Activity: Theoretical Tools of Public Economics
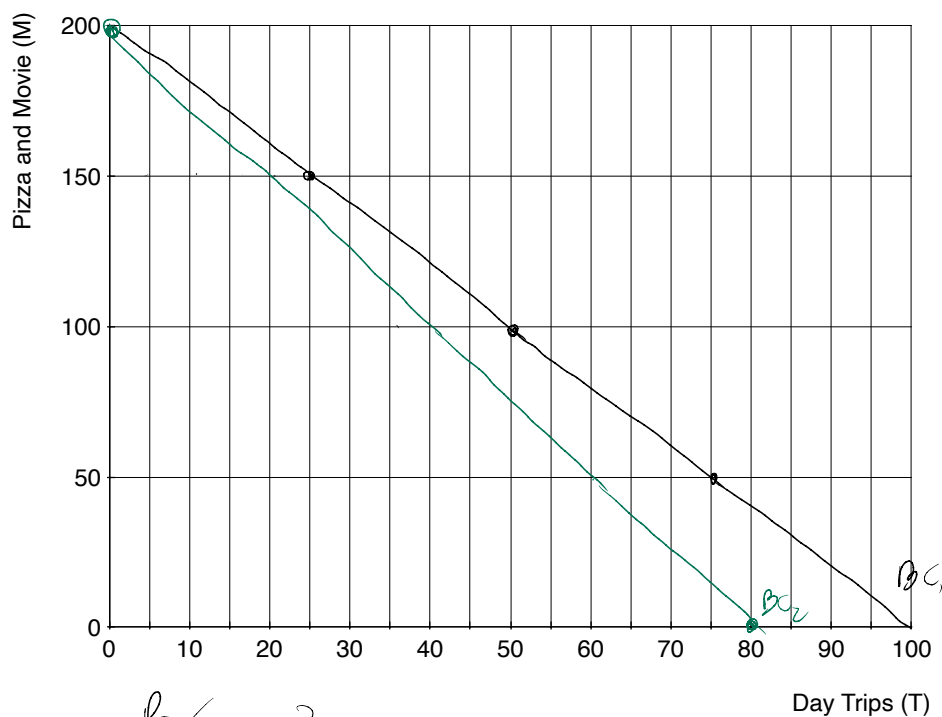## Econ 308

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1 Gruber 2.14: Consumer Choice

You have \$4,000 to spend on entertainment this year (lucky you!). The price of a day trip (T) is \$40 and the price of a pizza and a movie (M) is \$20. Suppose that your utility function is $u(T, M) = T^{3/4} \times M^{1/4}$.

   a. Draw the budget constraint below. What combination of T and M will you choose?

$$\frac{P_T}{P_m} = 2$$

$$\frac{\partial u}{\partial m} = \frac{1}{4}\left(\frac{T}{m}\right)^{3/4}$$

$$\frac{\partial u}{\partial T} = \frac{3}{4}\left(\frac{M}{T}\right)^{1/4}$$

$$\frac{\frac{\partial u}{\partial T}}{\frac{\partial u}{\partial m}} = 3\frac{M}{T}$$

$$2 = \frac{3M}{T}$$

$$40T + 20M = 4000$$
$$60M + 20M = 4000$$
$$80M = 4000$$

$$\boxed{\begin{array}{l} M = 50 \\ T = 75 \end{array}}$$

$$3M = 2T$$

b. Suppose that the price of day trips rises to $50. Draw the new budget constraint in the same plot in part (a). What combination of T and M will you now choose?

$P_T/P_M = 3/2$

$MRS_{TM} = \frac{3M}{T}$

$\$T = 6M$

$50T + 20M = 4000$

$60M + 20M = 4000$

$\boxed{M = 50}$

$\boxed{T = 60}$

2 Bonus: Social Welfare Functions

The utility possibilities frontier (UPF) drawn below corresponds to an economy with only two individuals, Abbi and Ilana. There is a high level of inequality at the market equilibrium outcome, i.e., Abbi is rich, while Ilana is poor. Which of the four labeled points (W, X, Y, Z) is most preferred by a social planner with:

a. a Utilitarian social welfare function? $\textcircled{Y}$

b. a Rawlsian social welfare function? $\textcircled{X}$

W

U_{Ilana}

W

UPF

X 42

Y 24

Market Equilibrium 43

Z 40

U_{Abbi}