

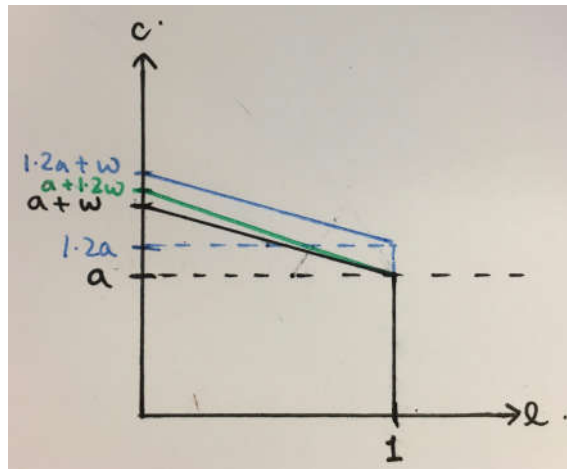
## Part II

## Final

### 5 2017/18

- (i) *A person with income split equally between wages and asset income (e.g. interest and dividends received) would benefit just as much from a 20% increase in asset income and a 20% increase in his wage rate.*

**False.** Consider the following figure which shows the budget constraint in (leisure, consumption space), where we assume total time endowment of one. That a person's income is split equally between wages and asset income means that the (normalised) wage rate,  $w$ , must be (weakly) smaller than the asset income,  $a$  (they are equal only if the person works all of the time).



As the figure shows, the budget set following a 20% increase in asset income (blue) fully contains the budget set following a 20% increase in wage rate (green). Hence, the person must be better off with a 20% increase in asset income.

Note that change in wage rate has both income (each hour brings in more income) and substitution effect (higher wage rate increases the price of leisure relative to consumption). In contrast, increase in asset income has only income effect.

[Solution says "If, after the increase in wage rate by 20%, the person decide to work more, then the benefit is larger than when assets increase by 20%." This is not true in general since, although the person will have greater income, he also incurs greater disutility from working more.] (Tak)

- (ii) *Industries in which labour and capital are complements in production are good opportunities for labour union organising.*

**True.** That labour and capital are complementary means that marginal product of capital decreases if the firm uses less labour—this limits the firm's ability to respond to unionisation by switching away from labour to capital. Therefore, greater complementary implies that demand for labour is likely to be more inelastic so the union can influence wages and obtain greater benefits due to the relatively small impact on the quantity of labour.

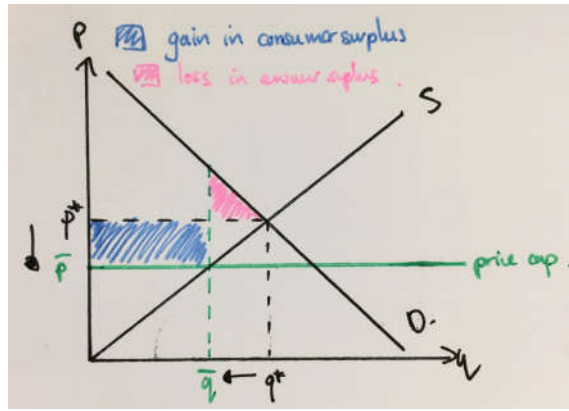
Recall from class that long-run labour supply elasticity is given by

$$\frac{\Delta L}{\Delta W} = -\frac{\varepsilon^D s_L + \sigma s_K}{s_L + s_K},$$

where  $\sigma$  is the elasticity of substitution (lower value indicates greater complementarity) and  $\varepsilon^D$  is the elasticity of demand for the output. So we see that labour supply is more inelastic if  $\sigma$  is smaller; i.e. if labour and capital are more complementary. Notice also that if  $s_K$  is small, then  $\sigma$  may have only a negligible impact on the elasticity of labour supply. (Tak)

- (iii) *A price ceiling in a competitive market cannot benefit consumers unless the regulator also regulates quantity traded.*

**False.** Consider the following figure which depicts what could happen with (just) a price cap. As drawn, we can see that consumers benefit from the price cap (the blue area is greater than the pink area). The benefit is greater the more elastic the demand and the more inelastic is the supply.



However, there may still be incentive for the regulator to regulate quantity traded. This is because, facing the price cap, firms may adjust the good's attributes in "non-standard" ways (e.g. in the case of a price cap on say cigarette packs, firms may simply reduce the number of cigarettes per pack). A quantity cap, measured in an appropriate way (in our example, measured as the number of cigarettes), can mitigate such responses by the firms. (Tak)

- (iv) *The adding up condition from demand theory is valid only if the consumer optimises all of the goods that he purchases.*

**False.** The adding up condition with respect to Marshallian demand does not rely on consumer optimising over the goods—it simply relies on the budget constraint being binding.

Write the budget constraint as

$$\sum_{i=1}^N X_i P_i = M$$

Differentiating with respect to  $P_j$  and rearranging yields the adding up condition:

$$\sum_{i=1}^N \frac{dX_i}{dP_j} P_i + X_j = 0 \quad (5.1)$$

$$\Leftrightarrow \sum_{i=1}^N \frac{dX_i}{dP_j} \frac{P_j}{X_i} \frac{X_i P_i}{M} + \frac{X_j P_j}{M} = 0 \quad (5.2)$$

$$\Leftrightarrow \sum_{i=1}^N \varepsilon_{ij} s_i = -s_j \quad (5.3)$$

Note, however, that the adding up condition with Hicksian demand does rely on optimisation. (Tak)

- (v) *When famous people wear expensive designer clothes, other people are more willing to pay for such clothes. Therefore, the purchase decisions of famous people are the source of a negative externality.*

**Uncertain.** The fact that famous people wearing expensive designer clothes increases the individual's willingness to pay for such clothes suggests that the goods "famous people wearing expensive designer clothes" and "expensive designer clothes" are complements in people's utility functions. This means that the cross derivatives of the utility function for these two goods is positive. In other words, this is about how the marginal utility from "expensive design clothes" is affected by "famous people wearing expensive designer clothes". This is an example of a social multiplier effect.

On the other hand, an externality refers to how an individual's level of utility is affected by, for example, consumption of goods by other people. In this case, it is about how people's utility levels are affected by "famous people wearing expensive designer clothes"; i.e. the derivative of utility function with respect to this "good".

Since we cannot infer the value of the first derivative from a cross derivative, we cannot conclude that the statement is true. (Tak)

- (vi) *An overnight hail storm seriously dented the cars on display at the new car dealership. Customers were aware of the damage. True, False, or Uncertain: The storm caused fewer people to shop at the dealership until such time that it could obtain a fresh shipment of new cars.*

**Uncertain.** We can think of dented cars as another good that people can purchase, presumably at lower price than undamaged cars. If the customers are aware of the damage as well as that the dealership is selling such cars, then the dealership may attract buyers of such damaged cars. This is possible because the purchasers of undamaged cars and damages cars are likely to be different—so that the increased foot print at the dealership reflects "unusual" customers for the dealership.

The question also suggests that only the cars on display at the dealership were damaged—if the customers are aware that the dealership has stocks of undamaged cars, then the number of customers purchasing undamaged cars may not be different from usual. In this case, the additional demand for damages cars would certainly lead to higher traffic (than when such demand disappears once again). (Tak)

- (vii) *The availability of ebooks reduces the sales of physical books.*

**Uncertain.** We can think of ebooks and physical books as complements in people's utility functions. This might be the case if people have the tendency to read ebooks first and, if they like them, then they purchase physical books to be placed in their bookshelf. In this case, availability of ebooks could lead to increased sales of physical books. (Tak)