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Assessment:

Managerial Economics

Course Code Goes Here

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Submission Date

Xx August 2022

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Task I

Explain how the reopening of the economy after the Covid-19 lockdown and then the war in Ukraine has impacted the supply and demand of petrol. Using a business sector of activity…?

Petrol is the major commodity upon which the business structure of almost every industry relies; owing to the critical role of transportation in every business CSCMP, Goldsby, Iyengar, and Rao (2014). The price charts of all products and goods that are consumed within the economies are all subjected to price revisions depending upon the rise and fall in fuel prices like petrol LeBlanc and Chinn (2004). Fluctuations in prices of petrol and fuel products are dependent upon the supply and demand of oil in the market. However, despite supply and demand being key identifiers of oil prices in the market, they are not the only dependency factors for price fluctuations of petroleum products Rietveld and Woudenberg (2005). Apart from price determining factors EIA (2022) of refining, marketing, taxes, etc worst-case scenario hits the market fuel prices when economies suffer a heavy blow from unknown and uncalculated risks. Touring back to the pandemic lockdowns, as if the competitive economic factors imposed by the outbreak of Covid-19 were not enough for the immense recession faced, Russia's invasion of Ukraine and most of the world siding with Ukraine thereby boycotting Russian resources (mineral fuels being its major commodity exported) Workman (2022) all had a marked impact on petrol prices Patterson and Goldfrab (2022). In their entirety, the two incidents conjoined to become a root cause of inflation affecting every business industry, particularly the food and the oil industry Pomeroy (2022), Bankova, Dutta, & Ovaska (2022), Workie, Mackolil, Nyika, et al. (2020).

During the coronavirus pandemic in 2019, the supply and demand of petrol, crude oil, and other refined petroleum products observed a steep rift as a result of which the prices for these products also observed an unsteady upheaval Workie, Mackolil, Nyika, et al. (2020). With the economies forced to shut down owing to the imposed lockdowns, the commute system almost became stagnant, and demand for petrol plummeted below average so much so forth that the oil-producing industries failed to track it timely and therefore failed to cut production on a timely basis. The result was that industries' storage shelves got overspilled with oil supply for which the market had no demand. The worst-case scenario was that during the early pandemic times, with the demand fading away, Russia and Saudi Arabia went into the price war of supplying first Ma, Xiong, and Bao (2021) to the demand arising, if it arose somehow, and so they had their pipelines overspilling to the extent that no space was left for the storage of oil. Due to the

overspilling of floating fuel storage, the fuel prices went record low when a barrel price dropped below zero Saefong (2021).

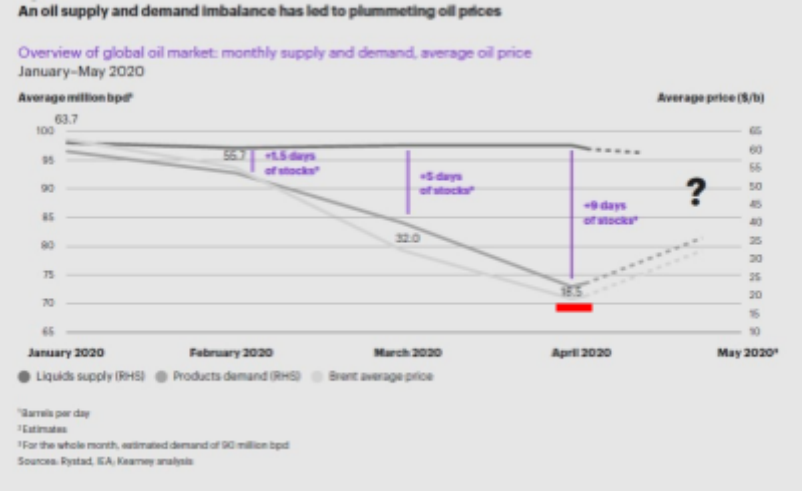


Figure 1 Overspilling Oil Stocks lead to negative price value per barrel

Generally, the oil market operates in a fashion that when demand for petroleum products surges high, the cost per oil barrel also gets inflated and vice versa. During the pandemic, the decrease in demand resulted in decreased petrol prices when the International Energy Agency (IEA) reported a decline of 9.3 million barrels per day Sevin (no date).

Soon after the reopening of economies from Covid-19 lockdowns and with transport restored at full capacity, the oil industry saw a surge in demand for petrol causing the prices to go up, bouncing back the deflated pandemic prices Reynolds (2022). Therein too, the Russian oil price wars caused the price to observe a sudden hike. And as if all the setback faced was not enough for the petrol industry, Russia's invasion of Ukraine added fuel to the fire causing petrol prices to jump record-high; selling at an average top of $4 per gallon[13] in the US economy.

The abrupt upheaval caused in the supply and demand of gasoline leading to petrol price ricochetting has had a devastating effect on economies when the supply chains of nearly every business industry experienced a surplus increase in freight charges imposed. Especially due to Russia's war on Ukraine, the retail price of petrol and gasoline has almost increased by more than $1 which is fairly a problematic concern for industries, farming and transportation Reynolds (2022) and therefore affects consumers wholly.

The food industry, for example, has transportation as a crucial component of its supply chain to make available the produce at farms to consumers and only in the US, food transportation accounts for almost 28% Baffes and Nagle (2022) of the total petrol energy utilized by the entire nation. With this much transportation involved in its supply chain, inflation of petrol retail prices

by as much a single dollar would definitely affect the price values of products at the consumer end. Looking at the crisis in the food industry from the angle of a halt in the Ukrainian export of agricultural produce Bankova, Dutta, & Ovaska (2022) owing to the Russian war on the nation is yet another setback to the food industry.

Tightening food stocks due to transport issues from inflated petrol prices and Russia's invasion of Ukraine has created a serious bottleneck in the supply chain of food industries severely hampering economic profitability. What makes the situation worse is that these bottlenecks appeared when the world was already suffering from post-pandemic aftermaths. The halt in the Ukrainian agriculture produce exports means the world is cut off from 4% of its cereal supply FAO (2022) the deficit has caused an inflation in the commodity price as well. This inflation in the commodity price paired with the inflation in petrol prices together has proven totally devastating to the profitability balance of economies in general.

Compared to the same time of the previous year, the cost per barrel of oil was around $63, whereas presently, it costs about $75 CNBC (2022). This is a significant number to affect petrol price the value of which is dependant upon crude oil price. From an economic profitability point of view, a higher price of the commodity at petrol pumps simply implies lower savings in public possession side by side with the unanticipatedly high incurred costs for companies. These issues combined with the Russia-Ukraine war will affect the affordability factor of food items as inflation owing to the stated factors increases and tends to remain volatile.

*(Word Count: **1028** words)*

Task II.1

Given Data: Fixed Costs: $100

Solution II.2

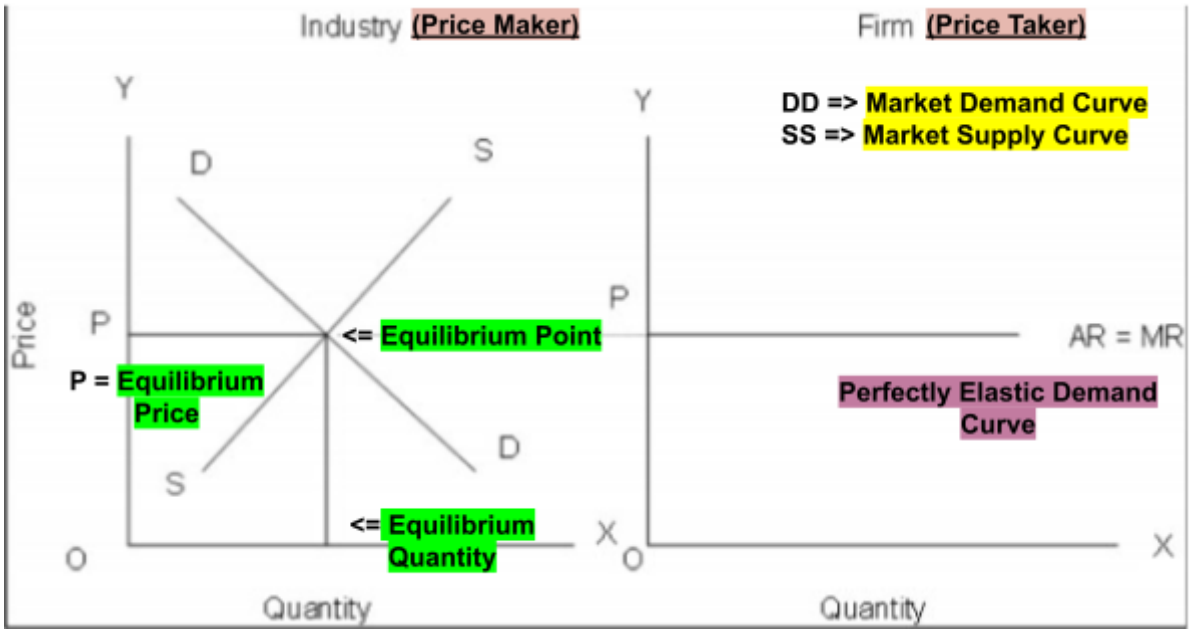
Qty	VC	FC	TC	AVC	ATC	MC
0	$0	$100	$100	-	-	-
100	$100	$100	$200	$1.00	$2.00	$1.00
200	$300	$100	$400	$1.50	$2.00	$2.00
300	$500	$100	$600	$1.67	$2.00	$2.00
400	$700	$100	$800	$1.75	$2.00	$2.00
500	$800	$100	$900	$1.60	$1.80	$1.00
600	$120	$100	$220	$0.20	$0.37	-$6.80

Task II.2

Explain the characteristics of perfect competition in terms of demand, price, quantity, and profits at equilibrium. Why does perfect competition achieve productive and allocative efficiency? What are the limitations that prevent this market structure from developing in real life? (Wordcount 200-250)

Solution II.2

Terms	**Characteristics** (in perfect competition market at equilibrium)
Demand	Demand of consumers is equally met by producers Units Demanded = Units Supplied
Price	Firms are price takers. Increases and decreases in value are not allowed. At equilibrium, price is determined by the point where $Q_D = Q_S$ (a point where demand and supply curve intersect)
Quantity	Determined by consumer demand in market
Profits	Profits maximum at equilibrium when MR = MC



Productive and Allocative Efficiency

When firms in competitive market ensure side-by-side that benefits of buying to consumers (measured at the price they are willing to pay) equals the costs to society that is producing the marginal units (measured by the MCs the firm must pay), allocative efficiency is achieved.

Firms in perfectly competitive market produce goods at lowest possible AC so that in the long run, the entry of the new and exiting of the existing firms in such a market structure urges firms to end up selling products at a price level which is determined by lowest point on AC curve; thus productive efficiency holds.

Limitations in real-world

A perfect competition market structure is a hypothetical benchmark which usually isn't fully operative in real world because firms therein can not always produce goods at minimum AC; neither can they always set a price equal to MC. Real-world firms also encounter issues like societal poverty, discrimination in labour markets, etc. Therefore, such a market structure only provides a sound theoretical benchmark to compare issues that arise from real-world problems.

*(Word Count: **249** words)*

Task II.3

Critically evaluate and explain:

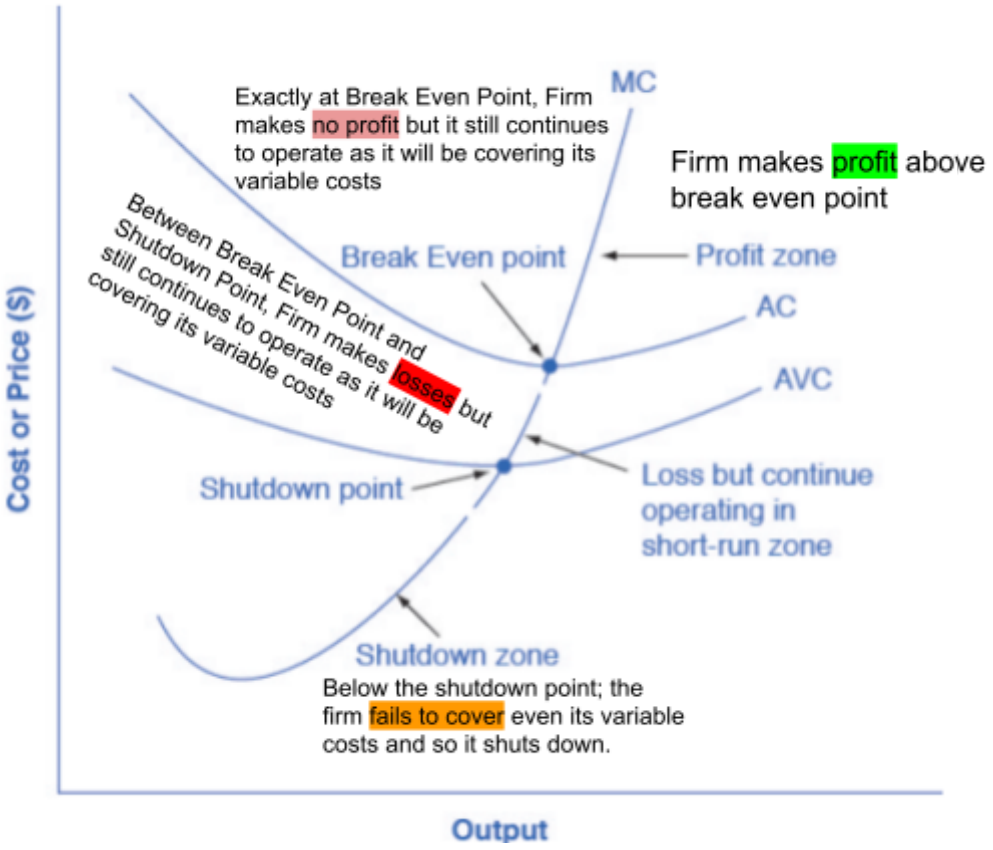
a) *A firm in a perfectly competitive market should always shut when its marginal revenue is below its average costs (equivalent to average total cost).*

b) *The intersection of marginal revenue and marginal cost determines the quantity at which a business in a perfectly competitive market is profitable.*

(Wordcount 200-250)

Solution II.3.a

a) In a perfect competition market, a price value point of the product below which the firm fails to generate enough revenue so as to at least cover its variable costs is referred to as the shutdown point (graph below).



From the graph above, the shutdown zone is characterized by points at or below MC crossing the AVC (Average Variable Cost) curve. For a perfect competition market where equilibrium prevails, MC equals MR so, this proves that a firm in such a market structure should always shut when its MR is less than AVC. Thus from figure;

i) **If P (price) < minimum AVC => firm shuts down**

ii) **If P (price) > minimum AVC => firm continues business**

Solution II.3.b

b) Quantity is the major decision a firm in the competitive market has to make. Since the demand curve is perfectly elastic (a horizontal line drawn at the market price level), it is also the marginal revenue curve because as demand increases, so does the revenue generated.

The profits equation for a firm in a competitive market is given by, mathematically,

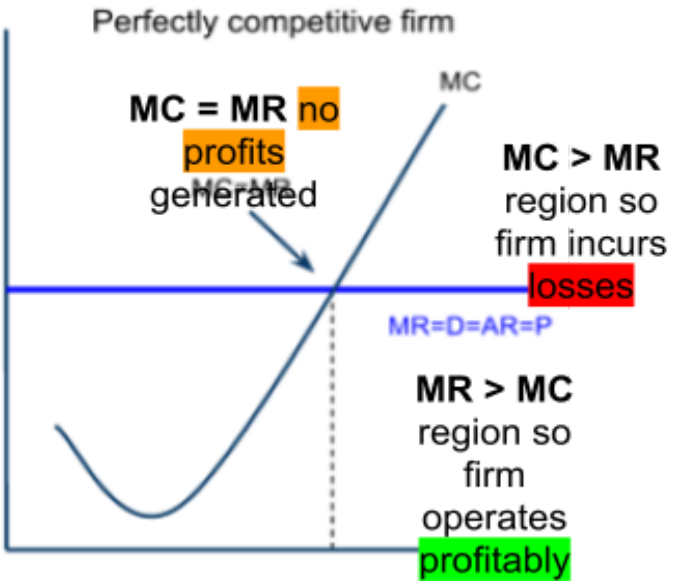
$$Profits = (price - average\,cost) \times quantity$$

As price (P) equals MR and at equilibrium AC also equals MC then the equation becomes

$$Profits = (MR - MC) \times quantity$$

Quantity can't be negative, so only for positive values of $(MR - MC)$ firm operates profitably i.e. $(MR > MC)$

So, for a profitable business, firm needs to produce the quantity of goods for which MR > MC.



*(Word Count: **236** words)*

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