Micro2 CH13

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Q1

28. Betty hires Veronica to build an addition to Betty's house. They agree on a price and Veronica begins the job. After the work is partially completed, Betty changes her mind and decides that the addition is worth less than the price she has agreed to and announces that she will not pay for the job. Veronica then sues Betty for breach of contract.

Under these circumstances, a court can order Betty to pay either *reliance damages* or *expectation damages*. "Reliance damages" means a sum of money sufficient to make Veronica as well off as if she had never signed the contract. "Expectation damages" means a sum of money sufficient to make Veronica as well off as if the contract has been fulfilled.

Let *A* stand for the costs that Veronica has incurred so far, let *B* stand for the total cost of building an addition, let *C* stand for the amount Betty originally promised to pay, and let *D* stand for the value that Betty places on having the job completed now that she has changed her mind about its worth.

a. How much will Betty have to pay Veronica under a rule of reliance damages? How much will Betty have to pay Veronica under a rule of expectation damages?

b. How much does Betty lose if she fulfills the contract?

c. Assuming that courts assess reliance damages, write down an inequality that expresses the condition under which Betty will break the contract. Do the same for expectation damages.

d. Write down an inequality that expresses the condition under which it is efficient for Betty to break the contract.

e. Which rule induces Betty to behave efficiently: reliance damages or expectation damages?

2,1,2,1,1

a. Under reliance rule, Betty has to pay A; under expectation rule, she has to pay $C - B + A$.

b. Betty loses $C - D$ if she fulfills the contract.

c. Under reliance rule, Betty will break the contract provided $A \leq C - D$. Under expectation rule, she will break the contract if $C - B + A \leq C - D$, or $A \leq B - D$.

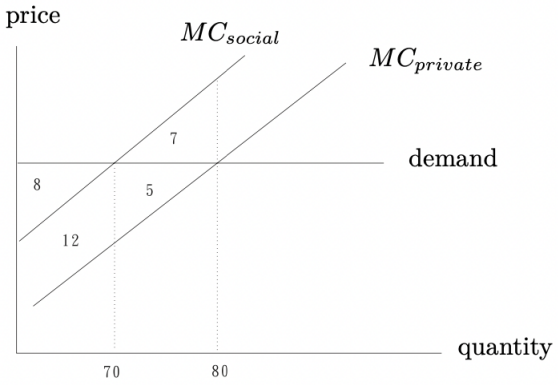
d. If the contract fulfills, Betty's surplus plus Veronica's surplus: $D - C + C - B = D - B$. If Betty defaults, the total surplus: $-A$. Hence, if $-A \geq D - B$, or

$A \leq B - D$, it is efficient for Betty to break the contract.

e. Expectation damages induce Betty to behave efficiently.

Q2

2. A competitive firm pollutes the air. The following graph shows the demand for the firm's product and the private and social marginal cost curves. The numbers in the graph represent areas.



(a) Suppose there are no transaction costs, that there is no legal penalty for polluting, and that it is impossible for the neighbors to move. What quantity does the firm produce? Give a concrete description of a deal that might be struck between the firm and the neighbors.

(b) Suppose transaction costs are so high that negotiation is impossible, and that it would cost the neighbors \$6 to move. Under each of the following scenarios, determine whether or not the neighbors move, and determine how much the firm produces.

i. The firm faces no penalty for pollution.

ii. The firm must reimburse the neighbors for all pollution damage.

iii. Reconsider scenarios i–ii. Which one is more efficient?

2,2,2,2

(a) The neighbors will ask the firm to reduce output to 70 units by offering an amount ranging from 5 to 12.

(b) i. The firm will produce 80 units and cause an externality of 24. So its neighbors

will move.

ii. If firms are required to pay all consumers' medical expenses, they will receive 12 units of compensation, which is greater than the cost of moving out, so consumers will choose to stay. Firms will only produce 70 units.

iii. For the first case, SC $= 8 + 12 + 5 - 6 = 19$. For the second case, SC $= 8$. It is more efficient to choose scenario i.

Q3

3. J 有 20 塊餅乾, 10 包香煙。K 只有 30 塊餅乾。兩人爲室友, J 嗜煙, K 討厭二手煙。若 J 抽煙 s 包, 吃餅乾 x_J 塊, 而 K 吸入 s 包的二手煙, 並吃餅乾 x_K 塊, 兩人的效用爲: $u_J(x_J, s) = x_J + \ln(1 + s)$, $u_K(x_K, s) = x_K + \ln(11 - s)$。

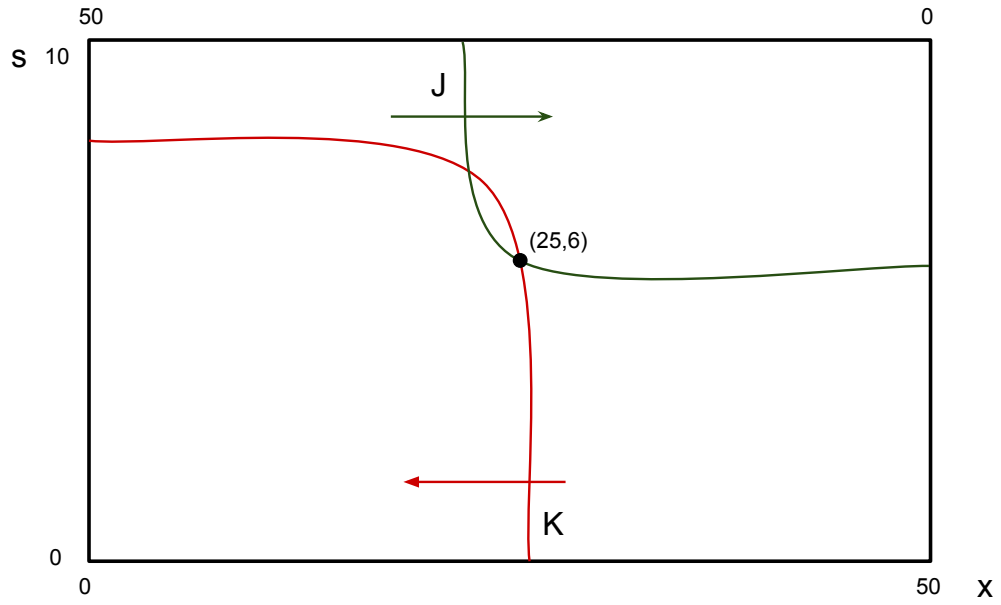
   (a) 請在 Edgeworth Box 中繪出通過 $s = 6$, $x_J = 25$ ($x_K = 25$) 兩人之無異曲線, 並標出兩人效用做增的方向。

   (b) 設 J 有權吸煙, 愛抽幾包就抽幾包, 但 K 可以餅乾換得 J 之香煙, 減少二手煙的吸入量。若 J, K 的協商會達 Pareto 效率性, 請問 J 將抽煙幾包?

   (c) 若 K 有拒吸二手煙的權利, J 必須以餅乾換取抽煙的許可。若 J, K 餅乾換香煙的交易具 Pareto 效率性, J 爲獲得抽 1 包煙的權利, 給了 K 幾塊餅乾?

1,2,2

(a)



(b) Assume at equilibrium, a pack of cigarettes costs p pieces of cookie. Both agents maximize their utilities, meanwhile satisfy the budget constraints and clear the market, that is,

$$\max_{x_J, s_J} x_J + \log(1 + s_J)$$

$$\max_{x_K, s_K} x_K + \log(1 + s_K)$$

such that

$$\begin{cases} x_J + s_J p = 20 + 10p \\ x_K + s_K p = 30 \\ s_J + s_K = 10 \end{cases}$$

Or, by $MRS = \frac{1}{p}$

$$\begin{cases} 1 + s_J = p \\ 1 + s_K = p \\ x_J + s_J p = 20 + 10p \\ x_K + s_K p = 30 \\ s_J + s_K = 10 \end{cases}$$

After solving the equations, we obtain that $p = 6$,$s_J = 5$, $s_K = 5$, $x_J = 50$, $x_K = 0$. Hence, J will smoke 5 packs of cigarettes.

(c) Assume at equilibrium, a pack of cigarettes costs p pieces of cookie. Both agents maximize their utilities, meanwhile satisfy the budget constraints and clear the market, that is,

$$\max_{x_J, s} x_J + \log(1 + s)$$
$$\max_{x_K, s} x_K + \log(11 - s)$$

such that

$$\begin{cases} x_J = 20 - sp \\ x_K = 30 + sp \end{cases}$$

By FOC,

$$\begin{cases} -p + \frac{1}{1+s} = 0 \\ p - \frac{1}{11-s} = 0 \end{cases}$$

$s = 5$, $p = \frac{1}{6}$. J will give K $\frac{1}{6}$ pieces of cookies to smoke a pack of cigarettes.