EFR summary

History of Economic Thought, 2023-2024

Lectures weeks 1 to 6

Details

Subject: History of Economic Thought 2023-2024

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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 (384-322BC)

Examples of reasoning about economic issues:
1. Exchange can only come about only if there is a potential surplus from the transaction that parties can ultimately share. Money simplifies transactions.
2. We can talk about the principle of diminishing marginal returns but no understanding of the economic system as a whole yet.

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 thought of price - the "natural price" as the price emerging under free and effective competition, without a monopoly, resource waste or deceitful behavior.

The natural price is comprised of 2 elements:
- Cost of production
- Consumers' perception of utility of good

Although fragmentary theories, this was an attempt to establish a systematic theory based on economic laws.

Scholastics were unique in the sense that the natural price considers the consumer's perception of the utility of a good. This is not observed in many other early periods.

Mercantilism

It focused on a **positive surplus** in the balance of trade:

1. Limited Import: Importation was limited because countries should only import raw materials that could not be produced domestically. Thus, most of the production was domestic.
2. Promote Export: exportation was highly promoted, merchants received inflows of gold in return for their exports.

Mercantilism aimed to promote a country's military and economic power relative to that of other countries. Favorable balance of trade (trade surplus instead of deficit) was a measure of national welfare. There was a focus on domestic production and exporting these goods to earn silver and gold

Quesnay (1694-1774) and Physiocrats

Physiocrat is the French economics school of thought, which was led by François Quesnay.

When Turgot, a physicist, was demoted from his high-ranking position in the French government and Smith's Wealth of Nations was published, this school of thought ended in 1776.

Tableau Economique (1759): the famous work of Quesnay was the first systematic analysis of the flow of wealth on what later came to be called a macroeconomic basis. It illustrated that the net product circulates among three classes: tenant farmers, landowners, and manufacturers & merchants, and is reproduced each year. It gave insights into national accounts model and empirical knowledge about model parameters.

Followers of Tableau were called physiocrats.

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**
X
→ 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

There are two important revolutions that led to the start of classical thoughts:

1. **Scientific revolution**
- Natural laws, which gave rise to Laissez-faire
- The Period of Enlightenment

2. **Industrial revolution**
- Huge growth of industry
    - Land became more privately owned (fences) and most labor activities took place in a land or factory
- Competition
    - less need for governments to step in and keep wages low. Instead, workers had unsuccessfully tried to invoke minimum wages from the government
    - Lower prices
- Low-paid labor force & poor people (high birth rate, low death rate)

Major tenets of the classical school

Classical school: **Economic liberalism**
1. **Limited government intervention**: Enforcing property rights, public education, national defense
2. **Self-interested economic behavior**: Profits, wages
3. **Harmony of interests**: Serve society's interest best by pursuing private interest
4. **All the economic resources and the activities are important**: (1) Land, labor, capital, entrepreneurial ability. (2) Agriculture, commerce, production, international exchange

5. **Economic laws**: Law of comparative advantage, law of diminishing returns, labor theory of value, Say's law, etc.

Adam Smith (1723 – 1790)

→ Attended University of Glasgow;
→ He was professor at the University of Edinburgh (1748) and the University of Glasgow (1751);
→ He was the private tutor for young Duke of Buccleuch on journey through France (1764) (where he met Francois Quesnay);
→ Works: Theory of Moral Sentiments (1759); The Wealth of Nations (1776).
→ Influenced by:
  ◆ physiocrats
  ◆ david hume

There are 5 books:
→ **Price theory**
  ◆   Division of labour; Price formation and determination
→ **Capital accumulation and financial system**
→ **Historical (development of the agriculture in Europe)**
→ **International trade**
  ◆   (Criticism on Mercantilism)
→ **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 least subsistence level

Wages may differ as to reflect noneconomic (dis)advantages:
1. The ease or hardship of employment (ex: miner earns a lot because its dangerous)
2. The level of trust and responsibility
3. The regularity of employment
4. The difficulty/expensiveness to learn employment (ex: lawyers need to invest in their study)
5. The probability of success in employment.
→ **The foundation of the theory of compensating wage differentials**

Profits differ with regards to:
- Differences in risk
- Compensation for management and supervision of business

A nation with a low rate of profit may offset high wages. Thriving countries can sell goods as cheaply as less-fortunate countries that may have lower wage rates.

Rents are equal to Tenant's income – natural costs (wages/profit) -> residual pay. Hence, wages/profits **cause** high prices, but rents are the effect of high prices. However, the impacts of these factors are under the assumption of free and unregulated market

Rents: all income earned by tenants is charged as rent. Rents are an effect of high prices, they are the RESULT of high prices. But this is only under the assumption of free markets.

Invisible hand
- Inheritance physiocrats

Market mechanism and competition

Perfect competition represents the "system of perfect liberty".
- The absence of monopoly
- Free entry and exit
- Profit maximization by producers
- The degree of competition

Public interest

Competition (key element in understanding Smith's invisible hand mechanism) is good for economic efficiency
- Resources are devoted to most efficient uses, and hence output is maximized.

However, the distribution of only resources could not be achieved by the market alone.
- Inequalities may arise.

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 'dead stock'. If the stock of money increases, the money price of goods and services also increases, so that the **real prices remain unaffected** (Inheritance of Hume)
- Money is not productive
- Opposite view than Mercantilists, who considered gold and silver as basis for wealth

Economic growth

Capital accumulation drives economic growth.
- ➔ **Wage fund theory:** employers need to pay for wages from their stock of capital.
    - ◆ Smith saw the introduction of capital as being a result of the decision of labor, but he failed to recognize that technology itself can *cause* a division in labor
- ➔ **Wealth of a nation** → Division of labor increases quantity of output for 3 reasons:
    1. Each worker develops increased dexterity in the repetition of a single task
    2. Time saved when workers do not need to move from one work to another
    3. Machinery can be invented to increase productivity once tasks are made routine through labour division
- ● Smith also discuss **unproductive vs productive labour**

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 population growth theory was proposed given the historical setting of unemployment and poverty and the existence of Corn Laws

- ➔ There is tension between the growth of population vs the food, because the population growth follows a geometric series: 1, 2, 4, 8, 16, 32 while the food growth follows an arithmetic series: 1, 2, 3, 4, 5, 6, which is an **implicit mentioning of diminishing returns.**
    - ◆ Therefore, the natural growth rate of the population must be kept down to the rate of the food growth.

- ➔ The mechanism follows: economic growth -> population growth -> food shortage -> more people living in poverty -> starvation and fewer births -> balance population and food supply (very pessimistic view!)

Mechanisms to keep population growth down include

1. **Preventive** checks -> reduce birth rate: 'Moral restraint', not 'vice'.
    a. Hence, poverty is due to lack of restraint in reproduction of lower classes. They believed that the government should not help the poor.
2. **Positive** checks -> increase death rate: famine, disease, war.
    a. Positive checks represented punishments for people who had not practised moral restraint

Theory of market gluts

The theory of market gluts implied the **retention of corn laws** because such tariffs enriched the landlords and promoted unproductive consumption which is necessary to avoid economic stagnation.
Potential insufficiency of effective demand:
- ➔ Workers receive subsistence wage
    - ◆ Meaning that the value earned by the employer through the worker (productivity) > wage received by worker =
- ➔ profit = productivity – wage
- ➔ Rent is the surplus based on = price of agricultural produce - cost of production (wages, interest, profits)
    - ◆ Cost of productions must be kept down, though they may increase purchasing power
    - ◆ Rent therefore adds to effective demand without adding to production costs
- ➔ Workers cannot buy back total output

- ➜ Profit does not return to workers in the form of higher wages
- ➜ Capitalists only concerned with creating fortune
  - ◆ Capitalists assist in the purchasing of extra units in the form if capital goods, though they will not consume the entirety of their profit on such goods

= Landlords should consume to avoid a glut of goods on the market and hence prevent market stagnation and unemployment (spending creates effective demand without adding to production costs and stimulates production and employment!).

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

Theory of gluts showed awareness of the problem that lack of demand could lead to unemployment. Keynes later built on that in 1930s. His value theory had also been based in supply and demand rather than simply the costs of production. He recognized the role of demand in the value of goods that are perfectly inelastic, and that such goods would have a long term cost of production that determines the value of such a good.

- ➜ Population theory.
  - ◆ Many people worldwide live in poverty
- ➜ Population to subsistence growth rate overrated.
  - ◆ Population growth below prediction, and food production increased faster. Therefore he is somewhat inaccurate.
- ➜ Diminishing returns to food production.
  - ◆ Technological innovation and capital accumulation led to more food production with fewer workers

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

Basic factors of production: labor, capital and land
Determination of prices:
1. More inputs in production than just labor.
   - Relative prices not just a function of labor cost
   - Express capital costs in terms of labor costs
2. Production process of unequal length of time.
   - Time costs should be reflected in prices.

Implication: Labour theory of value does not hold in simple form.
- Deviation in relative prices not more than 6-7% ("93% labour theory of value" (George Stigler, 1958; 1965))
- Level of wages is not irrelevant for 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 formulate a **marginalist principle** in economic analysis.
- Land varies in quality/productivity.

- Last land used characterized by sales = production costs, hence rent=0.
- Rents should not be part of labor theory of price formation
- Rents arise from extensive margin and intensive margins (slide 44, 45)
- Prices determined by marginal farmers.
- Rents are no element of production costs.

"Corn is not high because rent is paid, but rent is paid because corn is high." (Ricardo 1817; 1951; p.74)
- Hence, rent is the price determined but NOT price determining.

Theory of international trade

- Meanwhile Adam Smith argued that trade based on absolute cost differences, Ricardo believed that each country specializes in production and uses part of production for exports, which in turn finances imports. This idea of specialization is called **Comparative advantage**
- He believed that trade causes *mutual benefit* and assumed:
  - Explicitly: Capital and labor did not flow between countries
  - Implicitly: Cost remind constant a output increased
    - Costs measured in labor hours
- Ricardo was **against Corn laws.**
- There is a tension between Ricardo's labor theory of value and theory of comparative advantage. (Example can be seen in slide 33). He did not mention how gains from trade are split.
- Ricardo believed that: "Principle that determines relative prices in a single country does not hold in the context of international exchange." (Solution comes later from John Stuart Mill).

Ricardo on theory of market gluts

- Temporary glut can occur, but normally full production and employment prevail (nowadays known as **Say's law of markets**)
- Supply creates its own demand because:
  1. Resource allocation between production process of various commodities

       a. Overproduction will automatically correct itself through sales at a loss and shift in resources to the production of other commodities

  2. Capitalists' savings imply investment expenditures which create demand for goods.
       a. LR effect of machinery is more favourable than SR effect

→ Effective demand is always enough.

Ricardo on economic policy

1. Wages must not be regulated. No relief to the poor.
2. (Like physiocrats) Tax on rent affects only rent and falls wholly to landlords.
3. (Contrary to Malthus) Corn Laws should be abolished because
   - Population growth does not come at a cost of lower economic growth
     - Population growth = Food production up (diminishing returns) = costs increase = food prices increase = wages increase = profits decrease = capital accumulation decreases = lower economic growth
   - Corn laws reduced gains from international trade

Discussion David Ricardo today

Strengths

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

Weaknesses

- Overemphasize law of diminishing returns -> technological innovations increased output
- Land has only a single use -> with multiple competing uses, opportunity costs come in, and hence rent is part of production cost in reality.

- o It is not, as Ricardo believed, solely a residual of revenue - wages - profits
- o Land commands payment that covers its opportunity cost and can be used for other purposes like labor and capital
- Impact of machinery on employment was misleading → Introduction of capital can also increase the demand for labor, not just machines.
- Not enough emphasis on the role of demand

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 theory of price formation was driven by the supply side of the economy.
➔ Mill had introduced the concept of the **Demand schedule**
  ◆ The quantity demanded is what varies according to the value (or price)
  ◆ Demand and supply drives prices
➔ Prices determined by production costs.
➔ Complexities due to lack of influence from demand side:
  - In Ricardo's extended price model with decreasing returns, demand must play a more active role in price determination. Ricardo was unable to clarify this in his theory.
  - Ricardo's theory of comparative advantage could not explain how surplus from trade was split between two countries (i.e. how international price related to national prices).

John Stuart Mill introduced the demand side in this economic theory, and hence made 3 major innovations to the theory of value (or price theory):
1. Price formation in international trade: prices adjust to the level where the value of exports equals the value of imports.

2. General situation: prices adjust to the level where supply equals demand of a commodity.
3. General equilibrium concept: aggregate demand for all commodities equals aggregate supply (Reciprocal demand) ->Price elasticity
➔ Fundamental principle of price formation is tendency of market mechanism to equate supply and demand.

Theory of the wage fund

Initially, Mill accepted the notion of a wage fund. In 1869, Mill supposedly rejected the theory of the wage fund, since its implications were not consistent with actual functioning of the economy: Trade unions are unable to influence wages: actual evidence shows they could.

Mill set an important step forward to new wage formation theory (a few years later by **marginalists**).

Mill believed that wages depend mainly on labor demand and supply. He presupposed that there exists a unitary elasticity of demand for labor- no matter what wage rate, the same sum is expended for labor. Hence:
● Government cannot fix minimum wage above the equilibrium level
  ○ The higher wage received by workers will be offset by the lack of wage of the unemployed

Mill's take on distribution were as follows:
1. Profit resolves into 3 parts: Abstinence, risk, and exertion implied in the employment of capital.
2. (Investments in human capital) Expenditures on education and training partly represent present investments justified by later 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)

➔ He graduated from the universities of Bonn, Berlin, and Jena.
➔ He did not have an academic career.
➔ Exiled: Germany – Paris – England, because of the right wing governments (Marx was left-wing)
➔ Works:
   ◆ Manifest of the Communist Party (1848);
   ◆ Das Kapital (1867 Vol.1; Vol. 2-3 appeared posthumous)
➔ Karl Marx was influenced by:
   ◆ **RICARDIAN:** He was intrigued by Ricardio's labor theory of value
   ◆ **ROLE OF SOCIALISTS**: He shared moral disdain of socialists toward capitalism. However, the felt that socialism would not be forthcoming until the conditions of the working class deteriorated into a point of rebellion
   ◆ **DARWANIAN CONNECTION**: Dynamic analysis is the best way to understand the economy

History of Marxism

Marx believed that capitalism had internal contradictions that would eventually lead to its demise.
   ◆ Forces of production are dynamic. They include technology, types of capital, skill level of labour (I.e. through migration)
   ◆ Relations of production are static. They include rules, social relations, and property relations.
   ◆ Superstructure (social context) includes art, philosophy, religion, literature, music, etc. It helps reinforce the status quo.

Dynamic production forces will get in conflict with static relations of production, which will get us to the Revolution. As a result, new relations of production and superstructure will be formed.

In practice, under **capitalism**, techniques of production become concentrated and centralized; Increasing unemployment and poverty cause workers to revolt; Working class prevails and establishes dictatorship of the proletariat. Under **socialism**, private ownership is allowed but capital and land are publicly owned; Production is planned, as is the rate of investment, with the profit motive and the free market eliminated as guiding forces for the economy. The dialectical process continues until finally the state withers away and pure **communism** prevails.

Law of motion of capitalist society
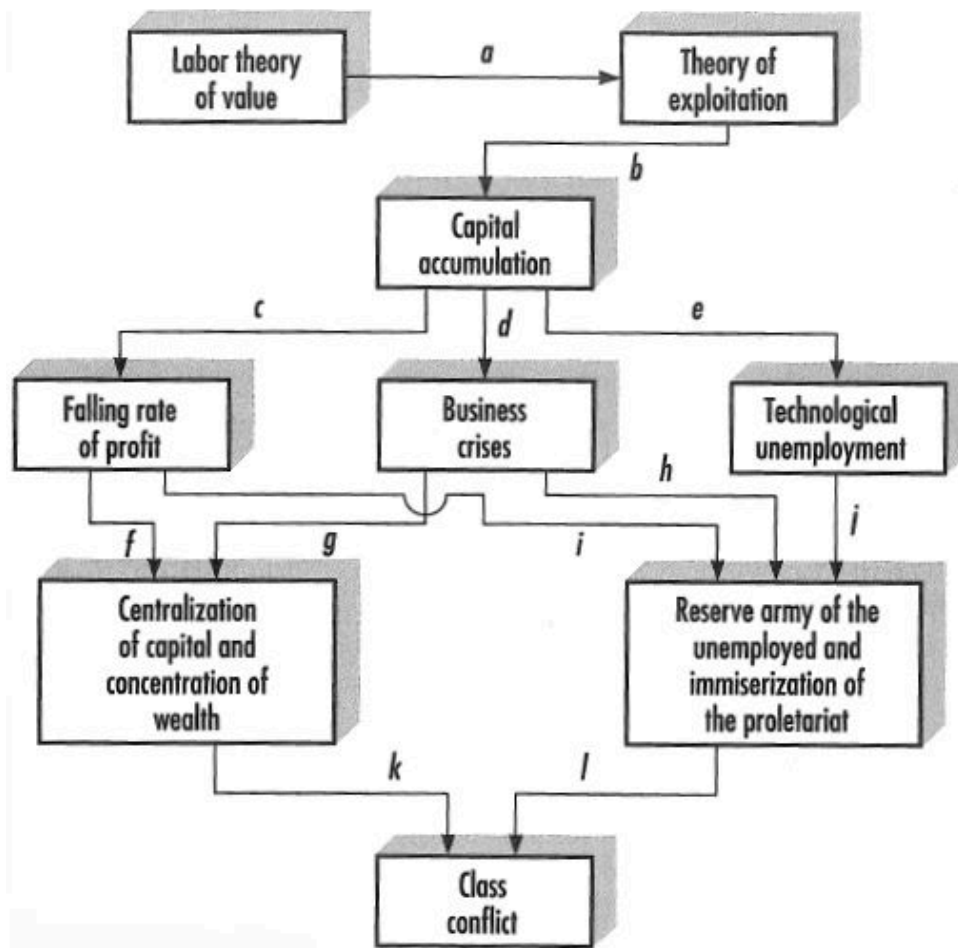
Source: Law of motion of capitalist society (Anne Gielen, 2022)

Labour theory of value

- Use value of labor is utility, meanwhile exchange value of labor is socially necessary labour production time. Labour power is itself a commodity whose value is determined by labour time. Hence, the exploitation of workers is in a sense an extraction of surplus value by capitalists.
  - If it takes 5 hours of labor on average to produce a vase, the price is determined by the 5 hours of labor input. It is irrelevant if a special firm is more efficient and can produce vases in 3 hours. What matters is the societal necessary labor time, which is 5 hours on average.
- Absolute labour time determines value
- Capital or land owners do not add value. (Idea that there is only 1 productive factor that adds value comes from physiocrats. With regards to physiocrats, the only factor is nature or agriculture. With regards to Marx, the factor is labour)

Theory of exploitation

Wage paid to workers is equal to minimum subsistence wage. In this case, Workers have low bargaining power. The reason for this subsistence wage is that capitalism produces a large "reserve army of unemployed". That this excess supply of labour dictates that over the long run the average wage will remain near the cultural level of subsistence. Also, it is possible to force workers to work longer hours.

Workers create all value, but labour does not get all value.
Therefore, surplus value = productivity – subsistence wage

Capital accumulation

- Traditional economy: C-M-C (commodity to money)
- Capitalist economy: M-C-M'. Profit is therefore equal to the difference of M' and M
  - Capitalists start with a given amount of money (M) and use this to produce goods (C) and in turn make more money (M')
    - This profit is a result of workers not getting paid all of what they produce.

- This is why Marx cannot agree with Smith that if people act on their own interests, society benefits as a whole
- Capitalists' profits are used to further accumulate capial rather than investing in more workers

Falling rate of profit

Is due to drive for efficiency:
- Mechanisation and labour-saving inventions
- Organic composition of capital: more constant capital (machinery) is invested in relative to variable capital (wages)
- And since labour is only source of value, this causes the profit rate (= surplus / (labour + capital) to fall
  - By investing in capital, more people are unemployed and firms get higher bargaining power.

Business crises

- Lower profit rate, lowers expansion.
- Depression lowers monetary value of fixed capital
- Factory closures, prices fall

Technological unemployment

- Labour employment substituted by capital
- Businesses have to close down and workers lose their jobs

Centralization of capital and concentration of wealth

- The dynamics of capital accumulation and the tendency for recurring business crises centralise the ownership of capital and concentrate wealth in fewer hands.
- Capitalists that do survive take over the smaller capitalists/factories that had to close down
  - All wealth is in the hands of a small concentration

Reserve army of unemployed and immiseration of proletariat

Due to crises and capital/labour substitution, more people became unemployed. With more unemployed, wages would be further depressed.

Class conflict
- Workers unite and revolt
- State ownership of means of production replaces private ownership
- Exploitation of workers ends

Major tenets of Marxism

1. Repudiate classicist notion of harmony of interests
2. Oppose to concept of laissez-faire
   a. Power of capitalists grows at the cost of the workers
3. Reject Say's law of markets
4. Advocate collective action and public of enterprise ownership

Lasting tenets of Marxism

Lasting tenets

1. Contributed to later establishment of theory of value in economics
2. First to note phenomenon of business cycles
3. Accurately predicted growth of large-scale enterprises and monopoly power
4. Highlighted substitution effect between capital and labour
5. Dynamic analysis

Discussion of Marxism nowadays

His central forecast of the impoverished working class did not occur. However, Marxism has positive impacts, which include:

- Emphasis on state ownership on the means of production (i.e. postal services, trains, are owned by the state)
- Call for social programs
- Analysis of monopoly power growth, problem with income distribution and reality of business cycles

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

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

Even though they weren't the first to introduce marginalist thinking, the marginalist revolution is said to start in the 1870s where these 3 marginalists incorporated new theories into a unified system of thought.

Marginalists include:
- William Stanley Jevons (1835-1882)
- Carl Menger (1840-1921)
- Leon Walras (1834-1910)

Major tenets Marginalist school

1. Stronger emphasis on behavior of individual agents: Microeconomic focus
2. Increased focus on demand side: Focus on marginal principle
3. More reliance on mathematics in economics
4. Rational economic behavior
5. Equilibrium approach
   a. economic forces tend towards an equilibrium
   b. Limited role for government

Famous marginalists

Antoine Cournot (1801-1877)

Considered to be among the forerunners of the school because he focused on the rates of change of the (TC) total cost and total revenue (TR) functions and their appropriate derivatives. Unlike others, he began his analysis by first examining pure monopoly and then adding competitors after.

Main contributions:
1. Applied mathematics to economic analysis (1838)
2. Law of demand: (if prices increase, demand decrease); no concept of marginal utility yet
3. Theory of price formation in market with one or few suppliers: ***Theory of monopoly & Theory of duopoly***
   › All focus on the margin

Jules Dupuit (1804-1866)

Main contributions:
1. Marginal utility curve
   a. utility attached to additional good depends on how much one already has of the good

Johann von Thünen (1783-1850)

Location theory

Under several assumptions/conditions, Johann had wanted to discover what pattern of cultivation will take shape. To answer this, he made a diagram consisting of several circles, each with rings representing a specific region. Essentially, the figure depicted that the more intense a production is, the closer it is to the city. These products are usually perishable and expensive to transport. Hence, location is dependent on both transport and intensiveness.

Jevons, Menger and Walras were not the first to introduce marginalist thinking in economics, but nevertheless the marginalist revolution is said to start in the 1870s with the publication of their books.

William Stanley Jevons (1835-1882)

- Attended University College London – Economics.
- Professor at the University College London (1876)

Works:
- The Theory of Political Economy (1871)

Theory of utility

- Distinction total utility vs. marginal utility solves classical water-diamond-paradox: Price determined by marginal utility.
    - We would prefer to have all the water in the world and no diamonds than the other way around, but given our plenty of water, we would choose a diamond over a unit of water instead.
- Jevons asserts that pearls have value because buyers benefit from them and that individuals dive for pearls because of their high value, in contrast to Ricardo who may assert that pearls have value because people need to search for them.
    - The value of pearls is dependent on how much pearls people currently possess
    - This allowed us to compare utilities.
- No general equilibrium model
- Principle of utility maximization applies to other domains:
    - Equimarginal rule in international trade
    - Equimarginal rule in decision to work.
- Value of labor is determined by the value of produce, NOT how much labor can produce.
- He also contributed to:
    - Theory of insurance and gambling (fair games do not play well because of diminishing MU)
    - Sunspot cycle influences weather which in turn influences crops
    - Index numbers → he discovered a method for constructing a general price index for inflation or deflation extents per period.

Jevons have approved various mathematical consideration in economics ▯ although not that presented in his work

On **PUBLIC POLICY,** Jevons was:
- PRO:
  - Public goods, trade unions friendly societies
- BUT:
  - Trade unions must leave wage rate to natural laws because any other wage increase will have an expense of higher prices.
  - Instead they should prefer profit sharing
  - He also opposed regulating labor hours

Carl Menger (1840-1921)

- PhD in Law, University of Krakow
- Professor University of Vienna (1879)
- Works:
  - Principles of Economics ("Grundsätze der Volkswirtschaftslehre") (1871)

Theory of value

- It is based on the utility concept.
  - However has no mathematics used to describe the idea of marginal utility
  - He based price on total utility and not on marginal utility (unlike Jevons)
- No mathematics used to describe the idea of marginal utility.
- The price is based on total utility (not marginal utility).
- Price of production factors imputed from consumer goods -> utility obtained from iron derived from utility obtained from usefulness of thimble.

Leon Walras (1834-1910)

While Jevons and Menger considered partial equilibria, Walras studied the general equilibrium framework. Walras embedded the marginalist perspective in an economic world view mathematically.

Prices are determined first. Given the prices, consumers optimize their consumption to maximize utility.
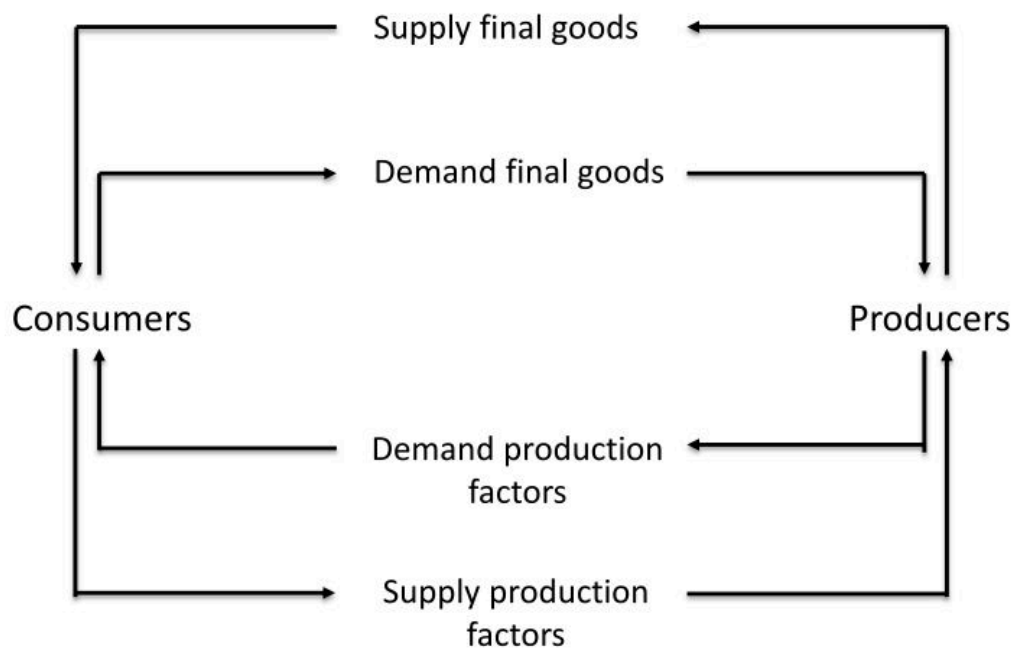
Mathematical general equilibrium model

1. **Analysis of exchange:**
● Determination of relative prices: He assigned the price of one good with 1 numeraire, thus when determining relative prices of other goods, we had m-1 relative prices.
● Optimization of utility: marginal U divided by price must be the same for all goods.

Hence, prices are determined first. Given the prices, consumers optimize their consumption to maximize utility.

2. **General equilibrium:**
● Consumers maximize utility, producers maximize profits
● Consumer's demand is equal to firm's supply for all goods
● Firm's demand is equal to the consumer's supply for all factors of production

Supply final goods

Demand final goods

Consumers   Producers

Demand production
factors

Supply production
factors

Source: Walras – mathematical general equilibrium model (Anne Gielen, 2021)

3. **Model extended to economy with production:**
● Conditions for cost minimization
● Free competition brings production costs to minimum

4. **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?

(+)
● Marginalism radically brought a new approach to economic theory due to focus on demand conditions, introduction of marginal utility theory, increased use of mathematical methods.

(-) However...
● Marginalism was a process rather than a historical incident, many ideas were formulated already decades earlier. This process only made a breakthrough when it came to the marginalist approach.

Conclusions

Many lasting contributions are still found in modern economics: the monopoly model, duopoly model, theory of diminishing marginal utility, theory of rational consumer choice, law of demand, law of diminishing returns, returns to scale concept, etc.

Several important later economists build their ideas on the microeconomic theories of the marginalists.

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

Neo-classical vs Marginalists

Both marginalists and neo-classicals consider decision making and price formation at the margin, however:
- Neo-classicals consider both demand and supply in the determination of the price (Alfred Marshall, 1842-1924)
- Neo-classicals attach more value to role of money (John Gustav Knut Wicksell (1851-1926) and Irving Fisher (1867-1947)
- Neo-classicals extended marginal analysis to different market structures (Edward Chamberlin (1899-1967) and Joan Robinson (1903-1983)

Alfred Marshall (1842-1924)

- He attended the University of Cambridge
- Inspired by Ricardo and Mill
- Professor at the University of Cambridge (1868)
- Works: The Economics of Industry (1879) & Principles of Economics (1890)

General remarks

- Economic laws are not natural laws that are necessarily beneficent
  - Relationships between price, supply, and demand can work themselves out but society can influence the outcome if desired (i.e. government interventions through the building of public universities, grants to private colleges)
  - This is a slight departure from laissez-faire

Demand

- His price theory integrated classical and marginalist elements, which was an inheritance from scholastics.

- Classicals: prices determined by production costs
- Marginalists: downward sloping demand function
- Intersection demand and supply: **_Marshallian cross_**

→ **"Law of downward sloping demand"**
  ◆ The amount demanded increases with a fall in price, and diminishes with a price rise."

→ **Partial equilibrium:** Partial equilibrium is a condition of economic equilibrium that takes into consideration only a part of the market, given that all else is equal. "All else equal" is the Ceteris Paribus concept.
  ◆ When determinants of demand change (i.e. a person's wealth, purchasing power, or the price of substitutes), the demand curve shifts left or right.
  ◆ Hence, by analyzing the **substitution effect**, Marshall was able to differentiate between changes in:
    ● Quantity demanded (movement along the x-axis)
    ● Changes in demand (Shifts of the demand curves)

However, he was unable to take into consideration the income effect.

Demand w.r.t. MU

→ Consumer demand is based on the marginal utility concept: Rational consumer choice
  ◆ 2 qualifications for marginal utility to hold:
    ● Demand is concerned with a specific point in time
      ○ The relative importance of supply vs demand depends on time perspective: in the short run, firms can hardly change the production, however, it is possible over the long run. In other words, the time differences (present vs short-term vs long-term) create capacity for adjustment.
      ○ One's tastes can change

- The shorter the period of time, the larger the role of demand.
  - Consumer goods are indivisible
    - I.e. Adding the fourth tire to finish a car will yield more satisfaction than the first three together
➔ Utility measured by WTP and idiosyncrasies of individuals counterbalance one another. Increments of WTP can be a measure of the extent of marginal benefit or injury
➔ Social surplus = consumer surplus + producer surplus (Cross)
➔ Unlike other theorists, Marshall related equi-marginal rule directly to the law of demand
➔ Differentiated between elastic and inelastic demand
  - Elastic - when % change in Q exceeds % change in price
  - Inelastic - when % change in Q is less than % change in price
  - Unit elastic - when % change in Q = %change in price
➔ Discussed determinants of elasticity
  - High price relative to income → high elasticity
  - High substitutability → high elasticity

2 Problems with Marshall's idea of consumer surplus
1. Some cases caused Marshall to assume that MU of income is constant, which directly conflicts with his principle that MU of money is less for those who have much income than for those who have little income.
2. Problems arise when dealing with market (instead of individual) demand curves. This is because the measurement of Total CS is the additive value of all interpersonal units of utility, and the diversity of preferences makes such additions impossible.

Further contributions

- Originator of concept of external effects/externalities. Externalities explain why the LR supply curve is downward sloping under perfect competition. Furthermore, governments should tax industries with negative externalities, and subsidize those with positive externalities.
- Income distribution also depends on supply and demand: Distribution of income is determined by factor payments (factor prices). Factor payments include rent, wages, and interest. The prices for a factor of production

depend upon the demand and supply of that particular factor of production.

Knut Wicksell (1851-1926)

Major contributions

Aim: Synthesize monetary theory, business-cycle theory, public finance, and price theory.

He also agreed that (1) demand and price are inversely related and (2) volume of sales is restricted to the point that yields maximum profits (like Cournot).

Contributions to the monetary economics
1. Role of interest rates in achieving equilibrium price level
2. Role for public policy and CB to promote price stability

Monetary theory

- Role of the interest rates in price determination (until then, there had been quantity theory of money by Hume)
- Advocate of stabilizing monetary policy: As long as prices remain unchanged, bank rate should be unchanged. When prices rise, the bank rate should rise. When prices fall, the bank rate should fall

2 RATES OF INTEREST

1. **NATURAL/NORMAL INTEREST RATE**
   a. Natural rate depends on supply/demand of real capital that is not yet invested

2. **BANK INTEREST RATE**
   a. Bank rate is determined by banking system

Bank rate < Natural rate → saving is discouraged. Demand for consumption rise & entrepreneurs seek more capital investment and income accrues. Prices therefore rise.

Bank rate > Natural rate → Saving increases & investment declines, reducing national income and decreasing prices.

Hence, Wicksell advocated stabilizing wholesale prices by controlling discount and interest rates. He also wanted the world to switch to a **paper standard** to meet a growing scarcity of gold and to correct overabundance.

Irving Fischer (1867-1947)

Theory of interest

Two factors influence the interest rates:

1. **The impatience rate**

The impatience rate measures how much of their future consumption or income the community is willing to sacrifice in order to receive present consumption or income. The less impatient, the more someone is willing to save.
- Subjective valuation
- First to use indifference curves

2. **The investment opportunity rate**:

    Real factors such as resources and technology influence interest rate. An extreme example is when nations use all resources to produce for present consumption alone. However there are 2 consequences from deviating from this extreme:
    a. All present consumption → later consumption
        i. Diminishing marginal returns
        ii. Investment opportunity falls

Equilibrium interest rate
impatience rate = investment opportunity rate. -> real interest rate
- How much people borrow is therefore equal to how much people desire to lend
- Saving = investment
- This real rate of interest may or may not equal to the monetary of nominal interest rate because the nominal interest is dependent on inflation

- Nominal interest rate = real rate + expected rate of inflation

-> the Fisher effect: theory of economics that describes the relationship between the real and nominal interest rates and the rate of inflation. This effect of inflation on the nominal rate of interest has come to be known as the Fisher effect.

Monetary theory

- Restated and extended quantity theory of money: MV + M'V' = PT
- Prices vary:
    - **directly** with the quantity of money (M, M') and the velocity of circulation (V, V'), and
    - vary **inversely** with volume of trade (T).
    - Changes in M disturb the optimum, make people adjust their cash/expenditure ratio, and as such changes prices. This is a direct effect, which is different from the indirect effect by Wicksell.

Monetary policy: control the quantity of money to face business cycle fluctuations.
- There is a direct link between increased currency and prices (While Wicksell mentioned an indirect link only)

Edward Chamberlin (1899-1967)

Chamberlin-Monopolistic competition

- Imperfect competition (predecessors Cournot, Wicksell)
- The Theory of Monopolistic Competition (1933)
    - Neither purely competitive nor purely monopolistic
    - Product **differentiation** (advertising, product development)
    - Demand curve slopes downward
    - MR lies below demand /AR curve
- Short run: monopolistic prices, since prices> MC
- Long run: no profits due to free entry
    - Equilibrium when TR/AR = TC
    - Because normal profit is therefore a cost, no firm will be incentivized to enter nor exit the market

*AR = average revenue

If pure competition results in larger output, efficient production, and lower prices than monopolistic competition, cost curves must be the same (though this is an unrealistic assumption)

Joan Robinson (1903-1983)

Robinson-Imperfect competition

The Economics of Imperfect Competition (1933). Similarities to Chamberlin:
1. Product differentiation, competition from close substitutes
2. Free entry, no long-run profits
3. Mixture between pure competition and pure monopoly

Differences:
1. No discussion on advertising/product development
2. More attention to consequences for price formation:
- Price discrimination.
- Monopsony- single buyer market.

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
- He was a scientist and inventor who invented dynamite
- Series of 5 Nobel Prizes
- Physics, chemistry, physiology/medicine

- Literature
- Peace
- 1969: Economics: The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel

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

- Due to information, there are Inconsistencies in real world and competitive economic models, which results in market failure or irrational behavior
- Stigler:
  - Strong defender of the competitive model
  - Costly information acquisition as explanation
  - Information is an economic good-> **Economics of information**
    - total benefit rises as more information is obtained, the marginal benefit of additional information declines
    - MC of additional information rises the more a consumer obtains

- Hence there is not a single price for new automobiles
- Higher MC of information = greater dispersion of prices
    - "Perfect information about information" to guarantee a competitive model to work.

Regulation

- It was believed that no government regulation was desirable, not even to limit monopoly power or guarantee consumer safety.
- Regulation benefits companies under government control
- There is government failure

Something borrowed, something new

Relation to Smith:
- Basic theory of markets and price formation, limited government intervention
- Stigler added role of information, as another economic good

Relation to Chicago school:
- Minimal government intervention

George Akerlof

- 1940 –Present
- BA. Yale, Ph.D. MIT
- Prof. University of California
- Works: The Market for Lemons (QJE, 1970); Efficiency Wage Models of the Labour Market(1986)
- Nobel Prize in 2001 –Akerlof (joint with Spence and Stiglitz): "for their analyses of markets with asymmetric information"
- Main contribution: Asymmetric information (Efficiency wage theory)

Asymmetric information

Stigler introduced the economics of information- but if information is limited, markets are still inefficient. Akerlof therefore introduced:

- Asymmetric information: One party has more information than another -> market inefficiency.
  - Hence why the resale value of the car is much less the moment the consumer drives it off from the sop and makes it second hand
  - Sellers of used cars have better information about the condition of their cars than do prospective buyers
- The Market for Lemons:
  - Asymmetric information about car quality
  - Adverse selection
  - Also applies to borrowing money or buying insurance

Relation to Smith

- Free markets lead to efficient outcomes
- Akerlof: not if information is imperfect

Efficiency wage theory

During the Great Depression, wages were cut and unemployment rose. Akerlof concluded that:
- People are more productive when they are paid more: Firms get more value out of current workers and attract high-quality (new) workers
- Efficiency wage theory: Explain frictional unemployment and Wage rigidity.

Relation to Smith

- Wages paid linked to worker's productivity
- Wages may differ as to reflect noneconomic (dis)advantages
- Akerlof: some firms pay higher than market-clearing wages to reduce shirking and labor turnover, and to increase profitability

Today's impact

- Imperfect information is everywhere: Restaurant meals, motel rooms, physician services, electronic equipment, labor markets.
- Nowadays, many arrangements to reduce information asymmetries: Product warranties, franchising, establishments of brand names.

- Many intermediaries provide information: Travel guides, brokers, etc.
- Inexpensive access to information provided through the internet reduces asymmetric information problems.

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

Welfare economics is the branch of economic analysis concerned with discovering principles for maximising social well-being. Several important contributors to welfare economics have focused on either one or both of the following concepts:
1. Defining welfare optimality and analysing how maximum welfare can be achieved
2. Identifying factors that impede the achievement of maximum wellbeing and suggesting ways that the impediments can be removed

Predecessors include Adam Smith, Jeremy Bentham, and Alfred Marshall.

Bentham (1748 –1832)

Utilitarianism

Bentham called it the principle of the greatest happiness. People pursue things that provide pleasure and avoid things that produce pain. All individuals seek to maximize their total pleasure. This is philosophically underlied by hedonism.

Decreasing marginal utility of money

Bentham argued that wealth is a measure of happiness, but that wealth has diminishing marginal utility. He introduced the marginal utility of money, which is the basis for the marginalist theory of demand.

Implications of Bentham's ideas

- If the government intervention rises happiness the intervention is justified;
  - Thus, if something adds to a commoner's pleasure more than it detracts from the pleasure of an aristocrat, it is commendable;
  - So long as the intervention results in a larger (net) cumulative increase in happiness, it can be justified.
- the state should serve people
- when special reasons exist the government ought to intervene (he didn't worship laissez-faire → deviates from others in the Classical School)
- He didnt suggest equal incomes because it would leave the rich deprived and destroy the incentive to work

Vilfredo Pareto (1848 –1923)

- He is viewed as the originator of the **"new" welfare economics**, which is rooted to Walras's principles of general equilibrium.
- Works: "Manual of political economy"
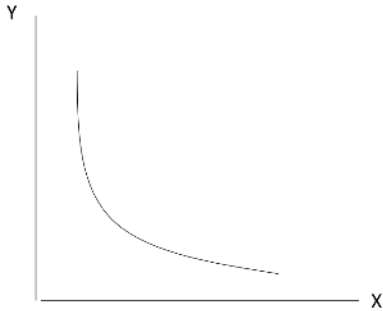
Pareto: utility and demand

- The concept of indifference curves is based on Edgeworth. Pareto generated the relationship between the utility function and the indifference curves by constructing 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, 2021)

- Ordinal Utility means that it cannot measure exact utility, but can have preferences over combination of goods - or in simpler words, ordering)
- Since Pareto argues that we cannot measure exact utility, so he uses the convexity of indifference curves to argue decreasing marginal utility

EDGEWORTH – INDIFFERENCE CURVES	**PARETO – INDIFFERENCE MAP**
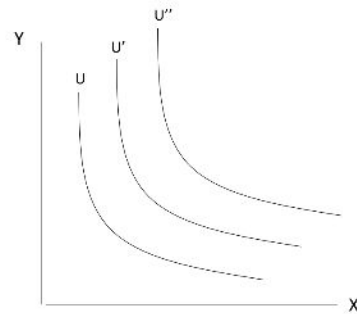
Source: Indifference Curve and Indifference Map (Gielen, 2020)

- The utility theory could be used to derive hypotheses about demand.

Pareto optimality

It is described by maximum welfare, when there are no further opportunities to make someone better off while making no one worse off → Pareto optimality.

Implications:
1. Optimal distribution of goods among consumers;
    - Identical marginal rates of substitution (MRSx = MRSy)
        i. MRS is the maximum amount of one product someone is willing to give up to get an additional unit of another good.
2. Optimal technical allocation of resources
    - Identical marginal rates of technical substitution (MRTSc=MRTSl)
        i. MRTS can show the maximum amount of units of capital that could be substituted for a unit of labour.
3. Optimal quantities of outputs
    - Marg. rate of substitution = Marg. rate of transformation (MRS = MRTS)
        i. MRTS shows the rate at which it is technically possible to transform one good into another.
    - At the point where the rate at which one product can be substituted for another is equal to the rate at which the products can be transformed, no further improvement in one person's well-being can be made without reducing another person's welfare. The benefit to consumers at this point will be greater than the cost to society.

Arthur Pigou (1877 -1959)

Works: "Economics of Welfare" (1920), alike Marshall he expressed humanitarian impulses towards the poor, hoping that economic science would lead to social improvement.

Income redistribution

Greater equality of incomes could increase economic welfare under certain conditions:
1. Diminishing marginal utility of money
2. Interpersonal utility comparison possible (opposite to Pareto)
   a. Convinced utilitarian: income redistribution improves welfare
3. Government intervention justified (opposite to Adam Smith)

Private vs social benefits/costs

Pigou's most significant deviation from orthodox economy theory lay in his focus on the divergence between social and private marginal costs and benefits. He derived an important welfare implication from his analysis: not all competitive markets produce a level of output that maximizes society's total welfare.

The conclusion: negative externalities result in an over allocation of resources (that means too much output) in those markets in which they occur.

According to Pigou the government's task is to equalize:
1). Private and social marginal cost;
2). Private and social marginal benefits.

- **Private marginal cost:** expense a producer incurs in making one more unit
- **Social marginal cost:** expense to society as consequence of producing this unit
- **Private marginal benefit:** extra satisfaction for buyer
- **Social marginal benefit:** extra satisfaction for society from buying this unit

Private and social cost/benefit may differ due to spill overs:
1. Externalities (inheritance of Marshall)

2. Government intervention is then justified: Pigouvian tax

Conclusion

Pareto is still known for his innovations in demand theory and welfare economics, but one should also remember him for his efforts to promote more rigorous use of mathematical methods in economics.

While Pareto laid the foundations for theoretical welfare economics, Pigou showed how it could be used to derive guidelines for economic policy.

Amartya Sen (1933- Present)

- In 1998, Amartya Sen received the Nobel Prize "for his contributions to welfare economics."
- Works: "Collective Choice and Social Welfare" (1970); "On economic inequality" (1973)

Main contributions

Sen pointed out that the standard measure of poverty in a society, the proportion of people who are below a poverty line, leaves out an important datum: the degree of poverty among the poor. He came up with a more complicated index to measure not only poverty but also its degree.

He also studied famines in various parts of the world and pointed out that they sometimes occurred even when there was no decline in food output (in which was argued by Malthus). Some famines occurred when the real income of specific groups fell so that these groups could no longer afford to buy food.

Social choice and inequality

Social choice theory:
- **Arrow's impossibility theorem**: cannot be sure that public preferences determined by voting are rational

- This is a problem for governments → cannot determine national preference & they cannot address important economic issues

Sen improved social choice theory:
- Introduce **preference intensity**
    a. cardinal vs ordinal utility
- **Interpersonal comparisons** alloweD equity and justice in social choice:
    a. max. welfare + fair distribution

Essentially, Sen:
➔ Rejected Arrow's impossibility theorem
➔ **Maximin** criterion
➔ Had a deep concern for equity and justice in social choice.
    ◆ Outcomes that maximize total welfare must also have a fair distribution of income
    ◆ Hence, Pareto optimality is unsatisfactory criterion for distribution (inequality)
    ◆ He criticised Utilitarianism for giving no consideration to equity
➔ If governments want to address important economic issues (poverty, famine), they need a method to determine national preferences!
➔ Utilitarianism may lead to less egalitarian outcomes
➔ He criticized Malthus: In case of famine, there is not only problem of food supply, but also "acquirement problem"
    ◆ Boom vs Slump Famine

Today's impact

- Policies attacking famines should not only focus on sufficient food supply, but should also aim at attacking poverty.
    - Hence, Western government should support democracies, as to prevent shortage of food supplies,
    - and they should practice fair trade, as another way to improve economic conditions that can prevent famine.
- Improve quality of poverty statistics
    - Poverty incidence + severity of poverty
    - Define poverty as lack of capability to lead a minimally acceptable life

Keynesian school

Historical setting

- Great Depression
    - 24 October 1929 → Black Thursday
    - Little business confidence
    - Bankruptcies and unemployment
- Neo-classical thought did not provide solution: Ideology of self-adjusting market failed
- Keynes: The General Theory of Employment, Interest and Money (1936)
    - Government intervention required to maintain high levels of effective demand

Major tenets of the Keynesian school

1. Macroeconomic emphasis
    - Keynes and his followers concerned themselves with the determinants of the total or **aggregate** amounts of consumption, saving, income, output, and employment.
2. Demand orientation
    - Keynesian economics stressed the importance of **effective demand (aggregate expenditures)**, as the immediate determinant of income, output and employment. Effective demand establishes the economy's actual output which is usually less as if there was full employment – potential output.
3. Economic instability
    - economy is given to booms and dusts because the level of planned investment spending is erratic.
4. Wage and price rigidity
    - wages tend to be inflexible downward because of the institutional factors: union contracts minimum wage laws and implicit contracts. Wages are essential for effective demand (inheritance Malthus, lack of effective demand may lead to stagnation). Prices are sticky downward, declines in

effective demand cause reductions in output and employment rather than declines in price level. Deflation occurs only during severe depression.

5. Active fiscal and monetary policy
   - Keynesian economists advocated that the government should intervene actively through appropriate fiscal and monetary policies to promote full employment, price stability and economic growth.

John Maynard Keynes (1883- 1946)

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**
  - there is a positive functional relationship between consumption and national income and the ratio of change in consumption to the change in income, but not at an equal rate – savings also increase with income: Y=C+I (Marginal propensity to consume).
  - positive relationship between consumption and national income [C = f(Y)]
  - Ratio of change in consumption to the change in income (marginal propensity to consume, MPC) is positive and less than 1
    - Savings rise with income
    - MPS > 0 and less than 1
- **Investment**
  - depends on interest rate (Inheritance Neoclassical school and is against classical economists), expectations and uncertainty. Businesses undertake investments in the expectation that new capital will add to profits. Investment will continue up to the point at which the marginal efficiency of capital is equal to the rate of interest. The marginal efficiency of capital is the present value of the future returns, which is just equal to the supply price of the capital asset. Investment

multiplier: fluctuations in investment transmit themselves via their effect on consumption in fluctuations in income that are larger than those in investment.
- Economic vs financial investment
- Size of income stream depends on:
    - Productivity of capital
    - Price in which firm can sell added output
    - Added wage and material expense from using a piece of capital
- Supply price of capital: price that would be just sufficient to cause the manufacturer of the capital to produce one additional unit.
- Marginal efficiency of capital: discount rate that makes PV of cash flows equal to the supply price of a capital asset
- Savings depend on the level of income
- Money is defined as currency + deposits

Liquidity preference

- Liquidity Preference (demand for money) – this depends on three motives for holding money.
    1. Transaction motive
        a. (current need for cash for consumption/business needs)
    2. Precautionary motive
        a. (for unforeseen emergencies)
    3. Speculative motive
        a. (desire to hold cash with an expectation that interest rate will rise or price of stock and bonds fall).

This causes the moment demand curve to slow downward, inciating the lower interest rates cause for a desire to hold more cash.

Keynes disagreed with (neo) classicals that a lower interest rate will result in a lower rate of savings. Instead it stimulates investment spending. If the economy was operating at less than full employment, national income would rise, and savings would increase.

Equilibrium

Equilibrium income and employment – Keynes assumed that there is a high correlation between national income and unemployment (not always true). He was concerned mainly in the short run: "In the long run we are all dead".

Equilibrium:
- Equilibrium is when national income is equal to consumption and investment spending (Y=C+I)
  - Because savings is simply Income - Consumption, S=Y-C
    - → **S=I.**

The multiplier effect takes place if e.g. a decline in investment leads to a much stronger decline in a national income; e.g. low effective demand results in depression, lower income and unemployment ⮕ effect is larger than the initial drop in effective demand

Government policy

Policies to promote full employment and stability – he proposed a **large government role** to stabilize the economy.
- Expansionary Monetary Policy
  - decrease the interest rate down, in order to increase investment and employment through pumping money into the economy by central banks.
  At some point the liquidity preference curve becomes flat and money will be held on a balance rather than spent on bonds. Hence, the interest rate won't fall.
  - In practice – not suitable as a stabilization policy. (liquidity trap)
- Expansionary Fiscal Policy
  - stabilize employment by an increase in government spending, thus influencing aggregate demand. Increase in public expenditure & lower level of taxation.
  - Once the market is stabilized, it can function efficiently. Keynes was one of the first to argue in favor of government intervention, without rejecting the market mechanism.

- According to Keynes, as a society becomes wealthier, it tends to save more money, which can make it challenging to maintain full employment. As a result, the government may need to implement policies such as running budget deficits and increasing public investment to address this issue.

Conclusion

- Focus on determinants of income and employment, including cause of economic fluctuations
- Keynes directed economic theory to policy making:
  - Time of Great Depression and mass unemployment
  - Governments can help the market in reaching an equilibrium state
- Contemporary economics is combination of neoclassical microeconomics and Keynesian macroeconomics

John Hicks (1904 - 1989)

He is considered one of the most important and influential economists of the twentieth century. The most familiar of his many contributions in the field of economics were his statement of consumer demand theory in microeconomics, and the IS/LM model (1937), which summarized a Keynesian view of macroeconomics. His book "Value and Capital" (1939) significantly extended general-equilibrium and value theory

General equilibrium theory

- Role of prices: Substitution vs income effects
- Complete economic equilibrium model: Innovations were to increase economic relevance of the model. (i.e conditions for multimarket stability, multi-period model, introduction of capital theory based on profit maximization)
- Indifference curves
  - Avoid assumption that MU can be cardinally measured
    - Only requirement: consumers can rank preferences ordinally

- - ■ Hence, there are different combinations of 2 goods that yield equal satisfaction
  - Hicks developed the idea of *isocost-isoquant analysis*.

Relations

Relation to Marshall

- Concept of consumer surplus
- Hicks added income and substitution effects
- Solved Giffen's paradox by differentiating between *normal goods, inferior goods, and Giffen goods*
  - Giffen goods: unusual income effect is so large that it swamps the normal substitution effect, causing purchases of the product to move in the same direction as the price changes/
- Slutsky(1915)

Relation to Walras

- Basics of general equilibrium theory
- Hicks modernized and updated this theory

IS/LM model (Hicks-Hansen synthesis)

- Hicks argue that: Keynes's theory of interest rate is indeterminate
- National income depends on interest (via investment)
  - Interest rate depends on income level (via liquidity preference)
    → *Solution: IS-LM model*
- Two equations:
  1. National income vs interest rate (IS)
     a. Equilibrium real economy: S=I after multiplier adjustments have occurred
     b. IS curve shows all interest rates and levels of income at which I=S
  2. National income vs interest rate (LM)
     a. Equilibrium in the money market

b. LM curve shows all combinations of interest rate and levels of income at which money supplied and demanded are equal
- All are in real (not nominal) terms

- Policy implications:
  - Fiscal policy: shifts IS curve
    - Increase in G = rightward shift IS
    - Effectiveness of fiscal policy depends on elasticity of LM curve
      - Highly elastic LM - rightward shift of IS curve will increase income without causing a huge rise in interest rate
  - Monetary policy: shifts LM curve
    - Increase in money supply = outward shift of LM
    - Effectiveness of this increase is dependent on:
      - Extent to which interest rate falls
      - Elasticity of investment demand
        - Highly inelastic = IS is inelastic = fall in interest rate has little effect in investment and income

Relation to Keynes

- Integrated Keynes' thought in one complete model
- Fiscal policy effective to increase output in economy

Relation to Neo-Classicals

- Expansionary monetary policy increases output in economy

Kenneth Arrow (1921- 2017)

He was an American economist, mathematician, writer, and political theorist. In economics, he was a major figure in post-World War II neo-classical economic theory. Many of his former graduate students have gone on to win the Nobel Memorial Prize themselves. His most significant works are his contributions to social choice theory, notably "Arrow's impossibility theorem", and his work on general equilibrium analysis. He has also provided foundational work in many other areas of economics, including endogenous growth theory and the economics of information.

Contributions

1. General equilibrium theory
   - Proof existence of competitive equilibrium
2. Imperfect/asymmetric information in markets
   - Moral hazard
   - Adverse selection

Impossibility theorem

Relationship between preferences and democratic voting.

4 minimal conditions that social choices must meet to accurately reflect preferences of voters:

1. Transitive
2. Group decision must not be dictated by anyone inside or outside the group
3. Choice that society would otherwise have made must never be rejected simply because someone comes to like it more
4. Social preference made between two alternatives must depend only on preferences toward these two alternatives and not on people's opinions of other options

General equilibrium theory

1. Proof of existence of an equilibrium solution
   a. Mathematical expression to common assumptions of:
      i. Constant/decreasing returns to production
      ii. Convex indifference curves
      iii. No external effects
      iv. Profit/utility maximizing agents
      v. Set of prices exist to make supply equal to demand

2. Two main theorems of welfare economics:
   a. A competitive equilibrium is a Pareto optimum
   b. Any Pareto optimum can be sustained as a competitive equilibrium

Relations

Relation to Walras

- Walras had not shown proof of existence of equilibrium
- Arrow did (with Gerard Debreu)

Relation to Smith

- Prices adjust until markets clear in perfectly competitive markets
- Simply reaffirmed what Adam Smith had observed 160 years earlier

Imperfect information

- 1963 AER paper on medical care:
    - Moral hazard
    - Adverse selection
- Mostly in "insurance markets"
- Due to information imperfections, free markets may not be able to solve the problem without any intervention.

Related to the work of Akerlof

- Arrow also showed how uncertainty could be incorporated in general equilibrium model:
    - State-contingent claims
    - Two main theorems of welfare economics hold

Conclusions Keynesian school

- Hicks and Arrow responsible for important contributions, only acknowledged many years after their discovery.
- Still standard elements of contemporary economics

Both also made important contributions on other topics.

History of Economic Thought – IBEB – Lecture 5, week 5
Economic growth and Development

- **Economic growth:** an increase in the nation's real output (GDP) that occurs over time → Harrod-Domar model.
- **Economic development:** the process by which a nation enhances its standard of living over time (i.e. increases its real GDP) → Schumpeter

Since 1945 increase in research on growth and development:
1. Economic growth varies across nations
2. Industrially advanced countries aim to enhance growth rates
3. Some poor countries became developing/emerging countries
4. Collapse Socialism in Eastern Europe and S.U.
5. Increasing importance of standard of living

Harrod-Domar growth model

Harrod and Domar separately contributed to what is now known as the Harrod-Domar analysis of growth. They both presented their ideas in 1947, Harrod at the University of London & Domar as an article in the American Economic Review.

They established their theories within the Keynesian framework and therefore are the members of the broader Keynesian school.

Features of the model

- Main features of model:
  - Net investment spending increases capital stock and raises potential income level

- Investment is vital in this model → only with the sufficient amount of investment, there could be the sufficient economic growth at full employment level
    - Increased consumption arises from increased income
    - Balanced growth = income growth at which full employment of resources is maintained over time → economy must grow to maintain full employment (e.g. investment must be at a certain level to maintain full employment)
- Unstable economy → the probability that the investment growth = the productive capacity growth is very small, inherently to an unstable economy regardless:
    - Investment growth < productive capacity growth → economy recedes
    - Investment growth > productive capacity growth → demand-pull inflation
- Economy policy:
    - Applicable to Development countries → because there is a sufficient number of labor (due to relatively higher birth rates that developed countries).
        - Physical capital falls short, because income levels are very low, people cannot save. Lower savings → lower ability to invest
        - Increase savings & investment
    - Growth can be achieved via increased savings/investment

Their economic policy is applicable in development countries because (1) the birth rate is higher than in developed countries; (2) the availability of physical capital is limited and (3) the income level is rather low. The economic policy also implied that growth can be achieved via increased savings/investment.

Joseph Schumpeter (1883-1950)

Focused on **Economic Development** → he sees the economic system as an organism that is in continuous development

Creative destruction

Two major intellectual influences in his life were Leon Walras and Karl Marx. From Walras, he derived his emphasis on the interdependence of economic quantities. Schumpeter had a strong aversion to Marxism, but he admired Marx's understanding of the process of economic change.

Theoretical system to explain business cycles and theory of economic development: Schumpeter constructed a theoretical system to explain both business cycles and economic development. The key process in economic change is the introduction of innovations and the central innovator is the entrepreneur.
- Innovations: changes in the methods of supplying commodities
  - E.g. new goods, new production methods, new markets, new organizational structure, etc.
- Entrepreneurs: introduces innovations, may only have temporary connections with a specific firm, but are always pioneers in introducing new products.

Without innovations the economic world would reach static equilibrium, and there would be no further accumulation of wealth. The entrepreneurs seeking for profit, transfer this static situation into a dynamic process of economic development.

Even though inventions and discoveries occur continuously, however, formation into innovations by entrepreneurs happens in waves. Business fluctuations therefore represent the process of adaptation to innovation.

Favorable innovation climate → credit expands → rising prices and income. High prices deter investments ⬛ old product compete with new product ⬛ business closures →Creative destruction (based on Marx: Marx claimed that capitalism reached a peak of success the fall)

Creative destruction – policy: if creative destruction is an inevitable part of dynamic capitalism, then monopolization is of little concern
- New innovations will make old technologies of monopolist become obsolete.

In retrospect

In retrospect, Schumpeter was much too pessimistic about the future of capitalism & entrepreneurship.

Conclusion

- Harrod-Domar and Schumpeter have furthered the growth and development research
- But growth models have substantially gained in importance since the model of Solow (1987 Nobel Prize Winner), who built on the earlier models.

Robert Solow (1924- Present)

He was awarded the Nobel Prize in 1987 "for his contributions to the theory of economic growth." His first major paper on growth is "A Contribution to the Theory of Growth." In it he presents a mathematical model of growth that is a version of the Harrod-Domar growth model. His analysis of economic growth was built on the Harrod-Domar model. However, the dilemma was that he was an advocate of neoclassical schools that believed markets would clear automatically, which opposed the view of Harrod-Domar that the economy is unstable. Therefore, he made adjustments which stated that the economy adjusts internally to achieve stable equilibrium growth.

Main contribution (summary)

- Analysis of Economic Growth
  - Builds based on the Harrod-Domar model
  - Solow believed in the neo-classical view: economy adjust internally to achieve stable economic growth

Growth theory

- In the short run there are decreasing returns, while in the long run there are constant returns.
  - **SR decreasing returns:** producers can hire more labor to produce more but at a decreasing rate
    - labor because it is difficult to adjust physical capital, e.g. increase space of factory - this needs more time, therefore it is adjustable in the long-run
  - **LR constant returns:** Producers can adjust all factors of production leading to a constant return of output
    - Production function exhibits CRS (constant returns to scale)
    - Net investment must therefore rise by n*K each year to equal the growth of the labor force n*N
      - n=growth of the labor force
      - N=labor force size
      - K=growth of capital stock
- Balanced investment: population growth = capital growth
  - Population growth rate: n
  - Net balanced investment: nk
  - Constant capital per worker ratio
- Actual investment: sY
  - Savings is proportional to income (MPS=APS)
- Steady State
  - actual investment = balanced investment
- Automatic changes in the relative uses of capital and labour enable the economy to achieve a stable growth path.
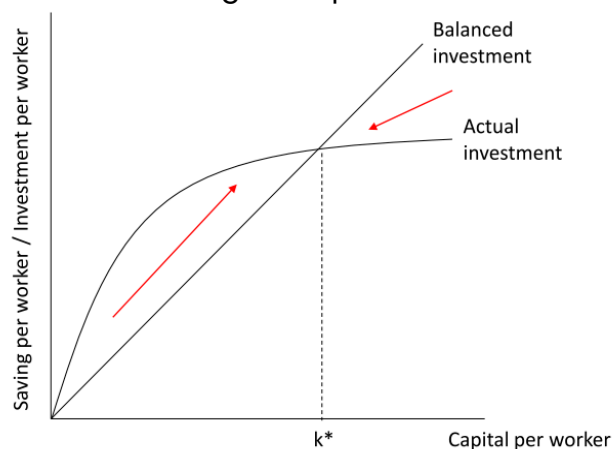
Source: Growth theory (Gielen,2020)

Role of technology

- Long run equilibrium: no increase in standard of living
- Technological progress:
    - Long term growth rate= population growth rate + level of technology
    - Hence, improvements in standard of living solely due to technological progress
- Sources of growth: most of growth due to technical progress ▢ "growth accounting"

Social choice and inequality

Keynes
- Short-Run model: cannot explain long-run development of the economy;
- **Solow:** long-run model.

Harrod-Domar
- Contrary to HD, Solow showed automatic stable equilibrium
- **Solow:** added capital-labour substitution and stable equilibrium + role for technological change

Schumpeter
- They share ideas about importance of technological progress, although they differ on reasons behind it.

Today's impact

- Solow's work inspired many growth economists in the 1950s/1960s
- What we are left with is new variants of the Solow model with more general assumptions about number of sectors of production, structure of capital, technological progress, population growth, or savings behaviour.

Chicago School

University of Chicago
- 1946: Milton Friedman   (NP 1976)

- 1948: George Stigler (NP 1982)
- 1964: Ronald Coase (NP 1991)
- 1968: Gary Becker (NP 1992)
- 1974: Robert Lucas (NP 1995)

Historical background

Since Marshall many new ideas/theories that encouraged government intervention in the economy:
- Externalities (Pigou)
- Monopsony (Robinson)
- Government policy to stabilize economy (Keynes)

Members of Chicago school opposed the entire line of reasoning and fought against government intervention, they are being referred to as the "new classicists".

Major tenets of the Chicago School

1. Optimizing behavior
   a. Utility maximizing individuals
   b. Preferences stable and independent of prices
   c. Benefits and costs are uncertain
      i. Decision maker seeks information where MB=MC
   d. Incentives work

2. Observed prices/wages equal long-term competitive ones
   a. Prices/wages reflect opportunity costs to society
   b. Property rates encourage private negotiations and minimize externalities

3. Mathematical focus
   a. using both Marshallian partial equilibrium and the Walrasian general equilibrium approach.

4. Rejection Keynesianism
   a. Markets self-adjust and self-regulate

b. Monetary policy distorts & fiscal policy is mostly ineffective unless accompanied by changes in money supply
c. Severe recessions and depressions result from inappropriate monetary policy
d. Changes in money stock causes changes in nominal GDP
e. Inflation is always and everywhere → Theories of seller's cost-push inflation is wrong.

5. Limited government
   a. Inefficiency
   b. Officials have their own objectives and marshal it to their own advantage

Implications

- Strengthening marginalist tradition
  - Microeconomic analysis to expand insights on formerly macro-topics
- Focus on classical and neoclassical economics
- Preserve Fisher's monetary views
  - Focus on inflation in 1970s-1980s

Milton Friedman (1912- 2006)

- Milton Friedman was the twentieth century's most prominent advocate of free markets. Born in 1912 to Jewish immigrants in New York City, he attended Rutgers University, where he earned his B.A. at the age of twenty. He went on to earn his M.A. from the University of Chicago in 1933 and his Ph.D. from Columbia University in 1946
- He was awarded the Nobel Prize for Economics in 1976 for "his achievements in the fields of consumption analysis, monetary history and theory and for his demonstration of the complexity of stabilization policy".
- His main contributions include consumption analysis and monetary theory.

Consumption function

Permanent income hypothesis:

- Permanent income: average income over years
- Permanent income determines consumption (not current income)
  - Therefore consumption does not respond to every change in income/government spending

Implication:
- Consumption does not respond to transitory income shocks
- Fiscal policy less effective in influencing consumption/investment
- Investment multiplier is overstated
- Instability of economy is overstated

Friedman argued that consumption is not only based on current income because people try to maintain the stable standard of living → so decisions of consumption is not based on current income but on permanent income

Relation to Keynes

- Permanent income (rather than current income) matters for consumption choices
- Friedman: marginal propensity to consume out of changes in current income is smaller than in Keynesian theory
- Fiscal policy is ineffective
  - Governments should influence permanent income
  - Friedman argues that most economic problems arise due to poor governance or government intervention

Monetary theory

The demand for money

- Demand for money = demand for cash balances
- Determinants of demand for money:
  - Total wealth
  - Cost of holding money:
    - interest rate → demand for money is interest inelastic

- expected inflation → Higher expected rates of inflation enhance the prospects for capital gains and thus increase this cost of holding money.
- price level → The higher the price level, the less the nominal cost of holding money because each dollar held will buy less = higher increase in money demanded
  - Preferences

The modern quantity theory of money

- Demand for money is stable in the SR.
  - Increase in money supply → increases demand for goods → increase in prices → increase in demand for money → equilibrium
- Older quantity theory of money: velocity is constant
- Modern quantity theory of money: demand for money is stable
  - Inflation results from money supply growth

Causes of the Great Depression

- "Monetary policy is responsible for causing the Great Depression"

The long-run vertical Phillips curve (Phelps-Friedman Phillips Curve)

- Natural rate of unemployment
  - when actual rate of inflation = expected rate of inflation
  - Authorities can push the actual rate of unemployment temporarily below the natural rate only by generating a level of inflation that is greater than expected. But once people adjust their expectations to the new higher rate of inflation, the natural rate of unemployment will return.
    - Actual Unemployment < natural Unemployment if actual inflation > expected inflation
    - When Actual rate of inflation > expected rate, unemployment falls and points in the SR Philipps curve show various rates of unemployment associated with rates of actual inflation that differ from the expected rate.
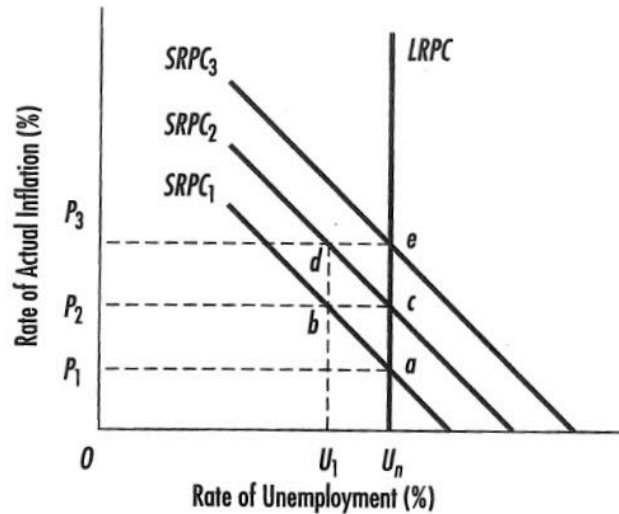
Source: Monetary theory (Gielen, 2020)

The monetary rule

- ○ Central banks should abandon its use of discretionary monetary policy and adhere to the monetary rule: "Increase the money supply annually at a steady rate roughly corresponding to the long-run rate of growth of capacity to avoid the risk of high inflation or recession". There are **4 reasons why this rule is needed**:
    - Past performance of CB → the Fed has been a major source of instability
    - Limitations of economic knowledge → time lags between changes in money stocks and output/prices make it variable and unpredictable. Attempts to fine tune economy are likely to add to instability
    - Confidence
        - ○ Monetary rule would enable businesses, consumers, and workers to make contracts with the confidence that the Fed was not going to later surprise them
    - Neutralization of the Fed → "monetary rule insulated monetary policy from arbitrary power of a group of men not subject to the control by electorate and SR pressures of politics." (Friedman, Economist's Protest, 66.)
- ○ No evidence during 1983-1984 policy of the Federal Reserve Bank. Thus, the model that won Friedman the Nobel prize actually let him down.

Relations

Relation to Chicago School / Classicals

- Limited to no government intervention
- Libertarian

Relation to Keynes

➔ Contrary to Keynes no fiscal policy (to counteract cyclical effects in consumption) but monetary policy according to monetary rule.

Today's impact

➔ No one doubts that uncontrolled monetary expansion can have devastating economic consequences.
➔ We now know that the Phillips curve is not stable.
➔ Positive vs normative economics
  ◆ For example, he distinguished himself as a scientist & as an policy advisor

Conclusion

➔ Friedman was most influential critic of Keynes
➔ Friedman's policy recommendations have had a strong influence on policymakers in many countries, particularly during the last quarter of the 20th century.

Angus Deaton (1945- Present)

He is a British American economist from Scotland who received the 2015 Nobel Prize for Economics. His fundamental contributions to the theory of consumption, savings, and the measurement of economic well-being transformed the field of applied and development economics.

Deaton received a B.A. (1967), an M.A. (1971), and a Ph.D. (1974), each in economics, from the University of Cambridge. He worked as a professor of econometrics at the University of Bristol from 1976 until 1983 while serving as a visiting professor at Princeton University in 1979–80. In 1980 he became a permanent member of the faculty at Princeton.

His main contributions include: Consumption demand; Almost Ideal Demand System (AIDS); Policy in development countries

Consumption demand

➔ Patterns in consumption
➔ Choice for spending vs. saving
➔ Time varying patterns

- Deaton empirically tested Friedman's permanent income hypothesis (PIH)
    - PIH predicts that consumption is determined by permanent income
        - **Deaton paradox:** data show consumption was too smooth even in unanticipated permanent income shocks
    - Aggregate vs individual/household level data ▯ aggregation issues
        - Focus on total level of consumption

Almost Ideal Demand System (AIDS)

- Demand system: price * quantities for various commodities
- Previous systems did not fit
    - empirical patterns
    - predictions of rational consumers
- Deaton & Muellbauer: **Almost Ideal Demand System (AIDS)**
    - Aggregation over consumers under weaker assumptions ▯ Representative consumer
- AIDS is standard tool for economic policy:
    - Price indexes
    - Comparing living standards
- Focus on consumption choices across various commodities

Development economics policy

- Contribution to development economics
    - Poverty: How to measure poverty from consumption data
- Variation in unit prices
    - Adjusted measure for poverty among kids due to the assumption that a child does not consume as much as adults
    - When not adjusted for kids, this might overestimate the degree of poverty
- Policy relevance:
    - Economic growth can help tackle malnutrition

Relation to previous economists

Keynes
- Consumption is fundamental determinant of human welfare

Friedman
- PIH: consumption is smoother than income
- Deaton: consumption is less smooth once you look at disaggregated data

Malthus
- High population growth threatens economic growth due to malnutrition
- Deaton: Malnutrition follows from low income, not vice versa

Today's impact

- By studying the links between individual consumption decisions and outcomes for the whole economy, Deaton's work has helped transform modern microeconomics, macroeconomics and development economics.
- Consumption is a fundamental determinant of human welfare
- Aggregation issues in individual/household vs aggregate data use.

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

Introduction

Empirical research goes back a long time, but there was no serious discussion on how economic theories could be systematically tested. This was in part due to a lack of mathematical formulations in early years, as well as a lack of means to test these ideas, which only came later with access to (better) computers and data.

Example: Cournot's "Law of Demand"
- Collect data on prices and quantities in a market
- Potential problems: Cross-section or time-series data and Other influencing factors

→ More sophisticated methods needed! Hence, Econometrics was born

Econometric models prove nothing. Development of new caveats and new techniques:
- Tinbergen + Frisch (1969 NP)
  - Applying statistics to economics = econometrics
- Haavelmo (1989 NP)
  - Highlighting identification problem + simultaneity problem
- Granger + Engle (2003 NP)
  - Methods for time series analyses
  - Engle → "time varying volatility" → variables exhibit greater fluctuations in some periods than in others.
  - Granger → models have errors that are not random but, in fact, are related to past errors.
- McFadden
  - Discrete choice analysis: choosing between distinct alternatives
    - Solution: conditional logit analysis → Determine the likelihood of individuals within a group with certain

demographics (such as income and age) making the same decision or having the same outcome.

- Heckman (2000 NP)
  - self-selection correction to address selection bias
    - "Heckman correction"

Ragnar Frisch and Jan Tinbergen

- They adopted mathematical and statistical methods in economic research.
- 1969 Nobel Prize: "for having developed and applied dynamic models for the analysis of economic processes".
- Contributions:
  - Pioneering work on econometric model building
  - Theories for stabilization policy and long-term economic planning

Econometric model building

Frisch

- Econometrics: a research program that consisted in (1) mathematical formulations of economic theories and (2) systematic tests of those using mathematical statistics.
- Identification: methods developed to identify patterns/relationships in data.

Tinbergen

- Large numerical model estimation

Policy and planning

Frisch: business cycle theory

- Macroeconomic model that describes the demand for money as a function of consumption and investment

- Model was able to generate business cycles

Tinbergen: business cycle theory

- Extended Frisch's model as a tool for formulating anti-depression policies
- Large numerical model!
- Still used for forecasting and policy in many countries

Trygve Haavelmo

- Economic theory and the statistical estimation of theoretical relationships must be regarded in close connection with each other.
- 1989 Nobel Prize: "for his clarification of the probability theory foundations of econometrics and his analyses of simultaneous economic structures".
- Contribution:
    - Pioneering contributions to the foundation of econometrics, i.e., methods used to estimate and test quantitative economic relations
    - Principles of econometrics
        1. Autonomy: relationship is unaltered by changes in other relationships that characterize the economy
        2. Identification problem: extended analysis of Frisch
        3. Simultaneity: all equations in a model should be estimated simultaneously

Clive Granger and Robert Engle

- Advanced methods dealing with time series analysis.
- 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:** Cointegration methods, to differentiate between, and combine the analysis of, short-term fluctuations and long-term trends
- **Engle:** Developed methods to study the volatility properties of time series in economics.

Time series analysis

Granger: Cointegration

- Two variables are both affected by a third variable, which leads to a misinterpretation of their relationship
- Cointegration methods detect and correct this

Engle: Time varying volatility

- Error terms not randomly distributed over time
- Variables exhibit greater fluctuations in some periods than in others
- Developed methods to study the volatility properties of time series in economics
- ARCH-models to deal with this.

James J. Heckman (1944-present)

Heckman received his B.A. in mathematics from Colorado College in 1965 and his Ph.D. in economics from Princeton University in 1971. Since 1973, he has served as a professor of economics at the University of Chicago, where he directs the Economics Research Centre, the Centre for the Economics of Human Development, and the Centre for Social Program Evaluation at the Harris School of Public Policy. He is a professor of law at the University of Chicago School of Law, senior research fellow at the American Bar Foundation, and research fellow at the Institute for Fiscal Studies.

He received the Nobel Prize in 2000 "for his development of theory and methods for analyzing selective samples".

Early work

Empirical program evaluation, despite the fact that University of Chicago generally had a theoretical bias against government intervention.

Effect Title VII of Civil rights act:

- Prohibits discrimination based on race, color, religion, sex and national origin.

Nobel prize research

- Applying econometric analysis in order to test econometric models.
- Mostly known "for his development of theory and methods for analysing selective samples" -> Self-selection bias

Self-selection bias

- Self-selection bias: if groups were different from the beginning
- Problematic: characteristics are difficult to measure (unobserved data)-> E.g. Motivation, attitude, reliability, etc.
- Solution: Random assignment experiments, though not always possible
- Heckman correction procedure:
    - Define the problem and ensure that researchers understand limitations of their findings
    - Developed statistical techniques to correct for bias

Example: married women in labor force- Heckman (1974):
- Reservation wage w*: wage at which willing to work
- Market wage w
- Work if w > w*
- Data on wages:
    - Only observations w for working women (w > w*)
    - No information on w for non-working women (w < w*)
- Solution two-step estimation:
    - Estimate first whether women works, then – for those women working – estimate determinants of wages

Relation to previous schools

- **Classicals:** Rational, self-interested behavior
- **Chicago School:** Policy evaluation: against laissez-faire of his Chicago colleagues
- **Earlier econometricians:** Building on existing methods and techniques

Daniel McFadden

- Discrete choice models in microeconometrics
- 2000 Nobel Prize: "for his development of theory and methods for analysing discrete choice" (joint with James Heckman).
- Contribution: Showed how to statistically handle fundamental aspects of microdata
- Discrete choice models: regression methods that take into account the binary nature of a variable of interest

David Card

Effects of minimum wage

- BEFORE: high minimum wage = low employment (due to increased wage costs)
- CARD: negative effects of increasing the minimum wage are small, and significantly smaller than was believed. 3 reasons:
    - Companies can transfer increased costs to consumers through higher prices without a decrease in demand
    - Companies with dominance in the local labor market can keep wages low, leading to increased employment when the minimum wage is raised
    - It is difficult to predict how employment will be affected by changes to the minimum wage when companies have significant power over the market.

Joshua Angrist & Guido Imbens

- David Card, Joshua Angrist, and Guido Imbens - have demonstrated that natural experiments can provide valuable insights into important societal issues such as the impact of minimum wages and immigration on the labor market. They have also clarified the limitations of drawing causal conclusions from this type of research.
- Difficult with experiments: Natural experiments, unlike clinical trials, involve individuals who have chosen to participate in the intervention being studied, making it harder to interpret the results.
  - Joshua Angrist and Guido Imben identified which conclusions about causation can be considered in natural experiments and therefore changed how we approach empirical questions using data from natural or randomized field experiments.

Local average treatment effect

- Joshua Angrist and Guido Imbens demonstrated the effectiveness of using natural experiments to determine cause and effect with precision. Unlike clinical trials, natural experiments do not involve the researcher having complete control over the distribution of treatment to participants.
- It is only possible to estimate the effect among the people who changed their behavior as a result of the natural experiment.
- Joshua Angrist and Guido Imbens showed how natural experiments can be used to arrive at precise conclusions about cause and effect.
- Natural experiments differ from clinical trials as the researcher does not have complete control over who receives the treatment.
- Their analysis is also relevant for randomized experiments where there is not complete control over who participates in the intervention.
- The framework developed by Angrist and Imbens has been widely adopted by researchers who work with observational data.
- Their framework clarifies the assumptions necessary to establish a causal relationship and increases the transparency and credibility of empirical research.

Gary S. Becker (1930- 2014)

He received the 1992 Nobel Prize in economics for "having extended the domain of economic theory to aspects of human behavior which had previously been dealt with—if at all—by other social science disciplines such as sociology, demography and criminology."

In 1955 he wrote his doctoral dissertation at the University of Chicago on the **economics of discrimination**. Among other things, Becker successfully challenged the Marxist view that discrimination helps the person who discriminates. Becker pointed out that if an employer refuses to hire a productive worker simply because of skin color, that employer loses out on a valuable opportunity. In short, discrimination is costly to the person who discriminates.

"**economics is a dialogue between theory and data and should never be either one or the other**"

- Rejected the purely inductive approach that "facts could speak for themselves".
- Following Haavelmo and Koopmans he believed measurements need to be guided by theory.
- Like Friedman's "Methodology of Positive Economics" (1953) he also rejected a purely theory-based (deductive) approach to economics
- Therefore, he now follows an **abductive approach**

Economic imperialism

- Extending economic approach to topics that go beyond the classical scope of issues (e.g. consumer choice, theory of the firm, markets, macroeconomic activities).
- Typically, those new areas were not characterized by markets or prices (e.g. sociology, political science, law, social biology, anthropology).

Main economic principles

1. maximizing, rational behavior

2. Importance of equilibrium as part of a theory
3. Emphasis on efficiency allows complicated problems to be written in simple, abstract terms.

Becker's model

Three principles:
 I. Maximizing behavior
 II. Equilibrium approach
 III. Preferences are stable (but can evolve)
- Focus on efficiency

These principles are now applied to:
1. Discrimination
2. Fertility and family
3. Crime
4. Human Capital

Theory of discrimination

- Discrimination: the valuation in the market place of personal characteristics of the worker that are unrelated to worker productivity
  - Becker: taste component (preferences)
- Taste component enters utility function

Example:
- Discrimination coefficient d = 0.25
- Market wage rate w = 6
- Perceived wage by employer = 6*(1+0.25) = 7.5

- Implication: discrimination lowers profits, and hence discrimination will disappear in competitive markets.
  - No need for anti discrimination laws
- Theory is empirically valid and rich in policy implications.

Fertility and family

- "An Economic Analysis of Fertility" (1960)
  - Becker: income effect + time cost effect
    - Time cost effect: the more children they have, the less time people have to take care of their children
    - Becker: Family is a 'factory' which produces goods it wants to consume -> $Ui = f(xi, ti)$
- "Theory of marriage"
  - Marriage enables a division of tasks among partners, allowing them to maximize their joint output and consumption of goods and services that contribute to their overall economic welfare. The production and raising of children are key factors that marriage facilitates. Essentially, partners form a household for their own economic benefit.
  - Altruism enhances the benefits of marriage, as the consumption of a commodity can result in an increase in overall satisfaction for both partners, rather than just the one consuming it.
- "A theory of the Allocation of Time" (1965)
  - Time intensive commodity: natural suntan gained over several days
  - Goods-intensive commodity: fast food

19th century: high income families were larger than low income families. 20th century: pattern reversed.

Something borrowed, something new

Relation to Malthus' population growth theory
1. Malthus' theory is not consistent with facts.
2. Mincer (1963) –importance of the price of women's time as a relevant opportunity cost.
3. Becker formalized this idea in a household production function:
   - Theory that treated children as household outputs valued in final utility, where mother's time was a leading input.
4. Becker departed from the Marshallian script when using dynamic general equilibrium theory to generalize Malthus' population theory:
   - Including nonmarket activities -> Tradeoff child quantity –quality (Becker, 1991).

Crime

- Criminals make rational decisions: It's incentives and prices that matter.
- Costs of committing crime:
  1. Labour costs of engaging the activity itself
  2. Costs associated with expected penalty
- Engage in crime if: Expected benefit > (Prob. of detection)*(Penalty) + labor cost

Human capital

- Theory of human capital (Becker, 1975):
  - Whether or not to go to college
    - Formal schooling costs:
      - Direct costs → tuition, books
      - Indirect costs → forgone earnings
    - Decision requires a comparison of the present value of the annual increments to earnings with the present value of the direct and indirect costs
  - GENERAL TRAINING vs SPECIFIC TRAINING
    - General training (general capital)→ increase MP of workers in various employments
    - Specific training (specific capital)→ increase MP of worker only within one firm
- Theory of human capital helps explain:
  - Earnings typically increase with age at a decreasing rate
    - Rate of increase positively related to level of skill
  - Unemployment rates are lower for those who have greater levels of skill
  - Younger persons change jobs more frequent;ly and receive more on the job training than older people
  - Some people possess the ability to receive more education and on-the-job training over their lifetimes than others
- Policy implications:
  - Is there under-or overprovision of education?
  - Should the state subsidize education?

Something borrowed, something new

- Discussion of the notion that human skills can be created.
- Yet, in the early 1960s, this was totally ignored.
- Friedman and Kuznets (1945) implicit theory of human capital, and mostly empirical emphasis.
- Becker: comprehensive theoretical framework on human capital – abductive approach (data-driven model building)

Today's impact

1. Discrimination
   - Perfect competition is very unrealistic in today's market, so discrimination seems to be a fact of life (although governments will try to reduce it as much as possible)
2. Family/ fertility
   - Investing in education for girls is THE main program in developing countries.
   - Specific case: China -> Even now China has relaxed the one-child policy, its fertility will not rise much given the huge economic development in China.
3. Crime
   - Are criminals rational? Serial murders are almost by definition irrational (unless they have a very high discount rate)
4. Human Capital
   - Opportunity cost of investing in schooling is still very relevant in everyday life choices.

Relations

Relation to Adam Smith's invisible hand

- Focus on efficiency.
- Individuals acting in their self-interest further the general goals of society

Relation to Marshall

- The idea that competitive equilibrium is efficient appears in the literature since the time of Marshall.

Relation to Marginalists

- Marginal utility concept
- Focus on individual choice behavior and utility maximization
- MB = MC

Conclusion

- Important contributions to economic science by extending the economic approach to a wide range of social questions.
- Pioneering microeconomic analysis in a time where large-scale data were beginning to be collected.
- Rather than studying overall treatment effects, Becker was interested in the mechanisms at work.
- Until then, consumer theory was mostly driven by constraints, not by properties of preferences. Becker looked at the origins of preferences.
- Preferences can change over time through consumption decisions and choices of lifestyle

Example: rational habit formation can include addiction.

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