how there are two addition sub type of normal goods. One is a necessity goods, which is normal goods which income elasticity is between 0 and 1. The other sub type of normal goods is luxury goods. Luxury goods are normal good for which income elasticity is greater than 1. A method we discussed on how income changes affect an individual’s consumption choices was by observing the income expansion path. The income expansion path is a curve that connects a consumer’s optimal bundles at each income level. Some characteristic of it are only two goods can be represented, when both goods are normal goods the path is positively sloped, if the slope of the income path is negative one of the goods is an inferior good, and the income levels can’t be directly observed on the curve because both axes represent quantities of goods. Here is an example of the income expansion path 

Another way to describe the consumption-income relationship is with an Engel curve. The Engel curve shows the relationship between quantity of a good consumed and the consumer’s income. If the Engel curve has a positive slope, the good is a normal good at that income level and if the Engel curve has a negative slop, the good is an inferior good at that income level. The next section in chapter 5 covered how price changes affect consumption choices. To understand how price changes affect consumption choices it is useful to us a demand curve. A demand curve tells us for a given price, what is the quantity of the good demanded. To further understand the demand curve we learned what the shifts in the demand curve mean. Factors that affect the demand curve to shift are consumer preferences, income, or the price of other goods changes. For example if a consumer likes to buy cookies with milk but then the price of milk increase, this will cause the consumer so decrease his consumption of milk which will also affect him to decrease his consumption in cookies since he liked to buy them together. Lastly in section 3 of chapter 5, we discussed consumer responses to price changes, specifically the substitution and income effects. When the price of a good changes relative to another, two things happen, one good becomes relatively more expensive, and the other relatively less and the total purchasing power of a consumer’s income changes. There were 3 different effects that we discussed that can occur when consumer respond to price changes. They are substitution effect, income effect, and total effect. The substitution effects refers to when the change in a consumer’s consumption choices that results from a change in the relative prices of two goods. The income effect refers to when the change in a consumer’s consumption choices that results from a change in the purchasing power of the consumer’s income. The total effect of a change in a rice is the sum of the substitution and income effects. The total effect is the observed change in consumption of a good after a price change. The equation for total effect is total effect = substitution effect + income effect. A couple factors that determines the size of the substitution and income effects are curvature and quantity consumed before the price change. For example the size of the substitution effect depends on the curvature of indifference curves and the income effect increases with the amount spent on a good before a price change. The last topic that was covered in section 3 of chapter 5 was Giffen goods. Giffen goods are goods for which a fall in price leads the consumer to want less of the good. Also when the price of a Giffen good drops, the substitution effect is smaller than the income effect. This results in an upward sloping demand curve. That concludes what we have learned so far thru chapter 5.

In Chapter 4, it introduced the underlying mechanisms behind consumer choices. In Chapter 5, we begin to touch on the link between consumer behavior, individual behavior and market demand. To understand both chapters we had to use our knowledge from the math review to compute the functions that were given using our ability to find the slope and our ability to find the derivative.