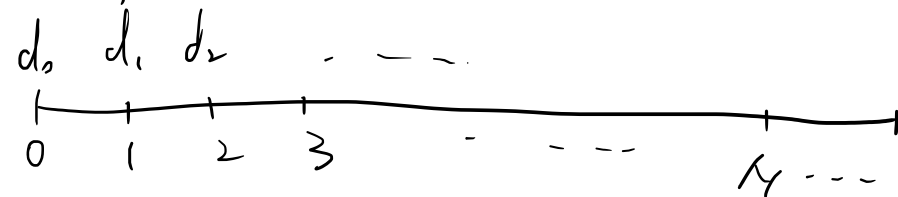


# Notes, Jan 20<sup>th</sup>, 2021

$|d_i|, i=0, \dots, N(\infty)$



interest rate  $r$

$\Downarrow$

discount 1 period  $\frac{1}{1+r}$   
 (discount rate  $\beta$ )

$$\Downarrow \sum_{i=0}^N \frac{d_i}{(1+r)^i}$$

$$\prod_{j=0}^i \frac{1}{(1+r_j)}$$

## Cobb-Douglas

$A^\alpha B^\beta$  (production function)

$A, B$  - production factors

$K$  - capital

$L$  - Labor

$z$  - productivity (Hicks-neutral)

$$Y = z \cdot K^\alpha L^\beta$$

$\Downarrow$   
output (GDP)

$$\alpha + \beta = 1$$

$\Downarrow$  constant returns to scale

$$\alpha + \beta < 1 \quad - \text{decreasing}$$

$$\alpha + \beta = 1 \quad -$$

$$\alpha + \beta > 1 \quad - \text{increasing}$$

marginal product labor  $\frac{\partial Y}{\partial L} = \lim_{\varepsilon \rightarrow 0} \frac{Y(K, L+\varepsilon) - Y(K, L)}{\varepsilon}$

capital  $\frac{\partial Y}{\partial K}$