

Experiment 1

Each of you has been given an endowment of 15 poker chips. Some of the chips are red and some of them are white. Each person has a different number of red and white chips. Your goal in the experiment is to maximize your utility function. The utility function is of the form:

$$U = \text{Red Chips} \times \text{White Chips} = x_R \times x_W.$$

Given that each of you has a different allocation of Red and White chips, it is very likely that one of the other students is willing to exchange some of their chips for some of yours. Before we start exchanging poker chips, please take a few minutes to determine what your current utility is. Think of a strategy that will improve your current situation. Suppose for example that you have 14 red chips and one white chip. Then your initial utility level is $14 \times 1 = 14$. Now if someone is willing to give you one white chip for one of your red chips, then your utility will increase to $(14-1) \times (1+1) = 26$. Suppose instead that someone is willing to give you 2 white chips for 3 of your red chips then your utility will increase to $(14-3) \times (1+2) = 33$. Given your endowment of 15, the highest utility that you can start out with is $8 \times 7 = 56$. It is likely that your trades will improve upon this allocation.

The next page shows a graph with a couple of selected indifference curves as well as a table over selected utility levels.

Selected Indifference Curves
 $U = \text{Red Chips} \times \text{White Chips}$

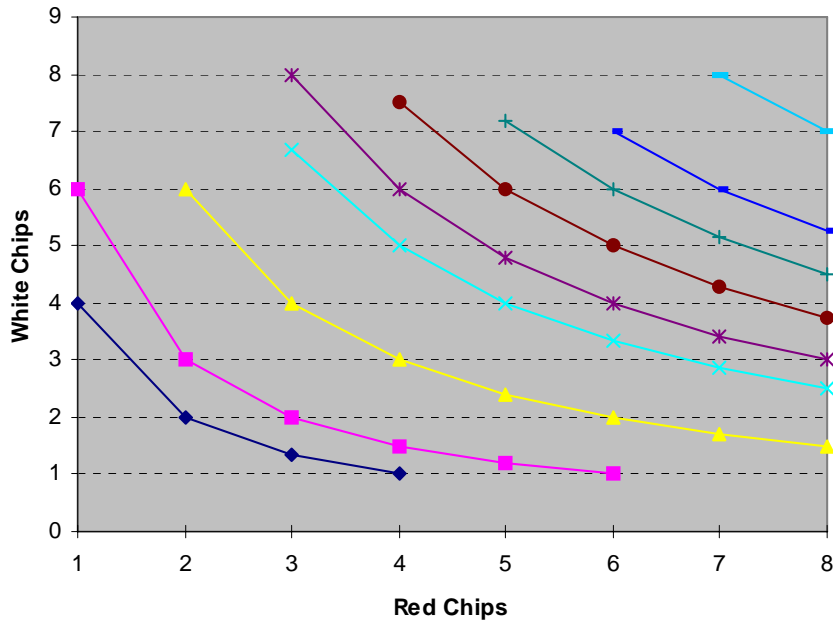


Table 1: Examples of Utility levels: $U = \text{Red Chips} \times \text{White Chips}$

	White															
Red	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
3	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48
4	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64
5	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
6	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96
7	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112
8	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128
9	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135	144
10	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160
11	11	22	33	44	55	66	77	88	99	110	121	132	143	154	165	176
12	12	24	36	48	60	72	84	96	108	120	132	144	156	168	180	192
13	13	26	39	52	65	78	91	104	117	130	143	156	169	182	195	208
14	14	28	42	56	70	84	98	112	126	140	154	168	182	196	210	224
15	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240
16	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240	256

After the experiment is over I will collect the attached form indicating your initial bundle and the trades that you made. I will then randomly select one of the forms. If your form is selected I will pay you \$0.50 for each unit that your utility increased relative to the initial endowment (I will however limit the payment to \$10).

Name _____

Trade	# White Chips	# Red Chips	Utility=R*W
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			

Lab Exercise 1

Measure red chips on the horizontal axis and white chips on the vertical axis.

1. Calculate the exchange rate for each of your trades (p_R/p_W). That is, starting at the initial bundle what was the rate of exchange of white chips for one more red chip?
2. Calculate the $MRS_{R,W}$ for the Cobb-Douglas Utility function $U = x_R \times x_W$
3. Calculate the $MRS_{R,W}$ at each of the bundles that you had.
4. Did any of your trades increase your utility? Pick one of those trades. Did you increase the number of white or red chips in this trade? Compare the $MRS_{R,W}$ and the $-p_R/p_W$ at the bundle prior to your trade and explain why this trade made you better off.
5. Should you increase or decrease the number of white chips when $MRS_{R,W}$ is greater than $-p_R/p_W$?
6. Draw a graph indicating your initial and second consumption bundle. Denote the initial bundle A and the second bundle B. Draw the relevant indifference curves through bundles A and B.
7. Draw a budget line through bundle A with a slope identical to your first exchange rate.
8. Given the exchange rate and your $MRS_{R,W}$ were you maximizing your utility at point B? Why or why not?

If you were not in class on Sept 16 - please use the bundles below. Assume your initial endowment was bundle A, you then traded from A to B, and then from B to C.

Bundle	Red	White
A	4	11
B	7	8
C	5	12