

Equilibrium GDP

Equilibrium GDP is that output level at which the total amount of goods produced, GDP, is just equal to the total amount of goods purchased. In a world with no government or foreign sector, the amount purchased is $C + I_g$. Additionally, GDP and disposable income (DI) are the same, so that our earlier relationship between consumption and DI holds for GDP as well: $C = a + bDI = a + bY$ where a is autonomous consumption, b is the marginal propensity to consume, and Y is GDP. Equilibrium GDP is then found as the solution to the following: $Y = C + I_g = a + bY + I_g$.

Subtracting bY from both sides of the equation, we obtain $Y - bY = a + I_g$. Next, factor out the common Y term: $Y(1 - b) = a + I_g$. Since the MPC is less than one, we can divide both sides by the factor

$(1 - b)$ to obtain our result: $Y_e = \left(\frac{1}{1 - b} \right) \cdot (a + I_g)$.

Following the example in the text, the consumption schedule is $C = \$97.5 + .75Y$ and $I_g = \$20$ (all figures in billions). Hence, equilibrium GDP is $Y_e = \left(\frac{1}{1 - .75} \right) \cdot (97.5 + 20) = 4 \cdot 117.5 = \470 billion.

We can check our results by computing consumption at a GDP of \$470: $C = 97.5 + .75 \cdot 470 = \450 . Adding consumption of \$450 to planned investment of \$20, we see that planned purchases of \$450 and \$20 do indeed total the planned output of \$470.