Economics 301
Problem Set due October 22, 2021   Upload your answers to canvas

1) Here we consider the opportunity costs of closing schools for a year during a pandemic. We assume that no net learning occurs during that year: students end the year with the same human capital they had at the beginning.

To systematically analyze this issue, we treat schooling as a production process with many inputs. The inputs are especially effort and attention by students, teachers, and parents, at various ages. The ultimate output is human capital that enhances earnings and household production during the students' adult lives, the present value of which is in the millions of dollars per person.

  a) Do you expect children to "make up for" the lost schooling after the pandemic ends? That is, would the pandemic reduce long-run human capital, or just perturb its time path during and near the pandemic? What factors of tastes and technology determine the answer?

  b) To the extent that persons of schooling age during the pandemic later enter adulthood with x less human capital than they would have had, how would you value that increment to human capital?

  c) How does the value of the x increment to human capital relate to the opportunity cost of closing schools during a nonpandemic year? How does it relate to the opportunity cost of closing schools during the pandemic?

  d) How could you estimate the value of the x increment using data on the amount of market inputs (such as teacher salaries) and student time that normally goes into schooling?

  e) Suppose that remote learning (the mode used while schools are closed) reduces the productivity of student and teacher time and effort in terms of producing learning. Use Marshall's laws of derived demand to discuss the effect of closed schools on student and teacher time and effort. Is this assumption about remote learning consistent with our earlier assumption that no net learning occurred during the year?

2) Many human organs, especially kidneys, are transplanted each year- this question concentrates on kidney transplants. Because hospitals and patients are not allowed to buy organs or make any transfer to donors, all donors must offer their organs for free. As a result, an individual needing a kidney must typically wait several years before he gets one.

A typical alternative to receiving a kidney transplant is to undergo ongoing kidney-dialysis treatments, which are administered by hospitals. For this reason, we refer to potential kidney recipients as "dialysis patients" or just "patients."

a) Sketch a model that determines the equilibrium number of kidney donations per unit time and waiting time for patients. Would an increase in the number of willing donors increase transplants one-for-one?

b) Would patients be better off with a cash market for kidney donations?

c) Would donors be better off with a cash market for kidney donations?

d) The idea of having a cash market is regularly debated in public policy, with hospitals and physicians strongly objecting. What are some of the factors that cause them to oppose a cash market while patients and donors favor one?

e) The U.S. continues to prohibit organ purchases, although recently President Trump did allow hospitals and/or patients to pay cash compensation to donors for the donor's medical expenses. Use your framework from (a) to analyze the effects of this new rule.

f) During the Iran-Iraq war (circa 1980), many Iranian soldiers were poisoned, with one of the symptoms being kidneys that do not function. Does your framework help explain why Iran became the only country in the world to allow cash payments for kidney donations?

g) Before Iran's market opened, how would you go about projecting the equilibrium price for donated kidneys? For a U.S. market?