INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2019

Subject CB2 – Business Economics: Core Principles

Introduction

The Examiners' Report is written by the Principal Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

Mike Hammer
Chair of the Board of Examiners
December 2019

A. General comments on the *aims of this subject and how it is marked*

The aim of the Business Economics subject is to introduce students to the core economic principles and their relevance to the business environment. It provides a grounding in the fundamental concepts of micro- and macro-economics as they affect the operation of insurance and other financial systems, both for individuals and their requirements for financial security, and for financial institutions and their ability to provide products that meet individual and institutional clients' needs.

B. Comments on *student performance in this diet of the examination.*

Candidates' performance was of similar standard to previous diets. Stronger performance was exhibited in quantitative type of questions. Generally candidates demonstrated a good understanding of the theoretical concepts but application of the concepts proved more of a challenge. Candidates who gained higher marks for discursive type of questions provided sufficient detail in their discussion and demonstrated a deeper understanding of the relevant issues.

C. Pass Mark

The Pass Mark for this exam was 60

Solutions for Subject CB2 – September 2019

1	D	[1½]
2	B or C	[1½]
3	A	[1½]
4	B	[1½]
5	C	[1½]
6	C	[1½]
7	C	[1½]
8	D	[1½]
9	C	[1½]
10	A	[1½]
11	B	[1½]
12	D	[1½]
13	C	[1½]
14	D	[1½]
15	B	[1½]
16	A	[1½]
17	A	[1½]
18	A	[1½]
19	B	[1½]
20	C	[1½]
21	A	[1½]
22	A	[1½]
23	A	[1½]
24	D	[1½]
25	B	[1½]
26	B	[1½]
		[Total 39]

The multiple choice questions were generally answered well. As different economists apply the concept of opportunity cost in different ways, both answers B and C to question 2 were accepted.

27 (i)

A normal good is one for which demand increases with an increase in income, in contrast demand falls with an increase in income for an inferior good. In the context of travelling to work travelling by bus or walking could be viewed as an inferior good and as income rises, demand would fall for these modes of transport in favour of another such as car travel. An important point to note here is that the normal or inferior good noted in the example is generally true, in some cases it could equally be suggested that bus travel is the normal good and walking is the inferior good or bus travel is the normal good instead of cycling. [2]

(ii) (a)

A negative and very large cross price elasticity of demand implies that the two goods are complementary and are very closely related.

(b)

The two examples must be food products that are commonly considered to be very closely related. For example bread and butter, tea and sugar, strawberries and ice cream. [2]

[Total 4]

Most candidates provided a satisfactory definition of normal and inferior goods and appropriate examples were accepted. In part (ii) full mark was awarded when examples of close complements were offered.

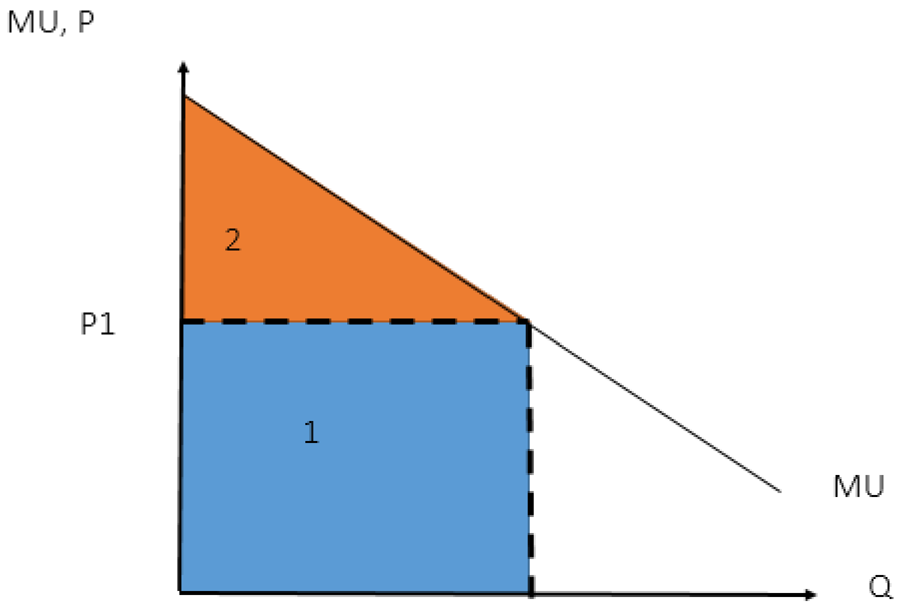
28 (i)

Comparing the marginal utility of travelling by bus or by taxi takes into account not just the financial element but also the opportunity cost of time and the convenience of travel, both of which affect consumer's utility. Using the equi-marginal principle the marginal utility of both goods relative to prices will be compared to determine the optimal quantity of bus and taxi travel. $MU_A/MU_B = P_A/P_B$

The marginal utility derived from travelling by bus relative to price is less than the marginal utility derived from travelling by taxi relative to price.

Rationally a consumer who takes into account the cost of their time may find that the additional financial cost of travelling by taxi outweighs the opportunity cost of their time (as one assumes a taxi is faster than a bus as it would directly take someone between two locations). Thus on balance a rational consumer taking into account both time, money and convenience may select a more financially costly option as it has a higher marginal utility than the alternative (bus travel). [3]

(ii)



The total utility derived from using a taxi is shown by the area under the marginal utility curve. Total expenditure is the rectangular area (1) and the consumer surplus which is the excess utility relative to total expenditure is shown by the triangle

[2]

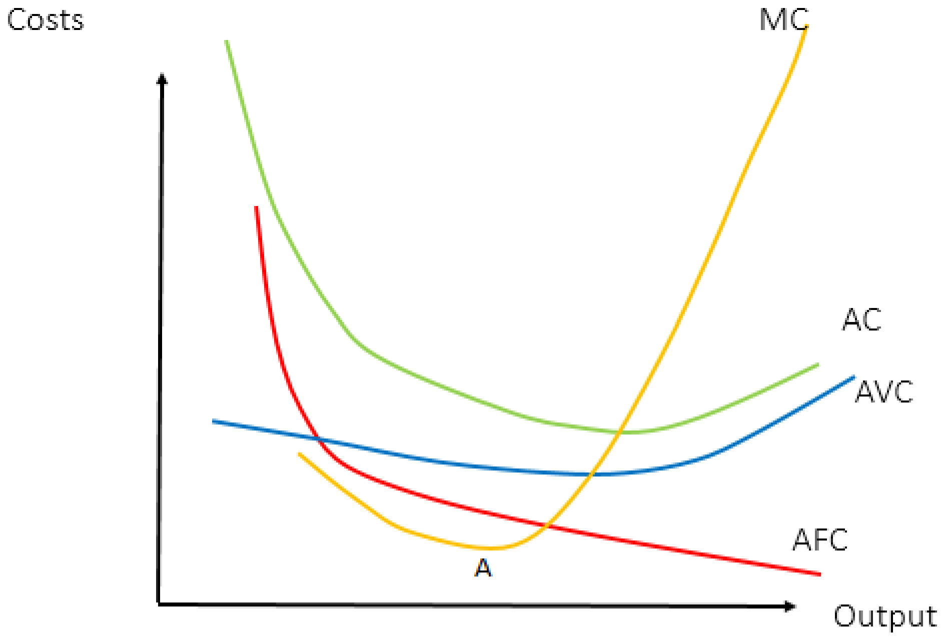
[Total 5]

This question required an understanding of the concept of marginal utility relative to price which very few candidates demonstrated satisfactorily although most succeeded in providing the reasons for selecting taxi as a preferred mode of travel.

29 (i)

- A fixed cost for a cafe is any cost that does not vary with output for example the insurance, repayment on a loan for the premises or rent. Other appropriate costs could be standing charges on gas/electricity, telephone line/broadband.
- A variable cost for the cafe is any cost that varies directly with output. Therefore, inputs such as coffee, sugar, milk are good examples. If staff are paid hourly then that could also be appropriate as it will depend on how busy the cafe is and thus how many staff are on shift at any one time. [2]

(ii)



[2]

(iii)(a)

Diminishing returns may be experienced in a cafe as they have a limited number of machines and the baristas may have to queue to get to a machine. The same issue could arise with processing bills, there is likely to only be one till and many staff could need to access it at once.

(iii)(b) Point A on the diagram is where diminishing marginal returns set in.
Point A is at the minimum point of the MC curve. [3]

[Total 7]

This question was answered generally well.

30

Structural barriers in the banking sector are barriers that exist because of the characteristics of the industry and arise as banks seek to run themselves more efficiently. For example within the retail banking sector, a firm may have lower average costs based on the location of its IT operations for example where labour costs are lower. There could also be reference to the oligopoly structure and regulations to enter the industry. A strategic barrier used within the retail banking sector could be the inconvenience of switching for the consumer. Changing banks takes time and requires applications to be processed and accepted. Within the sector, there may also be concern about direct debits and standing orders being correctly transferred so many people may stay with the same firm despite there being other providers in the market who may be able to offer better products or services. The consumer could also be "locked in" to a contract which limits the ability to change provider within a given time period, this is often associated with loans such as mortgages where there is a contract period. When customers try to leave their provider at the end of the contract period, incentives may be offered to encourage them to resign a contract such as preferential rates of interest. [4]

> Most candidates provided reasonable examples of barriers to entry in banking.

31 (i) Two positive externalities that may arise as a result of education could be related to:

- Less crime as people are more likely to be in employment and thus less likely to engage in unsocial activities.
- Be more informed and make better decisions about their health and therefore only use health services when needed. [2]

(ii)

- Likely negative externalities in consumption are could be leftover waste or high levels of traffic. Other reasonable example associated with consumption could be considered.
- After music festivals a local area may find excessive amounts of waste from the consumption of food, drinks and camping equipment which will need to be cleared.
- People travelling to a destination which is for an event in a fixed location for a short period may be driving, so heavier road traffic, slowing down non festival attendees journeys or the train/bus leading to less space on public transport/crowding, making a journey less enjoyable than normal.
  Other factors such as noise and any reasonable example including the impact associated with people being under the influence of substances (such as drink or drugs) may be considered. [2]

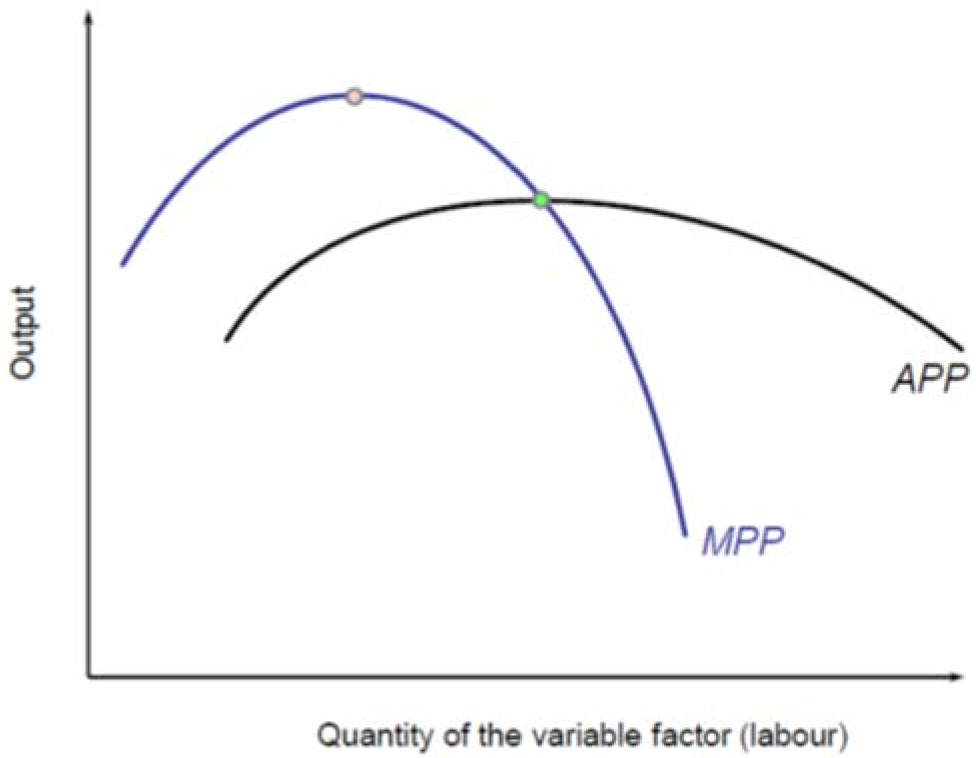
[Total 4]

> Most answers provided good examples of negative externalities of consumption in part (ii), however some answers did not gain the full mark as these provided examples for part (i) that were general and not related to consumption.

32 (i)

According to the law of diminishing returns as more of a variable factor is added to a given amount of a fixed factor then the marginal product (MP) and average product (AP) of the variable factor of production will eventually decline. [1]

(ii) The law of diminishing returns implies that initially the marginal physical product curve (MPP) may rise but after a certain point, the marginal product will start to decline. The average physical product (APP) may also initially rise and will continue to do so as long as the marginal product is above the average product. Once the marginal product falls below the average product then the average product will also decline. [2]



(iii) The law of diminishing returns means that both the marginal cost and the short run average total cost will have a U-shape, that is, decline initially as marginal and average product increase but then start to rise as marginal and average product start to decrease. [2]

[Total 5]

Most candidates made a reasonable attempt at this question. Full marks were awarded if diminishing return to a variable factor was related to the presence of a fixed factor of production and if the curves intersected at the correct point.

33 (i)

Country	Product A (units)	Product B (units)
X	2/5	2.5
Y	2/3	1.5

[2]

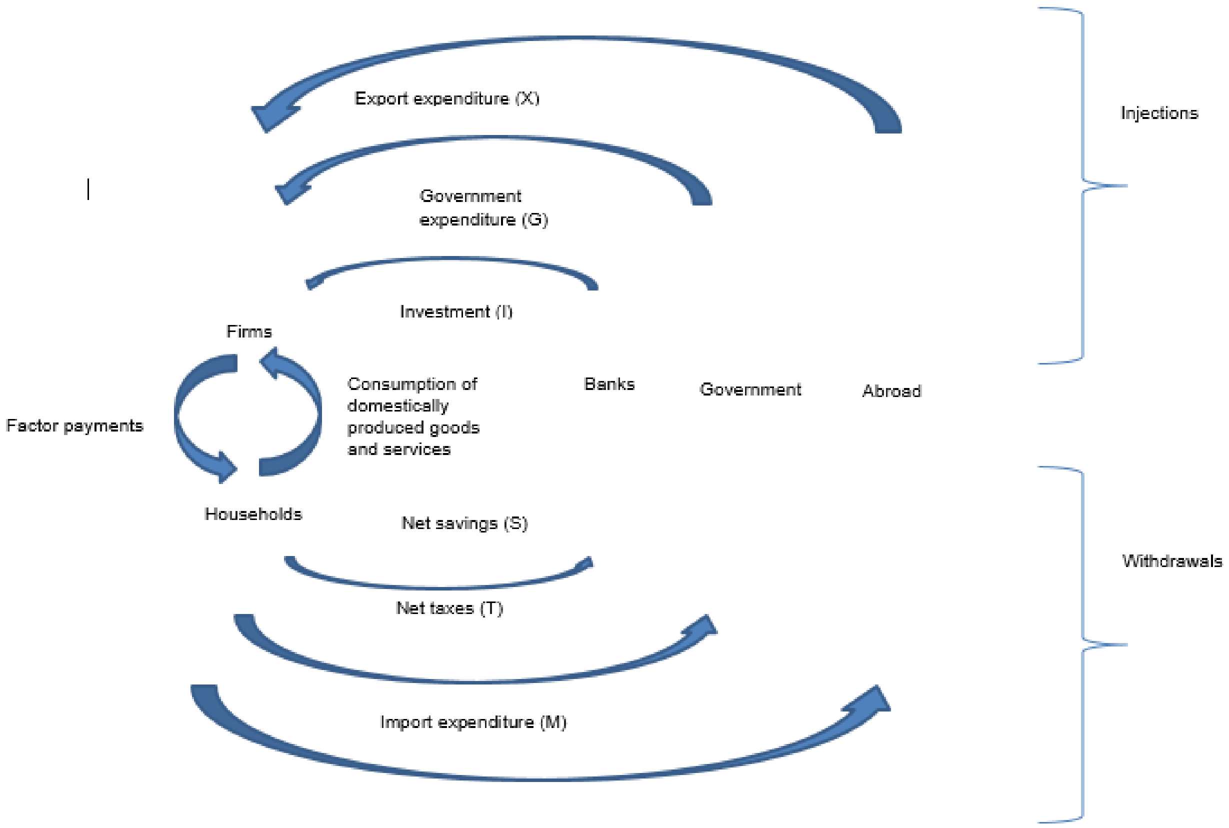
(ii) Country X has a comparative advantage in the production of A [1]

(iii) The exchange ratio needs to be between
5:2 and 6:4, i.e. 1 unit of B to be exchanged for between 2.5 and 1.5 units of A**.** [1]

[Total 4]

Parts (i) and (ii) of this question were correctly answered by most candidates. Part (iii) proved more of a challenge. To gain the mark for this part the correct range for the exchange ratio had to be identified. A range with appropriate scaling was also accepted. Credit was given for offering a specific value for A in exchange for 1 unit of B.

34



Most candidates gained full marks for this question.

35

- One role undertaken by financial intermediaries is to offer expert advice. This may include offering an **expert opinion** on saving and investment activities or information about other sources of finance.
- They may also offer expertise in how to channel funds into activities which have higher returns and to balance the viability of loans against risks. More risky activities may therefore have a premium attached to them or be refused. The benefit of this is that savers may be more confident about the return they will get on their savings and projects which are viable in terms of profitability can secure finance. This helps to increase **allocative efficiency**.
- Financial intermediaries also assist in **maturity transformation** where people wish to borrow money over the longer term and others may wish to have quick access to their funds. If the only option were to borrow from one another then these two positions would be in conflict with one another. Financial intermediaries resolve this problem by collecting savings together as the individual is then still able to withdraw their funds at short notice but can loan funds to others for a long period. This is possible as it is highly unlikely that each individual would want to withdraw their funds at the same time.
- Financial intermediaries also offer **risk transformation** as they loan to a series of individuals and can therefore absorb a small number of defaults because the risk is

spread across a number of people. Moreover a financial intermediary may also be better placed to assess the likelihood of default and therefore how risky a loan may be.

- Financial intermediaries also facilitate **transactions and transmit funds**.

[4]

The answers to this question were varied. Very few offered the full range of roles carried out by financial intermediaries Most answers explored only the role of banks in borrowing and lending and some focussed on the central bank specifically.

36 Discussion may include supply and demand policies for the full 10 marks.

- R&D subsidies
- cooperative R&D
- diffusion policies
- merger policies
- education/training

- As electric cars would be likely to have overall positive benefits to society, the government could design policies to assist firms in merging together. As a result of this, firms are likely to benefit from economies of scale and therefore have internal funds for further investment and speedier innovation.
- The government could seek to provide tax breaks or subsidies (a form of diffusion policy) within areas associated with electric car industry such as firms developing microchips or engines.
- Additional considerations could be specialised departments within universities/colleagues which could be sponsored/ provide subsided training or education for up and coming engineers which is a form of direct provision. Encouraging young people to move into such areas with incentives rather than others could also make working in the sector more attractive and potentially increase the rate of growth in knowledge.
- The government could ensure that there is a robust patent system in place, ensuring that firms who undertake investment into developing a new electric car industry would have the rights to their R&D discoveries and would be able to benefit from their activities.
- In order to encourage the pace of progress, government could seek to create an environment for cooperative R&D so that different firms can concentrate on different aspects of the electric car industry and not lead to wasteful duplication.
- From the demand side, people could be encouraged to purchase electric cars via subsidies or cash incentives for purchasing an electric car in preference to a traditional car. Taxes could also be added with high emissions levels to discourage their purchase. As the industry continues to grow, there would be a greater need for charging points and the electric car would become more commonplace.
- Providing individuals with information about the benefits of electric cars may also influence behaviour and encourage the purchase of electric cars and the subsequent development of the industry. [10]

This question was answered fairly well. Most answers offered a range of measures to promote the production and use of electric cars.

37 (i)

- The fluctuations in aggregate demand determine the length and magnitude of each of the phases of the business cycle. Private sector expenditure is associated with two components of aggregate demand; **consumption and investment expenditure.**
- Consumption expenditure is the largest expenditure component of aggregate demand and thus relatively small changes in consumption can have large effects on aggregate demand. Unfavourable expectations about future incomes will tend to lead to more cautious spending in the current period and a fall in AD as people seek to smooth consumption spending over a lifetime.
- Investment expenditure is also likely to be affected by expectations about the future. Improved business confidence (linked to economic growth performance) may encourage further investment and increased aggregate demand. Equally as an economy slows down, investment falls and can cease during a recession. Investment is an injection into the circular flow of income and has multiplier effects. Hence, changes in investment expenditure tend to lead to larger fluctuations in the business cycle. A relatively modest rise in national income can lead to a much larger percentage rise in investment which is a source of fluctuations in aggregate demand**.** This is known as the accelerator principle. Both the multiplier and accelerator effects result in accentuating the initial changes in private expenditure.

  Volatility of private sector spending will affect the business cycle in terms of "bandwagon effects" where positive expectations help to buoy the economy, people adjust behavior in a positive fashion (and likewise in a downturn). Group behaviour where people follow the behaviour of others reinforces booms and downturns. There could also be reference to ceilings and floors (in relation to the amount of slack in the economy), echo effects there people purchase durable goods and firms capital equipment (replacement can help to bring recessions to an end). Shocks and government policy changes could also be referred to. [5]

(ii)

- The financial sector can affect the ease and cost of borrowing for both firms and individuals which can aid or hinder consumption and investment spending.
- If banks and other financial institutions are less willing to loan money to people then consumption and investment expenditure will fall. Stricter controls on credit qualification criteria may mean that fewer individuals will qualify to borrow (or only be able to borrow a reduced amount if credit is partially rationed) reducing consumption expenditure. A more relaxed credit policy would enable more individuals to borrow and/or borrow larger amounts, which could increase consumption expenditure.
- Firms would face a similar situation, more favourable credit conditions would enable more firms to borrow and/or to borrow larger amounts and therefore undertake additional investment expenditure. Stricter control would be likely to cause investment expenditure to fall.

- In addition, the rate of interest rate set by banks and other financial institutions effects the cost of borrowing. As the interest rate rises, the cost of servicing debt rises. People would have less money for consumption activities which would be reflected within the business cycle as a downturn. Rising interest rates may also increase the level of saving undertaken and thus reduce consumption spending further. A fall in interest rates would have the opposite effect.
- Firms would find that rising interest rates would also increase the cost of any investment activity which may lead to some projects not being profitable and not being undertaken or scaled down. A fall in interest rates could make some projects more financially viable and therefore there would be an increase in investment activity which would lead to an upturn within the business cycle. [5]

[Total 10]

The answers to this question were varied. Most answers offered a diagram for the business cycle and a few explained the role of private expenditure in the cycle. Most answers focussed on private consumption but very few answers explored both private consumption and private investment and most did not relate the effect of private expenditure movements to the multiplier and accelerator.
In part (ii) most answers explored the effect of interest rate changes on the business cycle but very few provided a full explanation relating to the availability and cost of credit to gain full marks.

END OF EXAMINERS' REPORT

