



STUDY PROGRAMME

ECO-ELEA, LAW-ELEA

ACADEMIC YEAR

2021 - 2022

SEMESTER

1

COURSE TITLE

Law & Economics of Multi-Sided Markets

COURSE PROFESSOR

PAUL BELLEFLAMME & NICOLAS PETIT

COURSE ASSISTANT

JEANNE MOUTON

NATURE OF COURSE (COMPULSORY, OPTIONAL)

COMPULSORY

LANGUAGE OF INSTRUCTION

ENGLISH

ECTS CREDITS

4.5

1. COURSE OBJECTIVE

Digital platforms are permeating a growing number of sectors of the economy, reshaping the way we consume, work and interact. On the one hand, many markets are being disrupted as a result of new business models, form factors and technologies like artificial intelligence and machine learning, the Internet of Things, distributed ledgers (e.g., blockchain), sensors and robotics. On the other hand, policymakers find it challenging to keep track with the breathtaking pace of innovation, emergent market conduct and new forms of social concerns.

This course provides an overview of how multisided platforms are reshaping the way consumers and firms interact in markets, and its impact on economic welfare, antitrust enforcement and regulatory policy.

2. LEARNING OUTCOMES

Upon completion of the course, students should have achieved the following outcomes:

- Familiarity with the economics of networks, multisided platforms and information goods.
- Understanding of the welfare and harm consequences of multisided platforms.
- Insight on how to approach antitrust and regulatory policy for the specific setting of multisided platforms.
- Familiarity with regulatory framework related to multisided platforms.



- Ability to assess the competition law and economics impacts of the ongoing digital technological evolution.
- Most importantly, the ability to go beyond memorising economic concepts, but rather to use them to shape arguments on the economics of the digital economy.

The learning outcomes for this course tie in with the following learning outcomes for the European Economic Studies programme:

- Use economic theory to assess current problems and policies, with specific relationship to digital innovation and its associated business models.
- Understand the normative assumptions, implications and limitations of economic theory and economic policy making.
- Integrate knowledge of related disciplines (e.g. EU law, but also machine learning and computer science) into the domain-specific knowledge of the economics of digital innovation.
- Demonstrate knowledge of the European Union' institutions, competences and substantive principles; as well as their interaction with Member States' legislative powers, and private governance.
- Think innovatively and provide constructive analytical commentary on how the evolution of EU rules and policies may impact on future market development.
- Describe, explain and illustrate the core normative assumptions, implications and limitations of legal theory and political science theory related to economics.
- Use knowledge of economics, legal principles, strategic management and political science to analyse contemporary public policy problems.
- Work together in groups to solve problems, share tasks, prepare assignments, go through case studies and make presentations.
- Recognise, analyse, explain and critique economic developments and economic policies in Europe.
- Find, select, critically evaluate and use references, data and other sources of information within a short amount of time.

3. COURSE CONTENTS

The course is made of two closely interrelated parts:

- The first part is concerned with the *economic* analysis of multisided platforms and is taught by *Paul Belleflamme*.
- The second part is concerned with the *legal* analysis of multisided platforms and is taught by *Nicolas Petit*.

Part 1. Economic analysis of multisided platforms

In this part, we use the tools of the theory of industrial organization to shed light on conceptual issues regarding platforms and on the strategic decisions of a monopoly platform. More specifically, we consider markets in which users enjoy benefits that depend on the decisions of other users (meaning that users are subject to network effects) and a firm, operating the "platform", takes decisions that partly determine how large those benefits are and who will obtain which benefit.



This part of the course will follow quite closely the following book:

- Belleflamme, P. and M. Peitz (2021). *The Economics of Platforms: Concepts and Strategy*. Cambridge: Cambridge University Press.

The six chapters of the book will be covered during the five first sessions of the course.

Chapter 1 – Platforms: Definitions and Typology

We distinguish different types of network effects and define platforms as facilitators of interaction and trade and, more specifically, as managers of network effects. For-profit platforms face two issues: (i) how to create value for participants, and (ii) how to manage interaction or trade on the platform. Many digital platforms initially focus on the first issue and do not necessarily have a concrete monetization model in mind. We provide a classification of different types of platforms, which we illustrate with a number of real-world examples.

Chapter 2 – Ratings, recommendations and the use of big data

We take a closer look at multiple sources of network effects and how platform design choices and user behaviour relate to those network effects. In particular, we elaborate on rating and recommender systems. The former aggregate user experiences and, thus, address asymmetric information problems. We show under which conditions rating systems lead to positive network effects. Also, recommender systems rely on information about user behavior and possibly enable users to make better informed decisions or reduce the cost of decision making (in particular, users have to search less to find good matches). Again, we show under which conditions recommender systems lead to network effects. In addition, we discuss their effects on the distribution of sales between 'mass-market' and 'niche' products. Both rating and recommender systems rely on the processing of choice data. More generally, platforms may collect or have access to data about user choices and other variables that are relevant to predict these choices. They may use this information not only to inform and steer some group of users, but also for monetization purposes on other sides of the market. In particular, this information may affect, in a buyer-seller relationship, which gains from trade are realized and how these gains are shared. This raises the question about whether and how the collection and processing of more data relate to network effects. Here, we establish conditions under which more and better data lead to network effects and discuss the types of network effects that may arise.

Chapter 3 – An economic primer on network goods

We consider platforms catering to one group of users who are connected through network effects. We first formalize the impact of network effects on user demand. Users have to form expectations about the participation decision of fellow users who have not yet chosen whether to adopt a network good. As we will see, there are some economic environments in which, for some set of prices, different allocations can be rationalized through self-fulfilling expectations. In other environments, this issue does not arise and only a single allocation can be supported with self-fulfilling expectations. We then consider platform pricing for this network good and



uncover to which extent a platform internalizes network effects in its pricing decision. Furthermore, we investigate how network effects shape a platform's compatibility choice when there are two network goods. In particular, we formalize the compatibility decision of a platform introducing a new network good that can either use the same standard as a pre-existing network good or be incompatible with it.

Chapter 4 – Growing a platform

We ask whether and how a firm wants to establish a platform and how it can grow. We explore a firm's economic trade-offs between choosing a (two-sided) platform model and alternative modes of organization. Within the two-sided platform model, we expose the difficulties that a firm will inevitably encounter when trying to bring two groups of agents together. Potential users need to be convinced that they will find other users on the platform, with whom they can interact. The key question is thus how to convince them. In this context, we formalize the 'chicken-and-egg-problem' and discuss firm strategies that may solve it. We also discuss the strategies that platforms can implement to increase the level of trust among users, thereby securing their participation and, possibly, intensifying the network effects. Finally, we discuss how a platform can use its strong position for some intermediation service to succeed when offering other intermediation services.

Chapter 5 – Platform pricing

We take a closer look at pricing decisions by a two-sided platform. The presence of various user groups opens the possibility for differential pricing. As we will see, differential pricing is desirable to tackle the interdependence between the users' decisions. In the presence of heterogeneous users, the profit-maximizing price structure will be jointly determined by the price elasticities and the network effects. We describe the different types of prices that a platform might choose. We will see that the profit-maximizing pricing structures often have the feature that different groups of users face different price-cost margins; we also address the question whether a profit-maximizing platform charges users only for access or also for the transactions they conduct on the platform. A platform may be restricted in the available price instruments; also, participation may be sequential or some users may not be able to observe all prices. We analyze how a platform responds in its choice of strategy in such circumstances.

Chapter 6 – Platform design

We consider economic environments that are richer in the ways the two user groups interact and in the ways a platform can manage this interaction. First, we extend the analysis to two-sided e-commerce platforms on which sellers compete with each other and discuss in which way a platform manages competition on its platform. In particular, if a platform can only charge sellers, it makes profits from participating in the sellers' gross profits and may therefore be inclined to safeguard high industry profits. However, since high industry profits stem from high prices, this discourages user participation. We address how this trade-off affects platform pricing and product variety. Second, we consider a platform that allows buyers to obtain information about more products as is the case with price comparison engines. We show how the platform's price strategies affect the market outcome and, in particular, the degree of price



dispersion that arises naturally with differential information among users (some knowing only their local sellers and others obtaining information by accessing the platform). Third, we revisit the issue of product variety, which a platform can also manage through its design of rating, reviews and recommender systems; we assess the extent to which the incentives of a profit-maximizing platform when designing these systems are aligned with those of the users. We also examine the extent to which an intermediary wants to increase price transparency on the platform. Fourth, we consider platform design regarding the information and price instruments that are made available to sellers on the platform. For instance, the platform may provide sellers with buyers' personal data and, thus, facilitate differential pricing.

Part 2. The Digital Economy: A Law and Economics Perspective

In this part, we review the contemporary law and economics analysis of digital industries. We start by introducing the theory of multisided markets and the practical methods used by decision makers to assess market power in digital industries. We then move on to a discussion of business conduct, and the proposed legal framework that is likely to emerge in the European Union as a result of the adoption of the Digital Markets Act (“DMA”). We close with a discussion of complementary approaches in economics, business and management science and innovation theory that provide fertile insights to embellish current intellectual frameworks for the analysis of competition in digital industries. There are five sessions in this part of the course. Some include case studies.

Session 1 – Contemporary Law and Economics Analysis of Digital Industries

Topics

- Platforms
- Chicken and Egg Problem
- Indirect network effects
- Money and subsidy sides
- Tipping and Critical Mass
- Increasing Returns, Disequilibrium and Uncertainty
- Bypass, Coasian bargaining
- Business Model
- Consumer welfare
- Big data

Readings

- Tirole, Market Failures and Public Policy, *American Economic Review* 2015, 105(6): 1665–1682 (excl. Section III on Intellectual Property)
- Thomas Schelling, *Micromotives and Macrobehavior*, Chapter 3: Thermostats, Lemons, and Other Families of Models
- Varian, Hal, Use and abuse of network effects, in *Toward a just society : Joseph Stiglitz and twenty-first century economic*, 2018,



https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3215488

- Auer, D., & Petit, N. (2015). Two-sided markets and the challenge of turning economic theory into antitrust policy. *The Antitrust Bulletin*, 60(4), 426-461.
- Nils-Peter Schepp, Achim Wambach, On Big Data and Its Relevance for Market Power Assessment, *Journal of European Competition Law & Practice*, Volume 7, Issue 2, February 2016, Pages 120–124.

Session 2 – Market Definition and Market Power Evaluation in Digital Industries

Topics

- SSNIP test
- Transaction and non-transaction platforms
- Zero price markets, and quality adjustments
- Single markets and ecosystems
- Attention markets

Readings

- *Ohio v. American Express Co.*, 585 U.S. ____ (2018).
- Filistrucchi, L., Geradin, D., Damme, E. V., & Affeldt, P. (2014). Market definition in two-sided markets: Theory and practice. *Journal of Competition Law & Economics*, 10(2), 293–339.
- *Epic Games, Inc. v. Apple Inc.*, 20-cv-05640-YGR, <https://www.courtlistener.com/docket/17442392/812/epic-games-inc-v-apple-inc/>

Session 3 – Theories of Harm in Digital Industries: The Complex Trade Offs

Topics

- Price and non-price restrictions
- Self preferencing
- Anti steering
- Bundling
- Predatory pricing
- Killer acquisitions

Readings

- Edelman, Benjamin, and Julian Wright. "Price Restrictions in Multi-sided Platforms: Practices and Responses." *Competition Policy International* 10.2 (2014): 87-101.
- Google Shopping, Summary of Commission decision of 27 June 2017 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case AT.39740 — Google Search (Shopping))
- Google Android, Summary of Commission Decision of 18 July 2018 relating to a proceeding under Article 102 of the Treaty on the Functioning of the European Union and Article 54 of the EEA Agreement (Case AT.40099 — Google Android)



- Facebook Inc. / GIPHY Inc, Summary of Provisional Findings Notified: 12 August 2021, Competition and Markets Authority
[https://assets.publishing.service.gov.uk/media/6114d39ce90e0705481fbfb8/Facebook_GIPHY - Summary of Provisional Findings.pdf](https://assets.publishing.service.gov.uk/media/6114d39ce90e0705481fbfb8/Facebook_GIPHY_-_Summary_of_Provisional_Findings.pdf)

Session 4 – The Digital Markets Act

Topics

- Limitations of traditional antitrust
- Gatekeeping
- *Per se* and quasi *per se* prohibitions
- Remedies
- Procedure
- EU centralisation v decentralisation
- Antitrust law or regulation?

Readings

- Filomena Chirico, Digital Markets Act: A Regulatory Perspective, *Journal of European Competition Law & Practice*, Volume 12, Issue 7, September 2021, Pages 493–499.
- Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector (Digital Markets Act) COM/2020/842 final



Session 5 – Towards Improved Economic Paradigms for the Policy Analysis of Digital Industries?

Topics

- Ecosystems
- Dynamism
- Information
- Disequilibrium
- Entrepreneurial and managerial capabilities

Readings

- Allen, Peter M., and Liz Varga. "A co-Evolutionary Complex Systems Perspective on Information Systems." *Journal of Information Technology* 21.4 (2006): 229-238.
- Arrow, Kenneth J. "Technical information and industrial structure." *Industrial and corporate change* 5.2 (1996): 645-652.
- Arthur, W. Brian. "Competing technologies, increasing returns, and lock-in by historical events." *The economic journal* 99.394 (1989): 116-131.
- Nicolas Petit, David J Teece, *Innovating Big Tech firms and competition policy: favoring dynamic over static competition*, *Industrial and Corporate Change*, 2021.
- Thibault Schrepel, *Platforms or Aggregators: Implications for Digital Antitrust Law*, *Journal of European Competition Law & Practice*, Volume 12, Issue 1, January 2021, Pages 1–3.

4. TEACHING METHOD(S)

The teaching will be done in the form of lectures by the professors. A number of guest lecturers will be invited or will join remotely where appropriate. Students are expected to actively participate through presentations of small cases and in-class debate. The course, initially “frontal”, becomes extremely interactive over time.

Prior reading of documents (academic articles, cases, reports, etc.) before each session is highly recommended. The papers will be discussed as the course progresses.

5. COURSE MATERIAL

Lectures and papers to be distributed before class to the students. The complete reading list will be made available on the course intranet page.

6. EVALUATION

The final grade of the course will be composed of: 100% written open book exam. The evaluation will be based on an open-book written exam, three hours in length, which will take place during the first examination session. The open-book exam will consist of two sets of questions: students will be asked to choose one from each set.



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ECTS CARD

For students who do not pass the course in this way, there will be an exam in the second session examinations, which according to the Study Regulations counts for 100 % of the final grade.