

Suggested Answers for 2017 J2 H2 Prelim Case Study Question 1

(a) (i) With reference to Figure 1, describe the trend in air freight prices from May 2015 to May 2016. [1]

- **Overall trend:** Overall, there was a fall in air freight prices from May 2015 to May 2016. [1]

(a) (ii) With reference to Extract 1, and using a supply and demand diagram, account for the overall change in the price and volume of air freight from May 2015 to May 2016. [5]

Explain the factors affecting demand and supply

1. Change in Price of Substitutes
2. Goods in Joint Supply

Account for the fall in price and rise in quantity of air freight

- With the fall in demand and rise in supply of air freight, the price of air freight has fallen.
- Since Extract 1 mentions that there was a rise in volume of air freight, the rise in supply of air freight must have been greater than the fall in demand for air freight.

Diagram illustrating rise in supply and fall in demand, with rise in supply being greater than fall in demand

[2m each for demand and supply factor]

[1m for weighing of demand and supply factors and accurate diagram]

(b) Explain the likely value price elasticity of supply of cold chain logistics. [2]

PES

- Supply of cold chain logistics is likely to be price inelastic ($PES < 1$)
- Extract 2 mentions that specialised equipment is needed in order to supply cold chain logistics services. Such equipment tends to be difficult to obtain, hence producers cannot increase quantity supplied readily in response to a rise in price.

(c) Extract 3 mentions that “FedEx followed UPS and announced its respective rate increases for its delivery and parcel services.” [8]

With reference to the data, discuss whether FedEx’s recent decision to follow UPS in raising prices in order to increase revenue was well-advised.

Introduction

- FedEx’s decision to raise prices in order to increase profits was well-advised in light of (1) the tacit collusion between the duopoly of UPS and FedEx, (2) the high levels of market power it enjoys, and (3) rising costs due to the greater logistical requirements in providing delivery services for e-commerce.
- However, given the aggressive entry of e-retailing giant Amazon into the logistics and delivery industry, FedEx will need to be cautious about future increases in price as this may deter major

clients from using its services, causing it to lose market share to a potential disruptor and entrant to the industry.

Thesis: FedEx's decision to follow UPS in raising prices in order to increase revenue was well-advised.

- Tacit collusion between FedEx and UPS operating in a duopoly market structure
- Both firms are engaged in tacit collusion (Extract 3) → no fear of retaliation → FedEx able to increase price to increase revenue
- High market power / PED < 1
- FedEx experiences high market power and low levels of competition in the industry due to high barriers to entry → potential entrants deterred → few substitutes available → demand is price inelastic → rise in price leads to rise in revenue

Anti-Thesis: FedEx's decision to follow UPS in raising prices in order to increase revenue was not well-advised.

- Higher contestability of market due to disruptive technologies
- Rise of disruptive technologies such as automation (Extract 4) → higher contestability of market → not well-advised for FedEx to raise prices as this would allow potential entrants to capture market share

Conclusion

Stand

- Although FedEx's decision to follow UPS in raising prices may allow it to increase its revenue in the short term, it may not be well-advised for FedEx to continually raise prices in the long term

Evaluation: Non-pricing strategies [or any other valid criteria]

Level	Knowledge, Application, Understanding, and Analysis	Marks
L2	Well-developed analytical arguments of why FedEx's decision to follow UPS in raising prices in order to increase revenue was and was not well-advised. Good reference made to evidence from the data to support the arguments made.	4 – 6
L1	Descriptive and weakly-developed arguments. Answer is one-sided.	1 – 3
E	Reasoned conclusion and judgment that critically evaluates whether FedEx's decision to follow UPS in raising prices in order to increase revenue was ultimately well-advised.	1 – 2

- (d) **Explain how the new logistics transformation map would affect structural unemployment and income inequality in Singapore.** [4]

Impact on structural unemployment

- Transformation through implementation of new technology and automation → low-skilled workers made redundant → lack relevant skills by expanding industries → structural unemployment increases

Impact on income inequality

- Low-skilled workers who find themselves structurally unemployed as a result of the transformation of the logistics industry would have no income
- In contrast, firms competing to attract high-skilled workers to fill specialist roles would bid up wages. Thus, high-skilled workers would earn higher wages.
- Hence, income inequality between low-skilled and high-skilled workers would increase.

- (e) **Discuss whether addressing market failure caused by negative externalities is the only reason for government intervention in the logistics industry.** [10]

Thesis: Reason for government's intervention in the logistics industry is because of market failure caused by negative externalities

Explain the presence of negative externalities in the logistics industry:

- Negative externalities are costs to third parties who are not directly involved in the production or consumption of a good, and such costs are not reflected in the price of the good / no compensation is paid to third parties.
- There are significant negative externalities associated with production of logistics services
- In addition, Extract 6 mentions that air freight results in pollution due to carbon emissions, which leads to global warming that harms the environment and livelihoods of farmers and fishermen, as well as poor air quality resulting in health and respiratory problems for people.

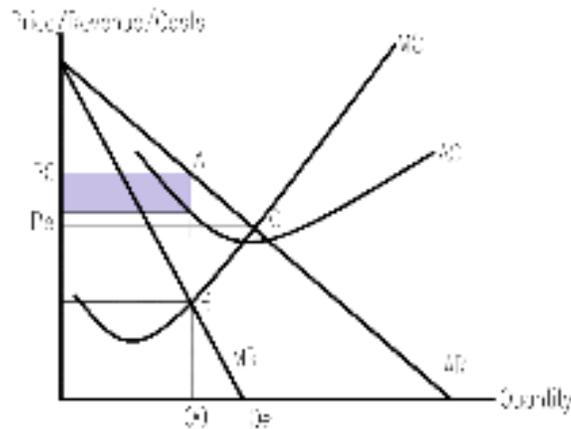
Explain how the existence of negative externalities leads to market failure using a diagram

- The marginal private benefit (MPB) of producing logistics services is the revenue obtained from each additional unit produced
- The marginal private cost (MPC) of producing logistics services is the costs of production of each additional unit produced
- Due to the existence of negative externalities, there is a divergence between MPC and marginal social cost (MSC); $MSC = MPC + MEC$
- If left to the free market, producers who consider only their own self interests (i.e. their profit margins) would produce at Q_p , where $MPB = MPC$
- However, the socially optimal level of output is at Q_s , where $MSB = MSC$
- Since Q_s is lower than Q_p , there is overproduction of logistics services
- Between Q_p and Q_s , MSC is greater than MSB , resulting in a deadweight loss as shown by the shaded area in the diagram. Therefore, the presence of negative externalities in the logistics industry leads to an inefficient allocation of resources in the market, which would warrant government intervention in the industry.

Anti-Thesis 1: Reason for government's intervention in the logistics industry is because of market dominance

- Market dominance is one of the causes of market failure. Market dominance occurs when firms have significant market shares due to strong barriers to entry or imperfect information.

- The duopoly of FedEx and UPS means that they dominate the market.
- Market dominance allows these firms to have monopoly power, and so control the output to the market, and thus the price. As such, they are able to restrict output, and produce at the profit level maximising level of $MC=MR$, where $P>MC$, instead of the socially optimal level where $P=MC$.



- As seen in the above diagram, firms produce at the output level Q_0 , and charge the maximum price that consumers are willing and able to pay for that number of unit of goods, P_0 . However, the **allocatively efficient level** is at Q_e, P_e .
- At a level lower than Q_e , such as in the case when a firm has significant market power, consumers value one additional unit of the good more than it costs to produce it, and societal benefit can be increased by producing more of the good.
- However, in this case, the firm with market dominance will not produce at the allocatively efficient level. There will be a deadweight loss of ABC from the underconsumption of the good, showing that societal welfare is not maximised.

Anti-Thesis 2: Reason for government's intervention in the logistics is because of the important role they play in promoting economic growth and employment

- A well-developed logistics industry would make a country more attractive to foreign direct investments (FDI) and thus attract FDI into the country. Overall, investments (I) would increase, leading to a rise in AD resulting in actual growth. The rise in capital stock, improvements in the quality of labour as well as the sharing of technological knowledge leading to technological advancement would increase the productive capacity of the economy leading to a rise in LRAS resulting in potential growth.
- Furthermore, for a country such as Singapore, improving productivity and innovation in the logistics industry is crucial in cementing her status as a global trading hub and would facilitate trade between her and other countries.

Conclusion

Stand:

- Although one reason for government intervention in the logistics industry is market failure due to the presence of negative externalities, this may not be the only reason.
- Governments may also wish to intervene in the logistics industry due to market dominance as well as for macroeconomic reasons, especially since the logistics industry provides critical services for many other industries to function.

*Argument **for** economic growth and employment being the main reason for government intervention*

- Based on the reasons given for government intervention, it is seen that there are trade-offs between solving market failure due to negative externalities and promoting productivity in the logistics industry to promote economic growth. The former seek to reduce production while the latter increases it. However, it is believed that the latter is the relatively more important reason for government intervention in some countries such as Singapore. According to Extract 5, the transportation and logistics sector contributed 7.4% to Singapore's GDP and employed over 8% of the total workforce. This means that the industry constitutes a significant proportion of her GDP and total workforce in itself, even ignoring the benefits that would accrue due to the growth of other industries should the logistics industry become more productive and innovative. Thus this is a more important reason for intervention.
- However the government can attempt to achieve the objectives simultaneously by subsidising R & D activities that reduce the extent of pollution caused by the logistics industry.

Level	Knowledge, Application, Understanding, and Analysis	Marks
L2	Well-developed answer on the different reasons for government intervention in the logistics industry, namely, the existence of negative externalities , market dominance , and to promote economic growth and employment. <ul style="list-style-type: none"> • Max 5m if only 2 reasons are provided 	5 – 7
L1	Descriptive and weakly-developed answer. Answer is one-sided.	1 – 4
E	Reasoned conclusion and judgment that critically evaluates whether negative externalities, market dominance or macroeconomic objectives are the main reason for government intervention in the logistics industry. Conclusion considers the trade-offs that may occur in the government's pursuit of different objectives.	1 – 3