Question 1

Price elasticity of demand

The law of price elasticity of demand demonstrate that a decrease in the value of a good rises the quantity required. The price elasticity of demand measure how much the amount required responds to a variation in price (Mankiw et al., 2016). Demand for a product is considered as elastic or sensitive to price when the demanded amount reacts considerably to variations in the price. Demand is considered as inelastic or insensitive to price when the amount required respond merely to a slight change in the price. Moreover the price elasticity of demand also measure the extent to which consumers are willing to move to or away from a good due to change in its price. Therefore the elasticity reflect the social, economic as well as psychological forces which impact the taste of a consumer (DesJardins & Bell, 2006).

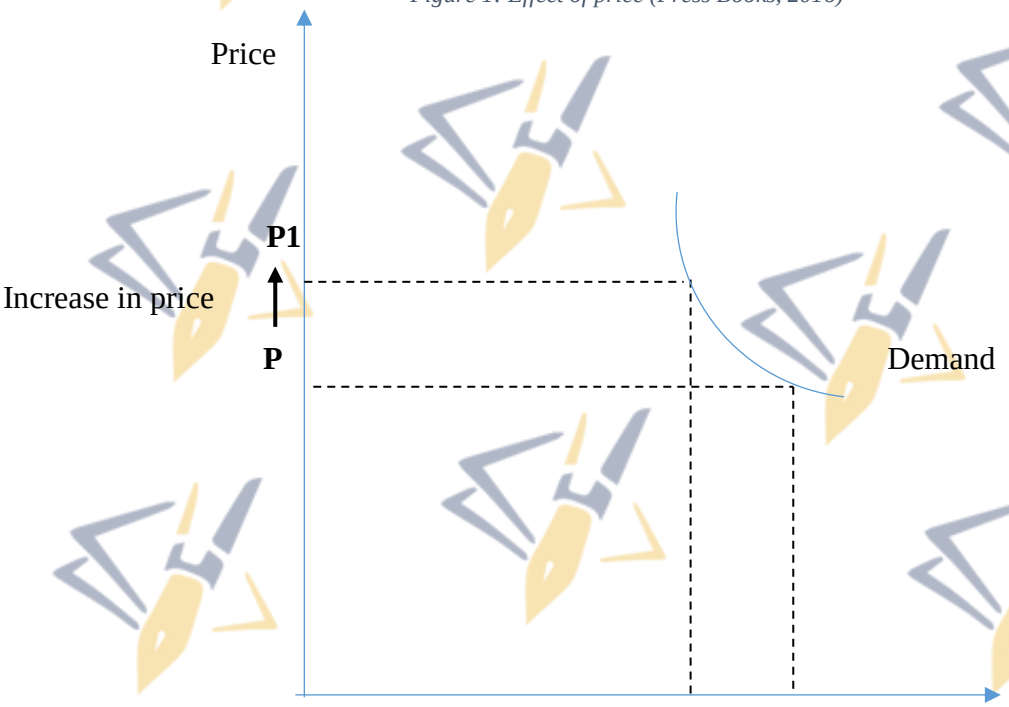
There are different determinant of price elasticity of demand which comprise of close alternatives, requirements vs luxuries, proportion of income dedicated to the product and time horizon (Mankiw, Taylor, & Ashwin, 2016). Elasticity of demand play a key role in pricing decisions of colleges and universities. Education is considered as a commodity provided by higher institutes though the consumers are considered as students, their family members and producers of institutes and price is the fee charged in a particular educational year or semester. Increase in fee could lead to a decrease in student admissions (Farhan, 2016). The fess and enrollment are indirectly proportional to each other, with low fees, high enrollment is observed. When the response regarding the determinants of demand is persistent, chances of seeing a negative impact in fluctuation in fees on student's enrollments. It means that a rise in tuition fees would end up in lowering in student enrollment. The price elasticity of demand can be unitary, inelastic, or elastic. It is said to be elastic when the decrease in enrollment is higher than the percentage increase in fees. In this context, the exact measuring of the price elasticity will be a value higher than 1. when the percentage increase in fee is higher than percentage change in enrollments it is termed as inelastic (Farhan, 2016).

Based on macroeconomic literature, elasticity of demand in higher education is explained as the sensitivity of amount required of education about the tuition fees, student's income and tuition fees in other institutes. In case of SDU, elasticity is explained as a percentage variation in quantity

(change in enrollments) divided by percentage variation in price (tuition cost). Generally, the demand for a university education is fairly inelastic. Higher tuition fees do not reduce the number of students going to university. However, some studies have reported a negative relationship among tuition fees and student enrollment. It means that when the tuition fee increase, the enrolment decrease (Carter & Curry, 2011). Thus, for SDU if demand is elastic at a certain price level, the SDU must reduce the tuition fees which will outcome in a bigger percentage rise in student enrollment, thus growing the total revenue for SDU. It implies that the quantity effect outweigh the price effect, meaning that if SDU decrease the tuition fees, the revenue gained from more enrollments would outweigh the revenue lost from reduction in tuition fees. The effects of price increase and decrease at different points are summarized in Figure1. The elastic demand curve for SDU is given in figure 2.

	Increase in Price	Decrease in Price
Price Elastic	Revenue/Expenditure Falls	Revenue/Expenditure Rises
Price Inelastic	Revenue/Expenditure Rises	Revenue/Expenditure Falls

Figure 1: Effect of price (Press Books, 2016)



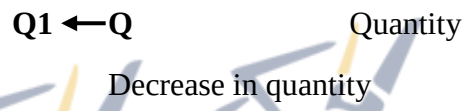


Figure 2: Demand curve

Question 2

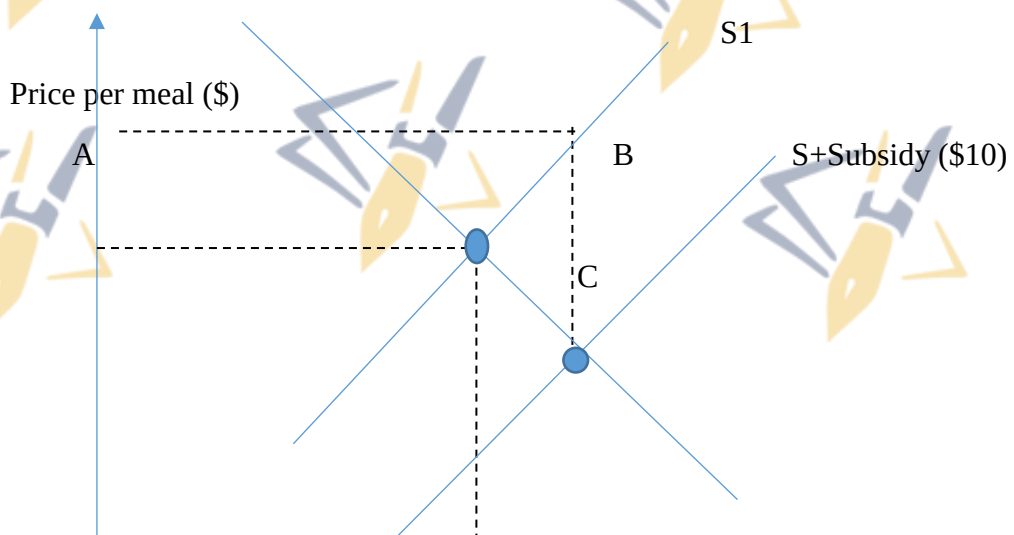
This question is associated with subsidy which is the complete contradictory of tax. Subsidies are provided when the governments wish to motivate the use of a good which they think is now underproductions. It is an expense given to buyers and sellers for supplementing income or reducing costs and therefore encourage the consumption or offer benefit to the recipient. Due to the close proximity to Asia and an ocean, the Norther Territory capital has the essential elements making Darwin a modern dining place (Nothern Territory , 2019). The given situation is about the government providing a subsidy of $10 on every meal. The purpose of this subsidy is to encourage people to eat in dine-in restaurants in Darwin.

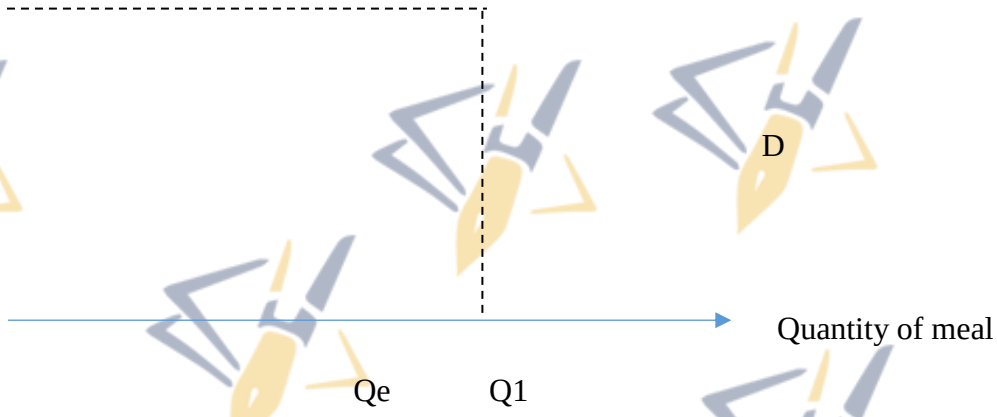
The Britain governments has spent double as much as anticipated on motivating public to eat in restaurants, pubs and cafés. The British government paid around half the cost of 160 million meals during August 2020 to boost this sector which was hit the hardest by the first lockdown during coronavirus. As seen in the figure below the government offered £10 on every meal to people (Reuters, 2020).

Figure 3: Subsidy for dine in (Reuters, 2020)

The Eat-Out-To-Help-Out program of UK provided an economic cure for the dine-in restaurants. Under this program, the pubs, cafes and restaurants can discount the prices of food for up to 50% which makes ($13) per diner, with the UK government paying the differences.

Thus, if the government provide a subsidy of $10 on every meal in dine-in restaurants in Darwin, the people would be encouraged to eat out and the small business would have cash in their hands. This initiative would aim to encourage a return to dine in restaurants and would support the small businesses and protect jobs. The small business would experience a rush of customers. The graph for this situation is shown below:





Step 1: If the government offers a subsidy of $10 on every dine-in meal to customers, this is the supply curve for restaurants that is impacted, the demand curve would be affected as the number of meal at every visit would stay the same. The subsidy to restaurant owners would reduce the cost of offering din-in meals by $10 and thus the supply curve would shift.

Step 2: Since the subsidy would reduce the cost for dine-in restaurant owners in Darwin, the supply curve would shift downwards to the right by the quantity of funding S1 to Subsidy. To offer the number of meals as shows by Q1, the real cost to restaurant owner is A, but they receive a grant by the distance BC, that is $10 to a customer on every meal.

Step 3: While making a comparison and the new equilibrium, it is evident that the equilibrium price of each meal would be lower and the number of meals consumed would increase to Q1. Customers and dine-in restaurant owner would benefit from this government subsidy as customers would get a voucher of $10 which they can use to purchase the meal and have more meals. Sellers would receive the revenue which they were not able to receive before the subsidy, allowing them to invest in the more dine-in services. It is clear from the above discussion that price and quantity could be impact by imposition of a subsidy.

Question 3

Why governments around the world heavily subsidize the production of vaccines.

Subsidies are imposed on providing goods and services to impact the allocation of resources in a desired manger. For example in most of the European countries, the public transport system is heavily subsidized, as is agriculture (Mankiw, Taylor, & Ashwin, 2016). Taxes as well as subsidies

often distort the market outcomes. The imposition of taxes as well as subsidies are for the reasons of equity and often result in efficient outcomes (Mamani, Adida, & Dey, 2012). Subsidies are often provided when governments try to inspire the consumption of goods which they think are not produced enough. Subsidies are provided to sellers and have an impact of decreasing the production cost, as opposed to tax that increase the production cost. Subsidies occur in diverse areas such as education, housing, transport, employment and now vaccines.

More than half of all the doses of vaccines have been ordered by wealthy nations, meanwhile most of the poor nations were unable to vaccinate more than a fifth of their population (Xie, Hou, & Han, 2021). One of the reason why governments around the world are subsiding the production of vaccines is to make sure equitable distribution of vaccines. Subsidizing vaccines would result in lower cost of production than it would rather be. The COVID-19 caused the higher demand for healthcare goods including masks, gloves and vaccines, which should be made accessible in short time period. For motivating the self-interested manufacturers to increase the quantity of production and advance research and development (R&D) invention, governments are offering various grants to direct the businesses to make proper decision and exploit social wellbeing. The two usual subsidy policies for vaccines include production subsidy per-unit and subsidy for research and development innovation efforts (Xie, Hou, & Han, 2021). Under the subsidy on per unit production, the government provide a subsidy for every product sold in the market and unit product cost of the manufacturer would reduce. For instance, after the COVID-pandemic, the Hong Kong government announced that they will offer a HK$30 billion package for helping the healthcare professionals to fight the virus. (Xie, Hou, & Han, 2021). Moreover, the government of Pakistan also allocated $1 billion for vaccine procurement (Dawn News, 2019). Along with grant for per unit manufacturing, the governments also provide subsidy for research and developed efforts to manufacturers to recompense them for lacking the functions in present products, improving the excellence of current ones and developing new products. Another example is of Philippines, the government subsidies the development of COVID vaccine and promised to offer 10 million pesos as incentives for firms and individuals who successfully develop vaccine (Xie, Hou, & Han, 2021).

Most of the innovations related to vaccine come from combining scientific grant funding from market initiatives and governments which motivate the pharmaceutical research and encourage

pharmaceutical firms to invest knowing that they would be able to make profit from the future sales (McDonnell & Toxvaerd, 2021). Due to the time required in developing vaccines, most of the firms are reluctant to make huge investments for creating a new product till they believe that it might be successful. Such interruptions are financially practical for some of the products such as construction of factories. However, the benefits related to speed up the production of COVID vaccine were exceptional. Presently, different governments have capitalized deeply in de-risking the R&D related to vaccine so that the vaccine producers can speed up the process without having to worry about extra costs. In simple words, governments need to step in to commit funds for exploration, cover cost and purchase vaccines at agreed prices so that the pharma companies would pursue vaccine production without worrying about the financial consequences (McDonnell & Toxvaerd, 2021). Without the help and support of governments, there would have been a shortage of vaccines and a collapse of various industries. Irrespective of different measures, the production as well as supply of vaccines has exposed global inequality. There are three important features of this: grabbing of vaccine by high income countries, protecting patent rights of governments in advanced nations presenting wide production of vaccine and distribution to promote soft power and nationalism.

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