Macro Module 7 Market for capital practice exam questions

(The attached PDF file has better formatting.)

Market for capital

- The price level is 1.75; the supply of capital K^s is now 11.84, and the real rental price R/P is now 8.22%.
- The capital utilization rate (κ) = 100%, the depreciation rate of capital δ = zero, and the demand for capital × the marginal product of capital = 1.

Both capital and the capital utilization rate are fixed in the short run.

Question 1.2: Market for capital equilibrium

Is the market for capital now in equilibrium?

Answer 1.2: The market for capital is in equilibrium when the aggregate quantity of capital services supplied, K, equals the aggregate quantity demanded, K^d. The aggregate quantity of capital services supplied, K, equals the supply of capital K^s times the capital utilization rate (κ) = 11.84 × 100% = 11.84.

If the market for capital were now in equilibrium, the capital services demanded, K^d, would also be 11.84. The practice problem says that the demand for capital × the marginal product of capital = 1, so the marginal product of capital, MPK, would be 1 / 11.84 = 8.45%. (This relation is specific to the exam problem; it is not a general rule.)

Question 1.3: Reaching equilibrium

How might the market for capital reach equilibrium?

Answer 1.3: Less capital is being supplied to the market than is being demanded. In the short run, the economy has a given stock of houses, cars, machines, and factories. This capital stock is owned by households, and all of the services from this stock are supplied to the rental market. Therefore, in the short run, the aggregate or market quantity of capital services supplied, K^s , equals K. Neither the aggregate quantity of capital services supplied nor the marginal product of capital changes in the short run. If more capital were supplied, the marginal product of capital, MPK, would decrease, but this does not happen in the short run. The depreciation rate of capital also depends on the quantity of capital and does not change in the short run.

The aggregate quantity demanded, K^d, depends on the real rental price R/P. The real rental price R/P is how much users of capital are willing to pay, so it changes even in the short run. The equilibrium value of R/P is determined to clear the market, so that the aggregate quantity of capital services supplied, K, equals the aggregate quantity demanded, K^d.

The equality between K^s and K^d means that the market-clearing real rental price, (R/P)*, equals the marginal product of capital, MPK: (see Barro equation 6.15) (R/P)* = MPK (evaluated at K). The real rental price R/P is now 8.22%, which is less than 8.45%, so the market for capital is not in equilibrium. At a higher real rental price, users demand less capital. The real rental price R/P increases to 8.45% to clear the market.