Prelim 1 will be in class on Monday, October 1.
Next Lecture


(Click here)
Ungraded Homework Assignment

The solutions will be at www.karlshell.com

Consider

$$\max \quad u_h(x^1_h, x^2_h) = A \log x^1_h + B \log x^2_h$$

subject to

$$p^1 x^1_h + p^2 x^2_h = p^1 \omega^1_h + p^2 \omega^2_h = w_h$$

Derive the demand function $x_h(p^1, p^2)$ where $p^1, p^2, w_h, A, B$ are positive and given to Mr. $h$. 
Optimal Deposit Contract:

\[
(1 - \lambda) d_2 = (1 - \lambda d_1) R
\]

slope = \(-\frac{\lambda}{1 - \lambda}\) R
Optimal Deposit Contract:

\[ \lambda u(d_1) + (1 - \lambda)u(d_2) = \text{const} \]

\[ \text{slope} = -\frac{\lambda}{1 - \lambda} \frac{u'(d_1^*)}{u'(d_2^*)} \]

\[ (1 - \lambda)d_2 = (1 - \lambda d_1)R \]

\[ \text{slope} = -\frac{\lambda}{1 - \lambda} R \]

\[ \frac{\lambda}{1 - \lambda} \frac{u'(d_1^*)}{u'(d_2^*)} = \frac{\lambda}{1 - \lambda} R \]

\[ \text{MRS} \]

\[ \text{MRT} \]
What do banks do?

- \( u'(d_1^*) / u'(d_2^*) = R \)
- \( u'' < 0 \Rightarrow d_1^* < d_2^* \)
- CRRA: \( u(c) = \frac{c^{1-\gamma}}{1-\gamma} \)
  - \( u'(c) = c^{-\gamma} \Rightarrow u'(d_1) / u'(d_2) = (d_2 / d_1)^\gamma \)
  - if \( \gamma = 1 \Rightarrow d_1^* = 1, d_2^* = R \)
  - if \( \gamma > 1 \Rightarrow 1 < d_1^* < d_2^* < R \)
Why do bank runs occur?

- $\gamma > 1 \implies 1 < d_1^* < d_2^* < R$
- IC: $d_1 \leq d_2$
- Expectation: Only the impatient depositors withdraw in period 1.
- A patient depositor can
  
  \[
  \begin{cases}
  \text{get } d_2^* & \text{if he withdraws in period 2} \\
  \text{get } d_1^* & \text{if he withdraws in period 1}
  \end{cases}
  \]
Why do bank runs occur?

- $\gamma > 1 \iff 1 < d_1^* < d_2^* < R$

- Expectation: All other depositors demand withdraw in period 1.

- A patient depositor can

\[
\begin{align*}
\text{get nothing} & \quad \text{if he withdraws in period 2} \\
\text{get } d_1^* \text{ w.p. } (1/d_1^*) & \quad \text{if he withdraws in period 1}
\end{align*}
\]
Some Remarks on Finance, Financial Fragility, and Banking
Housing and Mortgages

- Non-recourse loans in US (jingle repayment)
- Tax advantages
- Implicit subsidies: FNMA, GNMA, etc.
- Inflation
- Rising interest rates
- ARM’s
Personal Income Tax

- Definitions of progressive, proportional, and regressive taxation
- High marginal “tax” rates on the poor
- Capital gains taxation
Corporate Income Taxation

- Recent changes
- Ideal
- Transition
Retirement

- Social security
- 401K
- 403B
- Alternatives
Student Loans
Personal Loans

- Collateral
- Home equity loans