

$$\begin{aligned}
 Y_t &= \beta_0 + \beta_1 X_t + \beta_2 X_{t-1} + \beta_3 X_{t-2} \\
 &= \underset{\substack{\uparrow \\ \text{intercept}}}{\alpha} + \beta_0 X_{t-0} + \beta_1 X_{t-1} + \beta_2 X_{t-2} + \dots \\
 &= \alpha + \sum_l \beta_l X_{t-l}
 \end{aligned}$$

$$Y_t \approx \text{Total } N$$

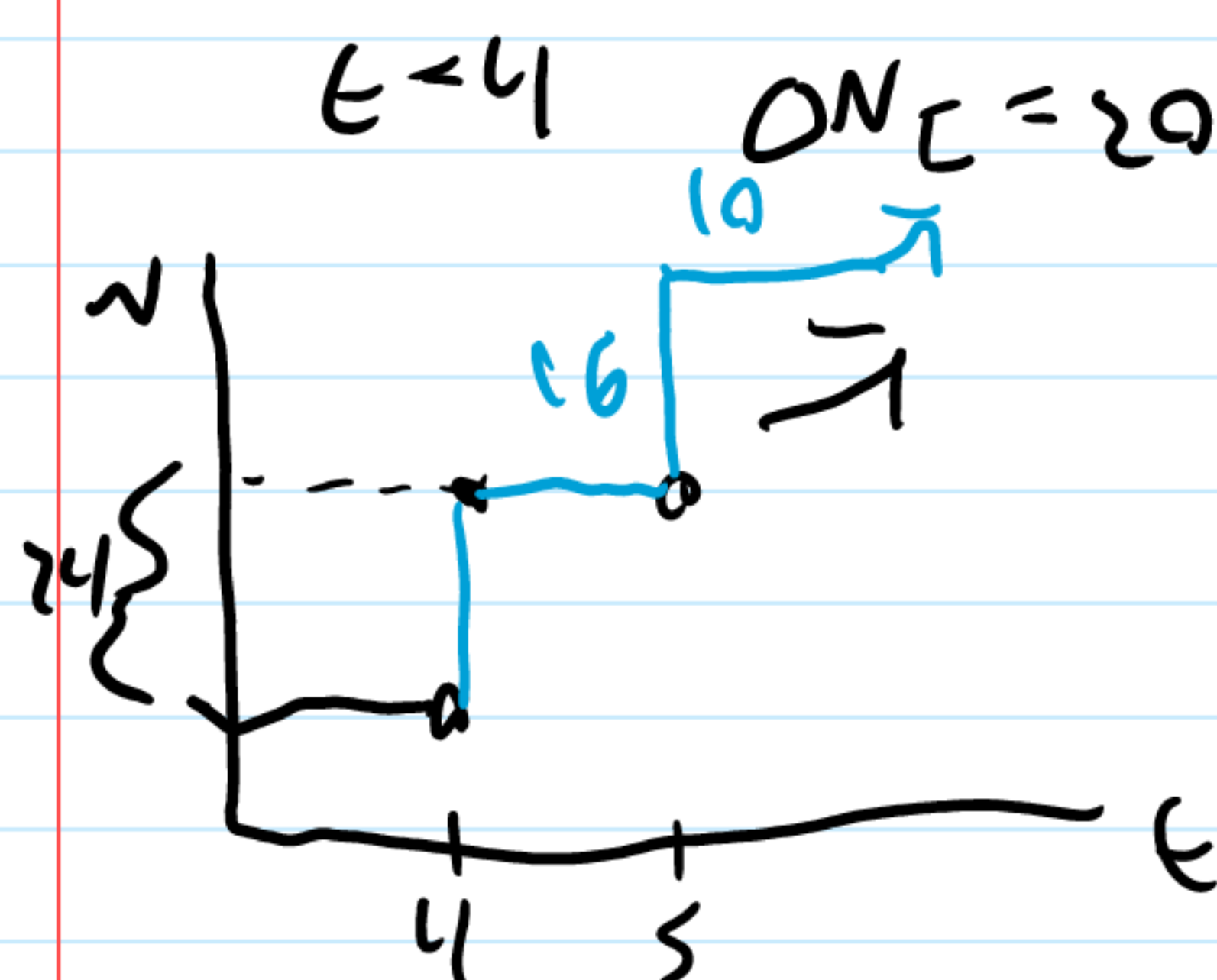
$$X_t = \text{emp by industry of interest}$$

$$N_t = \alpha + \beta_0 N_{It} + \beta_1 N_{It-1} + \beta_2 N_{It-2} + \dots$$

\uparrow
takes 3 years

$$N_t = 100 + 1.2N_{It} + .8N_{It-1} + .5N_{It-2}$$

$$\Delta N_t = 1.2\Delta N_{It} + .8\Delta N_{It-1} + .5\Delta N_{It-2}$$



$$\rightarrow \Delta N = 30$$

$$\text{Long run effect} = 1.2 + .8 + .5 = 2.5$$