

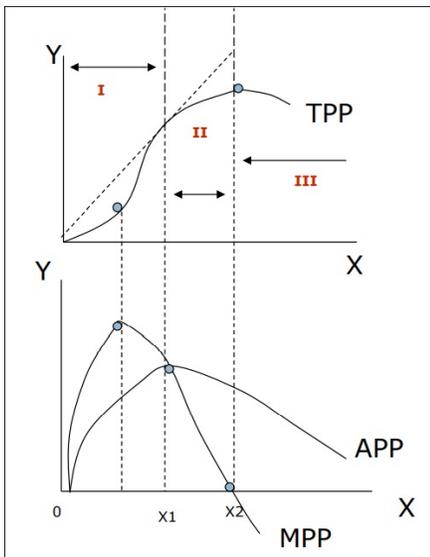
# ECONOMICS 101-03 MICROECONOMICS

## EXAM 2

March 19, 2021

1. Labor and capital can be complements or substitutes. The quantities are determined by comparing the marginal revenue product (MRP) to the marginal resource cost (MRC) of each resource. If  $MRP > MRC$  the quantity of the resource should be increased until  $MRP = MRC$ . If the reverse is the case— $MRP < MRC$ —the quantity of the resource should be decreased until  $MRP = MRC$ . These rules apply to both the short and long run.

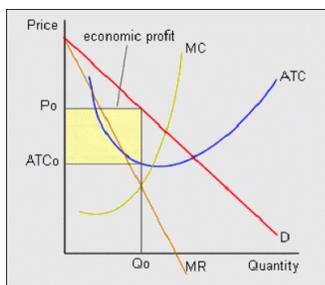
2. False. The graph:



Text: (Optional) Total output (Y) will increase when the variable input (X) results in a larger output—typically because of specialization of tasks for each additional unit of the variable input—for example labor. However after an additional number of units of the variable input, total output will increase at a slower rate and eventually decrease because the additional units make it more difficult to first increase product and eventually decrease production. The change in the relationship between total output (production) and quantity of the variable is tracked by the marginal physical product (MPP). When MPP becomes negative, total production declines. Area I is region of increasing returns: area II is region of diminishing (or decreasing) returns; area III is negative returns. The intersection of MPP and APP (average physical product) determines the quantity of X at which diminishing (decreasing) returns begins.

3. Opportunity costs are added to actual, out-of-pocket costs to construct the average total cost (ATC or AC) variable. If a firm could maximize, earn higher, economic profits (total revenue - total costs) by producing another good or service it should shift production to the good or service with the lowest cost (actual + opportunity cost). Another way of determining when total economic profits are maximized is when marginal cost (MC) which is change in AC / change in quantity = marginal revenue (MR) which is change in total revenue / change in quantity.

4. The graph:



Text:  $MC=MR$  determines the quantity and where  $MC = MR$  on the demand line indicates price. Total economic profit is the per unit amount between P and ATC where  $MC = MR$  times the Q.  $MC = MR$  is the most important relationship because once Q is set it determines the P which in turn is the basis, along with ATC for determining economic profits. Without  $MC = MR$  it would not be possible to determine P and economic profits.

5. The Gini coefficient is the size of the difference between a line showing the distribution of income or wealth based on equal percentage of the income and wealth and the households receiving the income or wealth (a Lorenz curve) and an equal distribution of income or wealth among all households (a line with the slope of 1). Accordingly, a larger divergence of these above two functions means there is a greater inequality in the distribution of income or wealth and a larger Gini coefficient.

6. The guaranteed amount or objective of a poverty program is made up of a subsidy if earned income is insufficient to equal the guaranteed amount or objective. Consequently, the relationship between the subsidy and earned income is inverse—as one increases, the other decreases. So an increase in the subsidy means less earned income is necessary to equal the guaranteed amount or program objective which can decrease the incentive to earn income. Specific examples: minimum wage where program objective is to have earned income = the poverty level, eliminating the need for a subsidy; an income maintenance program which seeks to raise funds available to households to the poverty level; food stamps which seeks to subsidize households which have insufficient income to sustain a nutritious diet.

7. Specialization leading to a comparative advantage in the production of a good (or service) from the same resources compared to other goods (or services) that could be produced from those resources is the basis for exporting the good (or service). Absolute advantage in the production of two goods (or services) compared to the production of the same two goods (or services) using the same resources in a foreign country does not determine which good (or service) should be exported.

8. Trade restrictions consist of: tariffs, quotas, subsidies and non-tariff barriers. Tariff (tax on imports): positive—domestic firms producing product have a price advantage which can lead to larger output and employment, government receives revenue from tariff; negative—consumers can pay higher prices on imported goods/services if domestic firms raise their prices to match price of imported goods/service plus the tariff. Quota (limitation on quantity imported): positive—firms protected from imports greater than level of quota which can increase domestic output and employment; negative—consumers may not have as large quantity as with a tariff and pay a higher price; government receives no revenue. Subsidies reduce price to domestic (and foreign) households and increase economic profits of firms receiving the subsidy. Non-tariff barrier (regulations limiting quantity of imports): positive—domestic firms receive benefits similar to tariff; negative—firms receive protection from imports, government receives no revenue; households may pay higher prices for smaller quantity.

9. An optimum tax is one which:

- a) is efficient—implementation and collection costs are low compared to other taxes
- b) changes taxpayer (consumer, household) behavior as little as possible
- c) is perceived as fair

Federal income tax can meet b) and c) criteria, but can be expensive (time consuming) for taxpayers to prepare returns and for government to enforce compliance. If compliance is lax, the tax may not be perceived as fair. State sales tax meets a), but can change consumer behavior and does not satisfy fairness—vertical equity—as households with varying income pay the same amount of tax. Local property taxes can meet a) and c), but typically affects decisions on location of housing and commercial and industrial facilities to lower tax areas.

10. Horizontal equity means similar entities are treated in a similar way. Vertical equity means there is an acceptable relationship between the characteristics of the entities and the treatment they receive. In the context of the COVID pandemic horizontal and vertical are relevant to the differential incidence of infection, the availability of treatment and vaccines and the loss of income from unemployment.

Horizontal equity: similar individuals by age, occupation, location have not been infected or have access to treatment to the same extent as other individuals with the same characteristics. Vertical equity: Lower income, minority and place of residence, employment individuals in high incidence areas are more likely to be infected and may not receive treatment or vaccines compared to higher income, majority or individuals who can avoid high incidence areas.