

Summary

-Economic Methodology-



Table of content

| | |
|------------------------|-----------|
| Lecture 1..... | 3 |
| Lecture 2..... | 3 |
| Lecture 3..... | 4 |
| Lecture 4..... | 7 |
| Lecture 5..... | 8 |
| Lecture 6..... | 10 |
| Lecture 7..... | 12 |
| Lecture 8..... | 14 |
| Lecture 9..... | 16 |
| Lecture 10..... | 17 |
| Lecture 11..... | 18 |
| Lecture 12..... | 20 |
| Lecture 13..... | 22 |
| Lecture 14..... | 23 |
| Disclaimer..... | 26 |



Lecture 1

When is research good or bad? → When it uses methodology

- An important element of economic methodology is a critical reflection on economics.

There is a difference between positive(descriptive) and normative methodology.

- Positivism → asks the question 'what do economists really do?' (descriptive)
- Normative → asks the question 'what should economists do?' (prescriptive)

- What do economics actually do?
- What are the criteria of 'good' science?

Some methodological problems/questions:

- What is economic knowledge?
- What is a law in economics? → defines objective science
- Is there progress in economics?
- How is economics related to the economic reality it studies?
- What are economic models and what role do they play in in economics? Should economic models be realistic?
- How is economic theory structured?
- How do its conceptual and institutional structures interact?
- How does economics communicate with other disciplines?

Lecture 2

Definition of economics:

- The definition of economics changed over time. It seemingly does not matter. The sociological and tautological definition of Viner is still popular. "Economics is what Economists do".
- Early definitions:
 - Adam Smith: science of wealth
 - Jean-Baptiste Say: science that treats the production, distribution and consumption of wealth
 - John Stuart Mill: science that traces the laws in so far as those phenomena are not modified by the pursuit of any other object.
- The difference is the shift in the underlying ontology; the idea of how the economic world works.
 - o The shift in the definition happened when economists moved from just analysing wealth to the analysis of exchange.
- Marshall's definition was synthetic and argued that economics is a study of mankind in the ordinary business of life. It examines the part of individual and social action that is closely connected with the attainment and with the use of the material requisites of wellbeing. It is a study of wealth on one side and a study of man on the other, more important side.
- Modern definitions:

- Lionel Robbins (1932): economics is “the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses.
- Samuelson: economics is the study of how people and society end up choosing, with or without the use of money, to employ scarce productive resources that could have alternative uses to produce various commodities and distribute them for consumption, now or in the future, among various persons and groups in society. It analyses the costs and benefits of improving patterns of resource allocation.

How did the crisis of 2008 change economics?

- Paul Krugman: How did economists get it so wrong?
 - Economists are mistaking beauty for truth and, because of the narrow-mindedness of the profession, it didn't help see the global financial crisis coming.
- John H. Cochrane came with the article 'How did Paul Krugman get it so wrong?'
- David Colander et al: crisis couldn't have been predicted, but economics should change to be able to incorporate at least this possibility. Currently: lack of modelling pluralism, over-reliance on too simplistic equilibrium models.

Lecture 3

Logical Positivism/Empiricism

The first and most initiative philosophy of science, still held by many in natural and social sciences. Was trying to react to the science of the 20th century.

What is a scientific theory?

The first, modern and systematic answer is given by logical positivism.

A group of scientists (Vienna circle) wanted to counter totalitarianism of their time with the help of objectivity, in the form of logic.

Logic: “theory of correct thinking”

In logical positivism, a statement made is called a ‘proposition’.

All science is a set of claims and it has to be translated into the “language of logic” → using logical formalization.

An example:

It is raining in Nijmegen today → In Formal logic, this is a proposition and has to be assigned a value 0 (false) or 1 (true).

Positivism: All scientific evidence and thus knowledge is directly or indirectly derived from “sensual data” → Data gathered by using one of the five senses (Seeing, listening, hearing, etc.)

Important: All science must be based on “sensual data”, if it is not. It cannot be classified as science. Science is characterized by the ability to formulate theories!

Logical positivists make a distinction between the context of discovery and context of justification.

Discovery: Context in which the theory emerges. (Irrelevant for logical positivism)

Justification: We take science as given and regard it as a body of knowledge. How could we justify/ what makes findings of science valid? (Interest of logical positivism)

According to logical positivism, theory is scientific.

In logical positivism, there exists a demarcation problem:

they have to separate science from non-science (otherwise called meta-physics)

Propositions are scientific when they are:

- Analytic ($1+1=2$), the truth(2) is already included in the premises($1+1$). This does not add something new to scientific knowledge.
- Synthetic, if they can be confirmed by empirical research.

All other propositions are 'meta-physical' and hence do not have meaning for science! (Note that this is according to logical positivism)

Only if propositions are either analytic or synthetic they can be classified as science!

Task of logical positivists: "Purify science from meaningless terms"

A synthetic proposition is meaningful, only if its empirically verifiable→ you can verify by drawing on sense perception.

Theories should be formulated in a way that could make observational data/ the domain of application clearly visible.

- Thus, theories are best formulated as syntactic sets of sentences.
Syntactic: Approach that focuses on relation between sentences, as opposed to the content of the sentence.
- They are to be described in formal language and rely on axioms

Operationalization of theoretical terms (such as Unemployment)

How do theories explain? (Explaining = answering a why question)

Logical Positivism = deductive-nomological model

Deductive: Deriving the thing you explain from a set of true statements

Nomological: Statements should at least one law

Example,

Law: *Increasing the money supply always leads to inflation.*

True statement/ Initial condition: *Country B increased the money supply*

Following deduction→ There was inflation in country B

True statement + law = Explanandum

On the other hand, there is "Symmetry thesis": explanation and prediction

"If I let go of an object it will fall" (Example of a law and an prediction) Once such a law(gravity) is constructed, there is no need to conduct research again. (dropping an object over and over again)

But there are some problems:

Nobody gets pregnant when taking birth control. (looks like universal law)

Stijn takes birth control.

Deduction → *Stijn does not get pregnant.*

Problem 1: For an explanation to be valid, factors should be causally relevant.

In this case, Stijn the fact of him taking birth control is not relevant, as Stijn will never be pregnant.

Problem 2: How do we know a statement is actually a law?

A law's logical form should imply universality... : $\forall x [A(x) + B(x)]$

- ...for all objects
- ...necessarily at all times and places!
- How to reconcile it with empiricism?

A law should be valid, everywhere in the world at all times.

Problem of induction

Induction: Take particular → by observing and generate law-like universal statements.

- What to think about future events? (As a law should be valid at all times/places)

Standard logic also fails → *It will rain in Nijmegen* (Is this true/false?)

Answer: *Probably true*

How to formalize (0 or 1) the answer of *probably true*?

The value has to be between 0 and 1, the question is what value to give the answer without prior knowledge. → Without prior knowledge the value is 0,5, this is called probabilistic knowledge.

There might be no universally general laws based on sensual data: problem of black swan.

How to reconcile empiricism and lack of certainty?

Instrumentalism: *Laws are just useful generalizations needed for prediction*

Confirmationism: *Laws express most probable outcomes*

For some theoretical statements, it is possible that there is no law-independent operationalization.

For instance: "Inflation", how to measure law-independently?

The way scientific reasoning should proceed according to Mill:

- Borrow proven (tendency) laws concerning the operation of the relevant causal factors (such as people's desire to have more wealth, to avoid labour, etc.)
- Deduce from these laws and statements of initial conditions, simplifications, etc., predictions concerning relevant phenomena.
- Test the prediction.
- If the predictions are correct, then regard the explanation as successful.

Lecture 4

Theories and laws in economics are traditionally very prestigious.

There are four fundamental aspects of science;

- Facts (Observations made around us)
- Hypotheses (Proposed explanations for these facts that can be tested)
- Theories (Piled up hypotheses that form well-substantiated and tested explanations)
Theories are used for predictions and explain the 'why-question'.
- Laws -> Answer the 'how-question'.

How does economic theory operate? According to John Stuart Mill (1836), the inventor of *Ceteris Paribus*.

Economics:

- ...cannot do experiments, and should therefore build abstract models and examine their implications (As opposed to natural sciences).
- ...uses the laboratory of the mind: Experiments in your head.
- ...uses deduction from the abstraction from *homo economicus*.

Economics -> Special kind of science but has important analogies

Function of theory?

- Substituting data (and providing more "universality")
- Telling us what parameters are important and how we might measure them.
- Helping us keep track of benefits and costs.
- Helping us relate seemingly disparate problems.
- As an antidote to introspection/moving beyond the obvious. (can counter stereotypes)

Law: a statement of the form "whenever X, then Y"

Debates about law

Problem 1: Laws offer no explanation (theories do). The difference between a law and a tendency/regularity is difficult.

Problem 2: There is a difference between human and natural laws -> Human laws are subjective to the context in which they are viewed/established. The Lucas critique: As you start using a law, it collapses.

Which science is closer to economics?

- Economists say, it is engineering and medicine.
- Policy orientation and pragmatism are the major features of this analogy.

For what could a theory in economics be useful?

- One function of the theory is it could substitute data when dealing with the real world.
 - Providing 'more' universality.
- Theory tells us what empirical parameters are important and how we might measure them.
- Theory keeps track of benefits and costs.
- Theory helps relate seemingly disparate problems
- A theory that is wrong can still yield insight.
- Theory is an antidote to introspection/moving beyond the obvious.

Lecture 5

The goal of economics is to maximize valuable and valid knowledge. The production factors are economists and models.

How do we find laws in economics? -> By making observations (finding regularities), this is induction.

The problem of induction

- In economics, observations are complex. Experiments are impossible.
- The "mechanics" in economics are not a "simple" machine (like in physics)

So... How do we discover laws in economics?

- The high degree of complexity in economics makes it hard to observe regularities. There are SO MANY disturbing factors.
 - Laws require many variables
 - These variables affect each other
 - mediating effects
 - reversed causality
- We could conduct experiments to discover laws:
 - Limitation: Experiments are impossible in social science
 - The Ceteris Paribus rule was invented to be able to conduct experiments
- These "class-room" experiments were the birth of statistics
 - Seasonality
 - Multiple regression analysis

Epistemology

- Given our basic assumptions about reality (ontology) what are the rule(s) of the game to find out what is out there (epistemology).
- Examples include:
 - Verification: if we find enough evidence in favour of our theory, it is true.
 - Falsification: if we find evidence against a theory, it is not true.
 - Statistical falsification: if we find statistically significant evidence against a hypothesis, it is not true.

- Introspection: looking inside your own laboratory of the mind (=Mill)

Problems with laws in economics

- Problem 1: No explanation (theory)
 - Kepler vs. Newton
 - IF we do not know why something happens it is merely a tendency/regularity
 - Black swan problem
- Problem 2: The ontology might be wrong/ Lucas critique
 - if you use these "Laws" they will collapse
 - As you start observing laws they will collapse
 - Self-fulfilling prophecy

Popper

- Focus on demarcation (science vs. pseudo-science)
- Demarcation through falsification:
 - Step 1: Deductively create theory
 - Step 2: Come up with testable falsifiers
 - Step 3: Falsify entire theory or temporarily corroborate (accept) theory
 - (step 4): Continue with the progress of science
- When a theory is falsified, often ad-hoc statements are added to the theory to make them work again. This is called immunization and is often seen in neoclassical economics.

Lakatos:

- When all theories can be immunized, what is the value of falsification?
This is called the Duhem-Quine thesis.
- Lakatos advocated sophisticated falsification
 - There is a research program that is the hard core. Surrounded by a protective belt with an auxiliary hypothesis. In this belt, there are negative and positive heuristics.

Popper vs. Lakatos

- Progress of science, empirical content and corroboration are equal in both views.
- They differ in the following
 - Popper argued about theories, whereas Lakatos focussed on a research program.
 - Popper used immunizing and Lakatos used positive and negative heuristics
 - Poppers approach was normative, while Lakatos' was positive

Black Swan Theory

- Step 1: Non-computability of (low) probability of such an event
- Step 2: High-profile event
- Step 3: Narrative fallacy

In the case of the black swans:

- **Step 1: Low probability of event**
 - Popper argued we should reject a theory when falsified. However, due to the lack of empirical content to falsify this caused for test models on convenient data. And this eventually led to overconfidence -> No observation of black swans in all test
 - The discussion now is: Is falsification a good criterion when blacks swans are so rare?
- **Step 2: High Impact**
 - In normal times, models work fine. However, for black swans there are out of sample predictions. There is dramatic falsification of existing models that made wrong predictions.
 - The discussion now is: Should economic theories be better able to predict/explain black swans (crises) or normal periods (era of great moderation).
- **Step 3: Narrative Fallacy**
 - Popper argued that when there is a black swan the theory will be falsified.
 - It is argued that narrative fallacy is bad; there is immunization.
 - The risk: Do not throw out the baby with the bath water when you are done.
 - Lakatos argued that black swans led to negative and positive heuristics. This is the auxiliary hypothesis. There is competition of research programs.
 - It is argued that narrative fallacy is a good thing.
 - The risk: The conservative bias.
 - The discussion now is: The narrative fallacy (defending research program) after the economic crisis is a good thing. In other words, Lakatos' idea of competing research programs is better for science than poppers focus on the falsification of individual theories?

Lecture 6

How do we determine whether a theory is good?

Logical positivism: Gather evidence in favour of the theory. (Verification)

Popper: Try to falsify the theory by making non-logical, risky predictions. (Falsification)

Lakatos: Try to falsify complete research programs (Sophisticated Falsification)

| Logical positivism | ? | Popper | ? | Lakatos |
|---------------------|---|---------------------------------|---|---------------------------------|
| Verification | | Falsification (deduction) | | Sophisticated falsification |
| Favor induction | ≠ | Favor deduction | = | Favor deduction |
| Progress of science | = | Progress of science | = | Progress of science |
| Empirical evidence | ≠ | Empirical content (predictions) | = | Empirical content (predictions) |
| Proof | ≠ | Corroboration | = | Corroboration |
| | | Theory | ≠ | Research Program |
| | | Immunizing | ≠ | Positive and negative heuristic |
| Normative | = | Normative | ≠ | Positive |

Popper: The best theory is the one that can most easily be falsified and has the most empirical value. (If it is not yet falsified, the theory is a 'corroborated theory' rather than a 'true' one) For instance= It is raining in Nijmegen -> Can be easily falsified by empirically checking whether this theory holds.

Theories are often adjusted overtime to comply with the newly gathered evidence (immunization). Popper was strongly against immunization, as the theory loses empirical value. For instance = It is either raining or sunny in Nijmegen -> Harder to falsify and therefore loses empirical value.

Corroboration: the idea that we have this risky theory that comes with risky predictions and if we don't find evidence against those theories, they are temporarily corroborated/temporarily accepted, but they all believe that in the end we always find some evidence against those theories.

Difference Natural/Social sciences:

1st difference:

In modern economics, social construction is more important than essentialism.

Essentialism = Economic processes are natural/biological

Social constructivism = Economic processes are social

Essentialism = Sees the economy as a large machine (as in physics); Stresses stability.

Social constructivism = Sees the economy as a man-made product; Stresses change.

This difference can be made by answering the question: "If you observe the object, does the object change?" Essentialism would say yes, Social constructivism would say no.

In modern economics, Social constructivism is right, this can for instance be proven by the "Harry Mens Effect" -> He influences stock prices by reviewing them on his show.

2nd difference:

Complexity in Economics differentiates it from other sciences.

Where a science such as physics has a limited number of factors that can influence an experiment, economics has close to unlimited different factors that could each influence either the experiment or other factors. <The higher the number of different factors, the higher the complexity of the science.>

The economic demarcation problem has three answers:

- Answer 1, statistical testing
 - H_0 hypothesis (status quo) vs. H_A hypothesis (an effect occurs)
 - When there is enough statistical evidence, the null hypothesis can be rejected.
 - Rigid falsification now moves to probabilistic falsification. This currently most used in economics
 - The only problem: the correlation vs. causation debate
- Answer 2, Characteristics testing and calibration
 - The main idea is capturing economics in equations.
 - The Klein-Goldberger model simulates economic variables and looks whether it resembles reality.
 - The question is about how we determine if there is enough resemblance between the

model and reality. The solution to this is a “Turing test”

- The characteristic testing follows from the verification principle. It is something practical since it is a test for usefulness. It is used to be dominant in economics.
- The problem: Determining resemblance is highly subjective

- Answer 3, Instrumentalism and realism by Friedman
 - The main idea is to simplify reality.
 - This is used since neither complexity works of the Klein and Tinbergen models nor verification/falsification.
 - The goal of economics is to come up with valid predictions and not with valid theories (Theories may be invalid for the predictions to be valid)
 - What distinguished minor simplifications from large invalidities is that the predictive power should be strong. There should be evolutionary forces. For instance: If the firm does not hold to for example the $MR=MC$ principle, it will go bankrupt.
 - The first lesson is that economic theories can never be judged by the validity of the assumptions. We should look at their predictive power instead.
 - Relying on simplistic assumption forces the researchers to go to the very core of what is the most important aspect.
 - Adding realistic assumptions will come with certain costs.
 - Assumptions should be sufficiently good approximations of reality, the as-if principle.
 - Problem: Reality might now be too simplistic, and may cause a false feeling of safety.

Lecture 7

Economics is a complex science, without the ability to conduct controlled experiments. The facts and observations are about what is out there. The theories explain why something is what it is.

Models are the bridge between theories and facts.

- For example, the general theory of employment: Interest and money show the negative relation between interest and output that is reflected in the goods market, and the positive relation between output and interest that is reflected in the money market.
- From observations we move to theory, using representation or calibration.
- From theory we move to observations, using instruments. Such as predictions for policy makers, experiments for scientists or conceptual exploration.

There exists a discussion within economics:

- Models as idealization vs. Models as constructs.
With models as idealization a model is a less complex form of reality. The IS/LM-model is for instance a simplified economy.
With models as construction a model is used as a reality or tool. The IS/LM-model is for instance a tool to study the economy.

Models of idealization

- First step: Determining the economy.
You theorize the most important variables that can affect output such as investment, consumption, government expenditure, interest and money supply. In other words, you determine the main factors based on theory.
- Second step: Simplifying the economy.
Ceteris abstentious implies that factors do not affect the model. Ceteris neglects means that these factors have a small effect. Ceteris paribus is when all factors remain the same. In short, assumptions have to be made logically and consistently.
- Third step: De-idealizing the model.
We have now measured the model and will now integrate the real world by operationalization and calibration. Operationalization means we defining the variables. Calibration is looking at the relationship between the variables.
- With de-idealization it is important to determine the tractability or the usefulness of the model, the validity of the assumptions and the causal structure.
- Models as idealizations assume the economy is a machine that can be captured in equations.
- Models as constructions, on the other hand, believe models are just useful tools and believe they stand apart from reality.
- Models are also called fairy tales, exaggerations or fictions to understand the economy.

Models of constructions

- Believe models are just useful tools and stand apart from reality.
- Models as fairy tails
- The development of the IS/LM model overtime to understand goods and money market.

Then why do we use models?

- Models of idealizations are used for experiments with outcomes. They can offer policy advice like the model of a bridge. They are the instrument in this case.
- They can also help understanding mechanisms and reveal the causality. They are a representation in this case.
- Models of constructs are used for experiments with concepts on paper or in our minds. They can determine which variables are important, they give clarity to the concept. They can make economics understandable. They are thus narrative.

The limitations of models:

- Internal validity tells us whether the model is correctly specified. It can tell us whether the deductive and inductive steps have been taken correctly. Theory can lead to

observations with variable specification and causality. Observations can lead to theory with calibration. Internal validity can not be proven.

- External validity covers de-idealization. It determines whether the model represents reality and has value outside of the equations. External validity can be used as a demarcating mechanism.
- If a system is more than its individual components, we speak of reductionism and holism.
- If models only become true when we use them, it is called performativity.

Lecture 8

Akerlof's Lemon market model

- Why are there only cheap cars on the second-hand market?
- The set-up:
Second-hand car markets has buyers and sellers. Sellers know whether their car is a peach (good working, well preserved car) or a lemon. Buyers only know the average of the market. Buyers maximize utility and are willing to pay the average times the value of the car. Sellers of peaches do not offer the car since the buyers pay too little. The market will thus only offer lemons.
- Convention in economics is that market participants have perfect information (as-if).
- Outcome:
information asymmetry exists, sellers know more than buyers. This makes markets inefficient.

Schelling's Segregation model

- Why is segregation such a common phenomenon?
- The set-up:
There is a two-dimensional chess-board representing a virtual city. Every block is inhabited by a pixel and has eight neighbours. The pixel can have two forms of ethnicities: a square or a triangle. The pixel becomes unhappy if less than 3 pixels are inhabited by pixels of the same form.
- The convention is that segregation is the result of public policy or a strong preference for segregation. You want to be with the people that are the same.
- Outcome:
Segregation is the result of a weak preference for being extremely outnumbered.

Samuelson's consumption-loan model

- As markets have become more anonymous, why would you transfer money to anyone you don't know?
- The set-up:
There are two periods; work and retirement. There is no money. There are no durable goods. The question then is: How can consumption be transferred from work to retirement? -> How is retirement possible?
- The convention is that the invisible hand is efficient and creates a market for everything including pension.

- The outcome: The invisible hand and market cannot provide proper pension funds.

Arthur's El Farol Problem

- If all people are rational, why do we observe equilibria where wouldn't expect them?
- The set-up:
100 individuals decide to go to the bar and are happy if there are less than 60 people. All individuals are modelled with a different strategy. Individuals remember what good strategies are and discard the wrong ones.
- The convention: people are rational when making choices
- Outcome: Irrational individuals can come up with rational outcomes, while rational individuals cannot come up with a rational outcome. There is an importance of self-emergence.

The general characteristics of thought models

- It is all about the creation of a simple and abstract world. There are strong unrealistic assumptions in all models (Ceteris Paribus). But they also focus on one particular aspect.
 - In the lemon market model there are two traders, two quality cars, quality is only known by the seller, there is utility maximization. People want the best car for as little money as possible.
 - The segregation model assumes a city of grids and just two ethnic groups.
 - Consumption loan model assumes two periods, no durable goods or money.
- The general hypothesis is that there are unstable and uncomplete theories
 - The thought experiment does not lead to testable outcomes, the theory itself needs to be calibrated to local markets and neighbourhoods.
 - Lemon market: Has the problem of undefined lemons. Also has to adapt characteristics of the healthcare model. Where there is a 95% chance of someone being healthy and 5% of being sick.
 - Segregation model: assumes that R could occur, and F could operate, and it could be the case that F caused R
- The outcome is strong for the models
 - The results of thought models are strong because they put assumptions at maximum.
 - Lemon market: No or limited trade
 - Segregation model: almost perfect segregation
 - Consumption-loan model: there are no pension funds
 - Bar problem: there is an equilibrium
- The paradox is a shocking conclusion that the outcome of the model is not equal to the convention
 - Lemon market: There are consequences of information asymmetry

- Segregation model: there is cause of segregation
- Consumption-loan model: there is efficiency of markets
- Bar problem: Irrationality is equal to rationality.

Advantages of Thought Models

- The paradoxes of thought model revolutionize economics
 - The models allow assumptions to be put at the extreme
- The models are simple and therefore general; they are widely applicable
- Thought models are simple and therefore good communication tools

Disadvantages of Thought Models

- We have to be sure there is generalizability; the model says anything about the real world
- Strong assumptions make translation to reality difficult
- Sometimes the models are not reality reflections but just simplified markets and cities.

Lecture 9

The community of economists = Link between theory, data and models. The entire philosophy of science and economics itself.

- Thomas Kuhn: How do we think about the community?
- Logical positivism: Context of discovery is irrelevant, context of justification is
- Kuhn disagrees: Because historically, science developed in a different way.

How does science proceed according to Kuhn?

- First, it is a normal science
- We work within a certain paradigm -> Beliefs shared by members of a scientific community. Paradigms are also a ways to solve problems that are exemplary for particular schools or traditions.

A paradigm...

... is accepted in the community; it convinces the majority

... gives opportunity to solve new problems (puzzles)

- Puzzles (problems) are solvable
- The paradigm is never challenged in solving

... determines which problems are important and should be addressed. It determines which facts are relevant and count as facts -> they are thus "Theory-laden".

How does science change?

- There is an increasing number of anomalies -> Puzzles that can't be solved using the current paradigm
- The paradigm starts to adjust, whereas anomalies accumulate.
- The question then is: why and when is a paradigm rejected?

- Popper said: there are facts that falsify our theories. We don't reject the paradigm with empirical data, but by accepting an alternative paradigm. This is a revolution in science.

A revolution in science is...

... a radical break with the previous ways of doing research. It is a paradigm shift. Without an alternative, there will be no rejection

... A new view of the world, methods and goals. All in a relatively short transition period. New rules need to be invented since the previous ones only work for the old paradigm.

Incommensurability

- Important concept of Kuhn; how paradigms relate to one another.
- Incommensurability means that the paradigms cannot be compared.
- A new paradigm gives new problems, new ideas of science and new standards. It is because it is a reworking of the language and tools of the previous paradigms. The different paradigms see entirely different worlds.

Sociology of scientific knowledge (SSK)

- Kuhn can be considered as precursor. With a new paradigm a new generation should accept it.
- The starting point was Robert Merton, with his 4 values of science:
 - Universalism: scientific claims should be evaluated independently of who advances them, no discrimination.
 - Organized scepticism: critical testing of ideas
 - Disinterestedness of scientists
 - Communism: the discovery belongs to all, while scientists are rewarded by the recognition of the community and general public.
- There are no rules: there is a more descriptive approach to science. We should move from the content of science to the context of science. We should also move from the norms of correct theory to the production of knowledge.

Two famous approaches in SSK today and laboratory studies:

- The strong programme in the SSK claims to apply to all sciences.
- It has four principles:
 - Causality: we need to understand why scientists hold particular beliefs
 - Impartiality: we should not discriminate between true and false beliefs
 - Symmetry: we assume that both beliefs are explained in the same way
 - Reflexivity: the SSK should be explained in the same way
- Laboratory studies: how can we understand what scientists really do?
- We need to observe them in the lab. Go to where the science is produced.
- The idea of social construct. Very controversial idea, science is constructed by a community of scholars. Science is not done individually, but by groups that are embedded in society.

Lecture 10

From the perspective of SSK:

- Scientific research is social and produced by collectives, in collectives and for collectives.
- Social context matters not only for the form, the spreading and perception of research but also for its content.
- There is no reality out there to which all sciences jointly refer
- Each science constructs its objects in the ways shaped by its intellectual and institutional contexts.
- Communities of scholars and the prevalent forms of consensus in those communities are crucial for the ways of science.

Revolutions in Economics

- Starting with a paradigm marginal revolution → the shift from production to exchange. In a sense, these two are incompatible, they look at the same economy from a different perspective
 - The classical school would see in the economy just huge classes who jointly produce a product which then is distributed among those classes. An individual agency doesn't matter for them
 - While the marginal school, that is why it was a revolution, would see in the same very processes an outcome of intentional rational action of individual agents → homo economicus and would model it like that.
 - These two paradigms are incommensurable, you cannot judge one paradigm by the standards of another paradigm → they see different worlds.

In general

- Economics is the most respected social science
- Economists are a powerful group in society
- Many policy-relevant economics parameters are socially constructed by economists like GDP, national income, inflation, measure of happiness and ratings.
- Within the community of economics, control is important for consensus. They reinforce each other and some ideas are thus most likely to be published and endorsed within and beyond the community than others
- Kuhn's approach is helpful in understanding the dynamics of economic knowledge: In order to understand what modern economists do, we have to move beyond the analysis of theories and to explore the community of professional economists.
- The community of economics is organized hierarchically and reveals some visible forms of inequality in status and recognition. -> The prestigious differences between journals, departments and universities. Male vs Female and Theorists vs applied economics.

Lecture 11

The "old" Methodenstreit:

- At the end of the 19th century

- A debate between Karl Menger and Gustav Schmoller; the Austrian school and the Historical school
- The debate was about the nature and scope of economics. Questions were:
What kind of science is economics?
What is the role of history in economic analysis?
What role do contexts and culture play?
What is the appropriate method, induction or deduction?

The German historical school

- Economics is a descriptive inquiry into the historically specific institutions and practices.
- The role of history is primary in economic theory
- The role of context and culture is primary in economic theory
- The appropriate method for economics is induction; going from the concrete to the abstract.
- The result of economic research is a set of analyses of particular economic conditions specific to time and place.

The Austrian School of Economic Thought

- Economics is an analysis of pure logic of rational economic behaviour
- The role of history is secondary in economic theory
- The role of context and culture is secondary in economic theory
- The appropriate method for economics is deduction; going from the abstract to the concrete.
- The result of economic research is an abstract deductive theory of economic rationality, its principles and implications.

What is at stake?

- The question whether economics is a contextual science. Does time and place matter? To this day, this is still not resolved.
- If we assume it is contextual, the role of other social sciences increases. They have something to say because they study the contexts that matter for us.
- If we believe that economics is a non-contextual science, other disciplines matter much less.
- Mainstream economics argued that economics was non-contextual after the battle of methods. It was more like the Austrian school. The heterodox economics and economic sociology believed it was contextual. It was more like the German historical school.
- The debate is still relevant because the mainstream is changing.

Non-contextual economic- and other disciplines

- Deals with them in an imperial way. Economics spread over other fields. It does not accept the ideas or approaches of other social sciences.
- It colonized:
 - Sociology; economic rationality is universal
 - Law; legal decisions have economic consequences
 - Politics; there is a game theoretic framework in politics from economics
 - History; we can think about the past in a way that economic theorists think about. Data sets are used.

Economists' attitudes toward interdisciplinarity

- Economists care relatively less about other sciences. The difference in the numbers is huge.
- Economists also disagree most with the propositions that in general interdisciplinarity knowledge is better than knowledge obtained by a single discipline.
- Economic approach = maximizing behaviour + market equilibrium + stable preferences (Becker)

New methodenstreit

- Gul and Pesendorfer: Is economics a behavioural science?
- Also: Does psychological and neuroscientific evidence matter for accepting or rejecting economic theories?
- Answer of G&P: No, because economics and (neuroscience-based) psychology:
 - o Address different questions
 - o Utilize different abstractions
 - o Address different types of empirical evidence
 - o Different ontologies
 - o Different objectives
 - o Different data

What is standard Economics according to G&P?

- It is positive, and not normative (as behavioural economics attempts to be)
- It studies institutions
- Is useful irrespective of the causes of individuals' preferences
- *Populating economic models with "flesh-and-blood human beings" was never the objective of economists.*

Economists routinely take their inspiration from psychological data or theories. However, economic models are evaluated by their success at explaining economic phenomena. Since hedonic utility values and brain imaging data aren't economic phenomena, economists shouldn't feel constrained to choose models that succeed as models of the brain.

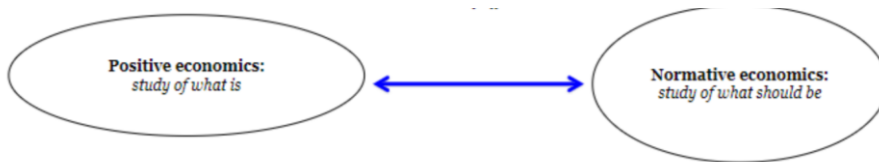
Lecture 12

Another important debate In economic methodology: does economics need values?

there are normative and value judgements:

- Evaluation (good/bad)
- Moral judgements (what is morally good/bad)
- Prescriptions (what one should do in specific circumstances).

Two types of economics:



Positive-normative controversy

- Logical positivists: economics is a positive, value-free science, without room for normative judgements.
- For them, economics existed of facts, and not at all values.

But... there are reasons to doubt this strict separation:

- Methodological value judgements are done by economists themselves when choosing a subject matter, methods and standards of validity
- Value-ladenness of economic concepts (equilibrium, efficiency, utility, rationality)
 - They might have a purely technical meaning, but they always refer to a social reality.
- Value judgements in economics promote particular ethical views
 - Rational choice as individual preference satisfaction
- Ethical values and norms are the factors of human behaviour
 - the "is" of human behaviour is caused/explained by the "ought" of the relevant social norms
- **Important:** Economics without value judgements would be useless for policy-making!

Values are needed, as they give us the optimal choice. What are the best means to achieve the given ends? First, the question is: what are these ends?

Politics, economic science and political decision are all interrelated.

- Politics are about the choice of ends.
- (Economic) science is about the development of means
- Political decision is about the choice of means

Still, the question is: where do the ends come from?

We have certain kinds of ends -> The standard conception of well-being

Preference satisfaction

- Utility as an index of preference satisfaction
- Calculated on the basis of observable choices
- Interpersonal comparisons of utility are hard to interpret
- Pareto optimality as the state to be achieved

Policy implication

- Policy focuses on material wealth, assuming it gives us the best opportunity to satisfy our preferences.

Other implications of the standard view:

- Easterlin paradox: subjective happiness may not increase with growth of income

- No account of inequality: Those individuals who are not in the best position from the beginning (poor, disabled), are disadvantaged
- No account of the rights and freedoms we value

Because of these implications, two major alternatives arise:

- Subjective: well-being as a mental state
 - based on surveys of life satisfaction, happiness, and similar constructs
 - Allows for interpersonal comparisons
 - But: It could ignore the context and only rely on the reports of individuals
- Objective: well-being shaped by its real conditions
 - capabilities approach (Amartya Sen, Martha Nussbaum)
 - capabilities of individuals are real opportunities to do and be what they have reason to value

Two major normative concerns for economics today:

1. Inequality
 - a. Lots of dimensions
 - b. Very much depends on how many rights and freedom you have
2. Sustainability
 - a. More income could mean more happiness and more capabilities
 - b. But what if the growth of income itself destroys the foundation of our life on this planet?
 - c. One response: degrowth movement.

Lecture 13

The rise of behavioural economics

- Growing concerns about the weakness of neoclassical => It explores the alternative of perfect rationality
- Behavioural economics seeks to provide micro foundations for our choices
- If we can provide predictable patterns of irrationality in human behaviour, we can improve economic theory
- We link experiment to behavioural economics.

Bounded rationality of individuals

- Non-standard preferences (social and time preferences)
- Non-standard beliefs
- Non-standard decision-making (depends on your context, i.e. geographically/cultural)

Qualitative research

- Statistics remains the gold standard in economics => tracking universal trends
- Qualitative research is the 'soft option' -> viable alternative for researching particular kinds of questions outside traditional concerns of economics
- Tries to recover full picture of all factors (through follow-up questions in a survey)
- Open-ended aspects = fundamental

- Experiments are not part of qualitative research

Quantitative vs. qualitative research -> Words vs. data

Characteristics of qualitative research

- Qualitative research is strongly contextualized -> importance of specific context
- Voice, empowering people to be heard who might otherwise remain silent
- Flexibility
- Bias, positionality = position of the researcher about his/her research + how people actually look at the researcher, the position of the researcher compared to his/her participants.
- Purposively sampling

What can we achieve with experiments and qualitative methods and experiments

- Theory testing and improving existing theories
 - Bargaining
 - Individual decision-making
 - Importance of culture
 - Importance of social preferences
- Exploratory, generating new theories
 - How do individuals react to institutional changes?
 - Can we motivate people to behave a certain way?
 - How to explain the participation of people to associations?
 - How to explain sustainable behaviours?
- Evaluating policy interventions and development programmes
 - The behavioural insights team in the UK
 - More and more mixed-methodologies in policy-making

Internal validity

- Small-scaled
- Randomization with experiments
- Not random in qualitative research

=> Do the data permit causal inferences?

External validity

- With field experiments and qualitative methods, you try to understand the real world
- You add realism

=> Can we generalize?

Trade-off

Lecture 14

Complexity economics (= economics in disequilibrium)

- In microeconomics, the uncertainty does not make rationally a bad assumption, it makes it non-existing. For example, game theory and rational preferences. However, it is still part of economic behaviour.
- From deduction to induction; from one 'representative' individual to various individuals.
- This is called "Knightian Uncertainty"

Complexity economics (= endogenous economics)

- In macroeconomics the technology goes from the exogenous to the endogenous variable. For

Complexity economics (=endogenous growth)

- Wealth growth = complexity = technological improvement
- In a barter society, where everybody changes goods. \$40,000 is worth 0

Complexity economics (= endogenous nonequilibrium)

- In neoclassical economics, rationality is first required before the system can be in equilibrium
- In complexity economics, the behaviour is determined. Then, it adapts and after this the systems expand unpredictably and endogenously

Complexity economics moves from equations to algorithms. (from nouns/numbers to verbs)

Goal of science

- In neoclassical economics it was more about instrumentalism and the outcomes of equations
- In complexity economics it was more about reality and about what the algorithms were of economics

The goal of complexity economics was to reveal algorithms

- This is done by simulations or agent-based models to see if they create similar patterns as reality
- With models as constructions, they are seen as tools to distillate algorithms

The six rules of Complexity Economics

1. Dispersed Interaction

The economy has interaction between many dispersed, heterogeneous, agents. The action of any given agent depends upon the anticipated actions of other agents and on the aggregate state of the economy.

2. No global controller

From Democratic socialism to Libertarianism. Government intervention does more harm than good because of adaptive behaviour.

3. Cross-cutting hierarchal organization

The economy has many levels of organization and interaction. The overall organization is more than hierarchical, with many sorts of tangling interactions across levels. From micro and macro to many many different layers.

4. Ongoing adaption

Behaviours, actions, strategies and products are revised frequently as the individual agents accumulate experience. Form equilibrium to disequilibrium: The system itself is changing. This is called the “evolutionary approach” in complexity economics.

5. Novelty niches

Such niches are associated with new markets, new technologies, new behaviours, and new institutions. The act of filling a niche may provide new niches. The result is ongoing novelty. Endogenous growth -> unpredictability of economic progress

6. Out-of-equilibrium dynamics

Because new niches, new potentials, new possibilities, are continually created, the economy

functions without attaining any optimum or global equilibrium. Improvements occur regularly. The previous 5 rules lead to out-of-equilibrium economics.

The problems of complexity economics

- The question is asked if it produced useful results. This is regarding instrumentalism. There were some nice metaphors, but generalizability was not the case.
- The question is asked if it produced valid results. This is regarding realism. The agent-based models look good, but we have to know if how to test the algorithm is true.



Disclaimer

ESV Nijmegen makes an effort to keep the content of this summary up to date and where needed complements it. Despite these efforts it is still possible that the content is incomplete or incorrect. The offered material is a supplement for studying next to the appointed literature. The material is offered without any guarantee or claim for correctness.

All rights of intellectual property concerning these summaries are owned by the ESV. Copying, spreading or any other use of this material is not allowed without written permission by the ESV Nijmegen, except and only to the extent provided in regulations of mandatory law, unless indicated otherwise.

