

Econ 2: Spring 2014: U.C. Berkeley: Problem Set 1

Due at start of February 3 lecture

1) For this problem set, consider a toy economy with six producing workers—Arya, Bran, Tegan, Taylor, Sarah, and Zedd—that produces two commodities: lattes (large, vanilla-caramel, half-caf, sweetened, made half with skim milk and half with half-and-half), and yoga lessons.

In an hour the six workers could each teach at most the following number of yoga students: Arya 10; Bran 6; Tegan 4; Taylor 4; Sarah 2; and Zedd 0. In an hour the six workers could prepare at most the following number of lattes: Arya 60; Bran 10; Tegan 20; Taylor 30; Sarah 30; and Zedd 60.

- a. What is the largest number of yoga students that this economy could teach in an hour?

26 students, if all 6 workers teach yoga

- b. What is the largest number of lattes that this economy could make in an hour?

210 lattes, if all 6 workers make lattes

- c. Suppose that some central planner—Mao Zedong, say—grabs three people at random and says “you are making lattes” and tells the other three “you are teaching yoga students”. How many lattes do you expect Mao’s allocation to make in an hour? How many yoga students do you expect Mao’s allocation to teach in an hour?

13 students and 105 lattes—each worker does, after all, have a 50% chance of being assigned to each

- d. Is that the best the economy can do? If so, explain why. If not, propose an alternative assignment of workers to jobs and demonstrate that it is better. Is your alternative the best the economy can do? Explain why or why not.

No, because some people are (relatively) better at making lattes and others at teaching yoga. A better economy would tend to assign those (relatively) better at making lattes to making lattes.

2) For this problem, keep the same setup as problem 1—Arya, Bran, Tegan, Taylor, Sarah, and Zedd, with their productivities. But now we are going to introduce money: the £, the purchasing power of which the government sets so that £1 purchases one latte. And let us call the price paid to the yoga instructor by each yoga student £Y.

- a. Suppose that the price of a yoga lesson is £5.50. Who would rather teach yoga? Who would rather draw lattes?

Tegan would rather teach yoga. The other five would rather draw lattes—they could make more money that way.

- b. Suppose the price of a yoga lesson is £10. Who would rather teach yoga? Who would rather draw lattes?

Arya, Bran, Tegan, and Taylor would rather teach yoga. The other two would rather draw lattes—they could make more money that way.

- c. Suppose the price of a yoga lesson is £15. Who would rather teach yoga? Who would rather draw lattes?



Sarah doesn't care which she does. Zedd would rather draw lattes. The other four would rather teach yoga—they make more money that way...

d. With the price of yoga lessons along the vertical axis and the quantity of yoga students taught on the horizontal axis, draw the supply curve for yoga lessons for the economy.

e. Suppose that ten students want to and must take yoga lessons. What will the market equilibrium price of yoga lessons be?

£5—Bran and Tegan are willing to do the teaching...

f. Suppose that every potential student is willing to pay £6 for a yoga lesson. What will the market equilibrium quantity of yoga lessons be?

Bran, Tegan, and Arya are willing to teach at that price, so we have 20 lessons (but Arya is indifferent)

g. Suppose that the price of a yoga lesson is £6. How much do each of the six workers make per hour.

Bran makes £36—£26 above his reservation wage. Tegan makes £24—£4 above her reservation wage. And Arya makes £60—her reservation wage. The other three make zero from yoga—Zedd makes £60 and Sarah makes £30 from lattes.

h. Suppose that the price of a yoga lesson is £11. How much do each of the six workers make per hour/

Bran makes £66—£56 above his reservation wage. Tegan makes £44—£24 above her reservation wage. Arya makes £110—£50 above her reservation wage. Taylor makes £44—£14 above her reservation wage. The other two make zero from yoga—Zedd makes £60 and Sarah makes £30 from lattes.

i. Suppose that the price of a yoga lesson is £15. How much do each of the six workers make per hour?

Bran makes £90—£80 above his reservation wage. Tegan makes £60—£40 above her reservation wage. Arya makes £150—£90 above her reservation

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wage. Taylor makes £60—£30 above her reservation wage. Sarah makes £30—her reservation wage. Zedd still makes £0 from yoga (he makes £60 from lattes

j. Suppose that the price of a yoga lesson is £1. How much do each of the six workers make per hour/

Nobody makes any money from teaching yoga—everyone pulls lattes. Bran makes £10. Tegan makes £20. Arya makes £60. Taylor makes £30 above her reservation wage. Sarah makes £30. Zedd makes £60.

3) For this problem, keep the same setup as problem 1—Arya, Bran, Tegan, Taylor, Sarah, and Zedd, with their productivities.

Go back to 1c. You have been unlucky, and it is now your job to convince Mao Zedong that he needs to let the market economy back into China. First, do some preliminary calculations...

- a. Recall the amount of yoga students Mao's economy could teach and lattes it could make in an hour. If you allow the market system to work, what price of yoga lessons $\$Y$ would have the economy teaching as many students as in Mao's economy? How many lattes would that market economy produce? How much better off would consumers be as a result?

Mao's economy teaches 13 students. Let Bran teach 4 students, Tegan teach 6, and Arya teach 3—they are willing to do that at a price of $\$6$. The other three can produce 120 lattes—more than the expected Mao-economy's 105. And as a bonus Arya can teach another 7 students in her class.

- b. Recall the amount of yoga students Mao's economy could teach and lattes it could make in an hour. Suppose you allow the market system to work. At what price of yoga lessons $\$Y$ would the economy make as many lattes as in Mao's economy? How many yoga lessons would that market economy teach? How much better off would consumers be as a result?

Mao's economy makes 105 lattes. Zedd, Sarah, and Taylor can make 120—more than 105. And Tegan, Bran, and Arya can then teach their 20 yoga students—more than 13.

- c. Write (on the next page) a paragraph, 400 words at most, in which you make your argument to Mao Zedong that he should decontrol the Chinese economy and let it revert back to a market economy. For extra credit, in an appropriate and sensible place quote Deng Xiaoping: "It is not important whether a cat is red or white; it is important whether a cat catches mice!"

This is an open-ended question: we are genuinely interested in what you think—we do not think we have any special insight in how to convince Mao Zedong of something so contrary to his entire orientation to the world.

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d. What do you think Mao would say and do in answer to your attempt to convince him to reverse his economic policy course?

We don't really know what Mao would say. We suspect he would say something about how moving back to the market would inevitably produce great inequalities of income and wealth, and the wealthy would then seize control of the government and run it in their interest, and then the government would once again oppress the people.

What do you think?