

## **Essay Question 1 Suggested Answers**

**Increasing affluence and advances in modern technology have contributed to the proliferation of e-reading devices and e-books. In addition, an increasing number of publishing companies have started to produce e-books.**

**Discuss how these developments might affect the revenue earned from the sales of e-books and related products. [25m]**

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The market for e-books consists of consumers who buy digital books online and publishing companies (e.g. Hachette, HarperCollins, and Penguin Random House) which sell e-books to consumers through online retailers such as Amazon, Apple or Google. Associated markets of e-books include its substitute (e.g. print books) and complement (e.g. e-reading devices). The equilibrium price and quantity in these markets are determined by the intersection of their respective demand and supply. As such, any change in the demand and/or supply will cause a change in the equilibrium price and quantity, and in turn affect total revenue (TR) earned. This is because TR is defined as the amount received from the sale of the good at a given price and is calculated as the price multiplied by the quantity. In this context, the impact on TR earned in the markets involved due to increasing affluence, advances in modern technology and increasing number of publishing companies producing e-books will be examined.

Due to increasing affluence, the income of the people increased. Income elasticity of demand (YED) measures the degree of responsiveness of quantity demanded of a good to change in income, *ceteris paribus*. Since e-book is considered a normal good where  $YED > 0$ , an increase in income would lead to an increase in demand for e-books. Furthermore, due to advancement in modern technology, faster broadband speed and internet connection have changed consumers' taste and preference in favour of e-books due to the ability to purchase and download any book title with just a few clicks on the e-reading device. In addition, technological improvements have produced a wide array of attractive features and functions of dedicated e-book devices such as Kindle. They are light-weighted, possessed advanced screen technology and provide support for on-screen handwritten notes and highlights. All these benefits meant to create a comfortable and convenient reading experience for readers will change consumers' taste and preference towards e-books and hence lead to an increase in demand for e-books.

When demand for e-books increases, both equilibrium price and quantity will increase, leading to an increase in TR for e-books publishers.

Advancement in modern technology has also resulted in the greater ease of creating e-books. Besides having faster broadband speed and internet connection that helps to increase the efficiency of creating e-books, the discovery of advanced scanning

technology and software has also made it fast and easy to digitise print text. Hence, the supply of e-books will increase. Besides, the increasing number of e-books publishers producing e-books increases the number of sellers and further increase the supply of e-books.

With an increase in supply from  $S_0$  to  $S_1$  as shown in Figure 1 below, a fall in price will be accompanied by a rise in its quantity. The extent of this increase in quantity then depends on the price elasticity of demand (PED) for e-books as PED measures the degree of responsiveness of quantity demanded to a change in its price, *ceteris paribus*.

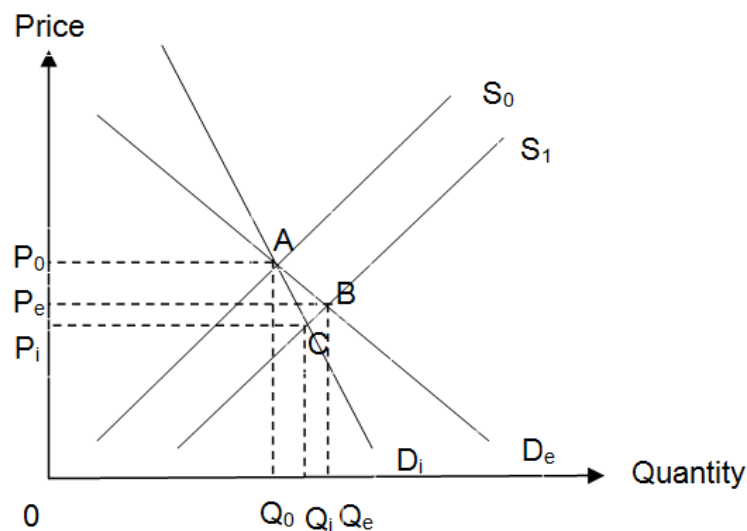


Figure 1: Market for E-books

The demand for e-books is relatively price elastic ( $PED > 1$ ) because of its low degree of necessity and the availability of close substitute such as print books. Given an increase in supply from  $S_0$  to  $S_1$ , the fall in price from  $P_0$  to  $P_e$  will lead to a more than proportionate increase in quantity demanded from  $Q_0$  to  $Q_e$ . Hence, the TR of e-books publishers increases from  $0P_0AQ_0$  to  $0P_eBQ_e$ .

Overall, the combined effect on the market for e-books includes a rise in both its demand and supply. As seen in Figure 2 below, this will cause the equilibrium quantity to rise with the change in price being ambiguous as this is dependent on the extent of change in demand and supply.

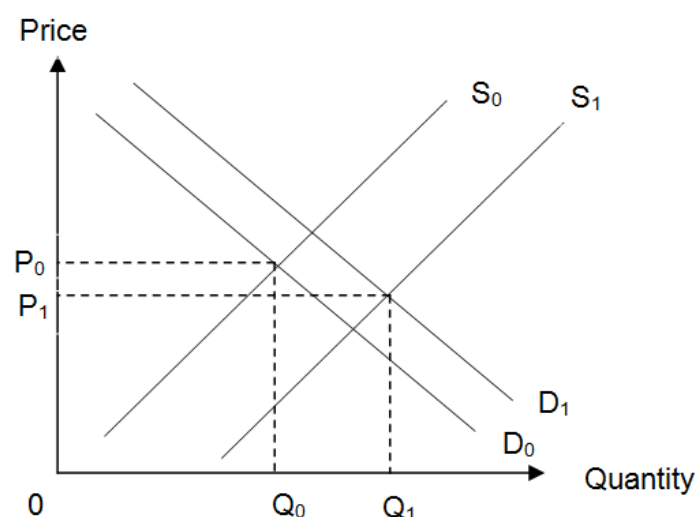


Figure 2: Market for E-books

In this context, it is likely that the increase in supply of e-books will outweigh the increase in demand for e-books. This is because technological advancement and low cost of production have made it increasingly cheap and easy to produce e-books. This is why many established publishers have chosen to produce more e-books instead of print books. In fact, there has also been a sharp rise in the number of self-publishers. On the other hand, the increase the demand may not be as significant because print books still hold a strong appeal for many book-lovers who enjoy reading with the physical touch of the books. Hence, there will be a fall in price from  $P_0$  to  $P_1$  and a rise in quantity from  $Q_0$  to  $Q_1$ .

As explained previously, the rise in demand for e-books, keeping supply unchanged, will cause a rise in TR. And the rise in supply of e-books, keeping demand changed, will result in a rise in TR with the PED being more than one. In this case, whether the extent of increase in demand or supply is greater, TR will still see an overall increase.

However, in the long-run, as more e-book publishers enter the market due to high profitability and low barriers to entry, increased competition will likely reduce the amount of profits enjoyed by each publisher.

With changing taste and preference towards e-books, the demand for print books which include paperback and hardcover books will fall. In addition, as e-books and print books are substitutes, the cross elasticity of demand (XED) between them is positive. The cross elasticity of demand (XED) measures the degree of responsiveness of quantity demanded of one good to a change in the price of another good, *ceteris paribus*. Hence, with the rise in supply of e-books, keeping demand unchanged, the price of e-books will fall. In turn, there will be fall in the demand for print books since the XED value between the two vehicles is positive. Overall, the fall in demand will cause the price and quantity of print books to fall, which decreases TR of print books publishers.

The extent of the fall in demand for print books also depends on the degree of closeness of substitutes between e-books and print book. The closer they are as substitutes, the greater the fall in demand for print books and the greater the fall in TR received by print books publishers.

Lastly, the market for e-reading devices will also be affected. They are devices capable of displaying text on the screen and include dedicated e-readers such as Kindle and Nook, other tablets and smartphones. Since e-reading devices are required for the display of e-books, they are complements in consumption and the XED value between them is negative. Hence, a fall in the price of e-books will cause a rise in the demand for e-reading devices. In turn, both the price and quantity of e-reading devices will increase, thus increasing the TR received by producers.

Again, the extent of the increase in demand for e-reading devices depends on the degree of closeness of complements between e-books and e-reading devices. The closer they are as complements, the greater the increase in demand for e-reading devices and the greater the increase in TR received by producers of these devices.

In conclusion, the TR of e-books and e-reading devices is expected to increase while the TR of print books is expected to fall. However, it is important to note that when we calculate PED, YED or XED, we assume *ceteris paribus*. In reality, there can be many factors affecting demand simultaneously. In addition, many of the elasticity values obtained are historical estimates of consumer behaviour and can limit the usefulness of elasticity measurements.

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Knowledge, Understanding, Application & Analysis		
L3	Upper 18-21	For a <b><i>developed discussion</i></b> on how total revenue is affected in the market for e-books and two other associated markets. The answer should include a developed analysis of demand and supply for <b><i>all three markets</i></b> with the aid of diagrams, accurate application of YED, PED <b><i>and</i></b> XED, and <b><i>excellent</i></b> attempts at contextualisation.
	Lower 15-17	For a <b><i>developed explanation</i></b> on how total revenue is affected in <b><i>the e-books market and one of its related market</i></b> , and an <b><i>undeveloped explanation for the third market</i></b> .
L2	10-14	For a <b><i>developed explanation</i></b> on how total revenue is affected in <b><i>either the e-books market or one of its related market</i></b> , and an <b><i>undeveloped explanation for the second market</i></b> .  OR  For an <b><i>undeveloped explanation</i></b> on how total revenue is affected in the <b><i>e-books market and two of its related markets</i></b> .
L1	Upper 6-9	For an <b><i>undeveloped explanation</i></b> on how total revenue is affected <b><i>only in the market for e-books</i></b> . Such an answer could include an undeveloped demand and supply analysis for this market, and/or some use of PED and makes no/little attempts at contextualising.  OR  For an <b><i>undeveloped explanation</i></b> on how total revenue is affected in the <b><i>market for e-books and the market for its complement and/or substitute</i></b> .
	Lower 1-5	Smattering of valid points.

Evaluation		
E2	For a well-reasoned judgment on the likely effects on revenue in the market for e-books and two other associated markets.	3-4
E1	For a generally unexplained judgment on the likely effects on revenue in the market for e-books and two other associated markets.	1-2