UNIVERSITY OF ALBERTA
ALBERTA SCHOOL OF BUSINESS

BUEC 311: Business Economics, Organization and Management

Problem Set #5

Consumer Preferences

October 22, 2021

1. Suppose that Jim is contemplating whether to spend the money to buy a promotional ski card for this upcoming season. His utility function for skiing and all other goods is given by U=x*s+x, such that his marginal utility for skiing is given by $U_s = x$ and his marginal utility for other consumption is $U_x = s + 1$. Assume that he has $500 of disposable income to allocate across these goods, and that the price of a daily lift ticket is $100. Use a price of $1 for the indexed other goods (i.e. the budget constraint has intercept at x=500 and s=5.)

a) With no promotional discount, and assuming he can only ski full days, how many days should Jim ski this year?

b) Now assume that a promotional card costs $50 but offers half price lift tickets? Should Jim buy the card?

c) How many days will he ski once he has purchased the card?

d) Now, let's ask a different question. Jim is contemplating a change of job that will give him more disposable income but will mean he is near to a more expensive ski hill. If lift ticket prices are more expensive ($150 per ticket) and the job offers him $100 more in disposable income, will Jim end up better off, indifferent or worse off. Assume he can only ski full days.

e) If Jim can ski half days for $75 per ticket, will he be indifferent, better off or worse off with the new job and $600 in disposable income?

f) If Jim can ski half days, but at a higher price of $100 per ticket, will he be indifferent, better off or worse off with the new job and $600 in disposable income?

$U = xs + x$ $Y = 500 = P_S S + X$

a) Two conditions

$\frac{MU_S}{P_S} = \frac{MU_X}{P_X}$ $Y = P_S S + X$

$Y = 500$, $P_S = 100$ $Y = P_S S + P_S(S+1)$

$\frac{X}{P_S} = S + 1$ $= P_S(2S+1)$

$X = P_S(S+1)$

$500 = 100S + 100(S+1)$

$= 200S + 100$

$400 = 200S$

$S = 2$, $X = 300$

$U = 2 \cdot 300 + 300 = 900$

$\frac{\partial U}{\partial S} = X$ $\frac{\partial U}{\partial X} = S + 1$

b) $450 = 50S + 50(S+1)$

$= 100S + 50$

$400 = 100S$

$S = 4$, $X = 250$

$U = xs + x$

$\Rightarrow 4 \cdot 250 + 250$

$= 1250$ w card

$\therefore$ yes to card.

d) $600 = 150S + 150(S+1)$

$600 = 300S + 150$

$450 = 300S$

$S = 1.5$ $S=1$ $U = 450 + 450$

$X = 375$ $S = 2\ 300(2) + 300$

e) $U = 1.5(375) + 375$

$= 937.5$

f) $U = 350(1.5) + 350$

$= 875$