

Micro Note 2

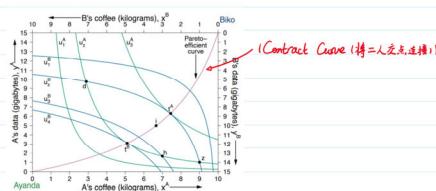
2024年7月11日 11:13

有效分配的点(斜率相同)

$$\therefore MRS_A = MRS_B$$

$$\therefore \frac{\frac{\partial U_A}{\partial X_1}}{\frac{\partial U_A}{\partial X_2}} = \frac{\frac{\partial U_B}{\partial X_1}}{\frac{\partial U_B}{\partial X_2}}$$

(Pareto Efficient Allocations (从无到最优))



$$X_2^B = 6 - X_1^A$$

$$\therefore \frac{X_2^B}{X_1^B} = \frac{6 - X_1^A}{14 - X_1^A} = \frac{X_1^A}{X_1^B}$$

$$(14 - X_1^A)X_2^A = (6 - X_1^A)X_1^A$$

$$14X_1^A - X_1^AX_2^A = 6X_1^A - X_1^AX_1^A$$

$$\text{Contract Curve: } X_2^A = \frac{8}{7}X_1^A$$

$$27X_1^B - 3X_1^AX_2^A = 24X_1^A - 3X_1^AX_2^A$$

$$27X_1^B = 24X_1^A$$

$$\text{Contract Curve: } X_2^B = \frac{8}{7}X_1^A$$

2) 亚当斯密的公正的旁观者'(Impartial Spectator)

· Problem: Contract Curve 上选择哪个

· Conflict of interest: 对于 A, 其 Pareto-efficient division 靠右; 对于 B 靠左.

他们可能不会同意谈到那个 Pareto-efficient division

分配方法

1. First come first served (可能不公平)
2. Fifty-Fifty: 五五开 (偏好不同下不公平)
3. Maximize total utility principle: 总效用最大

Impartial Spectator

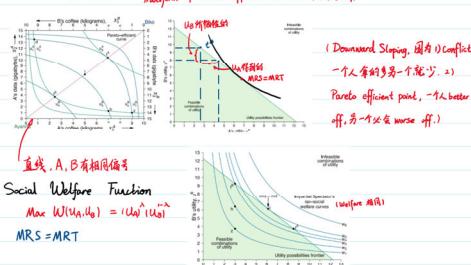
· Procedural judgement: 分配的程序 (Procedure) 是否公平?

· Substantive judgement: 结果是否是公平?

UPF (效用可能性曲线, Utility Possibilities Frontier)

通过 Contract Curve —> UPF

Pareto efficient allocations 通过那个 Pareto efficient allocation 下的效用



3) Regarding Preferences

Self-regarding

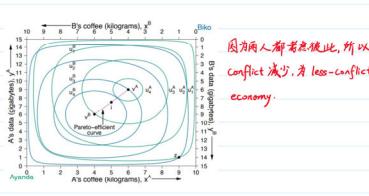
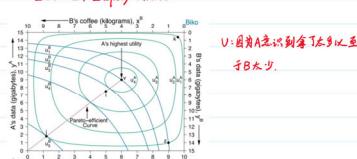
$$U_A(\pi^A, \pi^B) = \pi^A \pi^B$$

Social Preferences

$$U^*(\pi^A, \pi^B) = (\pi^A)^{\alpha} (\pi^B)^{1-\alpha} \quad \begin{cases} \text{当 } \alpha > 0, U_A \\ \text{当 } \alpha < 0, U_B \end{cases}$$

当 $\alpha = 0$, Self-regarding

当 $\alpha = \frac{1}{2}$, Inequity Averse



L3

Asymmetric Exchange

Bargaining power

(个人通过主动获得更多 economic rents 的程度)

Take-it-or-leave-it power

(谈判中有着 TIOI 权力的一方可以指定交换整个条款)

货物价格

△△△

Take-it-or-leave-it power

(讨价还价有 TIDL 权力的一方可以指定交换整体条款)

- 货物价格

食物数量

(交着为首席的)

有以下特征:

- Inequality

- Pareto Efficiency (如果 A 尽了最大努力, 高于 B 给出同等)

Quasi-linear Utility Function

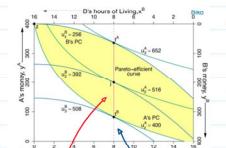
(一个变量线性, 另一个非线性)

$$u(x, y) = ay + h(x)$$

E.g. A: 雇主, 有底线, 有 TIDL (-一笔钱换少 hr)

B: 员工, 在多时间, 最多 16hr

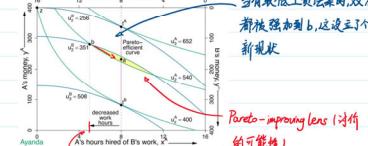
$$B 的: u^B = y^B + 32x^B - (x^B)^2$$



(改当具备有 TIDL 时,
妥协商使方面都趋近于
j1)

之不然)

设定最低工资法 (法规允许协商)



Pareto-improving lens (讨价的可能)

2) Price-setting Power (定价权)

A 有定价权时, 要求 B 满足 ICC (Incentive Compatibility Constraint (激励相互约束))

(代理人在所有可能的行动集中选择能使自己期望效用最大化的)

形成序贯博弈 (Sequential game) (A 领先)

解决方法: 逆向归纳法 (Backwards induction)

(序贯博弈中玩家通过预测其它玩家将选择的策略来选择策略)

即: 1. 观察 B 的最优反应函数

2. 预测其中最偏好自己的可能集和

步骤一:

B 的 Budget Constraint:

$$px^B + y^B = p\bar{x}^B + \bar{y}^B$$

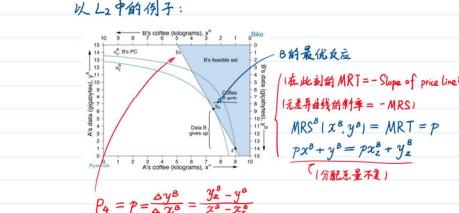
(B 所交易的量) \downarrow (B 所预计的价值)

$$p(x^B - \bar{x}^B) = -(y^B - \bar{y}^B)$$

故: $P = \frac{y^B - \bar{y}^B}{x^B - \bar{x}^B}$ (所获得的量) (原来的量 - 新分配的量)

故: $P = \frac{y^B - \bar{y}^B}{x^B - \bar{x}^B}$ (所获得的量) (新分配的量 + 一起玩的量)

以 L_2 中的例子:



$$px^B + y^B = p\bar{x}^B + \bar{y}^B$$

$$y^B(x^B) = -px^B + p\bar{x}^B + \bar{y}^B$$

为了最大化效用 $u^B(x^B, y^B(x^B))$, 选择 $(x^B, y^B(x^B))$ 分配:

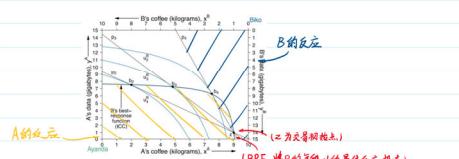
$$\frac{\partial u^B}{\partial x^B} y^B_{x^B} + u^B_{y^B} \frac{\partial y^B}{\partial x^B} = u^B_x - u^B_{y^B} p = 0$$

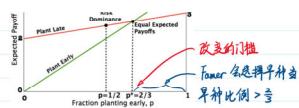
$$MRS^B(x^B, y^B) = -\frac{u^B_{y^B}}{u^B_{x^B}} = -P = MRT$$

设 $u^B = (x^B)^2 + (y^B)^2$:

$$MRS^B(x^B, y^B) = \frac{1}{2} \frac{y^B}{x^B}$$

$$\frac{y^B}{x^B} = -\frac{y^B - \bar{y}^B}{x^B - \bar{x}^B}$$





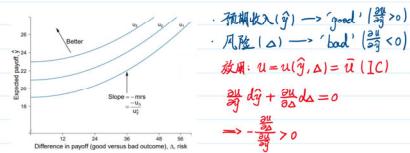
纳什均衡：最佳反应

回报支配均衡：没有其它给定托其进 (Pareto-Superior)

纳什均衡存在 (让其相对其它更好)

· 风险支配均衡：参与者均为风险厌恶者所形成的纳

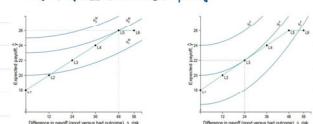
什均衡 (对其他人行为不确定时)



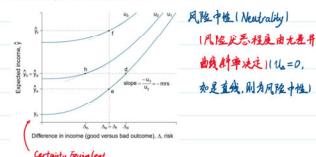
IC 的斜率: $\frac{\partial u}{\partial g}$ 的边际效用 = MRS

风险情况 (Risky Situation)

例: 不同风险厌恶者的无差异曲线



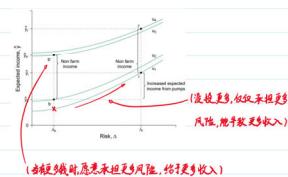
2) 财富差异与风险厌恶递减



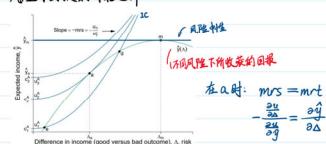
绝对风险规避系数递减

风险厌恶者在有更多收入时风险也更大

(当稍有更多收入时更倾向于更大的风险厌恶)

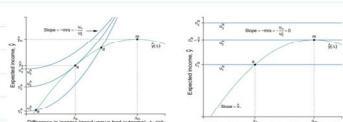


3) 风险与回报的可能选择

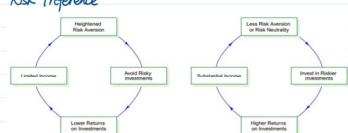


$$\begin{aligned} &\max u(a, \vec{g}) \\ &\text{s.t. } \vec{g} = \vec{g}(\Delta) \end{aligned}$$

$$\frac{\partial u}{\partial g} + \frac{\partial u}{\partial \Delta} \frac{\partial \vec{g}}{\partial \Delta} = 0$$



Risk Preference

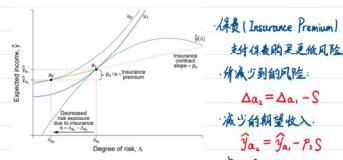


4) Insurance

Redistribution of wealth in good & bad state \rightarrow get extra support in bad state.

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则保险线的斜率为:

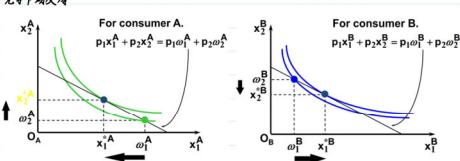
$$\frac{\hat{y}_{w_A} - \hat{y}_{w_B}}{\Delta w_A - \Delta w_B} = \frac{P_2 S}{S} = P_2$$

决策: (a_1)

只有当IC斜率 $(\frac{y_{w_A}}{y_{w_B}}) >$ 保险斜率 (P_2)

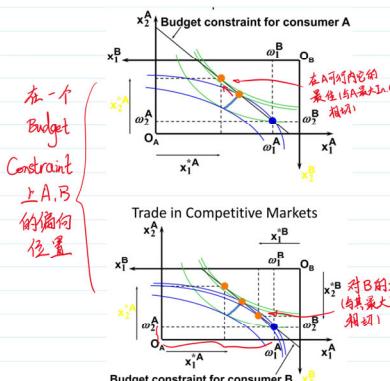
才购买保险

L_6 Efficiency: general equilibrium, welfare
1) 竞争市场交易



均衡在 P_1 和 P_2 共同导致以下时发生:

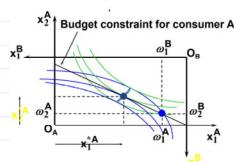
$$\begin{cases} x_1^A + x_2^B = w_1^A + w_2^B \\ x_1^B + x_2^A = w_1^B + w_2^A \end{cases}$$



在给定价格 P_1, P_2 下 [商品 1 过供
商品 2 过求

故市场上 P_1, P_2 非均衡

- 当商品 2 需求过剩, \hat{P}_2
- 当商品 1 供给过剩, \hat{J}_1
- Budget Constraint 斜率为 $-\frac{P_1}{P_2}$, 变化平缓



$$x_1^A + x_2^B = w_1^A + w_2^B$$

· 在新 P_1, P_2 时为均衡

· 此时有 Pareto-optimal allocation

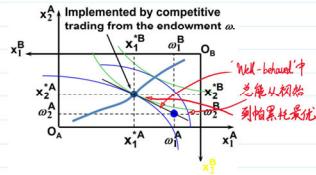
· 此为 First Fundamental Theorem of Welfare Economics

! Consumers' preferences are well-behaved, trading in perfectly competitive

- 在预算 P_1, P_2 的约束下
- 此时为 Pareto-optimal allocation
- 此为 First Fundamental Theorem of Welfare Economics
- Consumers' preferences are well-behaved, trading in perfectly competitive markets implements a Pareto-optimal allocation of the economy's endowment.)

Second Fundamental Theorem of Welfare Economics
 (任何 Pareto-optimal allocation 可通过竞争市场的交易来实现
 (由 First fundamental Theorem 直接支撑, 经济学者的竞争市场中))

因消费者的表现 "well-behaved", 任何 Pareto-optimal 的分配, 各种情况
 的价格与分配均可由竞争市场中的交易来实现



2) Walras' Law

(原: 支出 = 收入; 即: 在 Consumer's preferences 为 well-behaved 下, 每位消费者支付其所得预算)
 (在任意正价格 p_1, p_2 中, 过剩需求市值总合为 0)

对 Consumer A:

$$P_1 x_1^A + P_2 x_2^A = P_1 w_1^A + P_2 w_2^A$$

(A 花费在 1, 2 上的金额) \Leftarrow (A 支出在 1, 2 上的金额)

对 Consumer B:

$$P_1 x_1^B + P_2 x_2^B = P_1 w_1^B + P_2 w_2^B$$

即: (预算 = 收入):

$$P_1 (x_1^A + x_1^B) + P_2 (x_2^A + x_2^B) = P_1 (w_1^A + w_1^B) + P_2 (w_2^A + w_2^B)$$

(预算的分配额) \Leftarrow (实际分配额)

$$\begin{aligned} &\Rightarrow P_1 (x_1^A - w_1^A + x_1^B - w_1^B) = -P_2 (x_2^A - w_2^A + x_2^B - w_2^B) \\ &\Rightarrow P_1 (x_1^A - w_1^A + x_1^B - w_1^B) + P_2 (x_2^A - w_2^A + x_2^B - w_2^B) = 0 \end{aligned}$$

(1 的额外需求) \Downarrow (2 的额外需求) \Downarrow

$$\Rightarrow x_1^A + x_1^B - w_1^A - w_1^B = 0 \quad (一个市场均衡, 另一个也会均衡)$$

若 1 有额外供给

$$x_1^A + x_1^B - w_1^A - w_1^B < 0$$

$$\Rightarrow x_1^A + x_1^B - w_2^A - w_2^B > 0$$

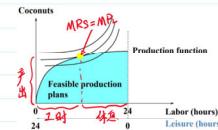
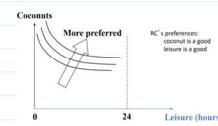
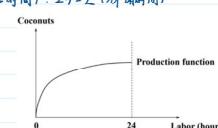
(一个市场有额外供给, 另一市场会 Balance it out)

3) Robinson Crusoe's Economy

(只满足自身的简单经济体)

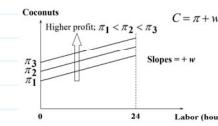
如: RC. 只有时间为资源 (24 小时)

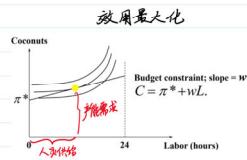
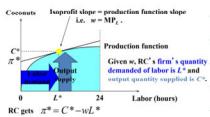
L (工作时间), $24 - L$ (休闲时间)



$$\pi = C - wL$$

(剩余产出) 工时



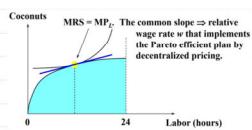


利润最大化：

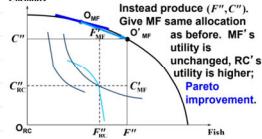
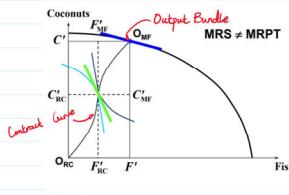
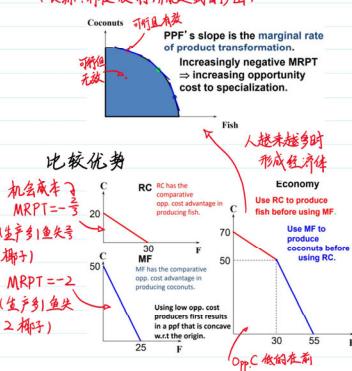
- $w = MP_L$
- C' 产能供给
- L' 人员需求

效用最大化：

- $\pi = MRS$
- C' 产出需求
- L' 人员供给



4) 生产可能性
(资源、科技限制所能达到的产出)

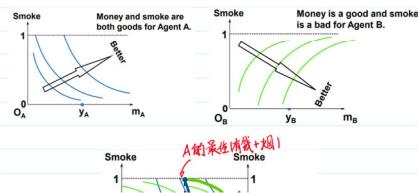


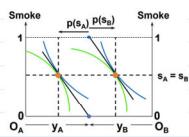
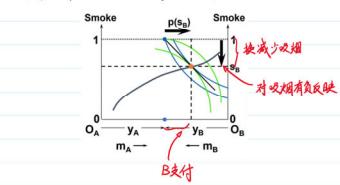
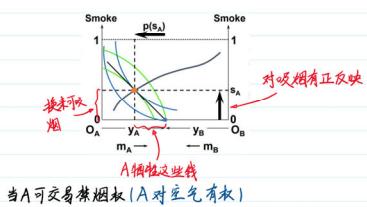
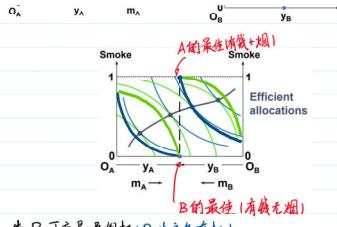
L7 Externality

1) Inefficiency & Negative Externalities

Externality: 由他人采取的行动所导致的成本或利益

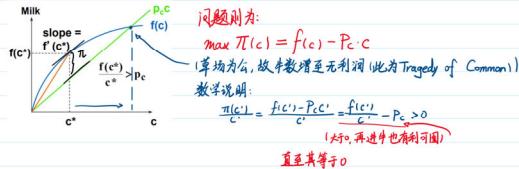
例：A: 钱和烟都好
B: 钱好烟不好





2) 生产外部性

例：奶价为1，牛价为 P_c



3)