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(i) In a competitive cigarette market, a \$1-per-pack excise tax on manufacturers would not increase market-average retail cigarette prices by more than \$1 per pack.

- ▷ In a competitive market, an excise tax cannot increase more than proportionately.
- ▷ However, manufactures may change the "quality" of the cigarette packet so as to leave the the price of the pack the same but the "effective" price more. For example, they could reduce the number of cigarettes in a pack or change the length.
- ▷ Aside: (http://econ.ucsb.edu/~grossman/teaching/Econ100B_Winter2011/monopoly2-ho.pdf)
  - ▷ Competitive market case: Firms set $p = c'(y)$. An excise tax increases marginal cost by the tax; i.e.
  $$p = c'(y) + t.$$
  Differentiating with respect to t:
  $$\frac{dp}{dt} = \frac{dMC}{dy}\frac{dy}{dt} + 1 \leq 1$$
  If supply is perfectly elastic, then $dMC/dy = 0$, thus $dp/dt = 1$. If supply curve is upward sloping so that $dMC/dy > 0$, but $dy/dt < 0$ so that $dp/dt < 1$ if supply is not perfectly elastic.
  - ▷ Monopoly case:
  $$\max_y \left[P(y) - t\right] y - C(y),$$
  then first-order condition is
  $$P'(y) = C'(y) + t \Leftrightarrow MR(y) = MC(y) + t.$$
  Since $TR(y) = P(y)\, y$,
  $$MR(y) = \frac{dTR(y)}{dy} = \frac{dP(y)}{dy} y + P(y) = \frac{dP(y)}{dy}\frac{y}{P(y)} P(y) + P(y) = \left(1 + \frac{1}{\varepsilon}\right) P(y).$$
  Hence, the optimal condition becomes
  $$MR(y) = \left(1 + \frac{1}{\varepsilon}\right) P(y) = MC(y) + t$$
  $$\Rightarrow P(y) = \frac{MC(y) + t}{1 + \frac{1}{\varepsilon}}.$$
  Differentiating with respect to t
  $$\frac{dP}{dt} = \frac{\frac{dMC(y)}{dt}\frac{dy}{dt} + 1}{1 + \frac{1}{\varepsilon}} + \left[MC(y) + t\right] \frac{d}{dt}\left(\frac{1}{1 + \frac{1}{\varepsilon}}\right).$$
  where we can interpret the first term as capturing how marginal cost moves and the second term as moving along the demand curve (which can change the elasticity). With constant elasticity, demand second term is zero. Moreover, if marginal cost is constant, then
  $$\frac{dP}{dt} = \frac{1}{1 + \frac{1}{\varepsilon}}.$$
  Thus, pass through could be more than or less than one depending on the elasticity ε.

(Tak)

(ii) Two equally healthy persons consider the purchase of a "life annuity"—a series of cash payments to be received until the purchasers death. One purchases and one doesn't. True, False, or Uncertain: the person with the annuity will live longer.

- ▷ Let us rule out the case in which the person who purchases annuity lives longer by "chance".
- ▷ A person who purchases an annuity considers the expected present value of cash payments to be received until death to be at least as large as the price paid for the annuity. Thus, those who expect to live longer are more likely to purchase the annuity when facing the same price. Since price is determined by the marginal buyer, those who expect to live longer than the marginal purchases would be expected to live longer than those who do not purchase.
- ▷ Suppose now that the two have the same expectancy. Having purchased the annuity, the individual has a greater incentive to live longer since they would receive payments for longer,. and to the extent that his/her actions can increase their life expectancy, they could receive more than originally expected.
- ▷ On the other hand, if the agents life expectancy do not change over time (e.g. rational expectation), there should be no impact on whether the person will live longer.

(Tak)

(iii) The price elasticity of demand for a supplier's product can help measure the degree of market power possessed by that supplier.

- ▷ In general, conditions of demand and supply schedules are distinct. However, in equilibrium, we can make some limited inferences about market power based on elasticity of demand.
- ▷ If a firm has no market power, then it faces a perfectly elastic demand (horizontal) and chooses quantity where the price equals to marginal cost. Thus, if price elasticity of demand is perfectly elastic, then it can be due to the fact that supplier has no market power.
- ▷ Though not relevant for the question: firms with monopoly power will only produce when demand is elastic (so that marginal revenue is positive). Not necessarily true under perfect competition.

(Tak)

(iv) An increase in both employment and wages among women, relative to men, indicates that the relative demand for female labor has increased.

- ▷ The statement suggests that there are separate demand for female and labour demand, and that increase in employment and wages among women is due to the specific labour demand for females increasing. This could be true.
- ▷ However, even if firms are agnostic towards the sexes of its employees, we can observe the same effect. For example, suppose women become relatively more educated/productive than men, this since their relative productivity is higher, firms would employ more women and pay them more.

(Tak)

(v) If white workers do not like working with black workers, that would depress black workers' wages.

- ▷ White workers who wish to impose their "taste" for discrimination would pay in the form of lower wages. To the extent that black workers do not have reverse taste (or distaste against white workers), they may actually receive higher wages.

▷ If discrimination is prevalent in the market, then it would mean a higher cost of losing employment for black workers as it would be more difficult to find employment. This may, in turn, give an additional incentive for the workers to be more productive/accumulate human capital. In such a case, black workers wages may increase more since they are more productive.

(Tak)

(vi) Requiring employers to provide health insurance to their employees has a lot of the same effects as taxing employment.

▷ "A lot of the same effect" is an ambiguous statement... -_-

▷ It is similar in the sense that both policies can pay for health insurance cost of the employees (directly by the firms, or through indirect subsidies from the tax collected).

▷ One important difference: If employers are required to provide health insurance, then they have an incentive to ensure that health insurance cost is low; e.g. they can provide better working environment (providing fruits, health snacks, better training to understand work/stress-related health issues)—a type of fringe benefits to the workers. However, if health insurance is paid as tax on employment, since firms would not have incentive to provide such benefits.

(Tak)

(vii) A reduction in the productivity of Illinois farm land would increase the number of acres in the state used for farming, especially to the degree that households' demand for food is price inelastic.

▷ A reduction in productivity of Illinois farm land would lead to higher prices for food produced on the farm land. If demand for such food is inelastic, then price would increase inducing farmers to increase the number of acres used.

▷ However, since food can be imported from outside Illinois. If we treat Illinois as a small open economy, then price of goods will be determined by supply/demand conditions outside of Illinois. In such a case, and without any price response, farmers may decide to reduce the acres used for farming and use it for some other more profitable pursuits.

(Tak)

(viii) Computer manufacturing tends to be less volatile than housing construction because the depreciation rate is lower.

▷ Price response following a demand shock is larger if the good has a lower depreciation rate. This is because the price has to move in excess of the new steady state in order to induce the stock of capital to change. Thus, the statement is true.

▷ Recall

$$P_t = \sum_{s=1}^{\infty} \frac{R_{t+s}\,(1-\delta)^s}{1+r_{t+s}}.$$

Hence, with low δ, P_t is more sensitive to change in R_t, leading to larger price swings in the investment market.

(Tak)

(ix) In a city with rent control a law that puts a maximum on what landlords can charge for housing, an increase in residents' incomes would exacerbate the housing shortage rather than increasing the quantity of housing.

▷ Since an individual generally requires one house in a particular city, a higher income would presumably lead to increase in demand for "better" (in terms of quality) housing rather than "more" housing. Thus, we should probably be considering quality aspect rather than quantity as suggested.

▷ To the extent that the cap is binding, a cap on rent will create a shortage of "quality" housing. It may also disincentives building of new homes (since housing price is tied to rental income, i.e. the opportunity cost of living in a house), especially those of high quality housing so that any increases in housing might be those with low quality.

(Tak)

(x) Prices set by monopolists or oligopolists should be adjusted to reflect what they would be under perfect competition before they are included in a price index (for the purpose of measuring changes in consumer living standards).

▷ Consumers pay the prices set by monopolists and/or oligopolists when they purchase goods produced by them. Thus, if the purpose of a price index is to measure changes in consumer living standards, it would be artificial to remove the "overcharge" charged by monopolists/oligopolists. This would amount to measuring a hypothetical living standard in which everyone lived in markets with perfect competition.

(Tak)