

GRADESHEET FOR ASSIGNMENT 1 -- EIPR

Name Sigi
Total score 40 / 40

Your areas of weakness/areas for improvement are identified below.

Analysis — (10 points) Your score: 10 / 10

- Is the Stata analysis correct and concise? ✓
- Were the right analytic tests performed? ✓
- Are the regression models correctly specified? Is the printout readable? ✓
- Was the output interpreted correctly? ✓
- Are the data displays (table and figures) well-formatted and accurate, consistent with the guidance provided? ✓

If you received less than 9 points on this section, be sure to review "Making good tables and figures," which is on our website.

Writing — (10 points) Your score: 10 / 10

- Is the memo written clearly and well-organized? ✓
- Is it free of grammatical errors, spelling mistakes and malapropisms? ✓
- Are bolding/italics used effectively? ✓
- Are topic sentences used, with clear transitions? ✓
- Last (and particularly important): Is the writing suited to the audience? ✓

If you received less than 9 points in this section, consider working with the Wagner Writing Center and/or taking some of their short courses on writing, while you're a graduate student. Good writing is a highly marketable skill.

Story — (20 points) Your score: 20 / 20

- Did the student clearly state the research question(s) at the outset? ✓
- Is there a coherent connection between the analysis and the material in the memo? ✓
- Did the student extract the "headlines"? ✓
- In discussing the findings in the tables, was the student able to offer a guiding narrative, or was detail emphasized? ✓
- Is the conclusion clearly stated? Does it answer the question posed at the beginning of the memo? ✓
- Was the relationship between the bivariate and multivariable impact estimate explained clearly? Very Good!
- Did the students clearly identify major strengths/weaknesses/limitations?
 - ✓ Internal validity
 - ✓ External validity
 - Measurement

Good use of terminology from the class

Sigi

Well-organized, focused writing

1 Introduction

Could have used one sentence on Medicare program for context - e.g. why do people get supplemental insurance to begin with?

2 Previous studies have raised concerns about the potential underutilization of care among those

3 without supplemental insurance. This study aims to assess the association between having

4 supplemental insurance and receiving more medical care under the Medicare program, as well as

5 to examine disparities in care between those with and without supplemental insurance. The

6 findings may or may not reveal the need to further promote equality in healthcare services.

7

8 Methods - Very concise but hit all the major points

9 This is a cross-sectional study of elderly (aged 65 and over) individuals in the Medicare program

10 in the US, and the sample is representative of the elderly population. The outcome of medical

11 care is measured by the dollar expenditures spent by the Medicare program, and outcomes are

12 compared between individuals with supplemental insurance (treatment group) and those without

13 (non-treatment group). Regression with covariate adjustment is used as a means of "recovering"

↳ would try to put this in your own words

14 the counterfactual. The covariates in this study include age groups, sex, race, income tercile,

15 educational attainment level, and general health status, which may be expected to be associated

16 with Medicare program expenditures. First, I used chi-square statistics to explore any differences

17 in characteristics between individuals with and without supplemental insurance. Then I use one-

18 way ANOVA test to explore how Medicare expenditures vary based on insurance status and

19 other characteristics. Finally, I applied adjusted linear regression to correct the unadjusted model

↳ multivariable

20 to estimate the impact of supplemental insurance on expenditures.

↳ might rephrase as
"to assess the impact of SI on
expenditures controlling for other
factors."

22 Findings and Discussion

23 Relationship between covariates and supplemental insurance: Out of the 7927 sampled

12.6% Not sure where the
math got off here

86.3%

members, 921 (39.67%) had no supplemental insurance, and 6376 (60.33%) had it. As shown in Table 1, groups with and without supplemental insurance differ significantly in characteristics that could be associated with Medicare program expenditures. Black or other race individuals, those with lower income levels, those with no more than a grade school education, and those in poor general health have a significantly higher risk of not having supplemental insurance. For instance, 57% of individuals without supplemental insurance have a low-income level, compared to only 30% of those with it. This may be because beneficiaries with lower incomes cannot afford supplemental insurance and therefore take the risk of not purchasing it.

Good synthesis
and use of examples

32

33 **Relationship between covariates and the Medicare expenditure:** Individuals without

34 supplemental insurance have a mean program expenditure of \$4399, which is significantly less
35 than the mean annual Medicare expenditure of \$5789, with a mean difference of \$1390.]

36 However, the association between supplemental insurance and Medicare costs is not the only
37 factor to consider. Beneficiaries at and over the age of 70 have higher mean Medicare
38 expenditures than those under 70. Men have a higher mean Medicare expenditure than women,
39 with a difference of \$778. Low and middle-income individuals have higher mean Medicare
40 expenditures than high-income individuals, and those in poor or fair health have higher mean
41 Medicare expenditures than those in better health. All the differences mentioned above are
42 significant at the .05 level.

↳ usually you put this in the methods
and then just say "significant" to
mean that

43
44 **Relationship between the supplemental insurance and Medicare expenditure:** The first
45 column of Table 3 shows the unadjusted linear regression model, indicating that individuals with
46 supplemental insurance have, on average, \$1391 more in Medicare expenditure than those

. Good headline

47 without, and the difference is statistically significant at the .05 level. Adjusting for covariates in
48 the second column, the difference increases to \$2698, and remains statistically significant at the
49 .05 level. The unadjusted model has a downward bias. Covariates in the adjusted model account
50 for their positive relationship with expenditure and negative relationship with having
51 supplemental insurance, which affected the unadjusted model's estimation(Appendix). For
52 example, poor health condition increases medical expenditure irrespective of insurance status
53 and correlates with a lower likelihood of having supplemental insurance.

54

55 Conclusions

Answered both your
study questions

56 Having supplemental insurance is associated with receiving more medical care under Medicare
57 for US Medicare beneficiaries, controlling for age group, sex, race, total income tercile,
58 educational level, and general health status. Individuals who belong to the Black or other race
59 category, those with lower income levels, those who have received no more than a grade school
60 education, and those in poor general health are significantly more likely to have no supplemental
61 insurance. With future supportive evidence, the government may nudge policies to address the
62 disparities to help those underrepresented groups with their Medicare benefits.

63

64 Limitations

Cross-sectional \rightarrow causation

65 First, there's a threat to the internal validity of this study. Other unmeasured differences between
66 groups without and with supplemental insurance that are correlated with Medicare expenditures
67 may also bias the estimates. Second, this study uses data from the year 2015, the Medicare
68 program and insurance may have changed, so results may change accordingly. Third, further
69 research can also include interactions between treatment and covariates in regression models.

Measurement.

do greater expenditures mean less needed care for disadvantaged,
or more unnecessary care for advantaged.

Lore the
Figure!
technicalities
some of these
variables decrease
expenditures, so
nights better
but you got the
overall idea



TABLE 1

Distribution of supplemental insurance
By sociodemographic and health characteristics
Medicare beneficiaries aged 65+

<i>put significance here or add an additional column</i>	No supplemental insurance n = 921	Supplemental insurance n = 6376
Age (years) (%)*		
65-69	20.96	23.56
70-74	18.46	21.68
75-79	20.41	21.14
80-84	19.76	19.24
85+	20.41	14.38
Sex (%)*		
Male	43.11	39.18
Female	56.89	60.82
Race/ethnicity (%)*		
Black	24.21	4.39
White	71.34	94.40
Other	4.45	1.21
Income tercile ¹ (%)*		
Low	56.68	29.94
Middle	32.79	33.42
High	10.53	36.64
Educational attainment (%)*		
Grade school.	48.21	23.84
High school	38.33	48.38
Beyond high school	13.46	27.78
General health (%)*		
Excellent	13.68	17.19
Very good	18.24	25.94
Good	28.56	31.62
Fair	25.08	18.62
Poor	14.44	6.63

¹Income terciles defined as follows: Low = \$ 0 to \$ 9617; Middle = 9624 to 17885; High = \$ 17900 to \$ 873413.

* p <.05 for a chi-square test of no association between supplemental insurance status and this characteristic.

Having no supplemental

*column percents
assessing balance
Chi-Square is a
global test of significance*

TABLE 2 ✓
 Annual Medicare expenditures
 By supplemental insurance, sociodemographic and health characteristics
 Medicare beneficiaries aged 65+,

	Mean Annual Medicare Expenditures (\$)
Supplemental insurance(*)	
Has no supplement	4398.51
Has supplemental insurance	5788.58
Age (years) *	
65-69	4521.83
70-74	5442.38
75-79	5991.75
80-84	6421.90
85+	5969.38
Sex *	
Male	6082.22
Female	5304.63
Race/ethnicity	
Black	6369.02
White	5551.20
Other	5894.68
Income tercile(*)	
Low	5905.66
Middle	6020.46
High	4913.51
Educational attainment	
Grade school.	5514.26
High school	5799.88
Beyond high school	5376.80
General health(*)	
Excellent	2811.64
Very good	3671.78
Good	5161.11
Fair	7487.44
Poor	15204.80

Focus on the
main effect

* p < .05 for an ANOVA test of no difference between mean expenditures across groups defined by this characteristic.

✓ TABLE 3

Regression coefficients from an OLS estimate of the impact of supplemental insurance
 on mean annual Medicare expenditures
 (Unadjusted, Adjusted)
 Medicare beneficiaries aged 65+

	Unadjusted	Adjusted
Supplemental insurance		
No supplement	---	---
Has a supplement	1390.07*	2698.10*
Age (years)		
65-69		---
70-74		949.86*
75-79		1362.21*
80-84		1988.47*
85+		1794.4*
Sex		
Male		---
Female		-1275.00*
Race/ethnicity		
Black		---
White		-988.93
Other		-80.65
Income terciles		
Low		---
Middle		-58.37
High		-571.99
Educational attainment		
Grade school		---
High school		1463.56*
Beyond high school		1654.26*
General health		
Excellent		---
Very good		927.89
Good		2450.27*
Fair		4996.33*
Poor		12966.27*
Constant	4398.51	-78.49

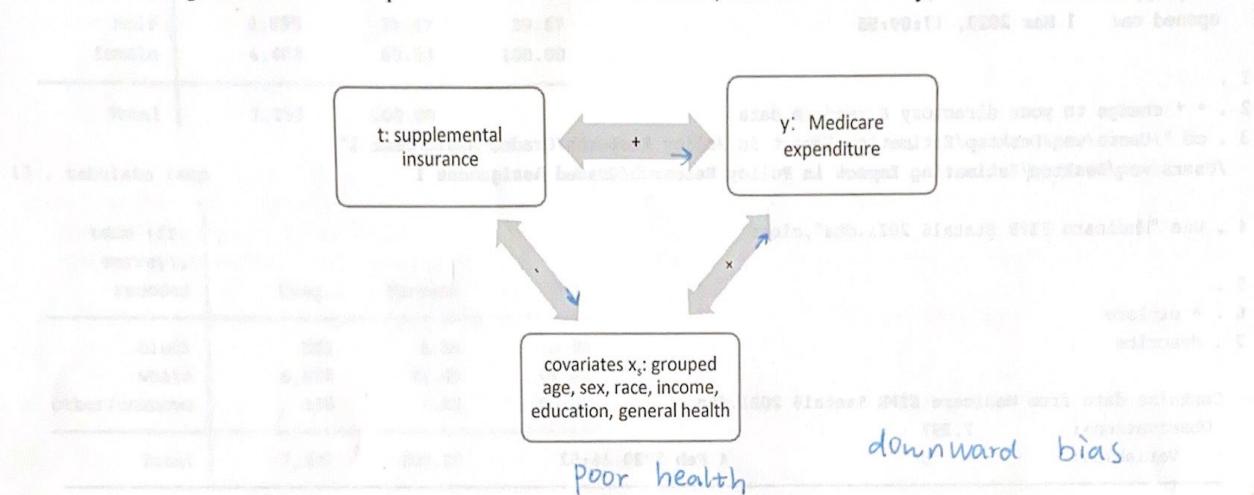
* p < .05 for t-test of the hypothesis that b = 0 for this regression coefficient.

Comparing

you see an increase with the addition of covariates

Appendix

Diagram of relationships between treatment variable t, outcome variable y, and covariates x



poor health

downward bias

	total	model	spouse	without spouse
total	7,357	6,960	6,960	7,357
without spouse	1,397	1,397	1,397	1,397
with spouse	6,960	6,960	6,960	6,960
age	4.67	4.67	4.67	4.67
sex	0.49	0.49	0.49	0.49
race	0.27	0.27	0.27	0.27
income	1,673	1,673	1,673	1,673
education	0.67	0.67	0.67	0.67
general health	3.67	3.67	3.67	3.67
total	7,357	6,960	6,960	7,357
without spouse	1,397	1,397	1,397	1,397
with spouse	6,960	6,960	6,960	6,960
age	4.67	4.67	4.67	4.67
sex	0.49	0.49	0.49	0.49
race	0.27	0.27	0.27	0.27
income	1,673	1,673	1,673	1,673
education	0.67	0.67	0.67	0.67
general health	3.67	3.67	3.67	3.67