Households

$$\max_{c(t),h(t)} \int_0^\infty e^{-\rho t} u(c(t), \ell(t)) \mathrm{d}t$$
$$\text{s.t} \quad \dot{k}(t) = w(t)h(t) + r(t)k(t) + \pi(t) - c(t)$$
$$1 - h(t) = \int_0^{M(t)} \ell_\iota(t) \mathrm{d}\iota$$

Consumption

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

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

Leisure

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

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

Final Good

Intermediate Market

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