

1. Consider the following economy

- Consumers A,B
- Goods 1, 2.
- Preferences

$$u_A = 2\sqrt{A_1 A_2}, u_B = 2\sqrt{B_1 B_2}$$

- Endowments $e_A = [1,0], e_B = [0,1]$
- Consumers pay a tax $-1 < t$ for each unit of good 1 they buy. Tax revenue R is distributed to consumers with lump-sum transfers $T_A = \alpha R, T_B = (1 - \alpha)R, 0 \leq \alpha \leq 1$.

1. Compute competitive equilibria as a function of the policy parameters t, α

2. Plot the equilibrium values of all variables as a function of the tax rate

2. Consider an economy consisting of

- Consumers 1,2
- Goods A,X
- One firm, with production function $A = X$

Consumer 1

- Endowment $e_1 = [0,1], \theta_1 = 0$
- preferences $U_1 = X_1 + 2\sqrt{A_1}$

Consumer 2

- Endowment $e_2 = [0,0], \theta_2 = 1$
- preferences $U_2 = A_2$

1. Compute competitive equilibria when sellers of good X are taxed on the value of their sales at a rate $0 \leq t < 1$, and any tax revenue is transferred to consumer 2 with a lump-sum subsidy.

2. Plot the equilibrium values of all variables as a function of the tax rate