

Government, Health Technology, International Comparisons

Graded satisfactory (4% of course grade) or unsatisfactory (0% of grade).

Satisfactory means a serious attempt made to answer the questions. Your answers need not be lengthy. No credit for late assignments. Academic honesty is required.

Questions 5, 6 and 7 use Stata and data in file ass6s25.dta.

1. Consider testing of chemicals for potential carcinogens. To properly test each chemical costs \$240 million. If Q chemicals are tested a typical household places marginal value $\$(10 - 0.10 \times Q)$ on the Q th chemical tested. There are 120 million households in the U.S.

(a) Calculate the social marginal benefit schedule.

(b) Hence give the optimum number of chemical tests that should be sponsored by the national Institutes for Health.

2.(a) Explain the economic problem that arises due to externalities.

(b) Give an example of a health externality.

3. Both Medicare and Medicaid are public programs to finance health care services for identified populations. General reasons for government involvement in economic activity include provision of social insurance and income redistribution.

(a) Which is more clearly social insurance?

(b) Would it be possible for both to operate from a social insurance model?

(c) What would need to change?

4.(a) Are the returns to medical expenditures higher in low-income countries or in high-income countries? Explain your answer.

(b) Are the returns to medical technology in the United States felt to be worth the cost? Explain your answer.

(c) Do variations in practice styles across regions in the United states suggest that medical technology is overused? Explain your answer.

5.-7. These questions are a variation of the International Health Comparisons using OECD data that is in the course slides. The assignment data are in the file **ass6s25.dta**

country	Country name
year	year
hlthgdp	Current spending on health as % of GDP
hlthpc	Current spending on health per capita (in US \$)
oop	Out of pocket expenditure as % of current spending on health
gdppc	GDP per capita (in US \$)
infmort	Infant Mortality (deaths per 1,000)
lifeexp	Male Life Expectancy (years)
doctors	Physicians per 1,000 population
nurses	Nurses per 1,000 population
hospbeds	Hospital beds per 1,000 population
ctscanners	CT scanners per million

Econ 132 – Ass 6

The original data are from OECD Health Statistics 2020 <http://www.oecd.org/els/health-systems/health-data.htm>. All series were obtained from the Excel file found under Frequently Requested Data in <http://www.oecd.org/els/health-systems/OECD-Health-Statistics-2020-Frequently-Requested-Data.xls> Data are for 2018.

5.(a) Read the data into Stata using command **use ass6s25.dta**

(b) Drop countries with GDP per capita less than \$25,000.

Which countries were dropped?

(c) Summarize the data. Are observations missing on any of the variables? If so, state which variables.

6. Continue analysis that drops countries with GDP per capita less than \$25,000.

(a) Provide a scatterplot and fitted line for **lifeexp** against **hlthpc**

Does life expectancy appear to increase with health spending as a percentage of GDP?

Do any countries appear to be big outliers? **Explain your answer.**

(b) Regress **lifeexp** against **hlthpc** using option **vce(robust)**

Is the relationship between life expectancy and health spending as a percentage of GDP statistically significant at level 0.05? **Explain your answer.**

(c) The relationship may be nonlinear. Repeat part (a) except fit a quadratic line using **qfit** rather than **lfit**. **Comment on your results.**

(d) Fit the quadratic relationship, first using command **generate** to create a variable **hlthpcsq** and then regressing **lifeexp** against **hlthpc** and **hlthpcsq** using option **vce(robust)**.

Are **hlthpc** and **hlthpcsq** jointly statistically significant at 5%? Explain.

7. Continue analysis that drops countries with GDP per capita less than \$25,000.

(a) Now add as regressors measures of health resources.

Regress **lifeexp** against **hlthpc**, **doctors**, **nurses** and **hospbeds** using option **vce(robust)**.

(b) Which variables are statistically significant at level 0.05? **Explain your answer.**

(c) Do the regressor coefficients have the expected signs? **Explain your answer.**

(d) Are **doctors** **nurses** **hospbeds** jointly statistically significant at 5%?

(e) Use command **predict** to obtain predicted life expectancy for each country. Is the actual life expectancy in the U.S. more than that predicted by the model? **Explain your answer.**

(f) Is the difference observed in part (d) large enough to consider the U.S. to be an outlier? **Explain your answer.**