INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2020

Subject CB2 - Business Economics - Core Principles

Introduction

The Examiners' Report is written by the Chief 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
July 2020

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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 *candidate performance in this diet of the examination.*

Representation and analysis of economic concepts using graphs is an important part of the syllabus of economics as a subject. However, due to the current circumstances and the online nature of the examination, the examination paper had no questions requiring candidates to sketch graphs; a skill which candidates possessing a good understanding of the theory and application are able to demonstrate well.

Candidates' performance in answering the multiple choice questions was similar to previous diets. Responses to questions aimed at testing candidates' theoretical knowledge were generally strong. This could have been affected by the open book nature of the examination. However, answering questions requiring application of theory within a particular context proved more of a challenge for some candidates.

The overall performance was higher than expected when setting the paper. Assessment of the minimally competent candidate indicated a pass mark of 66 was appropriate. The pass mark was then scaled to 65 and candidates given a downward adjustment.

C. Pass Mark

The pass mark for this exam was 65.
629 candidates presented themselves and 477 passed

Solutions

Q1	A	[1½]
Q2	A	[1½]
Q3	A	[1½]
Q4	A	[1½]
Q5	D	[1½]
Q6	C	[1½]
Q7	C	[1½]
Q8	C	[1½]
Q9	D	[1½]
Q10	B	[1½]
Q11	D	[1½]
Q12	B	[1½]
Q13	C	[1½]
Q14	B	[1½]
Q15	D	[1½]
Q16	B	[1½]
Q17	D	[1½]
Q18	D	[1½]
Q19	C	[1½]
Q20	C	[1½]
Q21	C	[1½]
Q22	D	[1½]
Q23	B	[1½]
Q24	B	[1½]
Q25	D	[1½]
Q26	A	[1½]
		[Total 39]

The multiple choice questions were generally answered well.

Q27

Three commonly cited factors of production to select from (may also refer to entrepreneurship) but expectation is land, labour or capital

- An accounting firm would use labour to undertake accounting activities for clients, this could include specialists in different areas of accounting such as tax and audit as well as general professional services staff such as receptionist, human resources, payroll and other workers such as cleaners and maintenance staff
- Accounting firms are also likely to be using capital (machinery) to undertake their work, examples would include computers, telephones, calculators, printers and other office equipment and the building in which they conduct their activities [4]

This question was generally answered well and most candidates were able to provide good examples of two factors of production. The mark for this question was divided equally between the two factors. To gain the full marks for each factor, candidates needed to provide

the resource, an example as well as how the firm would use the resource.

Q28

- Joint supply means production of one good increases the supply of the other good.
  For example:
  - oil and gas are in joint supply as are cows which can be utilized for milk, beef, and hide.
- Note: An alternative definition of joint supply could be that a production process resulting in two or more products produced at the same time.
- One benefit of producing a good in joint supply is that if there were an increase in the supply of one of the products (due to perhaps an increase in demand or reduced costs due to economies of scale) then there could also be an increase in the supply of another related product without the firm incurring large additional costs.
  For example:
  - in the case of a product such as oil, derivatives such as petrol, diesel and paraffin may be produced. Increases in the production of one product would lead to an increase in production of the other.
- Another benefits is that an increased supply of the firm's products due to increased demand will increase the firm's revenue and profit.
  For example:
  - producing two products means the firm has the opportunity to sell both products to its customer base rather than just one.
- A final benefit of producing products in joint supply for a firm is diversification.
  For example:
  - if producing more milk results in production of more cheese and cream then the producer will be less dependent on milk demand alone. [5]

The marks for this question were divided between providing a definition of joint supply, an example and explanation of the benefits. Most candidates succeeded in gaining most of the marks for this question by defining joint supply and providing an example and listing some benefits. To gain the full marks, full explanation of the benefits was required.

Q29

(i)

PES = % change in quantity supplied/% change in price or %Δ in Qs/%Δ in P

All three methods below are acceptable:

- The arc method gives:

$$\frac{dQs}{dP} \times \frac{P}{Q} = \frac{200}{3} \times \frac{6.5}{300} = 1.44$$

- At price 5 the point elasticity is:

$$\frac{dQs}{} \times \frac{P}{} = \frac{200}{} \times \frac{5}{} = 1.67$$

$\frac{dP}{} \quad \frac{Q}{} \qquad \frac{3}{} \quad \frac{200}{}$

- At price 8 the point elasticity is:

$$\frac{dQs}{dP} \times \frac{P}{Q} = \frac{200}{3} \times \frac{8}{400} = 1.33$$

[1]

(ii)

Three factors could include:

- The time period - PES is usually more elastic in the long rather than the short run. In the short run firms would find it difficult to change their output in response to a change in price as it is difficult to adjust input levels; the size of the workforce or factory. In the long run, firms can change the workforce, raw materials and build new factories. Hence, in the long run supply should be much more responsive to changes in price.
- Productive capacity - In the short run, firms tend to have a finite capacity given the factors of production. Firms may be unable to expand when the economy is at its peak and/or growth has been strong. When the economy is growing more slowly or contracting firms may have some spare capacity and thus be able to respond more readily to changes in prices.
- The size of the industry - Supply tends to be more elastic in smaller firms. Increased purchases of raw materials on a small scale are unlikely to impact unit costs, whereas large firms buying larger quantities of raw materials could influence the price of raw materials and raise unit costs. The more firms there are in the industry the easier it is to increase supply.
- Mobility of factors of production - The more readily a resource can be used for other purposes the more elastic supply will be, land which can be easily switched from one crop to another for example or firms with plants across the globe so that disruption at one can be managed at another to ensure that production continues. Labour in particular fields cannot be switched so readily, heart surgeons cannot readily be renal surgeons as it's a very different type of medicine and supply is much more inelastic.
- Ease of storing stock and inventory - If firms have the facility to store stock then they can respond to changes in price very quickly. If building up stock and inventory is cheap then firms would have more elastic supply. For others the cost of storage could be prohibitive or the good could be perishable and thus not suitable for storage and therefore supply would be relatively inelastic.
- Barriers to entry - The lower the barriers to entry to produce the product the more easily new firms can enter and supply the product which increases the price elasticity of supply. [6]

[Total 7]

Part (i) of this question was generally answered well. All three versions of the elasticity as well as answers rounded to one decimal point accepted.
For part (ii) clear explanation of each factor relevant to the supply in industry carried 2 marks. Most candidates succeeded in explaining two factors affecting the elasticity of supply. Explanation in regards to expectation was also given credit. Factors most frequently mentioned were time and capacity. Some candidates incorrectly focussed on factors affecting the elasticity of demand and lost marks.

Q30

(i)

Price discrimination ocurrs when firms sell the same product at different prices where the cost of supplying to different customers does not vary or the difference in price is not accounted for fully by any difference in the costs of supply. Price discrimination can be exercised in relation to types of markets geographically, types of consumers or the quantity purchased. [2]

(ii)

Price discrimination is less effective when goods can easily be resold into different markets, for example medications can be purchased by a consumer and later sold at a higher price on black markets to another. Price discrimination is not possible in this case. Medical treatment however is a service, it is received by an individual and cannot be performed on another. As a medical procedure cannot be resold in this way it is possible to charge different prices. For example if a poor person pays a lower price for a dental filling than a rich person then they cannot resell their treatment to a rich person and charge a higher price for a filling. Whereas with a pharmaceutical product e.g. drug treatment for a disease, the price discrimination is harder because people can buy the product in the low cost market and resell it at a higher price in the high cost market. Another possible way to answer this question is to emphasize the control of supply. So for example, highly skilled heart surgeons have skills to operate on patients that few others have so they can easily price discriminate whereas a drug can easily be copied by making a generic version (even if it violates the intellectual property/ patent rights of the drug producer).

[3]
[Total 5]

Part (i) of this question was generally answered well. To gain two marks, a candidate's explanation had to cover details of charging different prices, same product and same cost. Mentioning the three types of price discrimination or providing an example also attracted some credit.
The answers to part (ii) were varied. Quite a few candidates, contrary to the definition, provided explanation/examples of price discrimination where a different price was charged for what was essentially a different product. To gain three marks, an answer needed to explain that in the medical treatment market it is not possible to resell the product to someone else.

Q31

In a perfect competitive market many relatively small firms (in relation to the market size) produce an identical product with no barriers to entry. If a firm is able to exploit the economies of scale, long run production costs fall as output increases.

1) Perfect competition relies on a large number of firms, each of which tends to be small relative to the overall market size. Whereas Economics of scale tend to be associated with firms that grow in size so that they can benefit from bulk buying, management or financial economies and so on. These are not generally possible in small firms and thus perfectly competitive markets and economies of scale are not compatible with one another.

2) If a firm in a perfectly competitive market grows to exploit economies of scale, it will gain market power and will be able to cut its price and drive other firms out and so the market would no longer be perfectly competitive. This is the reason for perfectly competitive markets being rare and could only exist in an industry where significant economies of scale cannot be achieved.
3) If a perfectly competitive firm was somehow to try and get economies of scale then the excess profits would attract new entrants due to the absence of barriers to entry which in turn would prevent it getting to the size required to exploit economies of scale. [5]

Demonstrating an understanding of perfect competition and economies of scale carried 2 marks. Most candidates succeeded in correctly defining the two. Very few candidates provided the three reasons for incompatibility of the two. The rest of the marks were divided equally between the reasons.

Q32

(i)

Merit goods are goods which are often provided by the market but tend to be under-consumed and under-produced. Education is a merit good because the marginal social benefit of education is higher than the marginal private benefit. Under-consumption of education occurs because the cost of education (monetary/opportunity cost) is incurred by the consumer at the time of consumption whereas the benefits occur later. For the consumer to be prepared to undertake education, the government needs to reduce the cost to the consumer. [2]

(ii)

1) Free provision of the good (education) to ensure that everyone/the majority uptake the provision of education (direct provision).
2) Subsidised provision of education at a significantly reduced rate to ensure people undertake education - this is more notable at the tertiary (or secondary) level whereas free provision tends to be observed for primary education.
3) Another step that could be taken is additional and improved information to be provided to people to ensure that they understand the value and importance of education and its associated private and social benefits. This may make them more willing to go into further education for example.
4) A system of student loans could be implemented. This can help students who are unable to access borrowing facilities to finance their education. The loans may not necessarily be at subsidized rates of interest.
5) Regulations could help for example making it compulsory for all 5 to 16 year olds attend schools. Another example might involve state mandated price caps of undergraduate fees to enable more people to be able to afford further education.

[4]

[Total 6]

Most candidates provided a partial definition of a merit good in part (i) of this question. To gain two marks, the response needed to include key points such as the reason for the good

being under-provided/under-consumed, and the benefits to the society. Credit was given for providing an example.
In part (ii) candidates needed to provide explanation of four distinct measures, each of which carried one mark. Full explanation of two measures with examples carried four marks.

Q33

Functions of a central bank include:

1) It operates the monetary policy - It issues notes and coins, the amount of notes issues by the central bank depends on the demand for cash from the public and performs short term money market operations which affect the narrow money supply and the short term rate of interest.
2) It acts as a bank to the central government - Government borrowing and lending activities are carried out via the central bank; tax income flows in and government expenditure flows out. The central bank is also a bank to the retail bank sector and other central banks. Central banks often have the role of auctioning Treasury bonds to help finance the fiscal deficits.
3) It acts as the lender of last resort to the commercial banks - It undertakes the monetary policy of the country via open market operations (buying and selling of government bonds). It provides liquidity to banks as required via maturity transformation (to ensure that there is enough liquidity within the banks to meet depositor requirements).
4) Central banks are usually responsible for regulating and supervising the activities of banks and other financial institutions - This can include setting capital adequacy requirement, ,monitoring their liquidity and even carrying out "stress tests" to make sure these institutions have sufficient capital and liquidity to survive a crisis.
5) Operating the exchange rate policy of the country - The central bank will implement the fixed exchange rate or managed exchange rate or monitor the floating exchange rate of the country.
6) Manage the foreign exchange reserves and borrowing repayments to international financial institutions such as the IMF or World Bank. [4]

This question was essentially testing the theoretical knowledge of the candidates and was answered well. To gain four marks candidates needed to state four distinct functions of a central bank. No explanation was required.

Q34

- An adjustable peg regime is close to a fixed rate exchange rate regime as the rate is determined or fixed for a period of time. The fixed central parity often has bands of allowable fluctuation for example 1% either side of the fixed parity. In the short to medium term the central bank has to intervene to ensure that the rate stays as it was set which will involve possible increases or falls in its foreign exchange reserves. If there is a fundamental prolonged balance of payments deficit then eventually a devaluation of the central rate may be needed, whereas if there is a fundamental prolonged surplus in the balance of payments then a revaluation may be necessary.

- A managed floating regime is closer to a free-floating exchange rate, as they are not pegged but flat. The central bank intervenes to ensure that significant changes in the rate do not occur. This demonstrates managed flexibility whereby the rate is not fixed but large fluctuations are prevented via foreign exchange intervention involving rises or falls in the foreign exchange reserves. Another way of managing the currency may be through actively using monetary policy and raising or lowering the short term rate of interest to limit exchange rate movements. The actual foreign exchange intervention can vary from occasional intervention to more prolonged and substantial intervention. It should be noted that some countries also manage their exchange rate not with reference to a single currency but also perhaps to a basket of currencies.

[5]

The answers to this question were varied with very few candidates scoring the full mark. Each of the regimes carried half of the marks and credit was given where the response covered some relevant points but lacked focus.

Q35

The mobility of labour refers to the ease by which labour can move between jobs (occupational) or location (geographical) in search of work.

<u>Benefits to mobility include:</u>

- Lower unemployment - occupational and regional mobility is important for countries undergoing considerable structural change as without flexibility there can be considerable unemployment and this can be very long term.
- Better economic growth - there is no doubt that a country can benefit from better economic growth if labour moves from declining sectors and regions to new and growing sectors of the economy and faster growth regions of the economy.
- Improvement in a country's human capital base - as workers shift from one sector of the economy to another, they improve their overall skill set and may have useful ideas that can increase the efficiency of the new sectors they move into. For example if a shipbuilder moves into making cars they may bring new techniques and ideas and superior techniques/production processes that have not been used in the car industry before, perhaps reducing costs of production and or the quality of the final good.
- Benefits to companies - if companies have a labour force that is mobile both occupationally and geographically then they can shift workers to where they are most needed and this can help overcome regional labour force bottlenecks if there is not a sufficient quality of worker locally.

<u>Challenges to mobility include:</u>

- Trade Unions might create barriers to entry within particular occupations - for example they may require train drivers to undergo very heavy and expensive training before being able to get a job, this would increase the period of time that people are unemployed.
- It costs government and companies resources and money to retrain workers and it may still be difficult if many people are also retraining and applying for the same jobs. People may be reluctant to retrain if they are uncertain about the opportunities within alternative occupations. For example, if an industry is facing decline then it

would be beneficial to start retraining staff to be skilled within other occupations. In a declining coal mining industry, miners could be retrained to work in growing industries such as retail, services and other areas of manufacturing. If a country has a large proportion of aging population, some workers in declining industries could be trained to work in the care sector. (examples can be specific to the country and need to demonstrate a change in occupation).

- The other form of labour mobility that people face is geographical. Jobs are located in one area, whilst people live in another. People may be reluctant to move due to family (children being in schools) or elderly parents living in an area and/or have financial commitments such as a house. Relocating may bring about considerable upheaval and/or finding a home in a new area can be difficult. In order to alleviate some of the difficulties associated with geographical mobility, firms and government can offer relocation packages to individuals to encourage them to move. This is expensive and people may still not wish to relocate. Ability to secure housing in a new area may also be a considerable challenge in particular areas where the availability of housing is low/prohibitively costly.
- Another challenge is growing regional inequalities in that some regions fall into continuing decline while other regions overheat - if workers over time from do move from declining regions into the expanding regions there can be a process of continuous decline in some regions and overheated property markets and ever higher cost of living in the expanding regions. This can exacerbate poverty levels and inequality in society. [10]

Demonstrating an understanding of the different types of mobility, regional and occupational, carried two marks. Most candidates demonstrated some understanding of the two concepts. Describing the benefits and challenges carried the rest of the marks for the question, divided equally between benefits and challenges. Very few candidates scored the full mark for this question as often the answers lacked sufficient explanation. Each benefit and challenge needed to be fully and clearly explained with use of examples to demonstrate full and clear understanding.

Q36

Economic growth is defined as an increase in the real volume of output of goods and services in any economy from one year to the next.

<u>Costs of economic growth include</u>:

- Economic growth may exacerbate income inequality - economic growth could potentially lead to the rich becoming richer and the poor becoming poorer in comparison; lower income groups' incomes does not rise in line with GDP growth and they fall behind others. It may also exacerbate wealth inequality as those with large houses and large ownership of shares benefit as house and share prices tend to rise more than the economic growth rate.
- Economic growth may lead to social and well-being problems - if economic growth is achieved by people working longer hours and having less leisure this can interfere to some extent in individuals and families' well-being. It may also undermine society in the longer run if children to not get adequate support from their parents leading to societal problems of increased crime, drug use and related problems in the future.

- Economic growth can lead to health and pollution problems - in some countries economic growth has led to a rise in pollution levels from increased factory output, greater use of cars, lorries, shipping and air freight. Pollution can result in, amongst others, respiratory diseases and cardiovascular damage. Occasional oil spills are also very damaging to the environment and the wildlife living on/close to the water.
- Economic growth can also lead to problems related to climate change and depletion of scarce natural resources - these include issues such as deforestation, global warming and the depletion of raw materials and natural resources such as oil and gas. There can also be the loss of habitat for animals which is particularly notable in the expansion of planting for palm oil products given global demand. Also damage to our seas and the wildlife that lives within them, in particular the amount of rubbish (often in the form of plastic) that is now in our oceans and causing harm to sea life.

<u>Benefits of economic growth include</u>:

- Increases in the standards of living for people. Growth can help to alleviate general poverty. Increased growth is likely to arise as a result of increased investment in research and development/technological advancement.
- Economic growth can lead to health advancement in the form of better medical interventions, such as vaccinations or new treatments/drugs, enabling people to live longer and healthier lives.
- Economic growth can improve security and quality of the food and water supply - it enables research funds to be allocated to research to enable farmers to grow different types of crops, which are more weather resistant resulting in improving food security and nutrition for people. Improvements in development have enabled more people to have access to better sanitation and a clean water supply. Thus, over time we have seen an increase in expected life expectancy across the globe.
- Economic growth has enabled us to produce more, produce more efficiently and produce new products - Products such as smart phones, fast and high specification computers, flat screen televisions that are used by billions of people on a daily basis improving their lives.
- Economic growth also results in generally higher income level leading to a much better quality of life; spending leisure time on activities such as foreign travel which would otherwise not be affordable, access to education which seems to improve as countries get richer and generally greater financial stability in people's lives.
- Economic growth can prove to be good for the public finances and the provision of needed public services because it increases tax revenues and reduces government expenditure on transfer payments such as unemployment and housing benefit claims. This can then be used to reduce the national debt and/or increase the provision of needed public services.
- In the end, it can be debated either way on whether the gains from economic growth have exceeded the losses and there will always be both winners and losers from economic progress. Perhaps a middle way, using the concept of sustainable development is the key to balancing the needs of the environment with countries ongoing need for development and growth. [10]

Marks were allocated to defining economic growth, explaining various distinct costs and benefits and a conclusion. Most answers defined economic growth correctly and mentioned

higher output and employment on the benefit side and pollution and the effects on the environment on the cost side, but overall, the question was not adequately addressed. Marks were lost if the response was not balanced or lacked sufficient detail. Very few offered a conclusion. Credit was given for a well-reasoned conclusion. Focussed answers were required for this question rather than a general observation of government economic objectives and policies offered by some candidates.

[Paper Total 100]

END OF EXAMINERS' REPORT