

Written Exam for the M.Sc. in Economics winter 2014-15

Health Economics

Final Exam

16. February 2015

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by “eksamen på dansk” in brackets, you must write your exam paper in Danish.

This exam question consists of 5 pages in total (including this front page).

Qusetion 1: Asymmetric information in the private health insurance market

Figure 1 resembles a situation outlined in Einav and Finkelstein, 2011 (Journal of economic perspectives volume 25, Winter, 2011, pp. 115-138). It is a private health insurance market in which suppliers have administrative costs. One contract is offered at this market. Costomers are risk-averse, but differ in risk. The Y-axis measures the price and the x-axis shows quantity, measured by the share of the population covered by health insurance.

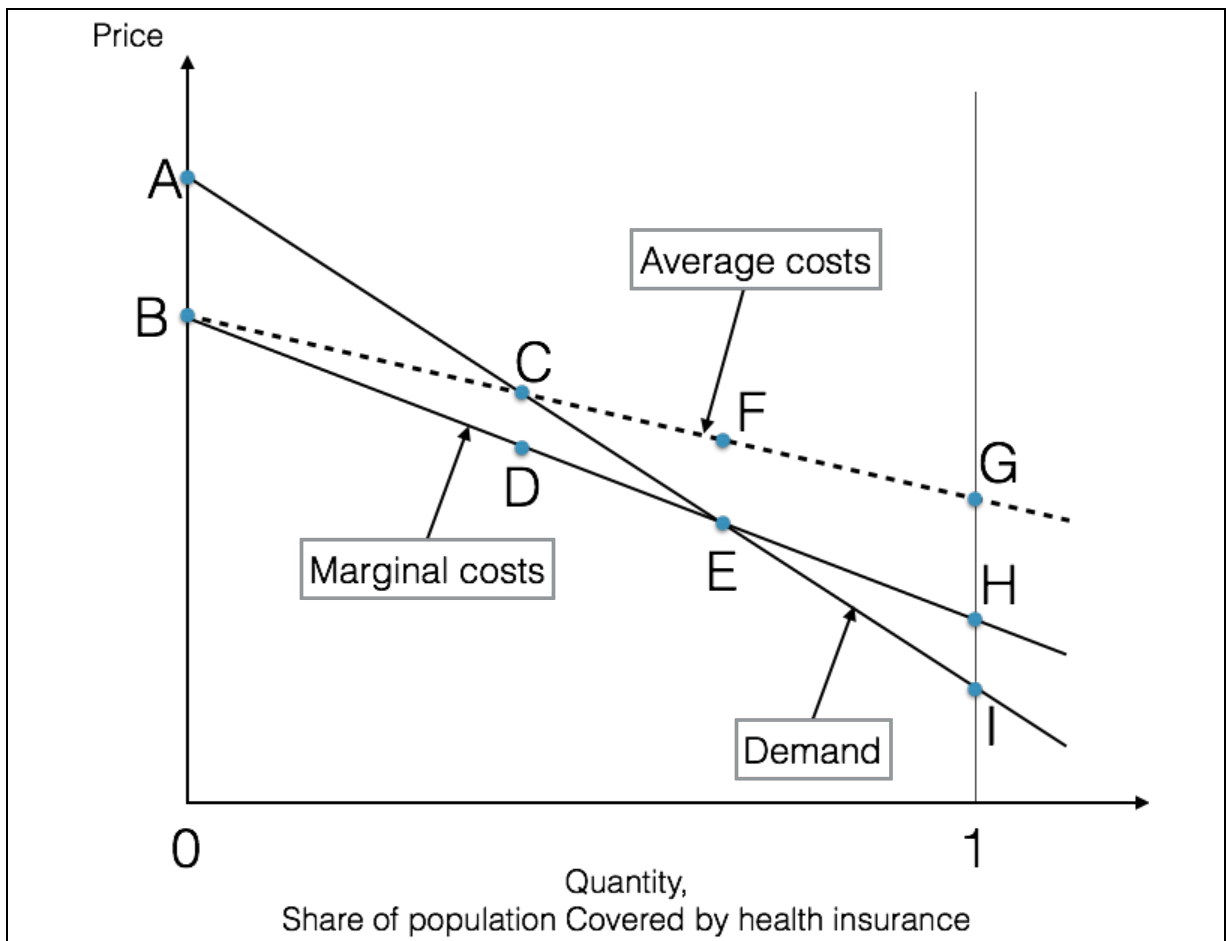
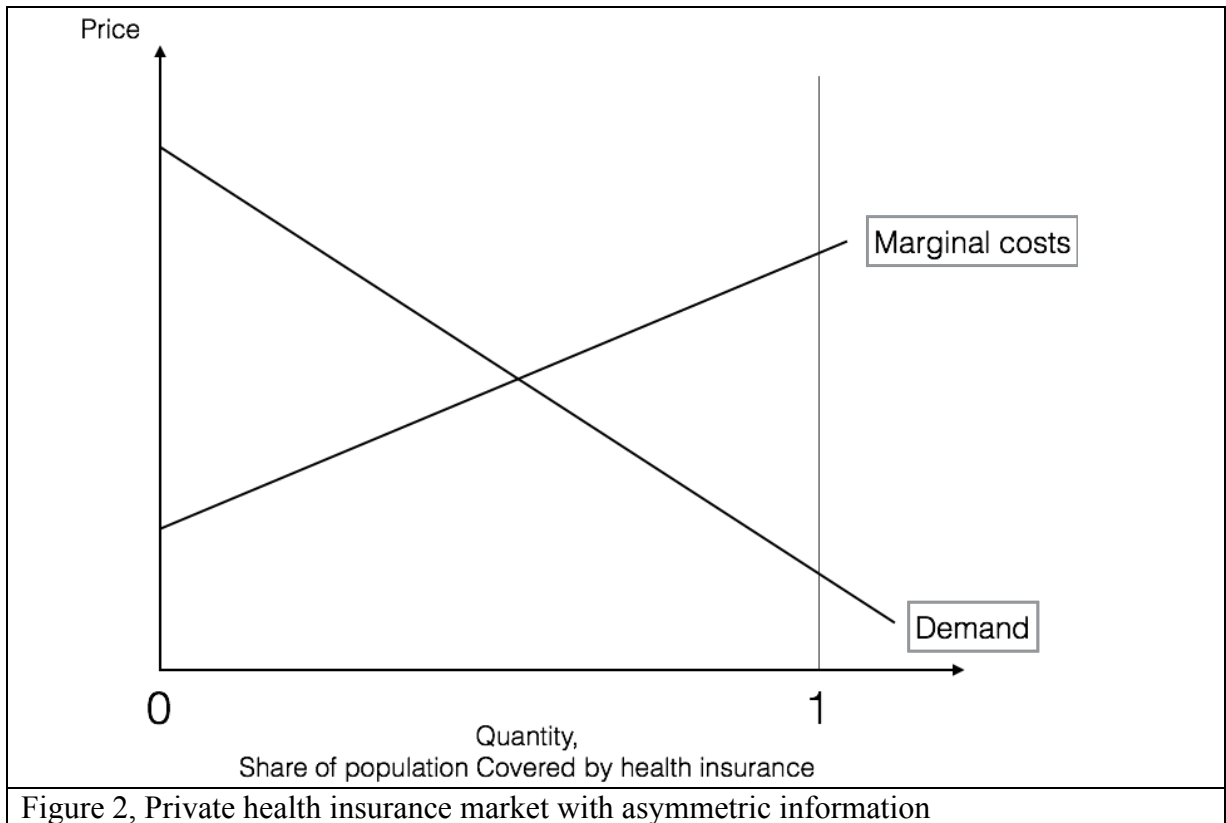


Figure 1, Private health insurance market with asymmetric information

- a. Explain the relationship between the demand and cost curves in Figure 1. Elaborate on the interpretation of the slope of marginal costs curve in Figure 1.
- b. Which points in the diagram of Figure 1 represent i) the market equilibrium and ii) the efficient combination of price and quantity? Does asymmetric information cause any social loss in this framework? Argue for your answer.



- c. Staying in the asymmetric information framework of Einav and Finkelstein, 2011, what is the interpretation of an upward sloping marginal costs curve in Figure 2? Sketch the average costs curve in this diagram. Does asymmetric information cause any social loss in this framework? Argue for your answer.
- d. Discuss the empirical evidence for or against downward or upward sloping cost curves in the health insurance markets. What are the challenges of such tests if moral hazard exists in the market?

Question 2: Economic Epidemiology

The World Health Organization (WHO) has a goal of eliminating the infectious diseases measles (DK: Mæslinger) and rubella (DK: Røde Hunde) by 2015. A means to reach this goal, WHO aims at 95% of the population in each country to be vaccinated against these diseases. In Denmark all parents are offered free vaccination when the child is about 15 months old (the child is immune the first 12 months if the mother is vaccinated).

Worldwide an estimated 20 million people gets measles and 146,000 people die from the disease every year.

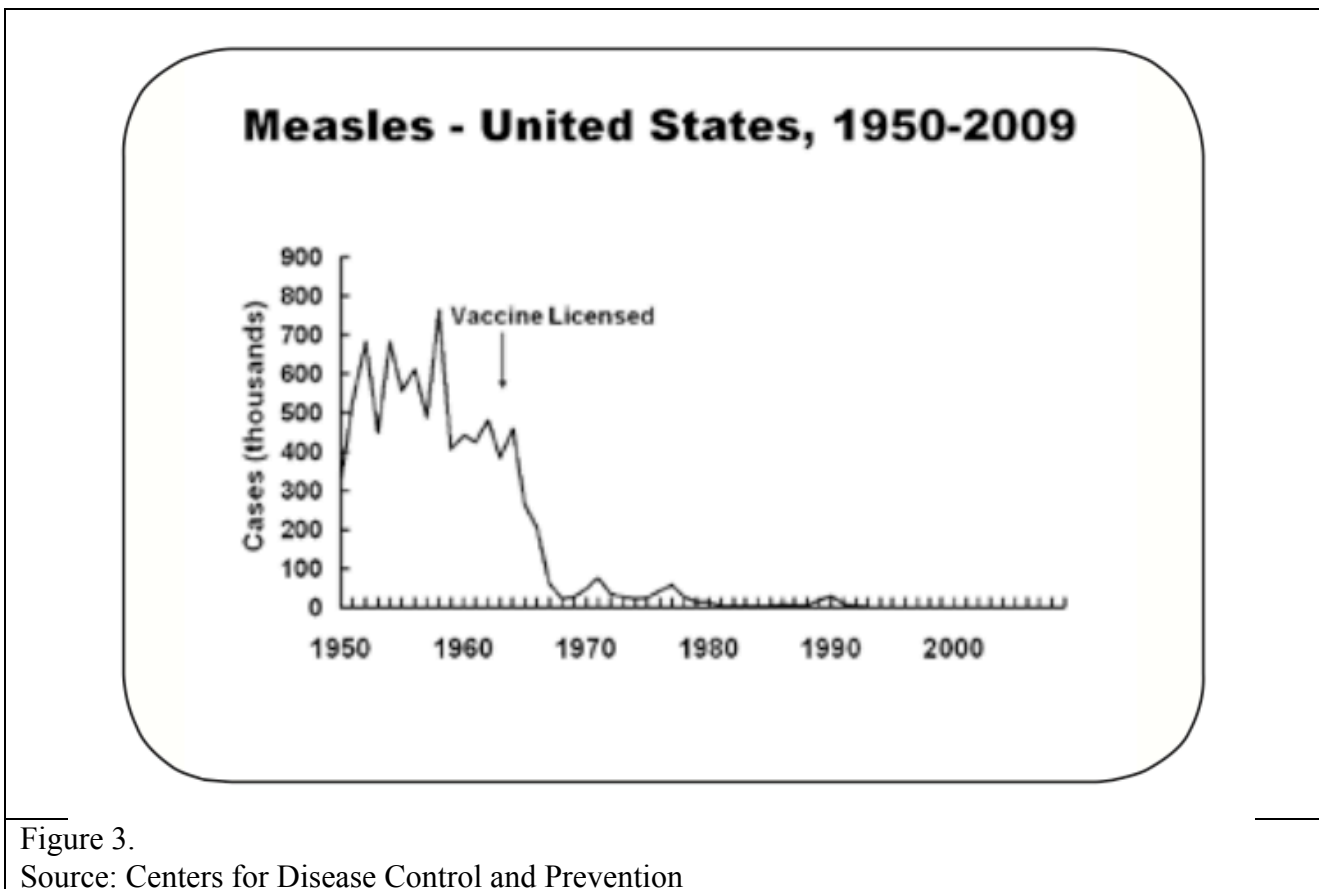


Figure 3.

Source: Centers for Disease Control and Prevention

The chart shows the number of measles cases reported in the US from 1950-2009. Note that in 1963 FDA licensed a vaccination against measles to enter the pharmaceutical market. In Europe many countries, including Denmark and Ireland, introduced free-of-charge vaccination programs in the midst of the 1980s.

In 2014 the Centers for Disease Control and Prevention has registered a resurgence of measles with 644 cases. In Berlin there is a current outbreak, too. 375 are by February 6 infected.

Despite the fact that measles is a highly contagious viral disease and one of the deadliest among the child diseases, recent “anti-vaccine movements” have evolved among parents in the US and in Europe. There is, however, variation across US states in the share of the population vaccinated. For

instance in Mississippi nearly 100% of the population is vaccinated; in Colorado 82% is vaccinated. In Denmark, the vaccination rate is closer to the one in Colorado, than the one in Mississippi.

Questions:

- a. Why is it sufficient that only 95% of the population (not 100%) is vaccinated against measles to keep measles and rubella under control?
(Hint: you may base your answer on the economics of externalities.)
- b. Sketch up “the SIR-model of Economic Epidemiology”. In the SIR-model, what determines the change in the population sizes of “Susceptible”, “Infected” and “Recovered” from, say, measles at a given time?
- c. In steady state, what determines the size of the susceptible population?
- d. How can the number of measles cases reported over time explain the pattern of measles vaccination behavior? Do you expect the current measles outbreak to continue? What is the previous empirical evidence of the persistence of a measles outbreak?

Question 3: Health Policy:

- a. What are the guiding principals of Beveridge Systems? Describe briefly strategies that these systems are using to ration care.
- b. Discuss briefly steps that Beveridge systems have taken (after the 1980’s) to provide hospitals with incentives to operate more efficiently.