

Introduction to Sustainable Economics

Additional attainments for the Master's in Sustainability
Transformations

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Preface

Version 1.0, October 2025

This e-learning course is intended for students to work through it at their own pace. There are no sessions held in presence. However, students can reach out to the lecturer for questions and support at any time via email. The course is structured along six sections that build on each other. Many sections are interactive and contain links and videos to consult. For more information on the course please see the information document of the course.

The course is divided into three blocks. In the introductory block, students are introduced to basic concepts and the theoretical assumptions of economics (Section 1-4). This is followed by a block on the problem analysis addressing the ecological, social, and economic challenges faced by the current economic and societal system (Section 5). In the final block, participants explore various building blocks that provide starting points for shaping a sustainable economy (Section 6-7).

Below you will find the contents of the course. Following the script will guide you through all the sections and learning material in a sensible order. Since this course requires a high degree of autonomy in acquiring the material, we also encourage you to contact us via email if you want to discuss questions (see information document).

Learning Outcomes

Students can:

- understand that there are different theories in economics and are able to name them.
- can identify the foundations of the emerging field of sustainable economics.
- can distinguish between the problem analyses and solution approaches of sustainable economics and those of today's dominant school of thought (neoclassical and environmental economics).
- are able to critically question both traditional and new economic approaches (concepts) and assess the conflicts inherent in them.
- can reflect on the strengths and weaknesses of different theoretical approaches, both in general and in relation to concrete problems.
- can analyse how alternative economic models (e.g., circular economy, post-growth economics) function and evaluate their potential and limitations for economic policy.
- acquire basic knowledge about measures and transformation scenarios for implementing alternative economic models beyond the focus on maximizing profits and goods production.

Assessment

The Assessment is based on two parts.

The first part is a quiz. The quiz covers the basic concepts that are mainly discussed in section 3. [The quiz is done on ilias](#). You will have two attempts to complete the quiz. The better attempt will count. You need 50% of the points to pass the quiz. You have 15 minutes to complete the quiz.

The second part of this assessment requires you to write a reflective essay on the material you have studied and your understanding of economics and the economy. We invite you to consider how the course material has (or hasn't) changed your understanding of economics and the economy in the context of sustainable transformation. Use the questions below to guide your reflection paper. However, you can also refer to other sources if you find them relevant for your reflection. You may use any resources. Students must sign a declaration of authorship. The written paper should comprise 6,000–7,500 characters (excluding spaces, the reference list, the title page, footnotes, headers and footers, lists, tables, figures and appendices). This corresponds to approximately three pages.

Guiding questions

- How has your understanding of economics changed as a result of taking this course? What implications does this have for your understanding of sustainable transformation?
- How has your understanding of the economy changed as a result of this course? What are the implications for your understanding of sustainable transformation?
- What role does an understanding of economics play in the context of a sustainable transformation?

[Please submit your reflection paper via ilias](#).

Both parts of the assessment can be done and submitted at any time. The course counts as completed as soon as students have worked through all sections and passed both parts of the assessment. The course is graded with pass or fail.

Please note that the online exam and the reflection paper must be completed **by 30 May 2026 at the latest**.

Reading guide

Definitions and further readings

Examples and reflections

Exercises and links to ILIAS

Chapter 1

Introduction

Learning Outcomes

- can explain what economics is concerned with.

1.0.1 The discipline of economics

The term ‘economics’ helps to situate the discipline within the broader landscape of academic fields (see Fig. 1). As part of the humanities and cultural sciences, economic science deals explicitly with the economy as a man-made object of study (Engelkamp and Sell (2013), p. 3). Economic science can be divided into two broad areas: **economics** and **business administration**.

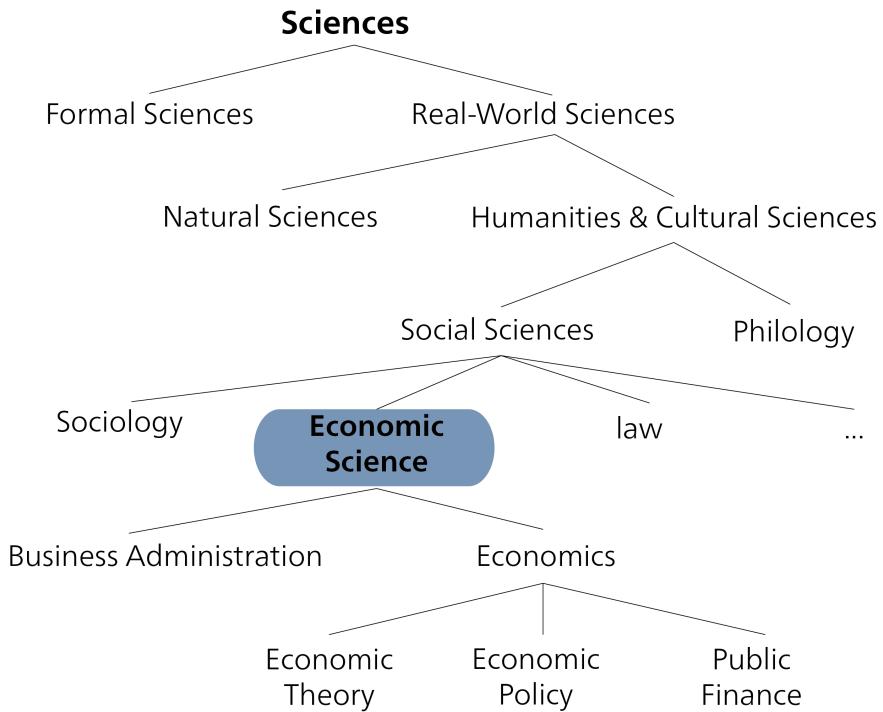


Figure 1.1: Disciplinary positioning of economics. Source: Own illustration based on Engelkamp & Sell (2013), p.3.

Business administration: “Business administration is the study of the economic, organizational, technical, and financial processes in companies and various economic institutions” (Friedli, Müller Vasquez Callo, and Balmer-Zahnd (2019), p. 16, own translation). In this field, researchers develop a microeconomic perspective on the respective subject of investigation.

Economics: Unlike business administration, economics does not examine what happens within economic actors but focuses on the interaction between the various economic actors and also takes a macroeconomic perspective. In this course, we will deal with this part of economic science.

With the development and differentiation of economic theories, various definitions of economics have been established and advocated. The most widely accepted definition within economics today was originally proposed by Lionel Robbins and emphasizes the relationship between the **scarcity of resources** and the satisfaction of **needs** by **economic agents**. Robbins defines economics as follows: “*Economics is the science which studies human behaviour as a relationship between ends and scarce means which have alternative uses*” (Robbins (1932), p. 15). Robbins’ definition is influenced by his theoretical orientation along the **neoclassical school of thought** (mainstream/orthodox

economics). Building on this, most mainstream textbooks define economics as a science of (rational) decision-making that deals with how people make decision in the light of scarce resources to achieve their goals.

The heterodox economist Ha-Joon Chang [criticizes](#) this definition as too specific and argues that it stems from a theoretical approach and thus already prescribes a certain approach (Chang (2014)). Chang defines economics not by its theoretical approach, but by its **object of study**: the economy. Economics therefore deals with everything related to the (re)production, exchange, and distribution of goods and services to satisfy human needs. In addition to and between these definitions, there are many other definitions of economics. Based on different understandings of economics, **different schools of thought** consequently focus on different subject areas, such as power structures, institutions, or macroeconomic and social relationships and structures. In the section on pluralist economics (section 4), we will take a closer look at what constitutes neoclassical economics (mainstream) and learn more about some of the other schools of thought. In the following, we will generally follow Chang's understanding, which takes the subject of investigation and not a theoretical approach as the basis for our understanding of economics. Accordingly, this understanding also allows for many different approaches and schools of thought to be used to understand economic relationships.

1.1 Subfield of economics

Economics can be divided into **three major subfields**: economic theory, economic policy, and public finance. There are different ways to divide the field of economics, but using these three categories is a helpful way to get an overview. For our purposes, the first two — economic theory and economic policy — are especially important.

Economic theory describes theories from the past to the present and highlights their implications for how the economy is described and evaluated. There are many different schools of thought within economic theory (these are discussed in more detail in the learning sequence [on pluralist economics](#)). In principle, all schools of thought can be divided into two sub-areas of economic theory: microeconomics and macroeconomics.

- **Microeconomics** deals with individual economic entities, such as households and companies, and their mutual relationships. It does not make any statements about aggregate economic relationships but rather examines the behavior of individual companies and households and their coordination process via the market with the help of price adjustments (Bontrup and Marquardt (2021), p. 1).
- In contrast, **Macroeconomics** deals with the aggregate economic relationships between economic sectors and different markets and examines macroeconomic phenomena. For example, it examines macroeconomic indicators such as the unemployment rate or inflation.

Public finance examines the various components of the national budget, such as taxes and subsidies, and their interrelationships. This implicitly raises questions about the role of the state in resource allocation and the distribution of income and wealth.

Economic policy deals with state intervention in the economy. It is concerned with shaping social life in order to increase social welfare (Bontrup and Marquardt (2021), p. 2). However, views on what constitutes social welfare can vary greatly. The state has a significant influence on how economic actors interact, for example, but not exclusively through targeted interventions. The targets of economic policy can include employment, price stability, foreign trade, economic growth, the distribution of income or wealth, and the protection of the natural environment. Examples of economic policy interventions include the prohibition of cartels or the introduction of a minimum wage.

Economic history is another important subfield, focusing on economic policy and dynamics over extended timeframes or through a historical lens. One possible subject of investigation could be the effectiveness of economic policy during the Great Depression. The historical development of economic theories is examined in the context of the history of economic thought.

In addition, there are various specialized fields within economics, such as behavioral economics, education economics, and health economics, each focusing on a specific area of inquiry.

Further readings

Ha-Joon Chang's book "Economics: The User's Guide" offers an easy introduction to topics in economics, provides a historical perspective and a good overview of past and current debates. Depending on your interests, individual chapters can also be consulted.

Chang, Ha-Joon. 2014. Economics: The User's Guide. First U.S. edition. New York: Bloomsbury Press.

1.2 Economics and value judgments

Many economists — perhaps even the majority — hold that economic theory should be free from assumptions about human behavior, societal structures, and normative values. Economic theory should therefore be neutral and free of values and capable of formulating universally valid laws. According to this view, economics is regarded as a positive science. A positive science describes the world as it is, without making value judgments or taking a particular perspective. Typically, natural sciences are understood as positive sciences. Accordingly, mainstream economics distinguishes between positive statements (how the world is) and normative statements (how the world should be) and argues that these spheres are clearly separable (the fundamental philosophical position lies in logical positivism). The focus is accordingly on positive statements.

Critics argue that such a clear distinction between positive and normative statements, between facts and values, is not possible for social sciences such as economics and therefore makes objective and value-free analysis impossible (see, for example, J. B. Davis (2016)). Hilary Putnam argues that facts and values are often not clearly separable but intertwined (Putnam (2002)). Thus, economic concepts and theories are always shaped by values and worldviews in their construction.

Following the critics we hold it to be difficult — if not impossible — to draw a clear line between positive and normative perspectives. The different ways in which economics

can be defined show that value judgments are always implicit. One perspective may focus on the efficient allocation of scarce resources in a society, while another may focus on overcoming poverty and meeting the basic needs of all people in an economy. As soon as I favor one perspective over another, I have made an initial value judgment. In section 4, we take a closer look at the implicit value judgments of neoclassical economics, which sees itself as positive economics.

Acknowledging that economics is not entirely value-free or objective does not mean rejecting the existence of facts or treating all viewpoints as equally valid. Nor does it deny the existence of an objective reality — it simply recognizes that we can only approximate it to varying degrees.

Like any other science, economics must be guided by scientific principles and methods. In addition, assumptions and value judgments should be made explicit and transparent. In addition to criticism of the implicit value judgments behind neoclassical economics, the explicit framework of assumptions also leads to controversial discussions, particularly regarding the extent to which the assumptions must realistically reflect reality. Must the initial assumptions, such as the existence of perfect competition, be realistic in order to gain valuable insights? At first glance, the answer is clear: unrealistic or incomplete assumptions must also lead to false conclusions. According to the Paul Samuelson (1915-2009), one of the most famous economists of the 20th century, it is impossible to draw true conclusions from demonstrably false assumptions. However, proponents of so-called instrumentalism argue differently. They say that, given the complexity of human behavior, it is necessary to abstract and leave out the insignificant in analysis. In his search for an efficient method to discover far-reaching insights and recommendations for action, US economist Milton Friedman, also one of the most famous economists of the 20th century, even takes an extreme anti-realist position. Working within the framework of a superficial world is declared an unproblematic necessity:

“Truly important and significant hypotheses will be found to have assumptions that are widely inaccurate descriptive representations of reality, and in general the more significant the theory, the more unrealistic the assumption. [...] To be important, therefore, a hypothesis must be descriptively false in its assumptions.” - Milton Friedman, 1953, p. 14.

The debate as to whether economics is free of value judgements or not has been ongoing since the development of mainstream economics, neoclassical economics, towards the end of the 19th century and continues to this day, with no conclusive resolution. This is exemplified by two quotes from two well-known economists of the first half of the 20th century:

“Economics deals with ascertainable facts; ethics with valuations and obligations. The two fields of inquiry are not on the same plane of discourse.”
- Lionel Robbins in An Essay on the Nature and Significance of Economic Science (1932), p. 132.

“As against Robbins, economics is essentially a moral science. That is to say, it employs introspection and judgment of value.” — John M. Keynes in a letter to Sir Roy Harrod, July 4, 1938, in Atkinson (2009), p. 791.

1.2.1 What does this mean for economic policy?

Economic conclusions — like economic analyses — can never be made entirely free of value judgments. For example, when certain processes produce gains for some economic actors and losses for others, it is impossible to assess the overall net effect without introducing normative assumptions. Even appealing to pure economic efficiency already reflects a value judgment: it prioritizes efficiency over other possible criteria for evaluating outcomes. At first glance, it might seem reasonable to treat gains and losses equally — adding them up on a one-to-one basis without weighting. However, this approach assumes that all outcomes are of equal significance to those affected. In practice, this is rarely the case. Some individuals may experience losses that push them into an existential crisis—for instance, if their income drops below the threshold of physical or cultural subsistence. Depending on one's ethical perspective, there may be strong reasons to argue that such losses should be weighted more heavily than the corresponding gains of others. Not applying any weighting at all is itself a normative choice. If we allow weights to vary continuously, then in principle, **there are infinitely many possible normative positions** one can take when evaluating such outcomes.

When assessing such market processes, **normative questions** arise that economics, like any other social science with its empirical methods, is unable to answer objectively and value-free. It must therefore present these questions in such a way that they can be discussed by society and, if necessary, decided by parliaments through legislation.

1.3 Thought styles and thought collectives

As discussed in the previous chapter, economic theories are always shaped by value judgments and underlying worldviews. Therefore, there is no clearly objective economic theory, but rather a multitude of perspectives that make it possible to analyze and describe economic phenomena. There is no neutral “view from nowhere” or purely objective perspective, as our perception is shaped by numerous influences, such as our education, social and cultural environment, language, material living conditions, and personal experiences. These influences shape our perspective of the world. A helpful metaphor is that of glasses: some lenses allow us to see broad patterns, while others reveal fine details and nuances. These different “glasses” influence how we see the world — not arbitrarily, but within identifiable limits. As discussed earlier, multiperspectivity has boundaries; not every interpretation is equally valid or supported by evidence.

In the philosophy of science, such perspectives are often referred to as paradigms or thought styles. The concept of “thought style” (Denkstil) was developed by Ludwik Fleck, a Polish physician and philosopher of science, decades before Thomas Kuhn introduced the more widely known idea of paradigms. Fleck, born in 1896 in Poland and died in 1961 in Israel. In 1944 he was deported to the concentration camp Buchenwald. He was tasked with developing a typhus vaccine for the SS. However, he reportedly administered placebos to the guards and gave the actual medicine to fellow prisoners.

In his scientific work, Fleck emphasized the dependence of thinking on values and contexts. He rejected the idea that knowledge is objective, neutral, and universal. He argued that the production and use of knowledge take place in specific environments, which influences its meaning and effect. Knowledge is used differently in concentration camps than in NGOs or corporate research departments. Knowledge is always

embedded in institutions and power structures, and scientists are influenced by their environment and previous experiences.

Thought collectives are groups of people who share a common way of thinking and use certain concepts and methods. Thought collectives therefore use a specific lens through which to view the world. These thought collectives are often conservative and resistant to change, i.e., they resist changes and further developments in their way of thinking. Since, as Fleck emphasized, people can think, argue, and understand in fundamentally different ways, people who belong to different thought collectives often have difficulty understanding the thought processes of other thought styles.

Fleck's findings show that science and reasoning are by no means independent of social, cultural, and historical contexts. They illustrate the diversity of perspectives from which scientific problems can be viewed and emphasize that no single theory or way of thinking can fully capture the whole of reality. Instead, different thought styles and thought collectives are capable of providing diverse insights and enriching our understanding of complex phenomena. This leads to different economic policy recommendations and offers a wide range of approaches to solving complex challenges.

1.3.1 Thought collective in economics

As already indicated several times, economics also consists of a multitude of different thought collectives that adopt certain perspectives or ways of thinking based on value judgments and worldviews. This diversity of thought collectives (often referred to as schools of thought) is described by the term “pluralist economics.” At present, economics is strongly dominated by one thought style known as neoclassical economics, which is often described as mainstream economics. However, we believe that students should not only learn about the thought style of the prevailing thought collective but also gain an insight into how thought styles in economics have developed and what other thought styles exist in economics. The next chapter provides an introduction to the history and development of thought styles in economics. We will then deal with current schools of thought in the following sections.

Further readings

- [Yuval Harari and the legend of Peugeot](#) in his book “A brief history of humankind” His thesis: The truly sufficient difference between us and other animals is our ability to create cooperative net-works in which millions of complete strangers work together toward common goals. We can co-operate on a large scale because we follow shared intersubjective fictions. We work successfully with strangers because, like them, we believe in things such as gods, nations, money, or human rights. And yet none of these things exist outside the stories that humans invent and tell each other. There are no gods in the universe, no nations, no money, and no human rights—except in the collective imagination of humans.
- [Podcast with Yuval Harari on the topic of “trickle-down economics”: What is the trick in trickle down?](#)

It's how wealthy elites and their neoliberal lackeys convince you that what's good for them (tax cuts, deregulation, etc.) is good for you and

that policies like the minimum wage, overtime, and paid sick leave will ruin the economy. Economics is a story we tell ourselves to help explain who gets what, and why. In this episode, we explore how to tell a better story.

Chapter 2

History of economic thought

Learning Outcome

Students...

- can explain what the term “social physics” means. - recognize the implications of applying social-physical principles in economics.

Walter Ötsch is a professor at the Koblenz University of Applied Sciences. As an economist and cultural historian, he researches and publishes on socio-political and economic topics such as populism and the social role of markets. Below you will find a section (chapter 4-9) of a working paper written by him.

Ötsch (2018) - Download and read at least chapters 4-9:

In this working paper Walter Ötsch describes how economics developed from the moral science of Adam Smith to a science with a biologically determined view of human nature under Malthus and Ricardo. In this process, scientific metaphors (clock system, balance scale, computer information) became increasingly important and economics is increasingly seen as “social physics”. This process is very illustrative for the development of modern neoclassical economics.

[Download and read Ötsch \(2018\) - at least chapters 4-9](#)

Brief digression: History of Homo Economicus (optional for interested readers)

The history of homo economicus dates back at least to the mention of “economicus” in Xenophon’s work of the same name in the fourth century BC (Wilson and Dixon (2014), p. 11). In the long period leading up to the establishment of modern economics by Adam Smith in the 18th century, various conceptions of economic man were used[1] , often strongly influenced by the corresponding “Zeitgeist”. The concept of homo economicus as a rational utility maximizer is often attributed to Smith, as he recognized self-love as a central characteristic of human behavior. However, as is often the case with Smith’s concepts, this common interpretation is oversimplified. In addition to self-love, Adam Smith

identifies other human characteristics that are central to human behavior. Smith paints a much more complex picture of human behavior than the reduced version of modern homo economicus (Hill (2012)). Smith's dense description of economic man makes it impossible to model him or work with him mathematically (Morgan (2006); Morgan (2012)). This was changed over time through a conscious reduction of the description of the economic man.

[1] In this text, the term "*economic man*" is used when referring to the idea of an economic agent. This is because the term "homo economicus" represents the currently dominant conception and "economic man" is used in this sense in (predominantly English) literature. The term is problematic in that it implies the exclusion of an "economic woman". However, if we consider the orientation of economics today and also throughout history, such a representation of economics is unfortunately not too far-fetched as feminist economists have argued many times.

At the beginning of the 19th century, Thomas Robert Malthus and David Ricardo were already using somewhat reduced versions of economic man, which already had certain model characteristics (Morgan (1996), Morgan (2006), Morgan (2012)). John Stuart Mill took this further and reduced economic man to the characteristics that were central to the economic sphere: the desire to accumulate wealth, the aversion to work, and the desire for luxury goods (Mill (1996)). Although the model of economic man underwent a reduction in Malthus, Ricardo, and Mill, the model of economic man cannot yet be used in the same way as it is today.

William Stanley Jevons and Francis Edgeworth laid the foundations for this development at the end of the 19th century. Alongside Alfred Marshall, Léon Walras, and Vilfredo Pareto, they are considered important founders of neoclassical economics and were part of the **marginalist revolution** (this will be discussed in more detail in section 3 on basic concepts of economics; see the marginal principle). Like some other economists with a background in mathematics or physics, the two economists were determined to turn economics into a natural science. Neoclassical economists were convinced that the analytical and deductive method should also be the ideal approach for economics. Jevons justified the necessity of mathematics for economics simply by pointing out that it deals with quantities (Jevons (1879), p. 4). This group of economists was guided by physics and physical concepts. Irving Fisher, another of the first neoclassical economists, explicitly used various mechanical or hydraulic concepts for his theories and applied them to economics.

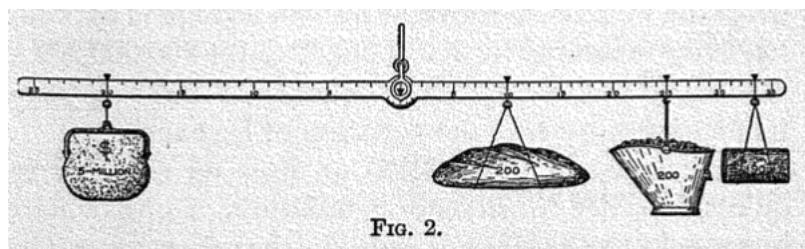


Figure 2.1: Fisher's mechanical balance of exchange to illustrate the quantity theory of money (Fischer 1922,p.21)

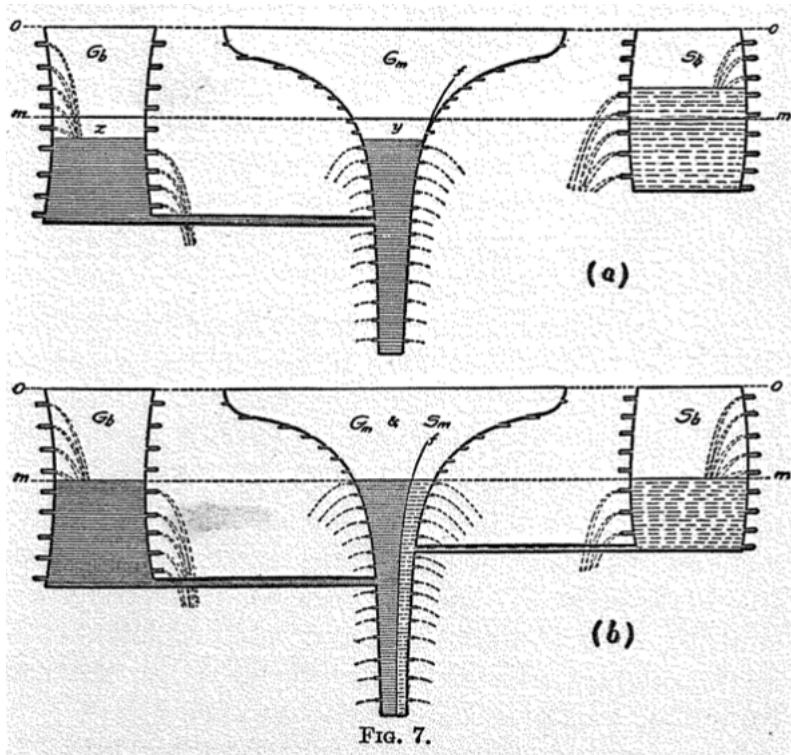


Figure 2.2: Fisher uses a hydraulic model to illustrate purchasing power in a bimetalism system (Fisher 1922, p. 119)

The idea of **equilibrium** itself is a concept borrowed from physics. This fixation on physics is also described as “physics envy”, and Mirowski shows that this orientation toward physics was a fundamental driver in the development of the history of economic thought (Mirowski (1989), p. 396). Even well into the 20th century, the explicit analogy to physics remained in economics. A good example of this, and also of the basic toolbox of economists, is the **machine** built by William Phillips in the 1940s to represent the British economy. The development of *homo economicus* is also exemplary of the mechanistic worldview that emerged in neoclassical economics, as described by Walter Ötsch in his text. Among other things, the complexity of economic man stood in the way of the applicability of mathematics to economics. Jevons therefore attempted to reduce this complexity. Influenced by Bentham’s utilitarianism, Jevons reduced the seven criteria formulated by Bentham, which are central to the calculation of utility and thus influence human behavior, to just two, arguing that only these were economically relevant (Jevons (1879), p. 17). This enabled Jevons to work mathematically with economic man (Reiss (2000)). This abstraction and objectification of economics and economic man is most clearly illustrated by the concepts developed by Francis Edgeworth and later Frank Knight. Edgeworth refers to economic man as a “pleasure machine” and Knight as a “slot machine” (Morgan (2006)). Pareto’s use of his “*homo economicus*” also establishes an

analysis of humans from a mechanical perspective. Pareto writes: “Just as analytical mechanics deals with material points and rigid bodies, mathematical economics considers an abstract human being, a *homo economicus*” (Pareto (1902), p. 1100).

With the marginalist revolution, *homo economicus* became the focus of economics, in stark contrast to classical economists (Smith, Malthus, Ricardo, Marx), who focused primarily on class analysis. In addition, abstraction now enabled modeling and mathematical applications, which was intended to bring economics closer to the natural sciences. The rational and utility-maximizing agent became the basis of economics. The underlying **rational choice theory** was subsequently further developed and adapted (e.g., through the concept of bounded rationality) but remains fundamentally the same to this day.

The history behind this development shows that it was not a natural one, but rather a conscious effort to push a **certain direction in economics**. For example, the neoclassical approach makes it impossible to identify and analyze structural problems, as the focus is on marginal changes in certain indicators (e.g., inflation or interest rates). A good example of this is the work of the winners of the 2019 Alfred Nobel Memorial Prize in Economics, Abhijit Banerjee, Esther Duflo, and Michale Kremer. In their research on poverty reduction, they use experiments (randomized control trials) to investigate the impact of specific individual measures to combat poverty. The analysis (and thus also a change) of the structural causes of these people’s poverty is lost sight of here.

The described development in economics was heavily criticized when it first emerged. Criticism of its focus, its fixation on analytical models and its strong abstraction from the real world continues to this day. In view of the weaknesses that have been increasingly exposed in neoclassical economics in the years since the 2008 financial crisis, the concerns of Alfred Marshall – himself a famous neoclassical economist – about this development are once again becoming relevant. In 1881, in a commentary on Edgeworth’s “Mathematical Psychics,” Marshall wondered whether Edgeworth would succeed in preventing mathematics from running away with him and driving him out of sight of the actual facts of economics (Vazquez (1995), p. 251).

Further reading

The following further reading is recommended for students who would like to delve deeper and engage more intensively with the history of theory:

- Ambler, Lucy, Joe Earle, und Nicola Scott. 2022. «Whitewashes History». In Reclaiming Economics for Future Generations, Manchester Capitalism Ser, Manchester: Manchester University Press, 118–60.
- McCloskey, Deirdre N. 1998. The Rhetoric of Economics. 2nd ed. Madison, Wis: University of Wisconsin Press.
- Mirowski, Philip. 1989. More Heat than Light: Economics as Social Physics, Physics as Nature’s Economics. Cambridge: Cambridge University Press. doi:10.1017/CBO9780511559990

Chapter 3

Basic concepts of economics

This module deals with the **basic concepts of economics**. It is intended as an introduction to the central concepts and topics of economics. We are aware that many of these terms are new to students without a background in economics. Thus, the aim of this module is not to provide you with detailed knowledge of all topics, but rather **to give you an initial overview of economics**. For students of economics, this chapter serves as a review and contextualization of existing knowledge.

Each basic concept is accompanied by a number of **in-depth questions**. These serve to allow you to test your knowledge of the respective area independently but are also intended to stimulate thought and reflection. If you have any questions about the content or would like to explore a topic in greater depth, you can contact us (see information document).

By the end of this volume you will find a link to the quiz on the basic concepts of economics. This quiz is part of the assessment and will account for 40% of your final grade. Consult the information document for more information.

Learning Outcome

Students can...

- explain the basic concepts of economics.
- explain the fundamentals of pluralist economics and identify different schools of thought.

3.1 Forms of provisioning in the economy

At the latest with the division of labor, questions arise for an economic system about the organization of (re)production, consumption, and distribution. This raises the following fundamental questions:

- How is social surplus distributed?

- Who (re)produces, maintains, and repairs what?
- Who consumes what?

As the previous section has made clear, the answers depend on the perspective we take and our understanding of the economy. Here we follow Karl Polanyi, who proposes a broad understanding of the economy. Karl Polanyi distinguishes between two definitions of economy: one formal and one substantive (Polanyi (1977)). **From the formalist position**, economic activity is analyzed in the neoclassical sense as a purpose-rational and utility-maximizing activity in markets under conditions of scarcity. Since economic activity is reduced to market economies, essential economic sectors such as domestic and care work or public provisioning are only covered to a limited extent. Fundamental, non-market institutions of economic activity are examined, but only from the perspective of how these areas of human life can also be optimized. However, this is problematic: rationality optimizes but does not concern itself with what is being optimized, why, and for whom.

From the substantivist position, economic activity is understood as being embedded in communities and biophysical foundations. Economic activity therefore means providing the foundations of life. It does not mean optimizing to maximize utility (Nelson (1993)). Markets are not always suitable for securing the foundations of human life in all economic sectors. Economics is therefore more than market economies. The economy consists of different institutions and sectors with different logics: housing cooperatives work with different business models than plumbers and steel companies, public hospitals differ from industrial companies, and unpaid care work is organized differently than assembly line work. Karl Polanyi therefore distinguishes between four socio-economic organizational principles or forms of provisioning (what he calls forms of integration) that can be found in real economies and interact in different ways: household, reciprocity, redistribution, and market trade (Polanyi (2017)).

(1) **Householding** refers to forms of self-sufficiency and is rooted in families and households. In ancient Greece, the oikos, or household, was a self-sufficient economic unit. Even today, however, a large part of the economy continues to take place in the household, particularly in the form of unpaid care work, nursing, and housework (e.g., cooking, cleaning, gardening).

(2) **Reciprocity** is based on the principle of give and take and defines an exchange of goods and services between individuals outside the market and the state. This takes place in communities, e.g., among friends, in the neighborhood, or in associations, and includes neighborhood assistance and community work. Like the principle of householding, the form of provisioning/integration of reciprocity has its roots often in local communities and usually takes place between people who know each other.

(3) **Redistribution** defines a systematic flow of resources to an administrative center and their subsequent redistribution. Examples include public education, health, and pension systems financed by taxes or levies. Redistribution allocates resources to (often unknown) members of a society. It takes place within political territories, especially the nation-state, and therefore extends beyond local communities.

(4) Finally, **(market) exchange** defines the exchange of goods and services at market prices. This is the commodified area of economic activity. These markets can differ depending on the type of goods and services traded, their reach, and their structure. The logic of individual profit and solvency prevails in market relationships.

In summary: To this day, economic activity is shaped by a variety of institutions and principles. Real economies are always mixed economies, i.e., they are more than market economies. Not all aspects of life and economic activity are suitable for being transformed into goods that are exchanged in a market (commodified).

Questions for reflection (.unnumbered)

- Find further examples from your everyday life for all forms of provisioning.
- Find an example of a good or service that is provided through all four forms of provisioning. How do the four forms of provisioning change the situation and character of the transaction/provision?

3.2 (Re-)production factors

Production factors are all the factors that are necessary as inputs for the production of an output, a good or a service. The aggregate production factors of an economy are described as factor endowment. The origins of production factors can be found in 18th-century physiocratic thinking, and they became established as a concept in classical economics. According to classical economics, the factors of production can be divided into three categories: land, capital, and labor. Over time, this trinity has been repeatedly criticized, expanded, and adapted. For example, entrepreneurship, knowledge & technology, and nature itself have been brought into play as additional factors. However, these aspects are often subsumed under one of the three original production factors.

In addition to neglecting other factors, this understanding is also criticized for overemphasizing the sphere of production over reproduction and maintenance, or for neglecting reproduction and maintenance and only considering them when they are sold as services (commodified). For example, a simple cup in your household is produced only once but then has to be washed a thousand times. Infrastructure and objects must be constantly repaired and maintained. And workers must also be cared and provided for, i.e., reproduced.

3.2.1 Land

The term “land” refers to **natural resources** used for production. These include resources such as farmland, mineral resources, and water. Companies must pay land rent (such as emission certificates or concessions for hydroelectric power plants) for the use of land, which is a scarce production factor. In some cases, natural capital is still regarded as a “pure input factor” or “only an input factor” regardless of its comprehensive life-sustaining functions, and is taken for granted. For example, a forest is reduced to its purely economically exploitable dimension, such as the sale of wood and game. It is also often neglected that nature is never available in the form of goods, but must always be made usable and economically exploitable by humans through work (Schaupp (2024)).

3.2.2 Capital

Companies acquire capital factors through **investment**. They do this either by using surpluses from previous production periods or by taking on loans. Capital factors include machinery, tools, buildings, and other tangible capital. Monetary capital only becomes a factor of production when it is converted into tangible capital.

3.2.3 Labor

Labor is the third factor of production and is necessary for raw materials to be turned into goods and services. **Coordinating, intellectual, and executive activities** are necessary for the targeted use of capital in order to be able to produce. As already mentioned at the beginning, care work is neglected here. This is especially true when this work is unpaid. In classical and neoclassical economics, the focus is strongly on **paid work**, while unpaid reproductive work is taken for granted.

The analysis usually only records and considers statistics on paid work. The **unemployment rate** is generally used as the most important indicator. This is usually calculated as follows:

$$\text{unemployment rate} = \frac{\text{number of registered unemployed}}{\text{labour force}}$$

However, this indicator is only one of several indicators that are used. The International Labour Organization (ILO) works with a different notion of unemployment. From this perspective, all permanent residents in Switzerland who are without work, are looking for work, and could start work within a short period of time are considered **unemployed**. In 2024, the unemployment rate in Switzerland averaged 2.4%, and the seasonally adjusted unemployment rate according to the ILO was 4.5% in the fourth quarter of 2024. Unlike the official unemployment rate, the unemployment rate according to the ILO also includes, for example, self-employed persons, persons affected by long-term unemployment such as those who have exhausted their unemployment benefits, and young people who are not yet in employment immediately after completing their education. Accordingly, the ILO unemployment rate is higher than the official unemployment rate. However, such indicators say nothing about the type of employment and working conditions, which means they are not useful for such assessments. More fundamental questions about the meaning and purpose of work and a high employment target cannot be discussed using such indicators.

The following figure shows the development of the official unemployment rate in Switzerland since 1920. Unemployment in Switzerland has always been very low by international standards. During the post-war economic boom in particular, there was almost no unemployment in Switzerland, which is why the country attracted many workers from abroad – who often worked in precarious conditions. It was not until the crisis of the 1970s that unemployment returned to Switzerland, although the country prevented a sharp rise by exporting unemployment abroad – by 1977, almost 250,000 foreign workers had to leave the country (Degen (2012), p. 910).

3.3. THE MARGINAL PRINCIPLE – MARGINAL UTILITY AND MARGINAL COSTS 19

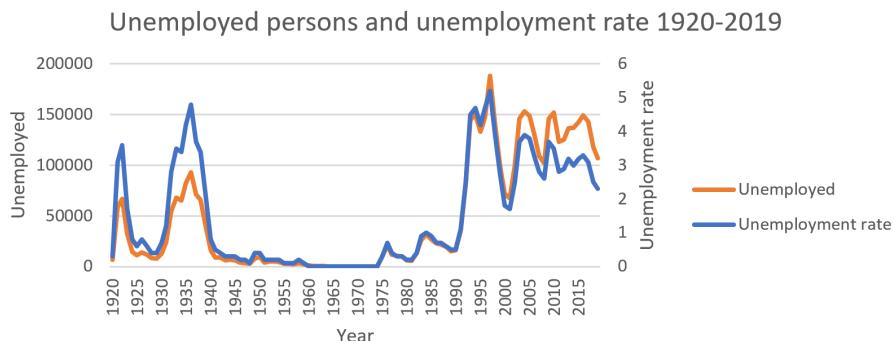


Figure 3.1: 1920-1996 Statistical Yearbook of Switzerland; 1997-2019 Seco

Since 1997, the FSO (Federal Statistical Office) has been recording the monetary value and **quantity of unpaid work in Switzerland** every four years using the satellite account for household production (**SHHP**). In Switzerland, 9.8 billion hours of unpaid work were performed in 2020 (mostly by women), more than was spent on paid work (7.6 billion hours). The total value of unpaid work in 2020 is estimated at CHF 434 billion. If GDP is expanded to include total household production, this corresponds to 41.4% of the value added of the expanded total economy.

Questions for reflection (.unnumbered)

- Collect two examples for each of the three factors of production.
- Collect examples of (re)production factors that are insufficiently represented in the three classic production factors.
- Using examples, consider how the following constellations affect production:
 - if there is more labor than capital.
 - if there is more capital than labor.
 - if the factor land is not available.
 - When all production factors are in balance.

3.3 The marginal principle – marginal utility and marginal costs

Before we look at the form of provisioning of market exchange, we will focus on the marginal principle. This is central to the conception of the market, as it provides an explanation for the formation of value and utility and thus demand. The marginal principle has its origins in the emergence of neoclassical economics around 1870 and still forms the **basis of neoclassical economics** today. It deals with the question of the value of goods, thereby also influencing the allocation of goods, services, and factors of production. In contrast to classical economics, the neoclassical marginal principle departs from the objective theory of value and formulates the **subjective theory of value**.

The **objective theory of value** in classical economics postulates that all goods have an objective value. The labor invested in the production of goods was commonly used as the basis for determining this value, which gave rise to the labor theory of value. In **subjective theory of value**, on the other hand, no absolute values are considered, but rather the subjective values that people ascribe to goods and their marginal changes in relation to the initial situation. This focus on marginal changes forms the basis of the marginal principle. The marginal principle enabled differential calculus to be applied to cost/benefit and revenue functions, which led to the sustained rise of mathematical models in economics.

3.3.1 Revenue function of land and marginal revenue

The marginal principle was originally observed in the revenue function of land. Studies of agriculture in the 18th century revealed the relationship between factor input and revenue (originally yield in agricultural production). **Marginal revenue** is the increase in yield resulting from an additional unit of a production factor.

“It is in the nature of agriculture – and this is a very noteworthy circumstance – that the increase in production does not rise in direct proportion to the number of workers employed, but that each worker employed later produces less than the previous one.” - Johann Heinrich von Thünen, *Der isolirte Staat*, 1850. Quoted in Winfried Reiss, *Mikroökonomische Theorie: Historisch fundierte Einführung*, 2007,p.90, own translation

What von Thünen observed with the factor of labor was also noted by A.R.J. Turgot with the use of the factor of capital in the form of fertilizer. The principle of marginal productivity can also be applied to industrial production and, for example, to the number of workers in a factory.

3.3.2 Gossen's laws

In 1854, Hermann Heinrich Gossen developed his **laws of human interactions** and the rules for human behavior that follow from them. In them, he formulated the regularity of individual preferences and their satisfaction, which is based on the respective utility.

3.3.2.1 Gossen's first law: the Law of Diminishing Marginal Utility

The law of diminishing marginal utility, also known as **the law of diminishing marginal utility**, states:

“The magnitude of one and the same pleasure diminishes continuously as we continue to enjoy it, until finally saturation is reached.”

Hermann Heinrich Gossen, *Entwickelung der Gesetze des menschlichen Verkehrs, und der daraus fliessenden Regeln für menschliches Handeln*, Braunschweig 1854,p.4, own translation.

3.3. THE MARGINAL PRINCIPLE – MARGINAL UTILITY AND MARGINAL COSTS 21

Thus, the utility of the first cup of coffee in the morning is greater than that of the third or fourth. The same applies to living space, where, for example, the first bathroom in an apartment is of greater utility to the residents than the second. According to the theory, this law can be applied to all goods.

3.3.2.2 Gossen's second law: the Law of Equi-marginal Utility

The law of equal marginal utility, also known as the law of equi-marginal utility, states:

"A person who is free to choose between several pleasures but does not have enough time to enjoy them all to the fullest, must, however different the absolute magnitude of the individual pleasures may be, in order to maximize the sum of his pleasure, before he fully prepares even the greatest of them, prepare them all partially, and in such a proportion that the magnitude of each pleasure remains the same for all at the moment when its preparation is interrupted."

Hermann Heinrich Gossen in Entwicklung der Gesetze des menschlichen Verkehrs, und der daraus fliessenden Regeln für menschliches Handeln
1854, p.12, own translation

This law aims at the optimal use of limited resources for various goods. The optimal utility for an individual is achieved when the marginal utility (i.e., the utility of the next additional unit) is the same for all goods. Mathematically, this means that the marginal utility functions of the various goods are equated. The marginal utility corresponds to the maximum price that the person in question is willing to pay. The aggregate demand (function) can be determined by aggregating the marginal utility (functions) of all individuals. The marginal principle thus forms the core of neoclassical consumption theory. For interested students (who are familiar with the basics of neoclassical economics), we recommend a critical discussion of neoclassical consumption theory by Ben Fine.

Marginal costs and marginal revenue in companies As derived above, marginal revenue describes the revenue from an additional unit. Similarly, the term marginal cost describes the cost of an additional unit. Marginal costs can be determined by deriving the mathematical cost function. The costs [C] of a company are the sum of the fixed costs [C_f] (e.g., rent, machinery) and the variable costs [C_v] (labor, raw materials, intermediate products).

$$C = C_f + C_v$$

According to neoclassical theory, companies are guided not only by the cost function but also by the revenue function. This describes how much revenue [R] is generated from the sale of a good depending on quantity [Q] and price [P]. Deriving the revenue function yields the marginal revenue, which is the revenue from an additional unit sold.

$$R = Q * P$$

A company produces until the marginal costs exceed the marginal revenues. This can be calculated by equating the derivatives of the cost and revenue functions. In market equilibrium (under perfect competition), theoretically the price corresponds to the marginal costs. Although neoclassical theory focuses heavily on the price, it has paid little attention to how companies set prices. In his dissertation, Nubbemeyer (2010) shows that until the middle of the 20th century, there was a controversial debate about whether companies actually base their pricing on the marginal principle or on alternative concepts (e.g., mark-up pricing as in some post-Keynesian models). Although the debate was not conclusively resolved, the marginal principle prevailed with the advent of neoclassical economics.

Questions for reflection (.unnumbered)

- How many employees does a company hire according to the marginal principle?
- According to theory, what determines the level of employees' wages?
- What does this mean for involuntary unemployment? When does it occur?
- Could Gossen's first law be used to argue for income redistribution?

3.4 How the market works

As described above, in neoclassical economics, i.e., mainstream economics, the **market** is regarded as **the central institution** for the provision of goods and services. We will therefore take a closer look at how the market is conceptualized in neoclassical economics.

3.4.1 The market as a central coordinating authority

In markets, supply and demand meet and serve as **the basis for the price mechanism**. Supply is the willingness of an actor to offer goods, services, or factors, and demand is the willingness to purchase them. The utility functions of the actors, which can be calculated on the basis of the marginal principle, form the basis for demand. Aggregate demand is the sum of the individual utility functions.

In economics, markets are usually represented by price-quantity diagrams. The axes represent quantity and price (or wages in labor markets and interest rates in capital markets), while supply and demand are represented by curves. The slope of the curves changes with the elasticity of supply and demand and shows how strongly they change when quantity or price changes.

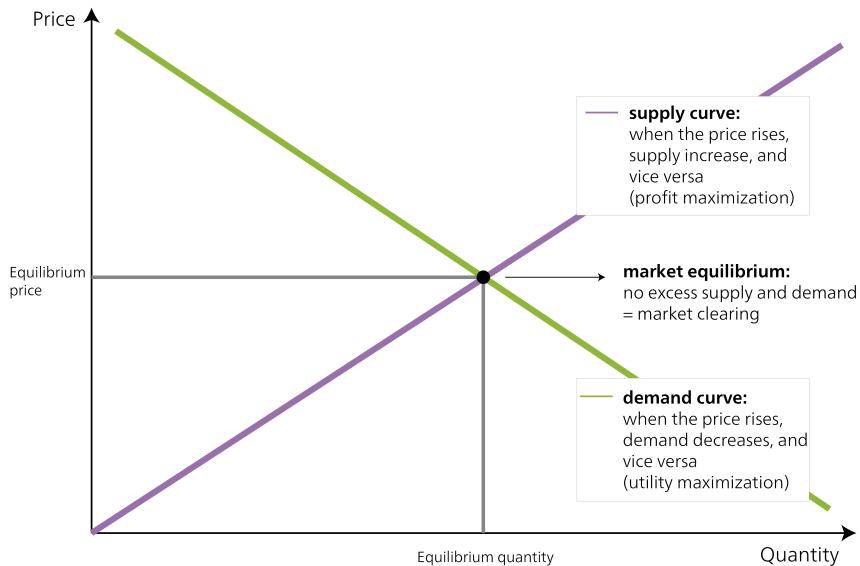


Figure 3.2: Graphical representation and determination of a market equilibrium

If the supply of a good is too high, the price falls; if demand is too high, the price rises. In market equilibrium, demand equals supply and the price stabilizes. The price mechanism thus determines who produces what, how much is produced, and for whom. The price is therefore regarded as the central allocation instrument in markets. For example, a factory that produces with outdated machinery cannot produce at the same price as another factory with more modern equipment. Due to the high production costs, it is forced out of the market and must produce other goods or file for bankruptcy. A central assumption for the supply curve to have an upward slope is that above a certain size the marginal costs of companies rise again (even in the long term), for example due to increased coordination costs, meaning that there is a limit to growth for companies. However, this assumption is controversial (see, for example, Keen (2010), Pirlmaier (2017)). If this assumption is not fulfilled, the supply curve could also have a different slope and there would be no guaranteed market equilibrium with many competitive companies, but rather a tendency toward monopoly. Even Alfred Marshall, the founder of this price-quantity diagram, repeatedly struggled with the question of whether there could also be a tendency toward monopoly (Marshall (1919), p. 316; Marshall (1919), p. 324).

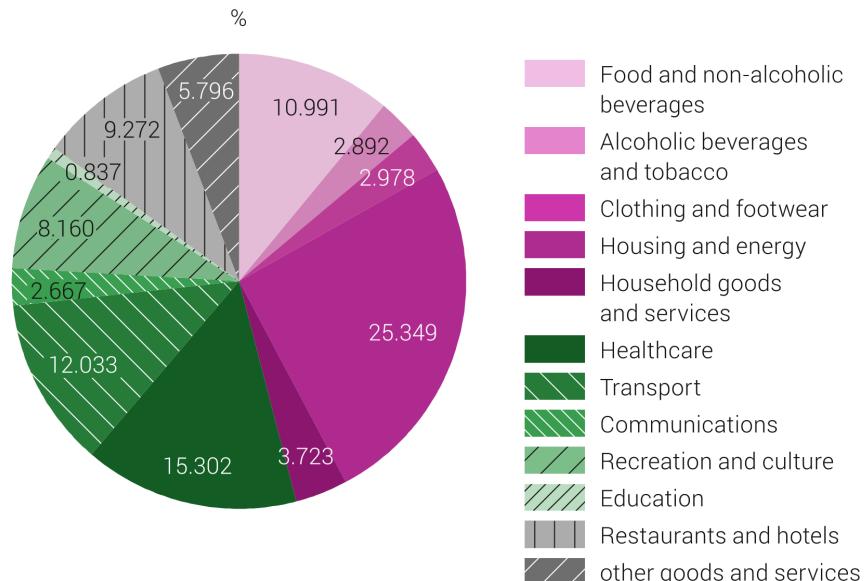
Brief digression: Price level)

Given the importance of the price mechanism for the functioning of markets, the price level in an economy is one of the most important variables to be observed and analyzed. Price stability is measured by the inflation rate (rate of price increases) of goods and services. Low inflation of up to 2% is considered a stable price level. Statistical offices use a standardized “basket of goods” to record how

the price index of the cost of living changes over time. If the price level falls, this is referred to as deflation. The composition of the basket of goods varies from country to country and usually covers only markets for goods, but not capital markets.

In Switzerland, the Federal Statistical Office (FSO) compiles the National Consumer Price Index (CPI). The figure below shows the consumer goods that make up this index and their respective shares. The basket of goods contains “the most important goods and services consumed by private households.” The weighting is based on annual household surveys and is intended to reflect actual consumption patterns as accurately as possible.

CPI basket and weights, 2023



Source: FSO – Consumer price index (CPI)

© FSO 2023

Figure 3.3: Composition of the basket of goods for the national consumer price index 2023 (Federal Statistical Office, 2023)

3.4.1.1 The invisible hand of the market

The term “invisible hand” is often used to describe the **self-regulation of markets**. The term was coined by Adam Smith. Adam Smith used the term twice in his earlier work “The Theory of Moral Sentiments” (1759) and once in his work “The Wealth of Nations” (1776). In “The Wealth of Nations,” Smith uses the term in the chapter on “Of Restraints upon the Importation from Foreign Countries of such Goods as can be Produced at Home”. In this context, Smith writes that if someone prefers to support the national economy instead of the foreign economy, that person is guided by an invisible hand. Noam Chomsky therefore interprets Smith as describing a “home bias” in this

passage. However, various economists have interpreted the passage differently. The most popular interpretation sees this passage as establishing the self-regulating forces of the market. Market forces are a regulating force that leads individuals to satisfy their individual needs in the best possible way, which at the same time serves society by distributing goods in the best possible way. Such an interpretation is controversial in view of the surrounding context and is repeatedly criticized by experts in the history of economic thought.

“As every individual, therefore, endeavours as much as he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good.”

Smith, Adam. *An Inquiry into the Nature and Causes of the Wealth of Nations*. Edited by Edwin Cannan. Chicago: University of Chicago Press, 1976.

3.4.1.2 Perfect competition

A basic prerequisite for the functioning of markets is that of perfect competition. In **perfect competition**, individual suppliers have no influence on the price, because if the price increases, consumers will buy from other suppliers. Companies must accept the market price as a given and can only decide on the quantity they offer. They are therefore in the role of price takers and quantity adjusters.

For a market to be considered perfectly competitive, several conditions must be met:

- **Large number of Market participants:** There must be many **suppliers** and **consumers**. This structure is referred to as a **polyopoly** (*in German “Polypol”, however, in English usually just referred to as perfect competition*). In contrast, a market with only a few suppliers or consumers is called an **oligopoly** (few suppliers) or **oligopsony** (few consumers). If there is only one supplier or consumer, the market is a **monopoly** or **monopsony**, respectively (see diagram below for an overview).
- **Perfect information:** All participants must have full and equal access to relevant information. There should be no hidden agreements between market actors or undisclosed quality deficiencies in the goods offered.
- **No consumer preferences for specific suppliers:** Consumers must be indifferent to which supplier they buy from. A perfectly competitive market requires

that buyers can switch freely between suppliers. If consumers favor a specific supplier, that supplier could charge a price above the market rate without losing demand, which violates the condition of perfect competition.

If the above conditions are not met, there is a **distortion of competition**. In a neoclassical market economy, the state should intervene with regulations in such a situation.

Table 3.1: Overview of the different market forms. Polypoly is a condition for the assumption of perfect competition

	one buyer	few buyers	many buyers
One seller/supplier	Bilateral Monopoly	Limited Supply Monopoly	Monopoly
Few sellers/suppliers	Restricted Monopsony	Bilateral Oligopoly	Oligopoly
Many sellers/suppliers	Monopsony	Oligopsony	Polypoly

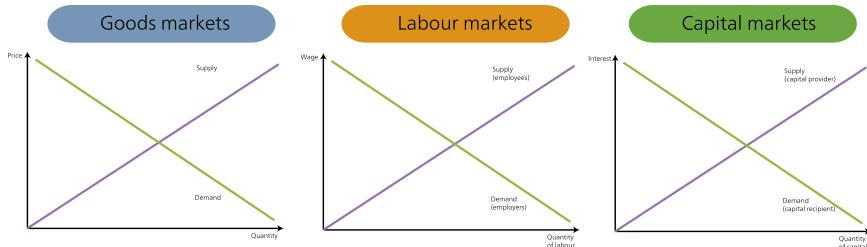


Figure 3.4: Different types of markets

This market mechanism for coordinating supply and demand is applied to various markets. A fundamental distinction is made between goods markets and factor markets. Goods and services are traded on **goods markets**. On **factor markets**, the factors of production (land, capital, labor) are supplied and demanded. For example, households offer their labor on the labor market, and instead of a price, the demand from companies determines the level of wages paid through the price mechanism. Karl Polanyi describes how the introduction of factor markets led to the development of today's "market society" and how social processes are increasingly aligning themselves with market logic (Polanyi (2017)).

Questions for reflection (.unnumbered)

- For all three conditions of perfect competition, think of examples from today's economy where these conditions are met and where they are not.
- Are there differences in the demand for different goods? How does this affect markets for food, cars, and leisure activities?
- Look up the inflation rate on the website of the Swiss Federal Statistical

Office (bfs.admin.ch) and describe its development in Switzerland since 2000.

3.5 Economic actors

Economic activity is shaped by various actors. They all have different roles, interests, and possibilities for action. Such actors include companies, households, the state, civil society, financial institutions, etc. Different degrees of complexity or perspectives mean that more or fewer of these actors are included in the analysis. And depending on how the economy is conceptualized, the roles of the actors and how they interact with each other also change. The circular flow analysis is the most common concept of economic activity, but there are many different variants.

3.5.1 Circular flow analysis

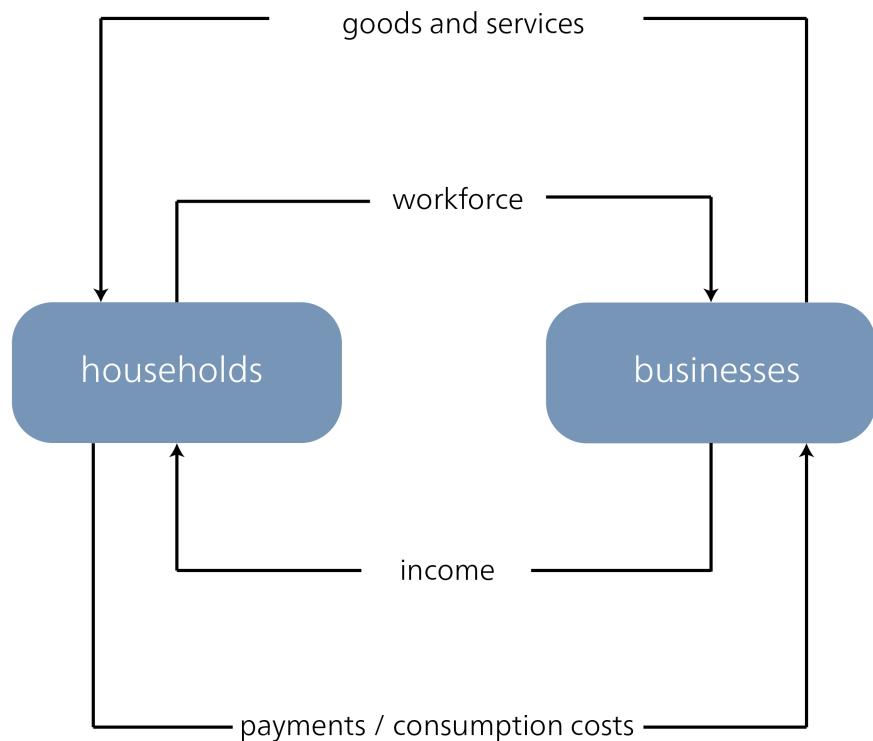
In the circular flow analysis, which dates back to François Quesnay (1694-1774), economic activities are recorded as flows of goods and money between different actors and represented graphically. The main actors are households and companies, and in more complex representations, the state, banks, and foreign countries are also included. The graphical representation of economic processes serves to simplify the modeling of theoretical assumptions.

In a simple circular flow of the economy, households and companies are linked. The former provide the latter with their labor in exchange for wages. Using labor and other factors of production, companies produce goods and services that households consume.

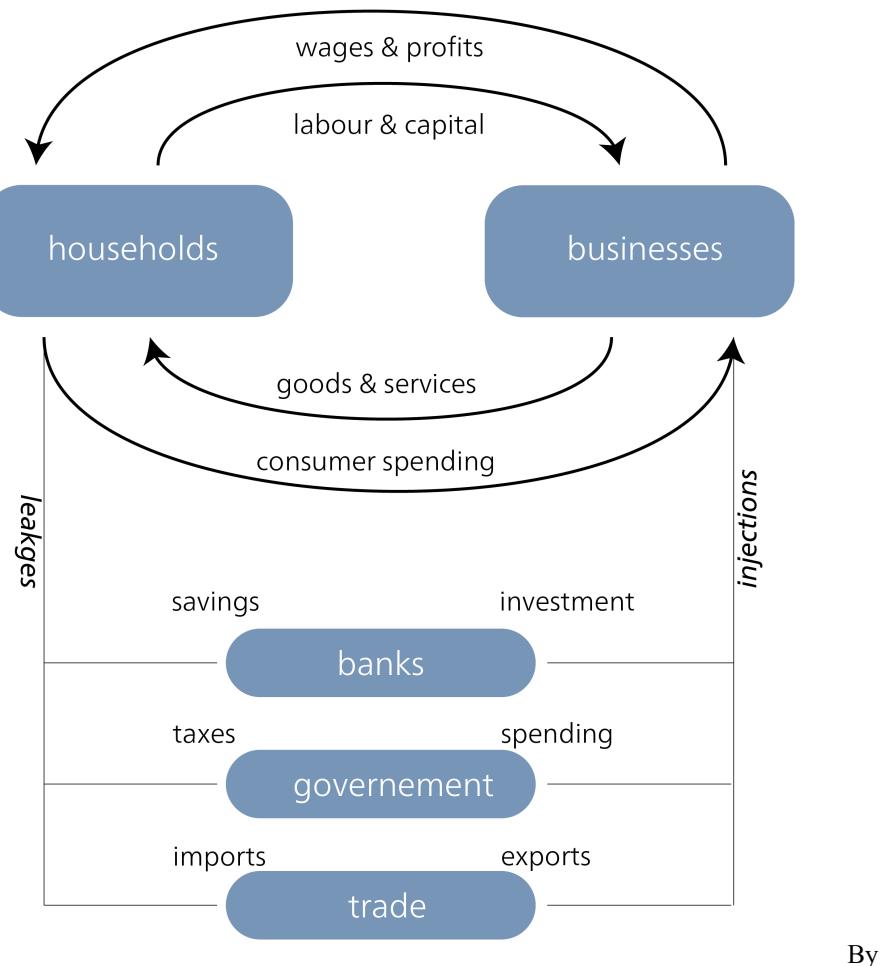
In a circular flow of the economy, expenditure always equals income at an aggregate level. Households receive wages (W) and can consume these again as expenditure (C). Companies receive profits (P) and spend these again in the form of investment (I).

$$\text{Revenue} = \text{Expenditure}$$

$$W + P = C + I$$



This simple circular flow can be extended to illustrate more complex relationships by adding other actors.



By

describing economic relationships, circular flow analysis makes it possible to explain and predict phenomena. It also provides a basis for economic policy measures based on systematic investigations of economic relationships, connections, and regularities.

In most conventional circular flow analyses, only the market economy is represented as a producing and value-creating entity. Households are merely portrayed as consumers. Unpaid work and (re)production that take place outside the sphere of the market economy are thus systematically neglected and devalued. Feminist economics has formulated this criticism and has dealt extensively with alternative concepts. Diane Elson's circular flow model serves as an illustration here. If you are interested, you can explore the perspective of feminist economics in more depth in section 4 on pluralist economics.

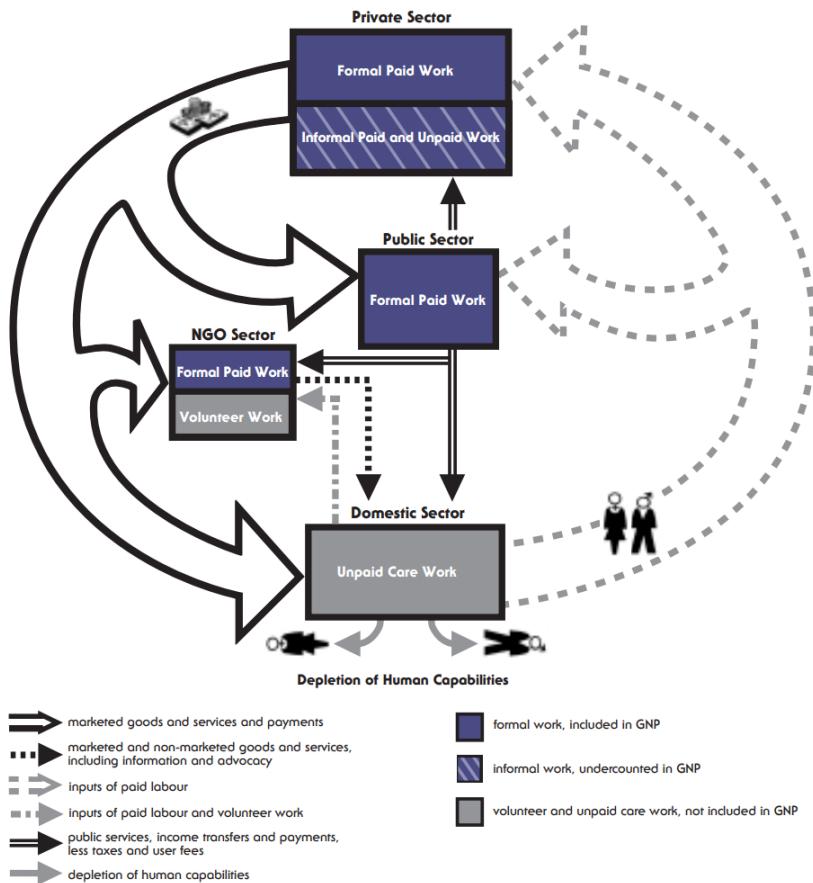


Figure 3.5: Circular flow model according to Diane Elson 2000

Questions for reflection (.unnumbered)

- What happens in the simple circular flow model when total economic expenditure remains the same and corporate profits rise at the same time?
- How does falling consumer spending affect the economy in this model?
- How does Elson's circular model differ from the two models shown above? What does this mean for the respective understanding of the economy?

3.6 Division of labor

Alongside the invisible hand, Adam Smith's **needle factory** is probably the best-known excerpt from his work. The first chapter deals with the division of labor in a needle factory and how this greatly increases productivity. Based on this, Adam Smith makes a more general observation **about how the division of labor increases productivity**. Individuals, companies, or countries that specialize in a particular activity can perform it increasingly better. This gives them an absolute advantage in production over others.

Economic entities increasingly specialize in those areas in which they are better than others. If an entity is not superior to another in any area, it cannot participate in activities around market exchange.

David Ricardo later criticizes Smith's theory of absolute advantages. According to Smith, if one economic entity were superior to another in all respects, it would produce everything itself. Ricardo, on the other hand, established the **theory of comparative advantage**. This states that entities produce those goods in which they have the greatest relative advantage or the least relative disadvantage compared to others. In this case, it still makes sense for entities that are not superior to others in any activity to participate in a common economy. In doing so, they take on tasks for which others are better qualified but do not prioritize due to a lack of resources.

Example: Ricardo illustrated his theory using the example of trade (cloth and wine) between England and Portugal, aiming to show that free trade would be beneficial for both sides. It was a plea against the import restrictions and tariffs between countries that were prevalent at the time and based on mercantilist logic. This short video illustrates the basic idea behind Ricardo's theory of comparative cost advantages:

<https://www.youtube.com/watch?v=0hK9p8BSDMM>

Ricardo is often cited to illustrate that free trade is beneficial for all countries involved. Although widespread, this perspective should be viewed critically. For one thing, the term "free trade" quickly loses its meaning in the context of European imperialism, which was emerging at the time Ricardo developed his theory. During this period, the global market was shaped by the prevailing power relations, primarily to the advantage of the Global North. It was based on the exploitation of the Global South and created unequal structures, some of which persist to this day (see, for example, Anievskaya and Nişancioğlu (2015), M. Davis (2017), Ghosh (2021), Hickel (2017)). In addition, advantageous participation in global trade requires a country to have competitive industries. Western Europe and the US also built up their industries under the protection from the global market and with industrial policies (Chang (2002)). The forced economic opening of many countries in the Global South from the end of the 1970s onwards by institutions such as the International Monetary Fund made it difficult for them to develop their own competitive manufacturing industries and pushed them back into the production or extraction of raw materials (see, for example, Palma (2003)). Dorninger et al. (2021) show how strongly this unequal exchange manifests and materializes in various aspects (e.g., land use, resource consumption, etc.).

3.6.1 Types of division of labor

From an economic perspective, division of labor can be divided into three main types: intra-company division of labor, inter-company division of labor, and international division of labor.

Intra-company division of labor describes the division of tasks within a company that was prevalent in the course of industrialization. Mass production in factories replaced serial production in manufactories. According to Taylorist (after Frederick W. Taylor, 1856-1915) and Fordist (after Henry Ford) principles, work was divided into small, repetitive steps. Workers were no longer responsible for manufacturing an entire product, but only for a small step along the assembly line.

In the **inter-company division of labor**, production processes are distributed across economic actors. An example of this is the spread of supplier companies, which can produce intermediate products (e.g., semiconductors) more cheaply for other companies due to their specialization.

Finally, the **international division of labor** describes the division of labor at the global level. With the increase in globalization since the 1980s, the interdependence of the global economy has steadily grown. In addition, the division of labor is increasingly taking place along the value chains of individual goods and not just between goods. A separate field of research has developed on such global value chains.

Questions for reflection (.unnumbered)

- Consider two advantages and two disadvantages of the division of labor at the company, inter-company, and international levels.
- Do you know of any specific examples of national specialization? Research how this specialization was implemented.
- What could be the disadvantages or risks of international division of labor?

3.7 Categories of goods

Goods are all things and services that have been made usable from nature or produced by humans to satisfy needs. Their various characteristics and the social structures surrounding them significantly influence how different actors interact with them and how their use is regulated.

3.7.1 Good characteristics

We categorize goods depending on whether or not people can be prevented from consuming them (**excludability**) and whether or not they can consume them without affecting their availability to other individuals (**rivalry**).

All goods can be divided into one of **four types** based on these two characteristics of rivalry and exclusivity.

Table 3.2: Overview of types of goods based on the characteristics of rivalry and exclusivity.

Characteristics	rival in use	non-rival in use
excludable use	Private goods bread apartment clothing	Club goods cable television streaming services national park
non- excludable use	Common goods high seas fishing grounds Gotthard road tunnel on the Easter weekend	Public goods legal system waterway corrections fireworks

Private goods are both excludable and rival in consumption. This means that it is possible to prevent people from consuming them through measures and that the consumption of a good cannot be repeated by any number of people. Because of these characteristics, private goods are characterized as good for market exchanges.

Club goods are excludable but non-rival in consumption. For example, cable television or streaming platforms can exclude people from consumption in the form of a subscription fee, but do not suffer if the number of users increases. Outside the realm of digital goods, the distinction between private and club goods is more difficult to make. For example, membership in a fitness club and use of the associated facilities is only non-rival until January, when all users want to pursue their New Year's resolutions and all equipment is fully utilized.

Common goods are non-excludable but rival in consumption. These often include natural resources such as fish stocks or the availability of water for irrigating fields. Coordination between the various users is essential to prevent overuse of these goods.

Public goods are neither excludable nor rival in consumption. Such goods are hardly tradable on markets due to their non-excludability. The use of public goods without paying for them is described as the free rider problem. However, such necessary goods can still be provided through government funding.

However, the classification of these goods is not a natural one. Excludability in particular is not an inherent characteristic of a good, but depends primarily on technical possibilities, social negotiation, and social power relations. When dealing with natural resources in particular, the question of exclusivity is primarily a social and/or technical one. Water resources, for example, can be made technically accessible without any problems, but they can also be made exclusive. Even sunlight could theoretically be made exclusive, as Mr. Burns plans to do in the TV series "The Simpsons." [From his point of view, the sun is the enemy.](#)

When categorizing goods, it is also important to note that this involves a process of reification. Goods are reduced to their purely economic value. This can be very problematic, especially for resources that are managed as common goods (also known as commons). It often obscures how commons structure social relationships and communities, enable participation, and maintain a relationship with nature and the environment. Ugo Mattei therefore argues that it is simplistic to say that we "have" a common good. Rather, it is a question of exploring the extent to which we "are" commons, insofar as we are also part of the environment (Mattei 2014, p. 76). For this reason, social anthropology, for example, often uses the verb "commoning" instead of the noun "commons."

The tragedy of the commons

Actors cannot be excluded from consuming public and common goods. This can result in overuse of these goods, which was described by Garret Hardin in 1968 as the tragedy of the commons. Privatization of these goods (known as enclosure) is often proposed as a solution; whereby clear property rights can be assigned to exclude actors from use.

Elinor Ostrom researched the same topic and observed how self-organized cooperation within clear boundaries can counteract overuse even without the allocation of property rights. However, effective solutions to the overuse of non-excludable goods are highly context-dependent and therefore difficult to generalize. Ostrom was awarded the Alfred

Nobel Memorial Prize in Economic Sciences in 2009 for her research on the commons. The now extensive research on the commons includes many examples of commons that have not been overused and have not succumbed to tragedy. There are examples of commons that have been managed collectively and sustainably for centuries (see, for example, De Moor (2015); De Keyzer (2018)).

The commons research conducted by Ostrom and others shows that there are solutions beyond privatization and nationalization to prevent the tragedy of the commons. This also fundamentally breaks down the dichotomy between the market and the state and enables points of contact beyond these two spheres.

3.7.2 External effects

The price paid for the use of goods does not always correspond to their true social cost. If the good is used at such a price anyway, the costs are passed on to third parties, i.e., neither to producers nor consumers, but to taxpayers, future generations, or nature, for example. When this happens, we speak of **external effects**. External effects can have a positive or negative impact on the production or consumption possibilities of third parties. In neoclassical economics, external costs are generally understood as an exception to an otherwise well-functioning market. In contrast, William Kapp pointed out as early as 1950 that the more a system is based on maximizing private profit, the greater the incentives to pass on costs to people, society, and nature (W. Kapp (1950)). Accordingly, the current capitalist system has inherent tendencies toward the externalization of costs. Anna Saave recently theorized this further (Saave (2022)). Stephan Lessenich describes affluent societies in the Global North as externalization societies that shift costs to the Global South (Lessenich (2020)).

Table 3.3: Overview of types of external effects.

	Effect on... ...production possibilities of third parties	Effect on... ...consumption possibilities of third parties
positive effect	Apple growers and beekeepers benefit mutually from pollination and apple blossoms.	Parents have their children vaccinated -> society benefits from lower infection rates and healthcare costs
negative effect	Industry emits pollutants into waterways -> third parties can no longer fish	Industry emits pollutants into water -> third parties can no longer swim in the river

Questions for reflection (.unnumbered)

- Collect two examples of each of the four categories of goods that you encounter in everyday life.
- What are the advantages and disadvantages of privatizing common goods? Consider this using a specific example.
- Research two examples of external effects and how they have been/are

being addressed politically.

3.8 Costs

3.8.1 Cost types

If a company wants to provide a service, it has to pay its employees a wage. If a student goes out for a beer with friends after class, she cannot review the material she learned instead. And if farmers use too much fertilizer on their fields, the quality of the surrounding water will decline. Although different in different ways, in all of these scenarios costs occur. Costs are negative consequences that arise when creating value.

Production costs arise in the production of goods and services in companies when production factors are consumed for their creation. A distinction is often made between constant capital (machinery, tools) and variable capital (labor).

Marginal costs describe the increase in costs caused by an additional unit produced. As described above, this parameter is used in combination with marginal revenue to assess the quantity to be produced.

Opportunity costs are the costs of a lost utility that could have been obtained instead of the chosen use of the production factor or good. In the example above, the student decided to invest her time in social contacts instead of repeating the material. In this case, the opportunity costs is the utility that was not gained by repeating the material during this time. Since people always have different options for using their time, costs always arise according to the concept of opportunity costs. The famous saying "*there is no such thing as a free lunch*" means exactly that.

Transaction costs are the costs incurred in the process of transactions. For example, when purchasing a piece of land, a buyer pays a notary for certification and other costs, such as a land registry entry, in addition to the price of the land.

External costs arise when costs are not passed on to those who cause them (producers/consumers) but to third parties (society). Because these costs are not included in the true price of goods, they create incentives to consume the goods concerned in excessive quantities. External costs often take the form of environmental damage, as the value of nature is difficult to quantify.

3.8.2 Cost-benefit analysis

Cost-benefit analysis makes it possible to weigh up the costs and benefits. This tool allows the expected consequences of decisions to be assessed by weighing up the associated costs and benefits. The important prerequisite for this analysis is the monetary valuation of all consequences. Only in this way can an assessment be made using comparable variables. The establishment of cost-benefit analysis dates back to the discussion of social costs (external costs) in the 1950s and 1960s. Based on the work of economists such as William W. Kapp (1950), it was argued that the resulting social costs should be prevented through regulation. Ronald Coase (1960), on the other hand,

argued that regulations also represent costs for companies – opportunity costs due to lost profits. For example, the profit of a chemical company that pollutes a river through its activities. This profit must be offset against the social costs. According to Coase, such a total calculation provides a basis for arguing against regulation and for the expansion of property rights (i.e., the market).

The cost-benefit analysis has several problems. One difficulty is that the value of many areas of social and natural life cannot be clearly quantified with a price. For example, it is not possible to put a clear and objective price on an endangered animal or plant species, the existence of a forest, clean air, or a human life.

To meet this challenge, researchers have developed various methods to enable the quantification of monetary values. Two essential methods are important here:

Using **stated preference methods**, actors can be asked about various future scenarios. Previously unknown circumstances can thus be weighed against each other.

In **revealed preference methods**, a utility assessment for the future is derived from decisions that have already been made. This prevents actors from giving strategic answers when assessing expected future scenarios. However, conditions that have not previously occurred cannot be assessed.

Although there are established methods for assessing preferences, these are limited in their ability to weigh up costs and benefits. As the term “preference” already suggests that these are always subjective views. The monetary assessment derived from them will therefore always be subjective, i.e., not an objective figure.

Example: At the beginning of this millennium, it emerged that the tobacco company Philip Morris had commissioned a cost-benefit analysis of the effects of smoking on the Czech Republic. The authors concluded that smoking generated an annual profit of around 5.8 billion koruna (approx. USD 150 million) for the Czech state budget. Due to the lower life expectancy of smokers, the state had to provide for them for a shorter period of time and therefore saved money.

This report sparked a public outcry, prompting the tobacco company to apologize. But this example also highlights the subjective nature of cost-benefit analysis. By reducing the value of human life to a number, the company had not only crossed a moral line. As a scientist later showed, the company had also made false assumptions and omitted far-reaching costs in the report. Her cost-benefit analysis of the same scenario concluded that smoking in the Czech Republic contributed to an annual deficit of around 14 billion koruna.

Another problem is that a cost-benefit analysis implies that different types of capital are substitutable, i.e., that the loss of biodiversity can be replaced by technology. This assumption is controversial and is one of the central points of contention between different understandings of sustainability. We will return to this in section 6 in the discussion of strong and weak sustainability.

3.8.3 Discounting – the factor of time

The factor of time is included in the cost-benefit analysis by means of discounting. Costs incurred in the future are valued at a lower level. The discount rate influences how much perceived costs decrease over time. Various decision-making criteria can be

used to determine the discount rate. Intergenerational justice, the choice between strong and weak sustainability (introduced in section 6), uncertainty about future events, and the time preference of decision-makers influence how much future costs are discounted.

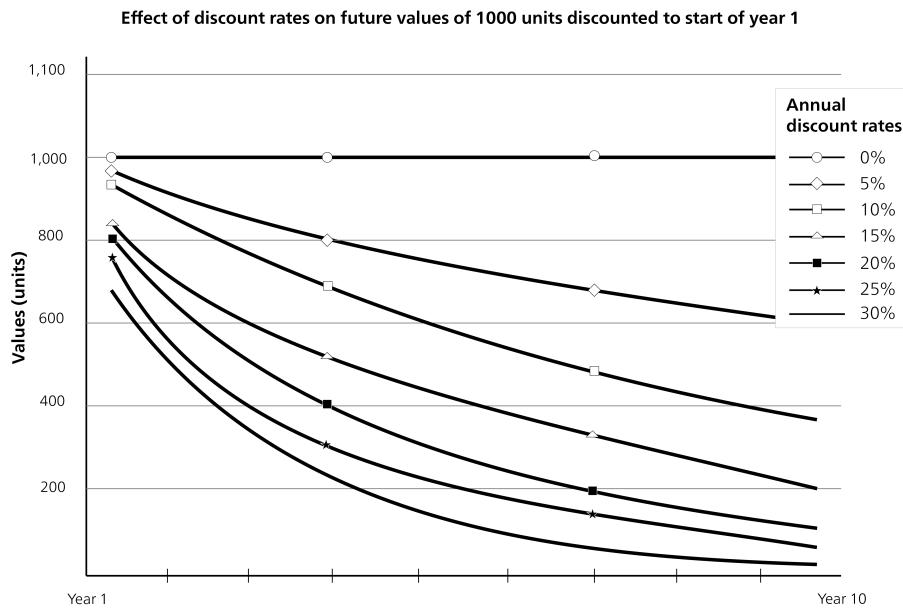


Figure 3.6: Illustration of different discount rates over time

The figure above shows different discount rates over the same period. For example, the cost of climate damage of \$1,000 occurring in 10 years is valued at approximately \$860 at a discount rate of 1.5%. At a discount rate of 5%, only around \$600 is included in the cost-benefit analysis as perceived costs. 10% discount rate value the \$1,000 in 10 years at around \$350 in the present.

Example: In 2006, British economist Nicholas Stern published the [Stern Report](#) for the British government. In this comprehensive document, he describes climate change as the greatest market failure in history and uses cost-benefit analysis to argue that one percent (he later argued for two percent) of global GDP must be invested in reducing emissions.

Economists had mixed reactions to Stern's report. While some supported him, others argued that he had miscalculated the costs of global warming. The main argument was his low discount rate of 0.1 percent, which he used to assess future costs. Economist William Nordhaus took Stern's calculations and changed only the discount rate from 0.1% to 3%. According to this, investments to combat global warming are still necessary, but much lower than Stern demanded. In the logic of the cost/benefit analysis, Nordhaus concludes that, in the best-case scenario, global warming will rise to over 3 degrees by 2100 (Nordhaus (2019)).

The question of the discount rate represents a clear ethical position in this example. Stern chose a discount rate of 0.1%, assuming that the annual risk of human extinction is

0.1%. Otherwise, the welfare of future generations should be weighted exactly the same as today's. Nordhaus' discount rate, on the other hand, weights the welfare of future generations by 3% less each year. This is based on the assumption that the economy will continue to grow at this rate and that the costs will therefore be perceived as lower.

The calculation of future costs and benefits therefore depends on many assumptions and ethical questions. These are supposed to be reflected numerically in the discount rate.

Questions for reflection (.unnumbered)

- Consider how the following decision-making principles affect the discount rate:
 - Intergenerational justice
 - High time preference (preference to consume goods in the present)

3.9 Prosperity in a Changing World

In our modern world, characterized by rapid change and a constantly growing population, the term “prosperity” is often associated with economic and monetary wealth. However, in times when environmental change, social inequality, and resource scarcity are becoming pressing challenges, this conventional view of prosperity is no longer sufficient. The complexity and multifaceted nature of the concept make it controversial. In addition, measuring prosperity is extremely difficult and therefore leads to controversial discussions. There are many different indices that attempt to measure a country’s prosperity. The most widely used is gross domestic product (GDP). It is omnipresent in everyday life, politics, and the media and appears to be the most important economic indicator. GDP is criticized primarily for its narrow focus on wealth in terms of goods and services sold on the market, and also because the indicator does not provide a comprehensive picture.

3.9.1 Gross domestic product (GDP) as an indicator of prosperity

GDP is considered the main indicator of a nation’s prosperity. It measures the total value of all goods and services produced in a country in a year after deducting all intermediate inputs. The concept of GDP in its current form was first developed in the 1930s – the first attempts to measure a country’s prosperity date back to the work of William Petty in the 17th century – to combat the Great Depression and plan the war economy during World War II in the US and England (Schmelzer and Vetter (2023), pp. 57-59). A prerequisite for this was the invention of the “economy” as an independent sphere of social life that can be statistically recorded and measured (Schmelzer and Vetter (2023), p. 57). Despite its widespread use today, GDP is still subject to criticism. Even economists who promoted the development of GDP warned against using it as a general measure of prosperity. Simon Kuznets, one of the most prominent economists in this field, said:

“Whatever one may do with them, such numbers [...] appear to be highly useful; they appear to measure something clearly defined and significant, making it comparable. But upon closer inspection, the impression that such estimates are clear and unambiguous proves misleading.”

(nach Lepenies 2013: S. 90), own translation)

The main criticism is that GDP only measures the monetary value of goods and services that have been purchased with money. The entire unpaid sector of the economy, such as unpaid care work or undeclared work, is not taken into account. GDP also says little about the actual well-being of a population, as it is reduced to purely material possessions. Furthermore, GDP neglects the social and environmental impacts of economic activities, such as social inequality and environmental pollution. Damage to the environment can even have a positive effect on GDP if, for example, after a natural disaster reconstruction has to be financed, leading to an increase in GDP. Personal accidents also increase GDP due to medical treatment, even though they represent a significant deterioration in the well-being of the person concerned. Furthermore, income distribution is not taken into account, which means that a high GDP does not necessarily reflect a fair distribution of income. In addition to these major well-known criticisms, there are several others that we will not go into further here. Finally, GDP is based on annual growth rates, which can lead to short-term thinking, with policymakers and companies pursuing short-term goals to increase GDP rather than striving for long-term sustainability goals.

The following chart shows the development of Switzerland's GDP compared with selected other countries over the last 70 years.

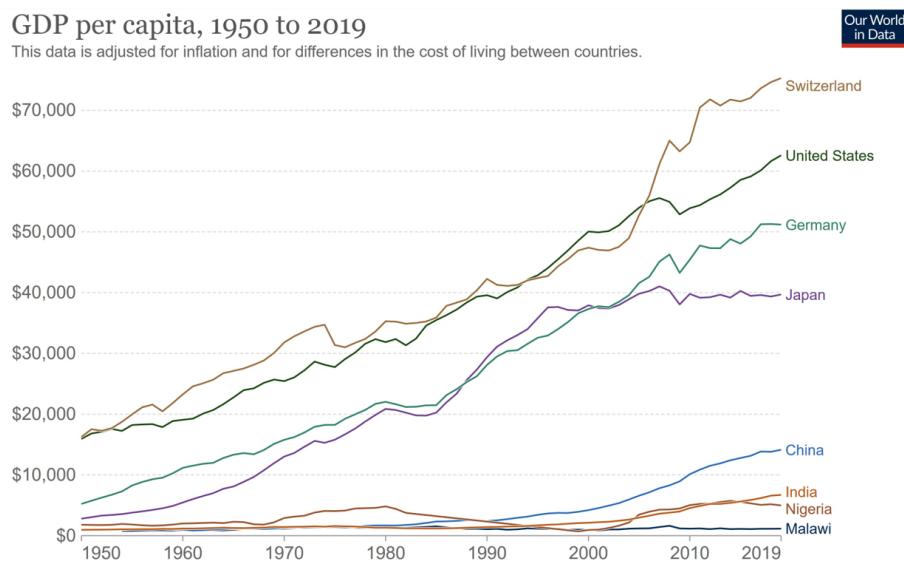


Figure 3.7: Source: Our World in Data

3.9.2 Alternative indicators of prosperity

In view of these limitations of GDP, several alternative indicators have been developed to provide a more comprehensive picture of prosperity. One of these indicators is the Human Development Index (HDI), which takes into account not only GDP but also life expectancy and the level of education of the population. Another indicator is the Genuine Progress Indicator (GPI). The GPI goes one step further by attempting to include not only positive economic activities but also negative factors such as environmental pollution and social inequality in its calculations. The GPI usually consists of 26 indicators that attempt to cover the economic, social, and ecological dimensions. For example, the value of unpaid work is also included. Since it is fundamentally difficult or even impossible to measure prosperity, these indicators are also criticized for their limitations, and there are many other indicators for measuring a country's prosperity. However, none of them have been able to establish themselves alongside GDP.

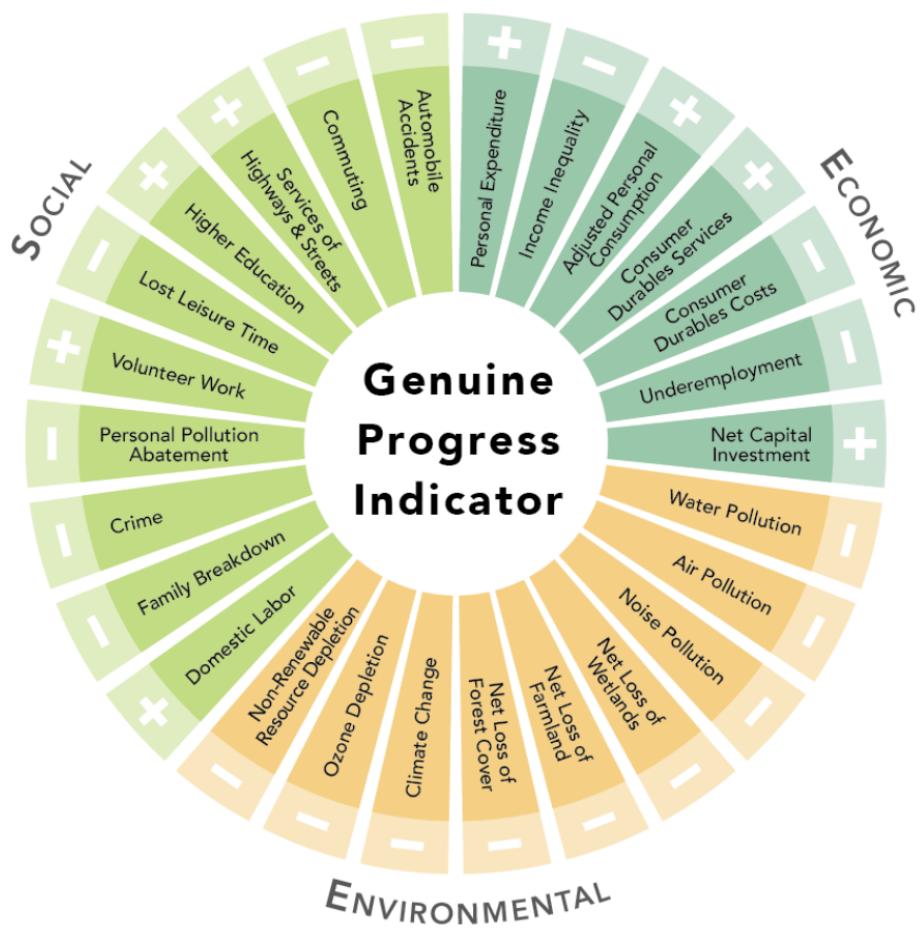


Figure 3.8: The diagram shows the various aspects that the GPI attempts to integrate.
Source: GNHUSA.

To illustrate how widely different indicators can diverge, the calculations by Ku-

biszewski et al. (2013) for the development of GDP and GPI per capita since the 1950s for a group of 17 countries are shown here.

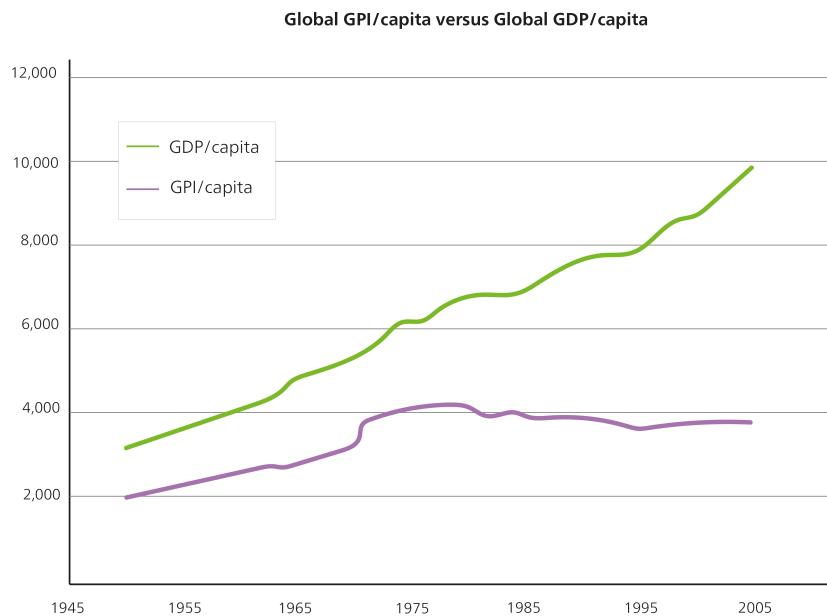


Figure 3.9: Own illustration, based on Kubiszewski (2019)

3.9.3 Economic growth

Economic growth basically refers to the increase in a country's economic performance or prosperity over time. As a rule, GDP growth is used as a measure of this. The central importance of economic growth for our society and economy is omnipresent in everyday life, politics, and the media. It is the central target for politics, society, and the economy, which is why Schmelzer and Vetter also refer to it as the growth paradigm (Schmelzer and Vetter (2023), pp. 62–68). Given the ubiquity of economic growth, it is surprising that it is a very recent phenomenon. It was not until the Industrial Revolution in England in the 19th century that sustained economic growth (measured in terms of GDP) was observed for the first time in the world. For most of human history, people lived without sustained economic growth. Today, economic growth is not only a central pillar of our current economic and social system, but has also become a compulsion (Binswanger (2019)). We will discuss this systemic compulsion to grow and the growth paradigm in more detail later in the course. The significance of economic growth is the subject of intense debate within the sustainable economy, with widely divergent positions. While some want to hold on to economic growth (in an adapted form), others advocate overcoming economic growth as a compulsive behavior. We will examine these discussions in greater depth at a later stage.

The following chart shows the development of GDP per capita for various countries and regions over the last 1,000 years. The industrial revolution in the 19th century is clearly visible.

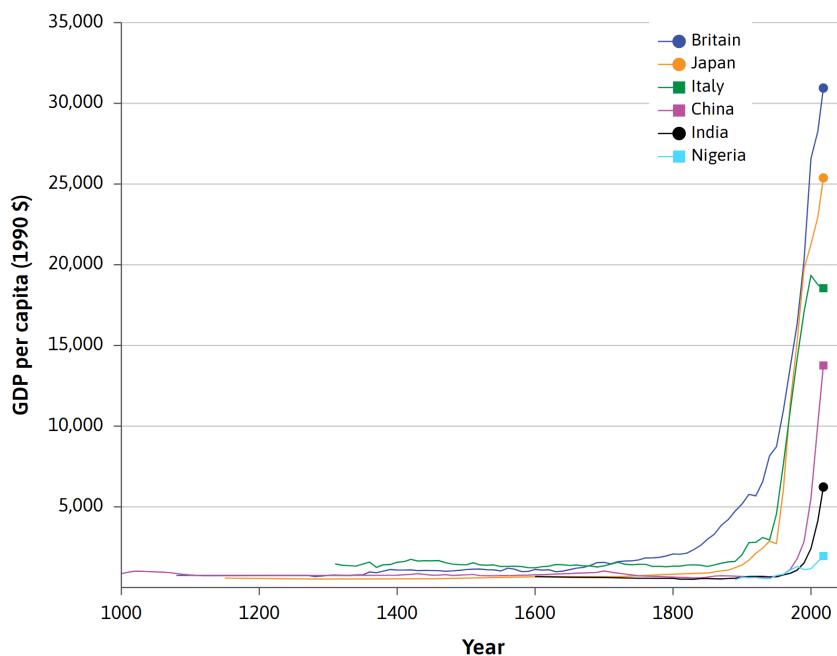


Figure 3.10: Own illustration, based on Kubiszewski (2019)

Questions for reflection (unnumbered)

- Do you think GDP is a useful measure of a nation's prosperity? What are the arguments for and against it?
- Think of examples from everyday life in which the growth paradigm can be seen.
- What could be the reasons for the large gap between GDP and GPI? And what could be the reason for the trends in the figure diverging so sharply only from the 1970s onwards?

Further readings

- Schmelzer, Matthias. 2016. *The hegemony of growth: the OECD and the making of the economic growth paradigm*. Cambridge: Cambridge University Press.
 Sen, Amartya. 2011. *Development As Freedom*. New York: Knopf Doubleday Publishing Group.

Chapter 4

Pluralist economics

As the first sections have shown, economics is currently dominated by a single school of thought, neoclassical economics. However, economics consists of many **different schools of thought** based on different assumptions, with different perspectives and focuses, some of which use different methods and arrive at different conclusions. In order to meet the complexity of current challenges, we believe that it is essential to be able to draw on this diversity of theories and tools. This short module therefore aims to provide an introduction to the diversity of economics, known as pluralist economics.

In the course, there will be some opportunities to explore individual schools of thought in greater depth. However, it will not be possible to cover all schools of thought in depth. We are also happy to provide further material if you would like to explore pluralist economics or individual schools of thought in greater depth.

This section is not about knowing the details of the different schools of thought, but rather about becoming familiar with the diversity of economics. Accordingly, the section mainly provides material to explore the various schools of thought freely and even playfully. For this purpose, we created a crossword puzzle to explore the diversity of economics. You will find it later in the section.

Learning Outcomes

- Students can explain the fundamentals of pluralist economics and identify different schools of thought.

4.1 Neoclassical economics

As already indicated several times, current economic theory is strongly dominated by one school of thought, neoclassical economics. In the following, we will take a brief look at the basic principles of neoclassical economics and what is problematic about it from the perspective of a sustainable economics. Criticism of neoclassical economics should not be equated with the idea that neoclassical economics as a school of thought is obsolete. Rather, it is important to recognize the questions for which the neoclassical

lens is useful and the questions for which other schools of thought offer more helpful perspectives. Furthermore, **neoclassical economics is not a homogeneous field**, remains a vague term, and is therefore sometimes used in different ways. The term was coined by Thorstein Veblen in the early 20th century to describe Alfred Marshall's synthesis of subjective and objective value theory as a supply and demand diagram. Marshall combined the classical understanding that the value of a good is determined by its production costs with the new insights of the marginal utility school, which determined value by individual utility. The market diagram, which represents supply and demand, is at the heart of neoclassical economics.

According to neoclassical understanding, the central problem of economics lies in the **scarcity of societal resources**, because it is assumed that human needs are fundamentally insatiable. Economics as a science therefore aims to study the functioning of a national economy in order to enable the highest possible level of prosperity through optimal resource allocation. Neoclassical theory bases its conception of the economy on rational individuals who are faced with alternatives that need to be weighed up and who want to maximize their own utility with their decisions. This weighing up of alternatives is based on a comparison of marginal utility and marginal costs. This involves the abstraction of **homo economicus**, who represents an ideal type of individual who acts rationally in the sense of maximizing utility and primarily with a view for his own self-interest. Based on this starting point of weighing up different alternatives, neoclassical economics is often understood as **the science of decision-making**, which makes it applicable to all areas of life. As we have already seen in the module on the basics of economics, the price mechanism in a market organizes the allocation of scarce resources and ensures that supply and demand, assuming perfect competition (see how the market works), settle at an equilibrium, which also corresponds to the economic optimum. From this perspective, the **market** emerges as the ideal form of allocation and state intervention as disruptive, which is expressed politically in the liberalization of markets and the reduction of the state to a minimum.

As already indicated several times, these assumptions underlying neoclassical economics, such as rational and utility-maximizing individuals and perfect competition, have been criticized from various voices. However, much more serious than the explicit assumptions are the **implicit value judgments and predetermined perspective** that are adopted when looking through neoclassical glasses. For example, entire sectors of the economy, such as the unpaid sector, are ignored. The idea of what economics is and what problems it addresses (allocation of scarce resources, focus on decision-making, etc.) is based on a normative foundation and defines the framework of possibilities. For example, markets are assumed to be natural, and the structural inequalities associated with them are accepted as given conditions. Improvements can only be achieved through marginal changes to certain target indicators within this framework.

These brief paragraphs on neoclassical economics and some of the criticisms raised are not intended to provide a comprehensive description, but merely to show that neoclassical economics takes a certain perspective (a more detailed description of neoclassical economics can be found [here](#)). We will examine specific aspects in more detail later on. Given its strengths and limitations, neoclassical economics is well suited to analyzing some issues, but less so for others. Economics offers a wide range of thought styles, which are suited to analyzing different problems to varying degrees. **However**, as will be explained below, **economics is dominated by neoclassical economics**, which prevents the economic toolkit from being used to its full potential. In this course, we also

want to open **your perspective to this diversity**.

4.2 Why do we need pluralist economics?

In November 2011, dozens of students at Harvard University walked out of the introductory lecture given by Professor N. Gregory Mankiw in protest against what they saw as the politically biased presentation of economic relationships by lecturers. The students criticized Mankiw's teaching at Harvard as being characterized by an unacceptable ideological bias that contributes to the great economic inequality in today's society. This student protest made headlines not only because of Harvard University's prominent position in the international academic world, but also because Gregory Mankiw is the author of an introductory textbook whose enormous influence on university education in economics has long since reached global proportions. The students also considered it particularly worthy of criticism that alternative economic approaches are practically non-existent in teaching (Harvard Political Review 2011).

In stark contrast to other social sciences such as sociology or political science, university education in economics today is characterized by a **strong paradigmatic uniformity of teaching content**. Many textbooks do not seek to acknowledge competing paradigms with different perspectives on economic relationships, but instead too often suggest to readers that there is a **single economic way of thinking**, neoclassical economics, which can and should be applied equally to all areas of economics—and, in principle, to all social sciences.

“Indeed, I have come to the position that the economic approach is a comprehensive one that is applicable to all human behavior, be it behavior involving money prices or imputed shadow prices, repeated or infrequent decisions, large or minor decisions, emotional or mechanical ends, rich or poor persons, men or women, adults or children, brilliant or stupid persons, patients or therapists, businessmen or politicians, teachers or students.” - Becker, S. Gary in The Economic Approach to Human Behavior (1976), p. 8

Gary S. Becker received the Alfred Nobel Memorial Prize in Economic Sciences in 1992 for his extension of microeconomic theory to a wide range of human behavior and human cooperation. Critics describe this extension of microeconomic theory to almost all areas of human behavior and cooperation as economic imperialism. The sometimes very one-sided textbooks in economics contribute to economic imperialism. Graupe (2015) describes economic education as an intellectual monoculture.

Two works are particularly significant in this context: “Economics” by Paul A. Samuelson (co-edited with William D. Nordhaus since 1985) and “Principles of Economics” by N. Gregory Mankiw. Samuelson’s textbook, first published in 1948, is considered the standard work on which all other textbooks today are based. Microeconomics in particular can be seen as an area “where the victory of Samuelson’s early pedagogy has been most complete and where the beliefs of economists have changed least” (Skousen 1997, p. 138). Mankiw’s “Principles of Economics” has become an international best-seller in recent years. This textbook by George W. Bush’s former economic advisor also occupies a central position at Swiss universities. The main criticism of standard works

on economics is that concepts and the thinking underlying the models and assumptions are hardly described in concrete terms, threatening to freeze students' perspectives into a single point of view. Students are not encouraged to reflect on the conclusions drawn in the textbooks.

4.2.1 Blind spots in economics textbooks

After reading Samuelson/Nordhaus or Mankiw, hardly any student will be able to say exactly how neoclassical economics thinks about "the market," what "thinking tools" it uses to do so, and why it does so. Nevertheless, through constant repetition requiring the same type of problem-solving in varying degrees of complexity, students are led to always think in terms of price-quantity diagrams and to determine equilibrium quantities and prices, regardless of the specific task at hand. Whether the questions concern ice cream, wheat, oil, gasoline, rent, wages, steel, aluminum, education, land, or capital, the textbooks always claim that they can be solved with the help of this diagram. What is rarely questioned, however, is the existence of the underlying functional relationships themselves. Whether "supply curve," "demand curve," or "equilibrium price," students learn to use these "thinking tools" to ponder everything in the world without reflecting on them themselves and without being able to question the underlying system of rules and assumptions. As explained in the section on neoclassical economics, this perspective is shaped by value judgments and worldviews. Our aim for this course on sustainable economics is to give students an insight into different thought styles in economics and enable them to identify the most common arguments in the current economic and social debate on economic growth, welfare, environmental protection, and employment. **This enables students to perceive the (economic) world in a more differentiated way.** After all, how we learn to perceive the world also determines what options for action we recognize and exercise in our everyday lives and as citizens.

"I suppose it is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail." - Abraham Maslow in Psychology of Science 1966, p. 15

In the video below, Professor Ha-Joon Chang from the University of Cambridge shows the different thought styles within economics that exist and how these can lead to different economic policy programs:

<https://www.youtube.com/watch?v=NdbbcO35arw>

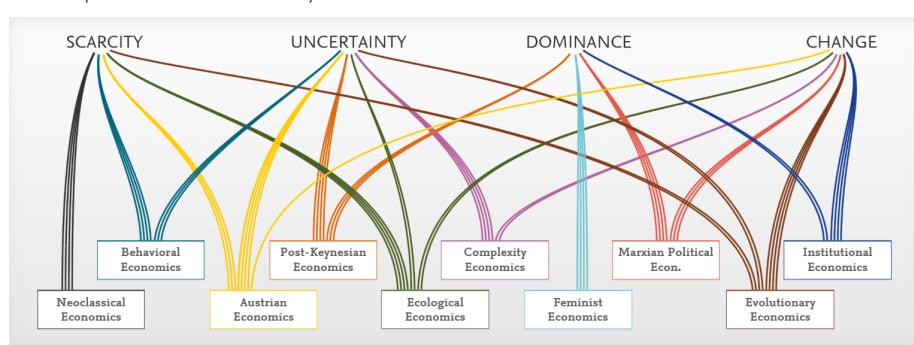
4.3 Scavenger hunt through pluralist economics

Exploring Economics is an open project of the pluralist economics network, which cooperates with various international actors in the design of the e-learning platform. The network consists of many local groups and individuals. There are numerous opportunities to get involved and contribute.

We believe that this open platform offers many valuable contributions. That is why we have designed a scavenger hunt through the platform so that you can get to know it in a playful way.

Exercise - Pluralist Economics: In this section, you will solve the crossword puzzle “[A journey through the Economic Theories](#)” using the [Exploring Economics platform](#). Under the heading “Orientation,” you will find solutions to the terms sought in the puzzle. This will give you an overview of the different schools of thought in economics and how these perspectives influence research and its results. This exercise is voluntary and is intended to give you a playful introduction to pluralist economics. You are welcome to contact us to discuss any questions or clarify any uncertainties. On demand we provide you with the solutions of the crossword puzzle.

▼ Which problem is central to the economy?



The answers to this question describe the problem or problems that actually matter when looking at the economy, from the perspective of a particular school of thought.

Dominance: Power and domination of one group over another in material as well as social terms are the driving forces of economic phenomena.

Scarcity: Natural resources like land, capital, labour or energy are scarce and therefore the economic problem lies in the processes of their distribution.

Uncertainty: The future is uncertain and our knowledge about this is fallible. Therefore, the beliefs we hold about the future in order to deal with uncertainty and changes in these beliefs are the central determinant of the economy.

Change: Economic organizations are constantly evolving, the dynamics of this process are the distinctive aspect of economics.

Figure 4.1: Excerpt from the “Exploring Economics” website, which categorizes the different schools of thought according to the question “Which problem is central to the economy?”.

Further reading

If you are already well acquainted with the basics, or if you wish to engage more deeply with neoclassical economics, the following literature is recommended for further study:

- The first chapter of the book “The Microeconomics Anti-Textbook”, which examines how economics is presented in introductory microeconomics textbooks. This chapter is particularly valuable for economics students already familiar with the basics, as it provides a contrast to the standard textbook.
- For interested students, the critical discussion of neoclassical consumption theory by Ben Fine (2016) is recommended

Chapter 5

Problem analysis

Learning Outcome

Students...

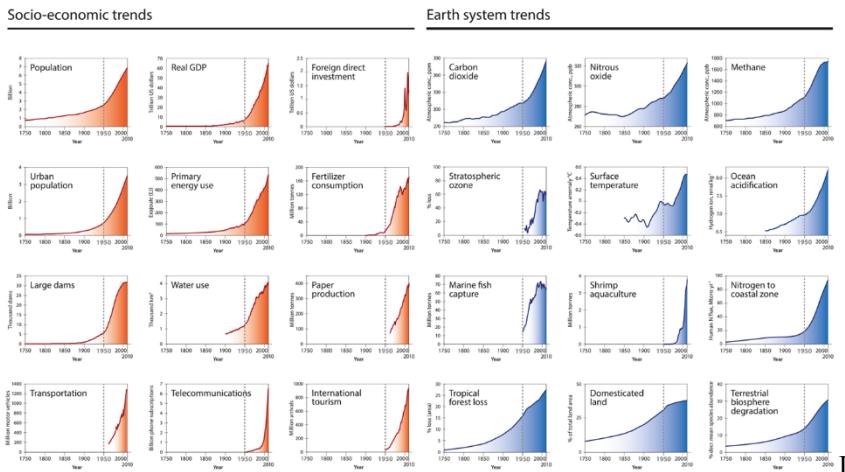
- be able to identify key ecological, social, and economic problems of the current economic and social system
- be able to explain at least one key problem (ecological, economic, or social) using an example

5.1 The world in transition – a polycrisis

The current economic system is leading to major challenges that are manifesting themselves in various crises. This current multitude of crises is recently referred to as a **polycrisis** (see, for example, Lawrence et al. 2024 or this [explanatory video](#) by Adam Tooze) because they affect people's working and living environments in many different ways and are intertwined. Some of the individual crises are closely linked and have common causes. Others appear to be more independent of each other and do not necessarily have the same causes. Taken together, however, all these crises culminate in this often overwhelming polycrisis. In this section, we will **analyze these crises** before looking at solutions for a sustainable economy. In the following, we will address the ecological, social, and economic challenges separately. However, it is important to emphasize that these dimensions are strongly interlinked and can reinforce each other. Separating these areas is intended to facilitate the introduction.

As we have seen in the previous sections, the analysis itself is shaped by the perspective of the person conducting the analysis. The problem analysis can be different depending on the school of thought. For example, neoclassical economics doesn't necessarily see rising income and wealth inequality as a problem as long as it's caused by market mechanisms. A school of thought that includes power aspects in its analysis, such as feminist or Marxist economics, sees this inequality as a central problem for the economy and society. In line with the focus of this course, we will keep the problem analysis as broad as possible, covering all schools of thought.

5.2 Ecological challenges



In the wake of the Industrial Revolution, a uniquely productive mode of production emerged, enabling a massive increase in material prosperity. At the same time, but much less noticed, there was also a massive increase in the consumption of natural resources, environmental pollution, and emissions (Jarrige and Le Roux (2020)). Socio-economic growth went hand in hand with the acceleration of biophysical trends. The description of exponential growth dynamics is called “the great acceleration” (Steffen et al. (2015)). The graph above shows some important biophysical and socioeconomic indicators that all began to rise with the Industrial Revolution. From the middle of the 20th century, the trend toward exponential growth becomes apparent.

Brief digression: exponential growth (optional reading for interested readers)

The exponential function is used to describe the size of things that are subject to accelerated growth. A crucial step is the realization that even moderate growth of, say, five percent means exponential growth, i.e., the increase becomes constantly larger (this applies, for example, to economic growth or to the number of cases during the COVID-19 pandemic). Exponential growth is difficult for us humans to understand. At the beginning, it is quite slow. This is precisely why it is often greatly underestimated. However, the growth rate then increases continuously and eventually becomes enormous. An insightful value that quickly reveals growth processes is the doubling time, which can be easily calculated in your head: 70 divided by the percentage growth per unit of time. If something grows by seven percent per year, the doubling time is ten years; at five percent, it is fourteen years; and at one percent growth, it is seventy years. The number 70 is the result of multiplying 100 (the percentage value of the doubling) by the natural logarithm of 2. It is not necessary to understand how this number is derived. The only important thing is: 70 divided by the percentage growth.

The following thought experiment also helps to understand this better:

A client offers you two different fees for a 64-day assignment. Which fee do you choose?

A: You receive 10,000 CHF every day.
B: You receive 1 cent on the first day and the amount is doubled on each subsequent day.
Thought experiment: the Payout matrix

5.2.1 Planetary boundaries and the climate crisis

Since the late 18th century, when British economist Thomas Robert Malthus first proposed a theory of overpopulation in his *Essay on the Principle of Population*, the discourse on planetary carrying capacity has persisted in certain scientific theories. Even though Malthus' ideas have since been proven obsolete – he calculated the maximum population based on a fixed amount of food that could be produced – the basic idea has returned in the form of neo-Malthusianism. In the study “**The Limits to Growth**” published by the Club of Rome in 1972, a population limit was calculated using a neo-Malthusian approach based on the amount of food available, but also taking into account available resources, environmental pollution, and industrial output. Although the predicted developments have not materialized, the study still carries weight today from an ecological perspective that questions unlimited growth.

The latest theoretical development in this regard is the scientific concept of **planetary boundaries**. Unlike previous concepts, these do not refer to a maximum population size, but to parameters derived from Earth system science. Researchers have chosen the state of the Earth system in the Holocene as their starting point. In this era, the planet had the ideal conditions for human civilizations to emerge. Deviations from this state put humanity in an uncertain territory where tipping points can be reached. Exceeding these tipping points could either halt current developments, change their direction, or accelerate them significantly. One example of this is the extinction of many large mammals at the end of the last ice age as a result of human immigration to the American continent. The concept of planetary boundaries recommends applying the precautionary principle in order to reduce potential damage to humans and the environment. The current planetary health report uses planetary boundaries as a basic framework for evaluating the health of our planet (Ceasar et al. (2024)). In addition to the report, the recently launched [Planetary Health Check initiative](#) offers exciting opportunities on its website to explore planetary boundaries and their development over the past 70 years.

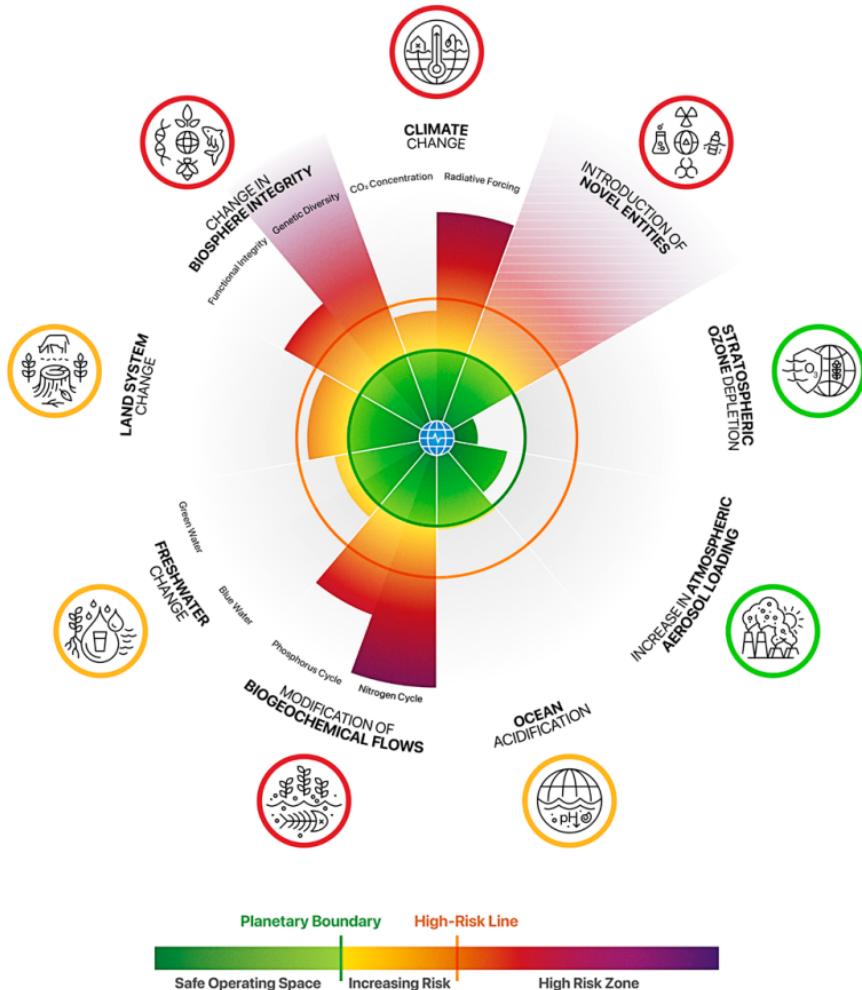


Figure 5.1: Planetary boundaries of the various subsystems and the respective risk assessment of the current status. Green indicates the safe operating space, yellow indicates increased uncertainty. Beyond yellow indicates that the risk of fatal consequences is considered high. Source: Planetary Boundaries Science (PBScience) 2025 licensed under CC BY 4.0

The planetary boundaries refer to nine different subsystems, such as land use change and ocean acidification. An inner circle (safe operating space) and an outer circle (increased uncertainty) have been defined for each of these. Six of the nine planetary boundaries have already been exceeded. Ocean acidification is close to being exceeded, while aerosol pollution is falling slightly again. Trends in stratospheric ozone levels are pointing in slightly different directions. The degree of exceedance has increased for all previously identified limits (Ceasar et al. (2024)).

Within these nine subsystems, there are two so-called core boundaries: the integrity of the biosphere and climate change. These two systems combine the processes of many

other subsystems and have an impact at the supraregional level. Reaching tipping points in these two systems can therefore cause the entire Earth system to enter a new state.

Rapid climate change in particular poses a major challenge for humanity in the 21st century. Because the energy system, transport infrastructure, and industrial agriculture are based on fossil fuels such as oil and gas, excessive greenhouse gases such as carbon dioxide and nitrogen oxides are continuously emitted. These accumulate in the atmosphere and prevent the sun's heat, which enters the atmosphere through solar radiation, from escaping again (greenhouse effect). As a result, glaciers and ice sheets have shrunk, oceans have warmed, and sea levels have risen over the past 30 years. Extreme temperature anomalies and precipitation events are also increasing continuously. Today, the concentration of greenhouse gases in the Earth's atmosphere is the highest it has been in the last 800,000 years, and the global average temperature has risen by more than one degree Celsius since the Industrial Revolution.

In order to avoid reaching climate tipping points, the Paris Agreement of 2015 set a target of limiting global warming to two degrees Celsius. The aim is to keep the average temperature rise since the Industrial Revolution "well below 2 degrees Celsius." Even with a two-degree rise in temperature, massive biophysical changes are likely. And to achieve this goal, the energy supply must completely phase out fossil fuels by 2050. Such a transition poses major challenges for society, particularly because fossil fuels have been a key factor in the development of the current economic system and have a strong influence on its structure (see, for example, Malm (2016), Huber (2013), Kallis and Sager (2017)).

5.3 Social challenges

Social boundaries and challenges are often less clear to define. They also depend heavily on the perspective we take. Accordingly, these aspects are often discussed more controversially than, for example, planetary boundaries. The following section highlights some aspects that are central to the social dimension of sustainable development. The explanations are not exhaustive, but are intended to highlight key challenges in this dimension.

5.3.1 Inequality in income and wealth

At the beginning of the 21st century, global poverty dominated the discussion on global social welfare, in line with the corresponding Millennium Development Goal. Although poverty still ranks first among the UN's 17 Sustainable Development Goals (SDGs), inequality has also made it onto the global agenda with SDG 10, "Reduce inequality." The targets for this goal cover many forms of inequality, but here we focus on income and wealth inequality.

In the middle of the last century, US economist Simon Kuznets hypothesized that in countries with increasing economic growth, income inequality would initially rise but then decline again once a certain level was reached. The so-called "Kuznets curve" emerged during the flourishing social market economies of the 1950s and 1960s, when profits were widely distributed among workers in the growing economies of the Global North and the highest incomes were taxed at highly progressive rates. With the advent

of neoliberal reforms in the 1980s, income polarization became increasingly apparent in the US and, to a lesser extent, in Europe. Since then, the share of total income earned by the richest 10% has risen, while that of the bottom 50% has declined (see, for example, the [World Inequality Database](#)).

An important cause of rising income inequality is **the changing balance of power between labor and capital in an increasingly open global economy**. While a large proportion of financial capital can now be moved around the world in a fraction of a second at one click, the mobility of workers has increased relatively little. Institutional factors such as borders, but also social motivations such as family or friendships, slow down the production factor of labor. The previously established compromise between companies and employees organized in trade unions has come under pressure in many places. As a result, the wage share (proportion of earned income) is falling in many countries today, while the share of capital income is rising.

"ELEPHANT VS. HOCKEY STICK"

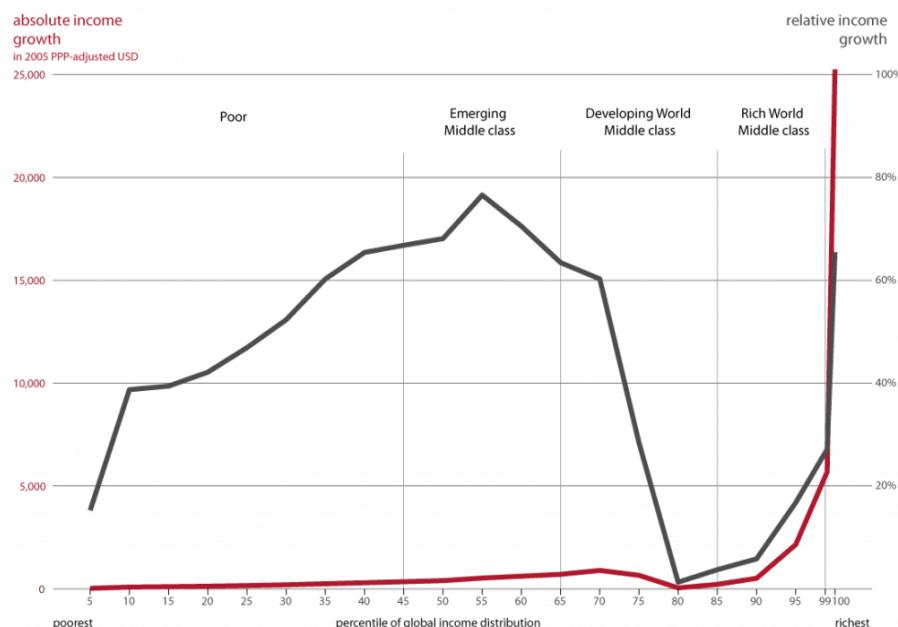


Figure 5.2: Elephant or hockey stick? Source: Lannen et al. 2019

At the global level, a similar picture emerges between 1988 and 2008. The curve showing **relative income growth (in black)** indicates that incomes in the middle percentiles of global income have risen relatively sharply. This reflects the rapid emergence of middle income groups in countries such as China and Brazil. The lowest quantiles illustrate how incomes in Africa and South Asia are growing only slowly. The trough between the richest 80 and 95 percent represents large parts of North America and Europe, where middle incomes have stagnated since the neoliberal reforms mentioned above. This representation, known as the "Milanovic elephant," thus contains information about various phenomena simultaneously. However, when looking at **absolute income growth (in red)** – also known as the "hockey stick" – it becomes clear how

much the incomes of the richest people have increased during this period. More than half of all income growth during this period went to the richest five percent of the world's population. The poorer half of the world's population received only one-tenth of the income.

As great as income inequality is, it pales in comparison to wealth inequality – i.e., the total value of all assets owned by a person. In his 2013 book *Capital in the Twenty-First Century*, French economist Thomas Piketty showed how wealth inequality has grown again since the mid-20th century. He sees the main driver behind this as being that capital income has grown faster than the real economy. As a result, rich people who can invest in capital goods have access to wealth growth that is denied to working people. Waves of political liberalization following the neoliberal shift in the 1980s have also contributed to the increase in wealth inequality. Low inheritance taxes and the privatization of state-owned companies, for example, have led to wealth being concentrated in the hands of a few rich individuals.

5.3.2 Unequal globalization

The economic globalization of recent decades (as well as the first wave of globalization 150 years ago) is often portrayed in a positive light, highlighting how freer international trade leads to global prosperity. However, as Milanovic noted more than 20 years ago, this obscures the **other side of globalization**, a side marked by exploitation and destruction (or colonialism) (Milanovic 2003). Globalization is a phenomenon of enormous magnitude and complexity and can therefore show both its beautiful and its cruel face (depending on who sees it) (Milanovic 2003). In addition to the fact that global capitalism has led to significant growth in material prosperity in many places, an increase in inequality has also been observed, as explained above. Furthermore, the economic system in many places was based on colonial and imperial violence. To this day, these structures lead to exploitation, dependencies, and unequal exchange in many places (see, for example, Chang (2002), Anievskaya and Nişancioğlu (2015), M. Davis (2017), Ghosh (2021), Hickel (2017)).

Dorninger et al. (2021) shows that high-income countries consume more resources, land, energy, and labor than they produce themselves. In this respect, there is an **unequal exchange** between the different country groups. In addition, the globalized world economy and the corresponding institutions are pushing many countries in the Global South into the production of raw materials (see, for example, Palma (2003)). At the same time, many countries are active in highly specialized industries and services, where more value can be extracted. Global value chains are often controlled by companies in the Global North, which reinforces this unequal exchange and enables these companies to skim off the lion's share of the profits and shift the costs to the Global South (see, for example, Carballal Smichowski, Durand, and Knauss (2021), Althouse et al. (2023), Durand and Milberg (2020), Ponte (2022)). Such constellations increase pressure on working conditions and favor exploitative relationships in the Global South.

This is only a small and simplified excerpt from the complexity of the globalized economy. Many aspects are still insufficiently researched and controversially discussed. However, the main point here is to show that, as Milanovic argues, globalization has at least two faces. Which one it shows must be examined case by case.

5.3.3 Social acceleration

As the graphs by Steffen et al. (2015) show under ecological challenges, not only have earth system trends accelerated rapidly in the 20th century, but so have socio-economic trends. Hartmut Rosa describes modernization as a process of “social acceleration” (see, for example, Rosa (2003), Rosa (2016)). According to Rosa, technological progress is accompanied by accelerating **social change** (e.g., changes in social relationship patterns) and an increasing **pace of life**. These acceleration processes are driven by economic, cultural, and structural factors and lead us to feel increasingly pressed for time and stressed, despite constant technological progress and the associated efficiency gains. For example, enormous advances in communication technologies have enabled us to communicate much more efficiently over long distances (e.g., emails instead of letters). Where we used to write a few letters at most, the number of emails sent has increased massively, and we fill the time freed up by sending additional emails, which in turn brings with it further obligations and changes relationship patterns. This has increased the possibilities and requirements for availability, for example. Technological progress is also accelerating the possibilities for experiencing parts of the world (e.g., through advances in transportation and communication). The world we can potentially experience is expanding faster than the proportion we can actually experience. In relative terms, therefore, the proportion of the world we can experience is shrinking. Such acceleration dynamics have an impact on the social well-being of individuals and societies and cannot therefore be ignored.

5.4 Economic challenges

The economic interrelationships and the associated problems and boundaries are also complex and less clearly visible and illustrative than, for example, planetary boundaries. Nevertheless, there are economic interrelationships that promote crises and limit the scope for action. Some of these interrelationships will be briefly outlined below. However, these explanations are by no means exhaustive.

5.4.1 Growth dependency

The current capitalist economic system is structurally dependent on growth. This means that a decline in economic activity in the form of stagnation, recession, or even depression would lead to an economic crisis with far-reaching consequences for the population (e.g., unemployment, impoverishment, cuts in social services) (Schmelzer and Vetter (2019), p. 26). **If growth fails to materialize, the system enters a crisis.** There is either growth or contraction, but nothing in between. Matthias Binswanger shows that this compulsion to grow is rooted in market competition (Binswanger (2019)). Companies that do not make a profit are forced out of the market. If the average profit across the entire economy is negative, a corresponding number of companies are forced out of the market, which can lead to a downward spiral. Furthermore, the system contains many **growth drivers** that structurally increase growth dependency (e.g., technological progress, interest rate system, corporate forms, etc.). Many political and social institutions are also heavily dependent on growth (e.g., social security systems are largely

financed by paid work, making full employment and growth central aspects of its financing). Hartmut Rosa shows, for example, that culture in the Global North also functions strongly as a driver of growth and is based on acceleration (Rosa (2003)).

The concrete effects of growth, for example on society and the environment, are also controversial in some respects and are reflected in the debate between green growth and post-growth (we will examine this debate in more detail in section 5 and 6). The key point here, however, is that dependence on growth severely limits the scope for action. Accordingly, there are many approaches that primarily seek to reduce the system's dependence on growth.

5.4.2 Financialization and financial crises

Before 2008, influential representatives of economics were so confident that they believed they had found instruments for crisis-free management of market economies. It was believed that recessions and, above all, depressions could be avoided. The causes of previous crises were said to be inefficient government regulations and interventions. These had prevented the rationality of individual market participants from leading to the market equilibrium. The extensive deregulation of financial markets was thought to have created self-regulating mechanisms for economic stabilization. This made the 2008 banking crisis all the more surprising to most economists. Their belief in the rationality of markets proved to be a mistake when the bankruptcy of the prestigious Lehman Brothers bank in September 2008 led to a panic on the stock markets. The idea that financial markets function efficiently and can be deregulated accordingly (based on Eugene Fama's market efficiency hypothesis (1970) and in the tradition of neoclassical economics) was confronted with reality. It became apparent that post-Keynesian theories, for example, which point to the possibilities of inherent instabilities in the system, are carrying important and valid insights. In particular, the work of Hyman Minsky (1992) received renewed attention, as he emphasized the inherent instability of the financial system in his **financial instability hypothesis**. The worst effects of the financial crises were prevented because politicians and experts had learned from the experiences of the Great Depression following the global crisis in 1929: governments and central banks immediately took over the function of stabilizing the system (ideas that go back to the theories of John Maynard Keynes).

The **basic economic function of the financial sector** is to provide loans to finance investments (mostly by companies). The regulation of the financial sector is intended to ensure that the financial industry primarily fulfills this function in the best possible way. The strict financial market regulation that followed the stock market crash of 1929 was an essential foundation of welfare capitalism, in which activities in the real economy (production in factories, retail, large infrastructure projects, etc.) were at the center of economic life. Starting in the 1980s, financial market regulations were gradually dismantled. This strengthened financial market interests with their business model of exploiting price changes for internationally traded assets (stocks, bonds, commodities, derivatives, etc.) to generate profits. New technological possibilities were exploited, such as high-frequency trading, in which high-performance computers use pre-programmed algorithms to react to the smallest price changes within microseconds and buy or sell assets.

This shift in economic dynamics and power to the financial sector is called **financialization**. A power complex emerged in the financial sector, consisting of central banks,

commercial banks, and other financial institutions, private pension funds, and the owners of large and small fortunes associated with them. Through financialization, financial markets grow disproportionately to the real economy, which has been made possible by national deregulation measures – exactly in line with the development observed by Thomas Piketty (see chapter Social challenges).

Twin Peak Paradox: Debt Crisis and Inequality

In recent years, the link between income and wealth distribution and the accumulation of debt has come increasingly into focus. Rising income and wealth inequality can contribute to trade imbalances. This is the case, for example, when individual countries either stimulate the weakening of mass purchasing power with credit-financed private demand for consumption (US and UK) or attempt to compensate for low domestic demand with rising export surpluses (Germany, China, and Japan). Furthermore, increasing inequality and growing indebtedness are closely connected. Economists at the International Monetary Fund (Kumhof and Rancière (2010)), for example, argue that rising inequality leads to increasing borrowing among the lower and middle classes to sustain their consumption levels, while the richest individuals have limited capacity to spend it on consumption (e.g. you can have only so many yachts). Therefore, they invest their money in the financial sector, which gives out loans to the lower and middle classes. Furthermore, this contributes to the dynamics of financialization outlined above. In this [video](#), Yanis Varoufakis describes the current situation of high debt and great inequality as a twin peak paradox.

Chapter 6

Strategies and economic policy paradigms for sustainability

After having explored ecological, social and economic challenges, this module turns to strategies and frameworks to address these challenges. From these more concrete approaches and policies will be derived which will be explored in section 7.

Learning Outcome

By the end of the module, students...

- know the three strategies for sustainability and be able to explain them using examples
- know three economic policy frameworks and are able to describe them
- are able to explain their own position on the importance and weighting of the different strategies and guiding frameworks for the implementation of sustainable development

6.1 Strategies for sustainability

In view of the ecological limits of our planet, there is broad consensus at the scientific and political level in most highly industrialized countries that planetary boundaries must be respected in the long term. With the 1.5-degree and 2-degree targets, a central climate policy goal was also established internationally in the [Paris Agreement](#), which Switzerland co-signed. With regard to economic and social challenges, the global community has also committed itself to the [2030 Agenda](#), and Switzerland specifically articulated the goals in the [2030 Sustainable Development Strategy](#). These goals require a fundamental transformation of our economic system within a few decades. But how exactly should these goals be achieved? There are three basic strategies for implementing sustainable development that are currently being discussed: **efficiency strategy**,

consistency strategy, and sufficiency strategy. All approaches to sustainable development are based on these three basic strategies, but they differ in how they align the interaction between the three strategies and in how they prioritize these strategies.

Various strategies are being discussed for implementing sustainable development: All three strategies must work together to achieve sustainability goals.

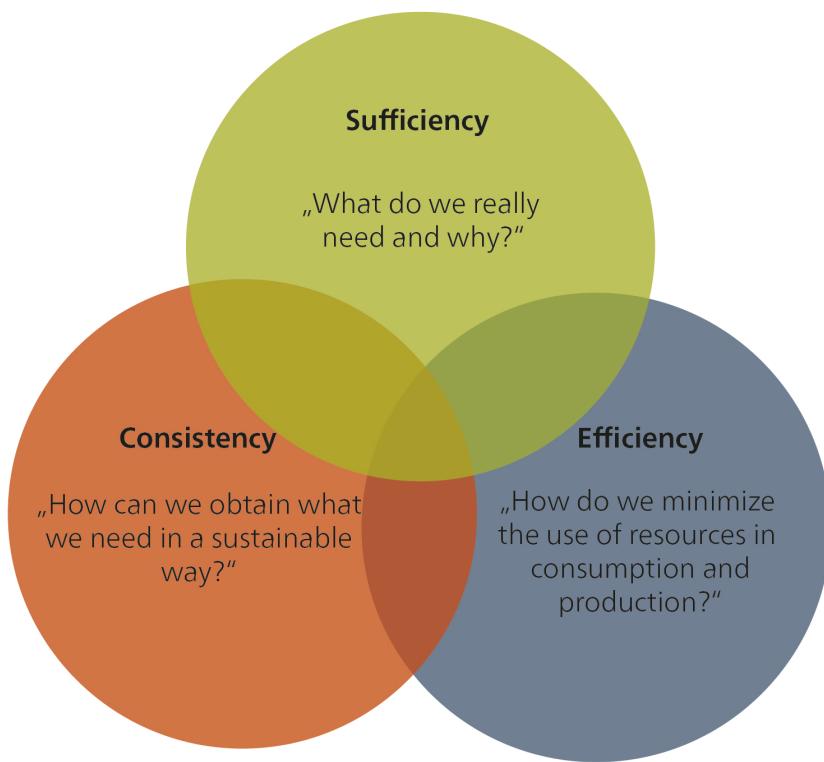


Figure 6.1: The three sustainability strategies; our own representation

6.1.1 Efficiency strategy

The efficiency strategy aims to use fewer resources (raw materials and energy) than before in the manufacture of products or the provision of services without reducing the quantity produced. This includes minimizing material use (material intensity) and energy use (energy intensity) as well as emissions of harmful substances such as CO₂. This concept is often referred to as **eco-efficiency** and is considered promising in business and society because it can reduce costs, resource consumption, and environmental pollution. The efficiency strategy focuses on the production side, where change is primarily sought through technological advances. Proponents of this approach believe that it is possible to double prosperity while halving the consumption of natural resources (Weizsäcker, Lovins, and Lovins (1997)). Critics of the efficiency strategy are less optimistic, however, and warn against overestimating its impact on sustainable economic

activity. They point to so-called *rebound effects*, which can lead to the gains from efficiency improvements being reduced or even offset (Paech (2012); Santarius (2014)).

Examples of efficiency strategies

Energy-efficient lighting: Replacing conventional light bulbs with energy-efficient LED lamps reduces electricity consumption and helps to lower energy requirements.

Fuel-efficient vehicles: The development of hybrid or electric vehicles with improved fuel consumption reduces fuel demand and emissions from traffic.

Efficient building technology: Installing smart heating, ventilation, and air conditioning systems in buildings helps reduce energy consumption for heating and cooling.

Efficient water use: The use of water-saving systems in households and industrial companies reduces water consumption and minimizes waste.

6.1.2 Consistency strategy

While the efficiency strategy is quantity-oriented – less resource consumption with more output – the consistency strategy strives for compatibility between nature and technology, with the goal of reusing resources instead of consuming them only once. This implies replacing materials, products, and technologies that are often based on fossil resources with those that are compatible with natural material cycles and run in harmony with natural processes Pufé (2017). This is often referred to as **eco-effectiveness** and follows the “cradle to cradle” principle, whereby products go from “cradle to cradle” instead of “cradle to grave.” The idea behind this is that in intelligent systems, there is no waste, only products. This can be achieved in two ways: materials can either be biodegradable, as in shampoo without synthetic ingredients, or they can be designed as “technical nutrients” that remain in the technical cycle. This means that a product that has reached the end of its useful life does not end up in the trash, but is transferred to the next cycle of use, for example by being upcycled. For example, a computer case could be reused over and over again or converted into a shelving system. The consistency strategy also focuses on the production side. This strategy is expected to offer greater problem-solving potential, a wider reach, and more profound changes than the efficiency strategy.



Nevertheless,

material cycles in the economy are not feasible without mass and energy losses, so absolute consistency remains an unattainable ideal. Even 100% biodegradable products consume energy in their manufacture. Nevertheless, consistency is seen as an impetus for industry to strive for this ideal and to reduce both resource consumption and emissions as far as possible.

Examples of consistency strategies

Renewable energy systems: The transition from fossil fuels to renewable energy sources such as solar, wind, and hydro power ensures that energy production is in harmony with the natural rhythms and cycles of the environment.

Recyclable electronics: Electronic devices are designed to be easy to repair, upgrade, and recycle in order to minimize resource consumption and environmental impact.

Sustainable construction: Buildings are constructed using sustainable materials that have a low environmental impact and can be reused or recycled at the end of their useful life.

6.1.3 Sufficiency strategy

“Sufficiency” questions the extent of what is needed for a good life and aims to reduce resource and energy consumption by lowering demand for resource-intensive goods and services. Sufficiency is often translated as contentment, frugality or moderation. It takes a critical look at the new needs created by technology and advertising in relation to limited natural resources. Sufficiency promotes an understanding of not chasing every newly created need and to satisfy needs without commercial consumption. Unlike efficiency and consistency, sufficiency focuses on consumption, but not exclusively:

sufficiency can be practiced to varying degrees and at different levels, from minor behavioural changes (sharing instead of buying) to significant lifestyle changes (giving up air travel). Although it starts at the individual level, sufficiency can be applied at various levels, including businesses (sufficiency-oriented product design) and governments (sufficiency policy). Sufficiency therefore asks about the right amount: How much do we need for a good life? And what do we not need? The sufficiency strategy is the subject of passionate and intense debate (Sedláček (2012)).

Critics consider the sufficiency strategy to be limited in terms of its savings potential and socio-cultural resonance. They doubt that it can gain broad acceptance in the population. Proponents, on the other hand, believe that the sufficiency strategy has an essential place in sustainability policy, especially where efficiency and consistency strategies reach their limits.

Examples of sufficiency strategies

Sharing and communal use: Platforms and initiatives for sharing items, tools, or vehicles enable resources to be used more efficiently and reduce the number of products manufactured.

Plant-based diet: Switching to a predominantly plant-based diet reduces the demand for re-sources such as water and land compared to meat production.

Shorter working hours: Reducing working hours can lead to lower resource use, as less energy and materials are needed to produce goods and services.

Local consumption: Supporting local producers and markets helps reduce transport distances and emissions.

6.2 Economic policy paradigms

In order to achieve the sustainability goals, measures based on the three sustainability strategies must be implemented. How the goals are achieved, i.e., which combination of strategies is pursued, and which measures are implemented, is largely determined by the underlying mindsets and worldviews. However, these mindsets do not exist in isolation in the economic policy discourse. Rather, many economic policy approaches are simultaneously shaped by different thought styles. Following Novy, Bärnthal, and Prieler (2023), we distinguish between three basic economic policy paradigms that emerge from the influences of different thought styles (see Figure 6.2) and their scientific concepts: the liberal market paradigm, the welfare capitalist paradigm, and the post-growth paradigm. The economic policy paradigms and their understanding of sustainability, which underlie the different approaches, determine to a considerable extent their orientation and their mix of strategies and policies.

6.2.1 Liberal market liberal paradigm

The main goal of the liberal market paradigm is to protect individual freedoms as much as possible and minimize government intervention, especially in the form of bans and market restrictions. This framework mainly promotes negative freedoms and relies on a comprehensive market order that protects and enforces property and contract rights

as well as competition. The idea is that almost all areas of the economy, including basic services, should be organized according to market principles. This is intended to enable both the maximum development of individual freedoms and the efficient use of limited resources.

The liberal market paradigm argues that market regulation is more efficient than state intervention, even in areas such as environmental protection or the setting of minimum wages. Although it is recognized that in a complex, interconnected society, completely free markets, global trade, companies, and consumers can never be fully realized, the idea of self-regulating markets serves as a guideline for economic policy decisions. Such a market order should ensure that companies and consumers can make individual decisions as freely and independently as possible. This requires not only state enforcement of a liberal market order, but also technology neutrality.

The goal of the liberal market paradigm is thus to protect individual freedoms while ensuring that markets remain as free as possible from state intervention and neutral with regard to technology.

6.2.2 Welfare capitalist paradigm

The main goal of the welfare capitalist paradigm is to ensure and protect material prosperity. This approach attempts to combine competitive economic measures with social justice and, in green variants, with environmental protection. Based on the successes of the 20th century, it is argued that promoting the capitalist economic system is compatible with a good life for all.

This has been achieved in part through the establishment of welfare states, which have largely solved social problems such as poverty and unemployment by providing basic services—at least in many wealthy countries. The hope is that a similar approach can also help to overcome the ecological challenges. The goal is to ensure a secure material standard of living by increasing production and incomes while reducing resource consumption and emissions.

Similar to the liberal market paradigm, green growth also plays a central role in the welfare capitalist approach. This is intended to enable win-win situations and avoid social tensions.

6.2.3 The post-growth paradigm

The main goal of the post-growth paradigm is a fulfilling life in a sustainable society that exists in harmony with nature. To achieve this, it is necessary to overcome the compulsion for constant economic growth in the capitalist system. The aim is to replace the existing exploitative relationship between humans and nature with one in which humans are seen as part of an ecological system.

In order to preserve the foundations of life, the post-growth paradigm strives for an economy that remains in a stable state (steady-state economy) or can function independently of economic growth and ensures the basic provision of human needs. A central principle here is sufficiency, which means finding the right amount of resource use. This may mean using fewer resources in some areas to reduce environmental impacts.

The post-growth paradigm recognizes that not all economic sectors need to grow and that contraction in some areas does not necessarily represent a loss. The role of the state in this approach is controversial, as state actors often maintain unsustainable conditions, but are at the same time important actors to establish sustainable frameworks. The emphasis is more on global cooperation and a stronger role for civil society in reshaping society “from below.”

These economic policy paradigm – market liberalism, welfare capitalism, and post-growth – represent different views on how society should respond to pressing issues in the field of environmental protection and sustainability. They reflect how policymakers and societies at the global level are trying to stay within planetary boundaries and achieve climate goals. Since these guiding frameworks are based on scientific concepts of different schools of thought, they are strongly influenced by scientific debate. On the other hand, these models also shape scientific debate, since economics is not free from normative influences, as we discussed in section 1.

In the next section, we will explore various approaches to sustainable economics. We will draw on these guiding paradigm, focusing in particular on the post-growth paradigm and, to a lesser extent, on green growth approaches within the welfare capitalist paradigm. In line with the different influences of these schools of thought on the frameworks, we will also have to consider the various economic theories and approaches of pluralist economics. These theories offer different perspectives on the challenges and goals of sustainable economics and shape the three paradigms. Below is an overview of how these schools of thought influence the three paradigms– market liberalism, welfare capitalism, and post-growth. This overview should enable us to better understand the many facets of the sustainability debate and develop approaches that can meet the requirements of a more sustainable future. However, these classifications are not set in stone and may vary depending on the specific point of view and context. Some schools of thought may also fall completely outside the three guiding paradigms. In pluralist economics, there are a variety of approaches and theories that can shed light on different aspects of economic and societal design. Combining and integrating these different perspectives can lead to a more comprehensive understanding and approach to promoting sustainability.

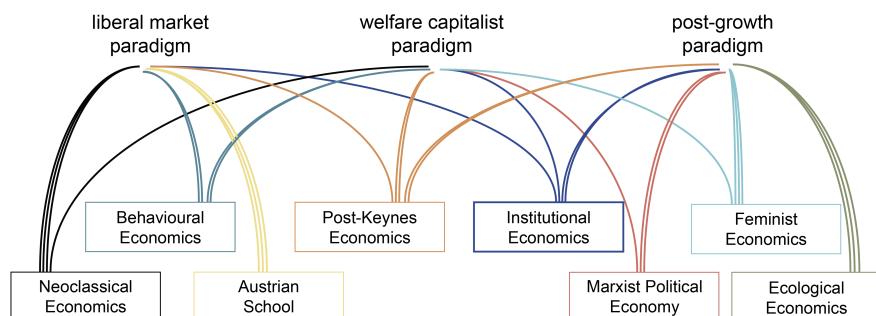


Figure 6.2: Our own representation based on the illustration of Exploring Economics

6.3 Green growth and post-growth

The two central scientific concepts that shape the debates on sustainable economics as polar positions and can be located in these approaches: green growth and post-growth^[1]

Green growth, as proposed by the OECD (2011) and the World Bank (2012), is an approach that sees green economic growth as a solution to ecological challenges. This approach pursues the idea that it is possible to grow the economy while minimizing environmental impacts. In our view, this approach can be derived primarily from the welfare capitalist framework and, to a lesser extent, from the liberal market framework.

This contrasts with **post-growth** approaches advocated by researchers such as Jackson (2009), Seidl and Zahrnt (2010), van den Bergh (2011) and D'Alisa, Kallis, and Demaria (2016), which are derived from the post-growth model. These approaches argue that economic growth, especially as measured by gross domestic product (GDP), and the associated compulsion to grow are the root causes of ecological problems. They point out that numerous analyses of the current economic and social system show that economic growth is unlikely to be a solution in the current system. This view is based on the recognition that modern capitalist democracies often depend on permanent increases in profits and productivity in order to stabilize themselves (Binswanger (2019); Lessenich (2020); Rosa (2016)), as we have explained under economic challenges.

The underlying disagreement between these polar positions lies in one of the most central questions of sustainable economics: Should we focus on green economic growth to achieve ecological goals, or is it necessary to rethink the existing economic system and its focus on growth? In the following section, we will explore these concepts and views in greater depth in order to develop a better understanding of the challenges and opportunities in the field of environmental and sustainability policy.

[1] The term degrowth is also frequently used. Although the two terms are not entirely synonymous, they largely overlap. For the sake of simplicity, we will therefore use the term post-growth in each case. In our view, the strength of the term post-growth lies primarily in the fact that it does not emphasize a possible contraction of the economy, but rather the necessary independence from growth.

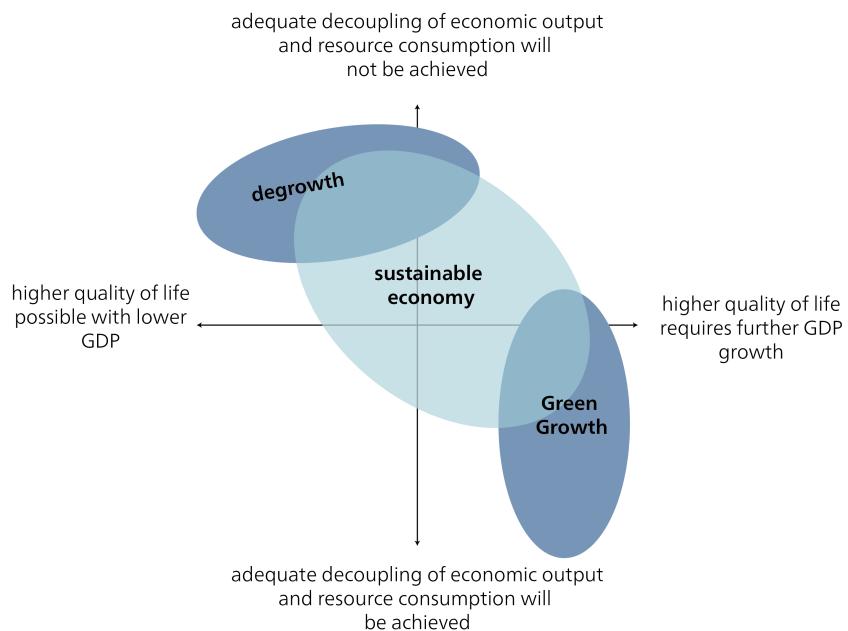


Figure 6.3: adapted from Petschow, Lange, and Hofmann (2020)

Further reading

If you are interested, you can watch [the statement by Paolo Gentiloni](#)(European Commissioner for Economy) at the Beyond Growth conference to illustrate the green growth position. The post-growth position is well illustrated in [a contribution by Timothée Parrique](#)at the same conference.

6.4 Weak and strong sustainability

The two polar positions, green growth and post-growth, refer to different definitions of sustainability. The concept of sustainability can be classified on a continuum from weak to strong. In this context, the extreme positions lead to one-dimensional interpretations that fail to recognize the multidimensional character of the sustainability model.

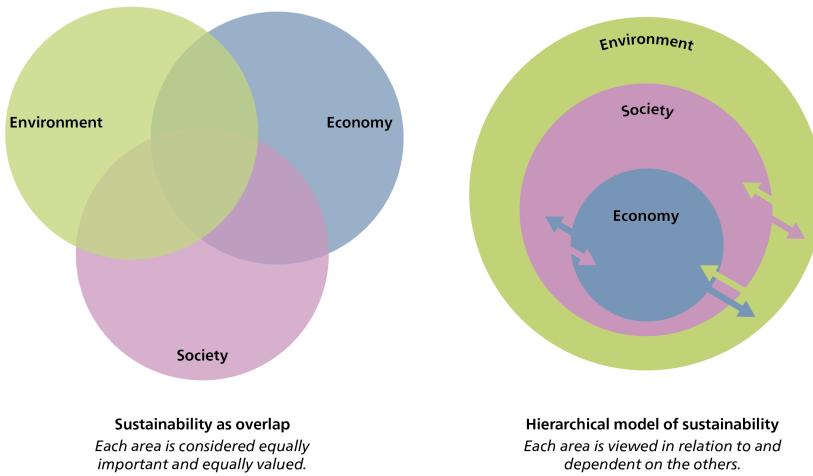


Figure 6.4: adapted from Petschow et al. (2018: 22)

6.5 Weak sustainability – position of neoclassical economics^[1]

Weak sustainability represents a rather “lenient” requirement for sustainability. For proponents of this view, an action is sustainable if it offers an overall benefit to the system as a whole or at least does not reduce its quality. Weak sustainability can therefore be seen as a kind of basic requirement for sustainability, with the aim of maintaining a certain level of well-being/quality of life or ensuring equality. The concept of weak sustainability “assumes the extensive and, at least in principle, unlimited [...] substitutability of all types of capital” (Ott and Döring (2004), p.41, own translation) and is thus based on the premise of neoclassical economics. For example, natural capital can be replaced by other types of capital; the loss of biodiversity could be replaced by technological capital. It is assumed that it is ultimately irrelevant in what physical form the inherited capital stock is passed on to the next generation – the only thing that matters is that the total capital and total utility, and thus the overall level of welfare, are maintained. The concept of weak sustainability ties in with neoclassical utility theory, according to which it is irrelevant how utility is generated. Environmental economics, which emerged from neoclassical economics, fundamentally draws on the concept of weak sustainability.

Within the framework of the concept of weak sustainability, a measure can still be considered sustainable even if it is at the expense of natural capital. This is the case, for example, if the loss is offset by an increase in human or physical capital. The extraction of raw materials such as coal or excessive crude oil production could therefore be perfectly justifiable. This understanding tends to recognize the strong role of technological progress in sustainable development. Evaluating measures based on such a concept is inherently complex, as it always involves many assumptions. Apart from fundamental questions about sustainability such as “What is a good life? How do you measure the level of prosperity?”, the value of different types of capital must also be determined.

This is because an important prerequisite for substitutability is that the different types of capital are comparable, which in practice means that everything must be assigned a monetary value. Even where there is no market price, a monetary value must therefore be determined. As early as 1974, William Kapp doubted whether this monetary valuation could reflect the substantial social value that is actually at stake K. W. Kapp (1974). In addition, fundamental and normative questions arise when it comes to operationalization. Which factors are taken into account? What is the value of natural beauty? What is the value of a rare bird or a whale? This short [video](#) gives some insight into these discussions.

Criticism of the concept of weak sustainability therefore includes questions about the unlimited substitutability of natural resources by reproducible capital. There are also doubts as to whether more goods can compensate for the loss of environmental quality. Finally, there is uncertainty about the development of resources and critical thresholds. The consequence of this criticism is the concept of strong sustainability.

Strong sustainability – the position of ecological economics

In contrast to weak sustainability, the position of strong sustainability considers the value of natural capital to be irreplaceable. Characteristic of the proponents of strong sustainability is that their optimism regarding individual substitution possibilities is much lower. They therefore emphasize the importance of an intact natural capital stock. They consider it inconceivable that the natural capital stock could be drastically reduced in favor of another type of capital. Human-produced capital and natural capital are only interchangeable to a limited extent. Proponents of strong sustainability thus take an ecocentric view, in contrast to the anthropocentric view of weak sustainability.

In contrast to the confidence of neoclassical economists regarding substitutability, proponents of strong sustainability do not believe in solutions based on aftercare and re-action, but rather focus on prevention and anticipation. For example, the increase in the ozone hole can only be compensated to a limited extent by measures such as sun-screen, protective clothing, and medical aftercare. Even technological approaches such as geoengineering are viewed critically, as they treat the problem superficially rather than addressing its causes. Geoengineering refers to technical interventions in geochemical or biogeochemical cycles, for example to slow down climate change or ocean acidification.

Until now, reducing environmental pollution has mainly focused on end-of-pipe technologies, such as catalytic converters in cars. At the same time, long-term environmental problems have been pushed into the background by such measures as long as their effects have not been clearly perceived, as in the case of climate change or biodiversity loss. This seemingly environmental protection is explained by the concept of **externalization**, in which environmental and social costs are shifted to external parties, as described, for example, by Lessenich (2020). This means that only economic and business costs are taken into account in pricing, partly because these are easier to quantify, while the social and environmental costs of providing goods and services are omitted or shifted to external parties. This leads to distortions in market prices.

[1] Excerpt from Pufé (2017), starting on page 105, and <https://thesustainablepeople.com/starke-und-schwache-nachhaltigkeit/>

6.5. WEAK SUSTAINABILITY – POSITION OF NEOCLASSICAL ECONOMICS^[1]69

Table 6.1: Comparison of weak and strong sustainability (Pufé (2017), p.109)

weak sustainability	strong sustainability
<ul style="list-style-type: none"> • human-centered perspective (anthropo-centrism) • based on neoclassical economics • assumes harmony between growth and the environment • substitutability of natural capital • growth paradigm, growth is central • optimistic about the potential for continued growth <p>strategy: rely on technological efficiency, economic growth and market mechanism conventional cost-benefit analysis as primary decision-making tool</p>	<ul style="list-style-type: none"> • nature-centered perspective (ecocentrism) • based on ecological economics • conflict between growth and environment • no substitutability of natural capital • impossibility of infinite growth • sceptical about continued growth <p>strategy: stop/limit growth, ethical restraint and efficiency at both personal and political levels sees traditional cost-benefit analysis as inadequate for sustainability issues</p>

As already mentioned at the beginning, the polar positions of sustainable economics, green growth, and post-growth are based on different understandings of sustainability, are supported by scientific concepts of different schools of thought and are accordingly oriented toward different economic policy frameworks. In the next section, we will take a closer look at the range of approaches and their respective focuses, concentrating on the post-growth framework. The reason for focusing on post-growth is that we believe this economic policy framework makes a key contribution to a sustainable economy.

Chapter 7

Approaches of sustainable economics

As outlined in the preceding section, the debates around sustainable economics are shaped by different guiding frameworks, which are influenced by various theoretical perspectives within pluralist economics and differ in their understanding of sustainability and their respective viewpoints. Most approaches within sustainable economics can be assigned to the post-growth framework. From the welfare capitalist framework, approaches such as green growth and the circular economy can be derived. The liberal market framework lies largely outside the debate of sustainable economics, although certain aspects of green growth are discussed, such as the internalization of external effects.

In the following, we will engage more deeply with specific approaches. Since the debates within sustainable economics are very diverse, no definitive or fixed classification of the approaches can be made. Nevertheless, we have distinguished between several approaches here. While there are many overlaps among them, in our view they can still be differentiated based on their distinct emphases. This classification is intended to serve as an orientation. For the approaches within the post-growth framework, we follow Schmelzer and Vetter (2023).

Learning Outcome

By the end of the module, students...

- are able to distinguish between the main approaches of sustainable economics.
- know the key characteristics, solutions, and concepts of one approach and are able to explain it using examples.

7.1 Approaches of sustainable economics

Below you will find a list of different approaches within sustainable economics and corresponding material for each approach. Please choose two of the following approaches.

Work through the material for each approach. On Mural you will find question regarding the approaches. Try to answer the questions for the approaches you have chosen. This way you can gain an overview of the different approaches based on the work of other students. The lecturers will regularly check the Mural board and delete statements that are strongly incorrect or misleading, however, the lecturers will not correct every answer provided by the students.

7.1.1 Welfare capitalist paradigm

7.1.1.1 Green Growth

The text by Petschow, Lange, and Hofmann (2020) serves as an introduction and provides an overview of Green Growth. This video snippet is from a contribution by Michael Jacobs for the panel “Focus Panel 1 – Which Prosperous Future? Confronting Narratives of Growth” at the Beyond Growth Conference 2023. If interested, the full panel discussion can be watched.

7.1.1.2 Circular Economy

This video serves as a brief introduction. The text by Lazarevic and Brandão (2020) provides a more in-depth introduction to the topic. If you are interested, the text by Bocken et al. (2022) can be read as an additional resource.

<https://www.youtube.com/watch?v=NBEvJwTx4w>

7.1.2 Post-growth paradigm

7.1.2.1 Growth-independent institutions

The paper by Corlet Walker et al. (2024) presents an approach to the question of the UK welfare system. And the following video presents a further discussion on making the UK welfare system more growth independent.

<https://www.youtube.com/watch?v=gK4iuguEDgQ>

7.1.2.2 Sufficiency-oriented way of living

This video by Niko Paech, prominent proponent of this approach, will provide an introduction into the main ideas of this approach.

https://www.youtube.com/watch?v=rS3ldLZ_kYE

The text by Juliet Schor (2008), a pioneer in the research on consumerism in the US, provides a further discussion of this approach. The text is relatively old, however, provides a good overview of the central issues. However, especially with regard to work time reduction, there has been a lot of new research since then, you are encouraged to explore if you are interested in.

<https://www.youtube.com/watch?v=H3eSFIu3D0E>

7.1.2.3 Collective action

The paper by David Bollier (2015) gives a good sense of the core idea of such approaches and presents a good overview. This video on commoning the city provides and discusses more concrete ideas of how this approach might look like:

<https://www.youtube.com/watch?v=qCmJcPkpI98>

https://www.youtube.com/watch?v=4MKu_jB-UkM

<https://www.youtube.com/watch?v=gydkOrGrs8Q>

7.1.2.4 Overcoming the imperial way of life

The text from the ILA collective provides a concise introduction into the idea of this approach. The video taken from a talk by Ulrich Brand, one of the main proponents of this approach, offers further discussions on this approach:

<https://www.youtube.com/watch?v=4UiT5J0HPHc>

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