ECON 220C PROBLEM SET # 2

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1. Investment and the Housing Market

1.1. **Explain the model.**

(1) $I = \psi(P)$: Gross investment in housing is an increasing function of the price of houses. This specification makes sense because housing investment is interpreted as housing supply.

(2) $r + \delta = (R + \dot{P})/P$: I assume that δ denotes the depreciation rate of a house. LHS is opportunity costs of owning a house: forgone rental interest rate and depreciation of the house. RHS is benefits of owning a house: (real) rental payment and capital gains.

(3) $R = R(H)$: Rental cost R is a decreasing function of available quantity of housing stock.

(4) $\dot{H} = I - \delta H$: Change in H is the difference between housing investment (new housing) and depreciated housing stock.

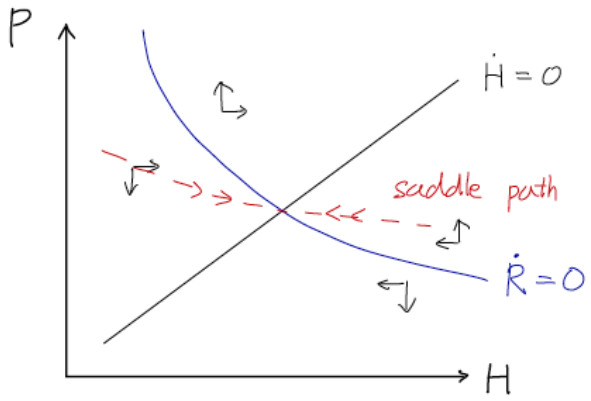
The model is closed: it has 4 endogenous variables (I, R, P, H) with 4 equations.

1.2. **Reduce the model into a 2-equation system.**

$$\dot{H} = \psi(P) - \delta H$$
$$r + \delta = (R(H) + \dot{P})/P$$

Here R is a function, not a variable.

1.3. **Draw phase diagram.** *Lines do not have to be linear.



1.4. **Steady state effect of r.**

2. Discount Factor Shock

3. News Shock

4. Labor Supply

5. Impulse Responses

6. Impulse Responses (2)