

# Chapter 20: Best Practice and Innovations in Economics Education

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## Introduction

Economics is one of the most popular university subjects in most countries, including the UK. This is true for various reasons, among them, the fact that economics graduates earn more than many others and that the range of occupations for those with an economics degree is broader than for others (Britton, 2017). Because of this, economics lecturers have an invaluable opportunity to teach students about the world around them but are also presented with a set of distinct challenges. In this chapter, we discuss both the opportunities and challenges of teaching economics at university and the way in which modern teaching and assessment techniques may be used to address them.

One of the main challenges with teaching economics at the university level is that classes are large, which reduces the likelihood of personal contact with students, and also the diverse motivation and background training of students in these classes (Mearman et al., 2014). First, students often mistake economics for business studies, and arrive at university expecting to learn accounting and finance tools and focus on employability rather than the learning experience. Economics, of course, involves a much broader range of fields, including health, development, globalisation, inequality and poverty, taxation and the public sector, history and growth. The A-level economics curriculum tends not to break this misconception. Thus, a primary challenge for the first-year economics lecturer is to introduce students to the variety of issues that economists study and present to them the toolbox of economists, which includes the mathematical and statistical techniques to be used to address this broad range of questions. Here again, there is a challenge, as students may come to university with different types of mathematical backgrounds, in particular, with little experience in statistics, which is invaluable in economics but not core to the A-level maths curriculum.

While university economics teaching usually focuses on the acquisition of these tools, in the real world, most economics graduates are required to apply these tools as a way to answer a diverse range of questions rather than to solve problem sets. This presents a separate set of challenges, as many students with the required maths skills may view the study of economics as an opportunity to hone algebra and calculus skills rather than a way to discuss policy issues. The economics profession in academia has also been lax in dispelling this misunderstanding. For this reason, economics has been late to innovative teaching in a systematic fashion and in particular, it lags behind fields such as physics and medical education, which have been piloting and evaluating new and interactive ways of teaching and learning for a few decades. Nevertheless, as this chapter discusses, in the past couple of decades, student-centred learning principles have found their way into the economics classrooms. As a result of this, there is a plethora of resources for today's new lecturer looking to innovate in their own classes and contribute to the development of tomorrow's economists and informed citizens.

## Learning the basics: thinking at the margin and optimising

Most undergraduate degrees in economics around the world have a similar structure – students are taught the fundamental concepts of microeconomics, macroeconomics and statistics in the first year, after which they proceed to more advanced courses in these broad areas as well as courses in more specialised fields such as labour economics, international trade, industrial organisation, and so on. There is, generally speaking, a broad consensus on the concepts that should be covered across the curriculum, and, in the UK, this is the result of a Quality Assurance Agency process carried out every few years. The [2015 QAA benchmark statement](#) lists both overall ideas such as decision making at the margin and the firm's and the consumer's optimisation problem, as well as more specific topics such as game theory.

Despite this consensus, designing a curriculum to ensure that students do indeed learn these fundamentals is quite challenging. Many of the concepts are quite intuitive but also nuanced, and so students need repetition and reinforcement to internalise them in a way that enables them to apply these ideas in more advanced classes and in real-world contexts. Traditional (and popular) introductory textbooks, for example, Mankiw's *Principles of*

*Economics* or Krugman and Wells' *Economics* tend to have a similar approach, starting with the ideas of demand and supply in a market, and then proceeding to consumer and firm theory. Imperfectly competitive markets, strategic interactions and game theory, and market failures are often presented as special cases towards the end of the book. In recent years, particularly in the aftermath of the financial crisis of 2008–2009 and the ensuing Great Recession, this approach has been criticised from many quarters, including by students themselves. Organisations such as [Rethinking Economics](#), among others, have argued that this approach gives the impression that competitive markets that achieve the social optimal are the norm and encourage a worldview which downplays the role of the government and regulation. Such an impression can encourage more of the deregulation that many blame for facilitating the financial crisis.

One response to such criticism has been the development of the [CORE Project](#)'s online learning materials. This curriculum is different from the traditional one, first, in terms of its framing as, for example, monopolistically competitive markets, something that students are familiar with in their everyday lives, are presented before competitive markets rather than as a special case and strategic interactions are introduced alongside the optimisation problem of the representative agent (Bowles and Carlin, 2017). One of the benefits of this approach is that fundamental concepts are taught in a way that connects with students' daily lives and makes it easier to understand them in a deeper fashion. In the unit on monopolistic competition, for example, cars, bottled water and breakfast cereal are used to present the idea of product differentiation and market power. The other main difference between the CORE project's approach is that there is no clear distinction between microeconomics and macroeconomics, as is common in many textbooks, since the model of the macroeconomy is micro-founded. There are two advantages of this: first, students are able to build up their understanding from the actions of individuals and firms to form a holistic view of the macroeconomy, and second, most professional economists use macro models with some kind of micro-foundation. The latter benefit is particularly important for students who go on to further study in economics, and those who stay in the economics profession as bankers or in other finance-related occupations, as they get an early peek into how economists actually think about, and model, the macroeconomy.

One of the innovative features of the CORE Project is that its teaching materials are created via a collaborative effort involving economists and other social scientists across the globe, and these materials are available online freely for anyone who wants to use them. The trend towards high-quality publicly available materials for teaching and learning materials, and away from the traditional publisher-driven model of expensive textbooks (Nelson, 2014) and test banks has been a recent development welcomed by many in the community, not least by students and lecturers in less well-resourced institutions. [Marginal Revolution University](#), created by Tyler Cowen and Alex Tabarrok of George Mason University in the US, is at the forefront of this revolution, providing engaging video lessons on everything ranging from the basics of demand and supply to more complex issues such as why the financial crisis of 2008–2009 occurred. The materials provide an important resource for university lecturers and others teaching economics, but, perhaps just as importantly, they allow anyone with an internet connection to learn economics. In addition to these lessons on economics, a complementary trend has been the curation of multimedia resources that illustrate economic ideas and provide a user-friendly and non-technical introduction to some of the most fundamental concepts in economics. The case study that follows reviews these resources.

#### Case study 20.1: Using multimedia and interactive approaches to teach fundamental concepts

One of the newest developments in economics education is the rising use of multimedia resources to teach threshold concepts. This ranges from professionally produced media such as television programmes or films to online games and assessments where students produce their own media. This approach underlines the fact that economic concepts are manifest in our everyday lives and most are quite intuitive in nature, with no need for extensive technical material to understand them.

Examples of popular TV shows that can be used for this approach range from older shows such as [Seinfeld](#) to newer ones like the [Big Bang Theory](#) as discussed in Tierney et al (2016). In each case, [a clip](#) is shown to either introduce a concept, such as the calculation of profit, and can be used alongside a technical explanation of the concept. As such, the clip acts as a

memory 'hook' for students. For example, to teach game theory, an obvious choice is [A Beautiful Mind](#), but less obvious but less obvious selections like the bank robbery scene from *The Dark Knight* (Dirk Mateer, University of Arizona) can also be used to illustrate strategic interactions. These resources also provide commentary on the interpretation of the scene in question and tips for how to teach with it. A more recent [website](#) created by Jadrien Wooten (Penn State University) categorises clips into specific topics or concepts and provides brief teaching plans for each. Both sites also include clips from popular music. Finally, economics education research literature also provides extensive discussion of teaching particular fields using multimedia resources (Mateer and Stephenson, 2015) as well as overviews of how to use a particular kind of resource (see Tinari and Khandke, 2000).

A related teaching and assessment method is to ask students to produce multimedia with economic content. This approach may be considered to be the active learning counterpart of the method discussed above. The [First-Year Challenge](#) is a project which asks students to produce a brief video or podcast on an overarching economic theme, and has now been adopted by several UK universities while the Royal Economics Society has introduced a national competition inspired by it (Chaudhury and Spielmann, 2016). [EconBeats](#) is a competition designed by Abdullah Al-Bahrani (Northern Kentucky University), which asks students to work in teams to create an economics-themed song. For both types of project, working in a largely unfamiliar medium allows students to be more creative, and can, thereby, facilitate deep learning.

Finally, the use of online classroom games has recently spread as the technology for provision of such resources has improved. In-person games have been around for a while, as discussed by Balkenborg and Kaplan (2009) and provide a good opportunity to give students a hands-on opportunity to generate data and reconcile it with the theory. In addition, web resources such as [Economics Games](#) enable students to play online games against one another, facilitated by the lecturer either in class or outside it.

The use of multimedia resources in teaching the fundamentals provides a way to build connections between students' existing knowledge of the world around them and the economics concepts that are crucial for an understanding of the economy. It also engages students by using a medium that they are used to interacting with, at least in consumption, if not production.

### Interrogating practice

1. What textbooks does your programme use? How do you feel about the selection, order and treatment of various economics topics in these books?
2. How does the profile of your median student look? How might they benefit from non-textual resources and those situated in popular media?

### The role of the economist in the real world

One of the great benefits of gaining a university degree in economics is the range of careers to which such a credential opens the doors. Graduate economists work in all kinds of industries across the private sector, from finance to dairy products and from real estate to retail trade. In addition, governmental and non-governmental organisations, think-tanks and academia provide significant employment opportunities. A report from the American Economic Association (2012) provides earnings for a range of careers open to economics graduates. The broad range of occupations implies that economists need to be trained in much more than just content, and, in fact, traditional economics content is of paramount importance to only the minority of economics graduates who will go on to further study in economics.

What skills and competencies are, then, crucial for those going on to other careers? A survey carried out by the Federal Reserve Bank of New York (2015) lists the skills that US employers find most difficult to source. This is a general survey of employers but gives a clear idea of what skills are valued in today's economy. It is clear from this survey that both technical and interpersonal skills are important. More specifically, for economics graduate jobs, the importance of empirical skills seems clear. Such skills are important across different kinds of workplaces, but also, perhaps more importantly, in order to be a responsible and well-informed citizen and voter. Thus, the teaching and learning of such broadly defined 'data literacy' skills is crucial in any university curriculum. In economics degrees in particular, one often assumes that such skills are embedded in courses such as statistics or in empirically driven courses. Unfortunately, such courses often end up being more about technical content

and skip more fundamental and basic material such as choosing the kind of graph that best represents a particular type of data.

Data literacy, for these purposes, can be broadly defined as “understanding what data mean, including how to read charts appropriately, draw correct conclusions from data and recognize when data are being used in misleading or inappropriate ways” (pp. 5, Carlson et al., 2011). In addition to the consumption of data and critical assessment, which such a definition primarily focuses on (Koltay, 2015), the need to be able to communicate the results of data analysis, including data visualisation, could be included in a broader conceptualisation of skills required to be able to understand the world in an empirical fashion. To a certain extent, such skills are important for everyone in society: from the consumer checking for the best deals to a voter trying to compare claims from rival candidates, there is a plethora of everyday situations which require empirical analysis in some form (Bryla, 2018). Case study 20.2 provides examples of online resources which can either be curated into stand-alone modules on data literacy, as carried out in University College London’s Data Skills Lab, or embedded in the curriculum in different modules ranging from statistics to field courses such as labour economics.

The report issued by the Federal Reserve Bank of New York also shows the importance of interpersonal skills. If we define these broadly to include collaboration and communication, it is clear that the traditional economics curriculum often struggles to incentivise investment in such skills. Part of the reason for this is that the traditional form of assessment in economics degrees has been a written exam, which focuses on individual effort and a limited range of communication. It follows, therefore, that broadening assessment design to include group projects, presentations and research work will be required to prepare economics students for the modern world. Such redesign of assessment is discussed in greater detail in the following section. In addition, redesigning the curriculum to embed these skills appear imperative in order to develop the relevant competencies. One approach is to follow a research-based approach to university education (Fung, 2017). This involves not just introducing students to cutting edge research in the field, but actively involving them in such research.

Research in this context should be interpreted fairly broadly – trawling the internet to find the best airfares is included – which means that research-based tasks can be introduced from

the very beginning of the undergraduate degree. For example, assigning in-class tasks on finding the current exchange rate or the real GDP per capita is a fairly easy way to involve first-year students in research. If such tasks are tailored to be group tasks, it also embeds collaboration skills, and both this and a requirement to explain the process involved in this research to the rest of the class helps develop communication skills. More advanced students can be assigned to literature review tasks and more involved data analysis, and as long as these tasks are designed as collaborative efforts and include a presentation element, they can help develop both the technical and the interpersonal skills identified by the Federal Reserve Bank of New York survey. There is no doubt that such endeavours involve significant setup costs for the lecturer as well as a slower pace of content delivery in the lecture. These costs are significantly reduced by using the case studies available on the [Economics Network's website](#), in the [Journal of Economics Teaching](#) and other economics education literature. At the end of the day, focusing on a curriculum that embeds data literacy skills at the cost of more traditional content is a decision for individual lecturers – is it worth maximising content delivery at the cost of developing employability and citizenship skills?

#### Case study 20.2: Using real-world data and contexts to teach data literacy

In a world awash with 'fake news', the ability to understand empirical analysis is invaluable. Such skills are important across different workplaces and also, perhaps more importantly, to be a responsible citizen. Thus, the teaching and learning of such data literacy skills is crucial in any university curriculum. The [Royal Statistical Society's Data Manifesto](#) underlines this fact. As most statistics or econometrics modules do not automatically embed these skills, it is clear that there is a need to develop such modules within the curriculum. This case study looks at resources and methods to teach these skills, starting with basic 'consumption' of empirical analysis to more advanced 'production'.

A natural starting point is the interpretation of data. An invaluable resource for understanding the challenges involved is [the Calling Bullshit course](#) developed by statisticians at the University of Washington. This is an online course, complete with lecture videos, but the most useful links are the case studies, ranging from simple examples of how considering levels rather than percentages can be misleading to more sophisticated examples of

confounding variables. There are also useful examples of how the choice of graph or axes in a graph can distort the bottom line of the data. [The Office of National Statistics](#) provides a handy guide on data visualisation which tips on how to make these choices.

Next, lecturers can design tasks to introduce students to user-friendly real-life data, for example, that produced by the US Federal Reserve ([FRED](#)) or the UK Data Services' (UKDS) website through [Nesstar](#) (institutional login required). For many economics graduates, producing descriptive statistics based on similar data will be an essential part of their jobs. FRED provides time series data on major macroeconomic variables such as GDP, GDP growth and inflation and unemployment rates, and their website has user-friendly tools to visualise data, compare the path of different variables, and to do basic cross-country analyses. The [Starting Point website](#) provides detailed tips for using FRED to teach, with examples ranging from basic concepts such as real and nominal interest rates to more advanced topics like the Taylor rule. The UKDS provides less extensive teaching guidance, but there is broad range of teaching data sets available for studying many different applied topics and the interactive website provides extensive opportunities for plotting charts, computing correlations and carrying out basic regressions ([www.ukdataservice.ac.uk/use-data/teaching/teaching-ideas.aspx](http://www.ukdataservice.ac.uk/use-data/teaching/teaching-ideas.aspx)).

Once students have access to user-friendly data, the next step is to understand how to analyse these data. As mentioned above, both FRED and the UKDS website have basic visualisation and analysis tools. For other data sets, students may need to work directly with Excel, R, Stata or another software package. One good place to start is the CORE Project's [Doing Economics website](#), which provides a set of empirical projects along with teaching tips and guidance for working on each specific project in either Excel or R. This provides novices with an extended introduction to these programmes. Excel tutorial videos can also be accessed through [LinkedIn Learning](#) (institutional login required) while Stata has an excellent [YouTube channel](#) which includes tutorials on everything from the basics of uploading data to more complicated estimation methods.

### Interrogating practice

1. What kinds of interactive tasks do your modules currently involve? What range of skills do these cover?

2. Where are the places in your curriculum where you can embed technical and interpersonal skills and what content are you comfortable with replacing to make space for these skills?

## Assessment of the skills and competencies most valuable for an economist

Assessment comes in two major categories – formative, which doesn't count towards the final grade, and summative, which does. In this section, we discuss the challenges faced in designing both types of assessments in economics, and some solutions. Most UK universities use a mixture of formative and summative assessments in their programmes, but, as in the case of teaching techniques, assessment in economics in the UK has, in general, stuck with traditional modes. These include problem sets based on algebraic or graphical analysis for formative work and cumulative written exams for summative work. This is facilitated by the fact that the most popular textbooks in undergraduate economics are accompanied by extensive test banks of different types of questions and, often, bespoke online homework systems (e.g., [MindTap](#), run by publishers Cengage). Such resources are a boon for new lecturers, but they are often limited in the scope of skills assessed and are best used as a base on which to build bespoke assessments which suit a particular student body or context.

In the past couple of decades, however, more and more lecturers are realising that the intuitive content of economics is difficult to assess accurately using such assessments exclusively. This realisation has led to the trialing of more diverse assessment methods, many of which have already been in use in other fields, particularly in physics and other STEM subjects. However, some of the most important skills, such as the ability to collaborate and to communicate, are the hardest to assess, particularly in large groups. At the same time, there is evidence that a well-designed assessment process can facilitate the learning process (Torrance, 2007). The traditional written exam format with extensive problem solving can itself be tweaked to assess analytical skills. If such an exam is designed following best practice guidance and marking criteria (see, for example, Walstad, 2001), laid out clearly and in advance for students to engage with, such a process can facilitate reflection and self-assessment on the part of the student. This process can also be used to design peer

assessment tasks, and research shows that peer and self-assessment enables students to learn in a more effective fashion (Dochy et al., 1999).

Just as important as the design of assessment is the process of feedback or 'feed-forward'. While feedback for formative assessment, which does not count towards the final mark, may be viewed by lecturers as most important for students, feed-forward, that is, guidance on how to improve performance in the next assessment, may be viewed by students as just as important. In addition, it is clear from student surveys across the UK, both at the module level and at the institution level, that feedback is at the top of the list of issues students are dissatisfied with. This presents a quandary – on the one hand, actionable feedback of high quality requires significant time and effort, while, on the other hand, the increasing size of the student body in economics at most universities implies less and less time available to the marker. Nicol (2010) suggests ways to address this issue by considering the feedback process as a dialogue between learners and assessors. Online assignment submission portals such as Turnitin (discussed in the Case study below) allow markers to save common comments in a set of 'Quickmarks', which can then be added to a submission with a single click. Such software also allows the provision of audio comments, which may be quicker for the marker as well as being a more effective way for the learner to internalise the feedback. An additional way to improve feedback is to facilitate dialogue between learners, such as with two-stage exams (Weiman et al., 2014), which harnesses the benefits of peer learning for technical assessments.

The issue with cohort size is felt most acutely for research-based assessments, which may be most effective in measuring the acquisition of the skills highlighted in the previous section. This is particularly problematic, as research-based 'take-home' assignments can be used to assess both written, and, if there is a presentation element, verbal communication skills. One solution to this is to assign group research projects. The First-Year Challenge, discussed in Case study 20.1, is one such project, showing that this kind of assessment can be tailored to beginners, as well as upper-year students. A major concern with group assessments is, of course, free-riding, but that may be addressed through a process of peer review of individual contributions, such as the system used in team-based learning (Lane, 2012). Peer assessment is clearly a useful way to get around the problem of providing actionable feedback to large cohorts of students. There are several examples of how to structure a task where peer

assessment is not just a solution to this feasibility problem, but is also the best way to learn. (Dochy et al., 1999)

### Case study 20.3: Harnessing technology to diversify assessment in large cohorts

As economics programmes are often large, a guiding principle for designing assessment methods is the feasibility of providing actionable feedback to such groups. This includes choosing assessments and marking rubrics that facilitate quick marking turnaround times as well as redefining feedback processes to harness the power of working with large groups. This case study reviews the advances in educational technology that can be used to facilitate this trend.

The popularity of multiple-choice assessments in economics is partly due to the large amount of technical material that forms a foundation in the first year or two of the undergraduate degree, and partly due to the large cohorts involved. Most Virtual Learning Environments (VLEs), such as Moodle, have built-in quiz functions, and most textbook publishers have large test banks that lecturers can draw from. VLEs also have functionality for producing numerical problems where the parameters are randomised to produce different questions for different students or attempts (see, for example, this [Moodle](#) guide). Research shows that even within such structured assessments, design and structure are crucial in facilitating deep learning (Buckles and Siegfried, 2006). Guidance on writing multiple-choice assessments abounds in the literature (e.g., Brame, 2013). In addition, other quiz designs, such as using adaptive learning, whereby the questions respond to the student's level of understanding as measured by answers to previous questions, are becoming more popular in economics. Pezzino (2018) details how to programme such a quiz using MapleTA software.

As discussed in the preceding section, research-based assignments provide an opportunity to assess analytical and communication skills but may be difficult to mark in large groups. Here again, modern technology can help. Most VLEs have built-in assignment submission portals such as Turnitin that embed marking rubrics, facilitating more efficient feedback processes and also providing an initial plagiarism check. The evidence of the efficacy of such rubrics is mixed, but Reddy and Andrade (2010) provide guidelines for designing better rubrics. Once these rubrics are in place on the VLE, they can be made visible to the students

as well, so that they can use these guidelines to complete their assignments. In the feedback process, the marker can comment on whether the criteria have been met and assign marks accordingly. These marks are then automatically fed into the VLE's built-in gradebook for students to see. When designed well, such a process increases the transparency of the marking and feedback process. In addition, many large economics modules may have multiple markers, often teaching assistants, which can result in uneven marking across different students. The VLE marking rubrics can help reduce this problem. Finally, software plug-ins such as Turnitin have an automatic plagiarism check which compares each submission to a large bank of submissions from around the world, published articles and so on, and produces a similarity score. While this is not a way to detect all kinds of plagiarism, it can be useful, as it highlights to students the importance of citations. As the merits of a research-based education become clear, finding ways to use educational technology to find feasible ways to test these skills is imperative and this case study provides initial guidelines for such a process.

### Interrogating practice

1. How are your students currently assessed and does the assessment measure acquisition of the skills and competencies that you think are most important?
2. How well do you think the current design of assessment in your courses serves the needs for your student body (thinking about their demographic and other characteristics)?

### Overview

This chapter has reviewed the biggest issues surrounding university teaching in economics, including engagement with technical concepts, assessment and feedback, and provided guidance on ways to address these challenges. The popularity of economics as a university subject, both in single honours and joint degrees, is a mixed blessing for universities and lecturers. While this means that our classrooms are full and our programmes are unlikely to be under threat due to lack of demand, it also increases the difficulty of designing a teaching and learning process which is a dialogue rather than a traditional passive, sage-on-the-stage content delivery process. In recent years, the advent of technology has enabled economics

lecturers to address some of these challenges by using in-class polling software, online marking processes and harnessing the power of large groups through peer learning activities.

The unique position of economics as a heavily technical subject within the social sciences means that economics education can and should borrow from the best practices in both the STEM subjects as well as from other social science subjects. The skills and competencies that are most valuable to our students, for example, empirical analysis, team working and written and verbal communication, are also ones that may be particularly difficult to assess, so special care needs to be taken in designing assessment that accurately measure acquisition of such skills. This chapter provides ideas as to how to do this, and further reading listed below is a good starting point for lecturers looking to develop assignments that embody such skills.

As economics lecturers, we are privileged to have an opportunity to teach and influence a large number of young people, only a few of whom will go on to further study in economics and become academic economists. All of them will, however, have the opportunity and, indeed, the need to use economics skills in their everyday lives and in their jobs, and as citizens and voters. This means that their understanding of complex but crucial issues such as migration, education, government debt and spending, and how markets work and what to do when they fail is something that will be important to them no matter what they go on to do after university. For this reason, dedicating time and effort to developing a curriculum and teaching and assessment methods that facilitate deep learning of economics is of paramount importance to anyone working in higher education.

## Further reading

Hoyt, G and McGoldrick, K (Eds.) (2011) *International Handbook on Teaching and Learning Economics*. Cheltenham, UK: Edward Elgar.

The Economics Network's website has a large number of case studies and other teaching resources: <https://www.economicsnetwork.ac.uk/journals>

Main journals dedicated to issues in economics education:

*International Review of Economics Education*

*Journal of Economic Education*

*Journal of Economics Teaching*

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