

Households

$$\begin{aligned} & \max_{c(t), h(t)} \int_0^\infty e^{-\rho t} u(c(t), \ell(t)) dt \\ \text{s.t. } & \dot{k}(t) = w(t)h(t) + r(t)k(t) + \pi(t) - c(t) \\ & 1 - h(t) = \int_0^{M(t)} \ell_i(t) d\iota \end{aligned}$$

Consumption

Leisure

$$Y(t) = \int_0^{A(t)} x^\alpha(t) L_y^{1-\alpha} di$$

$$\dot{A}(t) = \underbrace{s_A(t)h(t)N(t)}_{L_A(t)} A(t)^\phi$$

$$\ell(t) = \left(\int_0^{M(t)} \ell_i(t)^{\frac{1}{1+\zeta}} d\iota \right)^{1+\zeta}$$

$$\dot{M}(t) = \gamma_M M(t)$$

$$\max_{x_i(t)} p_i(t)x_i(t) - r(t)k(t)$$