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Macroeconomics

✓ $GNP_{mkt\ price} = GDP +$ factor payments from abroad $-$ factor payment to abroad.

✓ $NNP_{mkt\ price} = GNP_{mkt\ price} -$ dep cost (consumption of fixed capital)

NI ✓ $NNP_{Factor\ price} = (NNP_{mkt\ price}) +$ subsidies $-$ indirect taxes

Net indirect tax = Subsidy − indirect tax

✓ PI = NI − (corporate profits) − (social insurance contributions) − (net interests) + (dividends) + (govt transfer payments) + (Personal interest income)

Disposable Personal Income

DPI = PI − direct taxes.

or, DPI = C + S

(imp)

Q

NDP at MP = 80,000

NFIA = −200

Depreciation = 4950

Subsidies = 1770

Indirect taxes = 10600

Calculate GNP at FC.

Soln:

GDP_{MKT} = 80,000 + 4950

= 84950

GNP_{MKT} = GDP_{MK} + NFIA

= 84950 − 200

= 84750

GNP_{FC} = 84750 + 1770 − 10,600

= 76,120.

Q2 Calculate (a) Domestic Income (NDP at FC)

(b) National Income (NNP at FC).

GDP at MP = 70150

Indirect taxes = 5200

Factor income from abroad = 800

Subsidies

Subsidies = 4000

Consumption of fixed capital = 3100

Factor income to abroad = 300

(a) NDP at MP = GDP_{MP} − dep cost

= 70150 − 3100

= 67050

Domestic income ($NDP_{at\ FC}$) = NDP_{MP} − indirect tax + subsidies

= 67050 − 5200 + 4000

= 67050 − 1200

= 65850

GNP_{mkt} = GDP_{mkt} + Factor pay from abroad − ... to abroad

= 70150 + 800 − 300

= 70150 + 500

= 70650

NNP_{mkt} = 70650 − dep cost

$= 70650 - 3100$

$= 67550$

$NNP_{MP} = NI = NNP_{MKT} + \text{Subsidy} - \underline{\text{Indirect taxes}}$

$= 67550 + 4000 - 5200$

$= 67550 - 1200$

$= 66350$ ✓ (ans)

Numericals on Conditional Probability

Q 1. In a group of 20 males and 5 females, 10 males and 3 females are service holders. What is the probability that a person selected at random from the group, is a service holder, given that the selected person is a male.

Let A be the event of selecting a person who is a service holder

... who is a ... holder

B be the event of selecting male

$A \cap B$ ⇒ a person who is a service holder (and) male

A ∩ B

We need to find $P(A/B) = \frac{P(A \cap B)}{P(B)}$

$P(B) = 20/25$ $P(A \cap B) = 10/25$

$\therefore P(A/B) = \frac{10/25}{20/25}$

$= 1/2$ (ans)

Q2: An urn contains six red and four white balls. Two balls are drawn without replacement. What is the probability that the second ball is red, if it is known that the first is red.

Solution: A_1 → first ball drawn is red

A_2 → second ball drawn is red.

$P(A_1 \cap A_2) = 1/3$

$$P(A_2/A_1) = \frac{P(A_1 \cap A_2)}{P(A_1)} = \frac{1/3}{6/10} = \frac{1}{3} \times \frac{10}{6} = \frac{5}{9}$$

$P(A_1) = \frac{6}{10}$

$P(A_2) = 5/9$

Now A_1 and A_2 are independent events

$\therefore P(A_1 \cap A_2) = P(A_1) \cdot P(A_2)$

$= \frac{6}{10} \times \frac{5}{9} = \frac{1}{3}$

$P(A_1 \cap A_2) = 1/3$