

## Signalling Marriageability: A Classroom Game for Chapter 11

Each student is a Man or a Woman with a random and secret wealth level  $W$  distributed between 0 and 100. The wealth levels if there are ten people are 0, 10, 20, 30, 50, 60, 80, 90, 100, and 100. The instructor will choose from these values, repeating them if there are more than ten students and omitting some values if the number of students is not divisible by ten.

A person's wealth level is secret, because the society has a taboo on telling your wealth level to someone else. Nonetheless, everybody is very interested in wealth because everyone's objective is to marry someone with high wealth.

Each year, each student first simultaneously writes down how much to spend on clothes that year. Then, in whatever order it happens, students pick someone else to pair up with temporarily. Both actions are publicly revealed— you may show people your scoresheet. In the fifth year, the pairings become permanent: marriage.

Your payoff is a concave function the original wealth minus clothing expenditures of you and your spouse (if you have one). Clothing has no value in itself. Thus, if  $i$  is married to  $j$  his payoff is, letting  $C_i$  and  $C_j$  denote the cumulative clothing purchases over the five periods,

$$U_i = \log(W_i - C_i + W_j - C_j)$$

Table 1 shows some of the possible payoffs from this function.

|                         |           |   |     |     |     |     |     |     |     |     |
|-------------------------|-----------|---|-----|-----|-----|-----|-----|-----|-----|-----|
| Remaining Family Wealth | 0         | 1 | 2   | 5   | 10  | 25  | 50  | 100 | 150 | 200 |
| Utility                 | $-\infty$ | 0 | 0.7 | 1.6 | 2.3 | 3.2 | 3.9 | 4.6 | 5.0 | 5.3 |

**Table 1: Marriage Values**

The first time you play the game, the only communication allowed is “Will you pair with me?” and “Yes” or “No”. These pairing are not commitments, and can be changed even within the period.

If there is time, the game will be played over with new wealths and with unlimited communication.

## **Instructor's Notes**

The efficient outcome is for nobody to buy any clothes (a laugh line).

If the instructor wishes, he can tell some male students that they must be females for the purposes of the game, and modify their names accordingly (e.g., Henry becomes Henrietta, Konichi becomes Koniko). It is not necessary, and perhaps worse, for the number of men and women to be the same. The instructor may wish to point out that a certain number of people must become “old maids” or “old bachelors”.

Name:

### Scoresheet for “Signalling Marriageability”

Note that you will write down your clothing purchases **in year t** first, and only add them up at the end.

Do not write down your wealth until the end.

| Year  | $C_{it}$ (your clothing) | Your Sweetheart's Name | $C_{it}$ (your sweetheart's clothing) |
|-------|--------------------------|------------------------|---------------------------------------|
| 1     |                          |                        |                                       |
| 2     |                          |                        |                                       |
| 3     |                          |                        |                                       |
| 4     |                          |                        |                                       |
| 5     |                          |                        |                                       |
| Total |                          | —                      |                                       |

Your wealth:

Your cumulative spending:

Your spouse's wealth:

Your spouse's cumulative spending:

$$W_i - C_i + W_j - C_j =$$

$$U_i = \log(W_i - C_i + W_j - C_j) =$$

You have wealth of 0

You have wealth of 10

You have wealth of 20

You have wealth of 30

You have wealth of 50



You have wealth of 60

You have wealth of 80

You have wealth of 90

You have wealth of 100

You have wealth of 100