



Transferring Williamson's discriminating alignment to the analysis of environmental governance of social-ecological interdependence



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ABSTRACT

Institutional fit is operationalized by transferring transaction costs economics (TCE) to the analysis of instances of social-ecological interdependence. We carefully spell out the differences with conventional TCE and outline analytical steps based on discriminating alignment that enable a TCE analysis of environmental governance of “nature-related transactions”. We illustrate the approach through the example of wildlife management in Germany. Here we find hierarchical governance (a prohibition) of killing of wolves embedded into a polycentric hybrid monitoring arrangement. In applying TCE to nature-related transactions, we argue that characteristics of nature-related transactions can be subsumed under the core categories of jointness, uncertainty, asset specificity, frequency, rivalry, excludability and social-relational distance. Benefits of this approach include its generating a narrow list of descriptors of instances of biophysically mediated interdependence related to one evaluation criterion: cost-effectiveness. The TCE of nature-related transactions thus identifies sets of stylized contextual factors and aspects related to the governance of hazards of ex-post opportunistic behavior that cut across scales. They can be used as composite descriptors that facilitate analysis of complex multi-scalar arrangements of natural resource governance. We propose the concept of ‘governance challenge’, derived from TCE, as being useful for building research on environmental governance.

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1. Introduction

In the realm of thinking about the performance of governance of social-ecological interactions institutional fit suggests a normative theory, positing that “to be effective, institutional arrangements need to match the defining features of the problems they address”, including both the “biophysical and social domains in which they operate” (Young and Underdal, 1997). However, this theory leaves open what exactly these defining features are, what dimensions of institutional arrangements are (feasible) to manipulate deliberately, and with regard to what objective(s) effectiveness should be pursued. Finally, it also does not specify the mechanisms that link problem characteristics with particular institutional arrangements or how they are brought into being (Folke et al., 2007; Bromley, 2012; Vatn and Vedeld, 2012; Farrell and Thiel, 2013). This fuzziness has prompted researchers to openly search for and scrutinize theories that relate biophysical and

social characteristics of problems to the performance of institutional arrangements and environmental governance.

In this paper we engage with the work of authors who have applied Transaction Costs Economics (TCE) to instances of social-ecological interdependence to provide answers to these questions. Instances of social-ecological interdependencies that we look at re-allocate costs and benefits of people's deliberate or unintended actions. We conceptualize them as nature-related transactions (nr-ts) (see Section 3.1). Conventional environmental economics denominates such effects as externalities. We see the application of TCE to nr-ts as a starting point for developing a theory on how specific features of these interdependencies align with structures of environmental governance. Our analysis of governance of nr-ts is strongly inspired by conventional TCE which usually takes a static comparative perspective. The approach allows us to construct a broader range of hypotheses about suitable governance structures, avoiding the notion that markets would always be the best way for regulating these effects (Bromley, 1991; Vatn and Bromley, 1994; Hagedorn et al., 2002; Paavola and Adger, 2005; Hagedorn, 2008).

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The underlying idea of the paper is to take characteristics social-ecological interdependence seriously in analyzing environmental governance. These instances of interdependence interactions are considered to be embedded into so-called Social-Ecological Systems (SES) (Berkes and Folke, 1998; Anderies et al., 2004; Ostrom, 2009). It is however important to note that we pursue a fundamentally different interest than more process- and adaptation-related research evaluating transaction costs of governance in Social-Ecological Systems (cf. Marshall, 2013; Garrick and Aylward, 2012; Garrick et al., 2013a). For example, these authors spell out the implications of a complex adaptive SES lens for the role of actors' considerations of transaction and transformation costs, and the way they determine adaptive capacity and affect adaptive efficiency which has first been introduced by North (1994b). Due to ontological differences between works on SES we consider our work as at most inspired by SES thinking, particularly where it is associated with complex adaptive systems thinking. In other words, the key dimensions we add to work transposing TCE to nature-related transactions, namely jointness in production, considerations about the types of goods and physical and social-relational distance, do not take account of the dynamic SES perspective. In contrast, based on a static comparison of transaction costs, we explain governance structures in contexts where newly emergent social-ecological interactions are to be regulated, testing the hypothesis that governance structures are aligned with characteristics of nr-ts in a discriminating way. Thus, we deliberately chose a case where path-dependency and therefore also adaptive efficiency (North, 1994a), which Marshall and Garrick differentiate from the perspective of transaction costs, play a minor role. This highlights the relevance of applying TCE to the analysis of governance structures of social-ecological interdependence without needing to engage into the ontological differences between the perspective concerning (environmental) governance adopted by TCE and the dynamic SES perspective. Therefore, our analysis addresses governance of the hazards of opportunistic behavior in the context of environmental regulation, which in our view has been an important research lacuna. While closely related to a conventional understanding of TCE, we still see the need for modifications and extensions to account for the differences in characteristics, for example of transactions in industrial systems in comparison to characteristics of nr-ts.

First, we review TCE, focusing on the concept of discriminating alignment, and then present the literature transposing it to nr-ts. Subsequently, we elaborate our approach to resolving some of the critical aspects of this transposition. We then operationalize our analysis of governance of nr-ts. For this, we outline analytical steps that take into account a consolidated set of core characteristics of transactions that matter specifically to nr-ts. We illustrate the proposed approach through the empirical example of wolf management in Upper Lusatia, Germany, before finally drawing some conclusions.

2. Transaction Costs Economics and Discriminating Alignment

From the perspective of TCE, institutions such as property rights and related governance structures are needed to overcome information asymmetries between boundedly, but intendedly rational actors (Williamson, 1985), as such actors are likely to opportunistically seek their benefit in transactions, even if this means cheating. In such contexts, institutions can offer transaction cost savings (i.e. in terms of costs of monitoring, enforcement, and adaptation of contracts) (Dahlmann, 1979; Delmas and Marcus, 2004) in coordination and conflict resolution while establishing the constraints that structure political, economic, and social interactions (North, 1991). As Williamson (1985) summarizes, TCE examines the “comparative [transaction] costs of planning, adapting, and monitoring task completion under alternative governance structures” (Williamson, 1985: 2).

In conventional TCE, the units of analysis are transactions and their characteristics. The presumption is that exchange of goods and services is subject to the linear, technical processes of industrial production.

For Williamson (1985), a “transaction occurs when a good or service is transferred across a technologically separable interface. One stage of activity terminates and another begins” (Williamson, 1985: 2). This definition illustrates the origin of TCE in industrial organization where a transaction describes the physical transfer of goods or services from one stage of production to the next one. Proponents of TCE are interested in revealing the properties of goods and services that pose specific challenges for ordering conflicts and coordination challenges among actors that are engaged in separable activities, such as different stages of production. The level of investments into specific assets is not of much relevance to TCE analysis per se. Central instead is the degree to which actors risk being subject to losses from these investments if interrelated activities are not realized in the way they are desired. *Asset specificity* refers, then, to the idiosyncratic attributes of transactions that create ‘lock-in’ effects (Williamson, 1985) which may allow transacting partners to opportunistically siphon off rents expected by actors who have made specific investments. Level and type of *uncertainty* is another attribute, with Williamson (1985) distinguishing between primary uncertainty (random acts of nature and unpredictable changes in consumer's preferences), secondary uncertainty (lack of communication and inability to understand the intentions of others), and behavioral uncertainty (lack of knowledge about whether other actors will behave opportunistically). If asset-specific investments have been made in environments of primary and/or behavioral uncertainty, monitoring opportunistic behavior becomes very costly and dedicated investments into specialized governance structures are likely to be necessary. The latter tend to pay off more easily for transactions of high *frequency*, another characteristic of transactions. Williamson mentions two further characteristics, *excludability* and *subtractability* (Ostrom, 2005) (or *rivalry in consumption*), though rarely, because he generally focuses on private goods (Williamson, 1985; Williamson, 1991; for an exception see Spiller et al., 2012; Williamson, 1999). Here, we argue that our approach of transferring TCE to the analysis of nr-ts in SES – which often involve provision of public goods and common-pool resources – can make some headway in this domain.

Williamson posits that in industrial organizations, the characteristics of transactions are aligned with governance structures in a discriminating fashion and, all other things being equal, the most cost-effective governance structure¹ is the one opted for (see also Lin, 1989). Ex-post hazards are considered ex-ante and become part of governance structures, acknowledging trade-offs between ex-ante costs (e.g., for collecting information and the negotiation, agreement, and establishing of contracts) and ex-post governance costs. The driving mechanism underlying this so-called “comparative institutional competition” (Williamson, 1999) can also be found in efficiency-oriented theories of institutional change and refers to the fact that actors tend to introduce or change institutions “in response to profitable opportunities.” (Lin, 1989: 18). However, this driving mechanism only holds under a set of strong assumptions. In the following we list those that we later also consider relevant for nr-ts: First, the set of customs and traditions and the institutional context at the constitutional level allow for volitional choice of institutions, leading to comparative economic competition; second, transacting partners have an interest in maintaining a good reputation in the long run; third, potential suppliers for any given good or service are numerous (Williamson, 1998b). Fourth, for comparative institutional competition to emerge, Williamson posits the necessary condition of compliance with what he calls the *remediableness* criterion (1999) cf. (Demsetz, 1969). For example, an unacceptable setting would be a corrupt polity (e.g., no voting rights on all or some activities for disenfranchised parts of the population), prevalence of

¹ The analysis of discriminating alignment entails the following steps: “(1) to name and explicate the principal dimensions with respect to which transactions differ (thereby to uncover differential adaptive needs); (2) to name and explicate the principal attributes for describing governance structures [...]; (3) to effect a discriminating match, according to which transactions are aligned with governance structures so as to promote adaptation of autonomous and cooperative kinds; and (4) to ascertain whether the predicted alignments are corroborated by the data” (Williamson, 1999).

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