Written Exam at the Department of Economics winter 2016-17

Health Economics

Final Exam

December 21st 2016

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language for which you registered during exam registration.

This exam question consists of 4 pages in total

NB: If you fall ill during the actual examination at Peter Bangsvej, you must contact an invigilator in order to be registered as having fallen ill. Then you submit a blank exam paper and leave the examination. When you arrive home, you must contact your GP and submit a medical report to the Faculty of Social Sciences no later than seven (7) days from the date of the exam.

Part I – Access to Health Care

There is substantial geographic variation in health care expenditure and utilization.

Some variation may be driven by differential access to health care.
A recent study (Lu and Slusky, 2016) asks "What are the effects of access to Women Health Clinics on women's preventive care?" The answer relies on survey data of women aged 18-44 in Texas and Wisconsin.

Consider the following regression:

$$y_{iz} = \beta_0 + \beta_1 distance_{iz} + \delta X_{iz} + \gamma_z + \varepsilon_{iz} \qquad (1)$$

The variable y_{iz} measures the outcome of interest, e.g., whether an interviewed women i, living in ZIP-code z, had a routine preventive check-up or a cancer screening. The right-hand-side variable of interest, $distance_{iz}$, is the travel distance in 100 Miles from the woman's ZIP-code of residence to the nearest Women Health Clinic. X_{iz} is a vector of individual level controls including age, marital status and employment status. γ_z are ZIP-code fixed effects. ε_{iz} is an error term.

Question 1:
What is the interpretation of β_1 and how can its sign inform us about the health effects of access to health care?

Question 2:
What is the fundamental problem of using estimates of β_1 from equation (1) for policy recommendations regarding access to health care?

Now in 2011 and 2012, the states of Texas and Wisconsin enacted severe budget cuts in health care. Consequently, both states decided to close a large number of Women Health Clinics. Now imagine that you have a survey including data from the times both before and after the budget cuts and consider the following regression equation that augments equation (1) by including the time subscript, t, and time-fixed effects τ_t:

$$y_{izt} = \beta_0 + \beta_1 distance_{izt} + \delta X_{izt} + \gamma_z + \tau_t + \varepsilon_{izt} \qquad (2)$$

Question 3:
What is the idea behind equation (2) and why is an estimation of (2) more likely to reveal a causal relationship than equation (1)?

Table 1 shows the estimated parameter estimate of β_1 from equation (2). Columns (a) and (b) estimates the effects on a representative sample of women aged 18-44. Columns (c) and (d) estimates the effects on a subsample of the women with the lowest level of education. All estimates are statistically significant.

TABLE 1

| | Full sample | | Low education | |
	Clinical breast exams	Routine Check-ups	Clinical breast exams	Routine Check-ups
	(a)	(b)	(c)	(d)
Driving distance (100 miles)	-0,064	-0,027	-,177	-0,081
Controls	x	x	x	x
Time and ZIP Fixed effects	x	x	x	x
Observations	4702	4823	1677	1743
R^2	0,57	0,63	0,48	0,56

Question 4:
Discuss whether the results of Table 1 are consistent with previous empirical results from the literature on the socio-economic differences in health?

Question 5:
Present and discuss other potential sources of geographic variation in health care utilization and whether they have a causal effect on health outcomes?

Part 2 - The Grossman Model

Consider the Grossman model in a single period framework and imagine a sudden and exogenous decline in the quality of medical advice.

Question 6:
Imagine that better medical advice leads to more effective individual health investments and increase the highest achievable level of health. How is the optimal level of health and other goods affected by the quality decline in medical advice? Explain your analysis in a graphical illustration.

Question 7:
Consider health as an investment good in a multi-period model. How does a decline in medical advice affect the optimal level of health in this setting? Explain your analysis in a graphical illustration.

Question 8:
Imagine that medical advice has a positive, but declining marginal returns in education. A policy is introduced to mitigate health shocks to firm-specific human capital. Specifically, all workers are offered on-the-job health check-ups and medical advice. What is the theoretical prediction for the educational gradient in health capital if (a) all workers take the medical advice and (b) only white-collar workers (the highly educated) choose to take the medical advice?

Part 3 Health Policy

Question 9:
Outline the fundamental principles of Beveridge systems and how they were reformed in the past few decades.

Question 10:
Discuss benefits and maladies of these policy changes.