Econ 712 Midterm Guide

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Social Planner's Problem

Objective function

- Maximize utility function for current old and current young (c_t^t, c_t^{t-1})

Constraints

- Sum of consumption across generations = sum of young and old endowments
- Other assets = initial stock + interest

Other notes

- Planners don't take into account price level, wages, or rental rate of capital
- Planners do account for population size in the constraints

Competitive Equilibrium

Objective function

- Maximize utility function for one generation while they're young and old (c_t^t, c_{t+1}^t)

Constraints

- Time t consumption + assets = time t endowment ***adjust for price level at t
- Time t+1 consumption = time t+1 endowment + assets ***adjust for price level at t+1

Other notes

- Competitive equilibrium occurs when agents optimize and markets clear
- Market clearing conditions are basically the constraints from the planner's problem (subscripts must match)
- Population size doesn't factor into constraints, but does factor into MCC
- Use total production for MCC supply = demand
- MCC doesn't take into account price level, wages, or rental rate of capital

Ramsey Equilibrium

Timing

1) Government chooses tax rate τ
2) Households choose investment

- Households solve for x, taking τ as given.
- Consistency: $x^r(\tau) = X^r(\tau)$
- Goods markets clear: $c + g = w + (R-1)X^r(\tau)$
- Government solves for max of utility given household X.

Objective function

- Maximize utility function

Constraints

- $x + m = w$
- $c = m + (1-\tau)Rx$

No Commitment (Nash) Equilibrium

Timing

1) Households choose investment
2) Government chooses tax rate τ

- Government solves for τ, taking X as given.

- Households solve for x, no household makes an impact individually, but they all make the same decision.

Objective function

- Maximize utility function

Constraints

- $x + m = w$
- $c = m + (1 - \tau)Rx$

Capital-based Model

Other notes

- write MCC in terms of production function, K, L (show firm side = household side)

Idiosyncratic Model

Laffer Curve

Other Definitions

- Pareto-Optimal: no one situation can be improved w/o making someone worse off

- Autarkic equilibrium: no trading, no one wants money in the money market