Market equib or Market clearance price:

is a market price established through competition such that the amounts of goods or services sought by buyers is equal to the amount of goods or services proced by sellers. The prices will tent not to change unless demand or supply changes.

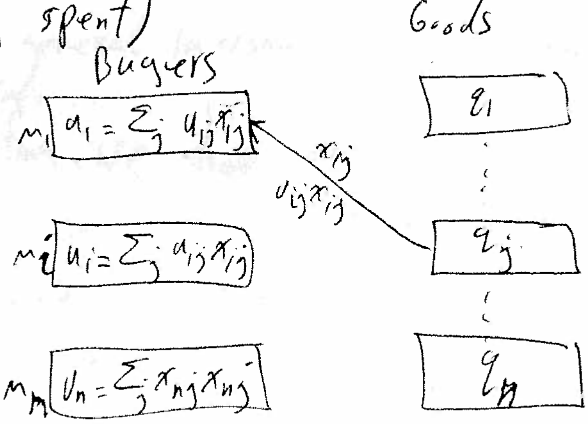
Mor precisely in a Fisher setting with linear Utilitres, we have

- m buyers in set B (each with budget B_i) and n goods in set G for sale (each with quantity q_j)
- Each buyer has linear utility u_i, i.e., utility of i is $\text{sum}_j\, u_{ij} x_{ij}$ where $u_{ij} \geq 0$ is the utility of buyer i for good j and x_{ij} is the amount of good j bought by i.

A market equib. or market clearance is a price vector p that

- maximizes utility $\text{sum}_j\, u_{ij} x_{ij}$ of buyer i subject to his budget $\text{sum}_j\, p_j x_{ij} \leq B_i$
- The demand and supply for each good j are equal, i.e., $\text{sum}_i\, x_{ij} = q_j$ (and thus the budgets are totally spent)

Thm: A under the mild assumption that each good has a potential buyer, i.e., a buyer who derives nonzero utility from this good, market clearing prices do always exist.



Arrow–Debreu model with linear utilities:

It is also known as the Walrasian model or the exchange model and it generalizes Fisher's model. Consider a market consisting of a set B of agents an a set G of goods, assume $|G| = n$ and $|B| = m$. Each agent i comes to the market with an initial endowment of goods $e_i = (e_{i1}, e_{i2}, \ldots, e_{in})$. We may assume w.l.o.g. that the total amount of each good is unit (by scaling), i.e. for $1 \leq j \leq n$, $\sum_{i=1}^{m} e_{ij} = 1$. Each agent has linear utilities for these goods. The utility of agent i on deriving x_{ij} amount of good j, for $1 \leq j \leq n$ is $\sum_{j=1}^{n} u_{ij} x_{ij}$. The problem is to find prices for goods $P = (p_1, \ldots, p_n)$ so that if each agent sells