6 2016/17

(i) Wages are low in San Diego CA because of all of the illegal immigration.

- ▷ We can think of a large inflow of illegal immigrants as an increase in labour supply. Thus, all else equal, wages would fall.
- ▷ Skill level of immigrants: supposing that the illegal immigrants have low skill levels (we can also expect them to find low-skill level employment as it would be more difficult for them to be hired in high-skill firms), then wages that would fall will be those of low-skilled workers. To the extent that it is possible, this may lead firms to substitute high-skilled workers with low-skilled workers, and the wage level for low-skilled workers may be offset by this change in demand. The wages for high-skilled workers would, however, fall.
- ▷ Subsequent increase in demand for good (e.g. housing): illegal immigrants would require housing, food etc. and thus an increase in illegal immigration can be expected to increase demand for goods in the area. To the extent that goods are produced locally, this may lead local firms to hire more labour/capital, which would lead to higher wages.

(Tak)

(ii) If teachers were to become more effective, more people would go to school.

- ▷ An individual decides to go to school if the net present value from schooling (i.e. future wages with schooling, fees, opportunity cost) exceeds that of the net present value from not going to school (e.g. future wages without schooling, opportunity cost).
- ▷ Presumably, the cost of schooling would depend on the individual's ability. One can expect it to be lower for those with a higher ability.
- ▷ More effective teachers would mean lower cost for those studying with them so that the cost of schooling should be lower.
- ▷ Thus, all else equal, more people would go to school.
- ▷ We also need to think about a more general equilibrium response; for example, more effective teachers' wages might be higher and the tuition fees correspondingly higher, which may offset the benefit to students.
- ▷ Teacher's wages would be equated with their marginal productivity, which would correspond to the average productivity gain from them teaching. Therefore, those with a higher ability might be expected to benefit more from effective teachers than those with a lower ability.
- ▷ [The solution discusses intensive vs extensive margin (i.e. people who are already in school may stay school longer). Although this would be true, I don't think the question asks this...]

(Tak)

(iii) A durable goods market adjusts more rapidly to changes in demand when the durable good has a high depreciation rate.

- ▷ Two dimensions of adjustment: rental rate of capital, R, and capital stock, k.
- ▷ In the extreme case, when depreciation rate δ is 1, then k and R move to the steady state immediately. To see this, recall

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

Let $\delta = 1$, then $P_t = R_t$. Increase in demand leads to a higher rental rate, and in the limit when $\delta = 1$, it immediately moves to the steady state.

▷ In case $\delta < 1$, R overshoots above the new steady state and k and R converge to the steady state over time. Low depreciation means slower adjustment.

(Tak)

(iv) Rice is an inferior good.

▷ The demand for an inferior good falls as income increases; i.e. its income elasticity is negative.

▷ A good cannot always be an inferior good. From zero income, the demand for any good must weakly increase with income.

▷ Thus, with sufficiently low income, rice would be a normal good.

▷ As income rises, one could expect consumers to switch to another good so that rice may be inferior at some level(s) of income.

▷ Given that there is a limit in the amount of rice a consumer can consume, as income grows, consumers may increase the quality of rice that they purchase.

▷ Thus, even if the quantity of rice may not increase, the effective units of rice consumers (say, amount "times" quality of rice) may be increasing.

(Tak)

(v) The demand for assembled toys is less price elastic than the demand for toys that customers have to assemble.

▷ The cost to derive utility from an assembled toy is the price of the toy (and the time required to play with the toy).

▷ In contrast, the cost to derive utility from toys that require assembly is the price of the toy plus the time required to assemble the toy, which has a shadow price (e.g. foregone wages).

▷ To make the problem interesting, suppose that the elasticity of demand with respect to total cost is the same between assembled toys and toys that require assembly.

▷ Consider a 1% increase in price of the toy, then for an assembled price, the total cost increases by 1%; however, the total cost of a toy that requires assembly increases by less than 1%. Hence, demand for the toy that requires assembly can be expected to be less price elastic.

(Tak)

(vi) Physicians work long hours because they are burdened with their medical-school debts.

▷ An individual would work longer hours if their wages are high since the opportunity cost of leisure is higher. Physicals tends to be paid more so they can be expected to work longer hours.

▷ Physicians who took out medical-school debts, when they decided to go to medical school, would have considered that the present value from going to school was greater than any other option. Thus, even with the medical-school debt, future (presumably) higher wages were sufficiently high to make it worthwhile becoming a physician.

▷ If, for example, medical-school debt was too expensive, and people do not go to medical school to become physicians, this will create a shortage of physicians which would increase the wages of physicians—until supply and demand for physicians are equal, which would occur when wages are sufficiently so high as to mean that medical-school debt is not "too" expensive.

(Tak)

(vii) The benefit to a consumer of a price cut depends only on the amount he consumes of the good, and not for his willingness to substitute from other goods.

▷ Let's suppose that the "benefit" to a consumer of a price cut refers to the change in consumer surplus.

▷ Suppose that demand is constant but supply increases so that price falls. Consider first the case in which supply is perfectly elastic. Then, the gain in consumer surplus depends on the size of the price cut (which determines the "height" of the consumer surplus) as well as the elasticity of demand for the good (which determines the "length" of the consumer surplus). The more elastic the demand, the greater is the gain in consumer surplus.

▷ Price elasticity of demand is affected by the availability of substitutes; i.e. the more the consumer is willing to substitute to other goods—demand is more elastic the greater the availability of substitutes.

▷ Thus, the correct statement is that the benefit to the consumer from a price cut depends on the amount he consumer of the good, which, in turn, is affected by his his willingness to substitute from other goods.

(Tak)

(viii) A rational patient who understands that her expert and diligent physician is genuinely concerned about her health will obey her physician's instructions regarding her medications.

▷ The question allows us to forget the possibility that a patient believes that the expert may be suggesting certain medications for their own benefit (e.g. "kick-backs" from pharmaceutical companies).

▷ However, the value that the expert places on the patient's health is likely to differ from that placed by the patient him/herself. For example (though technically this isn't instruction about medication but the point still holds), a smoker, who presumably knows that smoking is bad for health, continues to smoke since the pleasure they gain from smoking is greater than the health cost (since we assume the smoker is rational, we can assume s/he knows the true health cost). Although the expert is likely to suggest to the smoker to quit smoking, the smoker would not follow such an instruction as s/he would have already been aware of the cost of smoking.

(Tak)

(ix) The individual-level and marketwide price elasticity of demand for Microsoft Excel are essentially the same because market demand is the sum of individual demands.

▷ (Horizontal) summation of heterogenous individual-level demand leads to more elastic aggregate demand than individual demand.

▷ Moreover, in this case, the use of Excel at an individual level can be expected to depend upon the market-wide use of Excel due to network effects. If everyone uses Excel to build models for use in the market, then the cost of using an alternative software is higher than if the entire market switched to using another software. Thus, individual-level demand can also be expected to be less elastic for this reason.

(Tak)

(x) Reductions in the quantity index for the consumption of cigarette products indicate that the population is smoking less over time.

▷ Recall that the quantity index is the first-order approximation to changes in utility dU/λ. Reduction means at (in the case of Laspeyres index), given intial prices, amount consumed has fallen.

▷ Suppose that population is constant, then this means that total quantity smoked has fallen so that population is smoking less on average.

(Tak)