

Tues 22:

Qs:

- Why is the US rich and Mexico poor?
- Cf. Question

Macro Str. def. m.b.:

- Long Run
- Short Run

Standard of living have increased dramatically. Why?

- Sources of the industrial revolution?
- Great enrichment  $\rightarrow$  great divergence

Growth rates: And % change from  $t_0$  to the rest

$$X_{t+1} = X_t (1+g)$$

$$Y = Y_0 (1+g)^t$$

$$L_t = L_0 (1+n)^t \quad L_0 = 8B$$

$$L_t = 8B (1.02)^t =$$



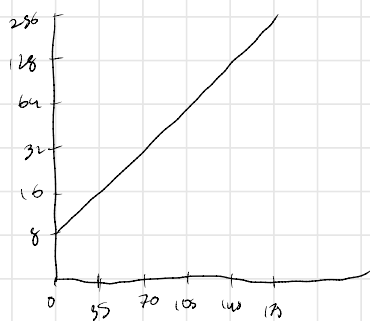
Rule of 70:

$$Y_{10} \text{ to double} = \frac{70}{g}, \text{ or } 12\%$$

$$g: g=2\%, Y_2=35 \text{ yrs}$$

$$g=9\%, Y_2=14 \text{ yrs}$$

Log scale/ratio scale:



$$\frac{Y}{Y_0} = (1+g)^t$$

$$\left(\frac{Y}{Y_0}\right)^{1/t} = 1+g$$

$$g = \left(\frac{Y}{Y_0}\right)^{1/t} - 1$$

Properties of growth rates

- $Z = X \cdot Y$ ,  $g_Z = g_X + g_Y$
- $Z = X/Y$ ,  $g_Z = g_X - g_Y$
- $Z = X^a$ ,  $g_Z = a g_X$