

**Tor Vergata University of Rome**

Faculty of Economics

B.Sc. in Business Administration and Economics

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## **MACROECONOMICS**

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### **Summary and Learning Objectives**

The purpose of this course is to examine the fundamental elements of macroeconomic theory. The study of the main theoretical models is combined with the analysis of data and empirical regularities. At the end of the course, students will be able to:

- (i) investigate the interactions between macroeconomic variables;
- (ii) analyze the effects of fiscal and monetary policies;
- (iii) evaluate theories from the empirical evidence;
- (iv) use both theory and evidence to derive corrective policy actions for economic and financial crises.

### **Topics**

**Topic 1. Introduction to Macroeconomics.** Definition. The questions of macroeconomics: the business cycle; economic growth; unemployment; the course of public finance; inflation. Stylized facts and comovements: The Okun law; the Phillips curve. The birth of macroeconomics: the Great Depression, Keynes, and the Classics. The method of macroeconomics: models; rationality; equilibrium; aggregation. Agents and markets. A simplified model to identify macroeconomic equilibria. Budget constraints and the Walras law. Flexible prices, the law of demand and supply, and the neoclassical equilibrium. Fixed prices, the effective demand principle, and the Keynesian equilibrium. Voluntary and involuntary unemployment. Short run vs long run. Macroeconomics after Keynes.

**Topic 2. The Income-Expenditure Model.** Nominal and real GDP. Domestic production and domestic income. The disposable income. Potential output, effective output, and aggregate expenditure. Aggregate expenditure and effective demand. Stylized facts on consumption and investment. The Keynesian consumption function. Microfoundations of the consumption function. The consumer's intertemporal budget constraint. The optimal choice. Consumption smoothing. The role of expectations. Permanent vs transitory shocks. The income-expenditure (YE) model with households and firms. The Keynesian cross. Dynamic stability. The Keynesian multiplier. Comparative statics. Shocks and propagation. The Keynesian interpretation of the Great Depression. The YE model with production-lags. The saving function. Saving and investment. The paradox of thrift.

**Topic 3. The Income-Expenditure Model: Extensions.** The YE model with households, firms, and the public sector. The consumption function with the State. Positive vs normative perspective. Countercyclical fiscal policy vs austerity. Budgetary plans to escape recessions and depressions. The budgetary multipliers. Budgetary policy and fiscal deficits. Fiscal deficits and the business cycle. Cyclical deficits and structural deficits. Fiscal policy and public debt dynamics. Debt crises. The sustainability of fiscal policy. Options to preserve public solvency: austerity; the inflation dividend; the growth dividend. The case of balanced-budget policy rules. The balanced budget theorem. Fiscal space and the Laffer curve.

**Topic 4. Investment, Bonds, and Interest.** Investment decisions. Capitalized vs present value. Criteria for the investment choice: the net present value criterion; the internal rate of return criterion. The role of expectations. The Modigliani-Miller theorem. Investment decisions and the zero lower bound on nominal interest rates. The investment function. Interest rate and the YE model. The IS schedule. Comparative statics and dynamics of the IS schedule. The bond market. Bond prices and the interest rate. The Say law. The link between the bond market and the money market. The role of the central bank.

**Topic 5. Money.** Definition of money. Functions of money. Money and financial assets. The money market. Money supply and the monetary base. The currency-to-deposit ratio and the reserve-to-deposit ratio. The deposit multiplier. Bank run, credit crunch, and money supply. Channels of creation of monetary base. Central bank's control over money supply: independence from the government, open market operations, management of the discount rate and reserve requirements. Money demand: the transactions motive; the precautionary motive; the speculative motive. The liquidity trap. The money demand function. Microfoundations of the money demand function. The LM schedule. Comparative statics and dynamics of the LM schedule.

**Topic 6. The IS-LM Model.** The Walras law with the money market. Solution of the IS-LM model. Dynamic stability. Fiscal policy transmission mechanism. The monetary retroaction effect. Crowding out of private investments. Monetary policy transmission mechanism. The Keynes effect. Interactions between monetary and fiscal policy. The monetarist interpretation of the Great Depression. The zero-lower-bound problem. Escaping liquidity traps: Fiscal stimulus vs unconventional monetary policy. Quantitative easing. Credit easing. Exchange rate policy.

**Topic 7. Open Economies.** The balance of payments. Nominal and real exchange rates: definitions and stylized facts. Exchange-rate regimes. The historical evolution of exchange-rate systems. Globalization and the bipolar view. The Walras law in open economy. Macroeconomic adjustments under fixed and flexible exchange rate regimes. The Marshall-Lerner condition. Capital mobility. Saving and the current account. The IS-LM model with households, firms, the public sector, and the foreign sector: Mundell-Fleming setups. Implications for monetary, fiscal, and exchange-rate policies.

**Topic 8. Variable Prices.** Nominal and real variables. Absence of money illusion. The IS-LM model with variable prices. The AD schedule. The Keynes effect and the Pigou effect. Comparative statics of the AD schedule. Derivation of the AS schedule. Perfect vs imperfect competition. The AD-AS model. Demand-side policies. Supply-side policies and structural reforms: cut in the tax wedge; productivity-oriented policies; competition-oriented policies. Differences between demand- and supply-side policies.

**Topic 9. Macroeconomic Equilibrium, Employment, and Unemployment.** Short-run equilibrium and the level of employment. The labor market. Labor demand and supply. Micro-foundations of the labor supply function: labor and leisure. Involuntary unemployment. Contract and wage dynamics. Wage devaluation. The long-run equilibrium of the AD-AS model. Short run vs long run. Market vs economic policy. Income distribution. The AD-AS model and Pareto efficiency. The AD-AS model in logarithms. Short-run and long-run solutions. Money neutrality. The quantitative theory of money.

**Topic 10. Inflation.** Definition. Two simple expressions for the inflation rate. The AD-AS model and inflation. The cost-inflation theory. The wage-price spiral. Inflation as a distributive conflict. The case of the 1970s. The demand-inflation theory. Overheating and inflation. The 2021-23 inflation surge. Inflation and Pareto efficiency. The costs of inflation. The Phillips curve. The policymaker's loss function. Optimal inflation. Optimal vs effective levels of inflation. Inflation and seignorage. Inflation and expectations. Adaptive vs rational expectations. The unpleasant monetarist arithmetic. Hyperinflation.

**Topic 11. Expectations and Economic Policy: Neoclassical Macroeconomics.** Keynesians vs. Neoclassicals. The pure Neoclassical model. Money neutrality, productivity shocks, and real business cycles. Comparison with the stylized facts. Friedman's corrections. The Monetarist model and the adaptive expectations hypothesis. The expectations-augmented Phillips curve. The Monetarist dynamics of output and inflation. The New Classical Macroeconomics (Lucas) model and the rational expectations hypothesis. The economic policy ineffectiveness proposition. The Lucas critique.

**Topic 12. Expectations and Macroeconomics: New Keynesian Macroeconomics.** Keynesian approach and expectations. Nominal rigidities. The New Keynesian AS schedule. The central bank's information advantage. Stabilization policies. Central bank's credibility. The time inconsistency problem. The inflation bias. Disinflation and expectations. Central bank's reputation, delegation, and independence. Discretion vs commitment in policy making.

## Core Learning Material

The central learning resources to prepare the final exam are the on-class lectures accompanied by Lecture Notes and Problem Sets, available in the section *Teaching material*.

## Optional Readings

Standard Macroeconomics textbooks employing analytical frameworks comparable to those adopted in our course are:

- A. Abel, B. Bernanke and D. Croushore, *Macroeconomics*, Prentice Hall, 2020.
- O. J. Blanchard, *Macroeconomics*, Prentice Hall, 2021.
- R. Dornbusch, S. Fischer and R. Startz, *Macroeconomics*, McGraw-Hill, 2018.
- R. T. Froyen, *Macroeconomics: Theories and Policies*, Prentice Hall, 2023.
- R. J. Gordon, *Macroeconomics*, Prentice Hall, 2021.
- S. D. D. Williamson, *Macroeconomics*, Prentice Hall, 2023.

## Exam

The exam is made up of two parts: a written exam and an oral exam, held on two different days.

**Written exam:** Six questions (four theoretical and two numerical exercises). Duration: two hours. Problem Sets are crucial to prepare. Specimen exam papers are available in the section *Teaching material*.

**Oral exam:** Discussion of the written answers and in-depth focus on theoretical issues.

## Thesis and Research Readings

Students interested in developing their Bachelor thesis in Macroeconomics are expected to connect their work to the topics discussed in the course. A non-exhaustive list of research readings for each topic is provided as a starting point.

### 1. Empirical Regularities

- 1.1 D. Miles, A. Scott and F. Breedon (2012), *Macroeconomics, Understanding the Global Economy*, Chs. 1, 2.
- 1.2 S. Basu and A. M. Taylor (1999), “Business Cycles in International Historical Perspective,” *Journal of Economic Perspectives* 13, pp. 45–68.
- 1.3 A. Shleifer (2009), “The Age of Milton Friedman,” *Journal of Economic Literature* 47, pp. 123–135.

- 1.4 C. M. Reinhart and K. S. Rogoff (2008), “Is the 2007 US Sub-Prime Financial Crisis So Different?” *American Economic Review* 98, pp. 339–344.
- 1.5 F. S. Mishkin (2011), “Over the Cliff: From the Subprime to the Global Financial Crisis,” *Journal of Economic Perspectives* 25, pp. 49–70.
- 1.6 D. E. Bloom, M. Kuhn and K. Prettnner (2022), “Modern Infectious Diseases: Macroeconomic Impacts and Policy Responses,” *Journal of Economic Literature* 60, pp. 85–131.
- 1.7 B. Beach, K. Clay and M. Saavedra (2022), “The 1918 Influenza Pandemic and Its Lessons for COVID-19,” *Journal of Economic Literature* 60, pp. 41–84.

## 2. Fiscal Policy

- 2.1 D. Miles, A. Scott and F. Breedon (2012), *Macroeconomics, Understanding the Global Economy*, Chs. 10 (up to 10.7), 14, 18.
- 2.2 M. Browning and T. F. Crossley (2001), “The Life-Cycle Model of Consumption and Saving,” *Journal of Economic Perspectives* 15, pp. 3–22.
- 2.3 J. Stiglitz (2008), “The Triumphant Return of John Maynard Keynes,” *Project Syndicate*.
- 2.4 N. G. Mankiw (2010), “Questions about Fiscal Policy: Implications from the Financial Crisis of 2008–2009,” *Federal Reserve Bank of St. Louis Review*, May/June, pp. 177–183.
- 2.5 A. J. Auerbach, W. G. Gale and B. H. Harris (2010), “Activist Fiscal Policy,” *Journal of Economic Perspectives* 24, pp. 141–164.
- 2.6 P. R. Lane (2012), “The European Sovereign Debt Crisis,” *Journal of Economic Perspectives* 26, pp. 49–68.
- 2.7 F. M. Martin and C. J. Waller (2012), “Sovereign Debt: A Modern Greek Tragedy,” *Federal Reserve Bank of St. Louis Review*, Sept/Oct, pp. 321–340.
- 2.8 B. Eichengreen and U. Panizza (2014), “A Surplus of Ambition: Can Europe Rely on Large Primary Surpluses to Solve its Debt Problem?,” *NBER Working Paper 20316*.
- 2.9 European Central Bank (2016), “Government Debt Reduction Strategies in the Euro Area,” *Economic Bulletin* 3.
- 2.10 R. Hanna and B. A. Olken (2018), “Universal Basic Incomes versus Targeted Transfers,” *Journal of Economic Perspectives* 32, pp. 201–226.
- 2.11 P. Yared (2019), “Rising Government Debt: Causes and Solutions for a Decades-Old Trend,” *Journal of Economic Perspectives* 33, pp. 115–140.
- 2.12 European Central Bank (2019), “Fiscal Rules in the Euro Area and Lessons from other Monetary Unions,” *Economic Bulletin* 3.
- 2.13 European Central Bank (2022), “Next Generation EU: A Euro Area Perspective,” *Economic Bulletin* 1.

- 2.14 A. Alesina, C. Favero and F. Giavazzi (2019), “Effects of Austerity: Expenditure- and Tax-Based Approaches,” *Journal of Economic Perspectives* 33, pp. 141–162.
- 2.15 O. Blanchard, A. Leandro and J. Zettelmeyer (2020), “Redesigning EU Fiscal Rules: From Rules to Standards,” *Economic Policy*.
- 2.16 R. Reis (2022), “Debt Revenue and the Sustainability of Public Debt,” *Journal of Economic Perspectives* 36, pp. 103–124.
- 2.17 K. J. Mitchener and C. Trebesch (2023), “Sovereign Debt in the 21st Century,” *Journal of Economic Literature* 61, pp. 565–623.

### 3. Monetary Policy

- 3.1 D. Miles, A. Scott and F. Breedon (2012), *Macroeconomics, Understanding the Global Economy*, Chs. 10 (from 10.8), 13.
- 3.2 C. Crowe and E. E. Meade (2007), “The Evolution of Central Bank Governance around the World,” *Journal of Economic Perspectives* 21, pp. 69–90.
- 3.3 B. S. Bernanke (2013), “A Century of US Central Banking,” *Journal of Economic Perspectives* 27, pp. 3–16.
- 3.4 J. von Hagen (2009), “The Monetary Mechanics of the Crisis,” *Bruegel Policy Contributions* 335.
- 3.5 D. C. Wheelock (2010), “Lessons Learned? Comparing the Federal Reserve’s Responses to the Crises of 1929-1933 and 2007-2009,” *Federal Reserve Bank of St. Louis Review*, Mar/Apr, pp. 89–107.
- 3.6 G. Gorton and A. Metrick (2012), “Getting Up to Speed on the Financial Crisis: A One-Weekend-Reader’s Guide,” *Journal of Economic Literature* 50, pp. 128–150.
- 3.7 B. S. Bernanke and A. S. Blinder (1988), “Credit, Money, and Aggregate Demand,” *American Economic Review* 78(2), pp. 435–439.
- 3.8 B. S. Bernanke and M. Gertler (1995), “Inside the Black Box: The Credit Channel of Monetary Policy Transmission,” *Journal of Economic Perspectives* 9, pp. 27–48.
- 3.9 R. Reis (2013), “Central Bank Design,” *Journal of Economic Perspectives* 27, pp. 17–44.
- 3.10 J. E. Ihrig, E. E. Meade and G. C. Weinbach (2015), “Rewriting Monetary Policy 101,” *Journal of Economic Perspectives* 29, pp. 177–198.
- 3.11 R. Böhme, N. Christin, B. Edelman and T. Moore (2015), “Bitcoin: Economics, Technology, and Governance,” *Journal of Economic Perspectives* 29, pp. 213–238.
- 3.12 K. N. Kuttner (2018), “Outside the Box: Unconventional Monetary Policy in the Great Recession and Beyond,” *Journal of Economic Perspectives* 32, pp. 121–146.
- 3.13 G. Dell’Ariccia, P. Rabanal and D. Sandri (2018), “Unconventional Monetary Policies in the Euro Area, Japan, and the UK,” *Journal of Economic Perspectives* 32, pp. 147–172.

- 3.14 R. Baldwin and B. W. di Mauro (Eds.) (2020), *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever It Takes*, CEPR Press.
- 3.15 European Central Bank (2020), “Negative Rates and the Transmission of Monetary Policy,” *Economic Bulletin* 3.
- 3.16 A. Metrick (2023), “The Failure of Silicon Valley Bank and the Panic of 2023,” *Journal of Economic Perspectives* 38, pp. 133–152.
- 3.17 A. S. Blinder (2023), “Landings, Soft and Hard: The Federal Reserve, 1965–2022,” *Journal of Economic Perspectives* 37, pp. 101–120.

#### 4. Exchange Rate Regimes and Macroeconomic Policies

- 4.1 D. Miles, A. Scott and F. Breedon (2012), *Macroeconomics, Understanding the Global Economy*, Chs. 19, 21.
- 4.2 IMF (2004), “Classification of Exchange Rate Arrangements and Monetary Policy Frameworks,” <http://www.imf.org/external/np/mfd/er/2004/eng/0604.htm>.
- 4.3 S. Fischer (2001), “Exchange Rate Regimes: Is the Bipolar View Correct?” *Journal of Economic Perspectives* 15, pp. 3–24.
- 4.4 B. Laurence and E. G. de la Piedra (1998), “Coordination of Monetary and Fiscal Policies,” *IMF Working Paper* 98/25.
- 4.5 European Central Bank (2012), “The Monetary and Fiscal Policy Interactions in a Monetary Union,” *ECB Monthly Bulletin*, July, pp. 51–64.
- 4.6 F. P. Mongelli (2008), “European Economic and Monetary Integration and the Optimum Currency Area Theory,” *Economic Papers* 302.
- 4.7 R. Beetsma and M. Giuliodori (2010), “The Macroeconomic Costs and Benefits of the EMU,” *Journal of Economic Literature* 48, pp. 603–641.
- 4.8 O. Accominotti and B. Eichengreen (2013), “The Mother of All Sudden Stops: Capital Flows and Reversals in Europe, 1919–32,” *NBER Working Paper* 19580.
- 4.9 J. Stiglitz (2014), “Can the Euro Be Saved?” *Rivista di Politica Economica* 3, pp. 7–42.
- 4.10 M. Obstfeld and A. M. Taylor (2017), “International Monetary Relations: Taking Finance Seriously,” *Journal of Economic Perspectives* 31, pp. 3–28.
- 4.11 T. Sampson (2017), “Brexit: The Economics of International Disintegration,” *Journal of Economic Perspectives* 31, pp. 163–184.
- 4.12 P. R. Lane (2021), “The Resilience of the Euro,” *Journal of Economic Perspectives* 35, pp. 3–22.
- 4.13 K. Rogoff (2022), “Emerging Market Sovereign Debt in the Aftermath of the Pandemic,” *Journal of Economic Perspectives* 36, pp. 147–166.

## 5. Unemployment, Inflation and the Role of Economic Policy

- 5.1 D. Miles, A. Scott and F. Breedon (2012), *Macroeconomics, Understanding the Global Economy*, Chs. 7, 11, 12, 15.
- 5.2 D. Romer (2000), “Keynesian Macroeconomics without the LM Curve,” *Journal of Economic Perspectives* 14, pp. 149–169.
- 5.3 O. J. Blanchard (2008), “The Crisis: Basic Mechanisms, and Appropriate Policies,” MIT Working Paper 09-01.
- 5.4 European Central Bank (2010), “The ECB’s Response to the Financial Crisis,” *ECB Monthly Bulletin*, Oct, pp. 59–74.
- 5.5 J. H. Powell (2020), “New Economic Challenges and the Fed’s Monetary Policy Review,” *Federal Reserve Bank of Kansas City Economic Symposium*, Jackson Hole.
- 5.6 C. Dustmann, B. Fitzenberger, U. Schönberg and A. Spitz-Oener (2014), “From Sick Man of Europe to Economic Superstar: Germany’s Resurgent Economy,” *Journal of Economic Perspectives*, pp. 167–188.
- 5.7 M. Friedman (1968), “The Role of Monetary Policy,” *American Economic Review* 58, pp. 1–17.
- 5.8 J. Cochrane (2009), “Are We All Keynesian Now?,” University of Chicago.
- 5.9 L. E. Ohanian (2010), “The Economic Crisis from A Neoclassical Perspective,” *Journal of Economic Perspectives* 24, pp. 45–66.
- 5.10 R. J. Gordon (2011), “The History of the Phillips Curve: Consensus and Bifurcation,” *Economica* 78, Special Issue: A. W. H. Phillips 50th Anniversary Symposium, pp. 10–50.
- 5.11 A. W. Lo (2012), “Reading about the Financial Crisis: A Twenty-One-Book Review,” *Journal of Economic Literature* 50, pp. 151–178.
- 5.12 S. Contessi, P. De Pace and L. Li (2014), “An International Perspective on the Recent Behavior of Inflation,” *Federal Reserve Bank of St. Louis Review* 3, pp. 267–294.
- 5.13 European Central Bank (2019), “Drivers of Underlying Inflation in the Euro Area Over Time: A Phillips Curve Perspective,” *Economic Bulletin* 4.
- 5.14 European Central Bank (2021), “Comparing Recent Inflation Developments in the United States and the Euro Area,” *Economic Bulletin* 6.
- 5.15 C. Binder and R. Kamdar (2022), “Expected and Realized Inflation in Historical Perspective,” *Journal of Economic Perspectives* 36, pp. 131–156.
- 5.16 J. H. Cochrane (2022), “Fiscal Histories,” *Journal of Economic Perspectives* 36, pp. 125–146.