

# E100: Microeconomics

## MPhil in Economics Faculty of Economics

August 1, 2018

Term:	Michaelmas 2018
Class meets:	M9-11
Room:	TBA
Teachers:	Dr Toke S Aidt, Dr Rupert Gatti and Mr Felix Grey
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## 1 Course Description

This new microeconomics course is designed specifically for the MPhil in Economics. It adopts the question motivated approach to teaching microeconomics concepts and applications. The course is centered on three themes: online markets, politics, and climate change. Within each theme, the relevant microeconomics concepts and empirical tools are introduced to address core questions about global externalities, climate policy, the design and regulation of online markets and political decision making processes. The course is deliberately *not* designed as a traditional microeconomics course covering consumer and producer theory, markets, general equilibrium, uncertainty, game theory etc. It is assumed that all students have already covered this material at the intermediate level (corresponding to Hal Varian, Intermediate Microeconomics or a similar textbook). The

philosophy of the course is to use the three themes as the starting point for a discussion of important economic concepts and to demonstrate how they can be used in practice to shed some light on important aspects of social reality, how microeconomic ideas and analysis can inform policy making and how econometric analysis can be used to test theories and provide evidence for policy-making.

## **2 Aims**

By the end of the course, we expect students to be able to:

- Apply economic models and reasoning to a wide variety of real-world questions of interest.
- Understand how to identify the strengths and limitations of economic methods as applied to specific issues.
- Understand how economic reasoning enters into policy making, even if it is not the only consideration.
- Be comfortable with using economic ideas both mathematically and in essays.

## **3 Organization**

Each of the three lecturers will be responsible for one theme and give three 2-hour lectures. The teaching assistant will be responsible for five 2-hour classes. The classes will focus on problem solving and discussions, with two classes devoted to preparation for the take-home project and one to pre-exam revision.

## **4 Assessment**

The course will be assessed on the basis of a take-home project (at the end of Michaelmas) and a 1.5 hours written exam in May. The project will count 30 % and the written exam will count 70 %.

## **5 Reading requirements**

For each session, chapters from relevant textbooks will be assigned as mandatory pre-lecture readings along with academic articles and government reports (as indicated in

Section 6). These are mandatory readings and it is recommended that the students consult them *before* the lecture.

All (mandatory) articles are hyper-linked in the pdf-version of this outline and if you access them from within the Cambridge network (make sure you are logged in with Raven) you can download a pdf file directly from the publisher's database.

At the end of the course outline in Section 7, you will find a list of **optional** post-lecture readings for each session. These will enable you to delve deeper into the topics covered and to study additional applications.

Lecture slides will be available on Moodle and on an open access webpage.

## 6 Overview of the Course

The course is divided into 3 parts. Each part develops a particular theme. The themes are

1. Online markets (Dr Gatti)
2. Economics of Politics (Dr Aidt)
3. Climate change (Mr Grey)

The objective is, for each theme, to develop the microeconomics tools required and to draw on applications and empirical evidence to demonstrate how the tools can be used to understand fundamental social issues or resolve social tensions.

### Theme 1: Online and digital markets

This part of the course will address the traditional microeconomic themes of consumer behaviour, producer behaviour, competition and market structure within the specific context of online and digital markets. Viewing markets as multi-sided platforms, we will look at the economic issues surrounding the provision of markets/platforms as a product, and of competition between platforms. We will then look at pricing, production and competition amongst firms selling on a digital platform, comparing pricing mechanisms (auctions, posted pricing and strategic pricing decisions) product specifications, bundling and vertical integration decisions and the impact of competition and anti-trust regulation. Finally, we will look at consumer behaviour in online markets, addressing issues such as information acquisition, search, the “long-tail”, and the introduction of new products on consumer welfare.

## Lecture 1: Platforms and multi-sided markets

1. **Economic concept:** Platforms as markets, pricing and competition strategies by platforms.
2. **Theoretical application:** Anti-trust regulation.
3. **Empirical application:** Academic journals.

One important aspect of online markets has been the emergence of digital platforms, bringing together large numbers of dispersed buyers and sellers - e.g., eBay, AirBnB, Amazon etc. Of course, markets have always brought buyers and sellers together - what is relatively novel in digital markets (apart from their scale) is that the market is created and owned as a business in itself, which may face competition from rival platforms and must make pricing decisions with care to incorporate the externalities individual agents actions have on the value - and willingness to pay - of other markets to participants. Viewing markets as multi-sided platforms, we will look at the economic issues surrounding the provision of markets/platforms as a product, of competition between platforms, and implications for anti-trust regulations.

### Pre-session readings

- **Concepts:** Levin, J. (2013). The Economics of Internet Markets. In D. Acemoglu, M. Arellano, & E. Dekel (Eds.), *Advances in Economics and Econometrics: Tenth World Congress (Econometric Society Monographs, pp. 48-75)*. Cambridge: Cambridge University Press. [Section 2.] doi:10.1017/CBO9781139060011.003. ([WP copy Jonathan Levin "The Economics of Internet Markets" Working Paper 16852.](#))
- **Concepts:** Marc Rysman (2009) "The Economics of Two-Sided Markets" *Journal of Economic Perspectives*, Volume 23, Number 3, Summer 2009, Pages 125-143.
- **Application:** McCabe, Mark and Christopher M. Snyder. (2007) "Academic Journal Pricing in a Digital Age: A Two-Sided- Market Model," *B.E. Journal of Economic Analysis & Policy (Contributions)* vol. 7, no. 1, article 2.

## Lecture 2: Pricing behaviour in digital markets

1. **Economic concept:** Alternative pricing mechanisms (auctions, posted pricing), dynamic pricing, bundling, vertical integration.
2. **Theoretical application:** Online pricing experiments, anti-trust regulation.

### 3. **Empirical application:** eBay pricing, online advertising.

Digital markets make it very easy for firms to (programmatically) change prices in response to changes in demand, competitors' pricing behaviour or detailed customer information. In response, we have seen an explosion in different types of pricing strategies being adopted by firms. In this lecture, we will compare different types of pricing mechanisms, including posted pricing with different types of action mechanisms. Firms also have far more knowledge about the tastes of their customers than ever before, and we also will look at bundling and vertical integration strategies being adopted by firms to try and maintain broader, long-term relationships with the customers they value most. Finally, we will consider the implications of these strategies for market efficiency, consumer welfare and anti-trust regulations.

#### **Pre-session readings**

- **Concepts:** [Liran Einav, Chiara Farronato, Jonathan Levin, and Neel Sundaresan \(2018\)](#) “Auctions versus Posted Prices in Online Markets” *Journal of Political Economy* 2018 126:1, 178-215. ([Working Paper.](#))
- **Concepts:** Steven C. Salop & Daniel P. Culley (2014) “Potential Competitive Effects of Vertical Mergers: A How-To Guide for Practitioners”. ([Working paper Georgetown Law.](#))
- **Application:** Ostrovsky, Michael and Schwarz, Michael, (2016) “Reserve Prices in Internet Advertising Auctions: A Field Experiment”. ([Working Paper.](#))

#### **Lecture 3: Consumer behaviour in digital markets**

1. **Economic concept:** Search, price dispersion, trust, the “long-tail” and the value of new products.
2. **Theoretical application:** Platform design, consumer welfare.
3. **Empirical application:** Music Industry, Book Industry.

Online markets provide consumers with much greater choice between alternative suppliers and products. This allows increased price/product comparison by consumers, and for the discovery (and so emergence) of “niche” products - the so called “long-tail”. But the amount of information available can also swamp consumers, and issues of trust in dealing with anonymous retailers also emerge. In this lecture, we will look at consumer search and the prevalence of price dispersion in online markets, mechanisms for establishing trust, and the value to consumers of having access to long product tails.

## Pre-session readings

- **Concepts:** Dinerstein, Michael , Liran Einav, Jonathan Levin and Neel Sundaresan “Consumer Price Search and Platform Design in Internet Commerce” American Economic Review (Forthcoming). ([Working Paper.](#))
- **Concepts:** Brynjolfsson, Erik, Yu (Jeffrey) Hu, and Michael D. Smith, “The Longer Tail: The Changing Shape of Amazon’s Sales Distribution Curve”. ([MIT Working Paper, 2010](#))
- **Application:** [Aguiar, Luis and Joel Waldfogel \(2018\)](#) “Quality Predictability and the Welfare Benefits from New Products: Evidence from the Digitization of Recorded Music” Journal of Political Economy 126:2, 492-524. ([Working Paper 22675](#))

## Theme 2: Economics of politics

This theme explores how economic ideas and concepts can be applied to politics. It examines how societies, composed of individuals with conflicting interests, desires and objectives, make policy choices and how these choices are shaped by economic and institutional constraints. The lectures will zoom in on three questions about democracy, revolutions and lobbying. The topics are at the core of understanding how societies resolve conflicting interests. They are selected to illustrate three important economic concepts: preference and information aggregation; self-reinforcing social dynamics; and agency problems.

### Lecture 4: What can economics teach us about democracy?

1. **Economic concept:** Preference and information aggregation.
2. **Theoretical application:** May’s Theorem, The Jury Theorem, The Median Voter Theorem and the Chaos Theorem.
3. **Empirical application:** Suffrage extension and the redistribution hypothesis.

In a capitalist economy, markets are instrumental in allocating resources but societies also need to make collective choices about laws, about regulation, about public goods, about externalities, about taxation etc. which have important ramifications for the allocation of resources and which cannot be taken in competitive markets. In rare cases, all citizens agree on what the right choice is, but mostly they do not. The social dilemma,

then, is to trade-off these conflicting views to arrive at an acceptable collective choice. In democratic societies, the dilemma is resolved through majority voting and elections. One may, however, ask what is so great about democracy? What is it that democracy can achieve that other forms of governance cannot? Economics provides important insights into these issues and can help answer these questions. This two-hour lecture will discuss four important theorems about the virtues and deficiencies of democracy. May's Theorem shows that the majority rule is the only decision rule that treats all voters in the same way, which gives democratic decision making a firm normative foundation. The Median Theorem and the Jury Theorem show how majority rule can aggregate conflicting preferences and information. The Chaos Theorem highlights some important limitation to majority rule. The median voter theorem will be put to a test in an empirical study of suffrage extension and redistribution in the 19th century.

### Pre-lecture readings

- **Concepts:** Hindriks and Myles (2011), *Intermediate Public Economics*, (MIT Press) Chapter 11.
- **Concepts:** Mueller (2003). *Public Choice III*, (Cambridge University Press), Ch. 6.1 to 6.3; and 5.1 to 5.5.
- **Application:** [Aidt and Jensen, 2013](#), Democratization and size of government: evidence from the long 19th century. *Public Choice* 157(3-4), 511-47.

### Lecture 5: What can economics tell us about revolutions?

1. **Economic concept:** Self-reinforcing social processes, multiple equilibria and threshold effects.
1. **Theoretical application:** Revolutions and social conflict.
2. **Empirical Application:** Social media and the Arab Spring in Egypt.

History is littered with examples of revolutions that while they are easy to explain ex post took those who were involved by surprise. Think of the French revolution in 1789, the Iranian revolution in 1979 or the fall of the Berlin wall. Economics can help us understand why this is the case. The key insight is that potential participants in a revolution will condition their participation on how many others they expect to participate. This can generate a self-reinforcing positive feedback loop with the implication that once a

critical mass is reached and a threshold is passed a cascade is released – a revolution happens. This two-hour lecture will explore the thesis that preference falsification whereby individuals say one thing in public while privately hold very different views can explain revolution surprises. The theory will be applied to role that social media played during the Arab Spring in Egypt.

### Pre-lecture readings

- **Concepts:** [Granovetter, Mark](#). Threshold Models of Collective Behavior. American Journal of Sociology 83, no. 6 (1978): 1420-443.
- **Concepts:** [Kuran, Timur](#). Sparks and Prairie Fires: A Theory of Unanticipated Political Revolution. Public Choice 61, no. 1 (1989): 41-74.
- **Concepts:** [Tullock, Gordon](#). The Paradox of Revolution. Public Choice 11 (1971): 89-99.
- **Empirical application:** [Daron Acemoglu](#), Tarek A. Hassan, Ahmed Tahoun; The Power of the Street: Evidence from Egypt's Arab Spring, The Review of Financial Studies, Volume 31, Issue 1, 1 January 2018, Pages 1-42.

### Lecture 6: What can economics tell us about lobbying?

1. **Economic concept:** Principal-agent theory, rent seeking.
1. **Theoretical application:** Lobbying for trade protection.
2. **Empirical application:** The Washington Lobbying industry.

Across the world's capital cities thousands of professional lobbyists and lobbying firms seek to sway governments to adopt or changes policies or to allocate public resources in particular ways. These lobbyists are not engaged in productive activities that create net value to the economy; instead their role is to seek favorable government treatment for the clients they represent. This is troublesome because the process of rent seeking uses scarce resources unproductively and may push governments into making socially inefficient policy choices. Contributions to political campaigns can also influence who get election and what they do once in office. The substantive question is how special interest groups can “buy” influence on government policy and what the social consequences of this are.



## Pre-lecture readings

- **Concepts:** Mueller (2003). Public Choice III, (Cambridge University Press), Ch. 15.1 (333-38), 20.1, 20.3, 20.4 and 20.5.
- **Theory:** Grossman, Gene M., and Helpman Elhanan (2001). Special-Interest Politics. MIT Press. Ch. 1 (1-14), Ch.4 (103-113) and [Grossman, Gene M., and Helpman Elhanan \(1994\)](#). Protection for Sale. The American Economic Review 84(4), 833-50.
- **Application:** [Blanes i Vidal, Jordi, Mirko Draca and Christian Fons-Rosen. \(2012\)](#). Revolving Door Lobbyists. American Economic Review 102(7), 3731-48. [Youtube video](#)

## Theme 3: Climate Change

This theme explores the application of economics to the problem of climate change. It looks at three broad aspects of climate change: how do we determine the size of the externality (the SCC), how do we correct the resulting market failure domestically, and how might we solve the global public good problem internationally.

### Lecture 7: The Social Cost of Carbon

1. **Economic concept:** Externalities, discounting
2. **Empirical application:** Social cost of carbon, empirical modelling

This two-hour lecture explores the concept of the externality as applied to climate change. We will briefly review the theory of externalities, and then move to the difficult question of how to quantify the externality associated with emitting a tonne of CO<sub>2</sub>, known as the Social Cost of Carbon (SCC). Typically economists approach this using so-called Integrated Assessment Models, which combine climate science with economics. Many important choices need to be made in constructing these models, which can have a big impact on the results. The most heavily debated is the discount rate, which determines how much we care about future generations, and there is still a lack of consensus over which values to use. We will also cover other important modelling choices (such as damage functions, and attitudes to risk) which impact the social cost of carbon. Finally, we will look at other methods of determining the SCC such as that implicitly underpinning the Paris Agreement's temperature target.

## Pre-session readings

- **Concepts:** Hindriks, Jean and Gareth D. Myles (2013). Intermediate Public Economics (MIT Press), Chapter 8 (especially 8.1-8.6).
- **Application:** [The Stern Review \(2006\) Chapter 2](#).
- **Application:** [Nordhaus \(2014\) Estimates of the Social Cost of Carbon: Concepts and Results from the DICE-2013R Model and Alternative Approaches. Journal of the Association of Environmental and Resource Economists. 1, 273-312.](#)
- **Application:** [Pindyck \(2013\) Climate change policy: what do the models tell us? Journal of Economic Literature, 51 \(3\), 860-72.](#)

## Lecture 8: Climate change policy

1. **Economic concept:** Correcting market failures from externalities
2. **Empirical application:** Climate change policies

This two-hour lecture will look at policy, and explore the trade-offs associated with the three main policy tools: carbon taxes, emissions trading, and standards. This analysis will be broad: we will consider economic efficiency, political economy, and other real-world factors. We will also explore other (non-carbon) market failures that should not be ignored when making good climate change policy. This lecture will generally be highly applied, and aims to give students an understanding how to go about policy making, and how difficult it can be, in reality.

## Pre-session readings

- **Concepts:** [Weitzman \(1974\) Prices vs Quantities. Review of Economic Studies, 41\(4\) 477-491.](#)
- **Application:** [Stern \(2015\) Why Are We Waiting? The Logic, Urgency, and Promise of Tackling Climate Change. MIT Press 2015, Chapter 3.](#)
- **Application:** [Nordhaus \(2013\) The Climate Casino, Yale University Press, Chapters 20, 22.](#)

## Lecture 9: International environmental agreements

1. **Economic concept:** Public goods, coalition formation

## 2. **Empirical application:** International environmental agreements

This two-hour lecture looks at the international aspects of climate change policy. Emissions reduction is a public good, and we would therefore expect each country to undertake an inefficiently low amount of this activity, a result known as the tragedy of the commons. International environmental agreements seek to solve this problem by creating coalitions of countries that behave cooperatively and therefore achieve more environmental protection. However, countries cannot be forced to join such a coalition, and so international agreements must be designed in such a way that each country wants to join, rather than free ride. We will look at the theory of coalition formation, and use it to examine the history climate agreements since UN negotiations began in 1992, with a focus on the Kyoto Protocol and the Paris Agreement.

### Pre-session readings

- **Concepts:** Barrett (2003) *Environment and Statecraft*, Oxford University Press, Chapters 7 and 12.
- **Application:** Nordhaus (2015) *Climate Clubs: Overcoming Free-riding in International Climate Policy*. *American Economic Review*, 105(4) 1339-1370.

## 7 Optional Extra Readings by Session

### Theme 1: Online and digital markets

#### Lecture 1

1. Armstrong, Mark. 2006. "Competition in Two-Sided Markets." *RAND Journal of Economics*, 37(3): 668-791. Baye, Michael R., and John Morgan (2001). "Information Gatekeepers on the Internet and the Competitiveness of Homogeneous Product Markets." *American Economic Review* 91(3), 454-474.
2. Evans, David S. & Richard Schmalensee (2014) "The Antitrust Analysis of Multi-Sided Platform Businesses" in Roger D. Blair and D. Daniel Sokol (eds) *The Oxford Handbook of International Antitrust Economics*, Volume 1 ch18. [NBER Working Paper No. 18783](#)
3. Karle, Heiko, Martin Peitz and Markus Reisinger (2017) "Segmentation versus Agglomeration: Competition between Platforms with Competitive Sellers" [CEPR working paper Nov 2017](#)

4. McCabe, Mark, Christopher M. Snyder, Anna Fagin (2012) “Open Access versus Traditional Journal Pricing: Using a Simple “Platform Market” Model to Understand Which Will Win (and Which Should)” [Working Paper](#)
5. Rochet, Jean-Charles and Jean Tirole. (2006) “Two-Sided Markets: A Progress Report,” *RAND Journal of Economics* 37: 645-667.
6. Jean Tirole (2017) “How Digitization is Changing Everything” in *Economics of the Common Good*, Princeton University Press, 2017. Chapter 14 pp 378-400.

## Lecture 2

1. Bakos, Y. and Brynjolfsson, E. (2000) Bundling and competition on the Internet: aggregation strategies for information goods. *Marketing Science* (Jan. 2000)
2. [Bakos, Y., & Brynjolfsson, E. \(1999\). Bundling Information Goods: Pricing, Profits, and Efficiency. \*Management Science\*, 45\(12\), 1613-1630.](#)
3. Chenghuan Sean Chu, Phillip Leslie and Alan Sorensen (2011) “Bundle-Size Pricing as an Approximation to Mixed Bundling” *The American Economic Review* Vol. 101, No. 1 (FEBRUARY 2011), pp. 263-303
4. [Crawford, G. S., & Yurukoglu, A. \(2012\). The Welfare Effects of Bundling in Multichannel Television Markets. \*The American Economic Review\*, 102\(2\), 643-685.](#)
5. Bronwyn E. Howell Petrus H Potgieter (2107) “Bundles of Trouble: Can Competition Law Adapt to Digital Pricing Innovation?” [Working Paper](#)

## Lecture 3

1. Kotowski, Maciej H., and Richard J. Zeckhauser. 2017. “If Many Seek, Ye Shall Find: Search Externalities and New Goods.” *American Economic Journal: Microeconomics*, 9 (4): 42-73. DOI: 10.1257/mic.20140182
2. Baye, Michael R. , John Morgan, Patrick Scholten “Information, Search, and Price Dispersion” in T. Hendershott, ed. *Handbook on Economics and Information Systems*
3. Brynjolfsson, Erik, Yu “Jeffrey” Hu, and Michael D. Smith. 2003. “Consumer Surplus in the Digital Economy: Estimating the Value of Increased Product Variety.” *Management Science* 49 (11): 1580-96

## Theme 2: Economics of Politics

### Lecture 4

1. Torsten Persson and Guido Tabellini *Political Economics: Explaining Economic Policy*, 2000, MIT Press, chapter 3 (on majority rule).
2. [Meltzer, A.H., Richard S.F.](#), 1981. A Rational Theory of the Size of Government. *Journal of Political Economy* 89(5), 914-27.
3. [Ben-Yashar, Ruth C., and Shmuel I. Nitzan.](#) The Optimal Decision Rule for Fixed-Size Committees in Dichotomous Choice Situations: The General Result. *International Economic Review*, vol. 38, no. 1, 1997, pp. 175-186.
4. [May, Kenneth O.](#) A Set of Independent Necessary and Sufficient Conditions for Simple Majority Decision. *Econometrica*, vol. 20, no. 4, 1952, pp. 680-684.

### Lecture 5

1. Fearon, James, D and David D Laitin (2003). Ethnicity, insurgency and civil war. *American Political Science Review* 97, 75-90.
2. Montalvo, Jose G. and Mata Reynal-Querol (2005). Ethnic polarization, potential conflict and civil war, *American Economic Review* 95, 796-816.

### Lecture 6

1. [Gawande, Kishore, and Bandyopadhyay Usree.](#) (2000). Is Protection for Sale? Evidence on the Grossman-Helpman Theory of Endogenous Protection. *The Review of Economics and Statistics* 82(1), 139-52.
2. Olson (1965), *The Logic of Collective Action*. Harvard University Press. Ch. 1 (1-53).
3. [Aidt, T.S.](#) (2003). *Economic Analysis of Corruption: A Survey*. *The Economic Journal*, 113(491), F632-F652.
4. **Concepts:** [Tullock, G.](#) (1967), The Welfare cost of tariffs, monopoly and theft. *Economic Inquiry* 5, 224-232.

## Theme 3: Climate change

### Lecture 7

1. Burke et al. (2016) Opportunities for advances in climate change economics. *Science*, 352(6283) 292-293.
2. Dietz & Stern (2015) Endogenous growth, convexity of damage and climate risk: How Nordhaus' framework supports deep cuts in carbon emissions. *The Economic Journal*, 125(583), 574-620.
3. Dasgupta et al. 2000. Intergenerational equity, social discount rates and global warming, In Portney and Weyant (eds.), *Discounting and intergenerational equity*.
4. Weitzman (2014) Fat Tails and the Social Cost of Carbon. *American Economic Review*, 104(5) 544-546.

### Lecture 8

1. Nordhaus (2013) *The Climate Casino*, Yale University Press, Chapters 17 and 26.
2. Weitzman (2012) GHG Targets as Insurance Against Catastrophic Climate Damages. *Journal of Public Economic Theory*, 14(2) 221-244.
3. Stern (2015) *Why Are We Waiting? The Logic, Urgency, and Promise of Tackling Climate Change*. MIT Press 2015, Chapter 6.

### Lecture 9

1. Barrett (2003) *Environment and Statecraft*, Oxford University Press, Chapter 9.
2. Nordhaus (2013) *The Climate Casino*, Yale University Press, Chapter 21.
3. Stern (2015) *Why Are We Waiting? The Logic, Urgency, and Promise of Tackling Climate Change*. MIT Press 2015, Chapter 8.