

Political Science

A Global Perspective

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Epistemological and methodological foundations and approaches

Key terms

Behaviouralism	Methodological individualism
Causality	Methodology
Constructivism	Naturalism
Epistemology	Ontology
Hermeneutics	Rational choice
Medium range theories	

Introduction: Basic distinctions

This chapter lays some of the major epistemological foundations of political science and the social sciences in general. It points to the multi-dimensionality and the malleability of the substance matter and outlines a general model of social explanations. On this basis it discusses different concepts of causality in varying research situations (single case, small N, large N) and some of the major conceptual and methodological approaches based on them.

As pointed out in the previous chapter, political science has always been characterized by a diversity of contending meta-theoretical positions, paradigms and approaches. And this is, from the pluralist perspective of this introduction, as it should be. In Europe, in the last century, various strands of normative-ontological, Marxist, and empirical-analytical persuasions were at the forefront (for such and similar terms see, e.g. Easton et al., 1991; Quermonne, 1996). In the USA, for several decades ‘behaviouralist’ positions and, more recently, ‘rational’ and ‘public choice’ approaches have dominated (see, e.g. Almond, 1996). Reactions by the ‘perestroika’ movement have followed (Monroe, 2005). A strong ‘quantitative’/‘qualitative’ divide still persists (cf. the influential volumes by King et al., 1994 and Brady and

Collier, 2010). In other parts of the world, different theological, philosophical and epistemological traditions have influenced the (more recent) emergence of political science there (Barongo, 1983; Eisfeld and Pal, 2010; Stein and Trent, 2012; see also Chapter 3 below).

In a very basic sense, it is important to distinguish three fundamental notions (and fields of inquiry): *Ontology* (the ‘study of being’) is concerned with the question ‘what exists?’ Is there a ‘transcendental’ world? How came our world about? Where is it going? This is the realm of general philosophy, religion, diverse world views (‘Weltanschauungen’), ideologies, each claiming some absolute ‘truths’, which, however, often are conflicting or non-compatible.

Epistemology (literally the ‘study of knowledge’, i.e. the theory of science) addresses the question ‘what can we know?’ What are the foundations of scientific knowledge? How can we be sure about our insights? What evidence do we have? Scientific explanations in this sense are based on reasoning (‘logic’) and observations (empirical investigations). Again, there are many controversies in these respects, but within certain ‘schools of thought’ and the respective scientific disciplines some agreements can be found.

Finally, *methodology* (the reflection about and the knowledge of procedures and tools in science) answers the question ‘how do we acquire scientific knowledge?’ How reliable and valid are our tools and techniques? How can we be sure of the evidence? How can these insights be inter-subjectively (i.e. among scientists in a particular field) transmitted and accepted?

The ‘social’ sciences (dealing with human beings and their interactions) cover a particular area which is distinguished from the ‘natural’ sciences (dealing with inanimate objects and ‘nature’) in a number of important respects. These concern the ‘multi-dimensionality’ of their subject matter, the ‘malleability’ and ‘plasticity’ of their objects changing over time, and the fact, that we as human beings and investigators are ourselves to some extent part of the subject matter which, again, poses special epistemological problems of interacting with it. In the following, we briefly point out these epistemological foundations for the social sciences in general and then turn to some of the consequences for political science and specific approaches in particular. This is followed by outlining different methodological approaches and their perceptions of causality.

The epistemological foundations of the social sciences

Multi-dimensionality

The most basic distinction concerns the dimensions of the subject matter. As in nature, there are certain hard ‘objects’ such as political institutions, social structures and so on, which can be identified and which are ‘tangible’ and observable in certain ways. In addition, however, there is a ‘subjective’ dimension in which such objects are perceived by individuals and groups and translated into concrete actions. Such perceptions themselves are shaped by a number of psychological, social, etc. factors.

This distinction is commonly accepted and runs through the history of philosophy from antiquity to the present day and concerns all sciences of man, including medicine. There, distinctions between body and mind (or consciousness) and the subsequent divisions into sub-disciplines like anatomy, psychology, etc. are commonplace. Similarly, the fact that there are possible interactions between these dimensions is well accepted. The third dimension, the ‘normative’ one, which concerns ethical judgements of ‘good’ or ‘bad’ actions and behaviour is more problematic. In medicine, again, some ethical norms have been generally accepted since the time of Hippocrates, but debates continue about, for example, where exactly human life begins or ends and what the respective theological or philosophical justifications are for such positions. In philosophy, this ‘three-dimensionality’ of human existence has also been elaborated by Immanuel Kant in his ‘Architecture of Pure Reason’ (1956: 748 ff. [1787]).

A graphical representation of these dimensions can be rendered in the following Figure 1.1 (where the dotted line represents a ‘holistic’ position as, for example, expressed by Hegel (1956 [1833])).

The crux of the matter concerns problems of distinguishing such dimensions and their interactions not only analytically but also in actual practice; and controversies about normative, ontologically based justifications and their respective epistemological and methodological consequences persist. The major emphases of the current meta-theoretical positions in political science can be located with the help of such distinctions. Thus, the major ontological approaches have their basis in the normative dimension ranging from Plato to Eric Voegelin (1952) or Leo Strauss (1959), but also concern attempts in linguistic analysis (e.g. Lorenzen, 1978), or communications theory (Habermas, 1981). In the tradition of Plato (‘the allegory of the cave’), Voegelin and Strauss build their ontology on transcendental Jewish and Christian religious beliefs. This is also the case in non-Western religions and traditions such as Confucian (Shin, 1999), Indian (Madan, 1992), or African (Mbiti, 1969) ones. Habermas and others attempt to find ways of arriving at a secular philosophical foundation of a potentially universal ontology.

Sharply opposed to such normative foundations of political theory are ‘critical-dialectical’ or ‘historical-materialist’ positions in the tradition of Karl Marx and his followers. There, the object dimension of the modes of production and re-production of human existence is the basic one from which the others are derived. Thus, the objective social existence determines the subjective consciousness and the political and normative ‘superstructures’ (Marx and Engels, 1962: 9; see also the Introduction above).

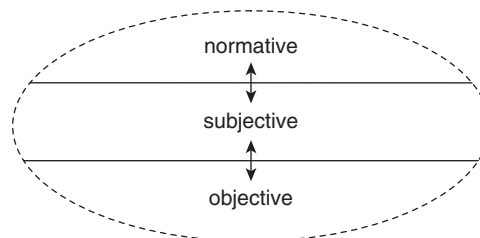


Figure 1.1 Dimensions of human existence

The third major position, a 'behaviouralist' one, takes the subjective dimension as its starting point. Subjective perceptions and subsequent actions of human beings are what really matters. These shape social and political life (Eulau, 1963). This position has been most influential in election studies, for example, but also concerning aspects of political culture research (Almond and Verba, 1965; Inglehart, 1997). In a somewhat broader perception, both subjective and objective dimensions and their interactions are considered by 'empirical-analytical' approaches, but, from a 'positivistic' point of view, no normative judgements can be made on this basis. Long-lasting controversies concerning this position go back to Max Weber (1949) and his followers but are also reflected in debates between Karl Popper and Jürgen Habermas, for example (Adorno et al., 1969).

These basic meta-theoretical positions and their variations remain, in the last resort, incompatible. Similarly, whether these dimensions can in actual fact be separated or, by necessity, always go together from a 'holistic' perspective remains controversial. The latter position, in contrast to Kant, is for example represented by Hegel, but also by Marx and some of his followers (Lukács, 1967). In the same way, epistemological positions based on religion, including Buddhism and Confucianism, perceive these dimensions in a holistic manner. From a more pragmatic perspective, many political scientists today just 'agree to disagree' about such basic ontological or religious positions and their respective justifications.

The malleability of the substance matter

As a result of the change from Newtonian physics to quantum theory and probabilistic relations in nuclear physics, Karl Popper (1972) has coined the metaphor of 'clouds and clocks' with regard to the degree of determination of scientific theories. Clocks represent Newton's deterministic world, as in astronomy for example, where the movements of stars and planets or the next solar eclipse can be predicted (or retro-dicted) with clock-like precision. Clouds, by contrast, constitute a very elusive substance, the structures and regularities of which cannot easily be grasped over a somewhat longer period even today by the most advanced computers of meteorologists and their satellite-based data. They remain 'indeterminable' in Heisenberg's sense. In between these two extremes, however, which should be perceived as the opposite poles of a continuum rather than mutually exclusive positions, there is a 'plastic' matter which is malleable in the course of time and which is neither perfectly determined nor subject to pure chance.

In an important essay, Almond and Genco (1977) have transferred this concept to the social sciences and politics. They state that

the implication of these complexities of human and social reality is that the explanatory strategy of the hard sciences has only a limited application to the social sciences ... Thus, a simple search for regularities and lawful relationships among variables – a strategy that has led to tremendous success in the physical sciences – will not explain social outcomes, but only some of the *conditions* affecting those outcomes. (p. 493; emphasis added)

In addition, factors of human *choice* and action plus, possibly, some elements of pure chance in certain 'conjunctures' (Dobry, 1986) also have to be considered. Such distinctions are illustrated in Figure 1.2:

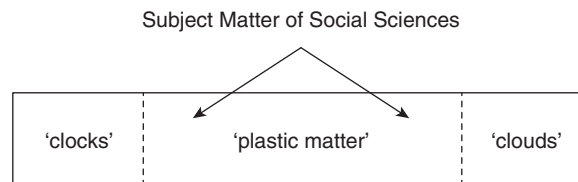


Figure 1.2 Degree of determination of theories

This figure can be helpful, once more, to locate some of the ‘harder’ and some of the ‘softer’ approaches in our discipline along this spectrum. Epistemologists distinguish between ‘naturalist’ theories, which take the ‘real world’ for granted and, at the other extreme, ‘constructivist’ theories, which consider the world to be merely constructed by our concepts and perceptions. ‘Realist’ theories take an intermediate position accepting a real world as perceived by our senses, but constructing and interpreting it through our concepts and theories (Moses and Knutsen, 2012). Naturalist theories are located to the left of the continuum in Figure 1.2, constructivist theories to the right. In between is the area of ‘medium range’ theories in Robert Merton’s (1968) sense, bounded in time and space. The deductive subsumption of individual events under ‘covering laws’ in Hempel’s (1965) sense at best refers to the ‘clocks’ on the left. Statistical methods (and restrictions) apply to the ‘probabilistic’ realm, still more to the left, with possibilities, based on large numbers and random sampling, of statistical inference.

In the social sciences, with a small number of cases often only ‘conditions of occurrence’, more in the middle, can be established. In fact, there is not a single absolute ‘law’ in the social sciences. Even ‘Duverger’s laws’ (1951) about the impact of electoral systems on party systems or Anthony Downs’ ‘median voter theorem’ (1957) are highly contextualized and are not applicable, for example, in situations where party systems are highly fragmented along ethnic, religious, or regional lines. Systematic comparative methods like ‘Qualitative Comparative Analysis’ (QCA) can establish some ‘covering conditions’ in these respects. Further to the right, ‘qualitative’ studies of even fewer cases can be found; these can be ‘deeper’ and more complex, but even less generalizable.

As a consequence, we have to be more modest in our claims about the precision of causal relationships, the generalizability of regularities, and the universality of theories. Such a view also corresponds with a position already expressed by Aristotle who located politics in an intermediate sphere between the necessary, where strict science can be applied, and the realm of pure chance which is not accessible to scientific explanations (Kuhn, 1967).

From this perspective, Almond and Genco (1977) conclude that ‘the essence of political science ... is the analysis of choice in the context of constraints. That would place the search for regularities, the search for solutions to problems, and the evaluation of these problems on the same level. They would all be parts of a common effort to confront man’s political fate with rigor, with the necessary objectivity, and with an inescapable *sense of identification* with the subject matter which the political scientist studies’ (p. 522, our emphasis). The last point also leads to the next *differentia specifica* of the social sciences as compared to the naturalist sciences and their distinct epistemology.

'Self-referential' aspects

This 'sense of identification' can also be seen in different ways. First of all, it means that as human and social beings we are inevitably part of the subject matter we are studying. Even if we attempt to detach ourselves as much as possible from the object under consideration some 'subjective' influences on our perception remain. These can be analysed by psychology and the sociology of knowledge to discern our (conscious or unconscious) 'interests' in such matters, but some individual 'colouring' of our lenses seems inevitable (for a discussion of this problem see Mannheim, 1936 and Habermas, 1971). Therefore, a certain 'hermeneutic circle', which should be made conscious and explicit in the interactions with others, remains (Moses and Knutsen, 2012, Chapter 7). This creates '*self-referential*' situations (Luhmann, 1984) and poses specific problems of perception or 'objectivity' and can create interactions with the objects we study.

This limitation can, however, again in contrast to 'naturalist' perceptions of science, be turned to one's advantage. As human beings we can empathize with each other and inter-subjectively, if not 'objectively', understand and interpret the meaning of each others' thoughts and actions. It also opens up specific possibilities of understanding ('*Verstehen*' in Max Weber's (1949) sense) and more sensitive interpretations of others and the world we live in. This is even more the case when we are trained as social scientists in a common methodology and scientific language. This latter point also distinguishes the perception, level of information, and theoretical interpretation of a political scientist from the 'man (or woman) in the street' talking politics in the same way as a meteorologist has a different knowledge of what is happening in the atmosphere compared to the daily small-talk about the weather.

Nevertheless, such inevitable subjectivity, which is also historically and culturally conditioned, opens the way to more pluralist interpretations and meanings. 'Constructivist' approaches, as contrasted to 'naturalist' ones, can dig deeper in certain ways into this subjectivity and the plurality of meanings (Foucault, 1970).

Being part of the substance matter, we can also, consciously or unconsciously, act upon it. Thus, 'self-fulfilling' or 'self-defeating prophecies' become possible as feedbacks between the interpretation or even just personal opinion of an important actor or social scientist whose authority in a certain sphere has become acknowledged in the matter s/he is dealing with. This frequently occurs when some 'analysts' give their opinion on probable developments of the stock exchange or currency rates and many people follow suit. This also applies to electoral predictions with respective 'bandwagon' or 'underdog' effects.

Finally, being part of our world and being able, to some extent, to act upon it, also raises the question of social and political responsibility. This brings us back to the normative side of politics with which we inevitably have to deal.

Linking levels of analysis

Furthermore, in the social sciences several *levels of analysis* have to be distinguished:

- a 'macro'-level referring to large social entities like entire societies, economies, states;
- a 'micro'-level of individual persons living and acting in these entities;
- and a 'meso'-level of more or less organized groups of persons and associations in between.

The general model of social explanations

The links between these levels and their interactions can be illustrated with James Coleman's (1990) general model of social explanations which has been nicknamed his 'bathtub' (see Figure 1.3).

An explanation of social events starts at the macro-level on the upper left-hand side (the 'conditions of occurrence'). These then shape and 'frame' the possible perceptions and actions of individuals at the micro-level. In order to become effective in a larger sense, these actions often have to be aggregated by organizations at the meso-level on the right-hand side (for example social movements, interest groups, political parties). These then influence the final outcome on the macro-level on the right-hand side (the 'explanandum'). For example, to explain the outcome of an election (the explanandum) in a comprehensive way, we start with the social-structural and political-cultural conditions on the macro-level at the upper left-hand side. These may consist, say, of a rural-catholic milieu or some other specific regional, ethnic or cultural conditions. The perceptions of voters at the micro-level often were (and are) 'framed' by such conditions (see also Chapter 14). This is then translated into the actual vote for a particular party. Parties aggregate these votes and, taken altogether, the final election result is then arrived at.

In this way the major emphases of important theoretical *approaches* can be illustrated, too: Macro- (for example historical-materialist) theories can be located at the upper left-hand corner which, however, may commit the (orthodox) Marxist fallacy of drawing conclusions directly from the 'objective' macro-social situation (a 'class in itself', 'Klasse an sich') to the explanandum on the macro-level at the upper right-hand side (dotted line) without taking into account the extent of actual class consciousness ('class for itself', 'Klasse für sich') and the actual organization of interest groups on the meso-level (for the latter see also Chapter 12 below). By contrast, 'methodological individualists' start at the micro-level, often based on very strong assumptions as to the 'rational' behaviour of actors, for example about a 'homo oeconomicus' in economic theory maximizing his/her material benefits or voters making their choice according to such criteria.

Such assumptions can be extended to include a more comprehensive situation of individual actors as 'Restricted, Resourceful, Evaluating, Expecting, Maximizing Men' (or women) (RREEMM) in Hartmut Esser's (1993) sense. Further aspects concern various social Identities (family ties, group membership, ethnic, religious communities, etc.) and more Individualizing tendencies in modern societies leading to assumptions

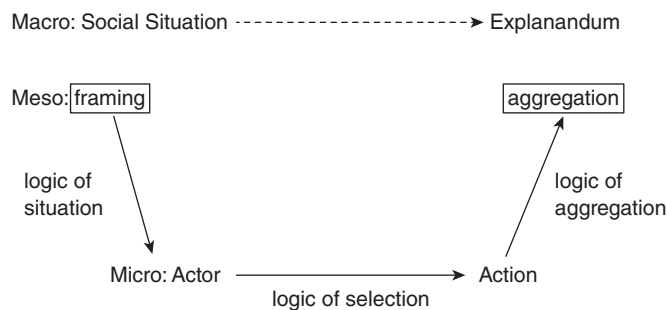


Figure 1.3 Linking levels of analysis

Source: Adapted from Coleman (1990) and Esser (1993)

of RREEIIMM (in German this can be used for a play on words: to make a ‘Reim’ (Engl. rhyme) about something means making sense). ‘Bounded rationality’ at least takes into account some restrictions on the macro-level (‘opportunity set’, Jon Elster, 1989) or cultural ‘framing’ (see also Chapter 4.3 below).

The meso-level on the right-hand side poses specific problems of aggregation, for example for ‘collective actions’ (Mancur Olson, 1965) with the possibility of ‘free-riding’ by those who are not part of a particular organization but nevertheless share the benefits (for example of union activities). Similarly, assumptions of rationality or individual preferences at the micro-level cannot be aggregated so easily and ‘collective rationality’ may differ from individual ones (Simon, 1996, Chapter 2).

Dynamic and multi-level sequences

This whole pattern can, of course, also be sequenced showing dynamic interactions, but also sometimes a certain ‘path dependency’ over time. This means that previous conditions shape subsequent events, for example from one election to another, and the historical context often has a long-lasting impact.

Similarly, states can be conceived as actors in the global context linking national conditions to interactions on a worldwide level (Figure 1.4). In this way, various levels, including the supra-national and international ones, can be integrated. When states are actors in this context, assumptions about ‘rational’ behaviour, for example with regard to nuclear deterrence theories (see Chapter 15), may be even more appropriate than at the level of individual citizens.

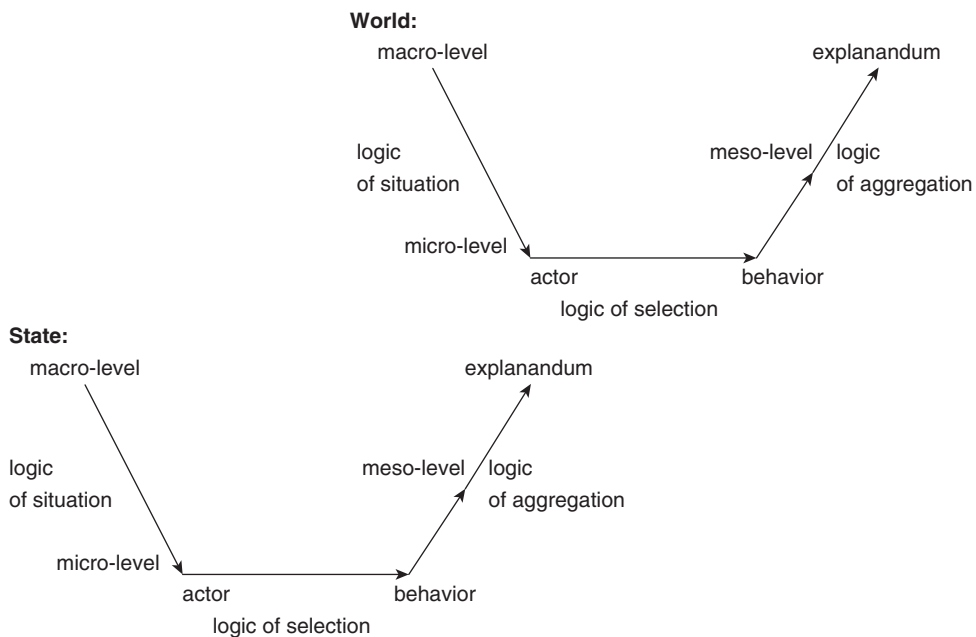


Figure 1.4 Multi-level analysis in a global context – state and global interactions

Approaches to causality

With regard to this epistemological background different methodological approaches to establish *causality* can be distinguished. In the *empirical* social sciences these depend on a ‘realist’, ‘critical-rational’ epistemological perspective and the level and number of observations (evidence).

Hume’s regularity model

The most basic approach has been developed concerning the ‘object’ dimension in the natural sciences derived from a highly deterministic (‘clock-like’) perspective. David Hume (1748) summarized this ‘*regularity model*’ of causation by listing three conditions to be necessary to speak of a strict (and testable) causality:

- contiguity (the cause and effect must be contiguous in time and space);
- succession (the cause must be prior to the effect);
- constant conjunction (there must be a constant union between the cause and the effect).

In this way many causes (independent variables or conditions) and effects (dependent variables or outcomes) in physics or inorganic chemistry, for example, can be explained.

John Stuart Mill (1843), who shared this view, elaborated this further by setting up a list of rules (‘canons’) for strictly controlled research designs. The first is the ‘method of agreement’: one factor in common, same outcome. In his own words: ‘If two or more instances of the phenomenon under investigation have only one circumstance in common, the circumstance in which alone all the instances agree is the cause (or effect) of the given phenomenon’ (5th ed., 1862, vol. I: 428). The second is the ‘method of difference’: absence of one factor, different outcome. ‘If an instance in which the phenomenon under investigation occurs, and an instance in which it does not occur, have every circumstance in common save one, that one occurring only in the former; the circumstance in which alone the two instances differ, is the effect, or the cause, or an indispensable part of the cause, of the phenomenon’ (ibid.: 429). The third, the ‘indirect method of difference’ applies the method of agreement once before and once after an event (for example an external stimulus, an additional substance). This single additional factor is then seen as responsible for the changed outcome (a simple application of Mill’s methods in daily life can be found in Moses and Knutsen, 2012, Chapter 5, for example).

Altogether, Mill’s methods are based on mechanical and deterministic, ‘naturalistic’ relationships. There will be no ‘discoveries’ without including ‘true’ factors. This means, they presuppose a testable model or theory and are not purely inductive. Nevertheless, they are useful ‘falsification’ devices (Karl Popper). They are also useful for identifying more general ‘conditions of occurrence’ of a phenomenon (Cohen and Nagel, 1934) at the macro-level (upper left-hand side in ‘Coleman’s bathtub’).

In the social sciences we often find a plurality of causes and probabilistic relationships. Such causes can be multiple or ‘conjunctural’ in J.S. Mill’s sense, which means that several combinations of factors may lead to the same outcome (‘equifinality’).

Mill himself was very much aware of this when he wrote: ‘The science of man in society..., the actions of collective masses of mankind, and the various phenomena which constitute social life ... are more complex; because the number of concurrent causes, all exercising more or less influence on the total effect, is greater, in the proportion in which a nation, or the species at large, exposes a greater surface to the operation of agents, psychological and physical, than any single individual’ (5th ed., 1862: 456). He was also very critical of the state of political science in his time: ‘Students in politics ... attempted to study the pathology and therapeutics of the social body, before they had laid the necessary foundation in his physiology; to cure disease, without understanding the laws of health’ (ibid.: 457).

Hume’s regularity model can be specified further by identifying *necessary* and *sufficient* conditions. Necessary conditions are always present for a certain outcome, i.e. in set-theoretical terms the outcome is a subset of the condition. Sufficient conditions explain the outcome by themselves, and there can be several, but they may not be *necessary* (i.e. the condition is a subset of the outcome). For example, to hold regular elections can be considered to be a necessary condition for modern democracies. By themselves these are, however, not sufficient to define a democracy because other elements (e.g. the fact that elections are free and fair, the respect of basic human and political rights guaranteed by the rule of law) have to be present as well. We may also distinguish different types of democracy (e.g. presidential or parliamentary systems which exhibit a different combination of factors).

In a more abstract sense, this can be represented by the following formula, which comprises three terms for different cases:

$$ABC \text{ (cases 1, 3, 5)} + AbC \text{ (cases 2, 4, 6)} + AD \text{ (cases 7, 8)} \rightarrow \text{outcome}$$

(in Boolean algebra the + symbol here stands for a logical OR, the presence of a condition or high values are rendered by upper-case letters, the absence of a factor or low levels are written in lower-case letters).

This means that either the combination of factors A and B and C, or A and b and C, or A and D lead to the same outcome for the respective cases. Each term is a sufficient constellation of conditions for this outcome, but since there are several terms, none of them is necessary. Only A in all these constellations is a necessary condition (occurring in all of them), but is in itself insufficient to explain the outcome (it always goes together with some other conditions). This is called an *INUS* situation where we find ‘Insufficient, but Necessary parts of an Unnecessary but Sufficient condition’ (Mackie, 1965). An alternative combinatorial cause is a *SUIN* one which is a Sufficient, but Unnecessary part of a factor that is Insufficient but Necessary for an outcome. Necessary and sufficient conditions can also be calculated with the help of ‘Qualitative Comparative Analysis’ (QCA: see Chapter 2 below).

Statistical models

When we move from the deterministic ‘clock-like’ world more towards a *probabilistic* one (as also in nuclear physics), causal relationships cannot be ascertained with such certainty any more. Instead, they are based on a very large number of observations as a proportion of the total (occurring *almost* always) or probability calculations of

random samples drawn from a large universe of cases assuming a ‘normal’ distribution (Gauss, 1809). Here, usually a linear additive model of causation is assumed as expressed in a standard ordinary least squares (OLS) regression model, the ‘work-horse’ of quantitative analysis in the social sciences (see Chapter 2 below).

Random selection of cases can also be used in *controlled group experiments* where two sub-groups of a larger population are drawn at random and can, therefore, be assumed to be largely identical on major demographic and other characteristics. If then an external stimulus is introduced to one group and not the other, as for example a medical treatment, and the outcome in that group changes (e.g. the disease is cured), then the change in outcome can be attributed to this stimulus. This resembles Mill’s method of difference, but is now based on probability calculations and allowing for an error term. Such procedures have become common practice in some fields and are considered the ‘gold standard’ of quasi-experimental research (Cook and Campbell, 1979). In reality, however, such experiments face some technical and ethical limitations. For example, how do you find a sufficiently large group of patients with the same disease from which two random samples can be drawn? Similarly, under what circumstances can it be ethically justified to withhold a promising therapy from a group of patients, in particular if the hoped-for cure may take a long time and some patients may die before the end of the experiment?

In the social sciences, such experiments may be less dramatic or fatal than in medicine, but the experimental situation can be a very artificial one. For example, in behavioural economics or political science one randomly selected group of persons (often college students) may be given a certain incentive (often cash rewards) to induce a certain behaviour, which is not offered to another randomly selected group. Then the different outcome is observed and, if there is a difference, attributed to the effect of the stimulus. This can be done in closely controlled ‘laboratory’ situations testing the assumptions of a specific model in economics or political science (Morton and Williams, 2010). Some actual ‘*field*’ experiments may also be possible, for example assessing the effects of different forms of political campaigning by randomly selecting different target groups and exposing one to a particular form of campaigning (like door-to-door canvassing) and not the other (Green and Gerber, 2008). These can be consciously designed, but they may also happen ‘naturally’, for example, when one community is exposed to a particular event and not another ‘very similar’ one leading to a different outcome. This can be treated ‘as if’ a random selection of the two groups had occurred. A similar situation arises when attitudes of the same group of persons are assessed before or after a major economic crisis or political event (e.g. ‘9/11’) leading to a change in outcome. This can be measured at the micro-level by survey research, but changes at the macro- (political system-) level may also be attributed to major crises like the ‘Great Depression’ in the interwar period. This, once more, resembles Mill’s ‘indirect method of difference’, but some of the stricter assumptions of controlling for all possible influences have, of course, to be further relaxed in such a situation.

Strictly speaking, such randomly selected groups are never completely identical. The same individual cannot be a member of the group receiving the treatment and of the control group at the same time. Here we speak of ‘*counterfactual*’ reasoning about phenomena that did not occur. In a broader ontological sense this means we are speaking of a different ‘counterfactual’ world (Lewis, 1986). Statistically, this problem of

impossible-to-observe causal effects has been dealt with by the Neymann-Rubin-Holland model, which replaces them by *average* causal effects over a population of units (Brady, 2010).

Small and medium N analyses

When we deal with even smaller numbers, for example comparing entire countries, societies, and economies at the macro-level where no random samples can be drawn, other more recently developed techniques can be used. One is a derivation and further advancement of Mill's canons, again in a set-theoretical sense. *Case selection* then must be determined by other criteria:

- purposeful selection of cases based on theoretical and substantive concerns;
- cases must be drawn from a sufficiently *homogenous* universe in order to be *comparable*;
- within that universe maximum *heterogeneity* should be achieved to allow for the greatest possible variance and *range* of explanations.

'Most similar' and 'most different' systems designs (Przeworski and Teune, 1970) are then possible. Complexity can then be reduced by identifying factors related to the respective outcome: 'most similar systems – different outcome' (MSDO) and 'most different systems – same outcome' (MDSO) research designs (Berg-Schlosser and De Meur, 1994). This principle is illustrated in Figure 1.5 for three cases (represented by the circles). Only in the shaded areas can possible causes for the respective outcome be looked for. All the white zones can be excluded and are 'controlled' in this way.

This procedure pre-supposes, however, that 'most similar' and 'most different' cases can actually be identified. This has to be based on extensive historical and contemporary case knowledge and has to be operationalized in a systematic manner in order to be inter-subjectively transparent. One such operationalization has been provided by Berg-Schlosser and De Meur (1994, 1997) based on 'Boolean' distances (i.e. values of 1 or 0) on a large number of variables in a comprehensive 'systems' framework. In this way, the focus of attention can be narrowed down considerably (like with a microscope in biology) and the actual factors leading to the respective outcome may be identified. It must be kept in mind, however, that this procedure is just a specific technique and will only lead to meaningful results if, like with Mill's canons, the 'true' factors have actually been included in the analysis. Thus, 'spurious' relationships, as

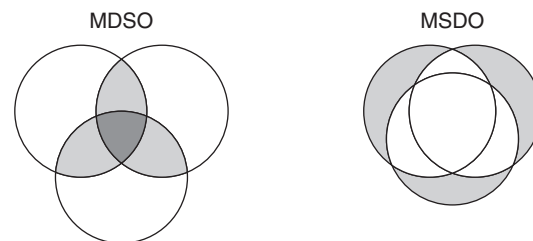


Figure 1.5 Matching and contrasting of cases, MDSO- and MSDO-designs

with statistical correlations, may also occur. It is, therefore, essential that such findings are confronted with intensive case knowledge and can be confirmed or refuted by the respective country experts in a constant ‘dialogue between theory and data’ (Ragin, 1987). Such results remain limited to the actual cases and period examined (‘internal validity’). They can be further validated by examining other constellations of cases in time and space. In the longer run, empirical theory of the respective field of investigation can be strengthened in this way (enhancing its ‘external validity’).

In a similar ‘small and medium N’ situation operates, to the greatest extent, ‘Qualitative Comparative Analysis’ (QCA) in its different ‘crisp-set’, ‘multi-value’, and ‘fuzzy set’ variants. This is based on set theory and Boolean algebra as developed by Charles Ragin (1987, 2000, 2008) and his collaborators (Rihoux and Ragin, 2009; Schneider and Wagemann, 2012). Here, the initial complexity of cases is reduced by placing them and the conditions leading supposedly to a particular outcome in a ‘truth table’. At this stage, often already important contradictions (cases with identical conditions having different outcomes) become apparent. These have to be eliminated as much as possible, for example by testing other hypotheses and improved theory (see also Chapter 3 below).

Case studies and process tracing

Large N (statistical) controlled experimental and smaller N comparative studies can show strong relationships between certain variables or combinations of factors, but the precise *causal mechanisms* at work remain in a black box. These can be ascertained by detailed ‘causal process observations’ (CPO) and process tracing *within* individual cases. Like in a detective story, the ‘true’ culprit and the precise *sequence* of events must be found. Here, however, the research interest does not consist of explaining a single event (the outbreak of a war, a revolution, a political assassination, etc.) in an *idiographic* manner, but coming up with a *theoretical* explanation which is valid for many similar circumstances (Beach, 2012; Blatter and Haverland, 2012). A number of tests, with varying strengths, can be employed for this purpose. The first, ‘straw in the wind’ can point into a certain direction (like a statistical correlation) and affirm the relevance of a hypothesis, but does not by itself confirm it. If this test fails, the hypothesis may not be relevant, but it cannot be decisively eliminated. A ‘hoop’ test, by contrast, has to be passed as a necessary condition which by itself, however, may not be sufficient. A ‘smoking gun’ test provides very strong evidence, but cannot yet exclude other possibilities. A ‘doubly decisive’ test, finally, establishes both necessary and sufficient conditions as proof for the final outcome eliminating all other hypotheses (these tests were proposed by Van Evera, 1997 and systematized by Bennett, 2010). In this way, increasingly strong evidence for a particular theoretical explanation can be gathered.

Another approach in this context is a *Bayesian* one which builds upon previous experiences and in this way increases the confidence in particular findings. As Derek Beach puts it: ‘New empirical evidence updates our belief in the validity of the hypothesis, contingent upon: (1) our prior confidence based on existing research, (2) the probative value of the evidence in relation to the hypothesis, and (3) the amount of trust we can place in the evidences’ (Beach, 2015, Chapter 5). This can also be expressed in quantitative probabilistic terms (Jackman, 2011).

In actual practice, however, stronger theories based on case studies have remained relatively rare so far and their actual scope (range in time and space) has to be determined. One such possibility consists in combining the findings of intensive within-case process tracing with broader comparative small N or even large N statistical studies to establish the external validity of results in *multi-method* research (Bergman, 2008; Berg-Schlusser, 2012).

It is important to note that the *arrow of causality* can go in different directions according to the research question and the method chosen. The standard model, mostly in quantitative studies, attempts to establish the causes (independent variables) of an effect (outcome, dependent variable). The reverse, often found in more qualitative and ‘holistic’ approaches, is also possible: what are the effects of causes? The first approach may, for example, attempt to identify broader historical, social or economic conditions for the emergence of democracies. The second then can analyse the effects of democratic regimes (as an independent variable) on social welfare, good governance, etc. (Goertz and Mahoney, 2012, Chapter 3).

Altogether, in our view, there is no single best approach with regard to broader epistemological and methodological concerns. Everything depends on the kind of research problem and the possible forms of reasoning and evidence at hand. From a constructivist perspective a convincing narrative may enhance a deeper understanding of the problem. By contrast, a naturalist position seeks to establish deterministic or probabilistic relationships with clear-cut patterns of causality, which also allow for more concrete predictions. We advocate a pluralist and eclectic perspective which must be aware of the respective strengths and limitations of our approaches and tools. Such an attitude is already reflected in Francis Bacon’s (1620) metaphor of ants, spiders and bees when he advocated a middle course of scientific inquiry (see Box 1.1).

Box 1.1 Francis Bacon’s ants, spiders and bees

Those who have handled sciences have been either men of experiment or men of dogmas. The men of experiment are like the ant, they only collect and use; the reasoners resemble spiders, who make cobwebs out of their own substance. But the bee takes a middle course: it gathers its material from the flowers of the garden and of the field, but transforms and digests it by a power of its own. (Francis Bacon, 1620, Book 1: 95)

Conclusions

This chapter has provided an overview of the major epistemological foundations of political science and the various approaches based on them. In this way, the different

emphases of these approaches can be characterized and located more closely. This refers to the major dimensions covered, different levels of analysis, varying concepts of causality and the number of cases included. Against this background more specific research designs and methods are presented in the following chapter.

Questions

- 1 What are the relationships between ontology, epistemology, and methodology in the social sciences? Give an example from a major study with which you are familiar.
- 2 To what extent can social research findings be generalized? What are the limitations?
- 3 In which ways do researchers interact with their substance matter? What are the advantages and dangers?

Further reading

- Moses JW and Knutsen TL (2012) *Ways of knowing: Competing methodologies and methods in social and political research* (2nd ed.). London: Palgrave Macmillan. An easy-to-read, well-argued overview of the epistemological and methodological foundations and contending approaches in social research.
- Jackson PT (2011) *The conduct of inquiry in International Relations. Philosophy of science and its implications for the study of world politics*. London, New York: Routledge. A 'deeper' look into the ontological and epistemological aspects of social research and their variations with a specific application to International Relations.
- Coleman JS (1990) *Foundations of social theory*. Cambridge, MA: Harvard University Press. This ground-laying work provides a general model of sociological explanations exploring, in particular, the relations between the macro- (systems, structures) and the micro- (actors) levels of analysis.
- Elster J (1989) *Nuts and bolts for the social sciences*. Cambridge: Cambridge University Press. A detailed discussion of major elements and causal relationships in the social sciences.
- King G, Keohane RO and Verba S (1994) *Designing social inquiry*. Princeton, NJ: Princeton University Press. 'KKV', the bible of social inquiry, derived from a quantitative empirical perspective.
- Brady HE and Collier D (2010) *Rethinking social inquiry: Diverse tools, shared standard* (2nd ed.) Lanham, MD: Rowman & Littlefield. The antidote to 'KKV' emphasizing diversified qualitative and comparative approaches.

Weblinks

This portal of the International Political Science Association, IPSA, represents the largest collection of websites related to political science. It is maintained and constantly updated at the University of Naples/Italy. These websites are characterized in detail and evaluated by the editors of the portal facilitating easy access and online research: www.ipsa.org/ipsa-portal

IPSA Research Committee 1 on 'Concepts and Methods in Political Science': www.concepts-methods.org/

APSA Section 10. Political methodology: <http://polmeth.wustl.edu/> (mostly representing quantitative approaches)

APSA Section 37: Qualitative and Multi-method research: http://www1.maxwell.syr.edu/moynihan/cqrm/APSA_s_Qualitative_and_Multi-Method_Research_Section/