

Industrial Organisation and Competition Economics

ECO7006A - Fall 2021

SCHOOL of ECONOMICS
UNIVERSITY OF EAST ANGLIA

MODULE BOOKLET

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Aims and Objectives. This module provides deep understanding of various economic models and how to apply them to assess a range of real world issues related to firm behavior and outcomes in imperfectly competitive markets. Do firms have market power? How did they come about it? What are they doing to hold on to this power? What are the consequences on consumer and total welfare and for dynamic efficiency? What is the role of public policy in all of this? To answer these questions, we will learn to use tools from microeconomics and game theory in different contexts. Often the focus will be on modelling interactions among firms where they behave strategically in their choices of price, output, location, etc. We will derive equilibrium outcomes and study welfare effects. While the module is mostly theoretical, the discussions will extend to policy and empirical issues as well (second semester follow-on course will have a greater focus on applied work). Students enrolling in this module are expected to have relevant undergraduate training in economics. Upon successful completion, students will be able to apply these models in various antitrust context as well as take on independent research projects.

Format and Structure. There are eleven topics that will be covered over a period of twelve weeks. For every topic there are three learning opportunities.

- A pre-recorded video where an instructor delivers a full lecture on the topic of the week.
- A follow-up online live lecture session, where the instructor will go over the recorded material and/or discuss related topics and questions.
- A face-to-face in-class seminar where the lecturer will go over the assigned problems or applied topics.

The pre-recorded video, as well as any lecture slides, will become available (latest) by Sunday night prior to the week covering a given topic. It is important the students watch the recorded lecture and read the slides before the online live session, and come prepared to discuss and ask questions. For each topic, the associated seminar will be delivered the following week. In week one, there are no problem sets to discuss, but the seminar time will be used for introductions and to go over the syllabus and other module requirements. Similarly, in week twelve, there will be no new recorded lecture and the seminar will slot will cover topic eleven. The online lecture session in the last week will be used to discuss previous materials and/or to discuss the term paper.

There are four instructors co-teaching this module. Each is covering two or more topics, and will cover all aspects of that topic (slides, pre-recorded lectures, on-line lectures, and face-to-face seminars). There emails are given below.

- (FB) Dr Farasat Bokhari: f.bokari@uea.ac.uk
- (BL) Professor Bruce Lyons: b.lyons@uea.ac.uk
- (MK) Dr Michael Kummer: m.kummer@uea.ac.uk
- (FM) Dr Franco Mariuzzo: f.mariuzzo@uea.ac.uk

Assessments.

- Refer to the document “Assessment Brief” for details of formative and summative assessments. For convenience, a copy is reproduced at the end of this document. Some highlights are given below.
- Students are required to attempt the seminar problems. Solutions will be discussed in the seminar and a copy of the solution will be posted on the Black Board website. Active engagement by students is expected. The exercise sets and accompanying discussion provide a good preparation for the final exam, and therefore constitute a form of formative assessment.
- There is also a 2000 words term paper worth 50% of your final grade. A 1-2 page proposal should be turned in by the end of week eight to receive short feedback. One of the lecturers will discuss your proposal with you in week 9. The final paper is due on Friday of week 11 by 3pm.
- There will also be a final exam (50% weight) which will be administered per the University’s set date and time. You will be given 24 hours to complete the exam and to upload your solution. The exam questions will be similar to the seminar questions and lecture content. The final exam will have two sections. In section A you will be asked to solve problems. You will have to do two out of four questions. In Section B, there will be discursive essay-based questions. Again, you will have to do two out of four questions.

Textbooks and Reading. Lectures are drawn from several textbooks. Copies of these books are available in the library and students are encouraged to consult the listed chapters. Belleflamme and Peitz is the primary text and you may want to purchase a copy.

- Belleflamme, P. and Peitz, M. (2010). *Industrial Organization: Markets and Strategies*. Cambridge University Press, Cambridge, UK
- Tirole, J. (1988). *The Theory of Industrial Organization*. MIT Press, Cambridge, MA.
- Motta, M. (2004). *Competition Policy: Theory and Practice*. Cambridge University Press
- Church, J. and Ware, R. (2000). *Industrial Organization: A Strategic Approach*. McGraw-Hill, Boston, MA, international edition
- Pepall, L. and Richards, D. and Norman, G. (2014) *Industrial Organization: Contemporary Theory and Empirical Applications*. John Wiley and Sons. Hoboken, NJ.

Topics. The following topics will be covered.

- (1) **Monopoly** (FM) How are markets defined? How does a single good monopolist maximise profits? Monopolies are rare, but monopoly power is not. We derive the standard monopoly pricing formula and discuss the welfare loss induced by monopoly pricing (against the benchmark of

competitive pricing). We discuss how taxation can help restore optimality. We generalise the monopoly problem to the case of a monopolist that produces and sells several goods exhibiting demand or production externalities.

References: BP ch. 2, Tirole ch. 1

- (2) **Oligopoly pricing** (FM) Oligopolistic competition corresponds to the intermediate case of a limited number of firms interacting in a given market. In such settings, a firm's decision (output, prices, capacity, advertising, etc.) needs to be carefully tailored to the expected behaviour of strategic competitors. Bertrand and Cournot provide the two main theoretical models of competition between oligopolists, and they yield starkly contrasting results. These models have been extended in several directions to account for asymmetric information about costs or capacity constraints.

References: BP ch.3; Tirole ch.5

- (3) **Collusion** (FM) Can firms do better than suggested by the static oligopoly models? When are firms able to coordinate their strategies to achieve higher prices than with unilateral competition? We will analyse the nature and determinants of collusion among oligopolistic firms. An important distinction is between practices of explicit versus tacit collusion. The first type includes such practices as explicit sales price agreements, market quota allocation, market allocation. The second type of collusion rests on a shared tacit understanding that deviation from collusive behaviour will be met with punishment by the remaining parties. From a legal perspective, the former is illegal, whereas the latter is legal, but in economics, they are the same. We identify various key factors that facilitate or hinder collusion. What punishment and reward strategies maximise individual incentives to stick to an existing collusive agreement? How do exogenous factors such as demand or the observability of price or quantity choices, affect the possibility of collusion?

References: BP ch.14, Motta ch. 4, Tirole ch.6

- (4) **Cartels** (FM) Which policies can efficiently discourage cartel formation or increase the probability of detection? On the empirical side, we will study examples of famous cartels, how investigations take place, and what sorts of penalties they give rise to across different legislative realms. We start by recalling the model of repeated games and what it implies about the conditions when collusion is most likely; this is applied to some famous real-world cartels. We then move on to issues examined in the empirical literature: tacit versus formal collusion, cartel overcharge, stability and duration, ringleaders, deterrence, and leniency programmes, and how cartels respond to prohibition. (Additional reading material will be provided in the lecture notes.)

References: BP ch.14, Appendix B, Motta ch. 4, Tirole ch.6.

Hyytinen, A. Steen, F., and Toivanen O., (2019) 'An anatomy of cartel contracts', *Economic Journal*, 129 (July), 2155-2191

Ivaldi, M., Jullien, B., Rey, P., Seabright, P., and Tirole, J., (2003). "The Economics of Tacit Collusion". Report for DG Comp, European Commission, available at:

http://idei.fr/doc/wp/2003/tacit_collusion.pdf

Levenstein, M.C. and Suslow, V.Y., (2006) "What determines cartel success?" *Journal of Economic Literature*, XLIV, March, 43-95.

- (5) **Product Differentiation** (FB) Product differentiation is used actively by firms both to attract customers and, more strategically, to limit competition with rivals. We present and analyse the two general types of product differentiation: horizontal and vertical product differentiation. A critical aspect of vertical (i.e. quality) differentiation is asymmetric information, sellers being often better informed than potential buyers. Private information creates significant frictions to trade. We show how different mechanisms (warranties, repeated interaction) help alleviate the problems caused by asymmetric information. We show how this topic is relevant for demand estimation.

References: BP ch. 4-5; &11; Tirole chs. 2&7.

- (6) **Price Discrimination** (FB) Can a monopolist achieve higher profits by going beyond a single price strategy? Consumers differ in terms of taste, willingness to pay, etc. but in different contexts monopolist may differ as to the amount of information available to them about consumers. By using a variety of sophisticated pricing techniques, firms can succeed in extracting more surplus from consumers. Examples of such practices include bundling and tying, customer cards, menu pricing and time varying price schedules. We present and analyse the three broad categories of price discrimination practices: first, second and third degree price discrimination. Some of these pricing strategies will be covered in the lectures as well their effect on consumer welfare.

References: BP chs. 8-10; Tirole ch 3

- (7) **Entry and Deterrence** (FB) There are exogenous and endogenous entry barriers. Firms can take a variety of steps aimed at deterring the entry of potential competitors, either by establishing facts on the ground by taking preemptive actions or by signaling that any entrants face future antagonistic behavior. The key conceptual distinction is whether the incumbent takes payoff relevant action before or after the potential entrant's decision to enter. The first type of behavior includes strategic investment, inflation of product lines, lobbying. A prominent example of the second type of behavior comes in the form of limit pricing, where a firm seeks to convince potential entrants that it has low production costs. We analyse some of the mechanisms involved.

References: BP ch. 16; Tirole ch.8; PRN ch. 9.

- (8) **Market intermediaries and two-sided markets** (MK) Market intermediaries mediate between the supply side and the demand side, for a given type of goods or services. Platform operators simply offer a platform on which suppliers and consumers meet. Other intermediaries might act as certifiers of quality/reliability. What are the incentives of such platforms and their effect on trade?

References: BP ch. 20-23.

- (9) **Advertising** (MK) Advertising is widely used by firms. How does it influence demand? How much should a firm advertise? Does advertising convey information about a firm's product? If so, how?

References: BP chs. 6& 12, Martin ch.9, PRN ch. 14.

- (10) **Mergers** (BL) Mergers between competitors in a given industry are closely scrutinized by competition authorities. A central issue is whether such mergers are beneficial from a welfare perspective. We identify conditions under which this is the case, taking into account the different types of merger (horizontal, vertical) and their effects (efficiency enhancing, anticompetitive). Do digital, particularly platform, mergers raise any new issues?

References: BP chs. 15& 17.4, Motta chs. 5& 6, Motta and Peitz (2021) ‘Big tech mergers’ *Information Economics and Policy*, Vol.54, 1-15.

- (11) **Behavioural IO** (BL) Recent years have seen the rise of a new literature studying the implications of ‘behavioural consumers’ with bounded rationality. Firms can use a range of strategies to exploit this (e.g. complex pricing, product differentiation). What does this imply for the pattern of prices we observe? When does the existence of some fully rational consumers help (or harm) the unwary? What are the consequences (and dangers) of alternative policy interventions?

References: Grubb, M.D., 2015, ‘Behavioral Consumers in Industrial Organization: an overview’, *Review of Industrial Organisation*. Armstrong, M., 2015, ‘Search and ripoff externalities’, *Review of Industrial Organization*.

Assessment Brief

This document complements the module outline for ECO 7006-A. It concentrates on providing further information concerning assessment items for the course. For each assessment item, the document repeats the relevant information from the module outline and adds more detail.

Summative Assessments

- There are two pieces of assessments. The first is a 2000 words term paper/essay and the second is an exam. Both carry 50% weight towards your final grade.
- For the essay, a 1-2 page proposal should be turned in by the end of week eight to receive short feedback. One of the lecturers will discuss your proposal with you in week 9. The final paper is due by end of week eleven on Friday of week 11 by 3pm.
- The date and time of the final exam will be set by the University. You will be given 24 hours to complete the exam and to upload your solution. It is recommended that you spend a maximum of 4 hours completing this examination.

Requirements for the Term paper. You should pick a contemporary market in which firms practice either 1) *product differentiation* (horizontal or vertical) or 2) *price discrimination* or 3) *cartel*. You should analyse the case at hand in terms of the economic concepts introduced in the relevant lectures. No formal modelling is per se required, but you are expected to make significant use of the concepts acquired in class.

You are expected to go beyond a simple restatement of the theories taught in class. This includes: 1) providing a relatively detailed and well researched description of the analyzed firm practices 2) showing how they can potentially be explained in terms of the theories learned and 3) discussing what seems to be missing in the theories learned in class. The latter task might naturally lead you to discuss extensions of the theories learned in class, either by discussing later important and interesting papers in the literature (as found online after some independent literature search), or by proposing your own potential amendments/extensions.

The essay has to be written such that the lecturer as well as anyone taking this course would be able to understand it. In other words, you are allowed to refer to technical terms as well as mechanisms and results that have been seen in the course.

Instructions specific to the topics of product differentiation and price discrimination:

You are expected to describe the behavior of at least two firms. Ideally, these would be using slightly different strategies which can be usefully contrasted with each other. Examples of potentially relevant product types and industries: cars, clothing, bicycles, tech hardware, telecommunications, transport, energy sector. As part of your analysis, you should also make sure to discuss whether consumers, on the whole, seem to benefit from the phenomenon studied. If you were a regulator, would you be concerned with the observed practices? Why, and if so how would you intervene?

Instructions specific to the topic of cartel: Consult the EU Commission or the CMA webpages and choose to analyse and discuss one of the cartel decisions.¹ Describe the cartel and put it in the context of the material covered in class. Research the market and describe the current state of competition (in the market) after the cartel has broken down. The idea is to identify the main players (companies); find out their market shares (if possible). If you were to find data, please

¹EU Commission webpage: <https://ec.europa.eu/competition/elojade/isef/index.cfm>
and the CMA webpage: <https://www.gov.uk/cma-cases>.

feel free to report summary statistics. Search for academic work on the cartel decision and/or any newspaper/news agency documenting it. Also, check whether the cartel members appeared in other cartels and discuss their recidivism.

Grading Policy The grading of the essay will be done using the standard ECO Coursework Feedback Sheet. The latter document specifies 5 dimensions along which an essay is evaluated. Each of these dimensions is allocated a weight (in %). Your overall essay score (out of 100) will be obtained by taking an average of the scores (from 1 to 100) obtained on each dimension, weighted by their announced weight. The dimensions are as follows.

- (1) Learning outcomes: Overall assessment on the learning outcomes; understanding of the link between theory and evidence (5%).
- (2) Understanding & validity of argument: Clear understanding of the topic/issues; coherent exposition. A main idea here is the logical validity and coherence of the argument. A second aspect is the level of depth and sophistication of the presented argument (30%).
- (3) Analysis and critical thinking: Critical and appropriate use of concepts, models and/or quantitative techniques. A main idea here is the ability to take a critical distance to theories and evaluate their strengths and weaknesses (20%).
- (4) Research: Use of sources and evidence e.g. relevant literature beyond lecture notes, use of data & evidence. A main idea here is that the student went beyond completely standard material contained in lecture notes. This includes the choice of an original question or theory or the use of original data (30%).
- (5) Written communication. Clarity of arguments, quality of writing. The main concern here is the formal quality of the writing (15%).

Final Exam Format. The final exam will also be worth 50% of the mark. It will be administered per the University's set date and time. The university's guideline is that this year the exams will be given over 24 hours and online. It is recommended that you spend a maximum of 4 hours completing this examination.

The exam questions will be similar to the seminar questions and lecture content. The final exam will have two sections.

- In section A you will be asked to solve problems. You will have to do two out of four questions.
- In Section B, there will be discursive essay-based questions. Again, you will have to do two out of four questions.
- The weights across sections A and B will be 50% and 50% respectively. Each question on the exam will clearly indicate the points for that question.

Some general advice for exam questions. If you get stuck with computations, please explain how to think about the problem. What are the steps required to obtain a solution to the question asked? Passing the exam does not require you to perfectly answer every question! Remember that a good and fair exam needs to 1) guarantee that a student who understands the essentials will pass AND 2) allow an outstanding student to show his/her outstanding level of understanding.

Word Limit

There is a word limit both for the term paper and the essay-based questions in the exam (that latter will be provided in the exam section). If you are within 10% over the word limit, there will be no penalty. Beyond that, the examiner may choose to ignore what you write.

Formative Assessments

Formative assessments do not contribute to the computation of your final grade. They do however help you prepare better for the summative part, i.e., the exam and/or the term paper.

Initial feedback on term paper. As described earlier, there will be a preliminary meeting regarding your term paper in which one of the lecturers will provide feedback on your initial 1-2 page draft. This constitutes as a formative assessment.

Weekly Seminars. Throughout the semester, there will be a weekly seminars. During these sessions, we will provide solutions to the week's exercise set (on the topic of the previous week's lecture) or discuss other applied topics. Active engagement by students is expected. The exercise sets and accompanying discussion provide a good preparation for the final exam, and therefore also constitute a form of formative assessment.