An Intuition on Possession, Poverty, and Money

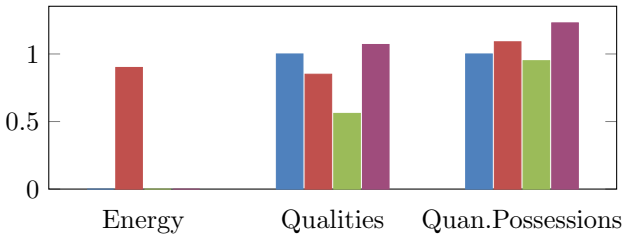
Ali Fathi

Abstract

In this paper, we try to get an intuition about the micro economy and poverty.

1 Model of Entities

Each entity (person) has a set of qualities and also quantitative possessions. Besides, thanks to nature and god, we receive almost a constant uptake of energy as the result of our feeding.



We show the quantitative possessions by $\mathbf{p}$, which are everything like gold, real estate, foods, etc. Also, $\mathbf{q}$ will be the set of qualities such as knowledge, resume, where you live, people who trust you, and so on. To prevent the complexity of cash and inflammation and everything related to money, we assume that there is no cash in our model. If necessary, gold can play the role of it, and we are factually considering a more general model.
As life goes on, we constantly trade our energy and possessions into newer qualitative or quantitative possessions. Ideally, we have a catalog of all possible trades in life, like $\{\mathbf{p}, \mathbf{q}, \Delta e\} \to \{\mathbf{p}', \mathbf{q}'\}$, in which $\mathbf{p}$ is the state of quantitative possessions and $\mathbf{q}$ is qualities. For example, consider a farmer with corresponding quantities of $\mathbf{q}$ (like the knowledge of farming). The quantitative possessions could be as follows:

$$\mathbf{p} = \{\text{seeds, farming tools, farming ground.}\}$$

For farming, we will have the following rule in our catalog:

$$\{\mathbf{p}, \mathbf{q}, \Delta e\} \to \{\mathbf{p}', \mathbf{q}\}$$
$$\mathbf{p}' = \mathbf{p} \cup \{\text{crop}\} \backslash \{\text{seeds}\}.$$

Quantitatively, Δx_{seeds} is consumed and Δx_{crop} is produced. Based on the market, we also have the following entries:

$$\Delta x_{seeds} \to \Delta x_{gold}$$
$$\Delta x_{crop} \to \Delta y_{gold}$$

for which we clearly have $\Delta x_{gold} < \Delta y_{gold}$ as the energy that that farmer has put on this process.

2 Economical Life

Based on our possessions, we can utilize various entries of the economic catalog to move between states. For example, we can consume our energy to go to university and increase our knowledge of management:

$$\{\Delta e\} \to \{\Delta q_{knowledge}\}$$

then utilize this knowledge by other entries which convert $\Delta q_{knowledge}$ into other possession, such as gold. Another guy with a healthy body (as qualitative possessions) can be recruited in a kitchen to work:

$$\{\mathbf{q}\} \to \{\mathbf{p}'\}$$
$$\mathbf{q}' = \mathbf{q} \cup \{\text{recruitment in the kitchen}\}$$

then consumes energy to make gold:

$$\{\mathbf{q}', \Delta e\} \to \{\mathbf{q}', \Delta x_{gold}\}.$$

Note that this transition does not exist with $\mathbf{q}$, which emphasizes the importance of qualities. This is the state machine modeling of economic life. If $\mathcal{C}$ is the catalog of all trades, an economical life could be considered as a sequence of states:

$$\mathcal{S} = s_0 \to s_1 \to s_2 \to \cdots \to s_n$$

for which $(s_i \to s_{i+1}) \in \mathcal{C}$.

3 Poverty

If we define a set of states like $\mathcal{F}$ as welfare states, the distance to wealth from a specific state can be defined as the minimum consumed energy needed to reach from that state into a state in $\mathcal{F}$:

$$p.i. = \min_{s_n \in \mathcal{F}} \{E(s_0 \to \cdots \to s_n)\}$$

in which $E(\mathcal{S})$ is the sum of Δe's in this sequence. As clear, the more *p.i.* (poverty index), the poorer a guy.