

Macroeconomic Theory

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"In civilised society man stands at all times in need of the cooperation and assistance of great multitudes, while his whole life is scarce sufficient to gain the friendship of a few persons." - Adam Smith

On learning and knowing

There is an old experiment in which rodents are placed within a maze, with a reward waiting on the outside. In their first attempt, the poor rodents tend to take long to figure their way out. With repeated attempts they get out of the maze within shorter periods of time. Some view this as the rodents having 'learned' their way out of the maze. A wide variety of schooling systems parallel the rodent experiment, with students positioned to 'learn' rote tasks through repeated attempts, often rewarded with a promotion to more elaborate mazes. This is not the learning we intend at in this course. We intend to know the mice and maze, rather than the way out of the maze. There is therefore a need to tune one's brain before entering the course. A thorough reading of Grey Walter's "The Living Brain" may help in such tuning.

Overview of the course

Malawi's per capita income is less than 400 USD and Hong Kong's more than 45,000 USD. Why is Malawi poor and Hong Kong rich? In the half century between 1960 and 2010, per capita income in China grew by nearly 50-fold, however incomes in Burundi, Haiti, and Nicaragua did not change. What explains the differences in per capita income and growth rates? In the midst of the Great Depression of 1929 the unemployment rate in the US reached 25%. What causes such dramatic downturns in macroeconomic variables? And why do economies go through periodic ups and downs called 'business cycles'?

Macroeconomics is the study of the causes of growth and fluctuations in economic systems. While these may be 'macro phenomena', they emerge out of interactions between millions of economic agents, each pursuing their own ends. I will introduce you to what I think economists know, what we do not know, and invite you to

grapple with some open questions.

The course is composed of twelve modules. Module I sets the tone of this course, while modules II and III introduce market and government with an emphasis on the processes by which the two institutions come to guide so much of human activity. Modules IV to VIII concern themselves with the question of economic growth, while modules IX and X explore different business cycle theories. Module XI is on inflation and XII on unemployment. Each module has a set of Basic Readings, Further Readings, Video, and Audio. The readings contain complex ideas. Do not be overwhelmed or disheartened for the questions they address are intricate. Joseph Schumpeter says in the preface to *Business Cycles*: "The younger generation of economists should look upon this book merely as something to shoot at and start from as a motivated program for further research". I hope you look upon this course in the same spirit. And remember 'intelligence' is the brand name of 'hard work'. My lectures will not be a monologue regurgitation of the readings. Rather I will guide you through difficult terrain and point to forks ahead.

Undergraduate Students

Undergraduate students ought to study the material listed under Readings with an eye for ideas, concepts, and notions. Do not be burned by technicalities, lest you forgo the forest for the trees.

Graduate Students

Master's students ought to work through the mathematical and empirical parts of the material listed under Readings. Doctoral students ought to work through the material listed under Further Readings.

I. Beyond Reductionism and Wholism

Description Reductionism is the idea that the properties and dynamics of aggregate variables can be deduced from the properties of the component parts of the system. While wholism is the idea that aggregate variables have a life of their own, which need not and perhaps cannot be related to the behavior of component parts. Representative-agent macroeconomics has a reductionist flavor in so far as it attempts to deduce the behavior of macro variables from the primitives of individual economic actors. While Keynesian macroeconomics has a wholistic flavor in so far as it presumes certain relations between aggregate variables. In this course, we shall view macro variables as emerging from the interactions between parts, while at the same time supervening on their behavior. Aggregate variables like GDP are summations of the data generated by the interactions between millions of agents each pursuing their own goals.

Audio Branko Milanovic on "The Big Questions of Economics"

Video Alan Kirman on "Modeling the economy as a complex interactive system"

Readings

1. Warren (1948) "Science and complexity"
2. Kirman (1992) "Whom or what does the representative individual represent?"
3. Wagner (2012) "A macro economy as an ecology of plans"

Further Readings

1. Buchanan (1964) "What should economists do?"
2. Weiss (1969) "The living system: Determinism stratified"
3. Anderson (1972) "More is different"

II. The Market Process and Prices

Description In an economy with division of labor, each agent's consumption plan is a production plan for another agent. And each agent's production plan is a plan for other agents to use those goods. Similarly, households' plans to save will inevitably meet entrepreneurs' plans to invest, and workers' plans to acquire skills cannot be unrelated to firms' plans to hire. Though the plans of different agents are interdependent, each plan is formulated with limited knowledge about other plans. The plans of different agents are therefore not a priori consistent with each other. Put differently, it is possible that not all plans can be realised. In fact, it is through the market process of the failure of some plans and consequent adjustments that different plans in the economy come to have a semblance of coherence. The price system plays a role in signalling information necessary to dovetail the plans different agents. Prices allow agents to see how their plans fit within the constellation of all plans in the economy, many of which are well beyond their locality.

Audio Dan Klein on "Knowledge and coordination"

Video Peter Boettke on "The socialist calculation debate"

Readings

1. Hayek (1948) "The meaning of competition"
2. Mises (1949) "Human Action"
 - (a) Chapter XV "The market"
 - (b) Chapter XVI "Prices"
3. Lavoie (1985) "Coordination in society"

Further Readings

1. Hayek (1937) "Economics and knowledge"
2. Simon (1962) "The architecture of complexity"
3. Sugden (1989) "Spontaneous order"

III. The Political Process and Government

Description The political processes which form and run governments are nearly as complex as market processes. Much like in markets, economic actors within governments can be thought of as pursuing goals of their own, though within a wholly different setting. While market positions involve daily contestation, political contests occur once every few years. Furthermore, political contests typically occur over large bundles of goods which must be consumed by all voters, though not necessarily in equal quantities. The actors selected to office through these political processes are far from the benevolent despots who inhabit macroeconomics textbooks.

Audio Don Boudreaux on "Public Choice"

Video Gordon Tullock on "Collective preference and democracy "

Readings

1. Buchanan (1954) "Individual choice in voting and the market"
2. Niskanen (1968) "The peculiar economics of bureaucracy"
3. Yandle (1983), "Bootleggers and Baptists: The education of a regulatory economist"

Further Readings

1. Buchanan (1949) "The pure theory of government finance: A suggested approach"
2. Buchanan & Wagner (1978) "Democracy and Keynesian Constitutions: Political biases and economic consequences"
3. Olson (1993) "Dictatorship, democracy, and development"

IV. Some Facts about Economic Growth

Description It is widely recognized that economic wellbeing has considerably improved the last quarter of a millennia. But measuring these improvements is no easy task. Measuring improvements through a summative entity like the GDP is problematic because the basket of goods consumed changes dramatically with sustained economic growth. But physical measures of production are equally problematic because of the difficulties associated with relating these with consumer welfare. Despite these conceptual and statistical difficulties, there are certain trends in aggregate variables that characterize sustained economic growth.

Audio Paul Romer on Growth

Video Smith's Theory of Growth

Readings

1. Nordhaus (1996) "Do real-output and real-wage measures capture reality? The history of lighting suggests not"
2. Easterlin (2000) "The worldwide standard of living since 1800"
3. Jones & Romer (2010) "The new Kaldor facts: Ideas, institutions, population, and human capital"

Further Readings

1. Pritchett (1997) "Divergence, big time"
2. Hall & Jones (1999), "Why do some countries produce so much more output per worker than others?"
3. Easterly & Levine (2001) "What have we learned from a decade of empirical research on growth? It's Not Factor Accumulation"

V. Specialization, Exchange, and Generalized Increasing Returns

Description When two or more individuals divide up a production process, with each performing some portion of the task, the total output tends to be more than what would have been achieved with each performing each task. In other words, division of labor tends to increase productivity. The division of labor however generates the need for exchange because individuals no longer produce all that they consume. And exchange requires institutional settings to agree upon prices and swap titles to property. Indeed, the journey from poverty to riches is little more than increasing division of labor, or concomitantly the progressive development of institutions that facilitate exchange.

Audio Edmund Phelps on "Mass Flourishing"

Video Don Boudreaux on "Division of labor"

Readings

1. Smith (1776) "An Inquiry into the Nature and Causes of the Wealth of Nations"
 - (a) Book 1 Chapter 1 "Of the causes of improvement in the productive powers of labour"
 - (b) Book 1 Chapter 2 "Of the principle which gives occasion to the division of labour"
 - (c) Book 1 Chapter 3 "That the division of labour is limited by the extent of the market"
2. Young (1928) "Increasing Returns and Economic Progress"
3. Bauer (2000) "From Subsistence to Exchange and Other Essays"
 - (a) Chapter 1 "From subsistence to exchange"
 - (b) Chapter 9 "Hong Kong"

Further Readings

1. Mises (1949) "Human Action"
 - (a) Chapter VIII "Human society"
 - (b) Chapter X "Exchange within society"
2. Buchanan & Yoon (2000) "A Smithean Perspective on Increasing Returns"

VI. Capital and Roundabout Production

Description The stock of capital of an economy consists of the variety of goods used in numerous intermediary stages of process of production. Put differently, capital is the means by which production extends itself over time. In modern economies, production does not occur through the application of raw labor to nature, but through the application of labor combined with tools, which themselves are produced. The production of tools, and tools to produce tools, generate what may be called a roundabout way of producing goods. This roundaboutness at once generates an advantage and a disadvantage. The advantage is that it is capable of generating a greater volume of goods, the disadvantage is that there is a waiting period between the application of raw labor and the fruition of final consumables.

Audio Paul Romer on "Growth"

Video Roger Garrison on "Capital Theory"

Readings

1. Bohm-Bawerk (1930), "The Positive Theory of Capital"
 - (a) Book II "Capital as an Instrument of Production"
2. Faber (1979) "Introduction to Modern Austrian Capital Theory"
 - (a) Part I Austrian Capital Theory and the Von-Neumann Model
 - (b) Part II Modern Austrian Capital Theory

Further Readings

1. Hayek (1941), "Pure Theory of Capital"
 - (a) Part III "Capitalist Production in a Competitive Community"
2. Solow (1994) "Perspectives on growth theory"

VII. Natural Resources, Population, and Knowledge

Description There are two distinct ways in which population can increase per capita income. The first is division of labor. More people allow for greater division of labor, which in turn increases productivity. The second is that people generate ideas for everyone to use. More people generate more ideas, which are the ultimate source of gains in productivity. Some believe high rates of economic growth are unsustainable because they deplete resources necessary for growth. Others believe there are no hard limits to growth. As a resource depletes, its price increases, and many minds attempt to find substitutes. The history of the last 200 years marks several instances of the discovery of new substitutes as old resources deplete. The human mind is the ultimate resource, perhaps an unlimited resource when it works in cooperation with other minds.

Audio John Christy and Kerry Emanuel on "Climate Change"

Video Julian Simon: "Economics of population" All six parts

Readings

1. Kremer (1993) "Population growth and technological change: One million BC to 1990"
2. Simon (1996) "The Ultimate Resource 2"
 - (a) Introduction
 - (b) Chapter 3 "Can the supply of natural resources, especially energy really be infinite? Yes!"
 - (c) Chapter 26 "Populations effect on technology and productivity"

Further Readings

1. Nordhaus (2007), "A review of the Stern review on the economics of climate change"
2. Stern (2008) "The economics of climate change"
3. Gordon (2013) "Thinking about economic growth: cities, networks, creativity and supply chains for ideas"

VIII. Institutions, Entrepreneurship, and Economic Growth

Description Institutions are embodied 'rules of the economic game', i.e. not merely written rules but also norms, behaviours, and collective memory. Economic actors face the choice between 'production and exchange' on the one hand and 'pillage and plunder' on the other hand. Economising agents choose between the two modes of action by evaluating their relative costs. And the costs depend on the rules of the economic game.

Economic growth is not merely creating more of existing goods but the creation of new goods, which are ultimately the outcome of new ways of doing things. Economic growth therefore is in some sense synonymous with the generation of novelty. However, not all novel ideas succeed. The majority of new products and new firms fail within the first year of existence. Entrepreneurship therefore is an experimental process whereby persons with peculiar psychological attributes propose certain ideas, which are tested in the market through the profit-loss calculus.

Audio William Easterly on "Benevolent autocrats and growth"

Video Pauline Dixon on "How private schools are serving the poorest"

Readings

1. Baumol (1996) "Entrepreneurship: Productive, unproductive, and destructive."
2. Olson (1996) "Big bills left on the sidewalk: Why some nations are rich, and others poor"
3. Holcombe (1998) "Entrepreneurship and Economic Growth"

Further Readings

1. Mises (1949)
 - (a) Chapter IX "The role of ideas"
 - (b) Chapter XXXIII "Syndicalism and corporativism"
2. Kerr, Nanda & Rhodes-Kropf (2014) "Entrepreneurship as experimentation"
3. Croix, Doepke & Mokyr (2018) "Clans, guilds, and markets: Apprenticeship institutions and growth in the preindustrial economy"

IX. Real Business Cycle Theories

Description Real business cycle theorists argue that the movements of macroeconomic variables emerge from forces within the 'real' area of economic activity, by which they mean the production of goods, not money. There are a variety of real business cycle theories. Schumpeter offered one such theory. According to him, business cycles occur because entrepreneurial innovations generate miscoordinations. Occasionally, these miscoordinations spread through the economy and generate a disturbance in the levels or growth rates of aggregate variables.

Non-Schumpeterian, or more conventional, real business theory does not so much speak of 'novelty' as of positive and negative 'productivity shocks'. The first generation of such theories worked with aggregate productivity shocks. The second generation argues that firm level productivity shocks can scale up to generate sizeable aggregate volatility.

Audio Thomas McCraw on "Schumpeter, innovation, and creative destruction"

Video Douglas W. Rae on "Karl Marx, Joseph Schumpeter, and an economic system incapable of coming to rest"

Readings

1. Schumpeter (1939) "Business Cycles: Volume One"
 - (a) Chapter 4 A "The working of the model: a first approximation"
 - (b) Chapter 4 B "Looking at the skeleton"
2. Rebelo (2005) "Real business cycle models: past, present and the future"
3. Wagner (2020) "Macroeconomics as Systems Theory"
 - (a) Chapter 5 "Kaleidic economics and internally generated change"

Further Readings

1. Mankiw (1989) "Real business cycles: A new Keynesian perspective"
2. Acemoglu et al. (2012), "The network origins of aggregate fluctuations"
3. Stock & Watson (1998) "Business cycle fluctuations in U.S. macroeconomic time series"

X. Monetary Business Cycle Theories

Description Monetary business cycle theories postulate that the production of goods and services is disturbed through factors which originate in the monetary realm of economic activity. There are a variety of monetary business cycle theories. Mises developed a theory in which an economy goes through boom-bust cycles because of the intervention of the central bank in the market for loanable funds. In contrast to Mises, Friedman developed a theory in which central bank interventions generate a downward 'pluck' of economic activity from its potential ceiling.

Audio Don Boudreaux on "Macroeconomics and Austrian Business Cycle Theory"

Video Tyler Cowen on "Real Business Cycle Theory"

Readings

1. Mises (1949) "Human Action"
(a) Chapter XX "Interest, credit expansion, and the trade cycle"
2. Friedman (1993) "The plucking model revisited"
3. Yeager (1956) "A cash-balance interpretation of depression"

Further Readings

1. Hayek (1931) "Prices and Production"
2. Lucas (1977) "Understanding business cycles"
3. Sims (1983) "Is there a monetary business cycle?"

XI. Inflation, Its Causes and Consequences

Description Inflation is a rise in general price level. Most economists agree that in the long run inflation is everywhere and always a monetary phenomenon. In other words, inflation is caused by an increase in the quantity of money in the economy. Economists, however, disagree on the costs of inflation. Some believe inflation can be benign, while others think inflation creates miscoordination by disturbing relative prices.

Audio Allan Meltzer on "Inflation"

Video Milton Friedman: "How to cure inflation"

Readings

1. Mises (1963) "The Theory of Money and Credit"
(a) Part II Chapter VI "The social consequences of variations in the objective exchange-value of money"
2. White (2014) "Inflation"
3. Mandel, Taghawi-Nejad & Veetil (2019) "The price effects of monetary shocks in a network economy"

Further Readings

1. Sargent & Wallace (1981) "Some unpleasant monetarist arithmetic"
2. Lucas (1996) "Nobel lecture: Monetary neutrality"
3. Lucas (1994) "On the welfare cost of inflation"

XII. Unemployment

Description One of the central concerns of economic policy is the periodic increase in the aggregate unemployment rate. There is however little consensus among economists about the causes of these fluctuations. The problem is not merely one of explaining movements in the unemployment rate but also the observed negative relation between the rate of unemployment and the rate of inflation: the Phillips curve.

Audio Phelps on "Unemployment and the state of macroeconomics"

Video Hayek on "Unemployment"

Readings

1. Rogerson, Shimer & Wright (2005) "Search theoretic models of the labor market: A survey"
2. Sleeman (2011) "The Phillips curve: A rushed job?"
3. Veetil (2021) "The pausing view of unemployment"

Further Readings

1. Keynes (1936) "The General Theory of Employment, Interest and Money"
 - (a) Book V "Money-wages and prices"
2. Mises (1949) "Human Action"
 - (a) Chapter XXI "Work and wages"
 - (b) Chapter XXX "Interference with the structure of prices"
3. Christiano, Eichenbaum & Trabandt (2016) "Unemployment and business cycles"

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