

**BA 1320 – Doing Business in a Global World.**

# **Course Workbook**

**Ver Sp23.0**

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# **PART 1 – FUNDAMENTALS**

**The history of human development**  
**The nature and causes of prosperity**  
**Comparative Advantage and Specialization**  
**Economic policies**  
**Fixing prices, taxes and subsidies.**

## CHAPTER 1: CIVILIZATION AND TRADE

### INTRODUCTION

To begin please go to the eLearning module and get familiar with the course layout. Pay particular attention to the course Syllabus and the Topical Outline linked there on the Course Homepage and the left navigation menu.

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As explained in the course objectives in the syllabus, this course aims to give you a broad familiarity with the current state of business paying particular attention to the international context. To do so I will begin by placing the modern world in which we live in historical context.

### HISTORICAL CONTEXT – THE ORIGINS AND DEVELOPMENT OF CIVILIZATION

It may be said that the modern world in which we live is “uniquely unique”. Although human civilization may be said to be about 10,000 years old, the modern period is not more than about 300 years old. In other words, the period in which we live is but a tiny fraction of the period of human civilization. Human civilization itself is but a tiny fraction of the roughly 100,000 years of human existence on the planet, and the planet itself is billions of years old. So, we are in a very unique period indeed.

*What is human civilization? What distinguishes human civilization from what went before?*

So, what is human civilization? What distinguishes human civilization from what went before? Before humans became civilized they were just like the animals, existing in a world of scarce resources that they had to defend with violence in order to survive. It was a zero sum world, in which any valuable resource that was taken by another group was a resource that was not available to my group. Groups of humans were small and fiercely antagonistic to one another. In that we see the origin of instinctive intergroup animosity. It has been the gift of civilization partially, but in large part, to overcome this. Human beings became civilized when they discovered the benefits of trade.

A world in which different groups trade with one another, rather than fight, one another, is a positive sum world, it is a world in which value can be created without limit. There are no limits to the possible creation of value, it is not physically limited like physical substance. Trade creates value. When I trade with you, I give up something that I value less than what I receive and so do you. For each of us there is an increase in value. So value is increased.

Along with the development of trade, itself a result of the spontaneous development of language, law, norms and customs (spontaneous orders) that favored peaceful coexistence, civilization flourished, in spite of being interrupted by perpetual war, and the human population increased slowly over thousands of years. This pre-modern period was characterized by a series of successful empire civilizations, including the Chinese, Indian, Persian, Greek, and, of course, the Roman civilization. From the period of the Roman Empire we inherit Roman law and the idea of the rule of law over large territories in which commerce and trade flourished.

Yet as successful as this pre-modern period was, it was nothing compared to what has happened in the last 300 years or so, a period known as the Great Enrichment, and characterized by the hockeystick of human prosperity. See the first video on the topical outline. This great enrichment has been a subject of much scholarly examination and discourse, no less than in the work of the Scottish enlightenment philosophers the most well-known of whom is Adam Smith, who's famous book *An Inquiry Into The Nature And Causes Of The Wealth Of Nations*, poses the question as to what it is that accounted for the unprecedented prosperity of the masses that was appearing in England and was soon to appear in all of Western Europe. So, what explains the Great Enrichment?

## CHAPTER 2: WHAT EXPLAINS THE GREAT ENRICHMENT?

### ADAM SMITH AND THE DIVISION OF LABOR

The answers that Adam Smith gave are instructive. The most well-known explanation for the Great Enrichment is the substantial increase in the division of labor, a phenomenon that we call today, specialization. Adam Smith explained that by specializing in particular stages of production human labor became much more productive.

He gave three reasons.

**First**, specialization means that people can concentrate on what they do best and leave to others what those others do best. In that way the total of what is produced goes up, or equivalently, the opportunity cost of producing anything goes down. The obvious implication of this is that if specialization is beneficial among groups of individuals, then the same must be true among groups of countries, implying the phenomenon of comparative advantage that we will examine in a future class.

The **second** reason why specialization, Adam Smith's division of labor, is beneficial, is that when individuals specialize in particular tasks they learn how to do them better. In other words, specialization encourages innovation.

And **thirdly**, if individuals are required to perform only one particular specialized task they do not need to have equipment for multiple tasks and they do not need to take the time to transition between one and the other as was required in the guild system of the Middle Ages prior to the modern period.

So, for these three reasons Adam Smith suggested the division of labor had produced a massive increase in productivity, which resulted in a huge increase in the supply of whatever was being produced. The increase in the supply resulted in a decrease in the price, an increase in affordability, most importantly for food, which meant that individuals had more time and money to spend on other things, and this expanded the demand in general for things produced with an extended division of labor. So, specialization increased supply which expanded the market, which in turn, increased the ability to specialize. As Adam Smith put it, the division of labor is limited by the extent of the market. But the extent of the market expanded with the division of labor. And so, the one feeds on the other to produce enrichment.



## THAT SYSTEM OF NATURAL LIBERTY

But this cannot be the entire explanation. It does not explain how an increased division of labor comes about. What triggered the change in the organization of production that the extended division of labor represents? To explain this Adam Smith must turn to a more basic cause, we might say to a cultural change. The increase in productivity that was the result of the increase in the division of labor itself was the result of an increasing propensity to trade. Though, as I explained earlier, that trade signals an important distinction between civilization and what came before, the modern period is characterized by a massive increase in the number of people engaged in trade and in the scope of the things that they trade. As Adam Smith put it, all human beings have a natural propensity to “truck, barter and exchange”.

So, what explains this remarkable increase in trading and producing? Adam Smith refers to the arrival of “**that obvious and simple system of natural liberty**”. It is a remarkable fact of history that prior to what occurred in England around the mid-1600s, as can be seen for example in the work of John Locke, the idea of equal individual freedom was nonexistent in human societies. By individual liberty I mean equal individual freedoms, equal individual rights. This is something that would have been considered revolutionary during most of human history, and, in fact, is still regarded as unacceptable in some societies today.

In most of human history people existed in a hierarchical social relationship in which different individuals had different rights and duties. The idea that everybody had the same rights under the same law, whether they be a peasant or a king, a worker or a president, is a very new idea. But it is this idea, that first came to the fore in England, that is responsible for the change in general attitudes and conditions that created the great enrichment, because this change allowed anybody to own property and to trade property on an equal basis with anybody else. In short, the great enrichment, and the remarkable society that we have today, that is on average 30 times richer than that which existed just 200 years ago, is the result of and is dependent on the phenomena of private property, freely adjusting prices, and profit and loss. **Property, prices, profits, prosperity.** Let’s explore this.

There cannot be trade without ownership. In order to sell something, one has to first own it. In order to buy something, one has to be allowed to take ownership of it. Ownership implies private property. Trading, exchanging one thing for another, implies establishing a price. Prices need to be freely established in order for trade to be able to occur beneficially. And in order to encourage people to produce, under the extended division of labor, for purchase and sale, the incentive to earn a profit must exist. Prices and profit provide both the incentives and the information necessary for people to organize themselves into a complex system of the division of labor by which modern society is spontaneously organized as if by an invisible hand. See the video [I Pencil](#) in the Topical Outline.

### **IT IS NOT FROM BENEVOLENCE: THE “INVISIBLE HAND” OF SPONTANEOUS ORDER**

Adam Smith tells us, it is not from the benevolence of the butcher the baker and the brewer that we get our dinner but from their attention to their own self-interest. It is in the pursuit of profit that they provide us what we want and need, not from their desire to do something good. It is not from good and noble intentions that most beneficial results occur. This is an important idea. Requiring that people have noble intentions is not a guarantee of good results and in fact will most often be counterproductive. Requiring the butcher to provide us quality meat out of the goodness of his heart at a price that we can afford will most likely make it impossible for him to make a profit and therefore both he and we will suffer. On the other hand, by pursuing profit he is automatically led to supply us with quality meat at the lowest possible price, because in a competitive market, if he does not do so, his competitor will, and he will go out of business.

The modern system of international trade is a vast network. It is a prime example of spontaneous order, not a designed order. It is **the result of human action but not of human design**. It is the result of a social and legal system that turns private self-interested actions of people responding to incentives to earn a profit, into public benefits. Listen to the whole quote from Adam Smith

**"It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity but to their self-love, and never talk to them of our own necessities but of their advantages."**

(Adam Smith, *Wealth of Nations*, 1776).

Entrepreneurs freely pursuing their own interest end up providing value to others (if they are successful) that is, in reality, no part of their intention - or, at least, not the main part. In a private for-profit economy, one does not need good intentions for good results and trying to compel good intentions may end up with very bad results. We will examine this further later.

But, what are the limits to freedom?

### CHAPTER 3: PEACE, PRIVATE-PROPERTY, PRICES, PROFITS, PROSPERITY.

So, the idea of individual economic freedom and the private property system, together with a system that encourages the making in enforcement or private contracts, is what is responsible for modern prosperity. But what exactly do we mean by individual freedom? Are there no limits to what a free individual can do, and if there are limits what are they?

#### FREEDOM IS DEFINED AND DELIMITED BY PROPERTY RIGHTS

Of course, freedom cannot be unlimited. In a peaceful society one cannot be free to do anything – like depriving others of their freedom. Freedom has to be defined in such a way as to ensure that everyone’s freedom is protected from the predatory actions of others.

The way to do this is to realize that freedom is about *property rights*. My freedom to act stops at the border of your property – and your property includes your body. There is no fundamental difference between my invading or stealing your property and my punching you in the nose. Both are violations of your freedom, violations of your property rights. Property rights and individual liberty are two sides of the very same coin. All individual rights are basically property rights.

#### FROM FREEDOM TO FREE-TRADE TO PROSPERITY

The idea of equal individual freedom is something that became commonly accepted only around the middle of the 1600’s in England and then spread to other countries in Europe and the European colonies. It is an idea that changed the world. Newfound freedom of action led ordinary individuals to imagine ways of making themselves wealthy by creating products that people wanted to buy. Freedom to trade, and to produce products for trade, led to unprecedented prosperity. Freedom as **property** led to **peaceful** trade and **production**. Trading freely implies the setting of **prices**. Prices **provide incentives and information** to individuals about what to produce and how to produce them most efficiently in order to earn a **profit**.

Continuing our discussion of the fundamental principles that underlie the functioning of the massive global economy, we next consider the principles of comparative advantage, opportunity cost, and innovation in more detail.

## CHAPTER 4: COMPARATIVE ADVANTAGE AND OPPORTUNITY COST

Video: [Comparative advantage, Division of Labor](https://mru.org/courses/everyday-economics/comparative-advantage-and-tragedy-tasmania)

<https://mru.org/courses/everyday-economics/comparative-advantage-and-tragedy-tasmania>

### COMPARATIVE ADVANTAGE

The principle of **comparative advantage** states that if participants in trade and production specialize in producing those products in which they have a comparative advantage, the total produced and, therefore, the greatest total value, will be obtained - specialization in which producers line up in terms of doing what they do best among all of the things they could possibly do.

This can be illustrated with a simple example: Imagine a lawyer who charges \$600 an hour for his time is also an expert typist. He can hire a typist for \$60 an hour to type his documents. He can type 33% faster than she can just as accurately. So, he is more productive in being both a lawyer and a typist. Some might think, therefore, that he should do his own typing. They would be wrong. Every hour that he would spend typing he produces one third more than a hired typist would. So, he saves \$60 plus one third, \$20, total of \$80. It would cost him \$80 to hire a typist to produce the same product as he produces in an hour. However, by not devoting this time to being a lawyer he loses \$600. So, the decision to spend an hour doing his own typing costs him  $\$600 - \$80 = \$520!!$  The opportunity cost to him of doing his own typing is \$520 an hour. The opportunity cost to him of hiring a typist is \$80. So, now which do you think he should choose – to hire a typist or do his own typing – in other words to specialize or not, even though he is more productive than the person with whom he trades to obtain that which she sells him? This illustrates the principles of both comparative advantage and opportunity cost.

### OPPORTUNITY COST

**Opportunity cost** is the value (to the decision-maker) of the best opportunity not chosen. An economic understanding of cost is one that is always associated with decisions, with choices among imagined alternatives. In that way it differs from some other concepts of cost, such as some from accounting and common usage. Expenses are not necessarily the same thing as cost understood as opportunity cost. Opportunity cost is always about choosing between imagined possible alternative actions (investments, purchases, product-lines, etc.). The decision-maker (consciously or unconsciously) imagines the earnings (benefits) and

expenses associated with any alternative, and calculates a net-benefit for that alternative. She then compares that with the net-benefits that could be earned from the best alternative and eliminates all alternatives with lower net benefits than the one chosen – the cost of doing so is the best opportunity sacrificed.

This is a universal law of decision-making, ([see this video](#)) in business and everywhere else. We are considering it here in connection with the question of the pattern of specialization in production and trade and together with the principle of comparative advantage it explains a lot.

Comparative advantage tells us that specialization (the division of labor) is advantageous even if productive abilities of the trading partners does not change. It tells us that the mere diversity of productive talents provides scope for **gains from specialization and trade**. As we have seen before, and repeat here, Adam Smith gave three reasons for why the division of labor was advantageous. 1. It saves on the need to transition from one task to another and to possess multiple sets of special equipment for the performing of multiple different tasks – a saving of time and resources. 2. It produces a greater total product simply because each producer is produces more by specializing than multiple producers sharing tasks could produce. We see this most clearly, as just explained above, in the principle of comparative advantage and opportunity cost (as first explained by Adam Smith's disciple a generation later, David Ricardo). But there is a third reason. 3. It encourages innovation. Historically it gave rise to what the economic historian Diedre McCloskey calls 'innovationism'.

## THE IMPORTANCE OF INNOVATION

Videos: [Innovation, The Washing Machine](#)

<https://www.youtube.com/watch?v=BZoKfap4g4w>

Adam Smith realized that specialization produces 'learning by doing'. When people specialize in doing particular tasks they learn to do them better, both as a result of simple practice and perfection, and also as a result of deliberately seeking out better methods. Adam Smith uses the example of the schoolboy who discovered a kind of pressure thermostat in order that he might spend more time playing with his schoolmates. He was, in a sense, innovating in pursuit of profit, in pursuit of his own self-interest. But in doing so he unintendedly benefitted others who interacted with him. This is a basic principle. Just as the butcher pursuing profit sells us affordable quality meat, so, in exactly a similar way, someone does who invents a better way of producing a product, or a better quality product or a new product, like a light bulb, a microwave, a cell phone, a flying machine, ... etc. etc., benefits

countless others while not necessarily intending to do so, but rather perhaps intending primarily his own fame and fortune. Adam Smith's invisible hand of **spontaneous order** applies just as much to the case of innovation and with even greater benefit. This miraculous spontaneous order of global economic activity is mostly the result of human action but decidedly not of human design. **The result of human action, not human design** (from Adam Ferguson, Adam Smith's contemporary).

## INSTITUTIONS

Finally, as I have pointed out, the division of labor and its implications as just explained, is an incomplete explanation of the Great Enrichment and why it started in England and spread to Western Europe and only later showed up in places like Japan, South Korea, Singapore, Taiwan, and Hong Kong. To complete the explanation we have to turn to the idea of **institutions** and, more fundamentally (Diedre McCloskey) to the change in attitudes and ideas that gave rise to the development of the 'right' institutions of (peace and) **private property**, (markets in which free trade leads to the formation and change of) **prices**, (as people pursue) **profit**. How much difference does this make?

Note that the globalization of the world economy is, in many ways, a continuation of the growth of civilization from a simple social order to an **extended order**, in which many millions of people are connected through a vast network of trade and production. The worldwide supply chain grows in length and breadth over time. The last 300 years have been exceptional in human existence and economic change continues to accelerate. The network is held together by the institutions of classical liberalism - private property and the rule of law.

So, entrepreneurship is vital for a healthy growing economy. Entrepreneurs, guided by prices in pursuit of profit, make decisions to produce goods and services that they hope people will value and buy. **The institution of money**, of **accounting** rules and **financial concepts**, enable them to form expectations and **calculations** of profit. The ability to calculate, to put a value on the outcome of action is absolutely necessary for decision-making. Prices act as both **incentives and signals** to guide these decisions.

Questions to ponder:

What would happen if all resources were owned by the government?

How would private decision-makers make production decisions? How are decisions made within government organizations?

## CHAPTER 5: INCENTIVES AND KNOWLEDGE

### THE DIFFERENCES BETWEEN PRIVATE AND PUBLIC INSTITUTIONS

To answer these questions just posed above, we have to investigate the role of incentives and knowledge in a market economy.

In government organizations private incentives are not reconciled with the public good in the same way as they are in private organizations, and information about what to do, and how to judge the efficiency of what is done, is not automatically generated through markets. This means that government organizations, and government regulation, faces challenges that do not apply to the same extent to private sector organizations. These are sometimes referred to as examples of "government failure" - like inefficiency and corruption.

More attention has, however, been given to what is often called "market failure" - criticisms of the way that capitalist market economies actually work. We will discuss the most common criticisms of capitalism. I will suggest that these criticisms are, for the most part, invalid and are the result of misunderstanding.

There is, however, one important weakness of capitalism that we do need to discuss - its tendency to "self-destruct".

### THE TRUE WEAKNESS OF DEMOCRATIC CAPITALISM – CONCENTRATED BENEFITS, DISPERSED COSTS.

There is one phenomenon within Capitalist systems that does pose a threat, that is, the tendency for special interest alliances between private companies and government to cause an expansion of government actions that are parasitical on prosperity. This is true especially of representative democracies. Opportunistic politicians have an incentive to promise benefits to certain well organized, concentrated groups, that will be paid for by the "rest of society". The result is **an expansion of the size and scope of government** as politicians scramble to deliver promises to the **cronies** with whom they are allied (often with economic incentives to the politicians). This is sometimes called ***Crony Capitalism*** or just ***Cronyism***. It exists everywhere, but is particularly prevalent in developing countries where it dominates and prevents general economic enrichment. The only solution is the establishment of firm constitutional limits on the size and scope of government at all levels (how much and what kinds of things government can do).



Recall the questions posed at the end of the last chapter. We may imagine two extreme social systems. On the one end there is pure Capitalism, in which limited government leaves people alone to do what they want within the limits of private property, no interference, *laissez faire*. At the other extreme is Socialism – where there is no private property ownership, everything is socialized, owned collectively, which means in practice controlled by the government at one level or another. Everything is *centrally planned*. Central planners decide what is to be produced how it is to be produced and for whom and by whom it is to be produced.

Supporters of Socialism believe that it is possible to achieve prosperity by central planning and then to share that prosperity equally. No actual example of such a system of equal prosperity has ever been achieved. Instead, attempts to do it have always resulted in brutal dictatorships, corruption, and mass poverty and destruction. One estimate is that during the 20<sup>th</sup> century 100 million people died as a result of socialist experimentation. That was the result of the most intense incentive and knowledge problems imaginable.

All economies in the world today are mixed economies, interventionist economies, in which socialist and capitalist elements exist in varying degrees.

## CHAPTER 6: COMMON CRITICISMS OF CAPITALISM

### THE DECLINING POPULARITY OF CLASSICAL LIBERALISM

The basic principles of classical liberalism are appealing not only for their own sake (equal freedom to pursue one's happiness), they are also appealing because they are indispensable to the achievement of prosperity for the greatest number of people in any society. For this reason, the principles of free trade and private property, within a system of limited government (government's role was limited to providing enforcement of property rights and protection against foreign invasion) were widely embraced as "natural" or as "self-evident". But this did not last.

The heyday of classical liberalism was from about 1750 to about 1850 after which various types of disillusionment set in – leading to the development of other ideologies like **(economic) nationalism, socialism and interventionism**. We will examine some aspects of these as needed to understand the function of the world economy.

Today the basic principles of classical liberalism are no longer widely accepted in theory, even while we continue to rely on them to produce prosperity. This is because

1. Freedom is considered to be an alternative to equality of results. Some people suggest that some freedom is worth sacrificing for greater economic equality.

And

2. There is some disagreement about how much prosperity would be sacrificed to achieve greater equality.

As a result, all kinds of government intervention into the economy has been adopted. (This kind of argument about the effects, or consequences, of modifying the basic principles of any society, is called a utilitarian, or consequentialist, argument – an argument not from the simple natural acceptance of certain rights, but, rather, from the *consequences* of accepting those rights for the kind of society one gets as a result.)

## STANDARD CRITICISMS OF CAPITALISM (CLASSICAL LIBERALISM)

Today there are roughly four types of criticisms of Capitalism. These criticisms allege that there are fundamental weaknesses inherent in pure Capitalism that need to be fixed by conscious government policy. It is said that Capitalism suffers from many kinds of market failure. My summary conclusion is that *none* of these four are valid criticisms of Capitalism – but you can decide for yourself. The four types are Monopoly, Inequality, Instability and Externalities. We begin with monopoly.

1. **Monopoly** is inherent in Capitalism. This is a common criticism from Socialists and others. The idea is that companies that succeed and accumulate economic power come to dominate markets and are able to charge unnecessarily high prices – and/or provide low quality products. The idea is the basis of a big area of interventionist policy actions called *anti-trust* policy – at the federal level the Federal Trade Commission (FTC) and the Department of Justice pursue anti-trust cases. At the state level many state agencies do so as well.

My argument is that careful examination and reasoning leads to two important conclusions:

- a. As long as there is freedom of entry into any kind of industry, there is no way any company can establish a sustainable monopoly unless it is the most efficient and lowest cost/highest quality producer. Any inefficient, high price, producer will ultimately be faced with competition from new entrants into the industry.
- b. Anti-trust policy operates blindly in the hope of benefitting consumers by imposing restrictions on mergers, business practices, etc. These actions are unlikely to be successful, might actually make things worse, and certainly are unlikely to be as successful as long run market competition in giving consumers what they want.

In fact, the source of real sustainable monopoly is government itself (federal, state and local) providing protection from competition to its supporters. Monopoly is not something inherent in Capitalism. It is something imposed on Capitalism by *cronyism*, government favors.

2. **Inequality.** The allegation is that Capitalism is flawed because it produces inequality. The freedom to trade allows a great degree of choice. Different individuals choose to do different things and some succeed, some fail, and some succeed more than others. There is a **diversity of results** that critics refer to as inequality. It is a case of equal freedom to try that leads to unequal results. This is the biggest criticism of Capitalism from **Socialists** and **interventionists**. They believe inequality itself is a bad thing and needs to be “fixed”. And they sometimes **confuse inequality and poverty**. Poverty is not something inherent in Capitalism. Quite the opposite. Capitalism is the only system in human history that has produced a massive decline in poverty. But, general enrichment has resulted in a greater diversity of individual situations, some being wealthier than others. We were once equally poor and we have now become unequally rich. Interfering with Capitalism to get greater equality will produce less prosperity. So, this criticism is not about Capitalism it is about whether it is worth giving up prosperity to get greater equality even if it means we are all less wealthy.

Freedom is sometimes considered to be an alternative to equality of results. Some people suggest that some freedom is worth sacrificing for greater economic equality. There is some disagreement about how much prosperity would be sacrificed to achieve greater equality. As a result, all kinds of government intervention into the economy has been adopted.

3. **Externalities** (external effects) are common in Capitalism. Sometimes voluntary interaction between two individuals can cause harm (costs) to a third individual(s) “external” to the interaction. An example is pollution (of air or water). This is the basis of all so-called environmental problems. The problem is not really a matter of “market failure”. The problem is that no market exists because property rights do not exist – they cannot or will not be defined. The best solution is to define and enforce property rights where possible. Where not possible some form of intervention may be necessary. We will have to discuss this in some cases. But, we should not think it is a problem inherent in Capitalism as such. It is a problem of the inapplicability of Capitalism in certain rare situations.
4. **Instability.** The final criticism of Capitalism is that it produces macro-economic instability – business cycles of booms and recessions, like the

Great Depression (1930's), the dot.com boom-bust (2001) and the Great Recession (2007-8). This is a highly debatable issue that we will take up in part 3 of this course. My own view, based on the evidence, is that ups and downs are inevitable under Capitalism, but are likely to be mild – the market system can and does adapt – and that attempts by government to reduce or remove these fluctuations have actually made them much worse. This is because the economy is very complex and governments do not have the ability, or even the proper incentive structure, to control fluctuations.

### **Fixing irrational decisions.**

**Before leaving these longstanding criticisms of capitalism, we must note one more recent category of criticism.** In the last few decades a new approach to this question has arisen under the umbrella of a branch of economics known as “behavioral economics”. Behavioral economics investigates cases of individual actions that are said to be mistaken in the sense that they are “irrationally” not in the individual actor’s own interests. A huge literature documents cases where individual actions can be shown to be inconsistent with a given set of preferences, or inconsistent with what economists identify as required norms of rationality, taken from the discipline of “neoclassical economics”. And this is given rise to numerous policy prescriptions identified as the “new paternalism” – policies designed to encourage (nudge) individuals to act in a way that is more in tune with their “true” interests.

This raises the question of the nature of the regulators themselves. Who are they? What motivates them? Are they superhuman, super-knowledgeable, or are they just like the rest of us? In this course we shall assume that regulators are just human beings, like us, with their own particular self-interests and limited knowledge. This means that every single regulatory action is subject to two kinds of difficult problems, incentive and knowledge problems.

## CHAPTER 7: THE POLITICAL ECONOMY OF CAPITALISM

### REPEATING THE ASYMMETRY OF KNOWLEDGE AND INCENTIVE PROBLEMS

We have noted how competition in the private property market economy tends to harmonize private and public interests. People acting in pursuit of their own private economic interest are led as if by an "invisible hand" to serve other people's needs and desires. The result is a spontaneous order - the result of human action but not human design.

The same cannot be said about the public sector. Where people work for the government, at various levels, they are not led automatically to serve the needs of others (the public) by any kind of market signals. Public sector services do not have prices. There is no bottom line except for the ability to pay for those services with taxes. There are, in short, serious knowledge and incentive problems. There is an asymmetry in this between the private and the public sector. Workers in the public sector are not automatically accountable to the public, in a way that private sector workers are to consumers.

### THE FUNDAMENTAL DILEMMA OF GOVERNANCE

For that reason, government tends to produce waste and corruption. This is more likely the larger government is and the more centralized it is. The Founders of America understood this and provided for the separation of powers at each level of government and for decentralization of powers between the federal and state governments. James Madison, the "scribe" for the Constitutional Convention, and the third president of the United States famously described the problem as follows:

**"If men were angels, no government would be necessary. If angels were to govern men, neither external nor internal controls on government would be necessary. In framing a government which is to be administered by men over men, the great difficulty lies in this: you must first enable the government to control the governed; and in the next place oblige it to control itself."**

### PAYING FOR GOVERNMENT

In order to finance the functions of government taxes must be raised. These taxes are used to produce public services and also for anti-poverty subsidies. All taxes and subsidies create inefficiencies. Some argue that they can be used to counter cases of 'market failure'. Logically speaking maybe. But, as a practical matter for

this to work, the extent of the market failure must be known, the extent of the 'government failure' produced by the tax or subsidy must be known, and the two must be weighed. In reality, it is probably more efficient in terms of value created and destroyed to deal with 'market failures' in other ways.

Three things to remember about taxes and subsidies.

1. they are (almost) always shared by the buyer and the seller;
2. corporations never pay taxes or receive subsidies - in reality the people associated with the corporation are the real payers or receivers of the money;
3. both taxes and subsidies create inefficiencies and are subject to incentive and knowledge problems. The same is true about price controls.

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This is not a course on microeconomics, but if you want further information or want to refresh your understanding consult any basic economics textbook on the effects of taxes and subsidies, or google the subject.

A good source, with a few helpful videos, can be found

[here](https://mru.org/courses/principles-economics-microeconomics/taxes-subsidies-definition-tax-wedge) - <https://mru.org/courses/principles-economics-microeconomics/taxes-subsidies-definition-tax-wedge>

Or see this PowerPoint lesson, in two parts, from my principles course

[here](https://personal.utdallas.edu/~plewin/Lesson3A.mp4) - (<https://personal.utdallas.edu/~plewin/Lesson3A.mp4>) [Price fixing]  
and

[here](https://personal.utdallas.edu/~plewin/Lesson3B.mp4) - (<https://personal.utdallas.edu/~plewin/Lesson3B.mp4>) [Taxes and Subsidies]



## **PART 2 - GLOBALIZATION**

**What is globalization?**

**The gains and losses from expanding world trade**

**The economics of protectionism.**

**Globalization and inequality.**



## CHAPTER 8: INTRODUCTION

We now enter Part 2 of the course. In this part we examine in more detail the meaning and implications of the phenomenon known as globalization. In the first part of the course we examined in some detail the foundations of the functioning of the extended global economy and tied these foundations two ideas in the classical liberal literature of the late 1700s. We noted for example the importance of the idea, offered by Adam Smith, that prosperity was very closely linked to an ever-increasing division of labor in production within a system of natural liberty, in which people secure in their property rights are led to cooperate in a peaceful way pursuing their self-interest and creating value for others.

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I have made use of the transcript provided for the videos we watched.

It is very important to realize that globalization is really just the latest development of this ongoing increasing division of labor (specialized production) that has been occurring at an accelerating rate since before the industrial revolution. Dramatic innovation has greatly complexified the structure of production. We see this in the increasing geographical and technological extent of the supply chain.

For any final product purchased by the consumer today, there are likely to be many different stages of production in many different parts of the world involving many different people and types of materials and technologies, all linked together by the separate actions of these many different individuals as they follow their own aims and aspirations for a better life. So, the division of labor has implied an extension of supply side markets. But, as Adam Smith suggested, the division of labor is limited by the extent of the market, meaning the size of the consumer market.

Perhaps the most notable thing about globalization is the tremendous increase in consumption. For the first time in human history human beings across the planet are able to afford products that our ancestors could only have dreamed of. And this is part of the dramatic decrease in world poverty. Products now considered necessities were once the exclusive province of only the very wealthy. Now the vast majority of people in the world have refrigerators, electricity, televisions, cell phones, as well as running water and sufficient food to survive. The extent of the consumer market has facilitated the widening extent off supply side markets. This

is the basic stuff of globalization. So we begin by noting the important connection to these ideas.

The high degree of globalization that characterizes economic life today is the result of centuries of development and in the first video that we watched these developments are divided into phases starting with globalization 1.0 and ending with globalization 4.0.

Video: [Avengers – the extent of current globalization](https://mru.org/courses/everyday-economics/avengers-story-globalization)

<https://mru.org/courses/everyday-economics/avengers-story-globalization>

**The world market**

<https://mru.org/courses/principles-economics-microeconomics/markets-invisible-hand-supply-chain>

## Chapter 9: Stages of Globalization

### Globalization 1.0

This is life in a village. Transportation was expensive, dangerous, and slow. You can hop a slow sailboat that is pretty likely to sink or take your chances on foot. Trade was limited to luxuries for the wealthy and essential raw materials -- think jewelry, spices, and copper. The average person's life wasn't affected by trade. The goods they consumed were local. The information and ideas they consumed were local. They came from people in their village or town.

Before the railroad came, it was actually the case that in New York City, they produced the milk right in Manhattan, and that's where you would get your milk. The cow would be in Manhattan.

Even big monumental ideas were slow to migrate. It took 200 years for the idea of the compass to get from China to Europe.

### GLOBALIZATION 2.0

So how do we get to the next level? Developing cheap and fast transportation of goods. Think better ships and navigation technology. And steam power, steamships, and railroads, cars, trucks, airplanes, and container ships. This unlocked Globalization 2.0. This is life with world trade. No longer did you just consume what was local -- the goods you consumed came from all over the globe. World trade explodes in the 1800s. What happened with the spread of canals and railroads, ended up having the cows in upper New York state, and the milk would be shipped in, and that's what enabled New York City to become so interesting, so **cultural**, so vibrant, such a financial center -- basically getting the cows out of Manhattan.

This trade benefitted dairy farms as well. They scaled up and specialized, producing higher quality milk at lower prices. It wasn't just milk. Growth and trade allowed businesses of all types to leverage machinery to produce much more than previously imagined. We get the Industrial Revolution, which transforms living standards around the world. But while movement of goods was cheap, movement of information and ideas was still too slow. There's no computers, no internet, and phone calls were pricey. This means that people working together have to be physically in the same place. We see the rise of huge factories, like Ford in Detroit.

Back then, if you bought a Ford, it was not just made in the USA, it was made almost entirely in one single place.

### **GLOBALIZATION 3.0**

So how do we get to the next level? We figured out cheap and fast communication -- personal computers, the internet, GPS, email, smartphones, and cloud computing. This unlocked Globalization 3.0. This is life in the information revolution. Information was no longer slow. Now you could easily consume information and ideas from all over the globe. This communication revolution allowed companies to coordinate production around the world.

What used to be a big factory could now be sliced and diced into what's called a global supply chain. Different pieces of the production could happen all over the planet. Take the iPhone -- over 200 companies from across the globe make different components. When Apple competes with Samsung, it's not an American product versus a Korean product, but Apple's global supply chain versus Samsung's global supply chain. So what does "made in the USA" exactly mean today? Does it surprise you that, as of 2018, the Honda Ridgeline is more American made than the Ford F-150, Chevy Silverado or Dodge Ram? However, these global supply chains rapidly evolve so by the time you see this, it's likely to be different.

These communication networks also mean that we get exposed to a wider variety of products at faster and faster rates. It took the internet seven years to reach 50 million users. How long did it take Pokémon GO? Nineteen days. "Gangnam Style" introduced the world to K-pop and was the first video to reach a billion views. A Puerto Rican artist was the first to reach 5 billion.

### **GLOBALIZATION 4.0**

So, you might be wondering what's this last level? We haven't unlocked Globalization 4.0 yet, so this might seem a bit crazy, but let's take a peek into the future to see what life will be like in the virtual presence revolution. An example will help explain. If you're a surgeon, you have to be in the room with the patient to operate, or do you? What if a surgeon could be in New York operating remotely on a patient in France with the use of a robot? This has already happened. Remote surgery is still rare, but as the technology improves, this will become more common.

Where else might this spread? Could a German mechanic fix a piece of machinery in Korea? Could a security guard in India watch over a store thousands of miles away? Might your hologram allow you to deliver a speech from home while not wearing pants? It's already possible.

When you combine these forces of globalization with the rise of automation and artificial intelligence, what does all this mean for future jobs? Are there winners and losers? How might someone position themselves to benefit from globalization?

## CHAPTER 10: SOME IMPLICATIONS ON THE VARIOUS STAGES OF GLOBALIZATION

### GENERAL IMPLICATIONS

Here are some immediate implications of rising globalization.

- A rising proportion of revenue earned by corporations (businesses) is earned globally (outside of the political borders in which the corporation is located)
- “Made in America” is no longer a very meaningful idea since most products are actually “made” in many different countries. A particular Toyota model car has more American workers building it than a particular Ford car for example.
- Prior to the industrial revolution world trade was limited by slow and dangerous transportation and slow and imperfect communication. The extensive trade route from Europe to Asia (China and India) known as the Silk Road was impressive for its time but from today’s perspective carried only a miniscule volume of trade.
- The industrial revolution (G 2.0) – particularly the use of steam power for railroads, manufacturing, canal boats, and, especially, steamships – brought a huge opening up of world trade, a widening of horizons in every way. It was the beginning of that sustained period of European colonialism that brought millions of people from diverse geographical locations into the world economy. The geo-politics of colonialism were often very inhumane and destructive of local cultures, carrying with it much death and destruction. But, it also implied a rising standard of living for Europeans in particular (with access to cheaper labor and food) and people in other parts of the world. Colonialism, the extension of political control and domination over these newly “discovered” areas, was not a necessary ingredient for the benefits of trade, but were the result of rising economic nationalism that was to prove so destructive for the world. We will discuss some of the aspects of colonialism further.
- Steamboats, replacing sailboats, removed much of the danger and uncertainty associated with sea travel, which together with technological developments, like the compass and the use of latitude and longitude calculations, allowed for increased profitability in importing into Europe, starting with Spain and Portugal, and further much developed by Holland and, especially, England.
- It was in Holland, Amsterdam, that the first Stock Exchange developed to finance this new world trade. We will discuss this further.
- The digital age, the internet economy, the sharing economy, the information age, etc. these are the aspects of G 3.0 that now characterize the global economy – the result of enhanced transportation and communication on an

unprecedented scale. The development of standardized containerization should be noted (as it was in an earlier video).

- G 4.0 is ongoing – the development of real time cooperation at a distance – tele surgery, production actions at a distance (like assembly line functions controlled remotely), remote learning, control of AI for packing and shipping, and so on.

## CREATIVE DESTRUCTION

Video: [Creative Destruction](#)

<https://www.youtube.com/watch?v=BZoKfap4g4w>

“Creative destruction” was a term in Economics coined by an Austrian economist, Joseph Schumpeter, early in the 20th century. It's really become a central driving idea in Economics.

Creative destruction describes the continual process of innovation in which new products and services replace outdated ones. Take photos -- we live in a world of smartphones, Instagram, and augmented reality. How we got here reveals a long and winding path of creative destruction.

Before the digital era, you might have a Polaroid or you might buy film, typically from Kodak. You had to pay a few dollars for film, which got you about 20 pictures, and then pay more to get them developed. If, whoops, your eyes were shut -- too bad! You didn't know until days later. And if you accidentally opened your camera, poof, your pictures are gone!

Digital cameras came on the scene at the end of the 20th century. Entrepreneurs quickly improved the cameras, the software, and the accessories. People increasingly switched away from film. It was cheaper, easier and more enjoyable. These entrepreneurs represent the creative side of creative destruction. But what about the flip side, the destruction?

Polaroid employed over 20,000 people in their heyday. Kodak dwarfed Polaroid, employing over 120,000 employees and being one of the most well-known companies in the world. The digital age, while rejoiced by consumers, ushered them both into bankruptcy.

... the people that used to make the Polaroids and the Kodaks don't like that development because they just lost jobs.

There are two sides of creative destruction. Entrepreneurs inventing new products or ways to save money are how we improve our standard of living. These improvements are the foundation of prosperity, and positively impact generation after generation. But the flip side can make jobs or even whole industries go extinct.

People usually find new jobs. Most of those thousands of employees at Polaroid and Kodak went on to other types of work. When you take the long view, these job changes have historically been beneficial. In the 1800s, more than half of the United States was employed in farming. Because of time-saving inventions like the tractor, farmers now make up less than 2% of the workforce.

Now you might think, "My goodness! Those poor farmers! Where did they go? What kind of jobs could they possibly have had?" But by liberating that labor, we made it possible for people to do things, like produce automobiles, produce airplanes, for more people to become entertainers or movie stars, more people to become doctors.

So in the long run, we have fewer people working with film and more building photo apps and the like. However, in the short run, the transition can be extremely painful. If you've spent your life perfecting the craft of developing film, you're not walking out of Kodak and into a sweet gig at Instagram. You might just be out of a job and out of luck.

Creative destruction comes in many forms. We often think of the transformative technology, like the tractor, or the digital camera, or the smartphone, which fundamentally changes how we do things. Here's a not so obvious source of creative destruction -- trade.

Trading with another nation, it is a kind of technology. It's a way of getting something else more cheaply. You're getting things you used to produce, finding a newer, cheaper way of doing it -- be it with tractors, with robots, or with foreign trade. And they're all technologies enabling us to produce new and better things more cheaply.

Why is this so important now? I do think there's a very specific reason, and that is **the nature of jobs and the workplace is changing at an accelerating rate**. So the importance of being able to retrain yourself, the importance of being able to learn how to learn has never been more important than it is today.



Remember how the information revolution allowed companies to slice and dice their factories into a global supply chain? That has increased competition in the workplace.

Take Apple -- they're evaluating every link of their supply chain. Can they make this step cheaper? Can they make this component better? Back in the old days, employees just had to worry about losing their job to someone nearby. Now they might lose it to a person or robot or software that could come from anywhere on the planet. This means that jobs appear, disappear, and evolve more quickly than ever. That sounds intimidating, but remember, this competition drives the frequent explosions of creative destruction that are the signs of a healthy, vibrant economy. But we can't forget the flip side of the coin. There are those that are hurt by these explosions.

So there's no question that creative destruction has been a great thing for human beings. We just need to remember that the people that are displaced -- we have to make sure that we don't forget those people. We have to make sure that they have opportunities too.

## CHAPTER 11: WINNERS AND LOSERS FROM GLOBALIZATION

### CHANGE CAN BE DIFFICULT

Creative destruction means that there are winners and losers. The massive increase in trade brings with it significant change.

- Change can bring pain and uncertainty. While many benefit from innovation and the valuable options it creates some others (a smaller number) are often hurt by the reduced opportunities it implies for them. This can happen in various ways.
- Increasing trade along the supply chain can mean the displacement of workers in one place by those in another.
- Automation can imply the displacement of workers by machine technology.
- Automation accounts for more job losses than labor competition does.
- The nature of work has changed dramatically with G 3.0. It is less secure and more dynamic, but also has more upside potential for more people. Workers need to be more adaptable and mobile occupationally than ever.

Globalization is really just an acceleration of a trend that has been going on for a few centuries – during the period we think of as the modern era. An increase in innovation-driven trade has led to an expansion of markets geographically and this trend has accelerated greatly with the digital revolution – globalization 3.0. Improvements in communication and transportation (freight containerization) are at the heart of this. All trade has expanded, including trade across national borders.

But, as we know, all change is difficult, more for some than others. Innovation has meant gains for large numbers of ordinary people, but, also specific losses for a few. New technologies replace older ones and people employed in the latter have to relocate, may find their specific skills (human capital) obsolete. Similarly, new markets (for example for cheap labor abroad) may displace workers unable to compete (the US steel industry). So both technology and new markets may produce losers. As a factual matter technology is more responsible for this than new trade.

So, some losers can be identified by the things that they do or did, in the face of change. But, how about people in general in different income or wealth groups? Critics of globalizations sometimes allege that it has produced social inequality because “only the rich have gained from it”. It turns out that there is a lot of misinformation about this. Apart from the losses noted above, as a result of

changes in trade or types of production, it is not true that anyone has actually become poorer from globalization – in terms of broad income categories, there are only winners. Those who have gained most have been those at the very tip of the income scale, the mega-gainers who are now the mega-rich 1%. Those across the world in extreme poverty have also gained a lot in relative terms. Millions have been lifted out of poverty everywhere they are connected to the world economy. Those places still not connected continue to have the highest levels of poverty. This represents a great opportunity for entrepreneurs to find ways to connect these people to the internet and world trade. [Marc Zuckerberg of Facebook had an idea to use FB to connect people, proposing to fund this with ad money. It seems that for political reasons he was not able to pursue it.]

Those income earners in the middle – the broad middle class – lagged a bit in terms of the gains they received from increasing world trade. Some people see this as unjustified, because it represents a larger gap between rich and poor. Actually, it doesn't. It represents a larger gap between the mega-rich and the middle class. Take out the mega-rich and the gaps are not remarkable. In any case, why should “gaps” matter? Inequality in this sense, inequality of *outcomes* is not really ethically important. What is more concerning is *poverty* – and poverty is declining over the long run as a result of globalization.

This is explained in some detail in this video.

Video: [\*\*Winners and losers\*\*](#)

<https://mru.org/courses/everyday-economics/are-there-winners-and-losers-globalization>

## CHAPTER 12: RESPONSES TO GLOBALIZATION

### PROTECTIONISM

Since globalization brings with it rapid change, it produces anxiety and this has led to misguided protest on both the left and the right of the political spectrum. The left regards it as unjust because of what they see as an increase in inequality. The right regards it as threatening to “national” values and power. There has been a resurgence of economic nationalism an ideology that mixes economics and politics and erroneously sees economic advantage to be tied to the power of the state as compared to other states with whom it trades. This gives rise to support for the age-old regulatory policy known as *protectionism*. Protectionism refers to the category of policies designed to protect local industries – mainly through the levying of tariffs (taxes on imports), but also through the establishment of import quotas, paying of subsidies to local produces and so on. This video analyzes the case of tariffs and identifies the winners, losers and overall inefficiencies that result. The same effects result from any form of protectionism.

Videos: [Protectionism](#)

<https://mru.org/courses/principles-economics-microeconomics/tariffs-quotas-protectionism-definition> and [Arguments Against Free Trade](#).

<https://mru.org/courses/principles-economics-microeconomics/arguments-against-trade>

Note these videos come with full transcripts. For example [here](#)

### MIGRATION AND IMMIGRATION

The final topic in the examination of globalization is migration and immigration.

The explosion in world trade that characterizes the phenomenon of globalization has included trade in not only final goods and services but also trade in productive resources – human capital and physical capital. Though international migration remains a decision taken by relatively few in any national population, the numbers have grown dramatically and involve large amounts of income and wealth worldwide.

Migration is primarily an economic decision, an investment, a risky one. With world economic growth and development internal migration has grown steadily for centuries – starting with urbanization – people moving from rural to urban areas. The obvious extension of this is movement across state borders, especially as the wealth gap between rich and poor economies has grown.

The numbers show that international migration is a very profitable investment for the migrants who experience very large increases in income and wealth across the board from low to very high incomes. Immigration also benefits most people in the destination country. Claims that local workers are hurt by immigration are dubious at best. So, from the perspective of the global economy, immigration and emigration, by allowing human resources to move to their most highly valued uses is by far the best way to reduce poverty under the current circumstances. Remittances benefit people in the countries of origin and arguably emigration puts pressure on corrupt incompetent government to reform in the direction of freer trade.

Nevertheless, immigration policy remains controversial. There are various given justifications for the restriction of movement across national borders.

1. Protection of local workers. It is widely believed and intuitive that immigration of workers prepared to work for wages lower than local workers are receiving lower wages generally and thus hurt local workers who find their jobs and wages threatened. Both theory and data suggest this is a dubious claim. In the long run economy-wide immigration has stimulating effects. It increases both the supply of and the demand for labor, increases internal and international trade and innovation and generally creates wealth.
2. The argument is made that immigrants are dangerous – criminal or terrorists, so that national security demand severe restrictions. This could be the case in some rare circumstances, particularly in the case of refugees from war torn areas like Syria who flood the wealthy countries of western Europe. But, as a general matter, it is not true. Immigrants have a greater incentive to avoid being criminals because they have no procedural protections and can be summarily deported. The data suggest that the proportion of criminals among known immigrants is less than in the population at large.
3. A third argument concerns the question of immigrants receiving tax-funded social benefits, like medical care, unemployment insurance, social security, etc. This is not a valid argument for restricting immigration. The immigrants can be excluded from such benefits. In addition, in many cases immigrants, even undocumented ones, pay for the benefits they receive – in the same way as citizens do. If they work legally they pay taxes. If they work illegally with fake IDs they pay social security but can likely never collect social security benefits on those IDs for fear of detection.

4. A final argument concerns the dilution of culture. Some claim that "immigrants of different cultures are likely to adversely affect our "way of life". Whether or not this is true and warrants government restrictions to "preserve our culture" is both an empirical and ethical question. Empirically some have argued that American institutions have shown great stability even while the society has absorbed immigrants from many diverse cultures around the world including western Europe, Eastern Europe, Asia, Africa, the Middle East and Latin America.

A case can be made for dramatic reform of the immigration system in favor of focusing on the ability and desire of immigrants to work, invest and make a better life for themselves. There are various ways of doing this. Granting temporary guest worker residence status, perhaps leading after probation to the ability to apply for citizenship, is one idea.

The following four videos deal with aspects of this discussion

**[Basic facts about migration](https://mru.org/courses/development-economics/basic-facts-about-migration)**

<https://mru.org/courses/development-economics/basic-facts-about-migration>

**[Wage gains from migration](https://mru.org/courses/development-economics/wage-gains-immigration)**

<https://mru.org/courses/development-economics/wage-gains-immigration>

**[Remittances](https://mru.org/courses/development-economics/remittances)**

<https://mru.org/courses/development-economics/remittances>

**[Wage effects in the U.S.](https://mru.org/courses/development-economics/wage-effects-us)**

<https://mru.org/courses/development-economics/wage-effects-us>

## **APPENDIX**

Recent events, over the last decade and more recently, have provoked the judgement that the world is deglobalizing. The article at this link considers the reasons for this, touching on some of the themes we have discussed, and shows why economic logic and evidence points toward a continuing trend toward globalization of world trade.

**[Globalization Is Alive, Well, and Changing](https://reason.com/2022/06/07/globalization-is-alive-well-and-changing/)**

[https://reason.com/2022/06/07/globalization-is-alive-well-and-changing/?utm\\_medium=email](https://reason.com/2022/06/07/globalization-is-alive-well-and-changing/?utm_medium=email)

## **PART 3 – MACROECONOMICS**

**The nature of evolution of money, banking and financial markets**

**Inflation**

**Macroeconomics and monetary policy**

## CHAPTER 13: MEASURING INFLATION

We now enter the third and final part of our course.  
We begin by considering the topic of inflation.

### WHAT IS INFLATION?

By price inflation we shall mean a situation in which the economy's overall price-level is rising. This is not so easy to measure. What do we mean by "overall price-level?" "Price-level" is usually measured as an average of prices, and usually we use the percentage change in the "price level" from a previous period.

### MEASURES OF INFLATION

The most common measure of price-inflation uses the *consumer price index* (CPI). This is a measure of the overall cost of the goods and services bought by a "typical" consumer. The Bureau of Labor Statistics reports the CPI each month.

Follow me around the supermarket in year 1, record what I buy. In year 2 have me buy the same things and compare the prices. This is the method for a base-weighted price index.

For a current-weighted index. See what I buy today and find out what it would have cost a year ago.

This describes the idea of computing price inflation for one person. But, in reality the indexes refer to an "average" of people.

The basic method involves the following steps.

**Fix the Basket:** Determine what prices are most important to the typical consumer.

The Bureau of Labor Statistics (BLS) identifies a market basket of goods and services the typical consumer buys and in what proportions – these determine the "weights" to be used in comparing prices. This "basket" of goods and services is changed from time to time – but not very frequently.

**Find the Prices:** Find the prices of each of the goods and services in the basket for each point in time.



**Compute the Basket's Cost:** Use the data on prices to calculate the cost of the basket of goods and services at different times.

We can be a bit more specific about the mechanics involved in measuring price inflation using the CPI.

**Choose a Base Year and Compute the Index:** Designate one year as the base year, making it the benchmark against which other years are compared. A base year should be one in which no unusual economy-wide events occurred – for example, no war or major economic disturbance. The CPI is constructed using the prices and quantities in the index – the quantities determine the weights for averaging the prices as follows:

$$\text{CPI} = p_1w_1 + p_2w_2 + \dots + p_nw_n = \sum_{i=1}^n p_iw_i$$

This is a weighted average of prices,  $p_1 \dots p_n$ , for  $n$  commodities,  $q_1 \dots q_n$ . The weights,  $w_i = (p_iq_i/Y)$ , are simply the proportion of expenditure on each commodity,  $p_iq_i$ , of total expenditure,  $Y$ .

**Compute the inflation rate:** The rate of inflation is computed by first computing the index for two years, a current year (Year 2) and a base year (Year 1), and then calculating the percentage change in the change between the two years as follows:

$$\text{Inflation rate in Year 2} = (\text{CPI in Year 2} - \text{CPI in Year 1}) / \text{CPI in Year 1}$$

This can be multiplied by 100 to express it as a percentage.

In more detailed terms:

$$\text{Inflation} = \left[ \frac{(\sum_{i=1}^n p_{i2}w_{i1} - \sum_{i=1}^n p_{i1}w_{i1}) / \sum_{i=1}^n p_{i1}w_{i1}}{(\sum_{i=1}^n p_{i2}w_{i1} / \sum_{i=1}^n p_{i1}w_{i1}) - 1} \right] \times 100 =$$

where the numbers 1 and 2 refer to Year 1 and Year 2 respectively. Note the use of weights from Year 1 throughout.

## PROBLEMS WITH BASE WEIGHT PRICE INDEXES

There are some problems associated with measuring the cost of living using the CPI

**Substitution Bias:** The basket of goods in the base does not change to reflect consumer reaction to changes in relative prices. In their actual expenditures,

consumers substitute toward goods that have become relatively less expensive over the period being measured. But the method of measurement does not allow for this substitution. The same expenditure proportions are used for both periods. Thus using this index tends to overstate the increase in the cost of living by not considering consumer substitution.

**Introduction of new goods:** In a similar fashion, the basket of goods in the base year does not reflect the change in purchasing power brought on by the introduction of new products, which is an important part of economic growth. New products result in greater variety, which in turn makes each dollar more valuable implying that consumers need fewer dollars to maintain any given standard of living.

**Unmeasured quality changes:** Improvement in the quality of existing goods is another important aspect of economic growth and a rising standard of living for any given expenditure. The BLS tries to adjust the price for constant quality, but such differences are often very hard if not impossible to measure.

## OTHER PRICE INDEXES

There are other reported price indexes.

- Indexes for different regions within the country – for example regional price indexes.
- The *producer price index*, PPI, which measures the cost of a basket of goods and services bought by firms rather than consumers
- The *wholesale price index*, WPI, which measures the cost of a basket of goods at the wholesale level

These are all base weighted indexes. There is one index, however, that is a current weighted price index - The GDP deflator. It uses the weights of the current period as follows for the  $m$  goods and services in the current GDP. The GDP deflator

$$= \left[ \left( \frac{\sum_{i=1}^m p_{i2} w_{i2}}{\sum_{i=1}^m p_{i1} w_{i2}} \right) - 1 \right] \times 100$$

Note how the weights of Year 2 are used throughout. Compare this with the formula for the CPI.

It should be obvious that the GDP deflator has the opposite bias from the CPI with regard to the substitution of goods of relatively lower price and thus tends to understate the rate of inflation. It has similar problems regarding the introduction of new goods and the improvement in quality of existing goods.

## CHAPTER 14: WHAT IS MONEY?

### THE IMPORTANCE OF MONEY PRICES FOR ECONOMIC CALCULATION WHICH FACILITATES ECONOMIC COORDINATION

In our discussions so far, we have said very little about money. We have discussed how prices work in markets to provide both signals and incentives that serve to coordinate individuals' actions. The earning of profit and loss that results from using prices as methods of calculation tends to push resources to their most profitable uses – those uses that add the most value for consumers in the economy.

But we also saw that not all economies present a picture of an adequately functioning economy. A huge gap remains between rich and poor economies. Adam Smith's question: what accounts for the "wealth of nations" is even more relevant today that it was when he published his seminal work in 1776. And the answer he gave is also still valid, namely, that in order to grow and develop economies must be situated within societies in which the rule of law and private property are understood and respected. Only then will the creative division of labor and knowledge necessary for the achievement of the prosperity, we in the U.S. take for granted, be able to be implemented. In order to be successful, innovative entrepreneurs need to be able to rely on stable, well-understood laws and procedures governing transactions and contracts. In their absence, prices will not function properly and development cannot occur.

One of the most basic institutions underlying the economy is **the institution of money**. Money develops and works together with the rule of law and private property to enable the extensive division of labor that characterizes modern complex economies. And *when monetary institutions cannot be relied upon – as is the case with significant inflation – the economy will collapse*. It behooves us, therefore, to ask: what is this thing called money? Where did it come from? How does it work; how does it go wrong?

### THE FUNCTIONS OF MONEY

Perhaps the best place to begin is with the functions of money. These are well known and can be found in any basic or intermediate textbook on economics.

We are likely to encounter a traditional list that will tell us that money is

1. A medium of exchange (= a means of payment)
2. A store of value
3. A unit of account

And some textbooks may list a few others.

Though common in economic teaching, these functions do not really tell us very much about what money is and how it works. Only the first, (a medium of exchange = a means of payment) is essential to money. In fact, this is really nothing more than a definition of money – defining money by what it does. Money is a way of accomplishing exchange – what we may call “indirect exchange” – exchanging one thing for money and then exchanging money for what we want, so that to get what we want we go through a somewhat indirect process, unlike barter – direct exchange – where we exchange that which we have directly for that which we want. Money enables indirect exchange, which, as we shall see momentarily, has enormous benefits for society. To say that something is money is to say that it is a means of payment. To say that something is a means of payment is to say that it is money. Being a means of payment is both a necessary and a sufficient condition for something to be money.

But the same is not true of the other two functions given. Money must indeed be a store of value if it is to function as a means of payment. But not all stores of value are money. Being a store of value is *necessary* but not sufficient. If a money ceases to retain its value over time it becomes unacceptable as a means of payment.

## THE BENEFITS OF MONEY

But having said that begs more questions. We can dig a bit deeper by considering the manifest benefits of money. They fall under two headings.

- Money facilitates exchange. As explained earlier, being able to use a means of payment means that one can engage in indirect exchange, rather than be constrained by the difficulties of direct barter exchange. Direct barter exchange involves what has illuminatingly been called “a double coincidence of wants”. In order to trade apples for oranges, I need to find someone who *has* oranges and *wants* apples. I *want* oranges and I have to find someone who *wants* apples – and, moreover, it has to be someone who wants to trade oranges. What he *has* and *wants* must coincide exactly with what I want and have. One must be the exact mirror image of the other – we

need a double coincidence of wants if any exchange is to occur. How likely is this? Certainly it is much less likely than being able to find someone who simply wants my apples and finding someone else who wants to sell me oranges. This is what money does. It *separates the acts of purchase and sale* – each occurs separately for money – making it much more likely that an exchange can occur. I sell my apples for money and buy oranges from someone else. Exchange is separate and specialized.

The mere fact of allowing and enabling enhanced exchange opportunities creates enormous economic value. The difference between the exchange networks that use money and those that do not is inconceivably large. [That exchange *per se* creates value is obvious from the fact that in any exchange in which I engage for my benefit, I give up something that I value less than what I receive, and so does the person with whom I trade. It is a positive-sum game, a win-win, an act that results in mutual benefit. Value is created.

- Money facilitates production. It does this by providing greater security in exchange. Knowing that I am very likely to find someone to buy my oranges for money, makes it much more likely that I will specialize in the production of oranges, than if I faced the prospect of trading my oranges directly for everything I needed. This specialization in production is a key element of a developed economy – an aspect of Adam Smith’s division of labor. It implies an ever-increasing complexity in the production network an ever-increasing variety in the products available to consumers. So, even more than the considerable benefits of enhanced exchange, the benefits of enhanced production opportunities create tremendous economic value. Without money modern specialized economies are inconceivable.

It follows, therefore, that inflation is a prime enemy of a healthy economy. By undermining the efficient functioning of money and monetary institutions, inflation destroys value – it destroys opportunities for exchange and production.

Given that money is such a remarkable social institution that has such incredible benefits, we might wonder how it ever got started – how did money come about. By understanding this we find out a lot more than simply the origins of money.

## THE ORIGINS AND DEVELOPMENT OF MONEY

It turns out that money is a spontaneously evolved social institution like language, or law, or exchange itself. Like many social institutions money is an evolved unintended outcome of human actions in the pursuit of personal profit and gain. It is the result of human action but NOT of human design.

No one invented money. No one could have invented money. Money must have come about as a result of the natural selection of one or a few very marketable commodities in a barter system coming to be accepted, not for themselves, but in order to use as an instrument of exchange. I have meat that I want to trade for fish. In order to do this I need to find someone who has fish and wants my meat. In the meantime, my meat could spoil. So I decide to trade my meat for copper first and then look for someone who has fish and is willing to trade it for copper. I know that copper is a widely traded commodity, it is highly valued in the use of weapons, jewelry, utensils and other things. So I feel confident that my chances of getting my fish are improved by this strategy. At the moment that I accept copper, not for its own sake, but in order to re-trade it for something that I do want for its own sake, it becomes, for me, money. And if copper is a highly marketable commodity, and if I am seen to be successful, many traders will use this strategy for their own trades. And the more they do it, the more likely it is that others will do it. The benefits of using anything as money depends on how acceptable it is as money – on how many people already accept it as money.

The social institution of money arises as a result of *network effects*. A network effect occurs when the benefits rise with the number of members in the network – so it is a dynamic situation that feeds on itself. The more acceptable money is the more acceptable money becomes; and the rest is history.

Historically, many things, some most unlikely, have functioned as money, including, tobacco, cigarettes (still do in prisons), sea shells, cattle, and of course precious metals like copper, silver and, most compellingly, gold.

These considerations suggest some very important implications:

1. It must be the case that all moneys evolved, directly or indirectly, from a commodity that was once not money (did not have a monetary function). The logic of monetary evolution leads inescapably to this

conclusion. The only way money could gain a foothold in a market is if it was already valuable in exchange. From that point other moneys evolved by being tied to something that was already money (by way of contract or government commitment). This is how paper money evolved from coins (made of precious metal) and how checking accounts evolved from paper money and how electronic money evolved from checking accounts. What is counted as money and what is counted as a money-substitute in any time and place is really a matter of convention. If people accept it as a (final) means of payment it might as well be called money. But money cannot spring from thin air – it must be the product of social evolution

2. These remarks seem to contrast with the fact that all modern moneys are government moneys. How can this be explained? The fact is that at a fairly early stage in the evolution of all moneys, governments invariably get involved and end up monopolizing the creation and control of money in a given political entity. Monopolizing the issue of an already existing money is very profitable (especially if the economy is growing), and modern governments use this mechanism as a vital source of revenue – as we shall later see. The last private money was gold – which functioned as part of an international payments system known as the gold standard. But there have been numerous episodes of privately issued money, in private banking systems – in the U.S. during the free-banking period, in Canada, Scotland, China, Australia and elsewhere. In each case, with the emergence of the nation state, private issue was eventually banned using the argument that standardization brings benefits – replaces chaos with order. The truth is that monopolizing the issue of money replaced competition in the issue of stable currencies and made us dependent on constitutional constraints on central banks to avoid inflationary monetary expansion.

[Exercise: can you explain how competitive currencies would work automatically to provide consumers with protection against inflation?]



## Chapter 14: Money and Financial Institutions

### FROM MONEY TO BANKS

Clearly the emergence of money has led to the existence of a very complex financial infrastructure that depends on it.

Once the use of money became established, for example in the use of a precious metal like gold or silver, commodity money, merchants found it profitable to offer safekeeping services. People would deposit a sum of money with them and receive a receipt. The merchant charged a fee for keeping the money safe and available for withdrawal at any time.

Pretty soon, the receipts, rather than the money itself, started circulating as money – became acceptable as means of payment. And the merchants found that only a fraction of what was deposited was ever withdrawn. These receipts evolved into bank notes of standard denominations. This is the origin of paper money. It worked well as long as the money was considered easily exchangeable for the gold in the banks – they were redeemable for gold.

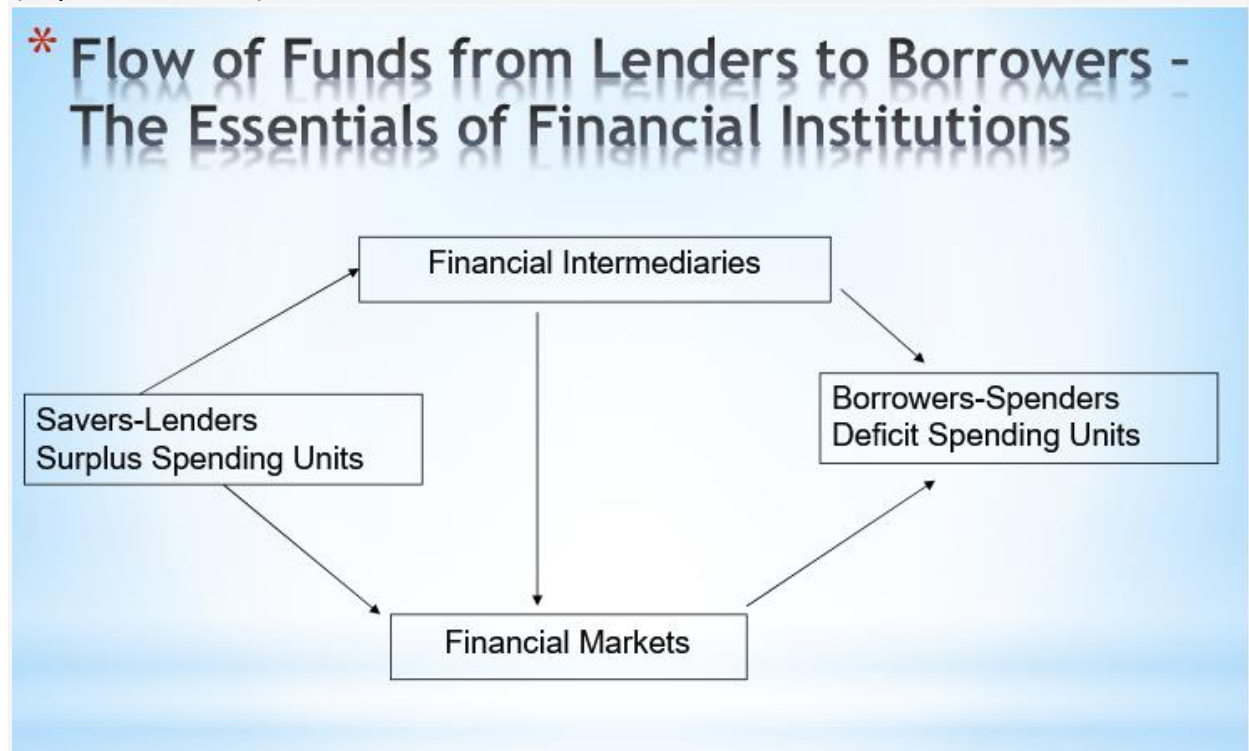
Since the merchants realized they would have to keep only a fraction of reserves on hand in the bank at any one time to meet withdrawals, they were able to use the rest to make loans, to make investments. With the interest they earned from this, they could pay their depositors (a lower rate) and make a profit. This is the origin of banking – fractional reserve banking.

As we shall see, these commercial banks are the backbone of our modern payment system and are instrumental in the creation of modern money – which consists mainly of checking accounts, a later development from paper money (and coins).

Banks are one type of financial institution – financial intermediary. There are many others as we shall see – all the result of social evolution.

## FINANCIAL INTERMEDIARIES

Money is the basis of the **flow of funds** that constitutes the financial markets (capital markets). The slide below illustrates.



Though often perceived to be shrouded in mystery, modern financial systems are absolutely indispensable for the functioning of our modern complex economy. To understand this we need to understand the phenomenon of *financial intermediation*.

We have already established that a monetary economy is categorically different from a barter economy in that it allows for the separation of the acts of purchase and sale. Another difference, as important, is that money also allows for the separation of the acts of saving and investing.

In economic terms, saving occurs when someone spends less than they earn (they are a surplus spending unit) and have money left over. In order to keep this money safe (and maybe earn interest on it) a saver faces many alternatives – keeping the money in a checking account, or a savings account, or buying stock, or buying a corporate bond, or buying a retirement annuity, and so on.

In economic terms, investment occurs when someone uses funds to purchase productive resources to add value by producing goods and services for sale – in other words when someone adds to the productive capital of the economy. This occurs when existing firms borrow money to expand, or when start-ups borrow money to get going. [Strictly speaking some borrowed savings goes to replenish and maintain existing productive capacity – that is for the funding of depreciation allowances. This is part of gross investment, but is not net investment. Both are important, though, clearly, net investment is necessary for economic growth.]

So the people who do the saving are different from the people who do the investing. [Any of us may fulfill both roles at different times and in different capacities.] What financial markets do either directly or indirectly, is to channel funds from savers to investors. This is a remarkable phenomenon, without which economies could not develop. No economy in history has reached a level of significant prosperity without a functioning capital market. Savers, collectively, have the financial means, but not the desire (or expertise), to purchase the service of productive resources for use in production. Investors (entrepreneurs) do not have the means, but have the strong desire, to use those productive resources in the production of value (in the pursuit of profit). So a deal can be made if the savers can be paid to relinquish their claim to resources in favor of the investors. This is essentially what happens in financial markets.

There are two channels by which funds can flow from savers to investors.

1. Direct finance – funds can flow directly into business if savers invest their savings themselves. Examples are buying stock, starting a business with our own money or purchasing a partnership or a corporate bond directly from the company (the producer).
2. Indirectly – more common – funds can flow into financial institutions, known as financial intermediaries, who then invest the money in loans or stocks. The difference between financial intermediation and direct finance is that in the former case the financial intermediary uses the money it receives from savers to invest for its own account, for its own benefit. So, when a commercial bank makes a loan to a small business with money it receives from savers, it charges a rate of interest higher than the rate it pays, and the borrower's obligation is to the bank, not to the bank's depositors. The depositors are owed money by the bank, not by the people to whom it loans money. That is the essence of financial intermediation. The intermediary is a

separate party dealing on its own account. It is not an agent or a broker simply using its client's money for its clients gain in return for a fee. It is its own agent with separate obligations to its depositors and borrowers. The same sort of network of relationships occurs when a life insurance company uses money from the sale of insurance policies to purchase corporate stocks. And so on for the many different types of financial intermediaries.

So, why do we need financial intermediaries? Why not simply use financial markets to channel funds directly?

The answer lies, as might be expected, in the benefits of specialization. Savers and investors in general have different characteristics. This can be summarized as you see below.

<b><u>Savers</u></b>	<b><u>Investors</u></b>
Numerous	Less numerous
Small	Larger
Risk averse	Risk takers
Short time horizon	Longer time horizon

Financial intermediaries bridge the essentially different profiles of savers and investors. Financial Intermediaries add value through economies of scale in pooling of information and risks. They are specialists in what they do. Banks specialize in creating and managing loans – they use infinitely reusable data bases to do due-diligence leveraging their special knowledge of what the data means, to make loan decisions. And they spread the risks associated with the granting of loans – the risks of default and non-payment – over a large number of independent borrowers, thus reducing the overall risk of the loan portfolio. This is the principle of diversification that has so many applications in the different kinds of financial operations from insurance to retirement to corporate finance. Without financial intermediaries most of the innovative productive uses of resources that have brought us the goods and services we enjoy and take for granted would not have occurred.

Financial Institutions – here is a list of the most common.

- Commercial banks
- Private non-insured pension funds
- Mutual funds (stocks and bonds)
- Life insurance companies
- State and local government retirement funds

- Money market mutual funds
- Savings and loan associations and mutual savings banks
- Property and casualty insurance companies
- Commercial and consumer finance companies
- Credit unions

## Financial assets traded in the capital market

- Residential mortgages
- U.S. government securities (marketable long term)
- Corporate bonds
- Commercial and farm mortgages
- State and local government bonds
- U.S. government agency securities
- Financial derivatives – futures, swaps, options.

Having discussed the benefits and origins of money, we noted the further development of financial intermediation and financial markets. A wide variety of financial assets are traded in financial markets, including stocks, bonds, foreign exchange, promissory notes, and so on.

The financial market can be split between the capital market, trading assets longer than one year and the money market trading assets - including money (reserves) - less than one year.

We may sum up the function of money by saying it facilitates exchange by separating the acts of purchase and of sale. Similarly, money also stimulates investment and production, directing financial capital to its highest value uses, by separating the acts of saving (buying financial assets) and investment (selling financial assets). Financial markets, where savings and investments meet are sometimes called loanable funds markets.

## **MONEY TODAY**

In modern economies Banks create money by lending deposits that they receive. Those loans get redeposited in other banks who use them to make loans, each time keeping a fraction of the deposit on reserve. Deposits in banks are money to the public - they can be used to buy things (they are checking accounts). Thus, from a certain amount of reserves, a multiple of money is created.

**Money** = Currency outside banks plus demand deposits (checking accounts) at banks. Watch these videos:

**[Saving and Borrowing](https://mru.org/courses/principles-economics-macroeconomics/savings-and-loan-)** <https://mru.org/courses/principles-economics-macroeconomics/savings-and-loan->

**[What do banks do?](https://mru.org/courses/principles-economics-macroeconomics/banks-financial-intermediaries)**

<https://mru.org/courses/principles-economics-macroeconomics/banks-financial-intermediaries>

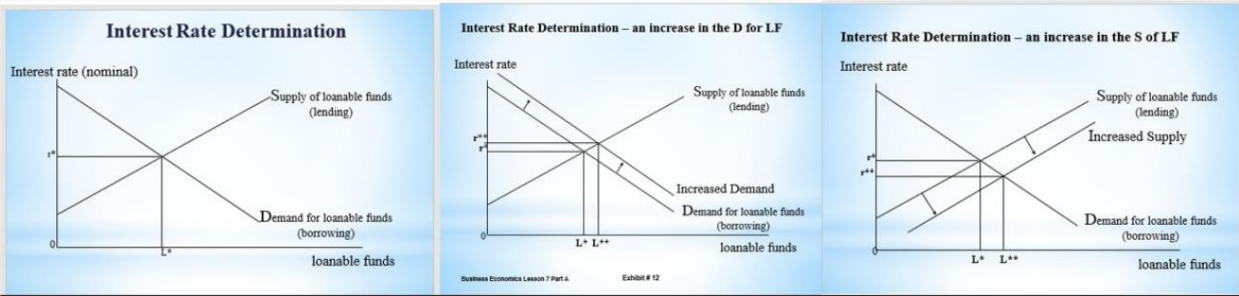
## CHAPTER 15: INTEREST AND INTEREST RATES

Interest is the price of credit. It is the cost of borrowing. The phenomenon of interest exists because individuals have time preference.

Interest is a phenomenon that has existed throughout human history – and yet has been subject to restrictions and taboos. It is a phenomenon that is closely connected to time – in fact the essence of interest is positive time-preference – which is the preference to possess and consume something sooner rather than later, other things constant. This has been a controversial area in economic scholarship, but I believe it is true to say that time-preference exists because of the way we experience time. The future is uncertain, the more so the more distant the point in the future being contemplated. And we do not live forever, our lifetimes are limited. Thus, it makes sense to say that we would rather have things sooner than later, especially if value can be carried through time – as with durable goods or money.

Nevertheless time-preference at the margin – marginal time-preference – the compensation required to part with the last dollar in return for a payment of principal and interest, varies across individuals and circumstances. In particular, age is a determining factor. The opposite of time-preference is the capacity for deferred gratification. This capacity is lowest when very young, and it falls as one approaches one's prime working years, rising again as one approaches retirement and the end of life. Thus the average time-preference of any society depends crucially on its age distribution. Very young and very old societies tend to have high time-preferences and societies heavy with working-age individuals may be expected to have a relatively low time-preference and to have a relatively high savings rate.

Note that time-preference is a necessary and sufficient condition for interest to exist. Without time-preference – if people did not care when they received their money, today, tomorrow, next week, next year, interest rates would be bid down to zero. People would be able to borrow money at zero interest rates and would invest in any project that paid even one penny. With diminishing returns to productive investments interest rates and rates of return on real investments at the margin would go to zero. Similarly, if time-preference is positive, interest rates must be positive. Interest rates faced by borrowers are the binding constraint on investments.



With this in mind we can discuss the process of interest rate determination. An interest rate is a price – it is the price of borrowing, the price of credit. It is not, as often suggested in popular conversation, “the price of money”. The price of money – or the “value” of money. is simply what money can buy – its exchange value – one indication of which is the “price-level”. Interest is the price of borrowing money – the price of “renting” money.

Being a price, like all prices it is determined by supply and demand – in this case the supply and demand for borrowing – or more familiarly the supply and demand for loans – for loanable funds. Nothing affects interest rates except as it affects the supply and demand for loanable funds.

[Exercise: How does time-preference affect the supply and demand for loanable funds? Hint: both S and D are affected, but in opposite ways.]

An increase in the D for LF, other things constant, will result in an increase in the interest rate and an increase in the volume of LF.

An increase in the S of LF, other things constant, will result in a decrease in the interest rate and an increase in the volume of LF.

I will leave it to you to explore further alternatives in which both S and D change.



## Chapter 16: Money and the Economy – The Money Supply Process

### CENTRAL BANKS – THE FEDERAL RESERVE SYSTEM

Understanding what money and financial markets are is a first step in the examination of monetary policy. Monetary policy concerns the effect of changes in the supply of money and the level of interest rates on the economy as a whole. In order to examine this, we begin with the question: What causes the supply of money in the economy to change?

The short answer is: it changes mainly as a result of what the central bank does – the Federal Reserve System, the Fed is our central bank. More accurately, the Fed together with the commercial banking system (plus a small influence of actions by the general public) determine the level of the money supply.

Important idea: The price of financial assets varies inversely with the rate of interest payable on them. The higher interest rates the lower the price at which financial assets can be bought and sold. Make sure you understand why this is so.

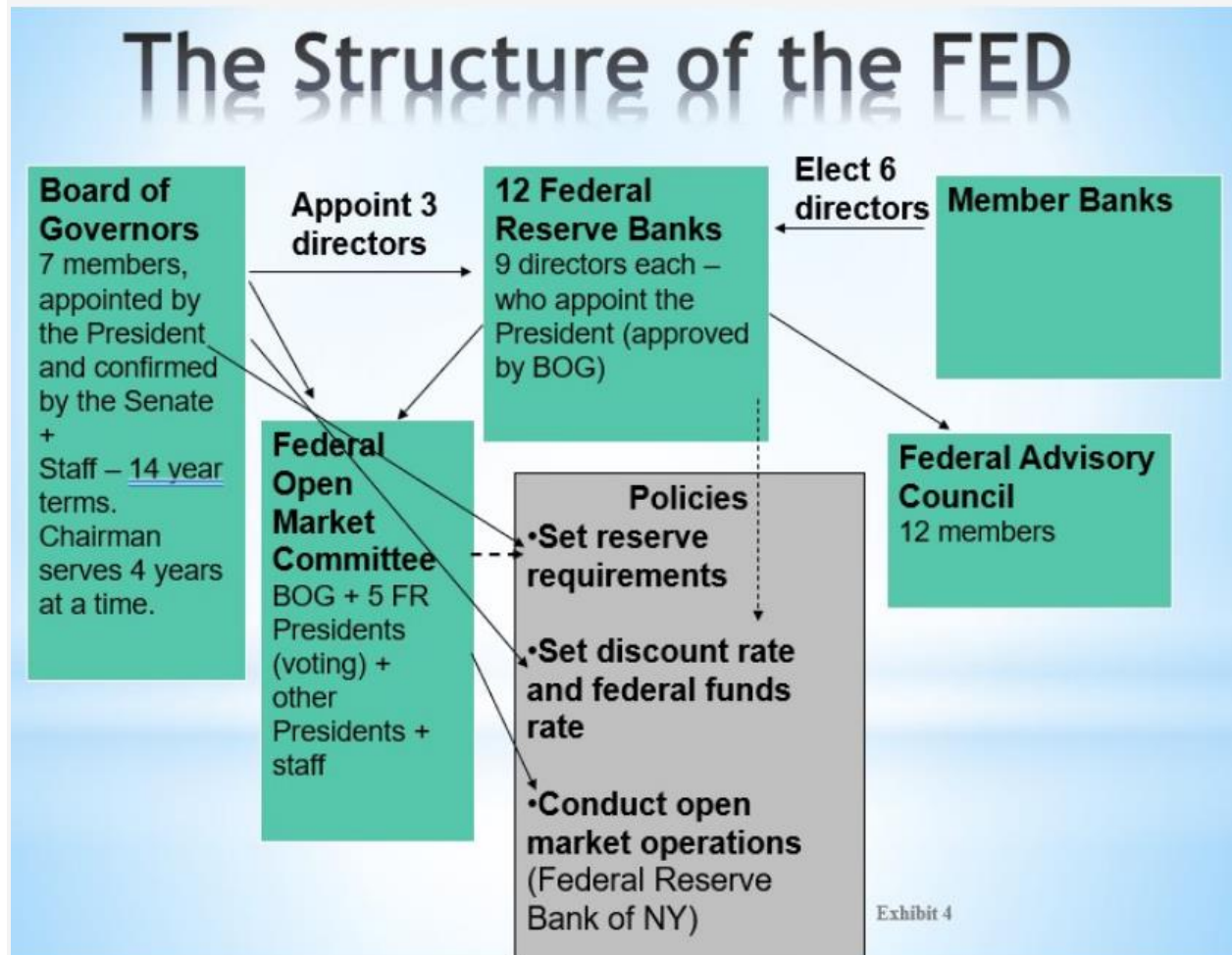
An indispensable ingredient of macroeconomic policy, is monetary policy - which together with fiscal policy constitute the elements of macroeconomic policy. Fiscal policy is directed by the Treasury and monetary policy is directed by the Central Bank (The Federal Reserve System).

Central banking arose first in England when the Bank of England was granted special privileges in return for being the “government’s bank”. It evolved into the sole director of monetary policy for the nation. Seeming to work well, the British system was soon copied by many economies around the world. In the U.S., after a series of stop-start episodes, we finally settled on the unique variant of central banking – an entire central banking system – the Federal Reserve System.

it is important to note that the free-banking period was an example of competitive banking and currency issue. it was characterized by the emergence of a private clearing-house centered in Boston, at the Suffolk Bank. The note-issue of member banks was disciplined by the clearing house. Any bank found to experience "adverse clearings" as a result of over-issuing notes faced the prospect of expulsion from the clearing house. This was an automatic guard against inflation.

During the free banking era, some banks failed. But in most cases, this was a result of the regulations imposed on them by state governments mandating their holding of state bonds.

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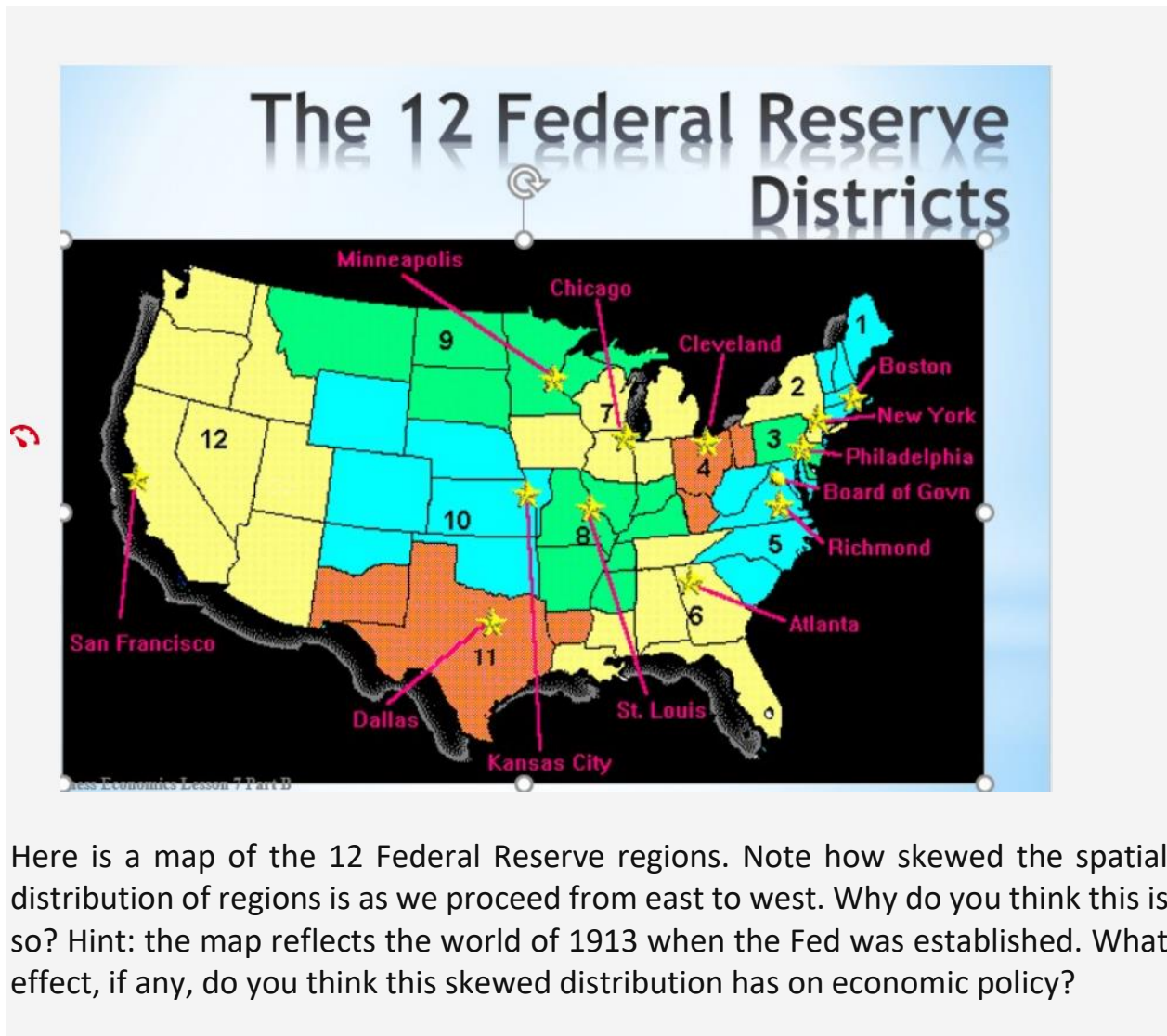


In the slide above we have a summary of the structure of the Fed. The most important take-aways from this are:

1. The Fed is designed as a balance of federal and local interests. Each federal reserve bank in the 12 regions is meant to include local banking and business interests.
2. The most important policy making elements of the Fed are the Board of Governors and the Open Market Committee (OMC). Open market operations refer to the purchase/sale by the Fed of Treasury securities in order to increase or decrease bank reserves and, therefore, the supply of money. The

OMC has evolved into the center from which both open market operations and interest rate policy emerge.

3. Though officially independent, the Fed often tends to work closely with the federal government (Treasury) in the implementation of joint fiscal-monetary policies.



Here is a map of the 12 Federal Reserve regions. Note how skewed the spatial distribution of regions is as we proceed from east to west. Why do you think this is so? Hint: the map reflects the world of 1913 when the Fed was established. What effect, if any, do you think this skewed distribution has on economic policy?

### THE MONEY SUPPLY PROCESS

The Fed influences the money supply by determining the level of bank reserves. Bank reserves are money balances that the commercial banks have on deposit (or in their bank vaults (only a small proportion)) with the Fed. Funds flowing between commercial banks are administered by the Fed (much like money flowing between individuals is administered by the commercial banks). Trading reserves between the banks occurs in what is called the interbank market – in the US, the federal

funds market. The Fed is the bank of the commercial banks, like commercial banks are banks of the public. So, the Fed influences the supply of money by determining the level of bank reserves. And it does this by buying and selling government financial assets, Treasury bonds, bills and notes. [Bonds are assets with maturity dates greater than ten years, notes greater than one year, and bills less than one year.]

The way in which the supply of money,  $M_s$ , changes can be summarized like this:

**Fed  $\rightarrow$  R  $\rightarrow$  M**

– that is one link in the monetary policy chain. The Fed, by buying or selling Treasuries changes the level of bank reserves R. The second link in the chain is

**M  $\rightarrow$  the Economy as a whole = GDP.**

Changes in M cause changes in the economy as reflected in changes in the GDP. And changes in the GDP can be broken down between changes in prices in general and changes in the quantity of things produced and sold in general = PQ. This is the subject of macroeconomics that we will study in the remaining lessons.

Considering the first link in the chain, we must emphasize that this is a dynamic process in time. When the Fed changes the level of reserves, R, the consequences leading to a change in the money supply, do not occur immediately and their level and timing are very unpredictable. What we can say can be summarized as follows:

$$\Delta DD = (1/r) \Delta R$$

a slightly more complicated and more accurate formula is:

$$\Delta DD = 1/(r_e+r_r) \Delta(R_e+R_r)$$

Total reserves can be divided into required reserved  $R_r$  excess reserves  $R_e$ .  $R_e/DD = r_e$  and  $R_r/DD = r_r$ .

A further complication concerns the cash that the public holds, relative to the deposits they have. The higher this proportion,  $c$ , the lower the money multiplier, because the smaller the total of reserves.

Watch this video for a good explanation: [The Money Multiplier](#)

## RECENT DEVELOPMENTS

After the financial crisis of 2008, the Fed started paying interest on reserves. In addition, it increased its scope of operations beyond open market operations (the buying and selling of Treasury securities in the financial markets) to buying up assets of some non-bank financial institutions – assets like mortgage backed securities. This is called **Quantitative Easing**. Check out the Fed's balance sheet to see how much of a difference this made. QE represents a major change of the role of the Fed as it entered the market to influence the allocation of credit. It remains to be seen whether the Fed will ever return to its more limited role of conducting monetary policy.

Paying interest on reserves also represented a major change – mainly because the Fed paid a rate higher than the federal funds rate. The federal funds rate is the rate at which commercial banks borrow and lend to each other in the **federal funds market** – sometimes called the interbank market. When the Fed decided to pay a rate higher than the federal funds rate, banks, understandably, stopped lending in the federal funds market – which all but collapsed. This effectively created a “floor” to the market rate of interest; below which rates could not fall.

This floor system broke the link between changes in  $R$ , reserves, and the supply of money  $DD$  and  $M$ . So, the massive increase in reserves injected into the system did not lead to inflation and they were deposited by the banks in the Fed and held there as excess reserves. This has now clearly changed.

Note: the symbol  $\Delta$  (delta) means "change in". This equation above says that the maximum increase in  $DD$  that can occur as a result of a change in  $R$  is given by the multipliers. When banks receive newly created reserves (by the Fed) they can lend out all except a fraction  $r$  of those reserves (assuming they want to keep  $r$  in reserve). So the new reserves flow from one bank to another (conceivably returning to the same bank) and loans, and deposits, aka money, are created. We consider money to be  $M = DD + C$ , money equals demand deposits (checking accounts) plus currency (notes and coins). The process occurs over time in an unpredictable way, but the limit to the creation of  $DD$  is given by the equation because  $r$  provides an anchor to the process. Once all of the new reserves are needed to satisfy desired reserves, the process stops.

## Chapter 16: Monetary theory and policy

*Be sure to check the topical outline, part 3, to see some useful videos from an online textbook.*

### THE EQUATION OF EXCHANGE

We consider now the second link in the chain

$M \rightarrow$  The Economy

– the connection between the money supply and economic activity in general. This is something that has always concerned economists and the classical economists developed a framework for dealing with it that we still use today. It has various forms. Below we show the two most common – in the form of two equations known as, respectively, the equation of exchange – developed by American economist Irving Fisher and the Cambridge (England) cash balance equation, developed by Alfred Marshall.

$MV = PQ$  – the equation of exchange –Irving Fisher;

$M = kPQ$  – the Cambridge cash balance equation – Alfred Marshall.

Though emphasizing different things these two equations are essentially equivalent – they are actually simple identities and can be easily understood. Consider that we are examining the second link in the chain of monetary policy  $M \rightarrow$  The Economy as a whole. Define  $Y$  as a measure of aggregate economic activity – a measure of the monetary value of all final goods and services produced in a given time period. (We shall later use the GDP as such a measure). Calculate a price index,  $P$ , for this aggregate of prices and quantities and define another aggregate  $Q = Y/P$ .  $Q$  is a measure of real output for the economy as a whole. We can write  $Y = PQ$

So, the link becomes  $M \rightarrow PQ$ . Now we can convert this into a simple equation if we find a variable,  $V$ , for which  $MV = PQ$ . This is what Irving Fisher did.  $V$  is called the “velocity of circulation” – it is a measure of the speed at which money circulates through the economy. It is a measure of how much work money does in helping to facilitate transactions. It is affected by the technology of payments and other things. So if, for example, the total money income in an economy is \$1 trillion and

the M-supply at the end of the year is \$333 billion, then on average each dollar has generated 3 transactions. V is 3.

Alternatively, we may use the Cambridge cash balance equation which has a slightly different emphasis. In the example given the average amount of money held by individuals in the economy at the end of the period is one-third of income –  $k = 1/3$ . This can be understood, as Marshall understood it, to reflect individual decisions about how much of their income they want to keep in the form of money – it is a kind of demand for money story – and depends on the level of interest rates, the level of uncertainty, and so on.

For our purposes it matters not very much which version we use.

Modern economies are continually in motion. So, we need a version of the framework that reflects this.

From the equation  $MV = PQ$  we can get

**$gM + gV = gP + gQ$** ; where  $g$  is “the percentage rate of growth of”. This will be an important equation for us in what follows. It says that

Monetary growth plus any changes in velocity = inflation + economic growth.

Question: what is the relationship between  $gP$  and  $gQ$ ? How are changes in the rate of growth of the money supply reflected in changes in inflation and economic growth (or in changes in velocity)? Different schools of thought answer this in different ways.

## **MACROECONOMIC “SCHOOLS OF THOUGHT” – THE CLASSICAL VIEW;**

### **THE QUANTITY THEORY OF MONEY**

We can now use this framework to investigate, explain and compare the various schools of macroeconomic thought. We begin with the classical economists.

The classical period, the period of Adam Smith’s generation and two generations following, could be described as one of the ascendancy of *laissez faire ideas* – ideas that favored allowing free-markets to function unimpeded by the heavy hand of government policy. [Google *laissez faire* for an explanation of this term.] The French economist J. B. Say was a prominent proponent of this approach. He argued that markets tended to work automatically to clear, and to fully employ all the

available employable resources (labor services, capital goods and natural resources). Any excess supply of a resource will bring about a fall in its price until the surplus disappeared. So, specifically, an excess supply of labor – unemployment – indicating that more people want to work than there are jobs available at the current wage rate – would be removed as the wage rate fell. The amount of labor services demanded would rise and the amount supplied would fall (as people moved to other markets or stopped looking for work). At the market clearing price all those who want to work at that price can do so. In this way, “supply creates its own demand” across all of the labor markets of the economy. This became known as “Say’s Law” – though, in truth, it is an assertion of faith in the working of the market to adjust quickly enough to eliminate any surplus or shortage.

Say’s Law went together with the idea that the full-employment market economy will produce the maximum level of general output –  $Q$  in the equation of exchange – and that changing the level or rate of growth of the money supply will, at least in the long run, not affect this. Money was neutral in the long run in that any increase in the  $M$ -supply would simply result in a proportional increase in prices and nothing “real” would be affected. Why should merely changing the supply of money affect the capacity of the economy to produce goods and services? Changing the  $M$ -supply does not change the productivity of resources, it does not improve the training or experience or education of the work force or the efficiency of adjustment of the labor market. So it seems natural to regard changes in  $M$  as merely nominal, and not real, though for a while, in the short run, individuals may be confused and it may appear that sustainable real growth is occurring.

In effect, there are two separate spheres of operation, the real sphere and the monetary sphere – and they remain separate as long as each is allowed to work automatically. Both Adam Smith, and his good friend, the stellar Scottish philosopher David Hume, analyzed the so-called *specie-flow* mechanism. The discovery of the New World (Latin America) resulted in the inflow of large amounts of gold and silver – the payments media of the time. What was the effect of this? Smith, and especially Hume, claimed that the only lasting effect was an inflation of prices in general – though in the short run the appearance of real wealth creation caused resources to be transferred to those who received the new money earlier at the expense of those who received it later. It was only in the transition to a new higher level of prices that quantities and real incomes change, and only



temporarily. We can formalize this using the equation of exchange.  $V$  is assumed not to change very much – people hold roughly the same amount of cash as a fraction of their incomes.  $Q$  is constant in the long run at that level consistent with full-employment. Then,

Since  $V$  (and  $k$ ) and  $Q$  are approximately **constant** we have what is known as

### **The Quantity Theory of Money.**

$$M \rightarrow P$$

Any change in the quantity of  $M$  affects only  $P$ , and in direct proportion. In a growing economy this means

$$gM = gP$$

This is the **Quantity Theory of Money**.

Up until the Great Depression there was a consensus among economists regarding this. Given the disruption of the Depression this came into question. Believers in the Quantity Theory had their beliefs strongly challenged by reality and then by the work of John Maynard Keynes.

## **MACROECONOMIC “SCHOOLS OF THOUGHT” – THE KEYNESIAN REVOLUTION**

In 1936, John Maynard Keynes published *The General Theory* and set off the Keynesian Revolution.

With the publication of this book, Keynes invented Macroeconomics – a field of economics unknown prior to this. The context was a period of crisis for capitalism. The 1920's in Britain, unlike in the U.S., was a period of lingering, discouraging recession and this was followed by the Great Depression of the 1930's. Capitalism, the ideas of *laissez faire*, seemed to be obsolete. A new approach was needed. And Keynes was the man for the job.

*"I believe myself to be writing a book on economic theory which will largely revolutionize -- not, I suppose, at once, but in the course of the next ten years -- the way the world thinks about economic problems"*

*(John Maynard Keynes, Letter to G.B. Shaw, January 1, 1935)*

Keynes, the son of upper middle-class intellectuals, educated at Eton and Cambridge, world-renown scholar and statesman, was at the time the chair of the Cambridge University economics department – the most prestigious department in the world at the time. He was charismatic, persuasive and remarkably influential – a sort of intellectual economic czar of his time. Given the nature of the man and the circumstances of the time, and the fact that his argument was appealing and intuitive, it is perhaps not surprising that his revolution was successful.

So, what is his argument? In essence Keynesian economics argues that the market system needs help from the government. Contra the beliefs of the classical economists, the free-market economy is often unstable – subject to unpredictable and destructive ups and downs. There is no guarantee that it will at any time result in the full-employment of resources. To remedy this the government, guided by smart and well-meaning experts like himself, needed to “socialize” significant aspects of productive investment – in order to “stimulate” the private sector to achieve full-employment.

Keynes’s basic message is that employment (of labor and other resources) is determined by the demand for output by consumers – what he called “effective demand”. So to analyze the determinants of employment one needs to analyze the determinants of effective demand – what economists nowadays call “aggregate demand”.

Aggregate demand is composed of two categories of private expenditure, consumption,  $C$ , and investment,  $I$ , which, together with government spending, make up the GDP or the total of value of the output produced, which we have designated earlier as  $Q$ . The sum of all expenditures, on current output of goods and services, plus that on the output of new production goods,  $I$ , plus government expenditure, is also equal to the total of all incomes received, because one person’s spending is another person’s income – and total expenditure must be equal to total income if we do the accounting properly. This goes to the subject of national income accounting – which was born together with Keynesian macroeconomics and which we will analyze later.

The elements of the Keynesian model reveal the basis upon which Keynes claimed that the market system was inherently unstable.  $C$  is determined in a predictable fashion by income – individuals tend to spend a fairly constant proportion of their

income and save the rest. This proportion Keynes called the marginal propensity to consume – the MPC (which is  $1 - \text{MPS}$  – the marginal propensity to save). As we shall see Keynes regarded the propensity to save as potentially problematic for some circumstances. But his more serious concern was with, investment. Unlike consumption, which was a stable and predictable function of income, he regarded as essentially unpredictable and, worse, unstable.  $I$ , which was the driving force of the economy, was driven by the assessments of entrepreneurs of the rates of return they could expect from any investment prospect. This rate of return which Keynes renamed the marginal efficiency of capital – the MEC (which more accurately should be called the marginal efficiency of investment - MEI) depends on the individual entrepreneur's expectations of future revenues from any project, the Prospective Yield, PY, which in comparison to the Supply Price, SP, (the cost of the investment), determines the expected rate of return, the MEI (using familiar present value arithmetic). The point is that these expected revenues have no firm basis in reality and depend upon the level of general confidence about the future course of the economy. Entrepreneurs are thus driven by “animal spirits” - by waves of optimism and pessimism – they behave like animals in a herd, following the general trend. They cannot be relied on to keep  $I$  high enough to achieve full-employment.

The classical economist looked to the loanable funds market to channel savings to investment. And if the desire to invest was too low, the interest rate would fall and increase the incentive to invest. Thus the market would adjust automatically to an insufficiency of investment. Keynes firmly rejected this argument on two grounds: one, the interest rate, especially when low, was not an important factor determining investment when entrepreneurs were generally pessimistic; two, in a deep recession interest rates would get stuck at the lowest possible rate so that the economy would find itself in a liquidity-trap. According to Keynes one should look to the money market and not to the loanable funds market for the determination of interest rates – the interest rate was determined by the supply and demand for money. [This, by the way, was the beginning of portfolio selection theory.] In addition to the interest rate being the opportunity cost of holding money, expectations played a key role. When interest rates were low, the general expectation was that a rise was much more probable than a fall – an expectation of a rise in interest rates implies the expectation of a fall in the price of durable (financial and physical) assets. Thus when interest rates rose one would not want

to be holding financial assets. The best bet was to stay in money – and any expansion of M would simply be soaked up – added to the excess reserves of the public and the banks – a liquidity trap.

Thus expectations matter crucially in Keynes system in rendering I unstable and unpredictable and in negating the potential of falling interest rates to stimulate investment.

#### Some details of the Keynesian model.

The more specific ingredients of the Keynesian model can be elucidated.

We start from the aggregate equation – this is the fundamental equation of Keynesian macroeconomics.

$$Q = C + I + G = \text{GDP}/P$$

Q is a measure of real income or output or expenditure (all equivalent at the aggregate level) – it may be obtained by using the nominal GDP divided by the GDP deflator.

We now discuss each of the terms on the right hand side of the equation.

The Consumption (savings) function states that C is a function of Q, such that

$$C = C(Q) ; < 1; 0.$$

The linear form often used is

$$C = a + cQ; 0 > c > 1; c = \text{MPC and } s = (1-c) = \text{MPS}.$$

Note: C and Q mutually determine each other. The system is one of simultaneous variable determination through time.] This function Keynes called the *law* of Consumption. He was worried about “the paradox of thrift” and the danger of long-term economic stagnation from insufficient consumption – that is too much saving. The paradox of thrift refers to the counterintuitive claim by Keynes that, contrary to the perceptions of the classical economists, savings can be a bad thing for economic growth and stability. He makes this claim by reasoning that an unexpected increase in saving by consumers translates into an unexpected decline in the sales by producers, which leads to an increase in unsold goods and, in time, to a reduction in production and employment as producers react to the downturn

in spending. In turn, the decline in employment causes a decline in income and a further decline in expenditure causing a downward spiral – known as the Keynesian expenditure multiplier – a decline in spending leads to a decline in employment, leads to a decline in spending, and so on.

[Exercise: It would seem that in order for an economy to grow, saving must occur to provide entrepreneurs the resources they need to produce products. How does this square with the paradox of thrift?]

Because of a decline in consumption, or, more commonly, because of a crisis of confidence there may be insufficient  $I$  to produce full-employment. A wave of contagious pessimism may threaten to destroy the economy. Investment normally drives the economy, but it is unreliable because, as discussed, it depends so much on *expectations*.

$I = I(r, i)$ ;  $r = MEI$ ,  $i =$  interest rate.

The interest rate mechanism does not work to produce sufficient investment. One of Keynes's most forceful arguments concerns the capacity of a market economy to channel savings to investors in a timely, efficient way. The price system works brilliantly to send signals and provide incentives for the allocation of current goods and services. But when it comes to *future* goods and services, no such prices exist. The act of saving today, in order to consume something (perhaps deliberately unspecified) tomorrow, sends no signal to any producer to produce anything for tomorrow. How could mortal entrepreneurs possibly know what to produce in the face of an unspecified demand for future consumption in the form of savings. A monetary economy allows for the separation of the act of saving from the act of investing, and this is a huge benefit. But it is also a huge vulnerability in that the capital market connection could easily break down and produce an economic crisis.

The final element of aggregate demand is government spending  $G$ .

$G = G^*$

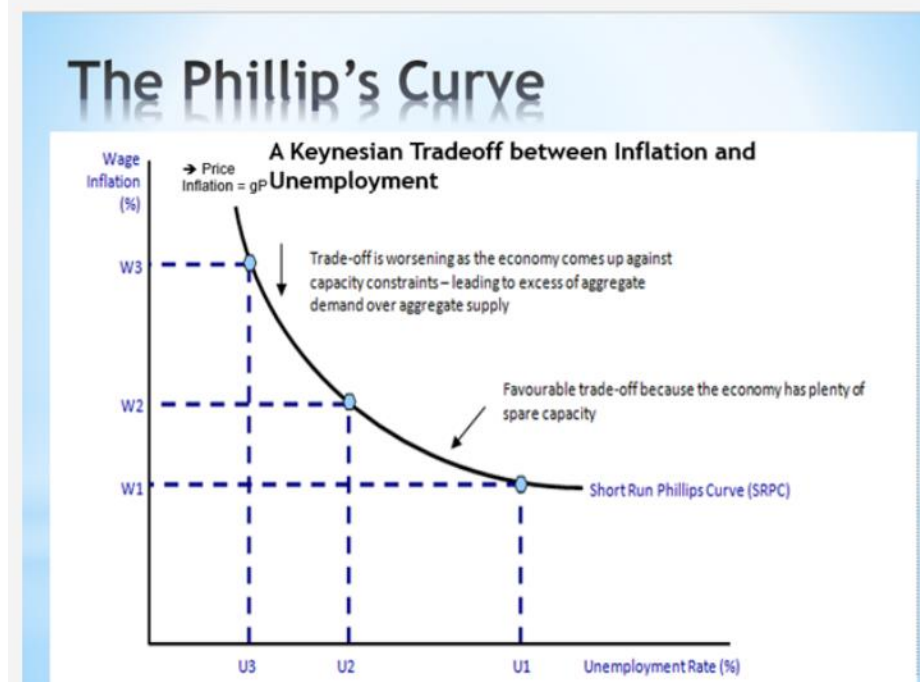
Government spending needs to be whatever is necessary to achieve full-employment. It all adds up to a story of dangerous potential instability. Something has to be done. You have to have the government pay for something, and it doesn't matter much what, pretty much anything will do as long as it provides income to

employees who react by increasing their spending on goods and services, thus reassuring producers who react by producing more and employing more people in the process. Keynes's income-expenditure multiplier works to jumpstart the economy.

[Exercise: does it matter how an increase in  $G$  is financed? Why? What does Keynes's model assume about the information possessed and the incentives facing government policy-makers?]

## THE PHILLIPS CURVE – AN IMPORTANT ADDITION TO THE KEYNESIAN MODEL

A subsequent addition to the Keynesian model is the Phillip's Curve. Keynes's model suggests that in periods of high unemployment, macroeconomic spending-increases would affect mainly quantities rather than prices. Keynes does not consider the threat of inflation in any detail, but he does say that as the economy gets closer to full-employment, increases in  $G$  will go more and more to increasing prices and less and less to increasing quantities produced, and, therefore, employment. At full-employment "the quantity theory comes into its own". This implies a trade-off between inflation and unemployment, first investigated by A. W. Phillips in regard to wage inflation, but applying equally to price inflation. By suffering a bit more inflation an economy could reap the benefits of less unemployment. This perceived trade-off, as depicted in the slide, has been very influential in determining macroeconomic policy.



## CRITICS OF KEYNESIAN ECONOMICS – MILTON FRIEDMAN AND MONETARISM

The Keynesian message is very intuitive and very appealing. If only the demand for production could be stimulated, the supply would follow. And in the post WWII period it sold very well. By the mid-1960's it was the new orthodoxy of all of the major economics departments in the western world. There was, however, resistance at the University of Chicago, where a department of young economists led by **Milton Friedman** pursued research into monetary economics that was critical of the Keynesian paradigm. By the early 1970's it became impossible to deny the importance of this work. It became the basis of a successful critique of the Keynesian macroeconomic policy of the day.

Friedman's essential message was summarized in his presidential address to the American Economic Association meetings in 1968 entitled *The Role of Monetary Policy*. (In 1976 Friedman won the Nobel (Memorial) Prize in economics for this body of work.) According to Friedman, monetary policy should not attempt the impossible. It should steer a constant course that prevents it doing any harm, rather than actively attempt to do any good. He favored rules over discretion – a rule committing the central bank to a constant rate of monetary growth. Why? Because research and experience had shown that Keynesian discretionary policy, which relied on monetarily financed government expenditure,  $G$ , to fine tune the economy was doomed to fail and had been shown to be a failure. In the 1970's this assertion was borne out by the experience of "stagflation" – the simultaneous occurrence of inflation and unemployment – contrary to the predictions of the Phillips curve.

Specifically, monetary policy is constrained by the following facts that characterized the real world.

It is impossible to control the real rate of interest – the real rate of return on productive investments is not something that the central bank can affect in any permanent way, and the attempt to do so will produce inflation, as increased money growth causes prices to rise (recall the Fisher equation, discussed earlier).

It is impossible to permanently reduce the natural rate of unemployment (the NRH – natural rate hypothesis) - the level of employment is determined by the availability of productive resources, the institutional context of markets, regulation

of labor markets and other “real” factors, but NOT by the level of monetary growth. There is a NR of unemployment below which the economy will not go, but the attempt to force it to do so, will, counterproductively actually, by causing inflation, produce more unemployment for a while. The end result will be to produce an economic cycle. Unemployment may fall for a while, but will ultimately rise above the natural level, before coming back down.

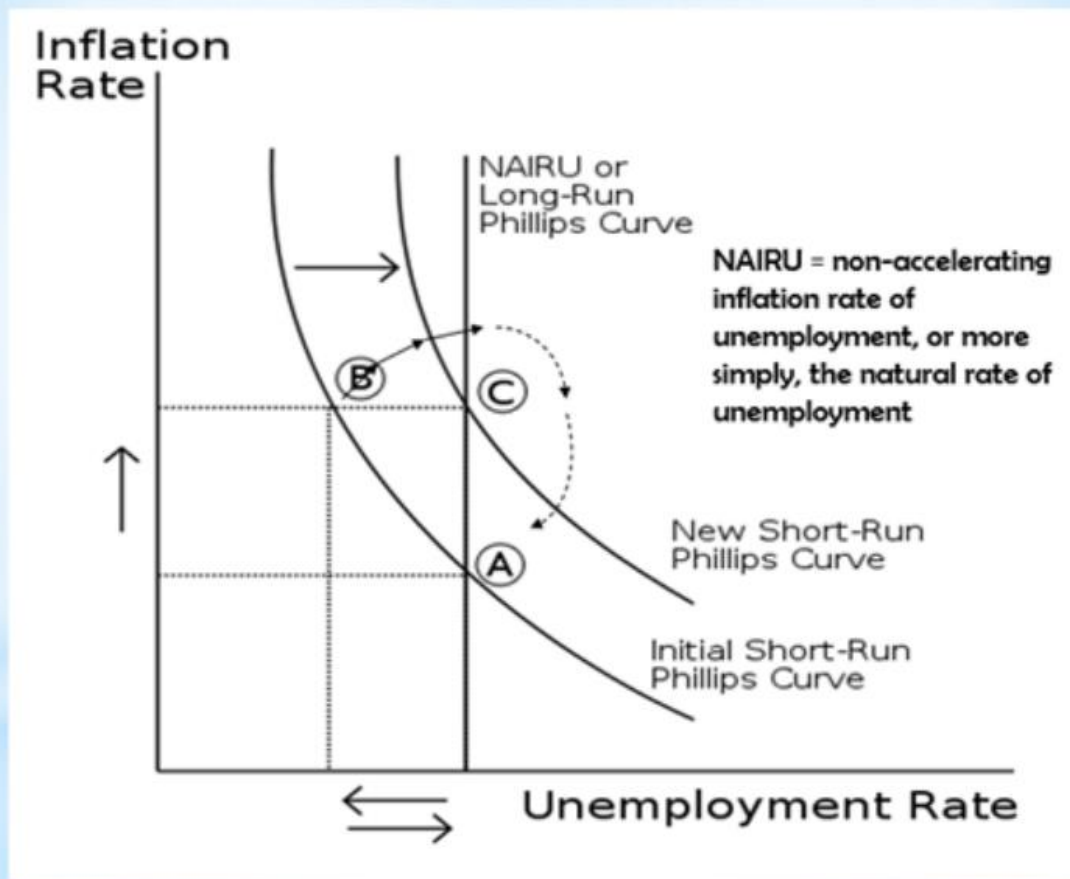
Monetary policy should control the supply of money to achieve predictable price stability (minimum inflation or deflation); and the only way this can be done is through a constant monetary growth rate – this is Monetarism.

There are two links in a very complicated chain. The Fed tries to control the level of M and then tries to use that to control the economy. The lags involved are long and very variable. It’s like driving a boat with a faulty rudder across a lake, trying to reach a fixed point on the other side. Attempting to correct for course deviations causes turbulence and greater course variation. Better to point the boat in the right direction, steady as you go, and hope for the best.

By the late 1970’s and through the Reagan administration (and the Thatcher administration in Britain) Monetarism replaced Keynesianism as the policy de jour. The monetarist consensus collapsed by the end of the 1980’s – mainly as a result of a perceived difficulty of implementing Friedman’s policy prescription of constant money growth. The Fed found it impossible to consistently hit its M targets.



## What's left of the Phillips Curve?



Investment Economics Lesson 7 Part B

Friedman's denial of the Phillip's Curve is illustrated in the above slide. He argues that in reality there is no permanent trade-off between inflation and unemployment. In the short-run the Phillip's curve provides the illusion that by tolerating a bit more inflation, less unemployment can be won. There is a movement from A to B. But pretty soon, as prices and costs start to rise, the short run Phillip's Curve will shift to the right – inflationary expectations affect the position of the short-run trade-off that we call the Phillip's Curve. There is a movement from B to C. Now inflation is higher and unemployment is no lower. Attempting to bring down inflation will produce a recession in which unemployment will rise, before eventually falling. There is movement from C back to A, via an economic cycle reminiscent of the actual experience of the U.S. in the 1980's. There is no long-run Phillip's Curve – it is a vertical straight line.

## CRITICS OF KEYNESIAN ECONOMICS – THE AUSTRIANS

An alternative critique of Keynesian economics, that predates Friedman's work, comes from the work of Ludwig von Mises and F. A. Hayek of the Austrian School of Economics. Hayek was Keynes's main protagonist during the 1930's and their interaction, known as the Hayek-Keynes debate continues to be relevant today. In some ways, the same issues return every generation.

The Austrian Theory of the Business Cycle focuses on the effects of expansionary government spending, financed by expanding the supply of money and credit. This reduces money interest rates - makes credit cheaper - and encourages investments in projects that would not otherwise have seemed profitable. In fact, their profitability turns out to be an illusion. Resources are misallocated. Labor and Capital are employed in unsustainable ventures. A boom gives way to a bust. So Hayek suggested Keynesian macropolicy, far from stabilizing the economy, would lead to a business cycle, or would aggravate a natural business cycle. And this debate has continued to this day. Has the Fed, on balance, been a force for stability or instability?

## PERSPECTIVE

In more recent times variants of monetarism have involved an attempt to salvage its essence (which, after all, is the simply a return to the vision of classical economics).

From 2008 onwards, with the advent of the Great Recession, macroeconomic policy returned to Keynesian principles.

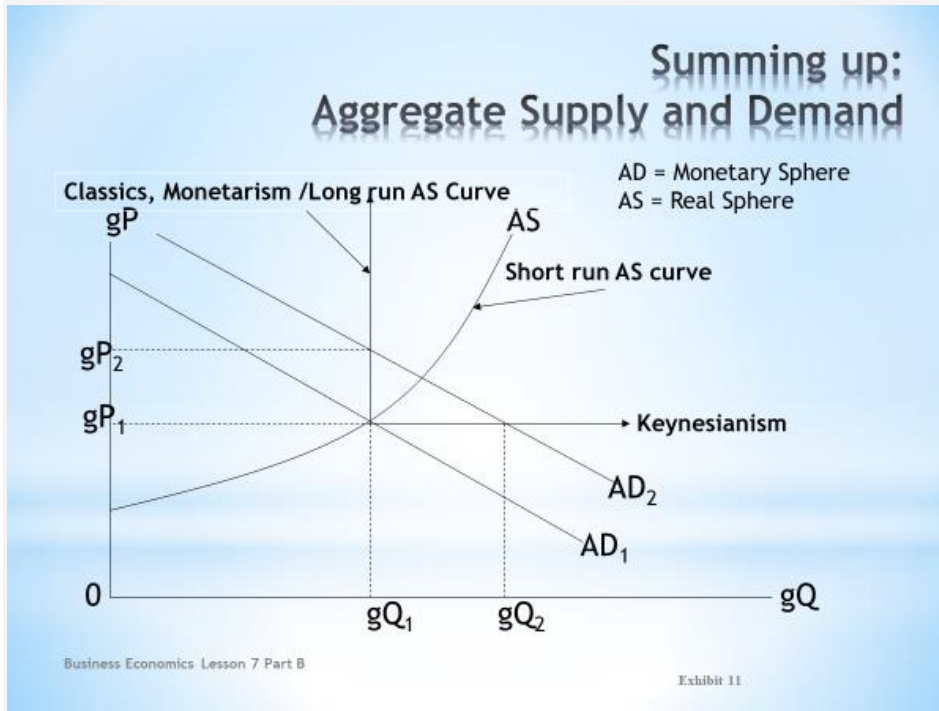
Attempting some overall perspective, we may return to the quantity theory of money in a modern context.

Remembering the links in the chain Fed => M => the Economy as the Fed attempts to influence growth and employment.

$M \rightarrow GDP;$

The equation of exchange  $gM + gV = gP + gQ$  can be interpreted as a constraint, where the possibilities for monetary policy depend on how V, P and Q actually behave in the real world. There are a large number of possibilities. The most important for our purposes are:

1. Pure Classical, monetarist:  $gM = gP$
2. Pure Keynesian:  $gM = gQ$
3. Some combination of 1 and 2



Using the equation of exchange  $MV = PQ$  allows the metaphorical use of the diagram in this slide. The aggregate product  $PQ$  suggests we may plot the rate of change of the price level  $gP$  against the rate of growth of output  $gQ$  – considering separately the demand for a given aggregate output growth at various price level changes, and the aggregate supply of (growth of) output in response to various levels of expenditure. The various schools of thought, listed in alternatives 1 through 3 of the previous slide, can be summarized by alternative views of the AS curve as shown in the slide. A vertical AS curve is the case of the pure classical long-run quantity theory. The case of a horizontal AS curve is the case of a pure Keynesianism in which prices are completely fixed. There are numerous possibilities in between. Economists have distinguished between LRAS and SRAS curves in this context.

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## Chapter 17: National income accounting and the federal budget

We conclude our considerations of macroeconomics with a brief look at national income accounting.

GDP is both the total of incomes in an economy and the total of expenditures on the economy's output of goods and services:

Remember  $Q = C + I + G = GDP/P$  [a more complete version would adjust for imports and exports.]

Now let's unpack this a bit and look at savings.  $G$  is financed in part by  $T$ , total tax revenue raised by the government. Then we can define

**private saving as  $S = Q - C - T$**

*Private saving* is the amount of income that households have left after paying their taxes and paying for their consumption.

*Public saving* is the amount of tax revenue that the government has left after paying for its spending, namely

**$B = T - G$  (also known as a budget surplus).**

*Total (national) saving = private saving + public saving.*

**$B + S = (Q - C - T) + (T - G)$**

If the government engages in **dissaving** ( $G > T$ ) this must imply a reduction in total saving. In other words, government *budget deficits come at the expense of private saving*.

These considerations allow insight into government surpluses and deficits.

If  $T > G$ , the government runs a *budget surplus* because it receives more money than it spends and the surplus of  $T - G$  represents public saving.

On the other hand, if, as is the usual case,  $G > T$ , the government runs a *budget deficit* because it spends more money than it receives in tax revenue. Unless  $G$

increases  $Q$ , and increases it enough, it comes at the expense of both  $C$  and  $I$ , it “crowds out” private-sector investment.

$G - T$  can be financed in only three ways.

- Borrowing from the public – selling Treasury bonds, notes and bills to the public
- Borrowing from the *foreign* public or *foreign* governments – selling these Treasuries to foreign lenders – private individuals and, more significantly, foreign governments.
- Borrowing from the Federal Reserve System. If these two sources are insufficient, the government can resort to borrowing from the Fed, which means, in effect, that the Fed creates the reserves necessary to “buy” the IOUs of the Treasury. This is how money is created in a modern economy, that is, by monetizing the national debt.

*What is prudence in the conduct of every private family, can scarce be folly in that of a great kingdom.*

Adam Smith: *The Wealth Of Nations*, Book IV Chapter II, pp. 456-7, paras. 11-12.