

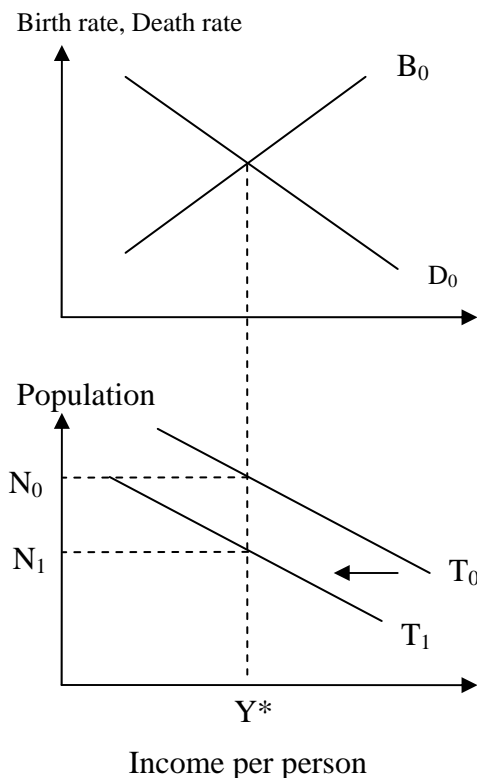
Chapter 2: Problems on Malthusian Economics

1. What key feature of the pre-industrial world made the economy “Malthusian?”

Though sporadic technological advance occurred in the pre-industrial world, the rate of advance was slow relative to that in the world after 1800. In this period, technological advance was too slow to improve material living standards. It only contributed to population increases.

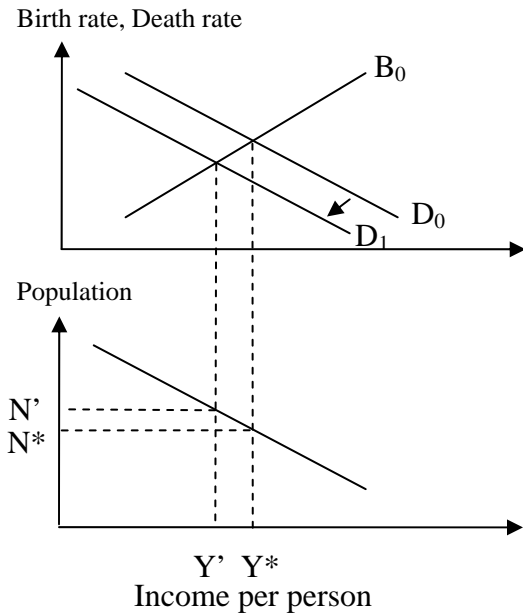
2. Europe in the 17th century had lower temperatures, so that this period is called by some “the little Ice Age.” Assuming that this reduced yields in agriculture, what would be the long run impact of this on living standards, population, and life expectancy?

The food shortage will cause the technology curve to shift downward, so that the population will decrease in the long run. Living standards decrease in short run, but then move back to initial level. Since the birth rate and death rate schedules are unaffected, in the long run, life expectancy and real incomes remain the same.



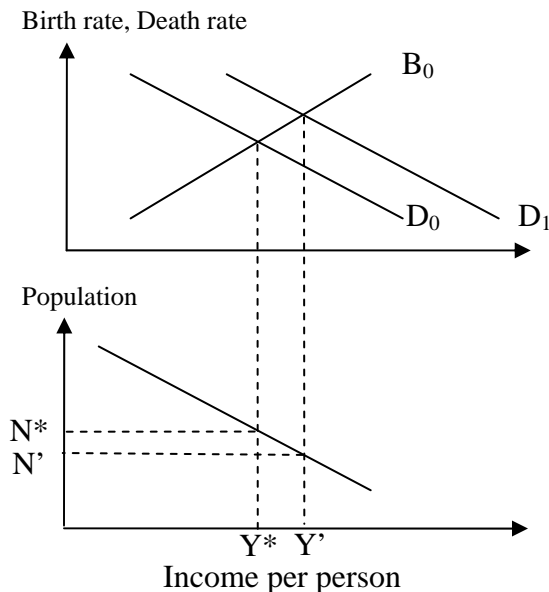
3. Suppose that in China in 1300 the government improved sanitation in towns by public health measures, and so reduced infant mortality. What would be the long run impact of this on living standards, population, and life expectancy?

Reduced infant mortality causes the death rate schedule shift downward such that living standards decrease, population and life expectancy increase.



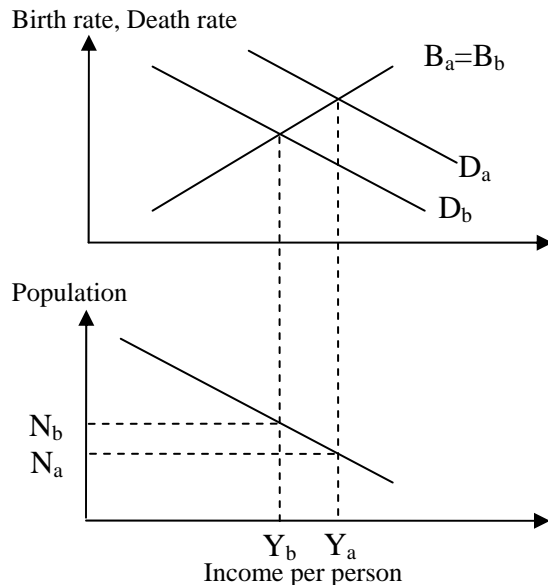
4. Some societies, such as China and Japan, seem to have practiced significant female infanticide. What would be the long run impact of this on living standards, population, and life expectancy?

Female infanticide will cause the death rate schedule to shift upward such that living standards increase, population decreases, and life expectancy also decreases (since in these societies the slope of the birth rate schedule was almost horizontal, female infanticide reduced life expectancy by minor amounts, and mainly raised real incomes).



5. Suppose that two pre-industrial societies have the same technology and marriage and other institutions, but one of them has a higher murder rate than the other. What will be the difference in living standards, population, and life expectancy?

Suppose there are two societies A and B where society A has higher murder rate. The death rate of society A is higher than that of society B. We then can infer that living standard is higher in A, population is higher in B, and life expectancy is higher in B.

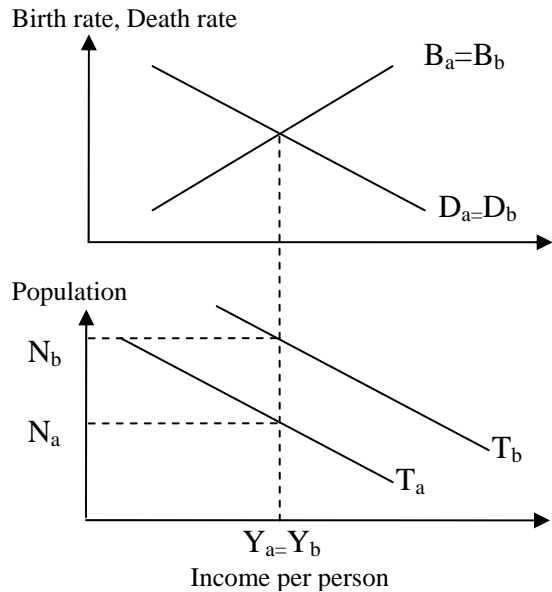


6. The Black Death struck Europe periodically from 1348 to 1670. How did it affect population, living standards and life expectancy?

The Black Death shifted the death rate schedule upward. The effect will be the same as question 4.

7. Suppose two pre-industrial societies have the same birth rate and death rate schedules, and the same climate and soils, yet one has a population density that is 10 times that of the other. What do we know about their technologies? Explain.

Since all the conditions are the same in society A and B except for population. From the graph, we can obtain that the technology schedule is higher in B

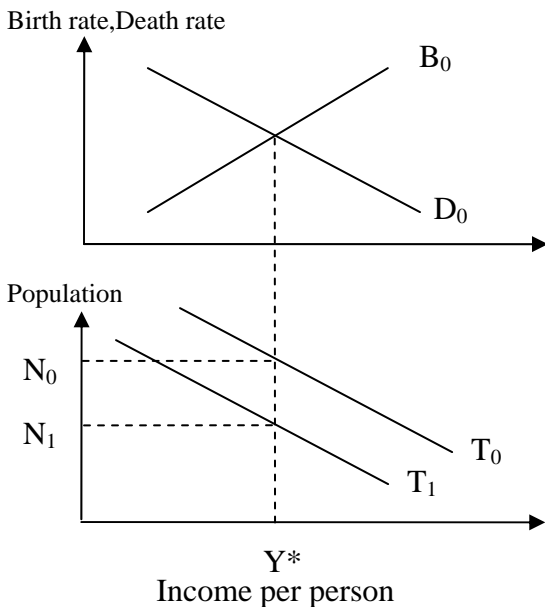


8. Edward Jenner (1749-1823), a country doctor in England, introduced vaccination (called this because the vaccine was derived from cowpox) against smallpox in England in 1796. Smallpox was one of the principle causes of death in England at that time, particularly for infants. Suppose the Industrial Revolution had not occurred. What would the long run effect of Jenner's discovery would have been?

Jenner's discovery would decrease the death rate such that death rate schedule shift downward. The effect will be the same as question 3.

9. The English Parliament instituted a poll (head) tax in 1380 to finance the war against France. Each male over age 15 was required to pay 1 shilling (about 3-4 days wages for a laborer). This provoked the Peasant's Revolt of 1381. Show that in the long run the poll tax would have no effect on living standards. What would it affect?

We can consider poll tax as a negative technology shock such that the technological schedule will shift downward which will result in population decrease, but no change in life expectancy or real incomes. If the tax is 10% of income, the income post tax is the old income minus 10% at any level of population.

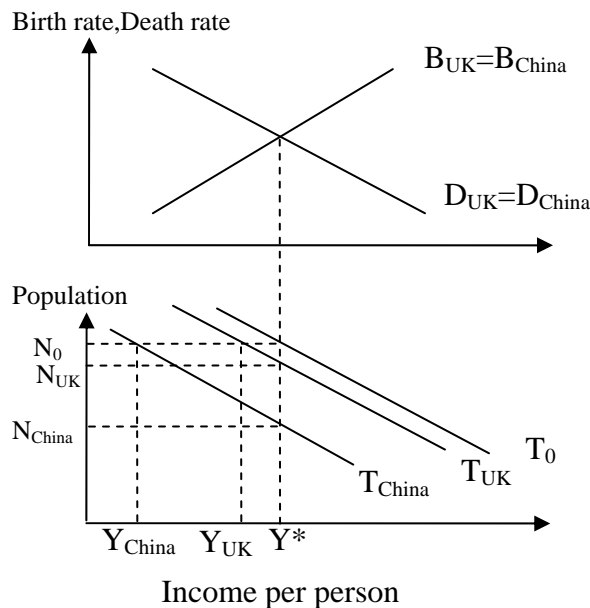


10. In 1492 Columbus, history's luckiest bumbler, stumbled upon the Americas. This exposed native American's to a range of diseases they had no immunity to, the "White Plague." What should have been the long run effect on living standards of Native Americans?

White Plague will cause native American's death rate increase which will shift the death rate schedule upward. The effect will be the same as question 4 and 6.

11. English Kings before 1700 collected only about 1% or less of national output in taxes, while the Chinese Emperors may have collected as much as 10%. Does this help explain the seemingly higher living standards in pre-industrial England? Explain.

In the short run, higher taxes will lead to a lower living standard. But in the long run, the effect of taxes will be a decrease of population. In the graph, suppose England and China have the same characteristics before collecting taxes. The higher tax rate in China will shift the technology schedule of China left more than that of England.



Note that Y_{China} and Y_{UK} is the short run effect of taxes on income in China and England, respectively. In short run, England has higher living standard compare to China. In long run, their living standards shift back to Y^* .

12. Suppose that two pre-industrial societies are identical, except that in one people work 5 hours per day, in the other 10 hours per day. How will they differ in terms of material living standards, life expectancy, and population? Which society is better off?

Again, different working hours will result in different technology schedules. Thus, these two societies will have the same living standards and life expectancy. But the population of the higher working hours society will be more than that of the lower working hours society.

