14.74 Foundations of Development Policy
Spring 2009

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Figure 1: The Capacity Curve

The Piece Rate
Figure 2: Labor Supply

Aggregate labor supply
Possible equilibria
Figure 4: Effect of Non-Labor Income on the Capacity Curve
Figure 5: Distribution of Land
Figure 6: Effective Reservation Wage

Labor supply as function of land owned

Piece Rate

Individuals Ranked By Land Owned

Figure 6: Effective Reservation Wage
Different types of equilibria

Figure 7: Type of Equilibria
Policy experiments
Dynamic versions of capacity curve
Dynamic version of the capacity curve

• Capacity curve:
  – Health affects income
    \[ y_{t+1} = g(h_t) \]
  – Income affects health
    \[ g(h_t) = f(y_t) \]
    \[ y_{t+1} = g(f(y_t)) \]
Figure 1

Income from Work

Inherited Income

$y_0$, $y_1$, $y_2$, $y_3$
Figure 2

Income from Work

Inherited Income

y₀ y₁ y₂ y₃ y₄ y₅

Figure 2
When will a property trap emerge?

- Capacity curve:
  - Health affects income
    $$y_{t+1} = g(h_t)$$
  - Income affects health
    $$g(h_t) = f(y_t)$$

- Capacity curve:
  $$y_{t+1} = g(f(y_t))$$

- Multiple equilibria (usually interpreted as poverty trap) will arise iff the capacity curve intersects the 45 degree line from below
Conditions for capacity curve to intersect 45 degree line from below

• Let $y^*$ be the point at which the capacity curve intersect the 45 degrees line. At this point, the derivative $((g(f(y^*)))' > 1$

• Now: $(g(f(y^*)))' = g'(f(y^*)) * f'(y^*)$

$$= \frac{g'(f(y^*)) f(y^*)}{g(f(y^*))} \cdot \frac{f'(y^*) y^*}{f(y^*)}$$

• Because $g(f(y^*)) = y^*$
\[
\frac{g'(f(y*)) f(y*)}{g(f(y*))}
\]

is the elasticity of \( g \) with respect to \( h \) (income with respect to health)

\[
\frac{f'(y*) y^*}{f(y*)}
\]

is the elasticity of \( f \) with respect to \( y \) (health with respect to income)

• By continuity, over some range, the product of the elasticities must be greater than one.

• A very general point, which we will now explore in the case of health
Caveats

• What is a period? (one day? One life time? One year?)
• What is health?
• What is income?