EFR summary

History of Economic Thought, 2024-2025

Lectures week 1 to 6

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Details

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History of Economic Thought – IBEB – Lecture 1 (part 1), week 1 Introduction

Definition

The essence of economics as a scientific discipline is defined by Robbins (1932) as "the study of human behavior as a relationship between given ends and scarce means that have alternative uses." Furthermore, Marshall sees economics as the study of men in "the ordinary business of life".

Ultimately, economics is the study of the functioning of economic life in society. Before the 1500's, there was little trade and money had existed but was not widely used. However, once the 1500s struck, the "Age of Political Economy" suppreceeded the "Age of Moral Philosophy" and Economic ideas developed into systematic theories.

Focus

Over time, the focus of economics research has changed:

- List of topics has expanded
- Economics has been sharply delimited towards other fields of science
- Relative importance of subfields changed

Pre-Adam Smith

The pre-Adam Smith period includes:

1. Aristotle
2. Scholastics
3. Mercantilism
4. Pre-classicist: David Hume
5. Quesnay and Physiocrats

Aristotle (384-322 BC)

Aristotle, though primarily a philosopher, addressed fundamental economic questions in his works. He explored the nature of exchange, emphasizing fairness and balance in transactions. Aristotle also recognized the idea of diminishing marginal returns, noting that wealth should have practical, not limitless, uses. However, his analyses lacked a comprehensive view of how economies operate as systems.

Scholastics

They are represented by priests and teachers at medieval universities from the 13th century onwards. In this period, protection was exchanged for labor (I.e. poor were protected by noblemen in exchange for labor, all the way to the king). Everything was land-based and economics was studied from an ethical point of view, thereby seeking to ensure that there exists a just price that does not exploit the “natural price”.

They believed that the "natural price" was the one that would arise from effective and free competition, free from monopolies, resource waste, or dishonest behaviour.

The natural price is comprised of 2 elements:

- Production Costs
- Consumers’ perception of utility of good

While these were incomplete theories, they represented an effort to develop a systematic framework grounded in economic principles.
The Scholastics stood out because their concept of the natural price took into account the consumer's perception of a good's utility—a perspective rarely seen in other early economic thought.

Mercantilism

The emphasis was placed on achieving a trade surplus:

- **Restricted Imports**: Imports were minimized, allowing only raw materials that could not be produced domestically. As a result, the majority of goods were produced within the country.

- **Encouraged Exports**: Exporting was strongly incentivized, with merchants receiving payments in gold for their goods sold abroad.

Mercantilism aimed to enhance a nation's economic and military strength in comparison to rival countries. A favorable balance of trade, characterized by a surplus rather than a deficit, was regarded as a key indicator of national prosperity. The strategy centered on maximizing domestic production and exporting goods to accumulate wealth in the form of silver and gold.

Quesnay (1694-1774) and Physiocrats

The Physiocrats were a French school of economic thought, led by François Quesnay. This school of thought came to an end in 1776, coinciding with the publication of Adam Smith's *Wealth of Nations* and the demotion of Turgot, a prominent physicist, from his high-ranking position in the French government.

One of Quesnay's most notable contributions was the *Tableau Économique* (1759), which was the first systematic attempt to analyze the flow of wealth on a macroeconomic scale. The *Tableau* demonstrated how the net product of an economy circulates annually among three distinct classes—tenant farmers, landowners, and manufacturers & merchants—and is reproduced each year. This work provided foundational insights into the concept of national accounting and offered empirical knowledge about key model parameters.

Pre-Classicist: David Hume (1711-1776)

Hume's contribution was the **price specie-flow mechanism**, a Monetary theory for open economy:

- In the long run, money stock has no impact on real economy → **Contrary to mercantilists**
    - More species available = increase in prices & increase in imports
    - To pay for imports, money would be shipped abroad and poverty and bankruptcy may emerge in the country. therefore, the believed that the government must prevent an excess supply of money
- International trade will always have a positive payoff, as opposed to the Ero-sum of mercantilists, who believed that gains are at the expense of a neighbour → **Contrary to mercantilists**

- Hume opposed tax on workers getting passed to landowners in the form of higher wages and reduced rent → **contrary to Physiocrats**
    - when taxed on workers, workers consume less or work more, and therefore tax is not simply passed to landowners.
- Game theory: Hume recognized that cooperation may be good when future interactions among parties are likely,
- Long-run theory
    - price-level adjustments are not instantaneous
        - An increase in money will initially boost production but eventually will be fully absorbed in price level.
        - Decrease in money supply will first suppress output before lowering price level.
    - Of course, now this is not applicable because CB controls the supply of money and is independent from the balance of trade.
- International adjustment/ equilibrium following domestic money shock. When exchange rates fluctuate, the imbalance of trade can correct itself.
    - Is a contour for the later developed quantity theory of money (MV = PT, which means that quantity of money x Money velocity = price level x output).

History of Economic Thought – IBEB – Lecture 1 (part 2), week 1
The classical school

Historical background

Two major revolutions paved the way for the emergence of classical thought:

1. **Scientific Revolution**
   The discovery of natural laws, which gave rise to the idea of laissez-faire, which resulted in the enlightenment.
2. **Enlightenment Period (Industrial Revolution)**
   The Industrial Revolution led to significant industrial growth, with land

becoming more privately owned (through fencing), and most labor shifting to factories or specific land-based tasks.

As a result, competition increased and there was less reliance on governments to keep wages low. Workers, however, unsuccessfully advocated for minimum wages from the government.

This led to lower prices, a low-paid labor force, and an impoverished population characterized by high birth rates and low death rates

Major tenets of the classical school

The Classical School: Economic Liberalism

- **Limited Government Intervention**: Government's role is to enforce property rights, provide public education, and ensure national defense.
- **Self-Interested Economic Behavior**: Individuals pursue profits and wages based on personal interest.
- **Harmony of Interests**: Society's best interest is served when individuals pursue their own private interests.
- **Importance of Economic Resources and Activities**: Key resources include land, labor, capital, and entrepreneurial ability. Crucial activities encompass agriculture, commerce, production, and international exchange.
- **Economic Laws**: Important principles include the law of comparative advantage, the law of diminishing returns, the labor theory of value, and Say's Law, among others.

Adam Smith (1723 – 1790)

- ➔ **Attended the University of Glasgow.**
- ➔ **Served as a professor at the University of Edinburgh (1748) and the University of Glasgow (1751).**
- ➔ **Acted as the private tutor to the young Duke of Buccleuch during his journey through France in 1764, where he met François Quesnay.**

Key Works:

- *Theory of Moral Sentiments* (1759)
- *The Wealth of Nations* (1776)

Influenced by:

- Physiocrats
- David Hume

His contributions span across five key areas:

1. Price Theory
    a. Which focused on The Division of Labor, Price Formation, and Determination
2. Capital Accumulation and the Financial System
3. The Historical Development of Agriculture in Europe
4. International Trade (including criticism of Mercantilism)
5. The Role of the Public Sector

Price theory

Price theory = theory of value

represented by the:

- value in use (ex: water has a high value in use)
- value in exchange

Labour theory of value

If it takes 2x longer to kill a bear than a beaver, the bear is 2x more expensive

Labour theory of value: relative prices are determined by the relative production costs (seemingly no role for demand in formation of prices). This was the first to put focus on LABOR PRODUCTIVITY and where demand had seemingly no role in prices.

Examples: hunting society – labour costs (division of labour increases productivity)

Smith: Wages/rents/profits all tend towards the "natural price" (inheritance of **scholastics**)

➔ The **natural price** corresponds to the normal levels of costs

- ◆ "neither more nor less than what is sufficient to pay the rent of the land, the wages of the labor, and the profits of the stock employed in raising,

preparing, and bringing it to market, according to their natural rates" (I. vii. 4, Wealth of Nations)

- ➔ The **market price** is the price that prevails in the market, which is the interaction between supply and effectual demand:
  - ➔ Excess supply when natural price > market price
    - ◆ When this happens, some productive factors will be withdrawn, the quantity supplied will fall, and the market price will rise toward the natural price.
  - ➔ Little supply when natural price < market price
    - ◆ when this happens. more goods will come to market, lowering the price
  - ➔ In the long term, market price > natural price

Normally, market price cannot remain lower than the natural price. However, some governments can give monopoly rights to firms and cause market prices > natural prices.

Hence, Short-run supply and demand are not determinants of prices in terms of exchange-value, but instead cause fluctuations around the natural prices of the goods

Returns to production factors

Wages:

- Employment Contracts
- At a minimum, employment contracts must ensure a subsistence-level wage.

Wages may vary based on non-economic factors that influence the conditions of work:

- The difficulty or danger of the job (e.g., miners are paid more due to hazardous conditions).
- The level of trust and responsibility associated with the role.
- The stability and regularity of employment.
- The educational or financial investment required to acquire the necessary skills for the job (e.g., lawyers incur significant costs for education).
- The likelihood of success in the occupation.

These factors form the basis for the theory of compensating wage differentials.

Profits

Profits differ due to:

- Variations in risk.
- Compensation for the management and oversight of business operations.

A nation with a low profit rate may counterbalance this with higher wages. Conversely, prosperous countries are able to offer goods at competitive prices, even in comparison to less fortunate countries with lower wage rates.

Rents

Rents are defined as the tenant's income minus natural costs, such as wages and profits, with the residual considered as rent. Therefore, while wages and profits contribute to higher prices, rents are a consequence of these high prices. This is valid only under the assumption of a free and unregulated market.

In the context of rents: All income received by tenants is treated as rent, which arises as a result of high prices, provided the market operates freely.

Invisible Hand

The concept of the "invisible hand" reflects the idea that individual self-interest in a competitive market results in unintended social benefits.

Influence of Physiocrats

The physiocrats' ideas on economic theories, particularly regarding land and agricultural production, significantly shaped economic thought and the theory of Invisible Hand.

Market mechanism and competition

Perfect competition embodies the concept of a "system of perfect liberty," characterized by:

- The absence of monopolies.
- Unrestricted entry and exit into the market.
- Producers striving for profit maximization.
- The extent of competition within the market.

Public interest

- Competition, a central element in understanding Smith's concept of the invisible hand, enhances economic efficiency by directing resources toward their most efficient uses, thereby maximizing output.
- However, the market alone cannot ensure an equitable distribution of resources. As a result, inequalities may emerge.

International trade

1. International trade is the main criticism of **Mercantilism**. In opinion of Adam Smith, laissez-faire principle also applied to international trade
2. Trade policies prevent the market from functioning efficiently:
    - Import restrictions create monopoly for domestic producers
    - Export subsidies direct money to less productive use

The role of the government

The state has 3 functions and the role of the government must be minimal and limited to these functions:

1. Protect society against violence and foreign invasion.
2. Protect individuals against injustice and oppression by other members.
3. Erect and maintain public works and institutions, which an individual would never find profitable to erect/maintain (First mentioning of public goods).

The role of money

Money is considered a "dead stock" because it does not, in itself, produce anything. When the supply of money increases, the nominal prices of goods and services also rise, but the real prices remain unchanged. This notion is rooted in the ideas inherited from David Hume.

In this view, money is not a productive resource. Contrary to the beliefs of the Mercantilists, who argued that wealth is based on the accumulation of precious metals like gold and silver, this perspective holds that money merely serves as a medium of exchange rather than a source of wealth creation.

Economic growth

Capital accumulation is a key driver of economic growth. The wage fund theory suggests that employers must pay wages from their stock of capital, indicating that sufficient capital is necessary for supporting labor.

Smith argued that the introduction of capital into the economy stems from labor decisions, but he overlooked the fact that technological advancements could also lead to the division of labor.

In his work *The Wealth of Nations*, Smith outlined how the division of labor increases the quantity of output for three primary reasons:

1. **Increased Dexterity**: Each worker becomes more skilled and efficient by focusing on a single, repetitive task.
2. **Time Efficiency**: Time is saved when workers are not required to transition between tasks.
3. **Productivity through Machinery**: Once tasks are routine through division of labor, machinery can be developed to further boost productivity.

Smith also distinguished between productive and unproductive labor, recognizing that certain forms of labor contribute to the generation of wealth, while others, such as services or unproductive work, do not contribute in the same way.

Conclusions Adam Smith

- The classical school begins with Adam Smith.
- Smith is the point of departure for later economists: Thomas Malthus & David Ricardo.

Thomas Malthus (1766-1834)

➔ He attended Cambridge and was a Professor at the East India College (1805)
➔ His works include: An Essay on the Principle of Population (1798) and Principles of Political Economy (1820)

Population growth theory

- ➔ The theory of population growth was proposed in the context of historical unemployment, poverty, and the Corn Laws. This theory highlights a tension between population growth and food production, as population increases according to a geometric progression (1, 2, 4, 8, 16, 32), while food production grows at an arithmetic rate (1, 2, 3, 4, 5, 6), implicitly reflecting the concept of diminishing returns.
- ➔ As a result, the population's natural growth rate must be constrained to match the growth rate of food production.
- ➔ The mechanism described in this theory is as follows: economic growth leads to population growth, which subsequently causes food shortages. This results in more people living in poverty, leading to starvation and fewer births, ultimately restoring balance between population and food supply. This represents a rather pessimistic view of the future.

Mechanisms to keep population growth down include

1. **Preventive checks** reduce the birth rate through "moral restraint" rather than "vice." According to this view, poverty results from a lack of restraint in reproduction among the lower classes, with the belief that the government should not intervene to assist the poor.
2. **Positive checks** increase the death rate through factors such as famine, disease, and war. These positive checks are seen as consequences or punishments for those who failed to practice moral restraint.

Theory of market gluts

The theory of market gluts suggests that the retention of the Corn Laws was justified because such tariffs benefited landlords and promoted unproductive consumption, which was seen as essential to prevent economic stagnation.

There is a potential insufficiency in effective demand, as workers receive only a subsistence wage. This means the value generated by the worker's productivity exceeds the wage paid to the worker, resulting in profit (profit = productivity - wage). Rent is the surplus derived from the difference between the price of agricultural produce and the cost of production, which includes wages, interest, and profits.

Although production costs may rise, they help to increase purchasing power. Therefore, rent contributes to effective demand without adding to production costs. Workers cannot purchase the full output of goods, and profits do not return to workers through higher wages. Capitalists focus solely on accumulating wealth and assist in purchasing additional units through the investment in capital goods, though they do not necessarily consume all their profits on such goods.

Thus, landlords are urged to consume more to prevent a glut of goods in the market, which would lead to stagnation and unemployment. In this way, spending contributes to effective demand, stimulates production, and encourages employment without increasing production costs.

Economic policy

- ➔ **Population theory**: There is no government relief for the poor (Poor laws, 1834)-> Make people have fewer children
- ➔ **Theory of market gluts**: Prevent abolishment of Corn Laws (no free trade), which means to enrich land owners, avoid stagnation

Discussion Thomas Malthus today

The theory of market gluts demonstrated an awareness of the issue that a lack of demand could lead to unemployment, a concept later expanded upon by Keynes in the 1930s. Keynes's value theory, like earlier theories, was grounded in supply and demand rather than solely focusing on production costs. He acknowledged the importance of demand in determining the value of goods that are perfectly inelastic, recognizing that these goods have a long-term cost of production that ultimately sets their value.

Population Theory

A significant number of people worldwide continue to live in poverty. The idea of population growth matching the subsistence level growth rate was overstated. In reality, population growth occurred more slowly than anticipated, while food production increased at a faster pace, rendering the theory somewhat inaccurate.

Diminishing returns to food production were expected, but technological innovation and capital accumulation resulted in greater food production with fewer workers, mitigating the effects of diminishing returns.

David Ricardo (1772 – 1823)

- ➔ No academic training
- ➔ Stockbroker. Retired at age 43
- ➔ Self-taught in economic issues
- ➔ Part of the House of Commons (1819)
- ➔ His works include: Principles of Political Economy and taxation (1817) and Notes on Malthus (1928)

Relative price theory

The basic factors of production are labor, capital, and land.

- **Determination of Prices**
  The inputs in production go beyond just labor. Relative prices are not solely determined by labor costs. Capital costs should be considered in terms of labor costs, and the production process may vary in length of time. Consequently, time costs should be incorporated into price formation.
- **Implications**
  The labor theory of value does not hold in its simplest form. Variations in relative prices are typically no greater than 6-7%, leading to the notion of a "93% labor theory of value" (George Stigler, 1958; 1965). Additionally, the level of wages remains significant in determining relative prices.

Ricardo's extended labor theory of value

By dissolving capital into labor units and using the 93% approximation, both labor and capital could be incorporated, and this helped fix for complications raised by use of capital in the simple labor theory of value.

Theory of rent

Ricardo is the first economist to introduce a marginalist principle in economic analysis.

Land differs in quality and productivity, with the least productive land used characterized by sales equal to production costs, meaning rent equals zero. Therefore, rents should not be considered part of the labor theory of price formation. Rents arise from both extensive and intensive margins. Prices are determined by marginal farmers, and rents do not factor into production costs.

As Ricardo stated in 1817, "Corn is not high because rent is paid, but rent is paid because corn is high" (1951; p.74). This implies that rent is a price determined by the market, but it does not determine the price itself.

Theory of international trade

While Adam Smith argued that trade is based on absolute cost differences, Ricardo posited that each country should specialize in producing certain goods and use part of its output for exports, which would then finance imports. This concept of specialization is known as **Comparative Advantage**.

Ricardo believed that trade brings mutual benefits and made the following assumptions:

- **Explicitly**: Capital and labor do not move between countries.
- **Implicitly**: Costs remain constant as output increases, with costs measured in labor hours.

Ricardo opposed the Corn Laws.

However, there is a tension between Ricardo's labor theory of value and his theory of comparative advantage, as seen in slide 33. He did not address how the gains from trade are divided among trading nations.

Ricardo argued that, "The principle that determines relative prices in a single country does not apply in the context of international exchange," a problem later addressed by John Stuart Mill.

Ricardo on theory of market gluts

A temporary glut can occur, but typically, full production and employment prevail, a concept now recognized as Say's Law of Markets.
Supply generates its own demand because:

- Resource allocation adjusts between the production processes of different commodities.
- Overproduction is self-correcting, as it leads to sales at a loss and a shift of resources toward producing other commodities.
- Capitalists' savings translate into investment expenditures, thereby creating demand for goods.

The long-run effect of machinery is more beneficial than its short-run effect, ensuring that effective demand is always sufficient.

Ricardo on economic policy

Wages should not be regulated, and no assistance should be provided to the poor. Similar to the physiocrats, taxes on rent affect only the rent itself and are fully absorbed by landlords.
In contrast to Malthus, it is argued that the Corn Laws should be abolished because:

- Population growth does not hinder economic growth.
- Population growth leads to increased food production (subject to diminishing returns), which raises costs, drives up food prices, and results in higher wages. However, this also reduces profits, slowing capital accumulation and ultimately leading to lower economic growth.
- The Corn Laws limit the benefits of international trade.

Discussion David Ricardo today

Strengths

- Theory of comparative advantage
- Marginal analysis
- Law of diminishing returns
- distribution of income

Weaknesses

An excessive emphasis on the law of diminishing returns overlooks the fact that technological innovations can increase output.

The view that land has only a single use is incorrect, as it can be employed for multiple competing purposes. This introduces opportunity costs, meaning that in reality, rent is part of production costs. Unlike Ricardo's belief that rent is merely the residual after wages and profits, land demands payment that reflects its opportunity cost and can be allocated to alternative uses, such as labor or capital.

The impact of machinery on employment was misunderstood, as the introduction of capital can also boost the demand for labor, not just for machines. Furthermore, there was insufficient focus on the critical role of demand in economic processes.

John Stuart Mill (1806 – 1873)

- ➔ Contributions to philosophy and theoretical economics;
- ➔ No formal education;
- ➔ Employed at East India Company.
- ➔ His works include: A System of Logic (1843), Principles of Political Economy (1848); Essays on Some Unsettled Questions of Political Economy (1844).

Price theory

Adam Smith's and Ricardo's theories of price formation were primarily driven by the supply side of the economy.

John Stuart Mill introduced the concept of the **demand schedule**, which illustrates that the quantity demanded varies with changes in price. Thus, demand and supply together determine prices, with prices being based on production costs.

However, complexities arose from the lack of consideration of demand in Ricardo’s model. In his extended price model, which incorporates decreasing returns, demand should play a more active role in price determination, yet Ricardo was unable to address this in his theory.

Ricardo’s theory of comparative advantage did not explain how the surplus from trade was distributed between countries, meaning it was unclear how international prices related to national prices.

John Stuart Mill's introduction of the demand side marked a major shift in economic theory, resulting in three significant innovations in price theory:

1. **Price formation in international trade**: Prices adjust to a level where the value of exports equals the value of imports.
2. **General price adjustment**: Prices adjust so that the supply of a commodity matches its demand.
3. **General equilibrium concept**: Aggregate demand for all commodities equals aggregate supply (reciprocal demand), incorporating the concept of price elasticity.

The fundamental principle of price formation, according to Mill, is the market mechanism's tendency to equalize supply and demand.

Theory of the wage fund

Initially, Mill accepted the concept of a wage fund. However, in 1869, he allegedly rejected this theory because its implications did not align with the actual workings of the economy: for instance, trade unions were believed to have no influence on wages, yet evidence showed they could impact wage levels.

Mill made a significant contribution to the development of a new theory of wage formation, which would later be expanded upon by the marginalists.
Mill argued that wages are primarily determined by the forces of labor demand and supply. He assumed the existence of unitary elasticity of labor demand, meaning that no matter the wage rate, the same total sum is spent on labor. As a result:

- The government cannot set a minimum wage above the equilibrium level.
- Any higher wages for workers will be offset by the lack of wages for the unemployed.

Regarding income distribution, Mill believed that profits could be divided into three components: abstinence, risk, and the effort involved in managing capital.
Additionally, investments in human capital, such as expenditures on education and training, represent current investments that are justified by future wage returns.

Conclusions

Mill made some important adjustments to the existing view of the classical school. With the death of Mill, classical school ended and the marginalist revolution became visible.

History of Economic Thought – IBEB – Lecture 2, week 2
Marxism

Karl Marx (1818 – 1883)

- **Education:** Graduated from the Universities of Bonn, Berlin, and Jena.
- **Career:** He did not pursue an academic career.
- **Exile:** Due to his left-wing ideology, Marx was exiled from Germany to Paris and later to England by right-wing governments.
- **Major Works:**
    - *The Communist Manifesto* (1848)
    - *Das Kapital* (Volume 1: 1867; Volumes 2–3 were published posthumously)
- **Influences:**
    - **Ricardian Economics:** Fascinated by Ricardo's labor theory of value.
    - **Socialist Ideals:** While he shared socialists' moral critique of capitalism, he believed socialism would only emerge when the working class reached a breaking point.
    - **Darwinian Inspiration**: Advocated for a dynamic approach to analyzing the economy.

History of Marxism

Marx argued that capitalism contained inherent contradictions that would ultimately lead to its collapse.

- **Forces of Production**: These are dynamic and include technology, types of capital, and the skill level of labor (e.g., influenced by migration).
- **Relations of Production**: These are static and encompass rules, social relations, and property ownership.
- **Superstructure**: This refers to the social context, including art, philosophy, religion, literature, and music. It serves to uphold and reinforce the existing system.

The tension between dynamic forces of production and static relations of production creates conflict, ultimately culminating in a revolution. This leads to the formation of new relations of production and a redefined superstructure.

Under Capitalism:

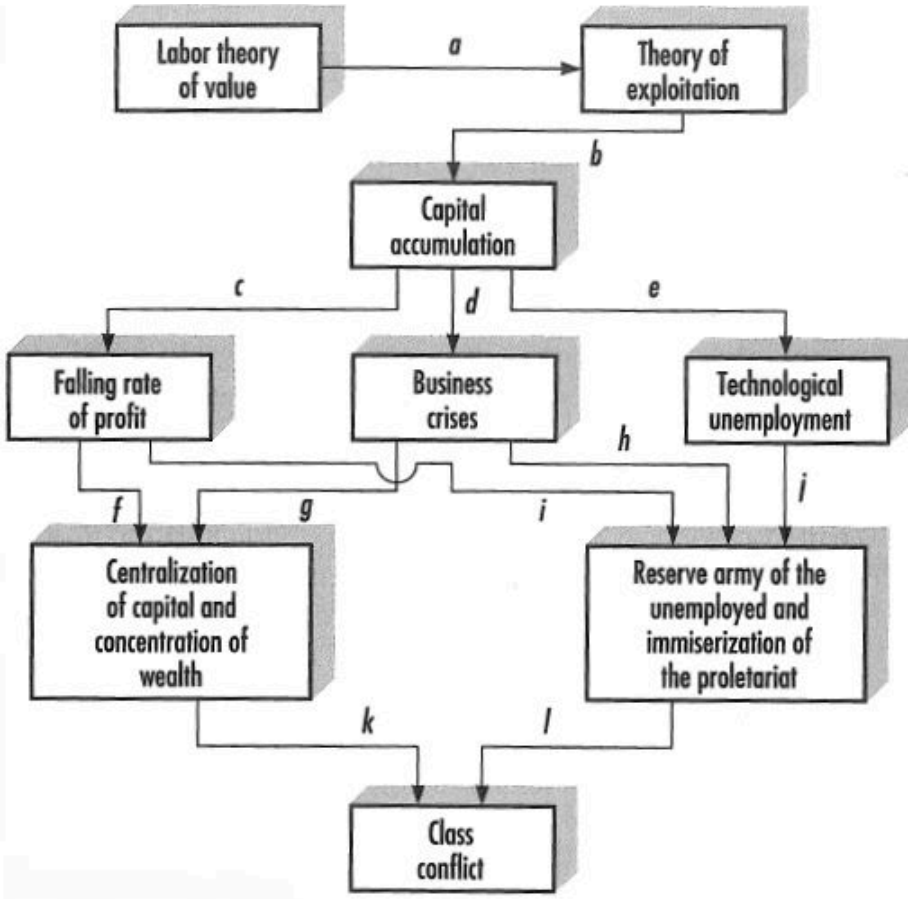
- Techniques of production become increasingly concentrated and centralized.
- Rising unemployment and poverty fuel worker revolts.
- The working class triumphs, establishing the dictatorship of the proletariat.

Under Socialism:

- Private property exists, but capital and land are publicly owned.
- Production and investment rates are centrally planned, removing the profit motive and free-market mechanisms as drivers of the economy.

This dialectical progression continues until the state dissolves, giving way to a state of pure communism.

Law of motion of capitalist society



Source: Law of motion of capitalist society (Anne Gielen, 2025)

Labour theory of value

- **Use Value vs. Exchange Value**:
  - The use value of labor refers to its utility or usefulness.
  - The exchange value of labor is defined by the socially necessary labor time required for production.
- **Labor as a Commodity**:
  - Labor power itself is considered a commodity, with its value determined by the labor time necessary to produce it.
  - Workers are exploited when capitalists extract surplus value from their labor.
- **Determining Value**:
  - For example, if the average labor time to produce a vase is 5 hours, its value (or price) is based on those 5 hours, regardless of whether a specific firm produces it in only 3 hours. What matters is the societal average labor time.
- **Key Points**:
  - Value is determined by absolute labor time.
  - Capital and landowners do not contribute to value creation.
  - This idea of a single productive factor is rooted in earlier economic thought:
    - Physiocrats believed nature (agriculture) was the sole source of value.
    - Marx argued labor is the singular productive factor.

Theory of Exploitation

- **Wages and Bargaining Power**:
  Workers are typically paid a wage equivalent to the minimum subsistence level due to their limited bargaining power. This low wage is sustained by capitalism's creation of a substantial "reserve army of unemployed," which exerts downward pressure on wages. Over time, this surplus of labor ensures that average wages remain close to the cultural level of subsistence. Additionally, employers can compel workers to work longer hours.
- **Surplus Value**:
  While workers generate all value, they do not receive the full value of their labor.
  - Surplus value is calculated as:

Surplus Value = Productivity – Subsistence Wage.

Capital Accumulation

- **Economic Models**:
  - In a traditional economy, the cycle is **C-M-C** (commodity to money to commodity).
  - In a capitalist economy, the cycle shifts to **M-C-M'**, where profit equals the difference between M' (the money gained) and M (the money invested).
- **Process of Accumulation**:
  Capitalists begin with an initial sum of money (M), which they use to produce goods (C). These goods are then sold to generate a greater amount of money (M').
  - This profit arises because workers are not paid the full value of what they produce.
- **Critique of Capitalism**:
  Marx rejects Adam Smith's notion that society benefits when individuals act in their own self-interest. In Marx's view, the system is exploitative, as capitalists prioritize profit over equitable distribution.
- **Use of Profits**:
  Rather than investing in additional workers or addressing societal needs, capitalists reinvest their profits to further accumulate wealth and expand capital.

Falling Rate of Profit

- **Causes**:
  - Driven by the pursuit of efficiency through mechanization and labor-saving technologies.
  - **Organic Composition of Capital**: An increasing proportion of constant capital (machinery) is invested relative to variable capital (wages).
  - Since labor is the only source of value, this shift reduces the profit rate, calculated as:
    Profit Rate = Surplus / (Labor + Capital).
  - Greater investment in capital leads to higher unemployment, which strengthens firms' bargaining power over workers.

Business Crises

- A declining profit rate discourages business expansion.
- Economic depressions reduce the monetary value of fixed capital.
- Factory closures and falling prices exacerbate the downturn.
-

Technological unemployment

- The substitution of labor with capital results in job losses as businesses close and workers are displaced.

Centralization of capital and concentration of wealth

- The dynamics of capital accumulation and recurrent business crises lead to:
    - Centralization of capital, as surviving capitalists acquire the assets of smaller competitors and failed businesses.
    - Concentration of wealth in the hands of a few.
    - Over time, ownership becomes increasingly consolidated, with all wealth controlled by a small, elite group.

Reserve army of unemployed and immiseration of proletariat

- Economic crises and the substitution of labor with capital lead to increased unemployment.
- A growing pool of unemployed workers further drives down wages, deepening the hardships faced by the working class.

Class conflict

- As conditions worsen, workers unite and organize to challenge the system.
- This culminates in a revolution, replacing private ownership with state ownership of the means of production.
- The exploitation of workers ends, paving the way for a more equitable society.

Major tenets of Marxism

- Rejects the classicist notion of a harmony of interests between classes.
- Opposes the concept of laissez-faire economics.
- Argues that the power of capitalists grows at the expense of workers.
- Refutes Say's law of markets.
- Advocates for collective action and public ownership of enterprises.

Lasting tenets of Marxism

- Influenced the development of the theory of value in economics.
- Was among the first to identify the phenomenon of business cycles.
- Accurately predicted the rise of large-scale enterprises and monopolistic power.
- Highlighted the substitution effect between capital and labor.
- Introduced a dynamic approach to economic analysis.

Discussion of Marxism nowadays

Marx's prediction of widespread impoverishment of the working class did not materialize. However, Marxism has had significant positive influences, including:

- Emphasizing state ownership of essential services and infrastructure (e.g., postal services, railways).
- Advocating for social welfare programs.
- Analyzing the growth of monopolistic power, issues in income distribution, and the reality of business cycles.

History of Economic Thought – IBEB – Lecture 3, week 2
Marginalist school

Forerunners of Marginalism

Key figures who laid the groundwork for marginalist thought include:

- Johann Heinrich von Thünen (1783–1850)
- Antoine Augustine Cournot (1801–1877)
- Jules Dupuit (1804–1866)

Although these early thinkers contributed to the development of marginalist ideas, the Marginalist Revolution is generally recognized as beginning in the 1870s. During this period, marginalist theorists synthesized these concepts into a cohesive framework.

Pioneers of the Marginalist Revolution

- William Stanley Jevons (1835–1882)
- Carl Menger (1840–1921)
- Léon Walras (1834–1910)

Major tenets Marginalist school

- Greater emphasis on the behavior of individual economic agents, with a focus on microeconomics.
- Increased attention to the demand side, particularly through the marginal principle.
- A stronger reliance on mathematics in economic analysis.
- Assumption of rational economic behavior by individuals.
- Use of the equilibrium approach, where economic forces tend to drive the system towards a balanced state.
- Limited role for government intervention in the economy.

Famous marginalists

Antoine Cournot (1801-1877)

Considered one of the forerunners of the marginalist school, Cournot focused on the rates of change of total cost (TC) and total revenue (TR) functions, and their relevant derivatives. Unlike many others, he began his analysis by examining pure monopoly and then incorporated competition.

Main Contributions:

- Applied mathematics to economic analysis (1838)
- Developed the law of demand: as prices increase, demand decreases (though the concept of marginal utility had not yet been introduced).
- Formulated theories on price formation in markets with few suppliers: monopoly and duopoly theories.
- All of his work centered on the marginal concept.

Jules Dupuit (1804-1866)

Main Contributions:

- Developed the concept of the marginal utility curve, where utility derived from an additional unit of a good depends on the quantity already possessed.

Johann von Thünen (1783-1850)

Location Theory:

Thünen aimed to determine the pattern of cultivation by creating a diagram of concentric circles, each representing a region with rings around them. This diagram illustrated that the more intensive the production, the closer it is to the city, especially for perishable and expensive-to-transport goods. Location is thus dependent on transportation costs and the intensity of production.

Jevons, Menger, and Walras:

Though not the first to introduce marginalist thinking, the marginalist revolution is recognized as beginning in the 1870s with their major contributions.

William Stanley Jevons (1835-1882)

- Studied at University College London and later became a professor there in 1876.
- Major Work: The Theory of Political Economy (1871).

Theory of Utility:

- Jevons distinguished between total utility and marginal utility, which resolved the classical water-diamond paradox. In his view, prices are determined by marginal utility, explaining why people would choose a diamond over an additional unit of water despite the abundance of water.
- He argued that pearls have value because they provide utility, in contrast to Ricardo's belief that their value lies in the effort needed to find them.
- Jevons asserted that the value of pearls depends on how many people already own pearls, thus enabling comparisons of utilities.
- Introduced the principle of utility maximization to various domains, such as international trade and labor markets.
- Developed ideas on fair games, insurance, and gambling (noting diminishing marginal utility), as well as the impact of the sunspot cycle on weather and crops.
- Pioneered a method for creating price indexes to measure inflation or deflation over time.

Public Policy Views:

- Supported public goods and trade unions but argued that unions should allow wage rates to follow natural laws, with wage increases leading to higher prices. He advocated for profit sharing instead of wage controls and opposed regulations on labor hours.

Carl Menger (1840-1921)

- PhD in Law from the University of Krakow; became a professor at the University of Vienna in 1879.
- Major Work: Principles of Economics (1871).

Theory of Value:

- Menger based value on utility, but unlike Jevons, he did not use mathematics to describe marginal utility.

- He argued that price was determined by total utility rather than marginal utility. Production factors are valued according to the utility derived from the consumer goods they produce (e.g., the utility from iron depends on the usefulness of items made from it).

Leon Walras (1834-1910)

- While Jevons and Menger focused on partial equilibria, Walras studied the general equilibrium framework and integrated the marginalist perspective mathematically.
- He argued that prices are determined first, and that consumers optimize their consumption choices based on these prices to maximize utility.

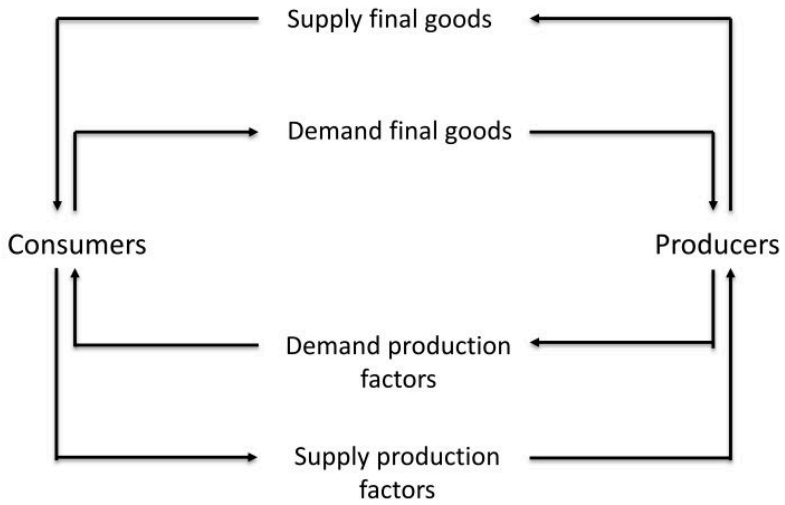
Mathematical General Equilibrium Model

Exchange Analysis:

- Determination of Relative Prices: Walras assigned the price of one good as the numeraire (set to 1), making the relative prices of other goods determined by the remaining m-1 goods.
- Optimization of Utility: For consumers to maximize utility, the marginal utility divided by price must be equal for all goods.

Therefore, prices are determined first. With the prices set, consumers optimize their consumption choices to maximize utility.

General Equilibrium:



Source: Walras – mathematical general equilibrium model (Anne Gielen, 2025)

- Consumers seek to maximize utility, while producers aim to maximize profits.
- Consumer demand equals firm supply for all goods.
- Firm demand equals consumer supply for all factors of production.

Model extended to economy with production:

- Conditions for cost minimization
- Free competition brings production costs to minimum

Money is neutral

- Doubling of money leads to doubling of prices (inheritance Hume and Adam Smith)
- Model was major step forward, but only few contemporary colleagues were able to understand it in detail

Was there a marginal revolution?

Positive Aspects:

The marginalist approach introduced a transformative shift in economic theory, emphasizing demand conditions, incorporating the theory of marginal utility, and increasing the use of mathematical methods in analysis.

Negative Aspects:

However, marginalism was more of an ongoing process than a distinct historical event. Many of the ideas central to the marginalist approach had already been developed decades earlier, with the real breakthrough occurring when these concepts coalesced into the marginalist framework.

Conclusions

Many foundational contributions from this period continue to influence modern economics, such as the monopoly and duopoly models, the theory of diminishing marginal utility, the rational consumer choice theory, the law of demand, the law of diminishing returns, and the concept of returns to scale.

Subsequent influential economists built on the microeconomic theories established by the marginalists.

History of Economic Thought – IBEB – Lecture 3, week 3
Neo-classical school

Neo-classical vs Marginalists

Both marginalists and neo-classicals focus on decision-making and price formation at the margin. However:

- Neo-classicals incorporate both demand and supply in determining price, as emphasized by Alfred Marshall (1842–1924).
- Neo-classicals place greater importance on the role of money, as highlighted by John Gustav Knut Wicksell (1851–1926) and Irving Fisher (1867–1947).
- Neo-classicals expanded marginal analysis to encompass various market structures, as developed by Edward Chamberlin (1899–1967) and Joan Robinson (1903–1983).

Alfred Marshall (1842-1924)

Education and Influences

Attended the University of Cambridge, where he became deeply engaged in economics, drawing inspiration from the works of David Ricardo and John Stuart Mill.

Academic Career

Appointed Professor of Political Economy at Cambridge in 1868, where he profoundly influenced the study and development of economic theory.

Key Works

The Economics of Industry (1879), co-authored with his wife Mary Paley Marshall, and Principles of Economics (1890), a seminal text that introduced foundational economic concepts.

General remarks

Economic Laws: Marshall argued that economic laws are not immutable natural laws and can be influenced by societal interventions, such as government policies (e.g., public universities and private grants).

Departures from Laissez-Faire: He acknowledged the possibility of improving market outcomes through thoughtful intervention, a departure from strict laissez-faire doctrines.

Demand and Price Theory

Integration of Classical and Marginalist Views:
Marshall's price theory blended classical economics (prices determined by production costs) and marginalist perspectives (downward-sloping demand functions). This synthesis led to the development of the "Marshallian Cross," representing the intersection of demand and supply.

Law of Downward Sloping Demand:
Demand increases with a fall in price and decreases with a rise in price.

Partial Equilibrium Analysis:
Introduced the concept of partial equilibrium, focusing on one market while assuming other factors remain constant (Ceteris Paribus).

- Demand shifts occur when determinants like income, wealth, or substitute prices change.
- Analyzed the substitution effect to differentiate:
    - **Quantity Demanded**: Movement along the demand curve.
    - **Changes in Demand**: Shifts of the demand curve.
      However, Marshall overlooked the income effect in his analysis.

Demand and Marginal Utility

Rational Consumer Choice:
Consumer demand is based on the concept of marginal utility, though it depends on:

- Time: The role of supply and demand shifts with time (short vs. long-term adjustments).
- Individual preferences and the indivisibility of goods.
    - E.g., completing a car with a fourth tire provides more utility than the first three tires combined.
- Utility is measured by willingness to pay (WTP), counterbalanced by individual idiosyncrasies.

Elasticity of Demand:
Marshall differentiated between elastic and inelastic demand, with determinants such as price relative to income and availability of substitutes:

- **Elastic Demand**: %ΔQ exceeds %ΔP.
- **Inelastic Demand**: %ΔQ is less than %ΔP.
- **Unit Elastic**: %ΔQ equals %ΔP.

Consumer Surplus and Limitations

Marshall developed the concept of consumer surplus, equating social surplus to the sum of consumer and producer surplus.

Two major challenges:

- Assumed marginal utility of income is constant, conflicting with his own principle that marginal utility of money diminishes for those with more income.
- Adding individual utility to determine total consumer surplus is problematic due to diverse preferences and interpersonal differences.

Further Contributions

Externalities:
Originated the concept of external effects (externalities):

- Negative externalities should be taxed.
- Positive externalities should be subsidized.
  Explained why the long-run supply curve is downward sloping under perfect competition.

Income Distribution:
Marshall connected income distribution to the supply and demand of factors of

production, such as land, labor, and capital. Factor prices (e.g., rent, wages, and interest) influence the overall distribution.

Alfred Marshall's work laid the foundation for modern microeconomics, blending theory with practical considerations and addressing both the mechanics of markets and their broader societal implications.

Knut Wicksell (1851-1926)

Major contributions

Wicksell aimed to integrate and synthesize diverse areas of economics, including monetary theory, business cycle theory, public finance, and price theory.

Agreed with fundamental economic principles that:

1. Demand and price are inversely related.
2. The volume of sales is restricted to the level yielding maximum profits, a concept shared with Antoine Augustin Cournot.

Contributions to Monetary Economics

Wicksell emphasized the critical role of interest rates in achieving price-level equilibrium and advocated for public policy interventions, including the role of central banks (CBs), to promote price stability.

Monetary theory

Interest Rates in Price Determination:
Departing from David Hume's quantity theory of money, Wicksell argued that interest rates, not just money supply, play a pivotal role in influencing price levels.

Stabilizing Monetary Policy:
Proposed a rule for monetary stability:

- If prices remain stable, the bank rate should stay unchanged.
- If prices rise, the bank rate should be increased.
- If prices fall, the bank rate should be decreased.

Two Rates of Interest

1. **Natural (or Normal) Interest Rate**:
   Determined by the supply and demand for real capital (resources not yet invested). Reflects the "real" equilibrium in the economy.
2. **Bank Interest Rate**:
   Set by the banking system and directly influenced by central bank policies.

Relationship Between the Two Rates:

- **Bank Rate < Natural Rate**:
  - Saving is discouraged.
  - Demand for consumption increases.
  - Entrepreneurs borrow more capital for investment, raising incomes and pushing prices higher.
- **Bank Rate > Natural Rate**:
  - Saving is encouraged.
  - Investment declines, reducing national income.
  - Prices fall due to lower demand and reduced economic activity.

Wicksell emphasized that the banking system could stabilize prices by aligning the bank rate with the natural rate of interest.

Advocacy for Paper Standards

Wicksell proposed moving away from the gold standard in favor of a paper currency standard, anticipating challenges from the scarcity of gold and addressing the issue of overabundance in circulation.

Legacy and Influence

Knut Wicksell's ideas profoundly shaped modern monetary economics, particularly the relationship between interest rates, investment, and price stability. His work on interest rate theory laid the foundation for later macroeconomic models, including those of Keynes and monetarist thought.

Irving Fischer (1867-1947)

Theory of interest

Fisher's theory of interest highlighted two key determinants of interest rates:

1. **Impatience Rate**
    - Measures how much future consumption or income individuals are willing to sacrifice for present consumption or income.
    - Less impatience leads to more saving, reflecting a community's willingness to defer consumption for future gains.
    - Introduced the use of **indifference curves** to model subjective valuation and preferences in economic decisions.
2. **Investment Opportunity Rate**
    - Influenced by real factors such as available resources and technology.
    - Illustrates the diminishing marginal returns of investment:
        - When resources are entirely dedicated to immediate consumption, future consumption possibilities diminish.
        - With increased investment, opportunities shrink as diminishing returns set in.

- **Equilibrium Interest Rate**:
  Achieved when the impatience rate equals the investment opportunity rate.
    - At this point, borrowing equals lending, and **savings equals investment**.
    - The real rate of interest emerges, but it may differ from the nominal interest rate, which accounts for inflation.
    - **Nominal Interest Rate = Real Interest Rate + Expected Inflation** (This is the basis of the **Fisher Effect**).

The Fisher Effect

Describes the relationship between real interest rates, nominal interest rates, and inflation. As inflation expectations rise, nominal interest rates adjust proportionally, while real interest rates remain unaffected by inflation in the long term.

Monetary theory

- Fisher expanded and refined the **Quantity Theory of Money**, formalized as:
  MV + M'V' = PT
  where:
  - M,M'M, M': Quantities of currency and other forms of money.
  - V,V'V, V': Velocities of circulation of money.
  - PP: Price level.
  - TT: Volume of trade (total transactions).
- **Price-Level Dynamics**:
  - Prices vary directly with the money supply (M, M') and velocity (V, V').
  - Prices vary inversely with the volume of trade (T).
- **Impact of Money Supply Changes**:
  - Fisher argued that changes in money supply cause an immediate adjustment in the cash-to-expenditure ratio, directly altering price levels.
  - This contrasts with Wicksell's view of an indirect link between money supply and price levels via the interest rate mechanism.
- **Monetary Policy**:
  Advocated for controlling the money supply to mitigate business cycle fluctuations. Fisher underscored the direct relationship between currency increases and price inflation, emphasizing proactive policy to stabilize the economy.

Legacy

Fisher was a pioneer in integrating monetary economics and macroeconomic theory. His insights into interest rates, inflation, and the dynamics of money laid the groundwork for future economic models, influencing both theoretical development and practical policymaking.

Edward Chamberlin (1899-1967)

Chamberlin-Monopolistic competition

- **Key Contributions**:
  - Built on the work of predecessors like Cournot and Wicksell in the study of imperfect competition.

    - Introduced and developed the concept of **Monopolistic Competition** in his seminal work, *The Theory of Monopolistic Competition* (1933).
- **Characteristics of Monopolistic Competition**:
    - Represents a market structure that is neither purely competitive nor purely monopolistic.
    - Key feature: **Product differentiation**, achieved through advertising, branding, and product development, which distinguishes firms' offerings from one another.
    - The demand curve for firms in this structure slopes downward, unlike the perfectly elastic demand in pure competition.
- **Profit and Pricing Dynamics**:
    - **Short Run**:
        - Firms can set monopolistic prices since prices exceed marginal cost (MC).
        - Marginal Revenue (MR) lies below the demand (or Average Revenue, AR) curve.
    - **Long Run**:
        - Profits are eliminated due to the free entry of competitors.
        - Market equilibrium is achieved when Total Revenue (TR) or AR equals Total Cost (TC).
        - At this point, firms earn only normal profit, which is treated as part of the cost, leaving no incentive for firms to enter or exit the market.
- **Efficiency and Production**:
    - Chamberlin noted that, compared to pure competition, monopolistic competition typically results in:
        - Smaller output.
        - Less efficient production.
        - Higher prices.
    - However, this comparison assumes identical cost curves for both structures—a simplification that may not hold in reality.

Chamberlin's work on monopolistic competition revolutionized the understanding of markets with differentiated products, offering insights into real-world market behavior and laying the foundation for further exploration of market imperfections.

Joan Robinson (1903-1983)

Robinson-Imperfect competition

- **Major Work**:
  - *The Economics of Imperfect Competition* (1933), which parallels Edward Chamberlin's analysis of monopolistic competition.
- **Key Similarities with Chamberlin's Theories**:
  - Explored markets characterized by **product differentiation** and competition from **close substitutes**.
  - Recognized that free entry into the market ensures **no long-run profits** for firms.
  - Identified imperfect competition as a hybrid market structure, lying between pure competition and pure monopoly.
- **Key Differences**:
  - Robinson did not focus on the role of advertising or product development in shaping market dynamics.
  - Her analysis gave greater attention to price formation and market outcomes, including:
    - **Price Discrimination**: The ability of firms to charge different prices for the same product to different consumers or groups.
    - **Monopsony**: Examined markets with a single buyer, shedding light on wage and price implications in labor and goods markets.

Robinson's insights expanded the scope of imperfect competition theory, emphasizing nuanced pricing strategies and buyer-driven market dynamics, and establishing her as a key figure in the development of modern microeconomics.

Conclusion - Neo Classicists

Neo-classicists extended existing economic theories by:

1. Considering both demand and supply elements
2. Attaching more value to role of money
3. Extended marginal analysis to different market structures

Introduction Nobel Prize winners

Alfred Nobel (1833-1896)

Nobel was a pioneering scientist, inventor, and philanthropist, widely known for inventing dynamite, a discovery that changed both the course of science and industry. Throughout his lifetime, he was awarded five Nobel Prizes across diverse fields, including:

- Physics
- Chemistry
- Physiology/Medicine
- Literature
- Peace

In 1969, his legacy was further cemented with the establishment of the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel, which added economics to the prestigious list of disciplines recognized by the Nobel Prizes. His contributions to science and society were not only groundbreaking in technology and research but also left an enduring mark on humanitarian and literary pursuits.

Nobel prize in economics

- For “inspiring an outpouring of future research” and sometimes for creating a new field of study within economics
- The winners were mostly men
- Typical characteristics of economic laureates:
    - Strong mathematical background
    - Often ideas trace back to Adam Smith or John Maynard Keynes
    - Ideas that change the way we think, and which can influence government policies in very significant ways.

George Stigler

- 1911 –1991
- Studied at University of Chicago

- Professor University of Columbia
- Works: The Economics of Information (JPE, 1961)
- Nobel Prize in 1982: "for his seminal studies of industrial structures, functioning of markets and causes and effects of public regulation"
- Main contribution: Information and regulation

Information

- Information discrepancies lead to inconsistencies between real-world markets and competitive economic models, often causing market failures or irrational behavior.
- Stigler was a strong advocate of the competitive model but recognized that the acquisition of information comes with a cost, making it difficult to achieve perfect competition.
- Information is an economic good, requiring resources to obtain. As more information is gathered:
    - Total benefits increase, but the marginal benefit of additional information declines.
    - The marginal cost of obtaining further information rises, leading to price variation (e.g., new automobiles).
- Higher information costs result in greater price dispersion across markets.
- "Perfect information about information" is necessary for a competitive model to function efficiently.

Regulation

- Traditionally, it was believed that no government regulation was needed, even to curb monopoly power or ensure consumer protection.
- Stigler argued that regulation often benefits companies under government control, which could lead to government failure.
- Over-regulation can hinder competition, counteracting the benefits it aims to provide.

Something borrowed, something new

- Stigler's work is closely related to Adam Smith's theories on markets and price formation, advocating limited government intervention.

- Stigler expanded upon Smith's ideas by introducing information as another economic good.
- This aligned with the Chicago School's approach to minimal government intervention while recognizing the role of information in market dynamics.

George Akerlof

- Born: 1940 – Present
- Education: BA from Yale, Ph.D. from MIT
- Position: Professor at the University of California
- Notable Works: The Market for Lemons (QJE, 1970); Efficiency Wage Models of the Labour Market (1986)
- Nobel Prize: 2001 (shared with Spence and Stiglitz) "for their analyses of markets with asymmetric information"
- Main Contribution: Asymmetric information (Efficiency wage theory)

Asymmetric information

- Building on Stigler's work on the economics of information, Akerlof extended it by highlighting that when information is limited, markets become inefficient.
- Asymmetric information occurs when one party has more information than another, leading to market inefficiency.
- Example: The resale value of a car is much lower as soon as it's driven off the lot due to the buyer's uncertainty about the car's condition.
- The Market for Lemons (Akerlof's seminal paper) demonstrates how asymmetric information in used car markets leads to "adverse selection" – sellers knowing more about their product's quality than buyers.
- This principle also applies to other markets, such as borrowing money or purchasing insurance.
- Relation to Adam Smith
    - Smith: Free markets lead to efficient outcomes.
    - Akerlof: This holds only if information is perfect; imperfect information distorts market efficiency.

Efficiency wage theory

- During the Great Depression, wage cuts led to increased unemployment. Akerlof theorized:
    - Paying workers more leads to higher productivity because:
        - Firms get more value from their current workers.
        - Higher wages attract better-quality employees.
- Efficiency Wage Theory explains frictional unemployment and wage rigidity – how firms keep wages higher than market-clearing levels to reduce employee shirking, turnover, and to increase profitability.
- Relation to Adam Smith (on wages)
    - Smith: Wages are linked to worker productivity, and variations may occur to reflect non-economic advantages or disadvantages.
    - Akerlof: Firms may pay above-market wages as a strategy to prevent shirking and reduce labor turnover, benefiting both employees and the firm's bottom line.

Today's impact

- Imperfect information is common in many markets, such as restaurants, hotels, healthcare services, electronics, and labor.
- To reduce information asymmetry, businesses implement strategies like product warranties, franchising, and brand development.
- Information intermediaries, such as travel guides, brokers, and online platforms, help bridge information gaps, and affordable internet access makes it easier for consumers to find reliable information.

History of Economic Thought – IBEB – Lecture 4, week 4
Welfare economics

Welfare economics is a field of economic analysis that aims to identify principles for maximizing social welfare. Key contributors to this area of economics have primarily focused on one or both of the following objectives:

- Defining what constitutes welfare optimality and examining how to achieve the highest possible level of welfare
- Identifying obstacles that prevent the attainment of maximum welfare and proposing solutions to overcome these challenges Notable predecessors in welfare economics include Adam Smith, Jeremy Bentham, and Alfred Marshall.

Bentham (1748 –1832)

Utilitarianism

Bentham developed the principle of the greatest happiness, asserting that individuals pursue actions that provide pleasure and avoid those that cause pain. His philosophy is grounded in hedonism, where all individuals aim to maximize their overall pleasure.

Decreasing marginal utility of money

Bentham argued that wealth serves as a measure of happiness but experiences diminishing marginal utility. He introduced the concept of the marginal utility of money, which laid the foundation for marginalist theories of demand.

Implications of Bentham's ideas

- Government interventions that increase happiness are justified.
- If an action contributes more to the well-being of the common people than it detracts from the elite, it is considered beneficial.
- As long as the intervention results in a net gain in happiness, it can be deemed justifiable.
- The state should prioritize the well-being of its citizens, and government intervention is warranted when there are special circumstances.
- Bentham did not fully embrace laissez-faire economics, marking a divergence from other Classical School thinkers.
- He did not advocate for equal incomes, as this would deprive the wealthy and diminish the incentive to work.

Vilfredo Pareto (1848 -1923)

Pareto is recognized as the founder of the "new" welfare economics, which is based on Walras's general equilibrium principles.
Works: Manual of Political Economy

Pareto: utility and demand

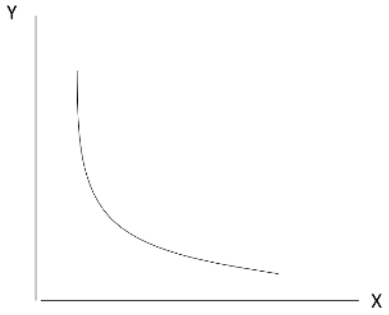
The idea of indifference curves is influenced by Edgeworth. Pareto further developed the relationship between the utility function and indifference curves by creating indifference maps.

Edgeworth	Pareto
- Utility is cardinal	- Utility is ordinal
- Given utility	- Given indifference curve
- Decreasing marginal utility	- Convexity of indifference curve

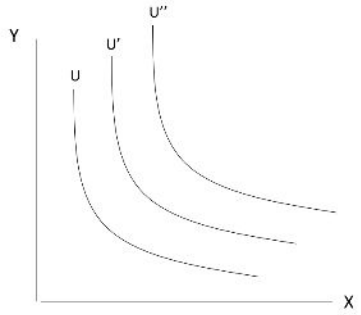
Source: Utility and demand (Gielen, 2025)

Ordinal Utility: Pareto introduced the concept of ordinal utility, meaning utility cannot be precisely measured but preferences over combinations of goods can be ranked in order. He also used the convexity of indifference curves to justify diminishing marginal utility.

EDGEWORTH – INDIFFERENCE CURVES



PARETO – INDIFFERENCE MAP



Source: Indifference Curve and Indifference Map (Gielen, 2025)

The utility theory can be applied to generate hypotheses about demand.

Pareto optimality

Pareto optimality is achieved when maximum welfare is attained, and no further improvements can be made for one individual without reducing the well-being of another. This is referred to as Pareto optimality.

Implications:

- **Optimal Distribution of Goods Among Consumers**: There will be identical marginal rates of substitution (MRSx = MRSy), where the marginal rate of substitution indicates the amount of one product an individual is willing to forgo to obtain an additional unit of another product.

- **Optimal Technical Allocation of Resources**: The principle of identical marginal rates of technical substitution (MRTSc = MRTSl), showing how one unit of capital could be substituted for a unit of labor in production processes.

- **Optimal Quantities of Outputs**: At the point where the marginal rate of substitution (MRS) equals the marginal rate of transformation (MRTS), no further improvement can be made in one person's welfare without decreasing the welfare of another. At this point, the societal benefit exceeds the cost, ensuring optimal efficiency.

Arthur Pigou (1877 -1959)

Works: *Economics of Welfare* (1920)
Similar to Marshall, Pigou expressed a humanitarian concern for the poor and hoped that economic science would lead to social improvements.

Income redistribution

Pigou believed that redistributing income could enhance economic welfare, given the following conditions:

- Diminishing marginal utility of money
- The possibility of interpersonal utility comparisons (which contrasts with Pareto's view)
- A firm belief in utilitarianism, where income redistribution is seen as a way to improve overall welfare

Thus, Pigou advocated for government intervention in economic matters, in contrast to Adam Smith's perspective, to address inequality and foster social well-being.

Private vs social benefits/costs

Pigou's major departure from orthodox economic theory was his emphasis on the difference between private and social marginal costs and benefits. From his analysis, he drew a significant welfare conclusion: competitive markets do not always yield outputs that maximize societal welfare.

Pigou argued that negative externalities lead to an over-allocation of resources in affected markets—resulting in an excessive output.

The government's role, according to Pigou, should be to align:

1. Private and social marginal costs
2. Private and social marginal benefits

- **Private marginal cost**: The cost incurred by a producer for producing one more unit.
- **Social marginal cost**: The cost to society resulting from the production of that additional unit.
- **Private marginal benefit**: The benefit or satisfaction gained by a buyer.

- **Social marginal benefit**: The benefit to society of the buyer's purchase.

Discrepancies between private and social costs or benefits arise due to externalities, building on Marshall's idea of spillovers. Therefore, Pigou justified government intervention through instruments like the **Pigouvian tax** to correct these imbalances.

Conclusion

While **Pareto** is primarily remembered for his contributions to demand theory and welfare economics, his work also contributed to promoting a more mathematical approach to economics. Pigou built on this theoretical foundation, providing practical applications to guide economic policy and demonstrating how welfare economics could serve as a tool for social improvement.

Amartya Sen (1933- Present)

Amartya Sen was awarded the Nobel Prize in 1998 for his contributions to welfare economics.
Notable Works: *Collective Choice and Social Welfare* (1970), *On Economic Inequality* (1973)

Main contributions

Sen criticized the standard approach to measuring poverty, which typically relied on the proportion of people falling below a poverty line. He argued that this method neglected an important factor: the severity of poverty among the poor. As a result, Sen developed a more complex index that not only measured poverty but also considered its depth and extent.

Sen also conducted significant research on famines, pointing out that they sometimes occur even when food production has not declined—a claim that contradicted Malthusian theories. He noted that some famines arise when specific groups experience a drop in their real incomes, making it impossible for them to afford food, even if the food supply remains stable.

Social choice and inequality

Social Choice Theory:
Sen made important refinements to Arrow's Impossibility Theorem, which stated that it's impossible to derive consistent public preferences through voting. According to this, governments struggle to determine national preferences and tackle key economic issues, including poverty and inequality.

Sen improved upon social choice theory by introducing concepts such as **preference intensity** and distinguishing between **cardinal** and **ordinal utility**. He argued that interpersonal comparisons should be made, allowing for considerations of **equity** and **justice** when evaluating public welfare and social choices.

Sen fundamentally rejected the **Impossibility Theorem**, advocated for the **Maximin criterion**, and placed a strong emphasis on fairness. He maintained that outcomes maximizing total welfare must also ensure a fair distribution of income. This, he argued, made **Pareto optimality** inadequate as a distribution criterion because it overlooks inequality.

Additionally, Sen critiqued **Utilitarianism** for ignoring fairness in its calculations and **Malthusian theory** by highlighting that famine is not simply about a lack of food supply but also about accessibility (i.e., the "acquirement problem"). This distinction between "Boom" and "Slump" famines further deepened his perspective on the multifaceted nature of famine.

Impact Today

Sen's work has had a lasting impact on policy and development economics:

- **Policies** to combat famine should focus not just on ensuring a sufficient food supply, but also on addressing underlying poverty.
- Western governments are encouraged to support **democracies**, which can help prevent food shortages, and to practice **fair trade**, helping create economic conditions that reduce the risk of famine.
- Improving **poverty statistics** involves not just tracking the incidence of poverty but also gauging its severity.
- Sen emphasized defining poverty as a lack of **capability** to live a minimally acceptable life, rather than merely an income deficiency.

Today, Sen's work continues to influence how poverty, inequality, and famines are understood and tackled through both academic study and policy-making.

Keynesian school

Historical setting

Great Depression

- *October 24, 1929* — Black Thursday, marking the beginning of the financial collapse
- Widespread decline in business confidence
- Surging bankruptcies and unemployment
- Classical economic theories failed to offer solutions: The idea of a self-correcting market proved ineffective
- **Keynes' Response**: *The General Theory of Employment, Interest, and Money* (1936)
- Argued that government intervention was necessary to maintain high levels of effective demand.

Core Principles of the Keynesian School

- **Macroeconomic Focus**
    - Keynes and his followers emphasized factors affecting the overall economy, such as consumption, saving, income, output, and employment.

- **Demand-Centric Approach**
  Keynesian economics underscores the importance of effective demand, or aggregate expenditures, as the primary determinant of income, output, and employment.
    - The actual output of an economy is typically lower than its potential output (full employment level) due to insufficient effective demand.

- **Economic Instability**
    - The economy experiences cycles of booms and busts due to unpredictable changes in planned investment spending.

- **Wage and Price Rigidity**
    - Wages tend to be **downwardly inflexible** due to institutional factors such as union contracts, minimum wage laws, and implicit agreements.
    - Prices are "sticky" downward, meaning a reduction in effective demand leads to decreased output and higher unemployment rather than price reductions. Deflation usually occurs only during severe recessions.

- **Active Fiscal and Monetary Policy**
    - Keynesian economists advocate for proactive government intervention, using fiscal and monetary policies to achieve full employment, price stability, and sustained economic growth.

John Maynard Keynes (1883- 1946)

Key Works:

- *A Treatise on Probability* (1909)
- *The Economic Consequences of the Peace* (1919)
- *The General Theory of Employment, Interest, and Money* (1936)

Keynesian system

Consumption Function

- Keynes observed a positive relationship between consumption and national income, with consumption rising as income increases. However, consumption and income do not grow at the same rate, as savings also rise with income.
- The consumption function: **C = f(Y)**, where consumption (C) is a function of income (Y).
- The Marginal Propensity to Consume (MPC) is positive but less than 1.
- Savings increase with income, where the Marginal Propensity to Save (MPS) is greater than 0 but less than 1.

Investment

- Investment depends on the interest rate, expectations, and uncertainty (against classical economics and building on Neoclassical school ideas).
- Businesses invest expecting new capital will generate profits, continuing investment until the marginal efficiency of capital equals the interest rate.

- The marginal efficiency of capital: the present value of future returns, equaling the capital asset's supply price.
- **Investment Multiplier**: fluctuations in investment lead to greater fluctuations in income, with changes in investment affecting income more than the initial change in investment.

Economic vs Financial Investment

- Income streams depend on the capital's productivity, the price at which firms sell the added output, the additional costs incurred, and the supply price of capital.
- Savings are influenced by the income level.
- **Money Definition**: Money includes currency and deposits.

Liquidity preference

- Keynes' theory on liquidity preference (demand for money) is based on three motives for holding money:
    - **Transaction Motive**: Cash needed for consumption or business transactions.
    - **Precautionary Motive**: Holding money for unforeseen emergencies.
    - **Speculative Motive**: Holding money in anticipation of rising interest rates or falling stock and bond prices.
- This results in a downward-sloping demand curve, indicating that lower interest rates lead to higher money holdings.

Equilibrium

- Keynes saw a close relationship between national income and unemployment, particularly in the short term.
- **Equilibrium** occurs when national income equals consumption and investment spending (**Y = C + I**).
- Savings is simply the difference between income and consumption: **S = Y - C**, and equilibrium is reached when savings equals investment: **S = I**.
- **Multiplier Effect**: Changes in investment lead to greater changes in national income; a reduction in effective demand results in a stronger decline in income and higher unemployment.

Government policy

- Keynes advocated for significant government intervention to promote full employment and economic stability.
    - **Expansionary Monetary Policy**: Lower interest rates to increase investment and employment by injecting money into the economy. However, once the liquidity preference curve flattens, money is hoarded, and the interest rate can't fall further (liquidity trap).
    - **Expansionary Fiscal Policy**: Increase government spending and reduce taxes to boost aggregate demand and stabilize employment.
- **Keynes' View**: Wealthier societies tend to save more, creating a challenge in maintaining full employment. Government intervention, such as running budget deficits and increasing public investment, is required to maintain full employment.

Conclusion

- Keynes focused on understanding the factors that influence income and employment, particularly the causes of economic fluctuations.
- He advanced economic theory toward policy-making, especially in times of depression and unemployment.
- Keynes demonstrated that governments can play a role in stabilizing the economy and facilitating equilibrium.
- Contemporary economics blends neoclassical microeconomics with Keynesian macroeconomics to address both market dynamics and government intervention needs.

John Hicks (1904 – 1989)

Regarded as one of the most influential economists of the 20th century, John Hicks made several key contributions to economics, particularly in microeconomics with his formulation of consumer demand theory and the IS/LM model (1937), which provided a Keynesian perspective on macroeconomics. His book *Value and Capital* (1939) greatly expanded the understanding of general equilibrium and value theory.

General equilibrium theory

- **Role of Prices**: Hicks distinguished between substitution and income effects in pricing models.
- **Economic Equilibrium Model**: He refined the general economic equilibrium by incorporating innovations, such as conditions for multimarket stability and multi-period models, as well as capital theory centered on profit maximization.
- **Indifference Curves**: Hicks avoided the assumption that marginal utility could be measured cardinally. Instead, he maintained that consumers could rank their preferences in an ordinal fashion. Thus, different combinations of two goods could provide the same level of satisfaction.
- **Isocost-Isquant Analysis**: Hicks introduced the isocost and isoquant analysis to study production efficiency.

Relations

Relation to Marshall

- Hicks enhanced the concept of consumer surplus by incorporating income and substitution effects.
- He resolved Giffen's paradox by distinguishing between normal goods, inferior goods, and Giffen goods, where the income effect is so large that it overpowers the substitution effect, leading to increased purchases of a good when its price rises.

Relation to Walras

- Hicks modernized the foundational principles of general equilibrium theory developed by Walras.

IS/LM model (Hicks-Hansen synthesis)

Hicks argued that Keynes's theory of interest rates was indeterminate. He proposed the IS/LM model as a solution:

- **IS Curve**: Describes the relationship between national income and the interest rate. It shows the equilibrium where savings (S) equals investment (I) after multiplier effects have taken place.
- **LM Curve**: Represents the relationship between national income and the interest rate in the money market, where the supply and demand for money are equal. Both curves operate in real terms (not nominal).

Policy Implications:

- **Fiscal Policy**: Shifts the IS curve. An increase in government spending (G) leads to a rightward shift in the IS curve. The effectiveness of fiscal policy depends on the elasticity of the LM curve.
    - A highly elastic LM curve will result in a greater increase in income with a smaller rise in the interest rate when the IS curve shifts right.
- **Monetary Policy**: Shifts the LM curve. An increase in the money supply causes an outward shift in the LM curve. The effectiveness of this increase depends on:
    - The extent to which the interest rate falls and the elasticity of investment demand.
    - If investment demand is highly inelastic, the IS curve will also be inelastic, meaning changes in the interest rate will have little effect on investment or income.

Relations to Key Figures and Theories:

- **Relation to Keynes**: Hicks incorporated Keynesian thought into the IS/LM framework, presenting fiscal policy as effective in boosting output during periods of low economic activity.
- **Relation to Neo-Classicals**: Hicks expanded on Neo-Classical views, suggesting that expansionary monetary policy could increase economic output.

Kenneth Arrow (1921- 2017)

Kenneth Arrow was an influential American economist, mathematician, writer, and political theorist, widely recognized for his significant role in the development of post-World War II neo-classical economic theory. Many of his graduate students went on to win the Nobel Memorial Prize in Economic Sciences. Arrow's most notable contributions include his work on social choice theory, particularly the "Arrow's Impossibility Theorem," as well as general equilibrium analysis. Additionally, he made

foundational contributions to various other fields in economics, including endogenous growth theory and the economics of information.

Contributions

General Equilibrium Theory:

- Proved the existence of competitive equilibrium.
- Addressed issues related to imperfect or asymmetric information in markets, including concepts like moral hazard and adverse selection.

Impossibility theorem

Analyzed the relationship between individual preferences and democratic voting, presenting a set of four conditions that social choice must satisfy to genuinely reflect the preferences of voters:

- **Transitivity**: Choices must be logically consistent.
- Group decisions should not be manipulated by any individual.
- A social choice must not be rejected simply because it is more preferred by one person.
- Social preferences should depend solely on individual preferences for the available alternatives, not on the presence of other options.

General equilibrium theory

- Arrow, along with Gerard Debreu, provided a proof for the existence of equilibrium solutions in markets.
- Based on common assumptions like constant or decreasing returns to production, convex indifference curves, the absence of externalities, and utility-maximizing agents, Arrow showed that prices can balance supply and demand.

Key Theorems in Welfare Economics:

1. A competitive equilibrium is a Pareto optimum.
2. Any Pareto optimum can be maintained as a competitive equilibrium.

Relations

Relation to Walras

Arrow extended Walras's work by providing a formal proof for the existence of equilibrium, something Walras had not demonstrated.

Relation to Smith

Arrow reaffirmed Adam Smith's observation that prices adjust until markets clear, particularly in perfectly competitive environments.

Imperfect information

In 1963, Arrow published a paper on medical care that addressed issues stemming from imperfect information in insurance markets, including:

- **Moral Hazard**: When one party is able to take risks because the negative consequences are borne by another.
- **Adverse Selection**: When the seller of a product or service has more information than the buyer, leading to inefficient outcomes.

Arrow demonstrated that, due to information imperfections, free markets often cannot resolve these issues without some form of intervention, a concept later expanded by George Akerlof in his work on "The Market for Lemons."

- **Incorporating Uncertainty**: Arrow also advanced the understanding of uncertainty in economic models by introducing state-contingent claims. Despite uncertainty, he showed that the two central theorems of welfare economics—regarding competitive equilibrium and Pareto optimality—still hold.

Conclusions Keynesian school

Arrow and Hicks are considered central figures in modern economics, and their contributions have had lasting effects, only gaining full recognition in later years. Many of the elements of their work are still foundational in contemporary economic theory. Both also made significant advances in other areas, ensuring their place as key contributors to economic thought.

History of Economic Thought – IBEB – Lecture 5, week 5

Economic growth and Development

Economic growth refers to a sustained increase in a nation's real output (GDP) over time, often explained by models such as the **Harrod-Domar model**.

Economic development, on the other hand, encompasses a broader process of improving a nation's standard of living, which includes increasing real GDP, enhancing infrastructure, and fostering social progress. This concept is closely linked to the ideas of **Schumpeter**, particularly his theory of innovation and entrepreneurship as drivers of economic transformation.

Since 1945, there has been a significant rise in research on economic growth and development due to various global trends:

- Economic growth rates differ widely across nations, highlighting disparities in productivity and capital accumulation.
- Industrially advanced countries continuously seek to enhance their growth rates through innovation, investment, and policy reforms.
- Several formerly poor nations have transitioned into developing or emerging economies, often due to globalization and structural reforms.
- The collapse of socialism in Eastern Europe and the Soviet Union reshaped global economic systems, leading to market-oriented reforms in many nations.
- The importance of improving the standard of living has grown, with a focus on human development indicators such as education, healthcare, and income equality.

Harrod-Domar growth model

The **Harrod-Domar model** of economic growth was developed independently by **Roy Harrod** and **Evsey Domar**, both of whom presented their ideas in 1947—Harrod at

the **University of London** and Domar in an article published in the **American Economic Review**.

Their analysis was built within the **Keynesian framework**, making them key contributors to the broader **Keynesian school of thought** on economic growth.

Features of the model

1. **Investment Drives Growth**
    - Net investment increases the capital stock, which in turn raises the economy's potential income level.
    - Economic growth at full employment can only be sustained if there is **sufficient investment**.
2. **Consumption and Income Relationship**
    - Higher income leads to higher consumption, reinforcing economic expansion.
3. **Balanced Growth and Full Employment**
    - For an economy to maintain **full employment of resources**, income must grow at a steady rate.
    - Investment must match the required level to sustain full employment over time.
4. **Inherent Economic Instability**
   The economy is naturally unstable because it is unlikely that **investment growth will perfectly match the growth of productive capacity**.
    - If **investment growth is lower than productive capacity growth**, the economy **contracts**, leading to a recession.
    - If **investment growth exceeds productive capacity growth**, the economy experiences **demand-pull inflation**.

Policy Implications for Developing Countries

The Harrod-Domar model is particularly relevant for **developing countries** due to:

1. **High birth rates** → A large and growing labor force.
2. **Limited availability of physical capital** → A shortage of infrastructure and machinery.
3. **Low income levels** → Low savings rates, which restrict investment potential.

To achieve **sustained economic growth**, policymakers must focus on **increasing savings and investment**. By promoting higher savings rates and facilitating investment in capital goods, developing nations can accelerate their economic expansion and improve living standards.

Joseph Schumpeter (1883-1950)

Schumpeter focused on **economic development**, viewing the economy as a continuously evolving system rather than a static one.

Creative destruction

Schumpeter's work was shaped by two major intellectual influences: **Léon Walras** and **Karl Marx**.

- From **Walras**, he adopted an emphasis on the **interdependence of economic variables**.
- While he strongly opposed **Marxism**, he acknowledged Marx's deep understanding of **economic change**.

Schumpeter developed a **theoretical framework** to explain both **business cycles** and **economic development**, emphasizing the role of **innovation** as the driving force behind economic change.

Key Concepts

1. **Innovation**
    - Economic transformation occurs through **changes in the methods of producing and supplying goods**.
    - Examples: **new products, improved production techniques, access to new markets, and organizational restructuring**.
2. **Entrepreneurs**
    - Entrepreneurs act as the primary agents of change by introducing innovations.
    - They do not necessarily have long-term ties to a single firm but serve as **pioneers of new products and processes**.

Without continuous **innovation**, the economy would stagnate at a state of equilibrium, halting wealth accumulation. However, **profit-seeking entrepreneurs** disrupt this equilibrium, driving economic progress.

Innovation Waves and Business Cycles

Although new **inventions and discoveries** occur constantly, their transformation into **market innovations** follows a **cyclical pattern**. As a result, business cycles reflect the **economy's adaptation to waves of innovation**.

- A **favorable climate for innovation** leads to **credit expansion**, rising prices, and increased income.
- As prices rise, **investment slows**, and **competition intensifies** between old and new products.
- This leads to **business closures and market restructuring**, a process Schumpeter termed **creative destruction**.

Creative Destruction and Capitalism

- Schumpeter borrowed the term from **Marx**, who argued that capitalism's peak success would lead to its eventual decline.
- However, Schumpeter believed that **creative destruction** was an **essential and inevitable** feature of **dynamic capitalism**.
- **Policy implication**: If innovation is constantly disrupting existing industries, **monopolization is not a long-term concern**, as new technologies will eventually render monopolists obsolete.

In retrospect

In hindsight, Schumpeter was **overly pessimistic** about the future of **capitalism and entrepreneurship**. Despite his concerns, capitalism has continued to evolve through **technological advancements and entrepreneurial activity**.

Conclusion

Contributions of **Harrod-Domar and Schumpeter** played a crucial role in advancing research on **economic growth and development**. However, modern growth

models—particularly the **Solow Growth Model** (developed by **Robert Solow**, 1987 Nobel Prize winner)—have since gained **greater prominence**, building upon their foundational ideas.

Robert Solow (1924- Present)

Robert Solow was awarded the **1987 Nobel Prize in Economics** for his **contributions to the theory of economic growth**. His first major work on the subject, *A Contribution to the Theory of Growth*, introduced a **mathematical growth model** as an extension of the **Harrod-Domar model**.

While Solow initially built upon the Harrod-Domar framework, there was a fundamental conflict:

- **Harrod-Domar** suggested that the economy is inherently unstable.
- **Solow**, as a neoclassical economist, believed that markets naturally adjust to restore equilibrium.

To resolve this contradiction, **Solow introduced capital-labor substitution**, allowing the economy to **self-correct** and achieve **stable long-term growth**.

Main contribution (summary)

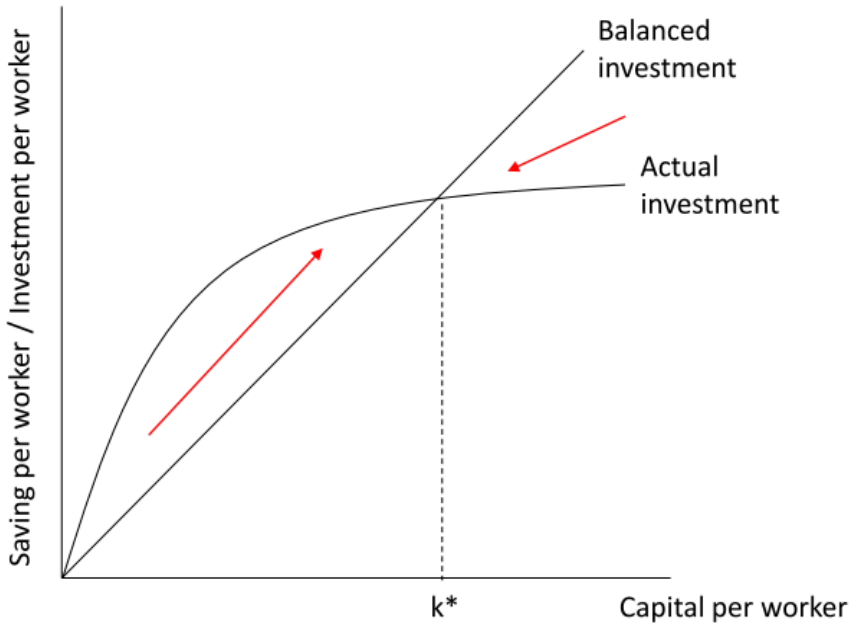
Economic Growth Analysis

- Built on the **Harrod-Domar model** but modified it to allow for **internal market adjustments**.
- Advocated for the **neoclassical view**: the economy naturally stabilizes and maintains a steady growth path.

Growth Theory

- **Short Run (SR):** Diminishing returns to labor—firms can increase labor but face constraints in adjusting capital quickly (e.g., expanding factory space takes time).
- **Long Run (LR):** Constant returns to scale (CRS)—firms can adjust **all factors of production**, ensuring steady output growth.
- **Balanced Growth Condition:**
    - Population growth **(n)** must equal capital growth **(K)** for balanced investment.

- Savings is proportional to income (**MPS = APS**).
- **Steady-state condition:** Actual investment (**sY**) must match balanced investment (**nk**) to sustain stable growth.
- Automatic adjustments in capital and labor allocations ensure long-run economic stability.



Source: Growth theory (Gielen,2020)

Role of technology

- **Without technological progress, long-run equilibrium does not lead to higher living standards.**
- The **long-term growth rate** is determined by:
  - **Population growth rate** *(n)*
  - **Technological progress** *(T)*
- **Growth Accounting Approach:** Most economic growth is attributed to **technological advancements**, not just capital accumulation or labor increases.

Comparisons with Other Economic Theories

- **Keynesian models focus on short-run fluctuations**, while **Solow's model explains long-run economic growth**.

Harrod-Domar

- Unlike Harrod-Domar, **Solow demonstrated that the economy naturally moves toward a stable equilibrium**.
- **Key differences:**
    - **Capital-labor substitution** allows flexibility in production.
    - **Technological progress** plays a central role in long-run growth.

Schumpeter

- Both **Schumpeter and Solow** emphasized the **importance of technological progress**.
- However, **Schumpeter** saw **entrepreneurship and innovation waves** as the driving force of growth, while **Solow** viewed technology as a **continuous and exogenous factor**.

Today's impact

Solow's work laid the foundation for **growth theory in the 1950s and 1960s**, inspiring subsequent models.

- Today, **new variants of the Solow model** incorporate more **realistic assumptions** regarding:
    - **Sectoral differences** in production.
    - **Capital structure variations**.
    - **Endogenous technological progress**.
    - **Population dynamics and savings behavior**.

By refining the understanding of economic growth, **Solow's model remains a cornerstone of modern growth economics**.

The Chicago School of Economics

The **Chicago School** emerged from the **University of Chicago**, producing influential economists who reshaped economic thought. Key figures include:

- **Milton Friedman** *(Nobel Prize, 1976)*
- **George Stigler** *(Nobel Prize, 1982)*
- **Ronald Coase** *(Nobel Prize, 1991)*
- **Gary Becker** *(Nobel Prize, 1992)*
- **Robert Lucas** *(Nobel Prize, 1995)*

Historical Background

Since the time of **Alfred Marshall**, economic theories increasingly supported **government intervention** in markets:

- **Externalities** (Pigou) → Justified corrective policies.
- **Monopsony power** (Joan Robinson) → Called for regulation of labor markets.
- **Macroeconomic stabilization** (Keynes) → Advocated government-led economic management.

The **Chicago School economists** strongly opposed this trend, rejecting interventionist policies and advocating for **free markets and limited government**. They became known as the **"New Classicists"** for their **pro-market stance**.

Core Principles of the Chicago School

1. Rational and Optimizing Behavior

- Individuals act as **utility maximizers**.
- Preferences are **stable and independent** of prices.
- Decisions involve **uncertainty**, and individuals seek information where **marginal benefit (MB) = marginal cost (MC)**.
- **Incentives matter**—economic agents respond predictably to price changes.

2. Market Efficiency and Price Mechanism

- **Observed prices and wages** reflect **long-run competitive equilibrium**.
- Prices/wages convey **opportunity costs**, guiding efficient resource allocation.
- **Well-defined property rights** promote **private negotiations**, reducing externalities.

3. Mathematical and Analytical Rigor

- Uses both **Marshallian partial equilibrium** and **Walrasian general equilibrium** approaches.

4. Rejection of Keynesian Economics

- **Markets self-adjust** and **self-regulate**, eliminating the need for active government intervention.
- **Monetary policy** is often **distortionary**, while **fiscal policy is ineffective** unless matched by monetary expansion.
- **Severe recessions and depressions** are caused by **poor monetary policy**.

- Changes in the **money supply** directly influence **nominal GDP**.
- **"Inflation is always and everywhere a monetary phenomenon"** (Friedman) → Rejects cost-push inflation theories.

5. Limited Government and Political Economy

- Government interventions often lead to **inefficiency**.
- Public officials act **in their own interest**, sometimes at the expense of social welfare.

Implications and Lasting Influence

- **Reinforced the marginalist tradition** in economics.
- Applied **microeconomic principles** to analyze **macro issues**.
- Emphasized **classical and neoclassical economic thought**.
- Preserved and expanded **Irving Fisher's monetary theories**.
- Influenced **inflation debates** in the **1970s and 1980s**, shaping modern monetary policy.

The **Chicago School's legacy** remains central to **modern economic policy**, particularly in debates over **free markets, inflation control, and government intervention**.

Milton Friedman (1912- 2006)

Milton Friedman was one of the **20th century's most influential advocates of free markets**. Born in 1912 to Jewish immigrants in **New York City**, he earned his **B.A. from Rutgers University** at age 20, followed by an **M.A. from the University of Chicago (1933)** and a **Ph.D. from Columbia University (1946)**.

In **1976, he was awarded the Nobel Prize in Economics** for his contributions to **consumption analysis, monetary history and theory, and the complexities of stabilization policy**. His **key contributions** include the **Permanent Income Hypothesis** in consumption theory and **modern monetary theory**.

Consumption Theory: The Permanent Income Hypothesis

Core Idea

- **Permanent income** (long-term average income) **determines consumption**, rather than current income.
- Consumers seek to **maintain a stable standard of living**, so they do not adjust spending in response to **temporary income fluctuations**.

Implications

- **Fiscal policy is less effective** in influencing consumption and investment.
- The **investment multiplier is overstated** in Keynesian models.
- The economy is **more stable** than Keynesians assumed.

Contrast with Keynesian Economics

- Keynesian models suggest **current income** drives consumption, while Friedman argued **permanent income** is the key determinant.
- The **marginal propensity to consume** (MPC) out of current income is **smaller** than Keynesians claimed.
- **Fiscal stimulus** is ineffective unless it affects **permanent income**.
- Many economic problems arise due to **poor governance and excessive government intervention**.

Monetary Theory

The Demand for Money

- Money is **held for transactions and wealth storage**.
- Factors affecting **money demand**:
    - **Total wealth** → More wealth increases demand for money.
    - **Interest rates** → Money demand is **interest inelastic**.
    - **Expected inflation** → Higher inflation expectations **reduce money demand** as people seek capital gains.
    - **Price level** → Higher prices increase money demand, as each unit of currency buys less.

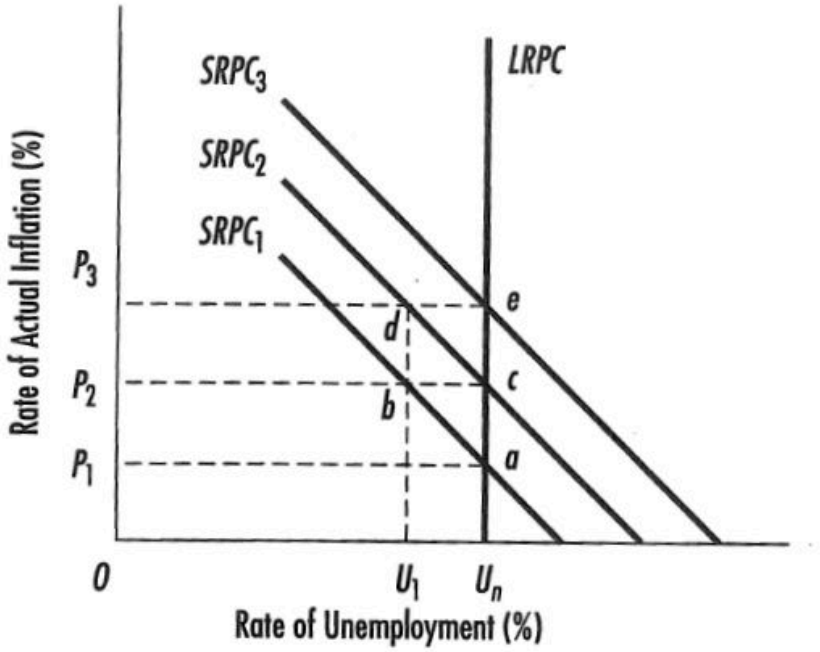
The Modern Quantity Theory of Money

- Unlike classical theory (which assumes **constant velocity**), Friedman argued **money demand is stable in the short run**.
- **Excess money supply → increased demand for goods → higher prices → equilibrium restored**.
- Inflation is **always and everywhere a monetary phenomenon**.
- The **Great Depression** was caused by **monetary mismanagement** rather than market failures.

Phillips Curve and the Natural Rate of Unemployment

The Phelps-Friedman Phillips Curve

- The **long-run Phillips curve is vertical**, meaning unemployment **returns to its natural rate** regardless of inflation.
- **Short-term trade-offs exist**, but once inflation expectations adjust, **higher inflation does not reduce unemployment**.
- **Monetary stimulus can only temporarily lower unemployment**—in the long run, it leads to **higher inflation** instead.



Source: Monetary theory (Gielen, 2020)

The Monetary Rule: A Fixed Growth Rate for Money Supply

Friedman **opposed discretionary monetary policy** and proposed a **monetary rule**, stating:

> *"The central bank should increase the money supply at a steady rate, roughly corresponding to the long-run growth of productive capacity, to avoid high inflation or recession."*

Why a Monetary Rule?

1. **Past failures of central banks** → The Fed has been a source of instability.
2. **Limitations of economic forecasting** → Time lags make discretionary policy unpredictable.
3. **Business and consumer confidence** → A stable policy framework fosters trust.
4. **Preventing political manipulation** → The monetary rule **limits central bank power**.

However, during **1983–1984, the Federal Reserve did not follow this model**, leading to challenges in its real-world applicability.

Relation to Other Economic Schools

Chicago School & Classical Economics

- Advocated **minimal government intervention** and **libertarian economic policies**.

Contrast with Keynesian Economics

- Rejected **fiscal policy** as an effective tool.
- Believed **monetary policy should follow fixed rules**, not discretionary intervention.

Impact on Modern Economics

- **Reinforced the importance of monetary policy** in controlling inflation.
- **Proved that the Phillips curve is not stable**, influencing macroeconomic models.

- Distinguished between **positive (descriptive) and normative (policy-driven) economics**.
- Had a **profound influence on policymakers**, especially in the **late 20th century**.

Conclusion

Milton Friedman was the **most influential critic of Keynesian economics** and **reshaped macroeconomic thought**. His work on **monetary policy, inflation, and consumption theory** continues to shape **modern economic policies worldwide**.

Angus Deaton (1945- Present)

Angus Deaton is a **British-American economist from Scotland** who was awarded the **2015 Nobel Prize in Economics** for his groundbreaking contributions to the **theory of consumption, savings, and the measurement of economic well-being**. His work has profoundly influenced **applied economics and development economics**.

He earned his **B.A. (1967), M.A. (1971), and Ph.D. (1974) in economics** from the **University of Cambridge**. Deaton began his academic career as a **professor of econometrics at the University of Bristol (1976–1983)** before joining **Princeton University** as a permanent faculty member in 1980.

His key contributions include:

- **Consumption demand**
- **Almost Ideal Demand System (AIDS)**
- **Development economics and policy**

Consumption Demand

Key Insights

- Patterns in **consumption choices** over time
- Trade-offs between **spending vs. saving**
- The role of **time-varying consumption patterns**

Deaton empirically tested **Friedman's Permanent Income Hypothesis (PIH)**, which suggests that consumption is driven by **long-term (permanent) income** rather than temporary income changes. However, his findings led to the **Deaton Paradox**:

> **Consumption remains smoother than predicted, even in response to unanticipated permanent income shocks.**

This raised questions about the **aggregation of individual vs. household-level data**, leading to **refinements in consumption models**.

Almost Ideal Demand System (AIDS)

Challenges in Demand Theory

- Traditional demand models failed to align with **empirical consumption patterns**.
- They did not adequately represent **rational consumer behavior**.

Deaton & Muellbauer's Contribution

- Introduced the **Almost Ideal Demand System (AIDS)** to provide a **more accurate representation of consumer demand**.
- Developed a model that allows for **aggregation over consumers** under **weaker assumptions**, leading to the concept of a **representative consumer**.

Policy Relevance of AIDS

- **Construction of price indices**
- **Comparison of living standards** across different populations
- **Analysis of consumption choices** across multiple commodities

AIDS has become a **standard tool in economic policy analysis**, shaping research on **consumer behavior and welfare measurement**.

Development Economics & Policy

Key Contributions

- Developed methods to **measure poverty using consumption data**.
- Highlighted **variations in unit prices**, influencing poverty assessments.
- Adjusted poverty measures to reflect **lower consumption needs of children**, preventing **overestimation of poverty levels**.

Policy Implications

- Showed that **economic growth plays a crucial role in reducing malnutrition**.
- Provided insights into **poverty measurement and welfare policy in developing countries**.

Relation to Previous Economists

Keynes

- Shared the belief that **consumption is a fundamental determinant of human welfare**.

Friedman

- Built on **PIH**, but challenged it by showing that **disaggregated data reveal less smooth consumption patterns**.

Malthus

- Malthus argued that **high population growth hinders economic growth through malnutrition**.
- Deaton countered that **malnutrition results from low income, not high population growth**.

Today's Impact

Deaton's research has transformed **modern microeconomics, macroeconomics, and development economics** by linking **individual consumption decisions** with **broader economic outcomes**. His work highlights the importance of:

- **Consumption as a fundamental determinant of human welfare**.
- **Addressing aggregation issues in economic data**.
- **Improving the accuracy of poverty and inequality measurement**.

His findings continue to shape **economic policy, welfare analysis, and development strategies worldwide**.

History of Economic Thought – IBEB – Lecture 6, week 6
Development of Econometrics

Introduction

Empirical research has a long history, but for many years, there was little structured discussion on how to systematically test economic theories. This was partly due to the absence of mathematical formulations in early economics and the lack of tools necessary for testing, which only became available later with advancements in computing and data accessibility.

Example: Cournot's "Law of Demand"

- Collecting data on prices and quantities in a market
- Potential challenges:
    - Differences between cross-sectional and time-series data
    - Other influencing factors affecting outcomes

🔹 The need for more advanced methods led to the birth of **Econometrics**

Key Contributions in Econometrics

Econometric models do not provide absolute proof but continuously evolve with new challenges and techniques:

- **Tinbergen & Frisch (1969 Nobel Prize)**
    - Pioneered the application of statistical methods to economics, laying the foundation for econometrics.
- **Haavelmo (1989 Nobel Prize)**
    - Addressed key issues such as the **identification problem** and **simultaneity problem** in econometric models.
- **Granger & Engle (2003 Nobel Prize)**
    - Developed methods for **time series analysis**:
        - **Engle**: Introduced the concept of **time-varying volatility**, where variables fluctuate more in some periods than others.

        - **Granger**: Demonstrated that model errors are often not purely random but linked to past errors.
- **McFadden**
    - Developed **discrete choice analysis**, which explains how individuals choose between distinct alternatives.
    - Introduced **conditional logit analysis**, used to estimate the likelihood of individuals within a demographic group (e.g., based on income and age) making similar choices.
- **Heckman (2000 Nobel Prize)**
    - Developed the **Heckman correction**, a method for addressing **selection bias** in econometric models.

Ragnar Frisch and Jan Tinbergen

Frisch and Tinbergen introduced mathematical and statistical methods into economic research, earning them the **1969 Nobel Prize** *"for having developed and applied dynamic models for the analysis of economic processes."*

Key Contributions

- **Pioneers in econometric model building**
- Developed theories for **stabilization policy** and **long-term economic planning**

Econometric Model Building

Frisch

- Defined **econometrics** as a research program involving:
    1. Mathematical formulations of economic theories
    2. Systematic testing using mathematical statistics
- Developed **identification methods** to detect patterns and relationships in data.

Tinbergen

- Specialized in **large-scale numerical model estimation** for economic analysis.

Policy and planning

Frisch

- Developed a **macroeconomic model** describing the demand for money as a function of consumption and investment.
- His model successfully replicated **business cycles**.

Tinbergen

- Expanded Frisch's model to develop tools for **anti-depression policies**.
- Introduced **large-scale numerical models**, which remain central to economic forecasting and policymaking in many countries.

Trygve Haavelmo

Haavelmo emphasized the close connection between **economic theory** and the **statistical estimation of theoretical relationships**. He was awarded the **1989 Nobel Prize** *"for his clarification of the probability theory foundations of econometrics and his analyses of simultaneous economic structures."*

Key Contributions

- **Laid the foundation for modern econometrics**, refining methods to estimate and test quantitative economic relationships.
- Developed **principles of econometrics**, including:
    - **Autonomy**: Economic relationships should remain stable despite changes in other variables.
    - **Identification problem**: Expanded on Frisch's work to improve model accuracy.
    - **Simultaneity**: Argued that all equations in an economic model should be estimated **simultaneously** rather than independently.

Clive Granger and Robert Engle

Granger and Engle made significant advancements in **time series analysis**, earning them the **2003 Nobel Prize**:

- **Granger**: *"for methods of analyzing economic time series with common trends (cointegration)."*
- **Engle**: *"for methods of analyzing economic time series with time-varying volatility (ARCH)."*

Contributions

- **Granger**: Developed **cointegration methods** to distinguish between short-term fluctuations and long-term trends in economic data.
- **Engle**: Introduced methods for analyzing the **volatility properties** of economic time series.

Time series analysis

Granger: Cointegration

- When two variables appear related because they are both influenced by a third variable, this can lead to **misinterpretation**.
- Cointegration methods help **identify and correct** such misleading relationships.

Engle: Time varying volatility

- Economic **error terms** are not randomly distributed over time.
- Variables experience **periods of high and low fluctuations**.
- Developed **ARCH (Autoregressive Conditional Heteroskedasticity) models** to analyze volatility patterns.

James J. Heckman (1944-present)

Heckman, an economist and statistician, has been a professor at the **University of Chicago** since 1973. He directs multiple research centers and holds positions in law and policy studies. He was awarded the **2000 Nobel Prize** *"for his development of theory and methods for analyzing selective samples."*

Early work

- Focused on **empirical program evaluation**, despite the University of Chicago's traditional skepticism toward government intervention.

- Studied the impact of **Title VII of the Civil Rights Act**, which prohibits discrimination based on race, color, religion, sex, and national origin.

Nobel prize research

- Applied **econometric techniques** to test models.
- Best known for his work on **self-selection bias**—a problem in econometrics where groups differ from the outset, affecting analysis.

Self-selection bias

- **Issue**: Some characteristics (e.g., motivation, attitude, reliability) are **unobservable**, making comparisons difficult.
- **Solution**:
  - **Random assignment experiments**, though often impractical.
  - **Heckman correction**:
    - Define the issue to clarify the limitations of empirical findings.
    - Develop statistical techniques to adjust for bias.

Example: Married Women in the Labor Force (Heckman, 1974)

- **Concept**:
  1. **Reservation wage (w)***: The minimum wage at which a woman is willing to work.
  2. **Market wage (w)**: The actual wage offered.
  3. A woman **works if w > w***.
- **Problem**:
  1. Data only exists for **working women** (those with w > w*).
  2. There is **no data on non-working women** (w < w*).
- **Solution**: Two-step estimation
  1. First, estimate whether a woman **chooses to work**.
  2. Then, for **working women**, estimate **wage determinants**.

Relation to previous schools

- **Classical Economics**: Assumes **rational, self-interested behavior**.
- **Chicago School**: Advocated **policy evaluation**, contrasting with the **laissez-faire** stance of many Chicago colleagues.

- **Earlier Econometricians**: Built upon existing statistical methods.

Daniel McFadden

McFadden pioneered **discrete choice models** in microeconometrics and shared the **2000 Nobel Prize** with Heckman *"for his development of theory and methods for analyzing discrete choice."*

Key Contributions

- Developed **statistical techniques** to handle complex microdata.
- Introduced **discrete choice models**, which use **regression methods** to account for **binary or categorical variables**.

David Card

Card challenged traditional views on **minimum wage effects**, showing that the **negative impact on employment is smaller than previously believed**.

Key Findings

- Earlier beliefs: **Higher minimum wage** → **Lower employment** due to increased labor costs.
- **Card's contributions**: The **negative effects** of wage increases are **minor** and often overestimated.

Three Reasons Why Minimum Wage Increases May Not Reduce Employment

1. **Firms pass costs to consumers** through higher prices without significantly lowering demand.
2. **Dominant employers in local labor markets** suppress wages, so increasing the minimum wage **boosts employment**.
3. **Market power dynamics make employment effects unpredictable**.

Joshua Angrist & Guido Imbens

Angrist and Imbens, along with Card, demonstrated that **natural experiments** can provide valuable insights into labor market policies, such as the effects of **minimum wages and immigration**.

Challenges of Natural Experiments

- Unlike **clinical trials**, where treatment is controlled, in **natural experiments**, individuals **self-select**, making interpretation harder.
- **Angrist & Imbens' contribution**: Defined which **causal conclusions** can be drawn from natural experiments, refining empirical methods.

Local average treatment effect (LATE)

- Showed how **natural experiments** can **identify cause-and-effect relationships** precisely.
- Unlike traditional experiments, where **researchers control treatments**, natural experiments rely on **external events**.
- Their **framework** is widely used in **observational data analysis**, clarifying assumptions necessary for causal inference.

Impact: Their work increased the **credibility and transparency** of empirical research.
Here's a rephrased version of your text with improved flow and clarity:

Gary S. Becker (1930- 2014)

Becker was awarded the 1992 Nobel Prize in Economics for "expanding the scope of economic theory to areas of human behavior that had previously been studied primarily by other social sciences, such as sociology, demography, and criminology."

Early Work and Economic Perspective
In 1955, Becker completed his doctoral dissertation at the University of Chicago on the economics of discrimination. He challenged the Marxist belief that discrimination benefits those who engage in it. Becker argued that an employer who refuses to hire a productive worker based on skin color forgoes a valuable economic opportunity. Simply put, discrimination carries a cost for the discriminator.
He emphasized that economics should be a continuous dialogue between theory and data rather than relying solely on one or the other. Rejecting the purely inductive approach—where data supposedly "speaks for itself"—Becker followed Haavelmo

and Koopmans in arguing that empirical measurements must be guided by theory. At the same time, he dismissed a purely deductive approach, aligning with Friedman's *Methodology of Positive Economics* (1953). Instead, Becker adopted an abductive approach, integrating both theory and empirical analysis.

Economic imperialism

Becker extended economic analysis to areas traditionally outside its classical domain, such as consumer choice, family dynamics, crime, and human capital. These fields often lacked clear markets or price mechanisms, making his approach groundbreaking within disciplines like sociology, political science, law, social biology, and anthropology.

Main economic principles

Becker's approach was built on three key principles:

1. **Maximizing rational behavior** – Individuals make choices that optimize their outcomes.
2. **Equilibrium analysis** – Economic systems naturally tend toward equilibrium.
3. **Stable preferences** – Preferences generally persist over time but can evolve.

This framework allowed Becker to analyze issues such as discrimination, fertility and family dynamics, crime, and human capital development.

Theory of discrimination

Becker defined discrimination as the valuation of personal worker characteristics unrelated to productivity. He introduced the concept of a *taste* for discrimination, which he incorporated into an employer's utility function.

For example, if an employer has a discrimination coefficient $d=0.25d = 0.25$ and the market wage is $w=6w = 6$, then the employer perceives the wage as:
$w(1+d)=6(1.25)=7.5w(1 + d) = 6(1.25) = 7.5$

This means the employer effectively pays more to hire a worker from a discriminated group. As a result, discrimination reduces profits, leading Becker to argue that

competitive markets naturally erode discrimination, eliminating the need for anti-discrimination laws.

Fertility and family

In *An Economic Analysis of Fertility* (1960), Becker introduced both **income effects** and **time-cost effects** to explain fertility decisions. The time-cost effect suggests that as families grow, parents have less time per child, influencing fertility choices. He likened the family to a factory that produces goods for its own consumption, formalized as:

- $Ui = f(xi, ti)$

where xi represents goods and ti represents time.

His *Theory of Marriage* described marriage as an economic arrangement that enhances efficiency through task specialization. By pooling resources and dividing labor, couples maximize their joint consumption and welfare, particularly in child-rearing. Becker also argued that altruism within marriage increases overall household utility.

In *A Theory of the Allocation of Time* (1965), he distinguished between:

- **Time-intensive commodities** (e.g., natural suntans, which take days to develop)
- **Goods-intensive commodities** (e.g., fast food, which minimizes time investment)

He also observed a reversal in fertility patterns: whereas in the 19th century, wealthier families had more children, by the 20th century, economic growth led to the opposite trend.

Crime as a Rational Choice

Becker applied economic principles to crime, arguing that criminals make rational decisions based on costs and benefits. A person engages in crime if:

- Expected benefit > (Prob. of detection)*(Penalty) + labor cost

This analysis implies that higher detection probabilities and stricter penalties can effectively deter crime.

Human capital Theory

In *Human Capital* (1975), Becker examined the decision to pursue higher education as an investment decision. The costs of education include:

- **Direct costs** (e.g., tuition, books)
- **Indirect costs** (e.g., forgone earnings)

The decision to invest in education depends on comparing the present value of expected future earnings against these costs. Becker distinguished between:

- **General training**, which increases productivity across various jobs
- **Specific training**, which enhances productivity within a single firm

His human capital model explains:

- Earnings increase with age but at a decreasing rate
- Higher skill levels correspond with higher wage growth
- Unemployment rates are lower for skilled workers
- Younger individuals change jobs more frequently and receive more training
- Some individuals have greater capacity for education and lifelong learning

Policy Implications

Becker's work has significant policy applications:

- **Education** – Should the government subsidize education to correct underinvestment?
- **Crime prevention** – How do economic incentives shape criminal behavior?
- **Labor markets** – Does discrimination persist despite competitive pressures?

Intellectual Influences and Theoretical Legacy

Influence from Classical Economists

- **Adam Smith's Invisible Hand** – Efficiency-driven decision-making benefits society.
- **Marshallian Equilibrium** – Competitive markets tend toward efficiency.
- **Marginalist Tradition** – Focus on utility maximization and marginal costs.

Becker's Unique Contribution

Becker transformed economic analysis by extending microeconomic methods to social behavior. He shifted the focus from constraints alone to understanding **the**

origins of preferences. His model of **rational habit formation** even provided insights into addictive behavior.

Today's impact

Discrimination
While Becker argued that competitive markets reduce discrimination, real-world markets often deviate from perfect competition, making discrimination a persistent issue that governments attempt to mitigate.
Family and Fertility
Investing in female education has become a primary development strategy worldwide. In China, despite relaxed one-child policies, fertility rates remain low due to rapid economic development.
Crime
While economic models suggest rational behavior, some crimes—such as serial murders—may not fit this framework unless offenders have extremely high discount rates.
Human Capital
Educational opportunity costs remain central to individual decision-making and policy debates on education funding.

Conclusion

Gary Becker fundamentally reshaped economics by applying its principles to social issues. His work laid the foundation for modern microeconomic analysis, leveraging **data-driven abductive reasoning** to understand human behavior. His insights continue to shape debates on labor markets, education, family dynamics, and public policy.

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