

MACROECONOMICS

A EUROPEAN PERSPECTIVE

Fourth Edition

OLIVIER BLANCHARD
ALESSIA AMIGHINI
FRANCESCO GIAVAZZI

 Pearson



MACROECONOMICS



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PREFACE

This new European edition of *Macroeconomics* is based on and extends the well-tested US edition as well as the experience of previous European editions in national languages – French, German, Spanish and Italian – some of which have been used in universities around Europe for many years (the Italian edition since 1998).

We had three main goals in writing this book:

- To make close contact with current macroeconomic events. What makes macroeconomics exciting is the light it sheds on what is happening around the world, from the major economic crisis that engulfed the world in the late 2000s, to monetary policy in the United States, to the problems of the Euro area, to growth in China. And this is, most likely, the first economics textbook with a chapter fully dedicated to analysing the macroeconomic consequences of the pandemic produced by the COVID-19 virus. These events – and many more – are described in the book, not in footnotes, but in the text or in detailed ‘Focus’ boxes. Each box shows how you can use what you have learned to get an understanding of these events. Our belief is that these boxes not only convey the life of macroeconomics, but also reinforce the lessons from the models, making them more concrete and easier to grasp.
- To provide an integrated view of macroeconomics. The book is built on one underlying model, a model that draws the implications of equilibrium conditions in three sets of markets: the goods market, the financial markets and the labour market. Depending on the issue at hand, the parts of the model relevant to the issue are developed in more detail while the other parts are simplified or lurk in the background. But the underlying model is always the same. This way, you will see macroeconomics as a coherent whole, not a collection of models. And you will be able to make sense not only of past macroeconomic events but also of those that unfold in the future.
- To use macro to understand Europe. Throughout this edition, Europe is at the centre of the examples used to illustrate the working of macroeconomics. From comparing the Fed with the European Central Bank, to analysing the problems arising in the attempt to conduct a common fiscal policy with 27 independent countries, to an evaluation of ‘European Austerity’ in 2010–15, to a discussion of ‘Irish Leprechaun economics’.

Solving learning and teaching challenges

Flexible organisation

The book is organised around two central parts: a core, and a set of two major extensions. An introduction precedes the core. The two extensions are followed by a review of the role of policy. The book ends with an epilogue. The flowchart at the beginning of this book makes it easy to see how the chapters are organised and fit within the book’s overall structure.

- Chapters 1 and 2 introduce the **basic facts and issues of macroeconomics**. Chapter 1 takes you on an economic tour of the world, from the United States, to the euro area, and to China. Some instructors will prefer to cover Chapter 1 later, perhaps after Chapter 2, which introduces basic concepts, articulates the notions of short run, medium run and long run, and gives the reader a quick tour of the book.

While Chapter 2 gives the basics of national income accounting, we have put a detailed treatment of national income accounts in Appendix 1 at the end of the book. This decreases the burden on the beginner reader and allows for a more thorough treatment in the appendix.

- Chapters 3 through 13 constitute the **core**. Chapters 3 through 6 focus on the **short run**. Chapters 3 to 5 characterise equilibrium in the goods market and in the financial markets, and derive the basic model used to study short-run movements in output, the IS-LM model. Chapter 6 extends the basic IS-LM model to reflect the role of the financial system. It then uses it to describe what happened during the initial phase of the financial crisis. Chapters 7 through 10 focus on the **medium run**. Chapter 7 focuses on equilibrium in the labour market and introduces the notion of the natural rate of unemployment. Chapter 8 derives and discusses the relation between unemployment and inflation, known as the Phillips curve. Chapter 9 develops the IS-LM-PC (PC for Phillips curve) model, which takes into account equilibrium in the goods market, in the financial markets, and in the labour market. It shows how this model can be used to understand movements in activity and movements in inflation, both in the short and in the medium run. And chapter 10 uses the model developed so far, along with other models, to analyse the effects of the COVID-19-induced pandemic of 2020. Chapters 11

through 14 focus on the **long run**. Chapter 11 describes the facts, showing the evolution of output across countries and over long periods of time. Chapters 12 and 13 develop a model of growth and describe how capital accumulation and technological progress determine growth. Chapter 14, which is new, focuses on the challenges to growth, from inequality to climate change.

- Chapters 15 through 21 cover the two major **extensions**. Chapters 15 through 17 focus on the role of expectations in the short run and in the medium run. Expectations play a major role in most economic decisions and, by implication, play a major role in the determination of output. Chapters 18 through 21 examine the implications of openness of modern economies. Chapter 21 looks at the implications of different exchange rate regimes, from flexible exchange rates, to fixed exchange rates, currency boards and dollarisation.
- Chapters 22 through 24 return to **macroeconomic policy**. Although most of the first 20 chapters constantly discuss macroeconomic policy in one form or another, the purpose of Chapters 22 through 24 is to tie the threads together. Chapter 22 looks at the role and the limits of macroeconomic policy in general. Chapters 23 and 24 review fiscal and monetary policy. Some instructors may want to use parts of these chapters earlier. For example, it is easy to move forward the discussion of the government budget constraint in Chapter 23 or the discussion of inflation targeting in Chapter 24.
- Chapter 25 serves as an **epilogue**; it puts macroeconomics in historical perspective by showing the evolution of macroeconomics over the last 80 years, discussing current directions of research and the lessons of the crisis for macroeconomics.

Alternative course outlines

Within the book's broad organisation, there is plenty of opportunity for alternative course organisations. We have made the chapters shorter than is standard in textbooks and, in our experience, most chapters can be covered in an hour and a half. A few (Chapters 5 and 9, for example) might require two lectures to sink in.

- Short courses (15 lectures or fewer)

A short course can be organised around the two introductory chapters and the core (Chapter 14 can be excluded at no cost in continuity). Informal presentations of one or two of the extensions, based, for example, on Chapter 17 for expectations (which can be taught as a standalone) and on Chapter 18 for the open economy, can then follow, for a total of 14 lectures.

A short course might leave out the study of growth (the long run). In this case, the course can be organised around the introductory chapters and Chapters 3 through 9 in the core; this gives a total of 9 lectures, leaving enough time to cover, for example, Chapter 17 on expectations and

Chapters 18 through 20 on the open economy, for a total of 13 lectures.

- Longer courses (20 to 25 lectures)

A full semester course gives more than enough time to cover the core, plus one or both of the two extensions, and the review of policy. The extensions assume knowledge of the core, but are otherwise mostly self-contained. Given the choice, the order in which they are best taught is probably the order in which they are presented in the book. Having studied the role of expectations first helps students to understand the interest parity condition and the nature of exchange rate crises.

Innovative features

We have made sure never to present a theoretical result without relating it to the real world. In addition to discussions of facts in the text itself, we have written many Focus boxes, which discuss particular macroeconomic events or facts from the United States, Europe or around the world. Many of those are new to this edition.

We have tried to recreate some of the student–teacher interactions that take place in the classroom by the use of margin notes, which run parallel to the text. The margin notes create a dialogue with the reader and, in so doing, smooth the more difficult passages and give a deeper understanding of the concepts and the results derived along the way.

For students who want to explore macroeconomics further, we have introduced the following two features:

- Short appendices to some chapters, which expand on points made within the chapter.
- A 'Further reading' section at the end of most chapters, indicating where to find more information, including key internet addresses.

Each chapter starts with a one- or two-sentence key message at the end of the introduction, and ends with three ways of making sure that the material in the chapter has been digested:

- A summary of the chapter's main points.
- A list of key terms.
- A series of end-of-chapter exercises. 'Quick check' exercises are easy. 'Dig deeper' exercises are a bit harder and 'Explore further' activities typically require either access to the internet or use of a spreadsheet program.
- A list of symbols at the end of the book makes it easy to recall the meaning of the symbols used in the text.

What is new in this edition?

- A new Chapter 14 on the challenges to growth. Topics include whether the introduction of robots will lead to mass unemployment, the relation between growth and inequality, and the challenges of climate change.

- A revised Chapter 8 on the Phillips curve, reflecting a major change in the US economy. The Phillips curve is now a relation between inflation and unemployment rather than between the change in inflation and unemployment.
- A revised Chapter 9 showing how the changes in the Phillips curve relation have led to changes in monetary policy.
- A totally new chapter 10 on the pandemic that uses both the model analysed up to this point in the book and with a two-sector model that allows for sectors with different exposures to the virus to react differently.
- A new appendix in Chapter 1, ‘What do macroeconomists do?’ which will give you a sense of what careers you may pursue if you were to specialise in macroeconomics.
- Updated Focus boxes include:
 - NEW! Will bitcoins replace dollars? (Chapter 4)
 - From Henry Ford to Jeff Bezos (Chapter 7)
 - NEW! Nudging US households to save more (Chapter 11)
 - What lies behind Chinese growth? (Chapter 12)
 - Uncertainty and fluctuations (Chapter 16)
 - NEW! US trade deficits and Trump administration Trump Tariffs (Chapter 19)
 - NEW! The Fed’s 2020 Monetary Policy Review (Chapter 24)
 - NEW! Austerity in Europe in 2010–13 (Chapter 17)
 - NEW! Irish ‘Leprechaun economics’ (Chapter 18)

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Olivier Blanchard
Alessia Amighini
Francesco Giavazzi

Washington and Milan, September 2020

THE CORE

INTRODUCTION

The first two chapters of this book introduce you to the issues and the approach of macroeconomics.

Chapter 1

Chapter 1 takes you on a macroeconomic tour of the world. It starts with a look at the economic crisis that has shaped the world economy since the late 2000s. The tour then stops at each of the world's major economic powers: the United States, the euro area and China.

Chapter 2

Chapter 2 takes you on a tour of the book. It defines the three central variables of macroeconomics: output, unemployment and inflation. It then introduces the three time periods around which the book is organised: the short run, the medium run and the long run.

Chapter 1

A TOUR OF THE WORLD

What is macroeconomics? The best way to answer is not to give you a formal definition, but rather to take you on an economic tour of the world, to describe both the main economic evolutions and the issues that keep macroeconomists and macroeconomic policymakers awake at night.

At the time we write, economic policymakers are not sleeping better than they did a few years ago. At the beginning of 2020, the world population was hit by a serious pandemic caused by COVID-19, a new coronavirus that forced entire countries into quarantine and stopped production in many sectors. The March 2020 forecast by the International Monetary Fund predicts that in 2020 world output will fall by about 5%, from a 3% growth in 2019. The world economy had just been hit by a disastrous economic crisis in 2008, the deepest since the Great Depression in 1929. World output growth, which typically runs at 4–5% a year, was negative in 2009. Since then, growth has turned positive, and the world economy has largely recovered. But the crisis, now known as the *Great Financial Crisis*, has left several scars, and some worries remain. Today, however, the pandemic will cause an even deeper recession.

Our goal in this chapter is to give you a sense of these events and of some of the macroeconomic issues confronting different countries today. We shall start with an overview of the two crises that hit the world economy in the XXI century and then focus on the three main economic powers of the world: the United States, the euro area and China.

- Section 1.1 looks at the pandemic crisis in 2020.
- Section 1.2 looks at the crisis in 2008–9.
- Section 1.3 looks at the United States.
- Section 1.4 looks at the EU and the euro area.
- Section 1.5 looks at China.
- Section 1.6 concludes and looks ahead.

Read this chapter as you would read an article in a newspaper. Do not worry about the exact meaning of the words or about understanding the arguments in detail: the words will be defined, and the arguments will be developed in later chapters. Think of this chapter as background, intended to introduce you to the issues of macroeconomics. If you enjoy reading this

chapter, you will probably enjoy reading this book. Indeed, once you have read it, come back to this chapter; see where you stand on the issues, and judge how much progress you have made in your study of macroeconomics.

If you do not, please accept our apologies . . .

If you remember one basic message from this chapter, it should be: economies, like people, get sick – high unemployment, recessions, financial crises, low growth. Macroeconomics is about why it happens, and what can be done about it.

1.1 THE PANDEMIC OF 2020

As we write, a serious recession has just begun in the world, with few precedents in history. In just four months, the pandemic caused by the COVID-19 virus spread from the Chinese city of Wuhan throughout the world. This is an event that will mark this century, as last century was marked by the ‘Spanish’ flu of 1918, a virus that caused more deaths than the First World War.

Recessions are often triggered by the imbalances that an economy has accumulated over the years and that, at some point, prove unsustainable. Two examples: the over-investment in real estate, at the origin of the 1920 and 2008 recessions, and the *dot.com* bubble on Wall Street that burst in 2001. How long these recessions last depends on how long it takes to correct the imbalances that caused them in the first place. As we can see in Figure 1.1, the Great Depression, which started in the United States in 1929, lasted 43 months, while the most recent one, which started in 2007 – and will be the subject of our next paragraph – lasted 18 months. This is the time it took to repair the financial system infected by sub-prime mortgages (more on this in Chapter 6).

Recessions caused by a pandemic are different. They are not produced by any imbalance in the economy, but rather by an exogenous and unexpected shock, the diffusion of a virus. This shock affects the economy in three ways. First, by breaking the production chains.

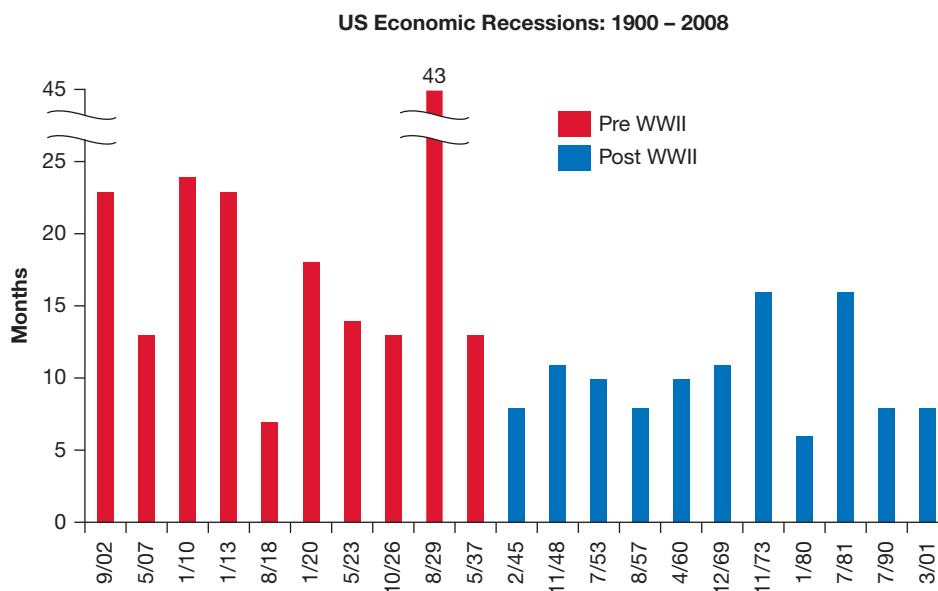


Figure 1.1
Duration (in months) of US recessions since 1900

Source: NBER, Deutsche Bank Global Research, Wikipedia.

For example, companies that produce using intermediate goods imported from China – which in the past 20 years has become ‘the factory of the world’ – are no longer able to source inputs because, at the beginning, many Chinese factories were closed and, when they reopened, the transport system had come to a standstill. Second, to slow the spread of the virus, most countries have chosen to limit the mobility of people and many – all those who cannot work remotely – have stopped working, as vividly shown in Figure 1.2. Intermediate goods and workers, as we shall see in the next chapters, are essential factors of production, without which companies cannot produce. Their disappearance has therefore represented a ‘supply shock’, i.e. a shock that has limited production (more on this in Chapter 10).

But there is a third factor: the closure of factories and shops, and the associated fall in family incomes – since not all workers receive unemployment benefits – has caused a sudden slowdown in consumption. The ‘supply shock’ has therefore been accompanied by a ‘demand shock’, that is a fall in consumption. All this happened in the space of a few weeks at the beginning of March 2020 and the effect on the economy was brutal, as can be seen in Figure 1.3, showing the US unemployment rate which jumped in less than a month from 4 to 15% of the workforce.

How long will this recession last? To answer this question, it is useful to study a historical precedent: the 1918–19 pandemic, the so-called ‘Spanish flu’, caused by a virus similar in

Daily NYC subway turnstile usage in 2020

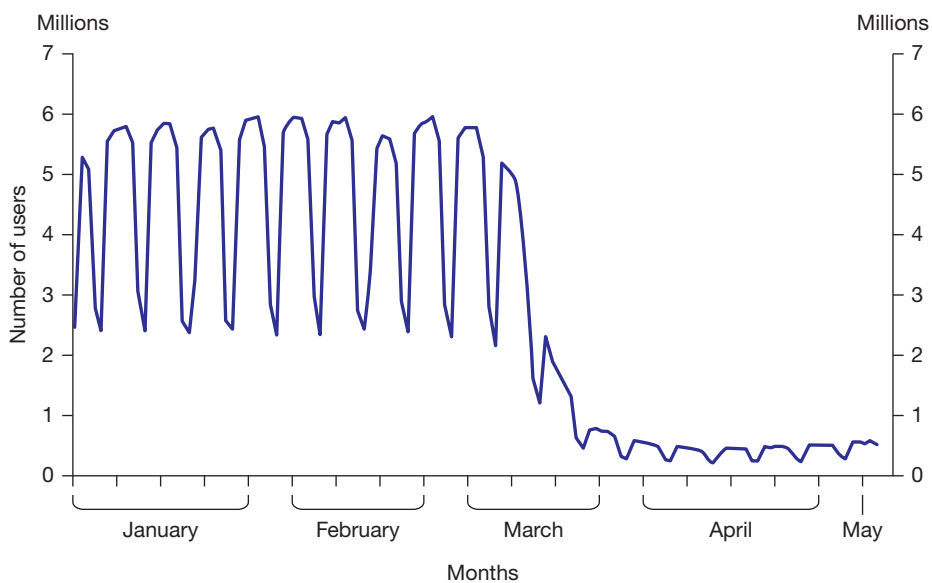


Figure 1.2
Daily subway turnstile accesses in the NYC subway in 2020

Source: MTA, Bloomberg Finance LP, Deutsche Bank Global Research.

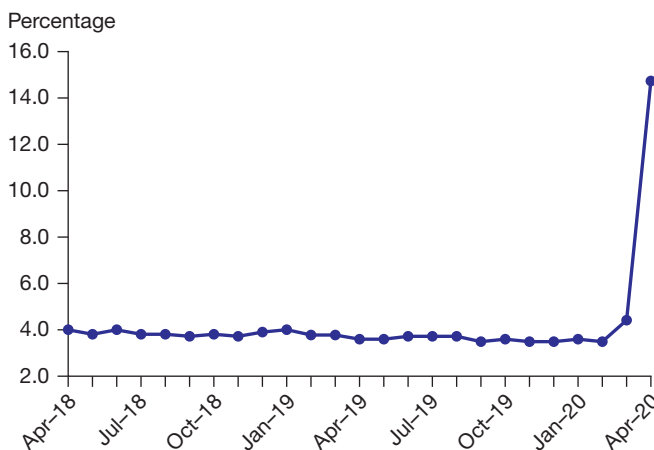


Figure 1.3
Impact of COVID-19 on the US unemployment rate

Source: US Department of Labor.

many ways to COVID-19 and which, in 1918–19, infected about 500 million people worldwide and killed an enormous number: between 50 and 100 million out of a then world population of about 2 billion. The recession caused by the Spanish flu lasted only seven months in the United States, as shown in Figure 1.1, the second shortest recession of the last century. And this, despite the fact that the epidemic manifested itself in three distinct waves, occurred in spring 1918, autumn 1918 and winter 1918–19 respectively. The relative brevity of that recession is partly due to the fact that, unlike today, back then people were not forced to ‘stay at home’ to stop the propagation of the virus. This had two consequences: first, the virus spread rapidly, almost everyone was infected and many died (0.5% of the US workforce), but those who survived became immune and continued to work. The factories lost few workers, they didn’t close and, as a result, the recession was short. To assess how long the COVID-19 recession will last, one therefore needs to ask how long the social distancing rules will last and how stringent they will be. The longer and more stringent they are, the lower the mortality rate, but the longer the recession will be.

Longer, however, does not mean deeper. The Spanish flu had an interesting characteristic. At the time, the prescription to ‘stay at home’ was not applied homogeneously: the decision was left to individual cities, and the rules in some cities were more restrictive than in others. Studying the different effect of that pandemic on US cities it was observed that cities that imposed more severe restrictions on the freedom of movement suffered less economic damage. This was probably because fewer deaths were recorded and, by the time the epidemic ended, less human capital had been lost.

What do we know about the COVID-19 pandemic? Figure 1.4 shows the effect of the social distancing rules on the consumption of Spanish households. The figure shows the (annualised) growth rate of total daily expenditure in Spain in the first quarter of 2020. Consumption is stable until the beginning of March, before the lockdown. From 8 March, the day when the lockdown was announced, and until it came into force, we see a significant increase in the nominal amount of expenditure, which reaches growth rates of 36.2% on the day immediately before the legislation came into force. With the start of the lockdown, we see a sharp drop in expenditure. Nominal daily expenditure on durable goods fell by 48.6%.

In April 2020, the International Monetary Fund (IMF) produced the first forecasts of the world economy during and after the pandemic (Figure 1.5). Compared to the pre-pandemic

◀ ('Fight the Pandemic, Save the Economy: Lessons from the 1918 Flu' by S. Correia, S. Luck and E. Verner, *Liberty Street Economics*, New York, 2020)

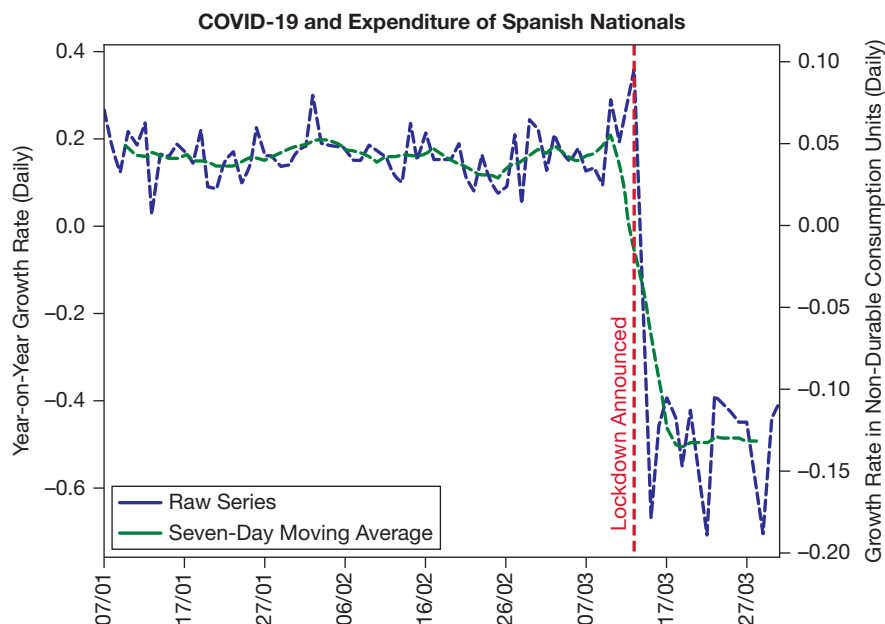


Figure 1.4
Consumption and the lockdown during COVID-19 in Spain

Source: <http://covid.econ.cam.ac.uk/images/carvalho-figures/fig5.png>.

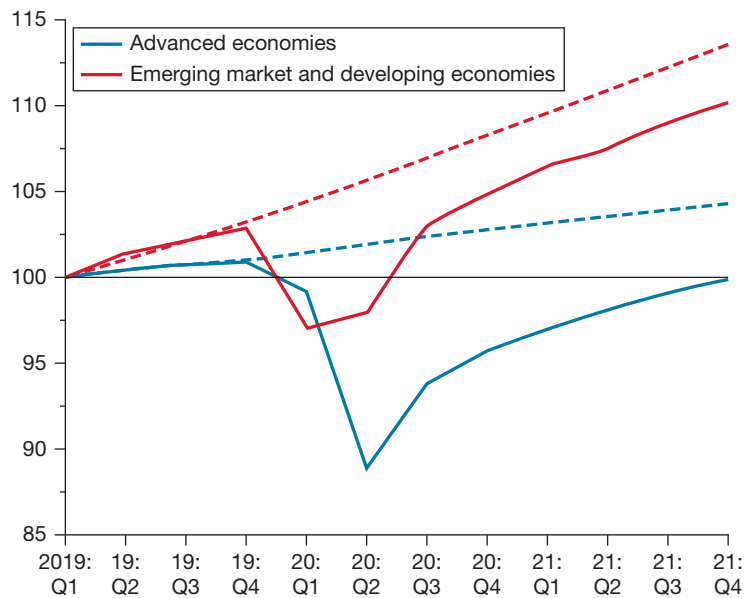


Figure 1.5
IMF estimates of GDP quarterly growth rates in advanced, emerging and developing economies

Source: IMF, *World Economic Outlook*, April 2020.

forecasts (the dotted lines), GDP in advanced countries was expected to fall by almost 15% in the second quarter of 2020, a fall that had never been observed in recent centuries. The recovery, however, at least according to the IMF, should be fairly rapid, although much less rapid than after the Spanish flu: at the end of 2021, i.e. seven quarters after the shock, GDP should return to pre-shock levels and 5% below the level it would have reached in the absence of the pandemic. It is interesting to note that the recessionary effect is smaller for developing countries. Three months later, in June 2020, these forecasts were revised downward, by 2% for 2020 world growth, which was therefore expected to contract by 5%.

One of the most astonishing consequences of the lockdown, and the associated disappearance of private and most of public transport, was the abrupt fall in oil consumption. Demand for oil fell so much that, in April 2020 (see Figure 1.6), producers were willing to pay for oil to be stored: the price of oil became negative, as low as -\$20 per barrel – reflecting the cost of storing a commodity that had no better use.

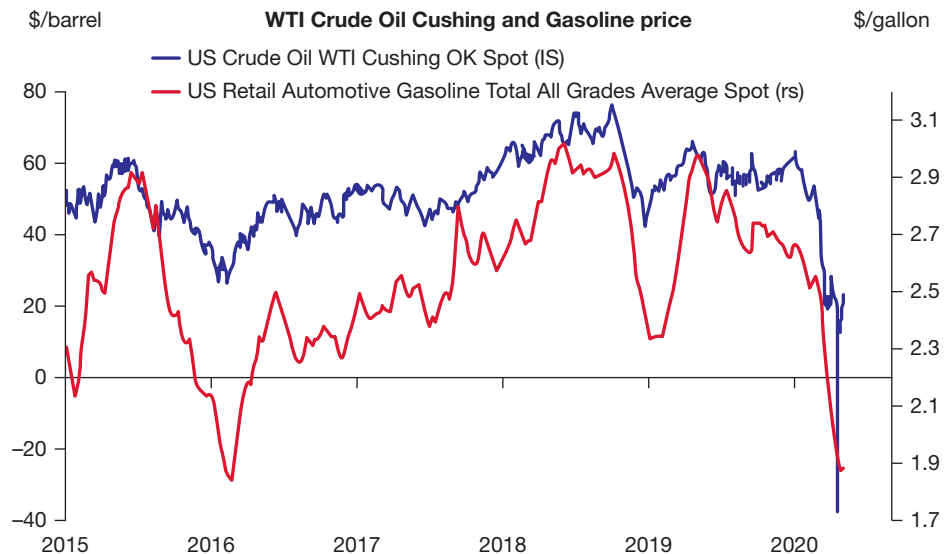


Figure 1.6
Oil prices

1.2 THE CRISIS OF 2008–9

Figure 1.7 shows output growth rates for the world economy, for advanced economies, and for emerging and developing economies, separately, since 2000. As you can see, from 2000 to 2007 the world economy had a sustained expansion. Annual average world output growth was 4.5%, with advanced economies (the group of 30 or so richest countries in the world) growing at 2.7% per year, and emerging and developing economies growing at an even faster 6.6% per year.

In 2007, however, signs that the expansion might be coming to an end started to appear. US housing prices, which had doubled since 2000, started declining. Economists started to worry. Optimists believed that, although lower housing prices might lead to lower housing construction and to lower spending by consumers, the Federal Reserve Bank (the US central bank, called the Fed for short) could lower interest rates to stimulate demand and avoid a recession. Pessimists believed that the decrease in interest rates might not be enough to sustain demand and that the United States might go through a short recession.

Even the pessimists turned out not to be pessimistic enough. As housing prices continued to decline, it became clear that the problems were deeper. Many of the mortgages that had been sold during the previous expansion were of poor quality. Many of the borrowers had taken too large a loan and were increasingly unable to make the monthly payments. And, with declining housing prices, the value of their mortgage often exceeded the price of the house, giving them an incentive to default. This was not the worst of it: the banks that had issued the mortgages had often bundled and packaged them together into new securities and then sold these securities to other banks and investors. These securities had then often been repackaged into yet new securities, and so on. The result is that many banks, instead of holding the mortgages themselves, held these securities, which were so complex that their value was nearly impossible to assess.

This complexity and opaqueness turned a housing price decline into a major financial crisis, a development that few economists had anticipated. Not knowing the quality of the assets that other banks had on their balance sheets, banks became reluctant to lend to each other for fear that the bank to which they lent might not be able to repay. Unable to borrow, and with assets of uncertain value, many banks found themselves in trouble. On 15 September 2008, a major bank, Lehman Brothers, went bankrupt. The effects were dramatic. Because the links between Lehman and other banks were so opaque, many other banks appeared at risk of going bankrupt as well. For a few weeks, it looked as if the whole financial system might collapse.

‘Banks’ here actually means ‘banks and other financial institutions’. But this is too long to write and I do not want to go into these complications in Chapter 1.

Olivier Blanchard started his job as chief economist of the International Monetary Fund two weeks before the Lehman bankruptcy. He says he faced a steep learning curve.

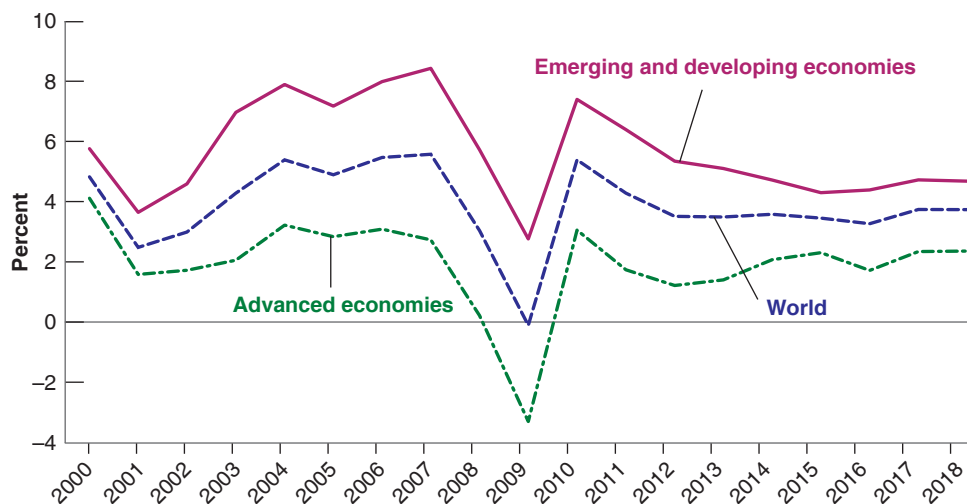


Figure 1.7
Output growth rates for the world economy, for advanced economies and for emerging and developing economies, 2000–18

Source: IMF, World Economic Outlook Database, July 2018. NGDP_RPCH.A.