- Wealth effects
- Nominal anchor
- Lending channel
- Lags
- Liquidity effect
- Policy and Markets
- Interest rate smoothing and long run rates
- Fiscal/Monetary
- Leverage
- Multiplier

$$\max_{c,l} u(c) - v(l) \qquad \text{subject to} \qquad c = wl + d.$$

$$u'(c)\frac{dc}{dl} - v'(l) = 0 \Rightarrow u'(c)w = v'(l)$$

$$wu'(c) = v'(l), \tag{1}$$

$$\max_{C_1, C_2, l_1, l_1} u(C_1) - v(l_1) + \beta \left(u(C_2) - v(l_2) \right)$$

The *intertemporal budget constraint* is:

$$C_1 + \frac{C_2}{1+r} = wl_1 + \frac{wl_2}{1+r}$$

Then the Lagrangian is:

$$L = u(C_1) - v(l_1) + \beta \left(u(C_2) - v(l_2) \right)$$

$$+ \lambda \left(wl_1 + \frac{wl_2}{1+r} - C_1 + \frac{C_2}{1+r} \right)$$

Differentiating with respect to l_1, l_2, C_1, and C_2, and tidying things up, gives the optimality conditions:

$$u'(C_1) = \beta(1 + r)u'(C_2)$$

$$wu'(C_1) = v'(l_1)$$

$$wu'(C_2) = v'(l_2)$$