Slide 1

lecture 2: health and Wealth

14.771, Fall 02

Slide 2

Health and Wealth

- The story of Abu is a story of a poverty trap:
  - He has no income because he is too sick to work i.e. income is a function of health: $y_{t+1} = g(h_t), g' > 0$, investment in health today raises income tomorrow.
  - He is sick because he cannot afford a doctor, i.e. health is a function of income: $h_{t+1} = f(y_{t+1}), f' > 0$, higher income today means higher investment.

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Several caveats

- What is health? What is income?
- What is the right length of the period?
- Neither of these has to be a structural relationship: Many sick people can push themselves and work and higher income certainly does not necessarily translate into more investment
- Indeed should there be a necessary link between income and investment?

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Poverty traps

- This type of two-way positive interaction is usually the way we model a trap.
- Combining the two functions defined above, $h_{t+1} = f(g(h_t)$. Gives us a dynamic map.
- The interesting case is where $f(g(\cdot))$ is S-shaped.
- Possibility of mutiple equilibria, interpreted as a poverty trap.

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A NECESSARY CONDITION FOR A POVERTY TRAP...

- The $f(g(\cdot))$ map must intersect the 45° line from below. Let h^* be this point of intersection
- Then $f'(g(h^*))g'(h^*) > 1 \rightarrow \frac{f'(g(h^*))g(h^*)}{f(g(h^*))}\frac{g'(h^*)h^*}{g(h^*)} > 1$, because $f(g(h^*)) = h^*$.
- By continuity, the product of the elasticity of income w.r.t health and the elasticity of health w.r.t income must be > 1 over some range.