

**Homework #5**  
(Econ 512M)

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Spring 2011

I. In year 2010, tax rates, standard deduction and exemptions in the U.S. were:

Marginal Tax Rate	Single Returns	Joint Returns
10%	\$0–\$8,375	\$0–\$16,750
15%	\$8,376–\$34,000	\$16,751–\$68,000
25%	\$34,001–\$82,400	\$68,001–\$137,300
28%	\$82,401–\$171,850	\$137,301–\$209,250
23%	\$171,851–\$373,650	\$209,251–\$373,650
35%	\$373,651–	\$373,651–
Standard Deduction	\$5,700	\$11,400
Personal exemption	\$3,650	\$3,650

Handsome and Pretty are going to get married. Determine, under each scenario below, whether Handsome and Pretty end up with paying a marriage tax or getting a marriage dowry.

- (i) Handsome and Pretty both earn \$15,000 each.
- (ii) Handsome and Pretty both earn \$150,000 each.
- (iii) Handsome earns \$200,000 and Pretty does not work.
- (iv) Handsome earns \$40,000 and Pretty \$115,000.

II. You are to divide \$120 between Amy and Bart. Find the optimal distribution in each of the following cases where  $MU_a$  and  $MU_b$  denote Amy's and Bart's marginal utility of income ( $x$ ) respectively if

- (i) Social Welfare Function ( $SWF$ ) is utilitarian and  $MU_a = 100 - 2x_a$ ,  $MU_b = 100 - x_b$ .
- (ii) Social Welfare Function ( $SWF$ ) is utilitarian and  $MU_a = 100 - 2x_a$ ,  $MU_b = 20$ .
- (iii) Social Welfare Function ( $SWF$ ) is utilitarian and  $MU_a = 30$ ,  $MU_b = 20$ .
- (iv) What would the division be if the  $SWF$  is Rawlsian and Amy and Bart have identical preferences?