

A-level ECONOMICS

Paper 3 Economic Principles and Issues

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DO NOT WRITE ANY ANSWERS IN THIS INSERT. YOU MUST ANSWER THE QUESTIONS IN THE ANSWER BOOKLET PROVIDED.

The commercial aircraft manufacturing industry

Questions 31 to 33

- **Extract A:** The structure of the commercial aircraft manufacturing industry
- **Extract B:** Selected indicators of the performance of Boeing and Airbus
- **Extract C:** The market for commercial aircraft
- **Extract D:** Government support for the commercial aircraft manufacturing industry

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Extract A: The structure of the commercial aircraft manufacturing industry

The commercial aircraft industry manufactures aeroplanes to carry passengers and freight. Since 2000, air traffic has grown by 240% and, in 2019, sales of commercial aircraft were worth \$243.6 billion. The growth in the industry has been driven by the growth in household incomes and leisure time. Before the pandemic, the high income elasticity of demand for passenger and freight transport meant that the demand for these services, and hence commercial aircraft, grew more rapidly than the rate of growth of world GDP. It is expected that once the world economy recovers from the economic shock caused by the pandemic, the growth of the industry will resume.

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The industry is an oligopoly that is dominated by two main manufacturers, Boeing, a United States company, and Airbus, a European company. Currently, Boeing and Airbus account for 99% of the orders for large aeroplanes and the orders for large aeroplanes make up more than 90% of the total market. However, competition is growing, not least from the state-owned Commercial Aircraft Corporation of China (COMAC) which started business in Shanghai in 2008. COMAC is currently the world's fifth largest manufacturer. Embraer, a Brazilian company, and Bombardier, a Canadian manufacturer, are the third and fourth largest companies.

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Source: News reports, January 2021

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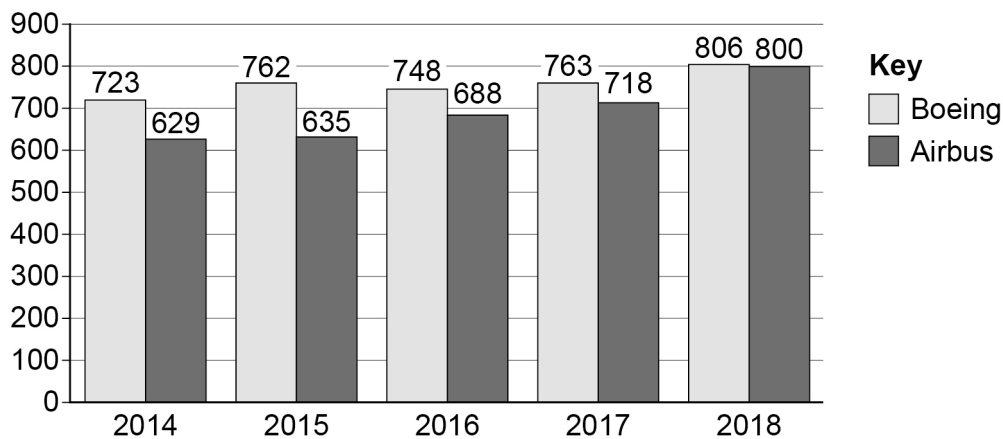
Extract B: Selected indicators of the performance of Boeing and Airbus

In 2018, Boeing and Airbus each delivered around 800 aircraft. Boeing had a backlog of orders for 5488 aircraft and Airbus had 7133 orders outstanding. In 2019, Airbus delivered 863 aircraft but Boeing's deliveries fell to 380 because the Boeing 737 MAX aircraft was grounded due to safety concerns. Towards the end of 2020, regulators in Europe and the USA ruled that design changes would mean that the plane is now safe to fly.

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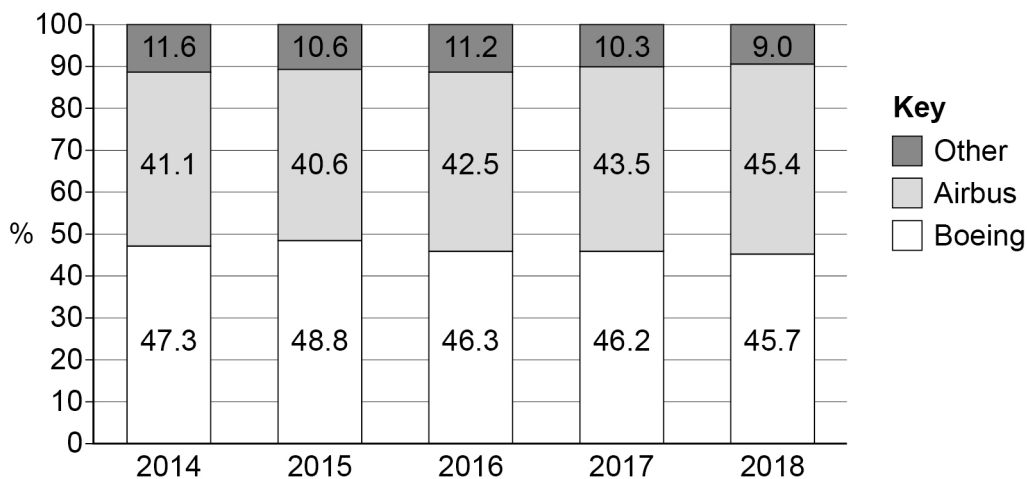
Source: News reports, January 2021

Figure 1: Deliveries of aircraft made by Boeing and Airbus, 2014 to 2018.



Source: Trefis.com, accessed January 2021

Figure 2: Market share of deliveries of commercial aircraft (%), 2014 to 2018



Source: Trefis.com, accessed January 2021

Note: The market shares may not add to 100% due to rounding.

Figure 3: Revenue and profit, 2014 to 2018

Years	Boeing			Airbus		
	Total revenue (\$ billion)	Profit margin* before interest and tax (%)	Average revenue per aircraft (\$ million)	Total revenue (\$ billion)	Profit margin* before interest and tax (%)	Average revenue per aircraft (\$ million)
2014	60.0	10.7	83.0	56.2	6.3	89.3
2015	66.0	7.8	86.7	50.9	5.0	80.1
2016	59.4	3.3	79.4	54.5	3.1	79.2
2017	58.0	9.4	76.0	57.6	5.2	80.2
2018	60.7	13.0	75.3	56.7	9.0	70.8

Source: Trefis.com, accessed January 2021

* Profit margin is profit as a percentage of sales revenue.

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Extract C: The market for commercial aircraft

The market for commercial aircraft is subject to cyclical fluctuations in demand that reflect the normal economic cycle of recession and recovery. The market is also vulnerable to economic shocks such as the global financial crisis in 2008. The recent pandemic is the largest demand-side shock to hit the industry and has created much uncertainty. Boeing's sales also suffered following the grounding of the 737 MAX but are expected to recover. For example, in December 2020, it was reported that Ryanair ordered 75 more 737 MAX planes after negotiating a discount.

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Over the past decade, the growth in passenger air travel averaged 6.5% per annum. To cope with the rise in the number of passengers, the world's airlines increased the size of their fleets by ordering new aeroplanes and delaying the retirement of older aeroplanes. Many older aeroplanes now need to be replaced. Over the next 20 years, the middle-class population is expected to rise from 3.9 billion to 5.9 billion, adding to the growth in air travel.

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The development of new, more efficient aircraft is encouraging the airlines to replace older aeroplanes. Pressures to reduce the environmental impact of air travel have also increased the need to replace less fuel-efficient aeroplanes with ones that are less damaging for the environment. Improvements in technology have meant that aeroplanes are now quieter and use less fuel per seat. For example, Airbus's A321XLR has 30% lower fuel consumption per seat compared with previous-generation competitor aeroplanes.

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Industry experts believe that the growth in air travel will return to its trend rate in a few years' time but the sales of narrow-bodied aircraft will recover before the sales of wide-bodied aircraft. How quickly the industry recovers will depend on confidence and the growth in the world economy.

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The growth in international trade has led to an increase in air cargo. While aeroplanes only transport 1% of goods by weight, the value of the goods they carry is around 35% of total trade. Over the next 20 years, it is expected that annual average growth of the air cargo market will be about 4%.

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Source: News reports, January 2021

Extract D: Government support for the commercial aircraft manufacturing industry

The UK's aerospace sector is a world leader in the manufacture of engines, wings and advanced systems. The sector employs over 120 000 skilled workers, mainly outside London and the south east. It is forecast that globally 38 000 new passenger aircraft will be required over the next 20 years. In 2018, as part of its industrial strategy, the UK government launched its Aerospace Sector Deal. The deal builds on a long-established partnership between the government and the aerospace industry. Government financial support is helping the industry remain competitive and develop new technologies to reduce the environmental impact of air transport.

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Whilst many governments provide state aid for key industries, such support can distort the pattern of comparative advantage. In 2004, the US complained to the World Trade Organisation (WTO) about subsidies for Airbus and the EU retaliated by making a counter claim about subsidies for Boeing. The WTO ruled that both sides unfairly subsidised their aircraft manufacturers, allowing the US and the EU to impose tariffs on each other's goods.

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Firms can become too reliant on state aid, reducing the incentive to increase productivity and competitiveness. It also makes it more difficult for new firms to enter the market. However, where there is a genuine market failure, state aid can be justified. State aid may be needed, for example, to reduce negative externalities and to help less prosperous regions grow.

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Source: News reports, January 2021

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2 2 6 A 7 1 3 6 / 3