Alternative Market Structures

The "underlying" economy:

Goods and states: $c \in C$ and $s \in S$.

Consumption plans: $x = (x_{cs}) \in \mathbb{R}_+^{C \times S}$.

Preferences: $u : \mathbb{R}_+^{C \times S} \to \mathbb{R}$; $u(x)$ is $u((x_{cs})_{C \times S})$.

Endowments: $\mathring{x} = (\mathring{x}_{cs}) \in \mathbb{R}_+^{C \times S}$, total or individual.

Pareto efficiency is defined and can be analyzed.

Contingent Claims (Arrow-Debreu) Markets:

A market and price for every good, in every state: $p = (p_{cs}) \in \mathbb{R}_+^{C \times S}$.

Consumer faces just one constraint: $p \cdot x \leq p \cdot \mathring{x}$.

All payments occur today ("up front"); all deliveries of future goods are state-contingent (x_{cs} is delivered only if s occurred).

The market structure is an interpretation of our Walrasian model: every item in this market structure is playing the role of an item in the Walrasian markets model.

Securities Markets:

There are no markets for future goods (to simplify).

The instruments that are traded are securities (plus today's goods, but we start by assuming only one good.)

A security is an S-vector $d_k = (d_{sk}) \in \mathbb{R}^S$ of dollar returns or payoffs (not goods).

(This distinction matters only if there is more than one good, but it helps to clarify things even if there is only one good.)

A portfolio $y = (y_k)_k \in \mathbb{R}^K$ of securities provides a single dollar payoff (in $\mathbb{R}$) in each state — not a vector $(x_c) \in \mathbb{R}^C$ of quantities of the goods. The dollars received or paid in state s determine the bundles $(x_{cs}) \in \mathbb{R}^C_+$ that a consumer can purchase if state s occurs, via a state-s budget constraint. So the consumer faces $S+1$ budget constraints: one today, and one for each state $s \in S$.