I was pretty incoherent today because I procrastinated graph theory until 3AM

Social Efficiency

Is the competitive equilibrium the first best allocation?

hat - planner problem

start - equilibrium

Socila planner problem

Max utility such that c+g < zf(1-l, kbar)

L(c, l, lambda) = U(c, l) + lambda(zf(1-l, kbar) - c - g)

FOC(c) Uc = lambda

FOC(l) Ul = lambdazf_n(1-lhat, kbar)

MRS_cl = Ul/Uc = zf_n(1-lhat, kbar)

So MRScl = MRTcl in the static equilibrium.

Optimality of the household or firm means wage = MPL and tangency to budget constraint. For social planner, there is only the preferences (U) and feasibility / technology (PPF). So the optimality for the planner is always MRS = MRT. Not always does the competitive equilibrium hold this.

Wedges in the optimality conditions for households and frims cause social inefficiency

2 agent Economy

Given $\sum_i \alpha_i \leq 1$, $\forall i, \alpha_i \in [0,1]$, optimize $\max_{c_i, l_i} \sum_i \alpha_i U(c_i, l_i)$, such that $\sum_i c_i + g \leq f\left(\sum_i (1 - l_i), \overline{k}\right)$ and where $\forall i, c_i \geq 0, l_i \in [0,1]$.

The Pareto Frontier is the curve of solutions of the planner problem and is parametrized by α.

It is so called because

Welfare Theorems

Under technical conditions...,

1. Every competitive equilibirum is pareto optimal
2. Every pareto optimal allocation can be decentralized as a competitive equilibrium with the appropriate initial transfers of wealth.

Homework: Characterize the solution above for the comeptitive equilibrium, and identify the mapping between α in the pareto problem and the initial wealth transfer.

Welfare function is an aggregation of agent utilities

W(U_i) = sum of alpha_i U_i

alpha_i = 1/N utilitarian

Rawlsian: all the weight on the poorest