1. Economic methods and legal reasoning

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I. DEVELOPMENT OF LAW AND ECONOMICS

The modern economic analysis of law was developed in the United States in the second half of the 20th century.¹ There are several factors that contributed to this development. However, the main reason is probably a cultural one. The critique of legal realism with regard to the power of legal doctrine to determine the results of legal decisions has had a much stronger influence on legal academia in the United States than in continental Europe. With the disenchantment of legal doctrine, US scholars had to look for different fields of research activity. The economic analysis of law was one approach that tried to bridge this gap.²

The emergence of the Law and Economics movement in the US is often traced back to Ronald Coase's article on 'The Problem of Social Cost' in the *Journal of Law and Economics* in 1960. This article paved the way for the economic analysis of tort and contract law. In the 1960s, Guido Calabresi advanced the economic analysis of tort law, culminating in his book on accident law in 1970. Gary Becker then applied economic principles to areas of law which had previously not been susceptible to an economic analysis: to crime, racial discrimination or family life. In 1973, Richard Posner published his seminal textbook on the *Economic Analysis of Law*, in which he tried to present for the first time a comprehensive analysis spanning several different fields of law.

¹ For a detailed account, see Kristoffel Grechenig and Martin Gelter, *History of Law and Economics* (Working Paper, MPI Collective Goods, 2014).

² See Grechenig and Gelter, *The Transatlantic Divergence in Legal Thought*, 31 HASTINGS INT'L AND COMP. L. REV. 295 (2008).

II. POSITIVE AND NORMATIVE ECONOMIC THEORY

In the scholarly discourse, two approaches to economic analysis can be distinguished. We will briefly touch upon this distinction again in Chapter 2. First, we can use economic theory as a *descriptive* tool ('positive theory'). Economics, then, is a perspective to look at the world and to make sense of what we see. How do people behave – in terms of our theory? And why do they behave this way – in light of our theory? To see how well our positive theory reflects what we empirically observe, we derive hypotheses about the behavior we would expect to see in certain situations: We make *predictions*. We can then check in an empirical study (see Chapter 7) whether our predictions are correct, and evaluate our theory accordingly, adapting it if necessary. Second, we can use economic theory to postulate how the world should be ('normative theory') or we can evaluate different states of the world according to a normative standard. For example, welfare economics (as we will see in greater detail in Chapter 2) posits that a condition A 'is better than' a condition B if more people are better off materially under condition A. It thereby assumes a *normative standard* (it is good if people are prospering materially), and measured against this standard it makes a *normative judgment* ('is better than'). Of course, the line drawn between positive and normative theory is not always that bright and clear. Positive theory can carry implicit normative assumptions; and even the mere labeling of a behavior as 'rational' may be understood to contain a judgment. Moreover, positive theory may not only describe, but also *affect behavior* if people informed by economic theory expect their environment to behave in a certain way, and condition their own behavior on this expectation: If I expect everyone else to behave selfishly, as positive economic theory seems to imply, then my best reaction is to behave selfishly myself; my selfish behavior may, in turn, induce my environment to behave selfishly, which proves my suspicion that everyone else behaves selfishly ('self-fulfilling prophecy').³

The normative side of economic theory is the main reason why – despite the success of law and economics in the US – there has long been a fierce resistance against the economic analysis of law in other parts of the world, especially in continental Europe. This resistance was primarily based on the normative target that the economic analysis of law often had in

³ On this issue, see the very instructive study of Donald MacKenzie and Yuval Millo, *Constructing a Market, Performing Theory: The Historical Sociology of a Financial Derivatives Exchange*, 109 AMERICAN JOURNAL OF SOCIOLOGY 107 (2003).

the US. Law and economics was not just understood as an approach to explain legal institutions, but also as a guideline for reform to make them more efficient. Richard Posner once wrote that ‘wealth maximization should guide public policy in all spheres’.⁴ Legal scholars in continental Europe thus feared that accepting economic analysis would lead to economic efficiency trumping other values – such as fairness and equity or, more concretely, distributive justice. This fear was even more pronounced as the economic approach did not limit itself to the analysis of economic fields of law, but also extended to criminal law or family law.

III. THEORY BUILDING AND RESEARCH IN SOCIAL SCIENCES

Economics is not the only academic discipline that studies human behavior. Other social sciences, such as sociology, anthropology, or psychology, analyze behavior from a different perspective. This book primarily focuses on the economic perspective. However, it refers to other disciplines wherever this is helpful. This particularly concerns psychological research, which criticizes some of the fundamental assumptions of economics. Despite all differences in the perspectives and the emphasis, the methods of the different social sciences are very similar. For this reason, the following remarks address the design of social science research in general.

Social science theories focus on the explanation of human behavior and social interaction. On the one hand, they are supposed to describe and explain social phenomena; on the other, they can allow for predictions: Do people comply with legal norms? Why do they comply? Under which conditions do they obey the law? Both tasks, the explanation as well as the prediction, are complicated by the fact that the occurrence of specific phenomena usually depends on several different factors that we cannot take into account in their entirety because of cognitive limitations.

To clarify this difficulty, let us consider an example from physics. Scientific relations equally depend on different influences. If I drop an object from a specific height, I can, in principle, predict how long it will take for the object to reach the ground. However, the object does not usually fall in a vacuum. For this reason, the time for it to reach the floor not only depends on the mass of the object and the distance it falls, but also on aerodynamic resistance, as well as the volume and the shape of the object. Therefore, a

⁴ Richard A. Posner, *The Ethical and Political Basis of the Efficiency Norm in Common Law Adjudication*, 9 HOFSTRA L. REV. 775, 780 (1981).

prediction of the exact travelling time is only possible in theory. In practice, we usually do not have sufficient information for a precise prediction.

The same problem occurs in the context of social sciences. Whether or not a specific person complies with a legal norm depends on the circumstances. Different people have different degrees of law obedience. But even with regard to one specific person, compliance with the law may depend on the circumstances. Let's imagine a fictitious character, Melissa. Melissa would never kill a person. But the fact that she complies with the prohibition of homicide does not mean that she always complies with the law. Instead, she might at times cross the street at a red light. However, Melissa is not even consistent with regard to this one norm. When she is in a hurry and when nobody is on the street, it is more likely that Melissa will not comply than when she sees a policeman or a group of school children.

We can still observe regularities and characteristics of causal relationships. In reality, however, we rarely observe monocausal relations. Instead, the social phenomena that we observe usually have several causes. If we want to make claims about X and Y, we can therefore usually not make deterministic, but only probabilistic claims. Instead of saying that X automatically determines the occurrence of Y, we can only say that X makes the occurrence of Y more likely. Let us assume that there is a causal relationship between economic development of a state and this state's level of democracy.⁵ In such a case, we will not be able to say that a specific level of economic development automatically leads to a transition to democracy. Instead, democratization depends on many different factors. However, what we can say is that a higher level of economic development makes a transition to democracy more likely. We can thus make a probabilistic causal statement.

IV. SOCIAL SCIENCE METHODS AND LEGAL REASONING

In legal scholarship, research questions can stem from three different perspectives. First, legal scholarship is concerned with legal doctrine and the interpretation of norms. The main question in this research is:

⁵ There is a lively debate on this question in the social science literature. See, on the one hand, ADAM PRZEWORSKI, MICHAEL E. ALVAREZ, JOSÉ ANTONIO CHEIBUB AND FERNANDO LIMONGI, *DEMOCRACY AND DEVELOPMENT: POLITICAL INSTITUTIONS AND WELL-BEING IN THE WORLD, 1950–1990* (Cambridge: Cambridge University Press 2000), and, on the other hand, Daron Acemoglu, Simon Johnson, James A. Robinson and Pierre Yared, *Income and Democracy*, 98 AM. ECON. REV. 808 (2008).

What is the law? Second, legal research can deal with legal reform. It can analyze the quality of existing norms and make propositions about how to improve them. The main question is: What should the law be? Finally, law can also be treated as a social phenomenon. This perspective analyzes the effect of law on society or certain social actors. The use of social sciences in general and economic methods in particular depends on the kind of perspective that is taken. For this reason, the different perspectives will be considered separately in the following.

A. Legal Doctrine

At first glance, social science methods do not seem to be of much value for legal doctrine. Doctrinal reasoning is a normative exercise, while the social sciences deal with the description and explanation of reality. Facts only come into play once the norm interpretation is completed and the norm is applied to the concrete case. However, the differentiation between norm interpretation and norm application is too cursory. Norm interpretation is no mathematical exercise. Many normative concepts depend on empirical assumptions. The following four sections show three examples of legal reasoning where the interplay between normative and empirical argumentation is particularly obvious.

1. Teleological interpretation

Teleological interpretation asks for the purpose of a norm – the *telos*. Teleological interpretation consists of two steps. First, we have to identify the purpose. This is principally a normative exercise to which social sciences do not have much to contribute. However, in a second step, we have to find the interpretation which best matches the aim that the norm seeks to achieve. In this second step, social sciences may play an important role. For example, norms that try to achieve an economic purpose cannot be interpreted without taking into account the relevant economic concepts.

Let us consider an example from US gambling law.⁶ In most states, gambling is heavily regulated. Usually, the state has a monopoly on operating lotteries, and the unauthorized offering of gambling activities is subject to criminal sanctions. The principal reason for such regulation is the addictive potential of betting and gambling. However, under the common law definition and most state laws, there is an important distinction between

⁶ The example is based on Emanuel V. Towfigh, Andreas Glöckner, and Rene Reid, *Dangerous Games: The Psychological Case for Regulating Gambling*, 8 CHARLESTON L. REV. 147 (2013).

games based on skill and games based on chance.⁷ Only games of chance are covered by the gambling prohibition, while the offer of skill games is usually allowed.

In the legal literature, there is an intensive discussion on whether sports betting is a game of skill or a game of chance. If it were qualified as a game of chance, it would be subject to severe gambling regulation. If it were considered as a game of skill, any private person would be able to offer sports bets for money. The question of whether sports bets are a game of chance or a game of skill is both an empirical and a normative question. Even a game of skill may include elements of chance. Nobody would argue that sports bets are totally independent of chance. The normative question is, thus, to what extent chance may be an element of skill games for them still to be considered as skill games. The empirical question that follows is to which extent sports bets are indeed dependent on skill.

With regard to the normative question, it is very difficult to determine an exact cut-off point. Are games that are made up of 51 percent skill and 49 percent chance still skill games? Consequently, one could argue teleologically. We have seen that the regulation of chance games is usually justified by their addictive nature. Sports bets should thus be subject to regulation if they have a significant addictive potential. However, this is again an empirical question. Emanuel Towfigh and Andreas Glöckner show in an experimental study that people have an illusion of control if they are betting in a field in which they claim to have expertise.⁸ Consequently, mixed games, which consist of elements of skill and chance, appear to be even more addictive than pure chance games. This suggests that such mixed games ought to be subjected to gambling regulation.

2. Proportionality

Many constitutional and supreme courts today recur to the proportionality test in their individual rights adjudication. The only prominent exception seems to be the US Supreme Court, even though elements of proportionality are also present in the US case law. Proportionality comes into play at the second stage of a two-stage individual rights analysis. After a court has found that a specific state measure has restricted an individual right, it usually has to shift its focus on whether the restriction can be justified. In this justification analysis, proportionality plays a pivotal role.

⁷ See *id.*, at 160–61.

⁸ Emanuel V. Towfigh and Andreas Glöckner, *Game Over: Empirical Support for Soccer Bets Regulation*, 17 PSYCH., PUBL. POL'Y AND L. 475 (2011).

The proportionality test consists of four prongs. First, the restricting measure has to pursue a legitimate purpose. Second, the measure has to be rationally connected to the purpose, and third, it has to be the least restrictive of all equally effective means. Finally, courts have to balance the importance of the purpose and the extent to which the measure promotes this purpose with the importance of the restricted right and the severity of the restriction. Social science methods are relevant at the last three of these steps. To be rationally connected to the purpose, the measure has to have a causal effect on the latter. The less restrictive means test requires a comparison of alternatives, which implies a comparison of the effects of actual measure and the potential less restrictive alternative measures. In the balancing stage, courts finally have to make assumptions about the extent of the positive and the restrictive effect of the state measure. All these questions are empirical questions, and social science methodology can help us to approach these questions.

Let us consider two examples. In the seminal *Makwanyane* judgment, the South African Constitutional Court faced the question whether the death penalty violated the right to life that was guaranteed by the South African Constitution.⁹ The issue had been a constant point of debate between the grassroots level and the elites of the African National Congress (ANC). The elites of the ANC, in particular Nelson Mandela, predominantly opposed the death penalty because it had been used frequently against ANC members in the apartheid era. However, the death penalty was very popular among the grassroots members of the ANC and the general population. It was considered as a remedy to the rampant crime rate that plagued South Africa at the time. As no compromise could be found, the South African interim constitution was moot on the issue and delegated the question to the Constitutional Court.

In its judgment, the court argued that the death penalty was only consistent with the constitution if it was proportionate. It identified deterrence as the core purpose of capital punishment. The debate centered around the question whether the death penalty is the least restrictive means to achieve deterrence. The opponents of the death penalty had argued that long prison sentences were a less restrictive alternative. That a prison sentence is less restrictive to the right to life than the death penalty seems obvious. The pivotal point is whether it is equally deterrent. However, this is an empirical question about the deterrent effect of two different types of punishment, which needs to be addressed by methodological tools stemming from the social sciences.

⁹ *S. v. Makwanyane*, 1995 (3) SA 391 (CC).

The second example originates from the jurisprudence of the Canadian Supreme Court.¹⁰ The Canadian province of Quebec had established a public health insurance scheme. At the same time, it had banned private health insurance in order to avoid a defection of wealthy citizens from the public scheme. However, there was significant discontent with this state of affairs because there were some long waiting lists for certain medical treatments under the public scheme. The Canadian Supreme Court had to decide in *Chaoulli v. Quebec* whether this prohibition of private health insurance in combination with long waiting lists under the public scheme violated the right to life and to personal inviolability under the Canadian Charter of Rights and Freedoms.

The decisive question in this case was also an empirical one. The majority opinion and the dissenting judges disagreed on whether the introduction of private health insurance would lead to a deterioration of the services offered under the public scheme. While the majority recurred to the experience of other countries and other Canadian provinces and argued that private and public schemes could coexist, the minority countered that these experiences could not be transferred without qualification to the Quebecois context. This is, again, a question that cannot be addressed without recurring to social science methods.

3. Equal protection

Empirical arguments may also play a role in the context of equal protection guarantees. Sometimes, discriminations are straightforward. If a legal provision attributes certain benefits to men, but not to women, the latter are discriminated because of their sex. However, many of the problematic cases of discrimination today are subtler. Some provisions may use apparently neutral criteria of distinction, but still lead to a de facto discrimination of a vulnerable group. In other cases, a distinction is made, but it is difficult to identify whether one group is indeed treated worse than another. In some of these cases, empirical considerations can help us to establish whether the distinction does indeed lead to discrimination.

Brown v. Board of Education is one of the most famous judgments ever taken by the US Supreme Court.¹¹ The decision overturned an almost 60-year-old precedent. At the dusk of the 19th century, the Supreme Court had decided in *Plessy v. Ferguson* that racially segregated schools did not violate the equal protection clause as long as the quality of the ‘black’ schools was not worse than the quality of the ‘white’ schools – the famous

¹⁰ *Chaoulli v. Quebec (Attorney General)*, [2005] 1 S.C.R. 791.

¹¹ *Brown v. Board of Education of Topeka*, 347 U.S. 483 (1954).

‘separate but equal’ doctrine. In *Brown*, the court made a U-turn and held that racial segregation violated the constitution. It found that segregation had a detrimental effect on black children even if the quality of the schools was the same. The separation of schools caused a stigma of inferiority for black students. In order to support this claim, the court cited corresponding psychological studies. The court thus used an empirical argument to justify that formally equal treatment could constitute discrimination.

4. The interpretation of standards

Finally, social science methods may help with the interpretation of open-textured standards. The legislature usually has the choice between different levels of specificity when it wants to regulate a certain subject matter. Very specific norms usually increase legal certainty and predictability. However, they are also more likely to be over- or under-inclusive. In contrast, standards provide less certainty, but give judges the flexibility to react to unforeseen circumstances. The optimal specificity of a norm usually differs according to the regulated subject matter.

One area where vague standards are the norm rather than the exception is constitutional law. As the decision-making costs for changing the constitution are usually high, judges have to have a certain level of flexibility to interpret constitutional standards according to changing social circumstances. One example of an open-textured constitutional norm is the guarantee of democracy that is enshrined in section 20 of the German Constitution. This norm stipulates that the German state has to be organized in a democratic manner and that the exercise of public authority has to originate from the German citizenry. However, the concept of democracy is not further specified.

The definition of democracy becomes crucial when we want to evaluate the transfer of legislative and executive powers to international or supranational institutions, such as the European Union. When the German Federal Constitutional Court assessed the constitutional compatibility of the European integration process in its Maastricht and Lisbon decisions, the democracy guarantee of the German Constitution was the core standard of assessment.¹² In the Lisbon judgment, the court held that the Lisbon treaty was, in principle, compatible with the German Constitution. However, it identified certain core competencies of the nation state that could not be transferred to the European Union, which it derived from the constitutional guarantee of democracy. These included, inter alia,

¹² See BVerfG, 89 BVerfGE 155 (12 Oct. 1993); 123 BVerfGE 267 (30 June 2009).

the determination of citizenship, the monopoly of the legitimate use of physical force, the budgetary sovereignty of parliament, and the legislative competency in criminal matters.¹³

The Constitutional Court argued that a functioning democracy depended on the existence of a public opinion.¹⁴ It continued by stating that the public discussion of political topics was inextricably linked to patterns of identification that were based on a common nation state, language, history, and culture.¹⁵ From this premise it drew the conclusion that the transfer of the core competencies of the nation state would lead to a structural democracy deficit. Even though the reasoning of the court is exclusively normative and deductive, it rests on certain implicit empirical assumptions. The vitality of a public opinion for the functioning of democracy is already an empirical assumption. Furthermore, the statement that such a public opinion necessarily depends on patterns of identification related to the nation state is also an empirical one.

Even though these questions are not related to economics in the strict sense, they require a social science methodology to be addressed. It is not by accident that these questions are broadly discussed in international relations, sociology, and social psychology. The Federal Constitutional Court does not make any effort to clarify these empirical assumptions, and it does not refer to the corresponding discussions in the social sciences. The mere sensibility for the problem would already have made the reasoning more convincing.

B. Legal Reform

In the United States, the discussion in legal scholarship predominantly focuses on the question of legal reform, rather than on the interpretation of the existing body of law. If one concentrates on the question of what an optimal law should look like, the estimation of the consequences of legal regulation is of fundamental importance.¹⁶ The legislature usually tries to achieve concrete regulatory goals. It seeks to reduce the greenhouse gas emissions of cars or the costs of the public health care system. There are usually several options to pursue these purposes. Consequently, the legislature has to make a prognosis which of these options is best suited

¹³ *Id.*, at para. 249.

¹⁴ *Id.*, at para. 250.

¹⁵ *Id.*, at para. 264.

¹⁶ See ANNE VAN AAKEN, *RATIONAL CHOICE IN DER RECHTSWISSENSCHAFT* 156 *et seq.* (Baden-Baden: Nomos 2003).

to achieve the goal and which has the least negative side effects. Such a prognosis requires social science methods and theories.

C. Law as a Social Phenomenon

A third area of legal scholarship deals with law as a social phenomenon: What is the effect of law on society? Why and under what circumstances do people comply with legal norms? What is the effect of culture on law and legal interpretation? The legal argumentation framework is of little help in addressing these questions. It helps us to determine the interpretation of a norm, but it does not provide support if we look at the effect of the latter. Consequently, we need again to make use of the methodological toolbox from the social sciences – be it from economics, sociology, psychology, political science, or anthropology.

An example for this type of research is the old debate on the effectiveness of international law. International law is supposed to coordinate the conduct of states. It covers different fields, which range from the regulation of the use of military force in conflicts, over human rights to international economic law. The principal difference of international law compared to national legal systems is the lack of a central sanctioning mechanism. There is no global executive, no global police force, which could implement sanctions against infractions of international law. For this reason, some authors claim that international law is irrelevant.¹⁷

There has been a constant and controversial debate about this question. In particular, the law and economics literature has tried in recent years to identify factors because of which states possibly comply with international law even in the absence of central sanctions.¹⁸ Such incentives may include decentralized sanctions, which are carried out by other states, or the fear of a bad reputation, which might make future cooperation with other states more difficult. Furthermore, there are empirical studies that analyze whether the ratification of human rights treaties has a positive effect on the human rights record of the ratifying states.¹⁹

¹⁷ See JACK L. GOLDSMITH AND ERIC A. POSNER, *THE LIMITS OF INTERNATIONAL LAW* (Oxford: Oxford University Press 2005).

¹⁸ See, in particular, ANDREW T. GUZMAN, *HOW INTERNATIONAL LAW WORKS* (Oxford: Oxford University Press 2008); JOEL P. TRACHTMAN, *THE ECONOMIC STRUCTURE OF INTERNATIONAL LAW* (Cambridge: Harvard University Press 2008).

¹⁹ See Oona A. Hathaway, *Do Human Rights Treaties Make a Difference?*, 111 *YALE L.J.* 1935 (2002); Eric Neumayer, *Do International Human Rights Treaties Improve Respect for Human Rights?*, 49 *J. CONFLICT RES.* 925 (2005).

D. The Limits of the Economic Analysis of Law

The previous sections of this chapter have pointed out the positive potential of social science methods in legal scholarship. However, the application of economic methods in legal reasoning also has its limits. In the following, two limits will be particularly highlighted. On the one hand, the efficiency orientation of economic models has to compete with alternative normative goals in the legal context. On the other hand, questions of research design in empirical studies often have implicit normative implications that have to be taken into account when lawyers rely on empirical studies.

1. Efficiency and distribution

We have already seen that economics has both a positive and a normative dimension. Positive studies try to show which regulation is the most efficient among several alternatives. The normative strand of economics would draw the additional conclusion that the most efficient regulation is automatically also the best regulation because it is an expression of the cumulated preferences of the affected individuals. According to the Pareto principle, a measure is justified if it makes at least one person better off without impairing the position of any other person. (see Chapter 2, section II.A). This principle will rarely face opposition – as nobody loses in such a scenario. The problem is that such a situation rarely occurs in reality. Usually, we face trade-offs: A certain group gains while another group loses.

For this reason, the economists Nicholas Kaldor and John Hicks developed a principle according to which measures are economically efficient if the individuals who gain could theoretically compensate those who lose (see Chapter 2, section II.B). The sum of the positive and the negative effects of the measure thus has to be positive. The problem with this principle is that the compensation is only a theoretical one. A measure that would benefit the richest 10 percent of the population to the detriment of the remaining 90 percent might be unjust. However, according to the Kaldor-Hicks principle, it would be economically efficient if the cumulated gains of the 10 percent outweighed the cumulated losses of the 90 percent. As a normative standard, efficiency according to Kaldor and Hicks could thus lead to significant distribution problems.

Nevertheless, there have been attempts among economists to justify efficiency as the normative gold standard. The most interesting attempt is probably a thought experiment of the Nobel laureate John Harsanyi.²⁰

²⁰ John C. Harsanyi, *Cardinal Utility in Welfare Economics and in the Theory of Risk Taking*, 61 J. POL. ECON. 434, 434–5 (1953).

Harsanyi imagines an original position, in which all citizens decide about the shape of their society. However, in the original position, they do not know which position they will have in the society once it is established ('veil of ignorance'). They do not know whether they will be rich or poor, intelligent or stupid, beautiful or ugly. Harsanyi assumes that people will take their decision on the basis of their expected value. This 'expected value' can be calculated by multiplying the utility of all possible social positions with the likelihood that they will be attained and by adding these values up. A measure that benefits the rich would thus increase the total expected value if the total benefit of the rich were higher than the total loss of the poor.

Let us consider an example to clarify the idea even if it might oversimplify the model. Let us assume a society with five people. In the egalitarian scenario, each member of the society would possess 2,000 USD. The expected value of this scenario would thus be 2,000 USD. Now, let us consider the inequalitarian scenario, in which one person would gain 8,000 USD on top of his 2,000 USD, while all the other four members would each lose half of their 2,000 USD. The total welfare in this scenario is higher. The cumulated fortune equals 14,000 USD, compared to 10,000 USD in the inequalitarian scenario. In the original position behind the veil of ignorance, the expected value of each member of the society would also be higher. Each person would have a 20 percent chance to become the rich person, and an 80 percent chance to become one of the other members of society. The expected value would thus be 2,800 USD, and the individuals in the original position would opt for the inequalitarian option.

The assumption behind the model is that individuals only look at the expected value if they choose between different scenarios. However, the empirical evidence points in a different direction. Psychologists and experimental economists point out that human beings are usually risk-averse (see Chapter 8, section III.B.2(c) on risk aversion). If the chances to win the main prize of the lottery are low, people opt for the safe bet rather than for the risky option with the higher expected value. Moreover, most individuals have an inequality aversion. Thus, Harsanyi's assumption that the expected value is the main driver of decisions between different welfare scenarios is questionable. Consequently, the maximization of economic efficiency cannot be the only normative reference point for legislation and legal decision-making.²¹

²¹ Certainly, it would be possible to make the model more complex and take risk and inequality aversions into account. A Kaldor-Hicks-efficiency accounting for inequality aversion probably meets little resistance. However, it would also

2. Normative implications of research design questions

The results of social science studies do not represent unquestionable truths. Rather, they always rest on specific assumptions. Lawyers have to be aware of these assumptions if they want to use social science insights for their normative reasoning. Theoretical economists usually work with mathematical models to make explanations or predictions. Models usually try to represent what we observe in reality, but to reduce complexity at the same time. Just think of the model of a sailing ship or a map. That means that they cannot take into account all factors that occur in reality. Instead, they have to focus on the most important ones for the relationship they want to explain. Furthermore, they have to make certain assumptions that can be more or less convincing. The most famous assumption of classical economic theory is probably the assumption that people act rationally (see Chapter 8, section III.B on this assumption). We can only use the insights of a specific model for normative reasoning to the extent that we buy into the assumptions of the model.

This is also valid for empirical research. There is no neutral observation of reality. Instead, researchers have to choose a specific perspective, and this perspective determines to a certain extent what they observe. Empirical studies are usually interested in causal relationships. To determine such causal relationships, the variables constituting these relationships have to be measured. Such a measurement has two steps: First, the variables have to be defined; second, they have to be operationalized. The definition seeks to identify the decisive characteristics of a concept. In the operationalization phase, researchers look for indicators for measuring the variables.

The definition of concepts in particular requires normative judgments, which have an effect on the result of the study. Let us assume we want to conduct a study on the effect of certain social policy measures on the poverty level of a state. For such a study, we have to define the concept of poverty. Conceptually, there are at least three ways to define poverty. We can measure poverty in an absolute, a relative, or a subjective way. An absolute indicator would identify monthly per-capita income as a poverty threshold. People earning less than this threshold would be qualified as poor.

Relative poverty would be measured in relation to the median income. One could, for example, argue that people earning less than 60 percent of the median income should be qualified as poor. Relative income has the

render the concept practically meaningless because it would probably add too much complexity.

advantage of taking into account that prices usually depend on the general level of welfare. A budget that allows for a modest life in Berlin may not be sufficient for survival in Tokyo. However, the concept is also sensitive to the variance of income. If there is huge disparity in income, poverty may rise under the relative definition. Nevertheless, the relative threshold does not necessarily say anything about what people who are poor can actually buy.

A subjective measure of poverty could, finally, be based on a questionnaire trying to determine whether the subjects could afford certain necessary expenses during the last month. According to the subjective measure, some people could be qualified as poor even if they have a sufficient monthly budget, but decide to spend the money on non-necessary expenses. The subjective measure would thus also take into account the ability of people to budget.

There is no right way to define poverty. Rather, it is the subjective decision of each researcher on which definition of poverty he or she wishes to base a study. This decision usually depends on the research interest of the study. If income inequality is the central concern, then a relative definition of poverty may be the most promising one. If researchers are concerned with the question whether people can meet certain basic standards of living, the absolute or the subjective measure might be preferable. For lawyers, it is pivotal to be aware of the normative implications of these conceptual decisions in order to avoid having to rely on results of empirical studies in contexts that differ substantively from the assumptions of the study.

V. AN OVERVIEW OF THE ECONOMIC METHODS TREATED IN THIS BOOK

There are different ways to approach economic research. This book will predominantly deal with economic theory. Economic theory tries to model relationships that we observe in reality in order to explain and predict social phenomena. Nowadays, these models are almost exclusively expressed in mathematical terms. Mathematics is used because it promises a more exact representation of concepts than verbal language. Verbal concepts can often be vague at the margins. Mathematics has the advantage that it does not share the ambiguity of language. As this book is primarily geared towards lawyers, it tries to describe the economic concepts in a verbal language so that students and scholars can intuitively grasp these concepts even if they do not have any formal training in economics.

Economic models are based on specific assumptions. The relevance of an economic model thus depends on the robustness of its empirical assumptions. Let us assume an economic model analyzing the careers of judges in order to draw conclusions for the efficiency of the judicial system.²² This model assumes that the careers of judges predominantly depend on the sophistication of their judgments. The conclusions of the model regarding the efficiency of the judicial system are not convincing if we believe that judges' careers, in effect, rather depend on the number of cases that a judge decides during the year, or on their political affiliation.

In order to test the robustness of economic models, we can make use of the methods of empirical economics. There are two main strands of empirical economics – on the one hand, experimental economics and, on the other hand, econometrics. Experiments test causal relationships in a controlled setting. Often, people are asked to come to a laboratory to take part in economic experiments. These experimental subjects are usually randomly divided into at least two groups. When there is a statistically significant difference in the measured variable, this difference can be attributed to the difference between the treatment groups of the experiment. Experiments therefore have the advantage that there is a certain control of the environment.

However, the scope of experiments is limited. There are often research questions that cannot be addressed through studies in a controlled environment. For example, if we want to explain the conduct of states or societal phenomena, it is not possible to observe these in a laboratory setting. For this reason, econometrics has the reverse approach. It does not try to generate data in a controlled laboratory setting. Instead, it relies on field data. The advantage is obvious: Econometric studies usually have a higher external validity than experimental ones. However, this advantage comes at a significant price: We have to be aware of the danger that the observed effects depend on unobserved and often even unobservable variables, whose effect cannot be filtered out as in the controlled setting of an experiment. The best approach thus always depends on the research question. This will be explained in more detail in Chapter 7 of this book, which deals with empirical methods.

²² See, e.g., Giuliana Palumbo and Enrico Sette, *Career Concerns and Excessive Signaling in Courts* (Working Paper, Bank of Italy, 2009).

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