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Climate finance: A transaction cost perspective on the structure of state-to-state transfers☆

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ABSTRACT

Direct transfers of climate finance from governments of developed countries to governments of developing countries are often perceived as risky due to information asymmetries, the infeasibility of perfect contract enforcement at the international level, and uncertain recipient capacities and respective outcomes. Donor governments usually try to minimize such risks by delegating the provision of climate finance to bilateral and multilateral organizations that implement and monitor projects in recipient countries. Such direct interventions generate an alternative set of transaction costs through the fragmentation of finance flows and proliferation of funding organizations that can put an additional burden on recipient institutions. Moreover, long delegation chains between initial donors and targeted beneficiaries trigger a cascade of principal-agent problems. The benefits of channelling climate finance through the international development cooperation system hence need to be weighed against the opportunity cost of this approach. The potential for such scrutiny is however constrained by a broken feedback loop between donor and recipient constituencies. Only if the extent to which transaction costs accrue and the reasons they do so become better understood, policy makers might be able to address them and chose the most cost-effective channel in each particular case.

1. Introduction

Critical analysts such as Martens et al. (2002) characterize the setting of international development cooperation in the following way: governments with strong preference heterogeneity employ multiple layers of public bureaucracies to pursue long-term and difficult to observe outcomes in far-away countries where local governments have more immediate political priorities and often weaker institutional capacities and where intended beneficiaries cannot provide effective feedback on the outcome delivered. The same could be said about state-to-state climate finance. Public 'hierarchies rather than markets' (Williamson, 2005) are shaping the landscape of international climate finance which has profound implications for the expected cost of mitigating climate change.

There exists no internationally agreed definition of what constitutes 'international climate finance' according to the Intergovernmental Panel on Climate Change (IPCC, 2014). Agreeing on a definition would in itself be a transaction that attributes rights and duties of considerable value. Broadly defined, international climate finance are cross-border financial flows whose expected effect is to reduce net GHG emissions and/or to enhance resilience to climate change and climate variability. Finance flows can originate from both public and private sources. In 2012, total climate finance from developed to developing countries amounted to at least USD 39–62 billion of which USD 35–49 billion came from public sources (Buchner et al., 2013). Note that the uncertainty surrounding such estimates is very high due to the lack of common definitions and reporting standards.

Many reasons have been put forward for why developed countries provide/should provide climate finance to developing countries including arguments such as addressing moral concerns arising from historical responsibility (Meyer, 2013) and smoothing negotiations on a future agreement on climate change (Victor, 2011). The economic (as opposed to the moral or political) rationale to transfer finance for climate change mitigation from developed to developing countries is based on the widely shared assumption that mitigation in developing countries can be realized at lower marginal costs than in developed countries. Market-based instruments including the Kyoto Protocol's Clean Development

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Mechanism (CDM) were designed, in part, to make use of this cost differential, and the scenarios reviewed by the IPCC (2014) suggest that global mitigation costs can be minimized only if the majority of abatement efforts (in terms of emissions avoided rather than reduced) are realized in developing countries.

However, one often-neglected variable in the economic argument for international climate finance concerns the cost of transacting. Mitigation scenarios usually rely on the assumption that global effort-sharing institutions exist that would enable developed countries to effectively finance a large share of mitigation actions in developing countries. They usually assume a 'perfect global carbon market' that operates at zero transaction costs – one in which one dollar committed by developed countries is assumed to equal one dollar received and spent on mitigation actions in developing countries. Climate finance effectiveness – the conversion factor of money into desired outcomes – is set to 100%. The evidence suggests that such assumptions seem overly simplistic. The effectiveness of the CDM, for instance, has been mixed due to high transaction costs driven in part by concerns about the limited additionality of projects (Schneider, 2009). Moreover, the CDM's contribution to international climate finance is shrinking rapidly as the number of registered/registering projects fell by almost 90% between 2012 and 2013 (UNFCCC, 2013a–c). While there exist some studies that analyze the transaction costs of market-based instruments for international climate finance (e.g. Woerdman, 2001; Michaelowa and Jotzo, 2005), relatively little attention had been devoted to state-to-state transactions.

If transaction costs exist and if their extent varies depending on the choice of governance structure, taking these costs into account when preparing economic assessments could potentially lead to better policy because it could help to provide decision makers with a fuller picture of the real costs. In order to shed some light on the debate, the next section first introduces basic concepts of New Institutional Economics, a school of thought that focuses on the efficiency of institutions in facilitating transactions. The subsequent two sections then review the drivers and incidences of transaction costs in state-to-state climate finance, before the final section summarizes the main conclusions.

2. Climate finance as a contracting problem

New Institutional Economics is a perspective that focuses on institutions and the costs of establishing and using them (Williamson, 2000). These costs are often termed 'transaction cost' or 'institutional cost' and play an important role in environmental policy (Krutilla and Krause, 2010; Coggan et al., 2010; Libecap, 2013). Their conceptual nature is best understood in contrast to the costs examined by conventional economic assessments. Conventional assessments assume a 'perfect world' with perfect markets and zero transaction costs. They are primarily concerned with production costs and with choices over production factors and prices. For instance, one prominent type of assessment tool used in climate policy are larger computer models that include a detailed representation of energy systems including their technology and resource endowments (e.g. Riahi et al., 2012). The computer then optimizes a set of production functions that directly transforms decisions into actions and inputs into outputs throughout the modelled economy. Williamson (2005) argues that while the neoclassical view of hierarchies (the firm, the state) as production functions is well suited to capture production cost, it does so at the expense of losing sight of transaction cost (see Table 1).

For an illustration of the difference between views, consider Robinson Crusoe whose economy changes in a fundamental way when Friday comes along (Steven Cheung cited in Allen, 2000): the division of labour (as well as information, land, and capital) now gives rise to costs of coordination and cooperation, of creating and using institutions, of establishing and maintaining property rights among individuals. In short, it gives rise to transaction costs. They are to the social world what friction is to the physical world and institutions are 'social technologies' to address friction. They are the formal and informal rules that guide human behaviour. As North (1990) noted, if a group of people adheres to the same set of institutions, an organization emerges. Some organizations nest in others so that the rules of the higher-tier organization (the state) form the institutional background for the lower-tier organization (the firm). Climate change mitigation as a global cooperative effort relies on a vast number of individuals and nested organizational relationships. Looking at the efficiency of institutions can hence be useful if one wants to understand at what costs climate change can be mitigated and how these costs can be addressed. After all, cost minimization is a matter not only of technological but also of institutional innovation.

Table 1
Neoclassical versus New Institutional Economics.

	Neoclassical view	New institutional view
Focus	Production cost; technology	Transaction cost; institution
Assumption	Perfect institutions/information	Imperfect institutions/ information

Estimates of transaction costs are rare in the economic literature, although there exists a wealth of theoretical material. As Ronald Coase pointed out, ignorance towards transaction costs remains both because and in spite of his own work: "*the world of zero transaction costs has often been described as a Coasian world. Nothing could be further from the truth. It is the world of modern economic theory, one which I was hoping to persuade economists to leave*", (Coase, 1992: 716). Many economic studies assume a world of zero transaction costs because they take the Coase theorem, a thought experiment to demonstrate the significance of transaction costs, at face value. According to the theorem, economic exchange will lead to an efficient outcome regardless of the initial allocation of property rights if (i) all institutions including property rights are complete, (ii) information is complete, and (iii) resulting transaction costs are zero. The theorem stipulates that regardless of who gets what and how much in the beginning, the market will ensure that resources end up where their marginal value is highest.

Experience, however, shows that transaction costs are positive in all markets, including relatively well functioning capital markets in developed countries. In political markets, they tend to be pervasive (Dixit, 1996; Acemoglu, 2003) and very high in international relations because contracts cannot be enforced, giving rise to severe contracting uncertainties (Keohane, 1985). Inverting the Coasian conditions hence delivers a more accurate picture of contracting problems such as state-to-state climate finance.

3. Drivers of transaction costs

Conflict over the formulation and interpretation of essential legal provisions is so stark that property rights and other institutions in international climate finance remain fairly incomplete (Section 3.1). A similar perspective holds for the incompleteness of information that flows through the system and which is another key driver of transaction costs (Section 3.2). Both drivers are interdependent because a complete set of institutions could greatly enhance the set of available information through