Basic Cobb-Douglas Production Function

Key Properties	Marginal Product of Capital	Marginal Product of Labor
-Constant Returns to Scale	MPK=Partial derivate of F(K,N)	MPN=Partial derivate of F(K,N)
-If inputs are 0 outputs will be 0	MPK= $A\alpha(K/N)^{\alpha-1}$	MPK= $A(1-\alpha)(K/N)^{\alpha}$
-The production function is increaseing in each of the inputs	$\alpha(Y/K) > 0$	$(1-\alpha)(Y/K) > 0$
-The production function exhibits diminishing returns	.	

Neg Impact of Aging LAbor Force

-Rapid retirement decreases the firms overall knowledge, decreasing productivity.

-Productivity peaks at age 50

Growth Rate of GDP

$Y = (Y/N) * N$

then take logs

$\ln Y = \ln[Y/N] + \ln N$

Differentiate for time

$Y°/Y = (Y°/N)/(Y/N) + N°/N$

Growth rate of GDP equals the growth rate of labor productivity and the growth rate of labor stock

Solow Growth Model Basics

Aggregate Production Function	$Y = AK^{\alpha}N^{1-\alpha}$
Per Worker Production Function	$y = Ak^{\alpha}$
Capital Stock Accumulation	$K° = I - \delta K$
Capital Per Worker Accumulation	$k° = sf(k) - (n+\delta)k$
Steady-State Equilibrium	$k° = 0 \rightarrow sf(k) = (n+\delta)k$