Essay (Tuesday Group)

The airlines industry made a dramatic recovery in 2022 and 2023, bouncing back from record pandemic-era losses to near-2019 levels. Economy-class fares are up 21 per cent compared with 2019. At the same time, oil and fuel prices spiked when the Russia-Ukraine war began in 2022.

(a) Explain possible reasons for the increase in price of air tickets. [10]

(b) Discuss the likely effects of the rise in price of air tickets on the total revenue of the airlines market and a related market. [15]

Part (a)

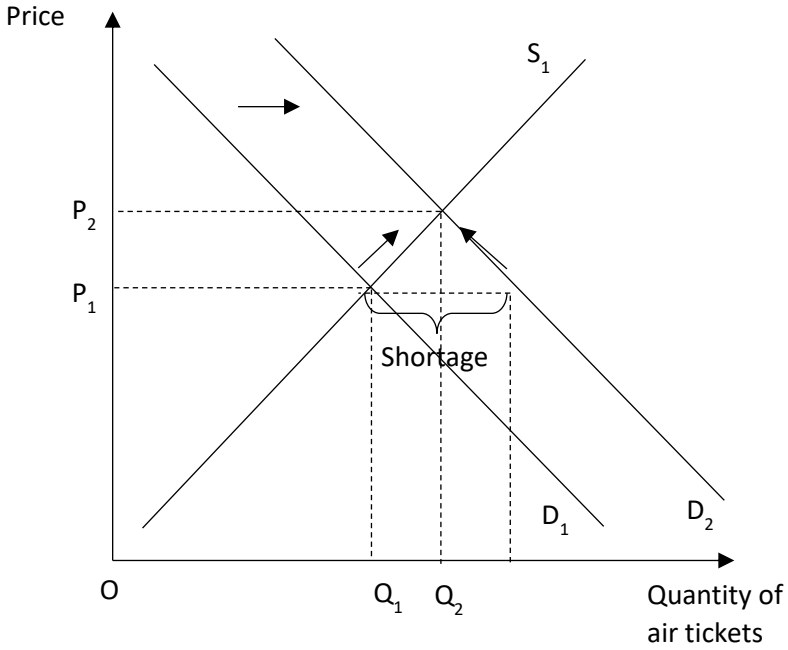
Question requirements: need 2 factors
- Requirement 1: at least one demand factor
- Requirement 2:
  - at least 1 supply factor – reference must be made to jet fuel price as one of the supply factors
  - Combined Effect

Possible Ideas:

1. Demand Factor
   - 'revenge' travel after prolonged lockdown/and also to visit families, friends and relatives after relaxation of travel restrictions

   - rise in income due to economic recovery after Covid-19
     - air travel as a luxury good (YED > 1) – as income rises, demand rises more than proportionate.

Figure 1: Market for air tickets

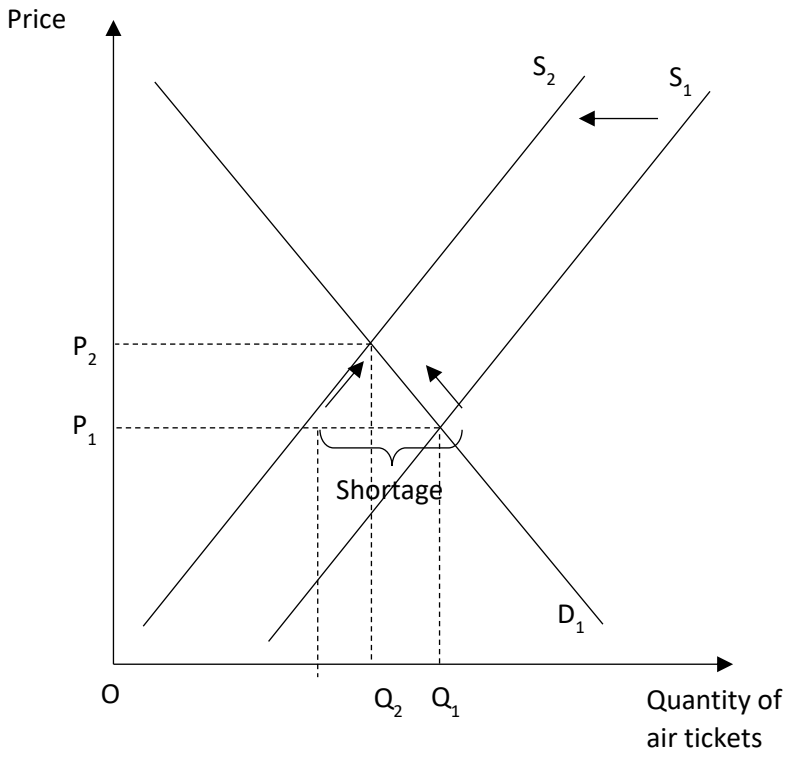


   - With reference to Figure 1, the rise in demand causes the demand curve to shift from D1 to D2. The shortage at prevailing price P0 causes consumers to bid up prices.
     - detailed explanation of adjustment process ***(adjustment process needs to be explained only once in detail)***
     - The final equilibrium price rises from P1 to P2.

2. Supply Factor

   - From preamble, price of jet fuel rose. As jet fuel is an important input for airlines, production cost increases significantly. At the prevailing price, firms are willing to produce less. Thus, supply falls and the supply curve shifts leftwards from S1 to S2 as shown in diagram below. This results in a shortage and analyse effect on prices that rise to P2.

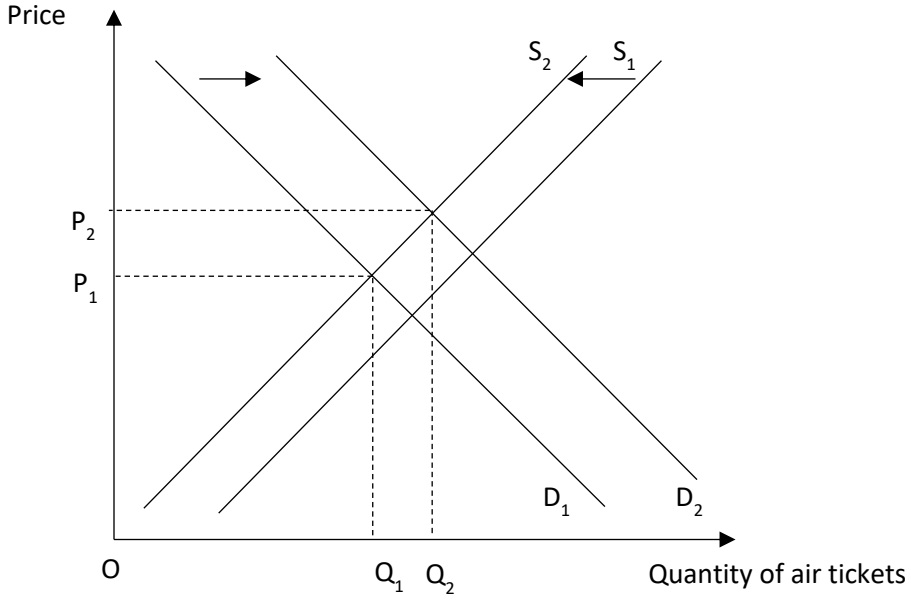
Figure 2: Market for air tickets



3. Combined Effect

Both a rise in demand and a rise in supply result in a net shortage and the effect on price is determinate. Prices rise from P1 to P2 as shown in Figure 3 below.

Figure 3: Market for air tickets



Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	• *Response hardly linked to economic analysis and is fraught with conceptual inconsistencies* • *Rambling without use of economic concepts and theoretical framework* • *Poor understanding of concepts of demand and supply and unclear link to determinants*	***1 – 4***
L2	*Credible attempt at economic analysis but with some errors in analysis* • *only 1 requirement analysed* • *examined only DD factors or only SS factors* • *factors stated but without elaboration* • *no reference to preamble on jet fuel prices* • *no reference to shortage nor surplus and adjustment process* • *limited depth of analysis* • *no reference to shortage nor surplus and adjustment process*	***5 - 7***
L3	▪ *Both DD-SS factors well analysed* ▪ *Well-illustrated analysis /diagrams* ▪ *Adjustment process explained in detail*	***8 - 10***

Part (b)

Question requirements:

- Requirement 1 - Effect on airlines market
- Requirement 2 - Effect on related market

<u>Possible Ideas:</u>

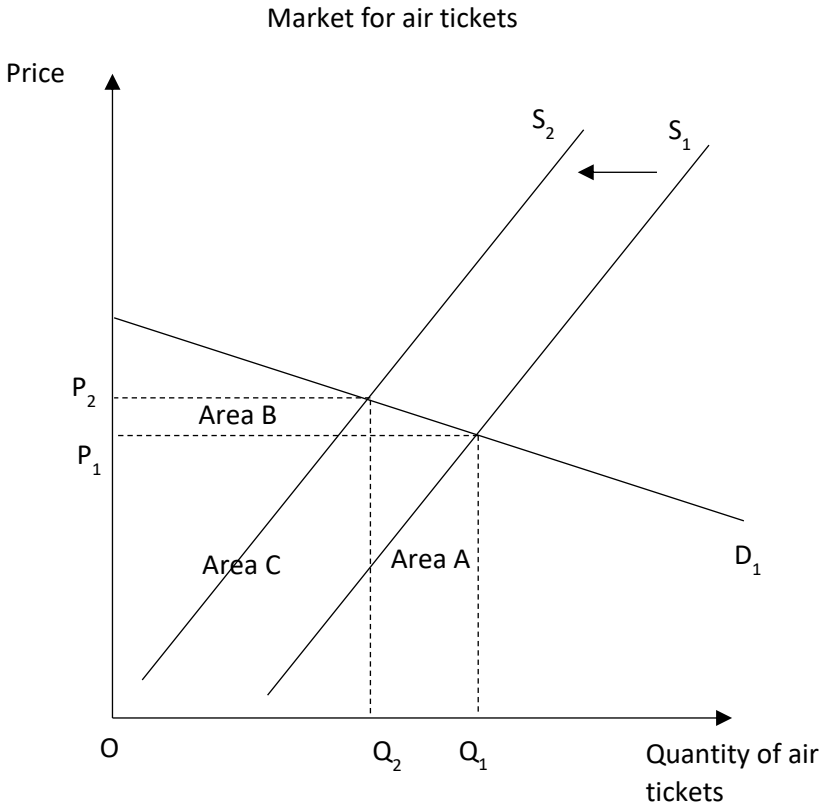
1. On Airlines' Revenue

Scenarios 1 <u>or</u> Scenario 2 deserve full credit while Scenario 3 deserves partial credit

<u>Scenario 1</u>:

If rise in price is due to a fall in supply, the effect on TR depends on PED for air travel.

- Demand for air travel is likely price- elastic since it takes a large % of consumers'' budget
- Therefore a rise in price leads to a more than proportionate fall in quantity demanded
- Since TR=PXQ and the % rise in price < % fall in qty demanded, TR falls
- make reference to diagram that shows a leftward shift in supply curve with a relatively gentler demand curve. Ensure the area after the price increase has become smaller (e.g., TR increase due to price increase (= area B) is smaller than TR decrease due to the more than proportionate quantity decrease (= area A))



Possible Evaluation for Scenario 1: [can be in Conclusion]

The PED for different types of carriers may be different.

- demand for budget airlines or for short-haul flights/travel may be price-inelastic since it takes a smaller % of budget
- demand for business class can sometimes be argued to be price-inelastic as business travel may be paid for by the companies
- demand for domestic travel may be more price-elastic since there are substitutes such as trains and coaches
- any other sensible idea about differing PED

Scenario 2: Combined Effect of a rise in demand and a fall in supply

In part a, candidate should have analysed a rise in demand coupled with a fall in supply.

The analysis continues here:

- Rise in demand leads to P rise and Q rise.
- Fall in supply leads to P rise and Q fall.
- ***Combined effect:*** Since both rise in DD and fall in SS have pushed prices upwards, this rise in price likely outweighs any change in quantity. Therefore, TR is likely to rise.
- Show simultaneous shifts in a diagram – illustrating clearly the effects of change in price vs qty and the resultant TR
- Answer can also weigh extent of rise in demand vs fall in supply with resultant impact on prices

Scenario 3: (partial credit if this is the only scenario analysed)

Due to a rise in demand, the final effect is an increase in equilibrium price and quantity. Thus TR rises.

- reference to diagram to show the change in area for TR

Scenario 3 is given partial credit as there is no reference to preamble about jet fuel prices which allows PED to be analysed nor reference to a combined effect which followed through from the analysis in part a

Possible Evaluation for Scenario 3: [can be in Conclusion]

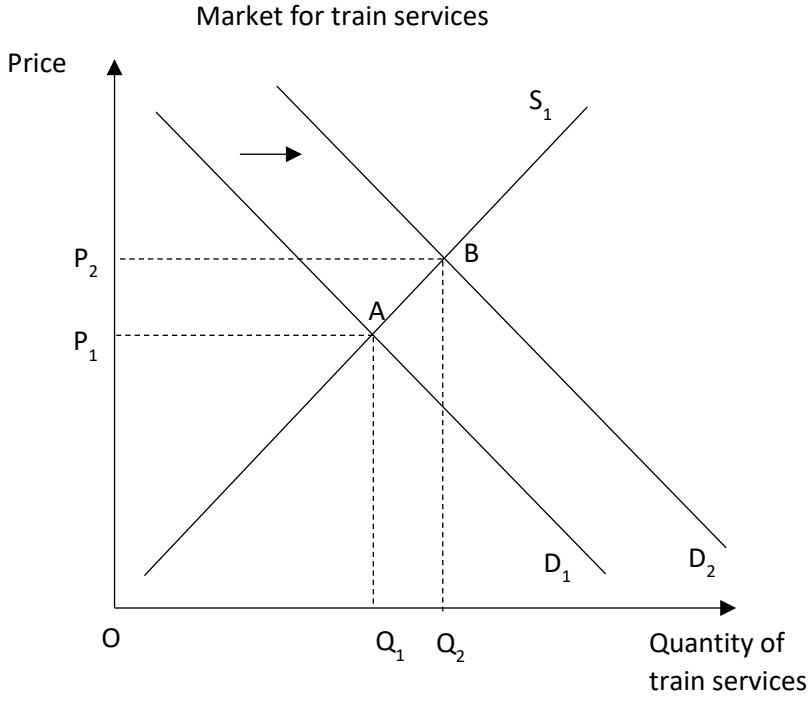
There may be differing YED value for

- budget airlines vs main carriers
- economy class vs first class & business class

2. Related market
- can be substitutes or complements
- partial credit if answer linked to jet fuel since jet fuel is the cause of the fall in supply

a. Substitutes such as travel by train

A rise in air ticket prices causes a fall in quantity demand for air travel. For short distance travel or domestic travel, people increase their demand for train services. Make reference to diagram and illustrate a rise in TR (e.g., from area OP1AQ1 to area OP2BQ2)



Possible Evaluation: [can be in Conclusion]

- CED value for train services: assess if strong or weak substitutes
- Likely substitutes for domestic travel and less likely for international travel
- In some cases, train tickets (bullet trains) may be more expensive than budget air tickets for the same destination
- A general increase in oil prices also affects production cost of train and coach services. So the degree of substitutability also hinges on the extent to which these different mode of travel increase their prices.
- Other factors that affect include duration, quality of train rides, convenience and waiting time.

Another direction for Evaluation: [can be in Conclusion]

- If the rise in airfare is due to rise in demand for air travel, then a rise in the demand for train services may not arise.

b. Complements such as hotels
- A rise in price of airfare will likely decrease the demand for hotel accommodation.
- Link to diagram and effect on TR.

Possible Evaluation: [can be in Conclusion]

- Again same issue of what causes the rise in airfare. If it is due to a rise in demand, then the likelihood is the reverse effect i.e. demand for hotel accommodation rises.
- If the country has large domestic travel market such as China, the demand for hotel accommodation may not fall if people at home travel to different cities and can rely on bullet trains instead of flights.

Conclusion and Overall Evaluation:

- 1 m for Summative Statement
  - *An example:*
  - *All things considered, the effect on airlines' TR depends on PED if the change in price is due to a change in supply. But the effect on a related market will depend if it is a substitute or complement and the strength of that relationship.*

- 2 m for each requirement – airlines and related mkt ***[Please refer to the answer scheme for the Possible Evaluation Ideas]***
  - 1 m for stating & 1 m for substantiation

Mark scheme:

Knowledge, Application, Understanding, Analysis		
L1	• *Little / non-existent use of economic theory / framework in the explanation.* • *Poor/flawed application of analysis to effect on TR*	***1 – 4***
L2	▪ *limited depth of analysis* ▪ *only 1 market analysed [only 1 requirement]* ▪ *effect on TR not always clearly analysed eg. unclear link to P and* ▪ *use of theoretical framework but with some flaws in analysis* ▪ *eg. PED not clearly linked to fall in SS/unclear combined effect* ▪ *Effect on airlines mkt linked only to rise in demand* ▪ *Inappropriate related mkt eg. jet fuel mkt*	***5 - 7***
L3	• *Both mkts well- analysed with clear link between P, Q and TR* • *Diagrams well-illustrated*	***8 - 10***
Evaluation		
E1	*An unexplained judgement/conclusion that is not linked to the context of the question: unexplained judgement on 1or 2 markets*	***1 - 2***
E2	*Incomplete substantiation of judgement on 1 or 2 markets or no summative conclusion.*	***3 - 4***
E3	*Well explained evaluative judgements PLUS a summative conclusion* ▪ *2 m for each requirement (each mkt)* ▪ *1m for substantiation*	***5***

Essay (Thursday Group)

Governments around the world are encouraging the use of electric vehicles (EVs) by supporting developments in extensive charging infrastructure. The industry has experienced remarkable advances in battery technology, which have resulted in faster charging times and lower battery lower prices. Meanwhile, the market for fuel-powered vehicles may be affected as the price of electric vehicles falls.

(a) Explain the possible reasons for the growth of the market for electric vehicles. [10]

(b) Discuss the effects of the falling prices of electric vehicles on two related markets. [15]

Part (a)

Question requirements:
Requirement 1: Demand Factor
Requirement 2: Supply Factor and Combined Effect

Introduction
The growth of the market for electric vehicles (EVs) refers to the rise in quantity traded of EVs - , arising from the rise in demand and the rise in supply.
Note: a possible interpretation of growth could also be the increase in TR.

Body

1. Demand factor

- Demand for EVs rises because of the change in taste and preference of consumers in favour of the use of EVs.
  - due to greater availability of charging stations and faster charging times
  - discussion can also be linked to other government efforts such as raising awareness on environment-friendly EVs

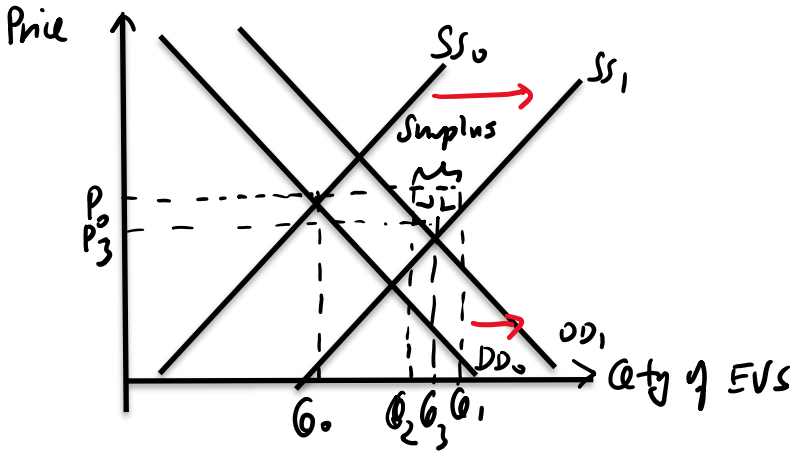
  - In developed countries, governments have provided extensive charging infrastructure. And fast charging solutions have become more readily available and cheaper. Such solutions include Venus 30, Jupiter 60 and Titan 120/150/180 for EVs. These are easily purchased and installed by residential, commercial buildings and offices. Such ease of electricity charging and the lowered cost of EVs has led to the fall in the marginal cost of powering the EV for daily travel, reducing the cost of the complement to the EV, thus raising demand for EVs.

  - Through means like national television or social media, governments committed to act for climate change could be promoting and advocating for EVs in the effort to steer their economies towards decarbonisation of road transport. Consumers would be persuaded to purchase EVs instead of Fuel-Powered Vehicles (FPVs), as their taste and preference shift in favour of EVs.

2. Supply Factor

- Supply of EVs has also risen due to the innovation of new technology that has made the cost of production for EVs – especially with lower prices of batteries which is an input for EVs
- Discussion can also be linked to subsidies for firms in bid to encourage production of EVs. With the commitment of governments towards climate control and zero carbon emissions, especially in regions like the EU and most developed economies, there could difference forms of indirect subsidies given by governments to car producers to encourage the production of electric vehicles.
- Supply of EVs has risen because of innovation of new technology that has reduced production cost for EVs. This means that profit levels could potentially rise for vehicle producers if they channeled their resources into the production of EVs. Hence the rise in supply of EVs.

Diagram 1:
Market for EVs



- In diagram 1, supply rises from SS_0 to SS_1, coupled with a rise in demand from DD_0 to DD_1
- Equilibrium quantity of EVs traded rises, explaining for the growth of the EV market

Note: For students who looked at "growth" as rise in TR – application of PED is expected.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	• *Response hardly linked to economic analysis and is fraught with conceptual inconsistencies* • *Rambling without use of economic concepts and theoretical framework* • *Poor understanding of concepts of demand and supply and unclear link to determinants*	***1 – 4***
L2	• *only R1 or R2 discussed* • *weak analysis of the price adjustment process* • *shows some degree of economic analysis BUT lacking in depth and scope of explanation for the determinants of DD or SS*	***5 - 7***
L3	▪ *Well-developed answer that showcased BOTH aspects of changes in demand and supply. [R1 – DD; R2 -SS]* ▪ *2 well-developed determinants* ▪ *Diagram/s are well drawn, appropriate and accurate*	***8 - 10***

Part (b)

Introduction

- The effects on equilibrium price and quantity traded, as well as total revenue, on two other related markets of EVs, will be discussed with reference to the fall in price.
- (Note: it is optional to examine consumer and producer surplus).

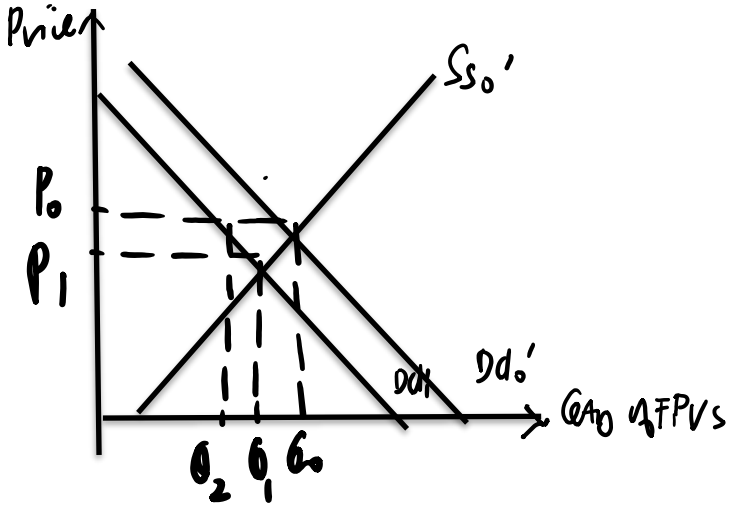
Body

Related Market 1:

<u>Substitutes like fuel-powered vehicles (FPVs)</u>

- With the fall in equilibrium price of EVs, demand for FPVs will fall since both are substitutes for motorists – they fulfill the same need as a convenient mode of private transport.
    - The extent of the fall in demand depends on the cross elasticity of demand (CED) for fuel-powered vehicles (FPV) in relation to the price of EVs. Cross-elasticity of demand here, refers to the degree of responsiveness of quantity demanded for FPVs, in response to the change in price of EVs.

- CED is positive but could be low – as many consumers face constraints in selling their FPVs and switching to EV purchase and usage as it means a totally different way of powering up their cars especially for long-distance driving.
  => hence a less than proportionate fall in demand for FPVs in response to the fall in the price of EVs.
  - ⇨ A fall in the price of EVs by 1% would lead to a less than 1% fall in the demand for FPVs, represented by a smaller leftward shift of the demand curve from Dd_0 to Dd_1, where at P0, quantity demanded falls by Q_0Q_2. The resulting surplus of Q_0Q_2 leads to a downward pressure on price, and as quantity supplied falls along with rising quantity demanded, the surplus is eliminated at P1Q1
  - ⇨ TR falls but not significantly for FPV producers from P_0Q_0 to P_1Q_1



Further Evaluation

- CED for FPVs in relation to the price of EVs could rise in the long run, as more governments establish their commitments towards zero carbon emission and establish the necessary infrastructure for the charging of electric cars. This could mean that long-haul drives for car owners of electric cars would be less costly, as cross border charging of cars is made more convenient. As the price of EVs continues to fall, there could be a more than proportionate fall in demand for FPVs and total revenue falls significantly. This effect that is ideal for environmental sustainability.

Related Market 2:

Complements such as charging services, chargers or electricity

- Complements in consumption with EVs
  - Fast charging solutions like Venus 30 and Jupiter 60. A fall in price of EVs increases the quantity demanded for EVs. Since EVs and chargers are complements, demand rises substantially due to a highly negative CED between the demand for such charging solutions relative to the price of EVs, TR predictably rises significantly for producers of such charging solutions. [illustrate with diagram – demand curve shifts rightwards to a large extent]

- Input market - precious metal like lithium, cobalt or nickel
  - Demand for such inputs is derived from demand for EVs. With the fall in the price of EVs, quantity demanded for EVs increases. This increases the demand for such inputs which is a derived demand. With a rise in price and quantity, the TR increases. [focus of answer is here]

Answer may be linked to PES to examine extent of change in price and quantity: [EV]

- With the shortage that emerges at the current market price, the extent of the rise in price and quantity traded for these inputs will depend on the price elasticity of supply (PES, which depend on the ease of obtaining such precious metal in the supply chain, and the duration of manufacturing.

- Price elasticity of supply is defined as the degree of responsiveness of quantity supplied of EV batteries, to the rise in the price of EV batteries.
- PES may be <1 as such inputs need to be extracted. As the market price rises, the resulting percentage rise in price could exceed the percentage rise in the quantity supplied. Total revenue for EV battery producers will rise, regardless of PES.

Conclusion and Overall Evaluation:
Provide a summative statement: The fall in price of EVs will lead to positively impact some markets such as markets for complements and factor inputs while other markets such as market for substitutes will be negatively impacted.

Other ideas:

- For the substitute market for EVs, producers of cars can divert resources into both EVs and FPVs if these resources are substitutable. Hence, while the total revenue from FPVs production and sales falls, total revenue for EVs production and sales rises and producers may still be able to gain positive net revenue.
- In addition, consumers of FPVs may not be so easily switching their purchasing patterns towards EVs so easily just because prices have fallen. Their habitual consumption of FPVs may lead to very little change towards the consumption of EVs. Hence, FPV producers would still be able to profit at least in the short-run.
- Finally, for the input market, it seems that the production of EVs still require rare earth metals which in the long-run, may not be renewable. Once these are depleted, firms' production cost may arise, making it less lucrative to produce EVs.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	• *Answer lacks economic analysis* • *Irrelevant economics concept*	***1 – 4***
L2	▪ *Detailed and accurate analysis of 1 market only* ▪ *Did not analyse total revenue* ▪ *Some attempt at the usage of elasticities with sufficient depth.*	***5 - 7***
L3	• *Well-developed answer for both markets [both R1 and R2 discussed]* • *Diagrams if required are well drawn, appropriate and accurate*	***8 - 10***
Evaluation		
E1	*Unexplained judgement on 1or 2 markets*	***1 - 2***
E2	*Incomplete substantiation of judgement on 1 or 2 markets or no summative conclusion.*	***3 - 4***
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