

Due Friday Feb 8th by 10:00 am:

In my box in 208 Parrington

or via email (marieka@u.washington.edu)

Ground Rules:

- X ***PUT YOUR NAME ON A SEPARATE TITLE PAGE ONLY.***
[If you are worried that I will lose it, then use your student number on each page.]
- X *Clearly label each question with the number, and number your pages.*
- X *You can use your notes or books, but you may not communicate with ANY other people about this exam or the material covered by it.*
- X *Please show your work, otherwise you can't get credit for the steps you do correctly. You are welcome to use excel or another program for your calculations, but I will not check spreadsheets to assess your work.*
- X *More credit will be given for understanding the questions and setting up the solution correctly than for getting the right number.*
- X *Please be neat--you can't get credit if I can't read your answers.*
- X *Good luck!*

**Data are available in a spreadsheet on the course web page:
<http://courses.washington.edu/pbaf527m/notes.htm>**

Question I:

You are interning for a US congressional committee concerned with access to health care. They have asked you to examine results from a recent US study of the relationship of health care to economic and demographic factors for adult women.

Table 1 shows use of any health care, preventative health care, and hospital stays by levels of family income, self-reported health status, and type of health insurance. Table 2 shows the percentage of people with each level of health status by type of insurance. Public health insurance includes both Medicaid (for poor individuals and families) and Medicare (which covers elderly individuals).

- a) *What factors affect the chances of using health care?* Using table 1, briefly describe the relationship of healthcare use to other factors. [Use no more than about a half page.]
- b) *How many people use health care?* Find the overall percentage of women who used at least some health care in the last year. Also find the percentage of those with some preventative care within the last two years.
- c) *How many people seem disadvantaged in health care?* What percent of women overall were both poor/near poor and did not receive any health care in the last year? Also, what percent were uninsured and received no health care? Write the probabilities out in probability terms (e.g., $\Pr(A|B)$) and calculate the values.
- d) *How does insurance affect health care use?* Of those who had no health care in the last year, what was the probability of being uninsured? Similarly, what percentage of those with no preventative care had no insurance? What was the percentage for those with no hospital stays?
- e) *What is the average level of health status?* Use Table 2 to calculate the mean level of health status (on the four point scale) for each category of insurance (separately). Also calculate the standard deviation for each group.
- f) *What might a new insurance program accomplish?* Suppose there was a new public insurance program targeting those who were poor or near poor and uninsured. Use the information from Table 1 or your previous calculations to estimate the percentage of the population the program might serve.
- g) Write a short description of your results for your committee (less than 1 page typed). They will not look at the rest of your exam so be sure that you describe your results for them in the context of the issues they are interested in. Discuss the policy implications and any caveats you have about the data or information.

Table 1: Use of health care by Income, Health status, and Medical insurance type

	<i>Proportion of population in category</i>	Use of any health care services in last year (%)	Use of preventative health care services in last 2 years (%)	Any hospital stays in last year (%)
INCOME				
poor or near poor	16%	88%	88%	18%
low income	14%	89%	90%	15%
middle income	32%	90%	93%	10%
high income	39%	94%	97%	7%
HEALTH STATUS				
fair or poor	14%	96%	90%	22%
good or better	86%	90%	94%	9%
INSURANCE				
any private	73%	93%	96%	9%
public only	16%	95%	91%	22%
uninsured	11%	71%	80%	6%

Table 2: Health status by health insurance type

INSURANCE	<i>Proportion of population in category</i>	Poor	Fair	Good	Excellent	total
		1	2	3	4	
any private	73%	4%	6%	62%	28%	100%
public only	16%	10%	20%	50%	20%	100%
uninsured	11%	6%	14%	53%	27%	100%

Question II.

In a recent study of how children spend their time, researchers hypothesized that television viewing decreases the time children spend on other developmental activities, such as spending time with parents, reading, or active play. Data from this study came from time-use diaries as part of the first wave of the nationally-representative Panel Study of Income Dynamics (PSID). The study shows that 6-8 year old children spend an average of 90 minutes per day (during weekdays) viewing television (standard deviation 86) (with no other concurrent activities). This same group spent an average of 11 minutes per day reading (standard deviation 20) (with no other concurrent activities) on weekdays. Assume these two distributions are normal.

1. You've seen other reports talk about children spending upward of three hours a day watching television. How likely is it that a child in this group spends more than three hours a day watching television (with no other concurrent activities)?
2. What proportion of children ages 6-8 spend between 30 minutes and two hours a day watching television?
3. Suppose Washington State is interested in a program to boost reading among 6-8 year olds. The Legislature has said it can afford to fund a program for only 20% of the state's 6-8yr olds who read the least. What would be the cutoff (in minutes of reading per day) for inclusion into the program?