UNIVERSITY OF ESWATINI

FIRST SEMESTER MAIN EXAMINATION PAPER, APRIL 2021

FACULTY OF SOCIAL SCIENCES

DEPARTMENT OF ECONOMICS

COURSE CODE: ECO423

TITLE OF PAPER: HEALTH ECONOMICS I

TIME ALLOWED: 2 HOURS

Instructions
1. This paper consists of four (4) questions.
2. Question 1 is compulsory and then choose any two (2) questions from the remaining three.
3. Question 1 carries 40marks and the other questions carry 30 marks.

Special Requirements

   Scientific calculator

DO NOT turn examination paper over until instructed to do so.

Question 1 Compulsory – 40 Marks

a) Stating all relevant assumptions derive the benchmarking model for supply induced demand. [15]

b) Explaining all relevant assumptions, graphically derive the four quadrant model for the demand for health care. Ensure to explain all relationships that are associated with the model. [15]

c) Using the graphical model derived above show the effects of aging, increase in education and increase in wages on the demand for health care. [10]

Question 2

The demand of hospital care at Town A is $P = 15 - X$, where p is the price of a hospital service, and x is the quantity of services demanded by patients. Suppose there is only one hospital with the cost function $C = 20 + 5X$.

a) Assuming that this hospital cares only about the profit, compute the optimal price and quantity for hospital B. [5]

b) What is the HHI index based on output? [5]

Suppose that this hospital is a nonprofit hospital which has an incentive to provide as much health care as possible. [3]
   c) Write down the zero-profit condition for this hospital
   d) Compute the price and quantity that this hospital would charge under zero-profit condition [5]
   e) Using relevant data for Eswatini, describe and define the structure of the supply of health care in Eswatini. What market structure does it posit? [7]
   f) Discuss the theoretical and empirical issues surrounding the supplier-induced demand theory. [5]

Question 3

Consider a market for elbow surgery where no one in the market has insurance. Let the demand curve for elbow surgery be $P = 2000 - 4Q$. Let the supply curve for elbow surgery be P = 1000+Q.
   a) Graph the supply and demand curves and find the equilibrium price and quantity. Note on the graph the consumer and producer surplus created in the market. [5]
   b) Now assume everyone in the market buys an insurance policy that pays for 75% of any elbow surgery (so the coinsurance rate is 0.25). Redraw the graph from part a. above and add the effective demand curve now that everyone has insurance. What is the new equilibrium price and quantity? On the graph, illustrate consumer and producer surplus as well as any dead-weight loss that may result from moral hazard. [6]
   c) If the increase in consumer and producer surplus from having insurance is greater than

the dead-weight loss that results from the market after insurance is bought, then insurance increased economic wellbeing despite the dead-weight loss. Explain your reasoning.

[10]

d) What are the implications of emergency FDA approval of the COVID19 vaccine? What is the usual efficacy ratio for vaccines to get the greenlight?　　　　　[9]

Question 4

In an outbreak of COVID19 in Eswatini in 2019, COVID19 was diagnosed in 18 of 152 vaccinated children compared with 3 of 7 unvaccinated children.

i.　What is the efficacy rate for the vaccine?　　　　　[1]
ii.　Calculate the risk ratio and interpret　　　　　[2]
iii.　Calculate the odds ratio and interpret　　　　　[4]
iv.　Given the results in i and ii, would you advise the government to expand more resources to the COVID19 programme?　　　　　[5]
v.　Compare the Pfizer vaccine and Modena vaccines for COVID19　　　　　[4]
vi.　Given the merits and demerits of each vaccine, highlight how you would roll out a COVID19 vaccination programme in Eswatini　　　　　[8]
vii.　What would be the indicator of success　　　　　[6]