Price Theory I TFUs
Practice Set 08

Simon Oh

1. If the demand for illegal drugs is inelastic, then an intervention that seizes and destroys 10% of drug production will raise the profits of drug suppliers. (3.2.4, Core 2002)

   Uncertain. Two approaches: (1) revealed preference argument says that they would have done it in the first place. (2) Long-run vs. short-run: may decrease demand in the long-run and reduce profits of the drug suppliers.

2. *** A carbon tax (taxing each ton of CO2 emitted) would likely raise the profits of some fossil fuel producers if those fuels differed in the CO2 emission per unit of energy produced, and if the demand for energy is relatively inelastic. (3.4.7, Core 2013)

   True. Because the demand is relatively inelastic, a carbon tax leads to an increase in the market price. If the marginal generators are relatively clean, then the inframarginal dirty generators' profits will decrease because price increases less by than the tax. If the marginal generators are relatively dirty, then the inframarginal clean generators' profits will increase.

3. Oil and natural gas are complements in production, but are substitutes in consumption by firms and consumers. This implies that an increased demand for oil would lower the price of natural gas. (3.5.9, Final 2008)

   Uncertain. On the production side, supply of natural gas increases. On the consumption side, demand for natural gas increases since the price of oil increased. Quantity surely increases, but the effect on price is ambiguous.

4. Movie theatres charge lower prices to senior citizens (over age 65) because the value of time of seniors is less than the value of time of younger movie-goers. (3.16.2, Final 2013)

   Uncertain. It could be that the two groups have different elasticities of demand for the good, that's why the theatre can price discriminate between the two groups.

5. Knowledge that productivity growth will be higher than previously expected will lead to higher stock market valuation. (4.2.5, Core 2002)

   Uncertain The stock market valuation is determined by the long-run expected discounted profits of the company. If the productivity growth is expected to increase the profits, then the

statement is true, but it will not always happen. An example: Consider a competitive industry. When the productivity growth increases unexpectedly, it may increase or reduce the firm's short-run profit, as we have seen in the previous question. Furthermore, the long-run profits remain zero.

6. *** An increase in the supply of skilled labor will generate biased technological change favoring skilled labor by increasing the incentive of firms to find technologies that efficiently utilize skilled labor. (4.4.4, Midterm 2009)

   Uncertain. Consider a firm that uses both skilled and unskilled labor. If there is a fixed amount of skilled plus unskilled labor in the economy, an increase in the supply of skilled labor would cause a decrease in the supply of unskilled labor. If for the firms' production function skilled labor and unskilled labor were complements, the firm may prefer to seek to more e"ciently convert each time-unit of unskilled labor into e↵ective units of skilled labor. In this case, increasing the productivity of unskilled labor would be more important, because it would become relatively scarcer and more costly. If the firm could produce a technology that would make skilled labor and unskilled labor more substitutable, they may, however, do that.

7. If the price of an inferior factor decreases and the output increases at the same time, then the firm should use more of that factor. (4.6.2)

   Uncertain. Substitution effect increases the usage of the inferior factor, but given an output increase, the usage should decrease since it's inferior.

8. *** With constant returns to scale, labor productivity will grow faster than total factor productivity if the real return to capital stays constant due to capital being elastically supplied. (4.7.6, Core 2003)

   Uncertain. First, real return to capital staying constant implies $\Delta R = \Delta P$. Note that $\Delta P = S_L \Delta W + S_K \Delta R - \Delta TFP$ and thus we have $\Delta TFP = S_L \Delta W - S_L \Delta P$. Since under CRS labor share is constant, MPL is equal to APL and thus $\Delta APL > \Delta TFP$.

9. The fact that other firms in the same industry do not object to a merger between firm A and firm B suggests that such a merger is pro-competitive based on both economic efficiency and consumer benefit grounds. (4.15.3, Final 2000)

   False. Most likely it is anti-competitive on consumer benefit grounds since the fact that other firms are not complaining would suggest that they expect prices to rise. It could still be pro-competitive on e"ciency grounds if the cost savings generated by the merger more than o↵set the loss from increased market power.