Price Theory I TFUs
Practice Set 10

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1. If human capital production is human capital intensive, then a permanent increase in the demand for human capital in the other (non-human capital producing) sectors could reduce the quantity supplied of human capital to those sectors in the short run. (4.22.5, Midterm 2007)

   True. It is possible. In equilibrium,it is possible that workers will shift out of the high demand sector in she short run in order to accumulate human capital so that later they can earn higher returns in the high demand sector. Thus, short term wages in the high-demand sector could be very high to compensate workers for lower future wages relative to those with higher human capital later.

2. An increase in the price of gasoline will lead some car owners to switch to smaller more fuel-efficient cars. These owners might end up driving more miles, and even use more gasoline, than they did before the gasoline price increase. (Core 2008)

   False. It is true that an increase in the price of gasoline increases demand for smaller, more fuel-efficient cars. But it is not possible that the consumers would actually consume more gallons of gasoline. Another interpretation is that this statement claims that gasoline is a Giffen good in the long run. This is very unlikely since demand tends to be more elastic in the long-run, thereby implying a larger substitution effect. Giffen goods are usually inferior goods with a relatively small substitution effect.

3. The introduction of a popular video game will reduce the demand for other video games if people who own game consoles view different games as substitutes for each other. (3.5.11, Final 2013)

   False. To elaborate, the introduction of the popular video game will induce more people to purchase the console on which the game runs (scale effect). Then, the shadows price of owning other games that run on the same console drops. Let's focus on the new console owners. Since people are spending extra money on the popular game, income effect will decrease the demand for other video games. But since the price of owning other games is now lower, people will substitute in expenditures from other areas (not necessarily video games for the same console) to buy more of the other games. If the substitution effect is high enough, the overall demand for other games will increase. If the console induces strong network effects for playing other games, the demand increase for other video games will be even further reinforced.

4. If productivity of labor and capital rises by 2% in the market sector, and if at the same time productivity in the household sector of both time and goods rises by 2%, hours of work would not change because the rise in household productivity would eliminate both the substitution effect of greater market productivity toward more work, and the income effect toward reduced work. (3.17.4, Final 2011)

   False. The increase in productivity in both sectors should eliminate the substitution effect between market and household because the marginal product of time in both sectors increases by the same amount. There is an income effect though because both the productivity of the market and the household increased, so households are richer. If leisure is a normal good, then people should substitute away from production in the market and home and toward leisure.

5. Suppose the government subsidies foods with low fat in order to reduce the death rate from heart disease. If consumers do not know about the effect of fat on heart disease, the increase in consumer surplus from this subsidy is measured by the product of the decline in the average probability of dying from heart attack due to less use of goods with high fat content multiplied by the average willingness to pay for that change in probabilities. (3.20.2, Final 1999)

   False. The subsidy will affect the consumer's price of the foods with low fat. This will distort the choice of the consumers between the foods with low fat and with high fat, that is, the consumers will consume the former more and the latter less. Therefore, we should also consider the increase and decrease of the consumer's surplus in foods with low fat and with high fat, respectively. These together with the stated measure will determine the change in consumer surplus from this subsidy. (Mo)

6. Payroll taxes that finance social security and other social services raise the costs of labor, encourage capital/labor substitution, and reduce employment opportunities. (4.5.5, Core 1997)

   Uncertain. Based on the previous questions, we know that these payroll taxes can increase firm profits, at least in the short-run. But this does not mean they actually hire more labor. However if we look at this from Pr. Mulligan's point of view, financing social services could increase demand for labor in the industries that provide those services, which are the more labor-intensive industries. Thus, while some industries will decrease labor, the aggregate employment in the economy could rise. Further, firms can substitute between di↵erent types of benefits, not just between capital/labor. So we may actually see a rise in other types of benefits, rather than a reduction in employment opportunities.

7. An increase in the rate of technical progress in the capital goods producing sector could increase the rental cost of capital goods in the short run. (4.7.7, Fall 2008 Final)

   True. Increase in the technical progress implies lower rental rate in the future and lower future price of the good. The rental price equation shows that

$$P_t = R_t + \frac{P_{t+1}(1+\delta)}{1+r}$$

   which implies that R_t may increase in the short-run.

8. *** Capital augmenting technological progress will increase real wages more than labor augmenting technical progress that has the same impact on TFP. (4.17.3, Midterm 2014)

   Uncertain. In the long-run, this may be true. In the short-run, however, it depends on the substitutability of the inputs. If labor and capital are very complementary, the demand for labor rises and real wages rise; if they are close substitutes, then demand for labor falls and real wages are depressed. In the long-run, the ΔTFP will accrue to labor.

9. A union of identical members would set a wage rate per hour that would maximize the total earnings of union members. (4.17.2, Fall 2007 Final)

   Uncertain. A union of identical members will maximize their joint utility, which is not necessarily the same as earning maximization. If the members do not value leisure, then utility maximization and earnings maximization are the same, and answer would be "true". However, if the union also bargains over the hours worked, then the resulting wage rate per hour need not be the one which maximizes total earnings.