Discussion of
Social Insurance, Information Revelation and Lack of Commitment

Juanpa Nicolini

Celebrating one more Great Prize for Bob Lucas

October, 2016.

- Impressive paper: Hidden information and lack of commitment.

- Which problems do we have in mind?

- Section 2: Two period model. (2 x 2 x 2)

- Section 3: Infinite period model. (∞, N, endogenous)

- Talk about (2 x 2 x 1) and then (2 x 2 x 2).

- Unit mass of agents with preferences

$$E\left[\theta^i \ln c_1(i) + \ln c_2(i)\right], \text{ for } i \in [0,1]$$

- $\theta^i = 1 + \Delta$ with probability $\frac{1}{2}$ (high)

- $\theta^i = 1 - \Delta$ with probability $\frac{1}{2}$ (low)

- Endowment is 1 in each period.

Timing

- Principal chooses contract.
- Agents make announcement (l, h)
- Principal reoptimizes. If changes contract, pays κ.
- First period consumption.
- Second period consumption.

First best:

- Max

$$\frac{1}{2}\left[(1-\Delta)\ln c_1(l) + \ln c_2(l)\right] + \frac{1}{2}\left[(1+\Delta)\ln c_1(h) + \ln c_2(h)\right]$$

  st

$$\frac{1}{2}\left[c_1(l) + c_1(h) + c_2(l) + c_2(h)\right] \leq 2$$

- Solution

$$\begin{aligned} c_1(l)^{FB} &= (1-\Delta) \\ c_1(h)^{FB} &= (1+\Delta) \\ c_2(l)^{FB} &= c_2(h)^{FB} = 1, \end{aligned}$$

- Utility of first best

$$U^{FB} = \frac{1}{2} \ln[(1 - \Delta)^{(1-\Delta)}(1 + \Delta)^{(1+\Delta)}] > 0 \text{ for } \Delta > 0$$

- Autarky:

$$c_1(l) = c_1(h) = c_2(l) = c_2(h) = 1.$$

- Utility at autarky

$$U^A = 0$$

Hidden information.

- Max

$$\frac{1}{2}\left[(1-\Delta)\ln c_1(l)+\ln c_2(l)\right]+\frac{1}{2}\left[(1+\Delta)\ln c_1(h)+\ln c_2(h)\right]$$

st

$$\frac{1}{2}\left[c_1(l)+c_1(h)+c_2(l)+c_2(h)\right]\leq 2$$

and

$$\left[\ln c_2(l)-\ln c_2(h)\right]\geq \theta^l\left[\ln c_1(h)-\ln c_1(l)\right]$$

- Solution

$$c_1(l)^{FB} < c_1(l)^{HI} < 1 < c_1(h)^{HI} < c_1(h)^{FB}$$

$$c_2(l)^{HI} > c_2(h)^{HI}$$

- Utility of hidden information

$$U^{FB} > U^{HI} > U^A = 0$$

- Consider agents revealed type and principal reoptimizes.

- At that stage, principal solves FB problem.

- It will chose **not** to change to the FB contract iff

$$U^{FB} - \kappa \leq U^{HI}$$

- Thus, if this condition holds, the HI solutions obtains.

- If not, and all agents are treated equally, autarky is the solution.
  - Contract is not credible, incentive constraint not satisfied, no information revealed.

- Assume that the HI is not sustainable

$$U^{FB} - \kappa > U^{HI}.$$

- Split the unit mass into two groups of agents, $i \in [0, \alpha)$ and $j \in [\alpha, 1]$.

- Consider the following social contract
  - HI allocation to $i \in [0, \alpha)$,
  - autarky to $j \in [\alpha, 1]$.

- Principal acquires less information.

- This is credible as long as

$$\alpha U^{FB} + (1 - \alpha) U^{A} - \kappa < \alpha U^{HI} + (1 - \alpha) U^{A}$$

or

$$\alpha U^{FB} - \kappa < \alpha U^{HI}$$

- This condition is satisfied for α small enough.

- Can find $\widetilde{\alpha}$ such that

$$U^{FB} - \frac{\kappa}{\widetilde{\alpha}} = U^{HI}$$

- $\widetilde{\alpha}$ is a measure of the degree of social insurance that is sustainable.

- Avoid having "too much" information.

- Source of asymmetry: $U_i > U_j$ for $i \in [0, \alpha)$, and $j \in [\alpha, 1]$.

- Beauty of the dynamic model:
  - κ, α and utility levels for each group are all endogenous.
- Comments:
  - Even simpler 2 x 2 x 2.
  - How should we rethink social insurance?