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Introduction

ECONOMICS TODAY AND TOMORROW

Economics comes in for plenty of criticism. It is not hard to understand why, given that events like the 2008–2009 financial crisis, the Brexit vote in the UK, or even the rise of populism across the western democracies, seemed to catch the economics profession off-balance. Yet many criticisms of the subject long pre-date these specific events, while the substance of what most of them say has not changed since at least the early 2000s: economists make assumptions about people being selfish, calculating individuals; economics is all complicated mathematics and ignores the real world; economists only care about money and profit, not about truly valuable things like the environment. These are familiar accusations, given a new edge by events. Yet at the same time, economics has become more successful than ever in terms of its influence on policy-making, or more materially in terms of the incomes economics graduates can earn (Britton et al. 2020).

The unchanging critique is deeply frustrating to many of us in the economics profession because it sets up straw men, while ignoring deep-seated problems that are likely to present more significant challenges. Economics has changed a lot in recent decades. It needs to change a lot in future—but the critique needs to move on too, to address what really needs attention.

To take the issues with critique first, one of its standard elements is that economics uses abstract models written down in mathematical formulae. There is certainly abuse of mathematical formalism in economics (Romer 2015), but every discipline uses 'models' in the sense of selecting a small number of elements in the complex world to investigate causal relations. 'The causes of the first world war' is a model, just as much as Gary Becker's (1965) theory of time allocation.

Another common criticism is that economics ignores history, including its own history of thought. Many of us would love economic history to return to its former place as a standard part of the curriculum—a trend that has already started in many courses. So too has the teaching of the links between historical events, the history of economic ideas, and policy choices (something covered in Chapter Six). Research in economic history is thriving currently, albeit from a small base, and so too is institutional economics, for which understanding historical context is essential.

This criticism therefore has merit but those who deploy it are somewhat ahistorical themselves in refusing to recognise that the discipline has been changing dramatically during the past thirty years. There has been a substantial turn away from theory to empirical work (Angrist et al. 2017). Most economists do applied microeconomic research, where data sets, econometric techniques, computer power, and a lively methodological debate about causal inference mean there has been an effective revolution in knowledge and practice since the 1980s. Economics is at the forefront of using new massive data sets—'big data' (Athey 2017). None of the recent critics (such as Skidelsky 2020) acknowledge this. Indeed most critics only discuss macroeconomics (the study of the aggregate behaviour of the economy as a whole), which is an easy target because macroeconomic forecasting is genuinely difficult, far harder than weather forecasting.

A different type of criticism reflects mutually incompatible views about whether there can be advances in economic knowledge. Heterodox critics advocate pluralism in approaches to economics (for example, Earle, Moran, and Ward-Perkins 2016). They seem to see the subject as comparable to the humanities, where fundamental truths do not exist and ultimately researchers' values determine their conclusions. The main body of the economics profession—label it mainstream or neoclassical or even neoliberal—believes that knowledge about economics does accumulate (although none want economics to be just like physics, as some critics continue to claim; true in the 1950s or '60s perhaps, but not in the 2020s). All economists would agree that values and ideologies affect policy choices. Many think it possible nevertheless to separate empirical knowledge—how much is a higher tax rate likely to reduce demand for sugary drinks?—from political values—should the government protect consumers from their own bad choices?

To my mind, values cannot be wholly separable from empirical investigation, and yet it is important for economists to aspire to be as impartial as possible. Economic knowledge certainly accumulates. If we had not learned lessons from the experience of the 1930s, the consequences of the 2008–9 financial crisis would have been far more severe, and governments would not have introduced furlough schemes during the coronavirus lockdowns. If we had not created and learned from market design (defining the rules that make markets work well), far fewer of the apps on our phones could work.

There are other important differences between economics and its critics. One is whether it is ever acceptable to put monetary values on intrinsically good things like nature or human life. The economists' answer is that there are implicit valuations made whenever people make choices about where to build roads or what safety features to require of new products, so is it not better to be explicit about those judgements? These are healthy debates, generally with constructive mutual engagement among the participants. Indeed, some leading economists have begun to argue for a closer dialogue between economics and ethics (Bowles 2016), and to identify the importance of identity (Akerlof and Kranton 2010), and narrative and persuasion (Shiller 2019). This engagement with the humanities is necessary and welcome (Morson and Shapiro 2016).

A number of studies have also noted the (unmerited?) 'superiority' or 'imperialism' of economics or, in other words, economists' confidence that their approach is best when it comes to answering questions or addressing policy problems (for example, Fourcade, Ollion, and Algan 2015). This is slowly changing, albeit with further to go. One piece of evidence is the growing cross-citation among the social sciences (Angrist et al. 2020). Although it is still an unbalanced trade in the sense that economics is cited more by the other disciplines than vice versa, the trend is for more cross-fertilisation. Anybody supervising PhD students or mentoring younger colleagues will know about the geyser of interest in broad societal problems requiring interdisciplinary work across the natural and social sciences and the arts and humanities.

Another welcome change in recent years is the gathering pace of curriculum reform. As explained in the text, this was prompted by a combination of some effective student protests in countries from Chile to the UK about the inadequacy of their economics courses in teaching real-world issues with unease among university teachers and employers about what economics graduates had learned. I have been part of the coalition of economists around the world devising and making freely available a curriculum significantly different from the Economics 101 norm, changing the benchmark way of thinking about the world that students learn in what is often their first encounter with economics (Bowles and Carlin 2020). Many universities are adopting the new framework.

This book reflects my frustration with the straw men arguments because, as well as ignoring welcome changes in economics and in the way it is taught, they have allowed economists to overlook or deny some things that are badly wrong with the discipline, both in its intellectual approach and in the ways economists are so unrepresentative of the societies we aim to study.

In recent years, in a succession of public lectures, I have addressed some of these issues. Economists do not introspect much about deep methodological questions. The lectures on which this book builds had as one thread some key philosophical issues in economics itself: to what extent is economics performative, or self-fulfilling? Can a social science ever aspire to objectivity when its practitioners are part of society? What policy conclusions can we possibly draw from economics when it assumes people have fixed preferences—an assumption torpedoed by the existence of the advertising industry? Has methodological individualism run out of road as the structure of the economy shifts to activities involving ever greater externalities and non-linear dynamics? A second thread is that the way in which the economy is changing, particularly because of digitalisation, means that our analysis of it needs to change. These threads explain the title of this book, *Cogs and Monsters*: the cogs are the self-interested individuals assumed by mainstream economics, interacting as independent, calculating agents in defined contexts. The monsters are snowballing, socially-influenced, untethered phenomena of the digital economy, the uncharted territory where so much is still unknown (labelled 'Here be monsters', on mediaeval maps). In treating us all as cogs, economics is inadvertently creating monsters, emergent phenomena it does not have the tools to understand.

There are, though, yet more important criticisms of economics today, concerning the sociology and culture of the discipline, and its shocking lack of diversity (in a broad sense).

There is a persuasive body of knowledge about the importance of cognitive diversity in solving problems and running organisations (Page 2007). Many of us now live in societies that are more diverse than in the past in terms of backgrounds and experiences. Diversity of experience matters in any social science because the questions researchers even think to ask are shaped by their own experience: you don't know what you don't know, and most of us are not able to imagine the shape of that unknown territory.

Economics stands out as one of the least diverse disciplines, even as it wields great practical influence, particularly over government policies that affect everyone in society. The subject's gender and ethnicity record is unacceptable. Economics is one of the most male-biased academic disciplines (Ceci et al. 2014). Although this has improved in US academia, just 14.5 percent of full professors were female in 2019, and 21.2 percent of all tenure-track academics; cold comfort that the former figure has doubled since 1994. The pipeline shrinks at each career stage, with 33.5 percent of economics undergraduate majors being female, and 32.2 percent of PhD students.[1] For the UK, against a background of improvement over a 20-year period, 20 percent of the academic workforce was female by 2016, but just 16.6 percent of full professors (Sevilla and Smith 2020). A recent study of European departments based on web-scraped data (rather than surveys) found that the representation of women falls from about 40 percent at the entry level to 22 percent among full professors (Auriol et al. 2020). There is additionally a lack of ethnic and cultural diversity in economics, although fewer survey results are available. One US study found that in 2015–2016 15.6 percent of economics degrees were awarded to members of minority groups.[2] In the UK in 1999 the figure was 12 percent (Blackaby and Frank 2000); absent later data, experience suggests it has changed little since then. Social class is less well measured still, but it is likely that the social experience of economics students in the UK at least has been getting narrower because an increasing proportion of its undergraduate students attend private schools. In contrast to some other disciplines, including many of the natural sciences, there has been little improvement in diversity in economics.

There is now a growing body of research showing that female economists are at a disadvantage. We publish less than male economists on average, and female-authored papers at some elite journals are subjected to extended review times (Hengel 2020). Card et al. (2020, 14) write: 'Editors appear to be gender-neutral in the value they place on the recommendations of male

1. Committee on the Status of Women in the Economics Profession Annual Report 2019, https://www.aeaweb.org/content/file?id=11630.

2. Report of the Committee on the Status of Minority Groups in the Economics Profession (CSMGEP) December 2017, https://www.aeaweb.org/content/file?id=6592.

and female referees. . . . However, all referees appear to hold female-authored papers to a higher bar than male-authored papers, if we measure paper quality by citations. All-female-authored papers receive about 25 percent more citations than similar male-authored papers.' Women work on average with smaller networks of co-authors, which also tends to result in fewer publications (Ductor, Goyal, and Prummer 2020). The evidence for cumulative career disadvantage is powerful.

This lack of diversity matters for several reasons. One consequence is that academic economics in particular has a more aggressive culture than most other disciplines—reinforcing the gender bias in the profession. Any of us attending economics seminars will have experienced the frequent, challenging interruptions of speakers right from the start, making it impossible for them to present their work and get a constructive discussion, and silencing many voices in the room. Women presenters in seminars are asked more questions, and more that are perceived as unfair, than do men (Modestino et al. 2020). This alpha male, aggressive culture spills over into unacceptable behaviour more widely: Alice Wu made global headlines with her study of the macho, misogynist website Economics Job Market Rumors (Wu 2018). Other female economists and economists of colour have widely reported experiences ranging from constantly being patronised to outright harassment (for example, Sahm 2020).

Furthermore, the male domination of economics seems to shape the intellectual character of the discipline in ways that are unhealthy for a social science with so much influence on policy and society. The narrow frame of reference due in part to a limited range of life experiences shapes economists' ideas about which research questions are important and interesting. These ideas, and what gets researched, determine government policies, which in turn affect people's lives and choices. Yet women and people of colour will generally have different experiences, challenges, and priorities than affluent white men. More subtly, the values of economists and those of the population as a whole seem to diverge. Surveys show wide gaps between economists' views and public opinion on a range of policy questions, including politically contentious ones (e.g., Johnston and Ballard 2016). Economists have been found to be more individualist and even to be less pro-social than their peers (Bauman and Rose 2011; Frank, Gilovich, and Regan 1993), with some debate as to whether these types of people self-select into economics or whether learning the subject makes them this way.

The #metoo and #BlackLivesMatter movements have had an impact here as elsewhere. Professional organisations including the American Economic Association and the Royal Economic Society have responded to the lack of diversity and inclusivity in just the last two years or so. Their initial focus has been on gender and ethnicity. Change is clearly intended, with campaigns to attract students from a wider range of backgrounds,[3] new mentoring programmes, codes of conduct,[4] and above all much discussion and a growing awareness of the cultural and intellectual issues among the largely middle-class white male profession. How far this reaches inside the discipline is another matter: changes in social norms always take some time. Powerful male elites in top-rank American universities, gatekeepers to publication in the 'Top Five' journals necessary for good jobs and promotion, are adept at self-perpetuation.

3. Arun Advani, Rachel Griffith, and Sarah Smith, 'Economics in the UK Has a Diversity Problem That Starts in Schools and Colleges', https://voxeu.org/article/increasing-diversity-uk-economics.

4. American Economic Association, 'AEA Code of Professional Conduct', https://www.aeaweb.org/about-aea/code-of-conduct.

Economics still needs to confront these questions, ranging from the social make-up of the profession to its substantive intellectual content. I care deeply about these;[5] but this book reflects on the broader character of economics, not only its lack of inclusivity, and how the subject needs to change to be relevant for the rest of the twenty-first century. The issues covered here concern the fundamental paradigm—the subject's philosophical roots in utilitarianism, the validity of the distinction between positive and normative economics, the character of dynamic socio-economic systems that do not conform to the standard assumptions, the role of social influence in a discipline built on methodological individualism, and the scope for a powerful social science to alter its own subjects of study.

Although building on a number of public lectures given between 2012 and 2020, the material has been updated and set in a narrative arc illustrating the significant changes in economics that have occurred during the past decade. The book is aimed at general readers, not just economists. This is not only to focus attention on real challenges for economics rather than the straw man critiques, but also because the public appetite to understand the economy is intense. This is an extraordinary time in world history. The coronavirus pandemic means that people in every country have been experiencing an unprecedented economic shock, more sudden and severe than the Great Depression. It has galvanised the economics community, prompting a vast amount of new research and policy analysis, and stimulating many economists to engage with epidemiology and the biomedical sciences (Coyle 2020a). I

5. 'Women and Economics: Sixth 2018 Coleridge Lecture', https://www.ideasfestival.co.uk/blog/coleridge-lectures/coleridge-lecture-women-and-economics/, accessed 2 August 2020.

have been closely involved in this effort in the UK, particularly in the creation of an online observatory, ECO, synthesising the state of knowledge about the crisis.[6] Economics has a lot to offer in insight and advice to the policy-makers grappling with immense societal problems—not just the pandemic and its aftermath but also global environmental emergencies, and slow growth in economic opportunities along with unsustainable inequalities. This is the moment for economics to rise to the challenges set out here.

The book begins with the questions raised by the 2008–9 financial crisis. Chapter One explores the extent to which economics—specifically financial economics in this case—actually shapes the world rather than just analysing it. In other social sciences this phenomenon is called performativity. It is not unrelated to the more widespread notion of 'reflexivity' or the feedback between causal actor and effect. Many economists argue that economics played only a minor role in the crisis, upstaged by greed, or bad regulation. This is not the perception of non-economists, who also question why so few economists—with notable exceptions—predicted the crisis. Many critics do believe economics has shaped our societies for the worse, and whether you agree with them or not, this question should be confronted. The chapter puts the question of the responsibility of economics for events (in part I) in the context of the responsibilities of economics given the increasingly powerful role of economics in public policy (in part II). Even if you do not think economics is in any way performative, the latter responsibilities need to be taken more seriously than ever in an era when expertise is doubted or challenged. Economics is really once again political economy, just as it used to be known.

6. www.economicsobservatory.com/.

Chapter Two amplifies the theme of how hard it is to analyse the society you are part of, looking particularly at macroeconomics—the study of the economy as a whole, the behaviour of inflation, unemployment, interest rates, and growth. It was more justifiable to criticise macroeconomics in 2012 than it is now. There has been substantial subsequent change, prompted by the shock of the financial crisis. While there has undoubtedly been significant progress, my doubts about macroeconomics—unpopular among many colleagues—remain, for reasons explained here. In the public mind, too, it is macroeconomists who represent the technocratic elite.

The book then turns to the areas that are the bread and butter for a majority of economists, whether in the academic world or in policy, namely applied microeconomics. Most of us do not do macroeconomic forecasting, high profile as it is. Rather we are concerned with specific areas such as how competition in the food retailing industry works, what the effects of specific tax or benefit changes will be, which policy interventions will do most to help children struggling at school get better grades and life opportunities, or how firms learn about new production technologies and what makes them invest. The aim is often to figure out whether there is a better way of doing things in the specific context. Chapter Three questions some standard presumptions about what we take to be 'better', concerning assumptions we make about the way individuals take decisions, our own role as analysts of society in trying to change society—not only whether objectivity is possible (or do our own values always come into play?) but also what it means for things to be getting better? What does 'better' mean and for whom?

Chapter Four extends this to a world where policy decisions are increasingly being taken algorithmically, by machine learning systems which are programmed to decide as we economists assume individuals decide: by seeking the best possible outcome for ourselves individually, on a well-specified definition of 'best'. Machine learning systems are being created in the image of the famous (or notorious) *homo economicus*, the calculating, self-interested individual. The chapter introduces the question of data—the facts we think we know in analysing the economy or making policy decisions. In the world of artificial intelligence, the evident problems of data bias mean people are becoming well aware that available data sets are in no way an objective picture of society but rather a portrait that is painted by society, its power structures and classifications. Although economists are big users of data, including big data, paying impressively careful attention to questions of causality and bias in data samples, fewer have thought about the construction of the data they use. My preoccupation has largely been macroeconomic data, and the fact that the variables we read about in the news all the time—GDP and inflation—are ideas. We can try to measure these concepts more accurately, for sure, but they are not natural objects in the world. The same is true of many of the constructs in empirical social science.

The final two chapters pull together the threads—do we shape the society we analyse, can we hope to be objective, what do we mean by economic progress or policies making things 'better', is the individualism we assume valid?—in the context of the digital, twenty-first-century economy. Chapter Five concerns the economic analysis and Chapter Six the implications for policy applications. I argue here that the ways technology is changing the economy make these questions more acute. It is becoming harder to understand from existing data whether or not there is economic progress when the available statistics present a fixed portrait of a changing landscape—as if maps were trying to measure the depth of a river in its old location when it has actually changed its course. But the more fundamental point is that the question of economic progress needs addressing in a different way to take account of the way the digital economy has been increasing our inter-relatedness (so individualism is ever less appropriate) and has different economic characteristics from the pre-digital economy.

This Introduction ends on a personal note. One of the early UK victims of Covid19 was Peter Sinclair, Professor of Economics at the University of Birmingham. He was my undergraduate tutor at Brasenose College, Oxford, whose enthusiasm and commitment to teaching turned me into an economist, and whose wisdom, concern for others, engagement with practical policy challenges, and range of knowledge made me the particular kind of economist I became. His widow, Jayne, found among the belongings returned to her by the hospital some notes he had scribbled before he lost consciousness. They seemed to be his thoughts about how to bring about an economic recovery from this crisis. We will have to recover without him, without the many other victims of the pandemic, which has taken such a terrible human toll. It is the responsibility of economists to ensure we contribute as best we can to the needed rebuilding.

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