

Sections 9.1 and 9.2

1. Suppose you are a beef producer and you want to know how much beef people will buy. This depends on two things: i) how much money people have, and ii) the price of beef.

Let I = household income (in thousands of dollars per year)

p = price of beef (in dollars per pound)

C = consumption of beef (in pounds per week per household)

C is a function of both I and p as shown in the table:

(Source: *An Introduction to Positive Economics*, 3rd edition, by Richard G.

Lipsey)

a) Write a sentence interpreting each of the following mathematical notations:

i) $C(20, 3.50) = 2.59$

ii) $C(80, p)$

iii) $C(I, 4.50)$

I, income (thousand \$/yr.)	Quantity of beef bought (in pounds/week/household) p, price (in \$/lb.)			
	3.00	3.50	4.00	4.50
20	2.65	2.59	2.51	2.43
40	4.14	4.05	3.94	3.88
60	5.11	5.00	4.97	4.84
80	5.35	5.29	5.19	5.07
100	5.79	5.77	5.60	5.53

b) Find an appropriate cross-sectional model for the consumption of beef as a function of the price of beef when the household income is \$20,000/yr.

c) Use your answer to (b) to estimate the consumption of beef when household income is \$20,000/yr. and the price of beef is \$3.90/lb.

2. The amount of money A (in dollars) in an account is given by $A(P, r, n, t) = P\left(1 + \frac{r}{n}\right)^{nt}$,

where P is the original principal (in dollars), r is the annual percentage rate (expressed as a decimal), n is the number of times per year interest is compounded, and t is the number of years interest is added.

a) Find $A(100, .03, 12, 5)$

b) Write the cross-sectional model for $r = .02$ and $n = 12$.

c) Find and interpret $A(1000, r, n, 7)$.