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Reflections on theories in forest policy: Testing, combining or building?

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ABSTRACT

Theories constitute an important part of science and contribute to its advancement. As a consequence of the variety of scientific approaches available, students of forest policy can choose between three alternatives: (i) relying on and applying an existing theory, (ii) attempting to combine several theories in a new context or (iii) creating a new theory based on their own experiences and findings from desk research and/or empirical surveys. Whereas alternatives (i) and (ii) have been chosen in the majority of scientific studies focusing on the relationship between forests and people, theory building has not as yet been commonly applied in forest policy research. Seeking to discern both the advantages and disadvantages of these approaches, the methodological aspects of each are emphasised in this paper. Subsequent to an outline of the general significance of theories for scientific research practised in the social sciences, and a depiction of the features of 'good' theories, the widespread procedure for testing existing theories is outlined. This is followed by descriptions of several techniques employed in theory building. Finally, some conclusions on the application of existing theories and on theory building in the context of forest policy are presented. It is argued that given its innovative potential, theory building should not be neglected in forest policy discipline.

"Everyone who publishes in professional journals in the social sciences knows that you are supposed to start your article with a theory, then make deductions from it, test it, and then revise the theory."

Edwin A. Locke, 2007

"I have no clue how I develop theory. I don't think about it; I just try to do it."

Henry Mintzberg, 2005

1. Introduction: Research between paradigms and peers

Scholars of the social sciences are embedded in a landscape of paradigms[1] and peers. Paradigms provide orientation for the majority of researchers. They serve as a kind of 'recipe,' revealing how the scientific product should look and how it is to be produced (cf. Locke, 2007). Peers ensure that the right 'ingredients' are used. As is the case in many scientific disciplines,[2] the underpinning of research by theories has also become a matter of course in forest policy. This may be demonstrated exemplarily by a study of the proceedings of the annual meeting of forest policy scientists from several European countries over the last number of years, where the majority of the presentations made have relied explicitly on the application of theoretical approaches to explain forest policy phenomena. A rough evaluation of the papers presented during these meetings showed that in the decade 1999–2008, 95 of the 150 contributions made reference to one or more scientific theories. Krott (2007) also observed a tendency towards the increasing importance of theory in the production of forest policy-related knowledge in Germany and Austria.[3] Whereas the proportion of descriptive elements is in decline, the influence of explanation and the development and testing of hypotheses appear to be growing.

Although many of today's social science scholars recommend that theories be developed or constructed, as opposed to merely testing or modifying existing theories (cf. Section 4), in recent decades only very few specific theories have been developed in the realm of forest

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[1] A paradigm may be regarded as the dominant understanding of a particular class of phenomena at a particular time (Kuhn, 1970), or as a "set of more or less consistent theories and hypotheses that explain various aspects of reality and which, taken together, form a coherent worldview" (Geddes, 2003: 21). In the context of this article, a paradigm refers to the coherent worldview of groups of social scientists who prefer either testing/combining theories or constructing theories.

[2] Although open to debate, for the purposes of this article, forest policy is deemed to be an academic discipline.

[3] This assertion runs contrary to the views of Hauhs and Lange (2008: 155), who argued that today's forest sciences in general are characterised by a 'hostility towards theories.'

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policy.[4] One reason for this may be that the search for suitable theories "drives forest scientists away from the forest sciences and towards the basic sciences, which, in our case, means economics and political science" (Krott 2000: 113). Unfortunately, taking this route does not always yield the desired results. Practical research has shown that many theories derived from economics and political science, although convincing in their original application, fail to describe and explain accurately phenomena of the forest sector. "Very few theories meet the challenge of formulating new knowledge relevant to forestry" (Krott 2000: 113). This gives rise to the question of the special significance of theories in the field of forest policy. In an attempt to answer this question, the author places a particular emphasis on the methodological aspects. In the following, the general significance of theories for research performed in the social sciences will be outlined and the features of 'good' theories elucidated, before the prevailing paradigm of testing existing theories is described. This will be followed by descriptions of several techniques for theory building. Finally, some conclusions in relation to theory application and theory building in forest policy will be drawn.

2. The significance of theories for scientific research

2.1. What is a theory?

In general, a theory is an explained set of conceptual relationships (Wacker, 2008: 6). Theories provide a framework for analysis; an efficient method for field development and clear explanations for the pragmatic world (Wacker, 1998: 362). Normally, theories consist of four components: (1) definitions of terms or variables; (2) a domain in which the theory applies; (3) a set of relationships between variables and (4) specific predictions or factual claims (ibid: 363). Theories must also fulfil four basic criteria: conceptual definitions; domain limitations; relationship building and predictions (ibid: 367).

As a discipline matures, different forms or conceptual levels of theoretical approaches emerge. This applies also to frameworks, models and typologies. These provide disciplines with an "intellectual framework that stimulates advances in theory, research, development, policy, and practice" (Edyburn, 2001: 16).

Frameworks specify classes of variables, and their relationships to one another. They lend inquiry a coherent structure. Frameworks also allow for the integration of several theories across domains that would otherwise be examined in isolation from one another (Koontz, 2003: 1). In the science of forest policy, the advocacy coalition framework (ACF) and the policy arrangement approach (PAA) are examples that have attained major importance (see Arts, 2011). The institutional analysis and development (IAD) framework (Ostrom et al., 1994) has been applied successfully in studies carried out in developing countries.

Theories are more specific than frameworks. They provide a causal link between phenomena that have been observed or modelled. As sets of propositions they explain why events occur. Their common function is to link and to explain phenomena in a way that is generalisable beyond any given event. Examples of theories applied in the science of forest policy are communication theories, regime theory and network theory.

Models are situated at the most specific conceptual level. They are based on precise assumptions about a limited set of parameters and variables, and possess a deductive, internal logic suited to testing hypotheses and predicting outcomes. Well-designed models are linked to particular theories (Koontz, 2003) or can even be used to build theories (Schwaninger and Groesser, 2008). Models originate from experience, reflection and insight, and help scholars and practitioners understand key variables, relationships and systems (Edyburn, 2001). The elaboration likelihood model (used by Kohler, 2001) and the liberal model of social integration (used by Vering, 2007) might serve as examples of models applied to forest policy questions.

Typologies, or descriptive categorisation schemes (Carlile and Christensen, 2005), are very popular. One plausible reason for this might be that they are able to provide a 'parsimonious framework' to describe complex organisational forms. They can also be used to structure outcomes such as organisational effectiveness or groupthink. "Typologists usually achieve parsimony by providing elegant descriptions of their typologies and glossing over the complex processes that determine the focal organisational outcomes. The cost associated with this parsimony is that most typological theories are inadequately developed because the causal processes operating within each type of organisation are not fully specified" (Doty and Glick, 1994: 230). Typologies should fulfil three requirements: (i) identification of relevant constructs; (ii) specification of the relationships between these constructs and (iii) falsifiability of these relationships (Doty and Glick, 1994: 233). Their most prominent application in forest policy is the abundant typologies of forest owners (cf. Schraml and Volz, 2003; Serbruyns and Luyssaert, 2006). Typologies have also been developed for forest policy instruments (e.g., Merlo and Paveri, 1997) and national forest programmes (Rayner and Howlett, 2004).

2.2. Why do we need theories?

Theories constitute an important part of science. They drive the evolution of scholarship in an academic discipline and shape the academic discourse with regard to the boundaries of a field, the core questions to be examined and the preferred research methods (Zahra, 2007). Fact finding and theory building are deemed to be the two general objectives of research (Wacker, 1998); perhaps even the "ultimate goal of all scientific research" (Denscombe, 1998, cited McNabb David, 2004: 6). Theories not only describe phenomena but also offer explanations as to why they occur. However, they are not an end in themselves. "To be successful, social science must steer a careful course between the Scylla of lovely but untested theory and Charybdis, the maelstrom of information unstructured by theory" (Geddes 2003: 4). As the science of forest policy is increasingly based on theories adopted from political science and sociology, the rationale underlying these disciplines is outlined in the following paragraphs.

In *political science*, a theory normally consists of broad generalisations together with a set of assumptions or axioms, definitions of concepts, and a commitment to a particular methodological approach. Thus, the major function of a theory is "to explain singular facts and occurrences, but perhaps more importantly to explain empirical generalisations." Theories go beyond simply explaining collections of empirical findings because they are more powerful and abstract. According to Isaak (1985), a theory can explain empirical generalisations because it is more general and inclusive than the generalisations themselves. Theories also have three further functions, namely (i) organising, (ii) systematising and (iii) coordinating existing knowledge in a field. Moreover, they provide empirical generalisations (Johnson and Reynolds, 2005: 33).[5]

It was the behavioural revolution that led to an explicit interest in theory development. The argument was as follows: If political science claims to be 'real' science, then it must develop theory; i.e., some general, internally consistent statements explaining phenomena in a variety of settings. For example, in the field of international relations it

[4] These theories have been discussed on the national level only, and have not been published in international journals. On the international level, examples of theories and approaches adapted to forest policy issues can be found in the work of Sasser et al. (2006), who analysed private authority regimes and non-state market driven governance; Elliott (1999), whose research interest centred on so-called fast track procedures in policy making and Meidinger's research into civil society law making (Meidinger 1997; Meidinger 2002). Kouplevatskaya (2007) developed a "policy process theory of the double spiral" to explain the changing roles of policy makers and scientists.

[5] Johnson and Reynolds referred to definitions cited in Isaak (1985), Scope and Methods of Political Science, p. 167 et seq.