Multipliers

Income is disposed as $Y = C + S + T$

AD or National income identity: $Y = C + I + G + X - M$

$S = sY$; $T = tY$; $M = mY$ [s: MPS, t:Tax ratio and m:MPM]

$sY + tY + mY = I + G + X$

$s\Delta Y + t\Delta Y + m\Delta Y = \Delta I + \Delta G + \Delta X$ [autonomous variables]

C, S, T & M induced variables (do not depend on national income)

$\Delta Y [s + t + m] = \Delta I + \Delta G + \Delta X$

$K_I = \Delta Y / \Delta I = 1/ [s + t + m]$ = Investment multiplier (given ΔG & $\Delta X = 0$]

$K_G = \Delta Y / \Delta G = 1/ [s + t + m]$ = Govt Expenditure multiplier (given ΔI & $\Delta X = 0$]

$K_X = \Delta Y / \Delta X = 1/ [s + t + m]$ = Export multiplier (given ΔG & $\Delta I = 0$]

$K_I = K_G = K_X$

Leakages: savings, taxes and imports

Boosters: I, G, X

For two sector: 1/s ; for three sectors 1/ [s + t]; for 4 sectors 1/ [s + t + m]