# TIONAL INSTITUTE OF PUBLIC ADMINISTRATION

**NAME:** **MARK CHIBU**

**STUDENT ID:** **2025000639**

**PROGRAM:** **BUSINESS ADMINISTRATION**

**COURSE:** **MACRO ECONOMICS**

**COURSE CODE:** **DIBA 1070**

**MODE OF STUDY:** **FULL TIME**

**LECTURER:** **MR SALWINDI NOTULU**

DATA

TAX RATE t = 20%

LUMP SUM TAX T =1,000

CONSUMPTION FUNCTION:

C= 4000 + 0.9Yd

SOLUTIONS

Yd =Y

With tax rate (20%)

Yd = (1-0.2) Y =0.8Y

With lump sum (T= 1000)

Yd = Y – 1000

With both (20% + 1000)

Yd = 0.8Y – 1000

Y=5000

1) C = 4000 + 0.9Yd
   No tax:
   C = 4000 + 0.9 (5000) = 4000 + 4500 = 8500
   With t:
   C = 4000 + 0.9 (4000) = 4000 + 3600 = 7600
   With T:
   C = 4000 + 0.9 (4000) = 4000 + 3600 = 7600
   With t + T:
   C = 4000 + 0.9 (3000) = 4000 + 2700 = 6700

   **Y** = 6000

   No tax:

2) C = 4000 + 0.9 (6000) = 4000 + 5400 = 9400
   With t:
   C = 4000 + 0.9 (4800) = 4000 + 4320 = 8320
   With T:
   C = 4000 + 0.9 (5000) = 4000 + 4500 = 8500
   With t + T
   C = 4000 + 0.9 (3800) = 4000 + 3420 = 7420

Y = 7000

No tax:

3) C = 4000 + 0.9 (7000) = 4000 + 6300 = 10,300

With t:

C = 4000 + 0.9 (5600) = 4000 + 5040 = 9040

With T:

C = 4000 + 0.9 (6000) = 4000 + 5400 = 9400

With t + T

C = 4000 + 0.9 (4600) = 4000 + 4140 = 8140

Final Table

| Y(Income) | C (No tax) | C (With t) | C (With T) | C (With t & T) |
|---|---|---|---|---|
| 5000 | 8500 | 7600 | 7600 | 6700 |
| 6000 | 9400 | 8320 | 8500 | 7420 |
| 7000 | 10300 | 9040 | 9400 | 8140 |

2) Each tax affects the consumption function

No tax: C = 4000 + 0.9Y. Marginal propensity to consume (MPC) = 0.9 and autonomous consumption = 4000.

Proportional tax (t = 0.2): disposable income Yd = 0.8Y. Consumption becomes C = 4000 + 0.9(0.8Y) = 4000 + 0.72Y.

The MPC Falls from 0.9 to 0.72 (slope decreases); autonomous consumption 4000 stays the same

Lump sum tax (T = 1,000): Yd = Y – 1000. Consumption becomes

C = 4000 + 0.9 (Y- 1000) = 3100 + 0.9Y.

The MPC remains 0.9 (Slope unchanged) but the function shifts down by 900 since 0.9 * 1000 = 900). This is a constant reduction in consumption for all income levels.

Both taxes: Yd = 0.8Y – 1000. Consumption becomes

C = 4000 + 0.9 (0.8Y -1000) = 3100 + 0.72Y, so consumption is both shifted down and has a lower slope.

Interpretation of the numbers in the table

For each income level, the proportional tax causes a larger absolute consumption drop as income rises (because the reduction equals 0.8Y).

The lump-sum tax reduces consumption by the same absolute amount (900) at every income level – therefore its relative burden is heavier on lower incomes.

With both taxes the consumption level is lowest because the individual loses from both a lower MPC and a constant downwards shift.

iii) Proportional taxes reduce consumption more for high incomes (absolute term) and lower the economy's overall MPC. Lump-sum taxes cut consumption by the same absolute amount for everyone, hurting low-income individuals relatively more. Policy makers should weigh equity (lump-sum is regressive) against efficiency and revenue needs when choosing tax instruments