

ECON1056 Price Theory

Industry Analysis

SIM, Semester 2, 2020

1 Introduction

Decision-makers in government rely on the advice of experts when formulating policy or discharging their statutory responsibilities. In this assignment you will take the role of an expert economist, employed by a government department. An expert economist's role in the government decision-making process is two-fold:

- **Analysis:** Economists use their specialist knowledge and skills to analyse the likely outcomes of policy alternatives. They then evaluate these outcomes against the government's objectives and statutory obligations.
- **Communication:** Economists communicate their findings to ministers and senior public servants, who, in many instances, do not share their specialised knowledge.

This assignment will assess your aptitudes in both of these domains. You are to conduct an **industry analysis** based on the scenario detailed in section 2. Then use your analysis as the basis for a **brief** (a short report) summarising your recommendations and the associated rationale.

1.1 Formatting requirements

Your assignment must be typed using Microsoft Word, or a similar word processor. Both parts of the assignment should be included in the same document with the **brief** placed before the **industry analysis**. The document should have a professional appearance, appropriate to a government workplace. Format your assignment as follows:

- Use A4 sized paper with all margins at least 2.5cm.
- Body text to be 12pt and black. (There is no minimum line spacing.)
- All pages to be numbered.
- DO NOT include a cover sheet or table of contents.

1.2 Grading

There are a total of 100 marks available in this assignment (50 marks for the industry analysis and 50 marks for the brief), and the assignment contributes 40% of your grade for Price Theory. The marks allocated to each step of the industry analysis are detailed in section 3. The marking criteria for the brief can be found in the rubric.

2 Scenario

In the island nation of [Autarka](#), the government holds a monopoly over the provision of airfreight services. Both the general public and business groups regularly complain about high prices and poor quality of service from the government owned monopoly, [Autarka Airfreight Services](#) (AAS).

In response to these complaints, the national government commissioned the competition authority to recommend steps for improving the efficiency of the airfreight market. The commission made two recommendations:

1. The airfreight services market should be opened up to competition from privately owned firms.
2. Each firm operating in the airfreight market, including AAS, should be required to pay an annual lump-sum licence fee to the government.

The competition authority expects that the reforms will lead to a lower cost, higher quality service. The national government of Autarka has pledged to implement all of the commission's regulations.

2.1 Industry structure

The airfreight market is best modelled as Cournot competition. This is because competing firms must hire aircraft and establish distribution networks before offering airfreight services. Demand for airfreight services is,

$$P = 42 - 0.1Q,$$

where P represents the price of transporting a package, and Q is the total number of packages transported per year, measured in **millions of packages**.

At present, AAS charges \$30 a package and transports 120,000,000 packages per year. While the firm is inefficient, it manages to return an operating profit of \$360,000,000 per year into government revenues.

The competition authority expects that after implementing the market reforms, all firms in the market (including AAS) will be more efficient. Each firm in the market will be able to transport a package at a marginal cost of \$6 per package, and face fixed costs of \$100,000,000 per year.

2.2 Your task

The [Minister for Transport](#) has instructed you to recommend an appropriate licence fee for the airfreight market. The minister has three objectives:

1. Maximise government revenues from the licence fee;
2. Minimise the cost of airfreight services to consumers, and;
3. Increase the number of packages transported per year to at least 250,000,000.

Note that [competition policy](#) prevents the government from imposing any other form of market regulation, including price controls or quotas.

3 Industry analysis

For your Industry Analysis you must complete each of the steps detailed below. The required analysis draws on content covered in lectures 6–10 (primarily lecture 9). When completing the steps you must:

- Type all equations using the 'Insert Equation' function (or equivalent).
- Show all of your working.
- Include sufficient written description for the reader to follow your process.
- Use appropriate notation and economic terminology.

Your audience for the industry analysis is other expert economists who may be required to review your work. There is no page limit for the Industry Analysis.

3.1 Required steps

When completing the industry analysis you should assume that firms are engaged in [Cournot Competition](#).

Step 1: Using the information provided in the scenario, derive a total cost function for a typical firm. Use Q_A to indicate the number of packages transported by the firm (measured in millions of packages). (4 marks)

Step 2: Using the cost function from step 1, derive a profit function for the typical firm. Use X to represent the combined number of packages transported by all other firms (measured in millions of packages). (7 marks)

Step 3: Derive the typical firm's best-response function. (7 marks)

Step 4: Find the equilibrium quantity of the typical firm as a function of the total number of firms competing in the market. Use N to represent the total number of firms competing in the market. (6 marks)

Step 5: Find the equilibrium market quantity and market price as a function of N . (8 marks)

Step 6: Find the equilibrium producer surplus of the typical firm as a function of N . (8 marks)

Step 7: Complete any additional calculations that you require to support your recommendation. (10 marks)

4 The brief

The purpose of the brief is to communicate your recommendations to the decision-maker who commissioned your analysis. You need to provide enough information for the decision-maker to understand your recommendations, and to reach a decision on the matter at hand. However, senior government officials are extremely busy, so you must be brief.

- **The maximum length for your brief is 2 pages.**
- **Any content in excess of 2 pages will not be read or graded.**

When writing the brief remember that it is for a non-expert audience. You must avoid using specialised economic terminology and state everything in 'plain English'. For example:

- Terms such as consumer surplus, producer surplus, and deadweight loss, have little meaning outside of economics and should be avoided. (Note: This is not a comprehensive list.)
- On the other hand, the significance of terms such as price, revenue, and profit, are generally well understood outside of economics.

The brief should not include any equations or diagrams. Tables and dollar amounts may be included as appropriate.

4.1 Template

You must compose your brief according to the template detailed on the following pages. Instructions for each required element of the brief are included within this template. These instructions are reflected in the requirements of the rubric for the task. Ensure that your brief includes each of the elements detailed in the template, and that you do not reorder, rename, or omit any of these elements.

Briefing for the (insert decision-maker's title here)

Subject: Include a brief but descriptive subject line. **Maximum length 1 line.**

Hint: The subject is, in effect, the title of your brief. Compose the subject as you would the title of a report.

Prepared by: Your name here.

Core Message

Write an executive summary of the brief. Your core message should consist of three sentences: The first sentence providing a summary of the scenario. The second sentence summarising the key rationale for your recommendation. And the third sentence summarising your recommendation(s). **Maximum length 5 lines.**

Hint: The statements in the core message should stand on their own. Provide specific information and avoid generalities. The reader should be able to understand the core message without referring to the scenario or the rest of the brief.

Recommendation

Concisely state the principal recommendation that arises from your analysis.

Hint: Your recommendation should be stated as a clear course of action for the government to pursue. Be precise. Avoid generalities and ambiguous statements. **DO NOT** explain or seek to justify your recommendation in this section. **DO NOT** describe the consequences of your recommendation. **DO NOT** state conditions or caveats for your recommendation.

Key Information

Begin your key information section with a short (1–2 paragraph) outline of the context for the brief (as detailed in the scenario), the problem under consideration, and any additional issues raised.

Hint: These 1–2 paragraphs should set the scene for the reader. They should provide the reader with sufficient background information to understand the purpose of the brief. **DO NOT** use these paragraphs to foreshadow, explain, or justify your recommendation(s).

Use the remainder of the key information section to present the rationale behind your recommendation(s). You should highlight any trade-offs involved in your recommendation(s), and address any additional issues raised in the scenario. Your rationale should be presented as follows:

- Use subheadings to concisely state the key findings of your industry analysis. **The maximum length for a subheading is 2 lines (1 line is preferable).**
- Write a short paragraph following each subheading to briefly explain the finding.

Taken together, the findings stated in the subheadings should form a logical argument supporting your recommendation(s).

Hint: Incorporate all information required to support your recommendation(s) in this section, regardless of whether or not the same information has been included elsewhere in

the brief. Each subheading should be written as a statement of fact. DO NOT include an explanation within a subheading, leave that for the following paragraph. DO NOT assert facts that are unsupported by either the scenario or your industry analysis.

Financial Implications

Briefly summarise the direct financial implications of your recommendation(s) (if any) for the Government. Include the precise dollar amounts that come out of your analysis.

Hint: The financial implications section should provide the reader with easy access to the financial cost and/or benefit of your recommendations to the government. This section is not a substitute for stating the financial implications elsewhere in the brief. Specifically, if the financial implications form a part of the rationale for your recommendation(s), they will need to be included in both the key information section AND the financial implications section. DO NOT use this section to summarise other market outcomes (eg. profit and price). DO NOT use this section to present arguments in support of your recommendation(s). This section must be included even if there are no direct financial implications from your recommendation(s).

Begin your industry analysis on a new page following the brief.

Hint: Use the 'Insert Page Break' function in Microsoft Word to ensure the page break displays correctly.