$$N = S + I + R$$

$$\dot{S} = -\beta S(1-\theta L)I(1-\theta L)$$

$$\dot{I} = \beta S(1-\theta L)I(1-\theta L) - \gamma I$$

$$-\dot{N} = D = \phi I$$

$$\max_{L} \int_0^{\infty} e^{-(r+v)t}\left((N-[S+I]L)w + \dot{N}\chi + \frac{v}{r}Nw\right)dt$$

$$V(t_0, x(t_0)) = \sup_{x(t),y(t)\in X\times Y} \int_{t_0}^{\infty} f(t,x,y)dt \quad s.t.\, \dot{x} = g(t,x,y) \quad and \lim_{t} bx \geq x_1$$

HJB:

$$f + V_t + V_x g = 0$$