

ECON 103, 2008-2  
ANSWERS TO HOME WORK ASSIGNMENTS

Due the Week of July 28

**Chapter 13**

WRITE [2] Explain why economic rent is a surplus to the economy as a whole but a cost of production from the standpoint of individual firms and industries. Explain: "Rent performs no incentive function in the economy."

*ANS: Land is completely fixed in total supply. As population expands and the demand for land increases, rent first appears and then grows. From society's perspective, this rent is a surplus payment unnecessary for ensuring that the land is available to the economy as a whole. If rent declined or disappeared, the same amount of land would be available. If it increased, no more land would be forthcoming. Thus, rent does not function as an incentive for adding land to the economy.*

*But land does have alternative uses. To get it to its most productive use, individuals and firms compete and the winners are those who pay the highest rent. To the high bidders, rent is a cost of production that must be covered by the revenue gained through the sale of the commodities produced on that land.*

WRITE [4] Assume that the quantity of a certain type of farmland is 300,000 hectares and the demand for this land is that given in the table below.

Land rent per ha	Land demanded ha
\$300	100,000
250	200,000
200	300,000
150	400,000
100	500,000
50	600,000

- What will be the economic rent and how much land will be rented?
- If the productivity of the land decreases such that 200,000 less hectares are demanded at each price, what will the economic rent be and how much land will be supplied?
- Given the new demand schedule in (b), if landowners were taxed at a rate of \$50 per hectares for their land, what would be the pure rent on this land after taxes and how many hectares would be rented?

**ANS**

- The rent will be \$200 per hectares and 300,000 hectares of land will be rented.*
- The new economic rent will be \$100 per hectares and only 300,000 hectares will still be supplied.*
- The before-tax rent is \$100 so the after-tax rent is \$50. Still, 300,000 hectares would be rented.*

WRITE [10] How do the concepts of business profit and economic profit differ? Why is economic profit smaller than business profit? What are the three basic sources of economic profits? Classify each of the following in accordance with these sources:

- A firm's profits from developing and patenting a new medication that greatly reduces cholesterol and thus diminishes the likelihood of heart disease and stroke.
- A restaurant's profit that results from construction of a new highway past its door.
- The profit received by a firm benefiting from an unanticipated change in consumer tastes.

*ANS: Accounting profit is what remains of a firm's total revenues after it has paid for all the factors of production employed by the firm (its explicit costs) but not for the use of the resources owned by the business itself. Economists also take into consideration implicit costs—the payment the owners could have received by using the resources they own in some other way. The economist adds these implicit costs to the accountant's explicit costs to arrive at total cost. Subtracting the total cost from total revenue results in a smaller profit (the economic profit) than the accountant's profit.*

*Sources of economic profit: (1) uninsurable risks; (2) innovations; and (3) monopoly.*

- Profit from assuming the uncertainties of innovation, as well as monopoly profit from the patent.*
- Monopoly profit arising from its locational advantage.*

(c) Profit from bearing the uninsurable risk of a change in demand (the change could have been unfavourable).

Remember, I would also include profits attributable to unforeseen changes in supply and demand!

CONSIDER: [1] How does the economist's usage of the term "rent" differ from everyday usage? Explain "Though rent need not be paid by society to make land available, rental payments are very useful in guiding land into the most productive uses."

ANS: For the economist, rent is a payment to a resource above the resource's opportunity cost. In other words, it is a payment to a resource (land, labour, capital or entrepreneurial talent) above what is required to keep the resource in its present employment. Most people think of rent as a payment per period (e.g., per month, per year) for the use of an asset (e.g., an apartment). This notion of rent might include the economist's notion of rent, but usually includes a normal payment for resources. For example, a monthly rent payment for an apartment on English Bay would include a necessary charge to pay for the construction of the building, electricity, natural gas, insurance, upkeep and so forth (in other words a payment to cover the opportunity costs of these resources), and another component reflecting the value of the location (e.g., a location close to the water -- this component is the economist's notion of rent).

Rental payments are useful in guiding resources to their highest value use. For example, the fact is that land has alternative uses. To get land into its most productive use, individuals and firms must compete, and the winners are those who will pay the highest rent. It only makes sense to outbid someone else for any particular land if the winner expects to make more profitable use of it than the losers, that is, employ it in its most productive use. The same would hold for payments to a hockey star.

CONSIDER [6] Why is the supply of loanable funds upsloping? Why is the demand for loanable funds downsloping? Explain the equilibrium interest rate. List some factors that might cause it to change.

ANS: For the purposes of this course we will assume that the supply of loanable funds is upsloping because households prefer present consumption to future consumption and must be enticed through higher interest rates to save more (consume less) now. The higher the interest rate, the greater the saving and the amount of money made available to the loanable funds market. Demand is downsloping because more business investment projects become profitable as the cost of borrowing (the interest rate) falls. The equilibrium interest rate is the rate at which the quantities of funds supplied and demanded in the loanable funds market are equal. Anything that changes the supply of loanable funds or the demand for loanable funds will change the equilibrium interest rate. Two examples: Higher taxes on interest income would reduce the supply of loanable funds and increase the equilibrium interest rate; a decrease in business optimism would reduce the expected return on investment, decrease the demand for loanable funds, and reduce the equilibrium interest rate.

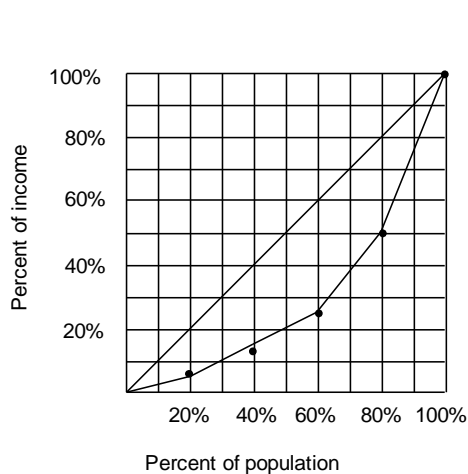
## Chapter 14

### WRITE [2]

Assume Syed, Beth, Sabine, David, and Mikkel receive incomes of \$500, \$250, \$125, \$75, and \$50 respectively. Construct and interpret a Lorenz curve for this five-person economy. What percentage of total income is received by the richest and by the poorest quintiles?

*ANS: .In this simple economy since there are 5 people, each person represents a complete income quintile—20 percent of the total population. The poorest quintile (Mikkel) receives \$50 or 5% of total income, while the richest quintile (Syed) receives 50 percent of total income.*

		% of income		Cumulative % of	
				Population	Income
Mikkel	\$ 50	5%	20%	5%	
David	\$ 75	8%	40%	13%	
Sabine	\$ 125	13%	60%	25%	
Beth	\$ 250	25%	80%	50%	
Syed	\$ 500	50%	100%	100%	
Total	\$ 1,000	100%			



Lorenz curve of income distribution

WRITE [3] How does the Gini ratio relate to the Lorenz curve? Why can't the Gini ratio exceed 1? What is implied about the direction of income inequality if the Gini ratio declines from 0.42 to 0.35? How would one show that change of inequality in the Lorenz diagram?

*ANS: The Gini ratio is the numerical measurement of the inequality depicted by the Lorenz curve. It is calculated by dividing the area between the curve and the diagonal by the total area below the diagonal. The Gini ratio can't exceed 1 because if the Lorenz curve is as far as possible from the diagonal (line of equality), the area between the curve and the diagonal will equal the total area below the diagonal. The equality will result in a Gini ratio of 1.*

*A decline in the Gini ratio implies less income inequality; and it would be graphically depicted by moving the Lorenz curve closer to the diagonal.*

WRITE [9]

The table shown below contains three hypothetical public assistance plans.

Plan One			Plan Two			Plan Three		
Earned income	Transfer Payment	Total income	Earned income	Transfer Payment	Total income	Earned income	Transfer Payment	Total income
\$0	\$4,000	\$4,000	\$0	\$4,000	\$4,000	\$0	\$8,000	\$8,000
\$2,000	\$3,000	\$5,000	\$4,000	\$3,000	\$7,000	\$4,000	\$6,000	\$10,000
\$4,000	\$2,000	\$6,000	\$8,000	\$2,000	\$10,000	\$8,000	\$4,000	\$12,000
\$6,000	\$1,000	\$7,000	\$12,000	\$1,000	\$13,000	\$12,000	\$2,000	\$14,000

- Determine the minimum income, the benefit reduction rate, and the break-even income for each plan.
- Which plan is the most costly? The least costly? Which plan is most effective in reducing poverty? The least effective? Which plan embodies the strongest disincentive to work? The weakest disincentive to work?
- Use your answers in part (b) to explain the following statement: "The dilemma of the negative income tax is that you cannot bring families up to the poverty level and simultaneously preserve work incentives and minimize program costs."

ANS:

- Plan 1: Minimum income = \$4,000; benefit reduction rate = 50 percent; break-even income = \$8,000 (= \$4,000/.5). Plan 2: Minimum income = \$4,000; benefit reduction rate = 25 percent; break-even income = \$16,000 (= \$4,000/.25). Plan 3: Minimum income = \$8,000; benefit reduction rate = 50 percent; break-even income = \$16,000 (= \$8,000/.5).
- Plan 3 is the most costly. Plan 1 is the least costly. Plan 3 is most effective in reducing poverty (although it has a higher benefit reduction rate than Plan 2, its minimum income is higher). Plan 1 is least effective in reducing poverty. Plan 3 has the strongest disincentive to work (although it has the same benefit reduction rate as Plan 1, its higher minimum income discourages work more). Plan 2 has the weakest disincentives to work (its minimum income and benefit reduction rates are low).
- The only way to eliminate poverty is to provide a minimum income high enough to lift everyone from poverty, including people who cannot work or choose not to work. But this large minimum income reduces the incentive to work, expands the number of people receiving transfer payments, and substantially boosts overall program costs.

CONSIDER: [5]

Briefly discuss the major causes of income inequality. With respect to income inequality, is there any difference between inheriting property and inheriting a high IQ? Explain.

ANS: The reasons for income inequality may be grouped into three broad categories: unequal personal endowments, differences in individual character, and external social factors. The first is largely a matter of luck—some people possess high intelligence, particular talents, or physical dexterity that allow them to earn high incomes. Also, they may inherit property or be aided by the social status and financial resources of their parents. The second reason involves personal initiative—individuals may be willing to undergo costly training, accept risk, or tolerate unpleasant working conditions in the expectation of higher pay. They may also show high personal initiative on the job. The third factor relates to society as a whole. Market power and discrimination are two important social determinants of income inequality.

A high IQ normally does not lead to high income unless it is combined with personal initiative and favourable social circumstances. Inherited property—as long as it is competently managed—provides income irrespective of one's character and personal attributes. Both factors are largely a matter of luck to the recipient.

CONSIDER: [7] Analyze in detail: "There need be no tradeoff between equality and efficiency. An 'efficient' economy which yields an income distribution which many regard as unfair may cause those with meager income rewards to become discouraged and stop trying. Hence, efficiency is undermined. A fairer distribution of rewards may generate a higher average productive effort on the part of the population, thereby enhancing efficiency. If people think they are playing a fair economic game and this belief causes them to try harder, an economy with an equitable income distribution may be efficient as well."

*ANS: It is hard to imagine that the disincentive effects on both high- and low-income earners of income redistribution will be swamped by an increased interest on the part of some of the poor in "playing the economic game." Without the prospect of higher incomes, few individuals in an economy—including the poor—would choose to increase their productivity. What would increase individual effort and hence aggregate efficiency is the perception that opportunities for all are equal in every respect. In other words, it is not so much an unequal distribution of income that causes some members of society to become discouraged and stop participating in the market, but rather the wide-ranging perception that the deck is stacked against them. Many feel they can never earn incomes commensurate with their abilities and efforts because of a lack of financial resources, restricted access to education, or barriers in the workplace.*

CONSIDER [11] Use a demand and supply model to explain the impact of occupational segregation or "crowding" on the relative wage rates and earnings of men and women. Who gains and who loses from the elimination of occupational segregation? Is there a net gain or net loss to society? Explain.

*ANS: See Figure 14-4. Discrimination against women in two of the three occupations will crowd women into the third occupation. Labour supply in the "men's occupations" (X and Y) decreases, making them high-wage occupations. Labour supply in the "women's occupation" (Z) increases creating a low-wage occupation.*

*Eliminating occupational segregation would entice women into the high-wage occupations, increasing labour supply there and reducing it in the low-wage occupation. The wage rates in the three occupations would converge to B. Women would gain, men would lose. Society would gain because the increase in output in the expanding occupations would exceed the loss of output in the contracting occupation.*

WRITE: Explain the rule for calculating present discounted value of a perpetual income stream.

*ANS: The idea here is to put into today's terms money that you will receive in the future. If you are offered a stream of income of \$100 per year forever, the question is how much money do you need to have today to generate such a stream. If the interest rate is 10%, you would need to put \$1,000 into the bank to receive \$100 per year in interest. So:*

*PV times the interest rate = the annual payment*

*$PV * i = \text{payment}$*

*$PV = \text{payment}/i$*