



An institutional analysis of payments for environmental services

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ABSTRACT

In this paper the characteristics and functioning of PES is analyzed from an institutional perspective. While in theory PES is seen as a market solution to environmental problems – as an alternative to state (hierarchical) and community governance – a review of a large amount of case studies shows that PES in practice depends rather fundamentally on state and/or community engagement. Hence PES are foremost a reconfiguration of the roles of public bodies and communities becoming core intermediaries or ‘buyers’. First, to establish PES, rights to the land that delivers the environmental service must be clarified. This demands public action. Second, transacting over environmental amenities is very costly. Creating ‘markets’ for environmental services depends therefore crucially on state and community facilitation. Hence ‘buyers’ are often public agencies. High transaction costs also influence price setting. Payments do not follow the market format as intermediaries frequently are setting the price, with users often being unaware even of the fact that they pay. Finally, the distinction between payments as incentives and as fair compensations is emphasized. While payments may strengthen community relations and simplify action for environmental care, they may also introduce a purely instrumental logic and in some cases worsen the environmental status by crowding out environmental virtues. For the future, greater awareness of these dynamics is warranted.

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1. Introduction

Human societies depend on ecosystems and their delivery of environmental services. Moreover, through ecosystem dynamics and the broader biogeochemical cycles, human actions are interconnected. What people do at one place – e.g., emissions, land use changes – influences the conditions for people elsewhere. Biodiversity loss, changes in water quality and climate change are all pertinent examples of how we ‘intervene into’ each other’s lives and livelihoods.

Institutions are important for our capacity to handle interrelations of the above kind. They can be understood as solutions to collective choice problems. Historically, interconnections have mainly been observed at the local or regional level. To the extent that they have been regulated, we typically find regimes that span local groups of individuals utilizing the same resource – e.g., rules for use of a common forest or fish stock (see e.g., Ostrom, 1990, 2005; Baland and Platteau, 1996). They may also cover neighboring groups – e.g., the relationships between upstream and downstream users of water in a watershed (see e.g., Boelens et al., 2002; van der Molen and Hildering, 2005; Westermann, 2007). While some of the old watershed regulations have spanned substantial areas, it is nevertheless first in the 20th century that we observe resource regimes extended to the global level.

These regimes have, however, not been focused on managing interdependencies. Rather we have observed increased division of

resources into individually owned properties operating in rapidly expanding markets. These institutional changes have facilitated an unprecedented level of economic growth. This construction of separated units has, on the other hand, also created some serious challenges. One type concerns coordination problems within the private ownership-market nexus itself – e.g., the present financial crisis. The other concerns the physical interferences across the established borders of individual properties. These ‘externalities’ or ‘cost shifting practices’ have grown substantially as the economy has expanded. Establishing distinct parts or properties *de jure* cannot avoid the *de facto* creation of interconnections. Modern history can, hence, be described as a two step process. First, we have created separated decision units to foster individual access, control and remuneration. To handle the *de facto* vast amount of intrusions across boundaries created by these separations, we have next tried to find ways to ‘reconnect’ these *de jure* disconnected entities through various environmental policies. The fact that the first process creates the need for the second is rarely observed. We have instead strengthened the force of separation, believing that the market is the solution to any coordination problem.

There are, however, various ways to (re-)connect. First, one could reorganize the economy and establish common property structures where the different cost shifting decision units come under a common governance structure. Second, one could use the force of the state to regulate actions of private properties – e.g., legal regulations or environmental taxes. Third, one could create new markets where presently uncompensated flows across existing borders of separated units of ownership are made tradable through properly designed

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property rights. The first and the third solution could be contrasted in the form of two theoretical extremes: that of common ownership of all resources through a world cooperation vs. a solution where individual property rights are attached to every element of the biosphere.

It is on the basis of the above systems perspective I want to look at payments for environmental services (PES). Many see PES as belonging to the third category — as a Coasean market solution to the problem of externalities (see e.g., Engel et al., 2008). However, while the market is the model legitimating PES, practice is different. The dominant format of PES is not that of standard market trades, but that of state or more generally public payments. This should come as no surprise. Environmental goods are first of all common goods. Next, payments for such goods involve often high transaction costs if managed by atomized markets.

The aim of the present paper is to evaluate PES using institutional theory. It will be divided in three. I will start with a principal analysis of the alternative governance structures that could handle interconnections. Next I will evaluate the practice of defining PES as a market solution. Finally, I will undertake an assessment of existing PES systems. In this part I will look systematically at the three aspects emphasized above; the issues of rights, transaction costs and motivations.

2. Governance

Governance is about forming institutional structures. It concerns making social priorities, resolving conflicts and facilitating human coordination (cf. also Paavola, 2007). It is hence about how we establish goals, how we define rules for reaching the defined goals, and finally how we control outcomes following from the use of these rules.

2.1. Three Types of Governance Structures

We can divide between three main types of governance structures: a) hierarchies, b) markets, and c) community management. Here these structures will be portrayed as *ideal types*. Few real world governance systems are actually based on just one type. Typically, they co-exist, as they may even depend fundamentally on each other.

A hierarchy is a *system of command*. Power of decision rests with a top level including the capacity to directly command agents at various subordinate levels. Governments, firms and dynasties are all examples of hierarchical structures. The bureaucracy — be it public or private — is the dominant form of a governance hierarchy in modern societies. The basic system of allocation is through distribution of common funds. Hierarchies are structured to concentrate power. As this can be done in different ways, hierarchies cover systems of very different kinds, spanning from those formed through open and democratic processes to those which have an authoritarian basis.

As an ideal type, the market is a *system of voluntary exchange*. The formulation of goals rests with each participating individual agent (persons, households, firms etc.). The final allocation of resources is determined by the largest willingness to pay. While markets are based on formally equal parties, the capacity to pay is in practice decisive. Hence, distribution of access to resources to trade becomes important. As agents in markets may be individuals, firms or governments, we observe that hierarchies may operate also in markets. In relation to that, a substantial literature has evolved about why some decisions are made within hierarchies (firms) while others are left to markets — e.g., Coase (1937); Williamson (1985); Marglin (1991); Pitelis (1993). In this literature both variations in transaction costs and power relations are proposed as explanations.

Community management is a *system based on cooperation*. Individual decision units — e.g., persons; households — formulate both individual and common goals. Community allocation seems to rest to a large extent on a general rule of reciprocity. In many situations, though, more specific rules are developed like in the case of common property management with specific rights concerning access and withdrawal — e.g., Ostrom

(1990, 2005); Bromley (1991, 2006). Unequal access and asymmetric power relations are nevertheless a characteristic of many communities also — indicating the potential differences between the ideal type as envisioned here and the reality of many communities.

Most typically we find all three types of governance structures operating together. Partly they depend on each other; partly they may act as supplements or compete. As an example, markets could not exist without some kind of third party securing the necessary property rights and deciding in case of contractual conflicts. Such third party structures are normally formed as hierarchies — whether state or e.g., local community boards.

2.2. Three Dimensions of Governance

Following the perspective of classical institutionalism (Vatn, 2005), three sets of core questions can be identified when studying governance structures like PES. The first concerns the normative aspect of coordination — i.e., the distribution of rights and the rules instituted to govern the interaction between the agents. The second relates to the technical aspect of coordination — mainly how the level of transaction costs influences the functioning and choice of PES arrangements. The final aspect concerns which kinds of motivations are supported by different formats of PES and how this influences the outcome in practice.

Concerning rights and interaction rules, these define which interests and values get protection. Fundamentally this is about access to resources, but also about how income from using the resource is distributed, and which rules pertain concerning cost shifting between the property holders. According to classical institutional economics these structures have profound implications as they form the interests and values of agents involved. Typically we observe distinctions made between individual and social preferences or rationalities (Swaney, 1987; Etzioni, 1988; Vatn, 2005). As the market tends to facilitate individual preference developments, the community tends to support social preferences and emphasizes the role of the citizen/fellow resident. This implies that the type of governance structures established for a certain area of society influences the perspectives and values that will be emphasized.

The issue of transaction costs concerns here how costly it is to coordinate actions that are interrelated. Also transaction costs vary between institutions. While the market may facilitate transactions over ordinary commodities well, hierarchies like firms or the state may have the capacity to reduce coordination costs when there are interdependencies like in the case of environmental resources. In some situations using community governance is the favored solution (Ostrom, 1990).

The differences between these structures depend much on the type of relation involved and the form of the service affected. A core idea behind markets is to establish competition among agents to foster efficiency. This demands separation of decision units. This construction of separated units does, however, also maximize the amount of borders between them. As emphasized by Bromley (1991), the created transaction costs related to handling the upcoming interferences through individual bargains may be vast. Therefore, what is good for the internal — competitive commodity production — is bad for the external — the capacity to handle cost-shifting between separated economic agents (see also Kapp, 1971).

Finally, there is also an issue concerning the relationship between institutions and motivation for action. This issue was implicit already in the first point above. As different institutions foster different interests and values, they are also expected to influence behavior. By changing which perspectives and values apply, institutions have the capacity to change the logic of the situation. They act as rationality contexts which in some settings — like the market — motivate individually oriented action, and in other settings — like the community — motivate actions supporting the interests or values of the wider group (Vatn, 2005, 2009).

3. What is PES?

Against the above understanding of governance structures, we should first note that PES are not necessarily easy to classify. Certainly, markets demand payments. However, also hierarchies and communities may use payments – e.g., in the form of state taxes and subsidies or community compensations. Hence, I find it productive to make a distinction between the wider concept of payments for environmental services (PES) and the narrower concept of markets for environmental services (MES). In much of the literature on PES the definition used is, however, linking payments to markets. As also noted in the introduction to this Special Section, Wunder (2005, p. 3) typically defines PES as:

1. *voluntary* transaction where
2. *well-defined* ES (environmental service) (or land use likely to secure that service)
3. is being 'bought' by a (minimum one) ES *buyer*
4. from a (minimum one) ES *provider*
5. if and only if the ES provider secures ES provision (*conditionality*)

Certainly, a trade with only one (few) agent(s) as provider(s) and one (few) as buyer(s) is not a competitive market, but still a market. Following the demands of a market, Wunder emphasizes also that the good must be well-defined. Corbera et al. (2007a) use this aspect to make a distinction between PES and MES. MES demand a well defined environmental service and active supply and demand sides. In contrast "PES are not actual markets where ecosystem services are sold to service buyers. The commodity is ill-defined, and, in most cases, governments play an intermediary role by mobilizing resources from consumers to a government fund, which then distributes financial resources to ecosystem-service stewards at a pre-established price" (ibid. p. 366).

PES, as defined by Wunder (2005), is more like a theoretical reference point. It does not emphasize the specific problems involved when creating a market for environmental services, specifically how transaction costs influence the format of payments. This does not imply that Wunder is unaware of these issues – he uses much space on discussing them in various papers. They are just not well captured in his definition. Hence it is more about what PES should be according to a certain perspective than what it really is or can be.

Having reviewed a substantial part of the PES literature, the most noticeable is the efforts necessary to create the market. First of all, rights must be defined and the 'commodity' must be delineated. The group of users and providers must also be specified, a difficult task as exclusion is often very demanding. This explains why in PES schemes *the intermediary* is the dominant agent – whether the state, firms or NGOs of various kinds. The intermediary defines the good, establishes the group of 'sellers' and 'buyers' and even often set a predefined price. As we shall see later, the high level of transaction costs involved is a core reason behind these 'deviations'.

A specific point encountered in this is the difficulty related to making trades voluntary – cf. point 1 in Wunder's definition. On the users' side exclusion may simply be impossible given the kinds of goods involved – cf. carbon sequestration, biodiversity preservation and even many water services. Muradian et al. (2008) have studied a series of water projects. They emphasize that in many cases – i.e., in all cases they have analyzed – users' participation cannot be considered voluntary as the basis for the PES is an extra water bill fee. Hence, if there are more than a few users, securing voluntary trades may be difficult.

What then about the payment? Should one make specific claims on the format of these to call them PES? As transaction costs/exclusion costs are normally high, intermediaries will often have to play a core role. Hence, cases where the intermediary is the only really active party in defining the price, where the price is a flat rate etc., is still a payment for environmental services, while not portraying well a standard market. Similarly, leaving out all payments for environmental services where

exclusion is difficult and payments are non-voluntary would really imply a failure to notice the core characteristic of environmental services. In practice we observe that even when NGOs are acting as an intermediary, payments may be non-voluntary – cf. the Muradian et al. (2008) case mentioned above. When states act as the 'intermediary', this can be explained by high exclusion costs. The state can reduce transaction costs by taxing all 'potential buyers'. Using flat rates could finally be a reasonable reaction to high costs of capturing variation in quality.

The above discussion refers also to the various models or ideologies underlying the introduction of MES/PES schemes. Here the Coasean solution emphasizing private trades stands against the Pigovian solution favoring state taxes or subsidies. The above analysis shows that this distinction is not the relevant one. As low transaction costs are illusory for most environmental goods, the Coasean model is relevant only for a very small number of cases. Maybe it is better to see PES as different types of mixes between Coase and Pigou?

4. Evaluating PES as a Way to Reconnect Decisions

We shall now turn to a more systematic evaluation of the experience with PES, using institutional theory to interpret the observations.

4.1. Rights and Rules for Interaction

Establishing PES demands that rights are clarified. This concerns actually two sets of rights. First, it involves who owns the relevant resources – e.g., the land where biodiversity of high value is found. Second, it involves whether the owners of this land have the right to do whatever they want with it.

Similarly, it should be observed that PES are never established in an institutional vacuum. Rights to land – if existing – normally come with a lot of local specificity. Moreover, there are other formal and informal rules, and perceptions which cannot go unnoticed when establishing a PES system.

4.1.1. The Two Rights Issues

Most MES/PES projects demand land use changes. This raises the question which rights providers of environmental services must have to the involved land to make trade work. PES demand – in principle – that the good is owned such that a distinct receiver of the payment can be identified and delivery controlled. Nevertheless, according to Corbera et al. (2007b) rights need not to be individual. They show that PES arrangements have been established also on land held in common. Moreover, there are examples showing that PES have functioned despite the fact that land titling is not fully formalized. Certainly, this lack of title increases uncertainty for buyers, and in some cases they have demanded formal titling to be engaged. In other cases, people holding land in common have involved themselves in PES projects as a way also to strengthen their rights to the land. While PES may hence result in increased security for local people, there is also a danger that especially marginal groups are excluded from access to land. Moreover, in many countries a situation of 'plural legalism' exists including overlapping and flexible claims. These do not fit well to standard formalization.

Concerning the issue whether land owners have the right to do what they want with the land, there are some peculiarities with PES. Looking at environmental services, rights could in principle be distributed along a continuum from a) granting no right to change natural processes/to intrude into other peoples' lives to b) accepting that an owner of e.g., a piece of land should be compensated for any cost s/he is asked to carry to avoid such intrusion. This is the principle of 'polluters pay' against a 'providers get'. Between these 'extremes' are various mixed responsibilities. One could be to define a specific practice or environmental quality as the reference point – e.g., 'sound forest practices'. Delivering a higher level of services would result in being paid and delivering less would imply having to pay oneself.

According to the literature describing various MES/PES systems, 'providers'¹ of environmental services seem to be implicitly and exclusively granted the right to the status quo uses — i.e., a form of 'provider gets' with rarely no discussion about whether these uses are legitimate. The fundamental question of who should pay/what the reference point should be is hardly ever raised. This is a curious situation, and it is the case whether we a) talk about carbon projects where developed country agencies buy sequestration from developing countries — e.g., Brown and Corbera (2003); Grieg-Gran et al. (2005); Corbera et al. (2007a,b); Wunder and Alban (2008) — b) look at local water services where downstream users pay upstream dwellers to undertake certain acts/stop certain activities to increase water quality — e.g., Grieg-Gran et al. (2005); Corbera et al. (2007a); Kosoy et al. (2007) Wunder and Alban (2008); Muradian et al. (2008) — c) consider payments for biodiversity preservation — e.g., Wunder (2006); Claassen et al. (2008); Dobbs and Pretty (2008) — or d) look at combinations of all the above — e.g., Pagiola (2008).

One may ask if these observations follow from the two stage process emphasized in the introduction. Rights are from the beginning granted to owners of resources under the presumption that no harm will appear. When it nevertheless happens, what was given away is hard to reclaim. While I believe this is part of the explanation, one should also note that PES have been motivated by the fact that the providers in many cases are the poorer party — see e.g., Landell-Mills and Porras (2002); Grieg-Gran and Bishop (2004). One should also note that if payments cross national borders — i.e., users/buyers are not under the same jurisdiction as the providers/sellers — 'providers get' is the only functioning rule if the country where the resource lies does not accept an obligation to protect the foreign interest.

The only cases where implicit rights structures have been confronted seem to be where private companies are granted the right to sell water services where water has previously been a free good or delivered by community agents — e.g., Savenije and van der Zaag, P. (2002); Westermann (2004). Certainly, in this case privatization is a conflict over secure and affordable access to a basic good as it is also a conflict over who should extract the potential resource rents. In relation to the above, one should, however, note that in these cases a shift to prizing demands a change in status quo rights. It is not protecting them.

4.1.2. Where PES Come There is Always Something From Before

PES systems are not created in an institutional vacuum. Rather the PES literature illustrates the importance of the wider institutional setting for the success of programs. Few systematic studies are undertaken concerning these issues. Muradian et al. (2008) emphasize, however, that not least due to all the uncertainties and control problems involved in the case of environmental services, well functioning PES systems demand cooperative parties. To establish such an environment, taking the wider institutional context seriously is important.

At the fundamental level one must acknowledge the role of social perceptions and values. The conflict in Cochabamba, Bolivia over privatization of water services illustrates both the problems related to commoditization of water and the importance of trust. As Westermann (2007) shows, water has been an important basis for the organizing of

Andean societies and played a major role in creating identity and social relationships. Not least because of the struggles around the management of water resources in this region, the so-called 'Andean vision of water' (see e.g., *Andean vision of water*, undated) has been developed. It emphasizes water as a 'living and divine being', water as the 'basis for reciprocity' and as a 'universal and community right', as a 'common good and not as merchandise'.

The above example illustrates what is often termed a value conflict — a conflict over what a resource means to people and its role in shaping their identities and relationships. Including payments in a situation where the service is not seen as an economic good may just create hostility and deep conflict. As Pascual et al. (2010-this issue) clarify, what evaluative space is included influences both the evaluation of what is efficient and the trade-off between efficiency and equity. In some situations payments may disrupt existing relations, especially if these are not taken well into account when establishing the system.

In relation to this, Corbera et al. (2007b) observe that existing organizations and their local standing play a crucial role in the process of establishing PES. This is not surprising given the uncertainties involved and the importance of intermediaries to set up PES schemes. Corbera et al. (2007a) show how PES programs actually reinforced conflicts over access and control over forest resources. They show, however, also how some of these problems could be countered by emphasizing trust building and participation.

Similarly Landell-Mills and Porras (2002, p. 120) emphasize how "watershed protection markets are characterized by high levels of cooperation rather than competition". This observation relates to the fact that these services cannot be easily parceled out due to their characteristics, and as cooperation in the future will crucially depend on what kind of cooperation there already is, understanding how the institutional structures facilitate present cooperation becomes important for successful future systems.

There is a danger that PES may reinforce existing inequalities. This does not least work via the dynamics of existing land distribution. Poor people may not have title to land and this may create a great obstacle to (direct) participation. As important is uneven distribution. Holding little land implies that it is hard to set aside any for production of environmental services. Hence, the opportunity created through PES schemes is only an opportunity if there is some land not needed for securing basic needs. This kind of dynamics is documented a lot — see e.g., Grieg-Gran and Bishop (2004); Corbera et al. (2007b); Westermann (2007); Wunder and Alban (2008) and Wunder et al. (2008). It is, however, also emphasized that those at the bottom may get some of the gains through e.g., labor opportunities. If payments are based on opportunity costs, one would expect them to broadly speaking be neutral. Economic opportunities may as well be foreclosed by PES.

4.2. Transaction Costs

Establishing MES/PES systems seems to be costly — e.g., Wunder and Alban (2008); Wunder et al. (2008). From the above, this should be expected. It is demanding to define the group of sellers and buyers, respectively create mechanisms for trade. Many agents may be involved. Trust may be low and trust building becomes necessary. One must evaluate whether there is a potential gain from trade and what is an acceptable price. When a contract is made, control is finally necessary to see whether what is contracted is also delivered.

Fig. 1 illustrates the standard way of portraying benefits and costs of a contract concerning delivery of environmental services given zero transaction costs. The optimal amount q is the same whether rights are with the providers — no delivery of environmental service/harm is allowed (R_P) — or they are with the users — no harm is accepted before trade (R_U). Gains from trade are areas A and B respectively. Starting out from R_P — the typical MES/PES starting point — there will, hence, be nothing to gain from trading if transaction costs are greater than A.

¹ The concept of a 'provider' is uniformly used in the PES literature, being consistent with the 'provider gets principle'. This wording could be questioned. If a land owner through some action reduces the level of an environmental service and next gets paid to restore it, one might doubt the use of language. As PES is much motivated by Coase (1960), it should be noted that he emphasizes that the kind of physical interconnections we focus on in this paper are reciprocal — e.g., both parties must be involved for the creation of the externality. Hence, according to his thinking, the downstream water user by being there is as much causing an external effect as the upstream land user reducing water quality. He hence emphasizes that there is a distinction between the physical act of emitting something into the water and the creation of an external effect that demands both parties to be present. For a discussion of the problems with this reasoning, see also Vatn and Bromley (1997).

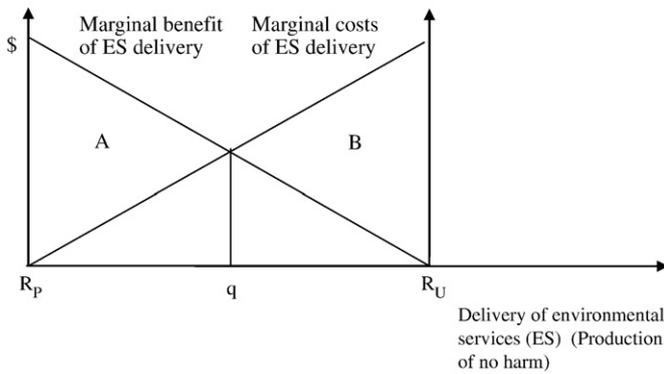


Fig. 1. Optimal delivery of environmental services (ES)/production of no harm.

It is certainly very difficult to define the size of A and evaluate whether transaction costs consume all potential gains. This is in itself an obstacle against establishing PES. Moreover, taking transaction costs into account makes it easy to understand why intermediaries are so crucial in the case of PES, as they have the capacity to reduce transaction costs. This certainly goes for governments, but also for NGOs. Hence Landell-Mills and Porras (2002) emphasize that developing markets actually depends on their ‘counterpart’ – i.e., on strengthening cooperative and hierarchical arrangements.

In their review of various PES systems, Wunder et al. (2008) distinguishes between user- and government-financed programs. While user-financed programs are typically small, government programs are orders of magnitudes larger. Moreover user-based PES systems tend to be focusing on single services, while government-based ones are often multiple services oriented. Again, transaction costs may explain this difference. One may need an agent like states to overcome these for larger scale projects.

Compared to government-financed systems, Wunder et al. (2008, p. 851) emphasize that user-based systems are “much more likely to be efficient”. Their argument is partly based on the idea that the evaluation of the values involved is more accurate. Budget fights within governments are avoided, and payments are expected to be more targeted. As their cases show, the delineation between user-based and government-based seems very much to follow that between club goods and public goods, hence characterized by different exclusion cost structures. Their efficiency claim therefore does not fully acknowledge the variation in transaction costs – consider Fig. 2.

If there are few agents involved, market trades may be the least costly in transaction costs terms. As the number of agents grows, it becomes much more costly to use markets since the number of deals increases substantially. States or local public bodies like city councils, can much easier raise the necessary funding through taxes or fees and the negotiations with providers is simplified. Certainly, the latter demands that the public body is seen as legitimate. This may not always be the case as also some private buyers or intermediaries may face similar challenges. Likewise, the cost of targeting seems underestimated in the reasoning of Wunder et al. (ibid.). A lower degree of targeting by using e.g., flat rate subsidies may be more than offset by lower

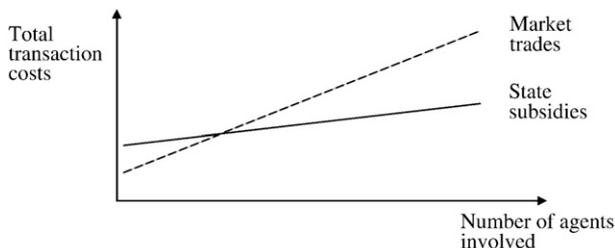


Fig. 2. Transaction costs and institutional structure.

transaction costs. Finally, broader, government sponsored schemes may offer opportunities for economies of scope (Vatn et al. 2002).

In relation to this, it should also be mentioned that Corbera et al. (2007b) find transaction costs to be lower if communities are involved as opposed to individual land holders. These authors emphasize also that the level of knowledge among e.g., farmers when contracts are made at community level tend to be lower than when they are directly involved. Hence, there is again a trade-off involved. Working through collectives reduces transaction costs, but at the potential expense of lower overall knowledge dispersal.

Transaction costs concerns both the setting up of the system and the running of them. While Wunder and Alban (2008) and Wunder et al. (2008) emphasize that the former is larger than the latter, there are reasons to believe that this depends much on the system. Creating a market may be very demanding while running it is less costly. Systems based on government payments may be much easier set up as the necessary systems at least for collecting the necessary money may already exist. The costs of administering the payments may next depend heavily on the type of payment scheme as illustrated by Falconer and Whitby (1999); Falconer and Saunders (2002); Vatn (2002) and Rørstad et al. (2007); Wunder and Alban (2008). While flat rate payments related to easily observed resources like land tend to have transaction costs at the level of a few percent of the PES payment itself, transaction costs increase, often sharply, as soon as payments are more specific.

Rørstad et al. (2007) study payments for agricultural amenities and show transaction costs estimates ranging from 1 to 2% of the payments for flat rate acreage and livestock payments with simplified control to almost 70% for a program where the payment is for a very specific amenity with substantial control involved. Falconer and Saunders (2002) document a case with a wildlife enhancement scheme where transaction costs were 110% of the payment. Certainly, the effect of the payment level on these percentages should be noticed.

In trying to explain the variation, Rørstad et al. (2007) uses perspectives from Williamson (1985). Three factors stand out as important. First of all, how easy it is to observe the good is crucial. In the case of payments attached to already existing commodities, transaction costs were observed down to 1/10 of a percentage of payments. The other two variables of importance were frequency and asset specificity. *Ceteris paribus*, increased frequency reduced per unit transaction costs while asset specificity, as expected, had the opposite effect. Certainly, experience – i.e., running systems over years – would also expectedly reduce transaction costs. We know, however, of no study that has analyzed this.

4.3. The Motivational Aspects of PES

The idea behind PES is to facilitate more environmentally friendly actions by paying people to deliver these. While there are good reasons to believe that this rather simple economic logic works, there is a series of issues that has to be taken carefully into account when formulating PES systems. Some are even of a kind implying that sometimes PES could create the opposite of what is intended.

As already emphasized, PES demand some kind of secured rights to the environmental resources – mainly to the land that the production of environmental services depends on. While the ownership to the land does neither need to be fully formalized nor privatized, PES represent a clear impetus in this direction. This may create a counter force against the idea of preservation. Kaimowitz (2002)² discusses this in the case of tropical forests in Brazil. He argues that land titling has been helpful in securing indigenous peoples' access to land. He shows, however, also how it has been a factor behind increased deforestation as it has made it easier to ‘mobilize’ the land for agricultural uses. Hence, to the degree

² I am thankful to Sven Wunder for this reference.

that PES demand titling, a counterforce to its aim is created as titling may increase the alternative value of land, enhancing next the level of necessary payments to secure environmental services. Similarly, as the value of land increases, incentives to 'land-grabbing' increase too. Societies relying on customary rights – often in the form of common property – may be vulnerable to such processes.

As important is the motivational aspect of the payment itself. This is a very under-researched area of PES, and I have to restrict myself to mainly present hypotheses rather than offer clear conclusions. The first issues relates to what kind of motivation makes PES become attractive for intermediaries to get involved. The second concerns how the payment is perceived by the participants. A third question relates to the fact that payments are not the only potential motivation structure that affects the use of environmental resources. This may influence the effect of a payment.

PES leaves much power with the intermediaries. It is actually very demanding both for the buyers and providers to get information about the actual use of the money collected, the overall costs of provision and what is in the end provided. While many intermediaries attracted may be motivated by the good cause, large amounts of money may appeal also to people or organizations looking for easy ways to earn money knowing that their actions are hard to control by the others involved.

In relation to this, [Corbera et al. \(2009\)](#) document a range of problems for providers to get access to necessary information. This concerns which options there are for funding, how projects should be undertaken etc. They also show that a substantial part of total pay is captured by the intermediaries and verifiers – often more than 50%. [Kosoy et al. \(2008\)](#) add to this story by documenting conflicts between providers and intermediaries not least concerning the quality of the services offered by the latter.

Turning to the second issue – the perception of a payment – we notice that it may take the form of an incentive where the issue is to vary the payment according to the level of delivery. It may, however, also be perceived as a compensation for a 'good' act where the payment is more about what is a fair reward for acting responsibly. Hence, we may distinguish between a pure 'seller-buyer' relationship and that of a fair compensation where the logic is to compensate for costs related to ES provision beyond what the agent could be expected to carry on his/her own. The above distinction may be seen as parallel to that between commodity and gift economies as discussed in [Kosoy and Corbera \(2010-this issue\)](#).

The first logic follows that of individual gain and is purely instrumental. The second follows the rationale of reciprocating and has a larger capacity to build and reflect relationships. It has a community dimension to it. The difference is illustrated by an experiment documented in [Fehr and Falk \(2002\)](#) where people were given the task to act as employers and employees respectively. Each employer and employee was asked to agree on the wage and a corresponding level of effort. Next employees chose actual effort. One type of contract involved no incentive – the wage was paid as contracted independent of real effort. In the specific experiment people on average delivered a substantial part of what was contracted, despite the fact that the individually optimal to do would be to offer minimum effort. To explain this, [Fehr and Falk \(ibid.\)](#) talk about reciprocity-driven voluntary cooperation. Next they document a similar experiment with incentive wages. In the actual experiment this implied that people would be controlled by a chance of 1/3. If they were then found to deliver the level contracted, they would be offered extra pay. [Fehr and Falk](#) document that effort actually went down under this structure as compared to the non-incentive setting.

The distinction between incentive and compensation is important for at least two reasons. First, the different logics establish two different relationships between the involved agents. Which relationship one wants to build or strengthen should hence be acknowledged when formulating the contract. The second point follows from the first. By creating a purely instrumental relationship, control will most

probably be much more demanding than when building on the logic of reciprocity – e.g., [Gintis et al. \(2003\)](#) emphasizing the self-policing force of creating reciprocal relationships. Hence, it is not at all certain which system is most efficient. The increased transaction costs following from the incentive system may more than outweigh gains from potentially more efficient delivery.

A price is moreover not just a price. [Muradian et al. \(2008, p. 6\)](#) emphasize that "social perceptions and values tend to exert a significant influence on the performance of the market". This relates to the perceptions of the users and providers, and the relationships between different land uses and their provision of the environmental service. These authors emphasize the relationships between the users and the providers. The characteristics of environmental services imply multi-partnerships. Coordination becomes crucial and community engagement increases strongly in importance. This influences next the role prices play as embedded in wider social contexts.

In relation to this, one should notice that there is some controversy around the observation that payments are generally (very) low. [Wunder and Alban \(2008\)](#) argue that they still may be considered to cover all opportunity costs for the providers. They maintain that discount rates may be high and that providers live under the threat of the land being legally protected. [Corbera et al. \(2007a\)](#), [Kosoy et al. \(2007\)](#) and [Muradian et al. \(2008\)](#) emphasize other types of explanations. Protection may offer benefits also to the providers. Payments may also "play a significant role in reinforcing (socially acknowledging) good environmental stewardship" ([Kosoy et al. 2007, p. 452](#)). Finally, [Muradian et al. \(ibid.\)](#) emphasize that social relationships are important when prices are defined. Prices are not just about opportunity costs, but about maintaining relationships.

[Kosoy et al. \(2007, 2008\)](#) moreover show that those participating in the programs they have studied were already committed to forest conservation while those prone to deforestation did not want to participate. This observation raises a series of issues. What is really the relationship between willingness to take action for preservation and present attitudes among land holders? How important is the payment and its level in this larger picture? Why are some land owners more protection oriented than others? How to avoid the 'adverse selection' dynamics implicit in the observation?

This takes us to the third question raised above – that payments are not the only potential motivator in the case of environmental stewardship. As we saw above, protection may demand the existence of a 'pro-protection' attitude among land owners. Payments may, however, also crowd out that attitude in certain situations – see also [Kosoy and Corbera \(2010-this issue\)](#). This effect is observed in many situations where people act to support a common good without being paid to do so. Payments may then change the logic from doing what is considered appropriate to start thinking in instrumental terms, calculating what is individually best to do. This observation concerns a wide variety of studies – e.g., of blood-donation ([Titmuss, 1971](#)), the willingness to host a nuclear energy facility ([Frey and Oberholzer-Gee, 1997](#)), and collection of money for a charity ([Gneezy and Rustichini, 2000a](#)). In all these cases including monetary reward reduced willingness to supply.

[Zikos \(2008\)](#) illustrates a similar effect in the case of water policy in Athens. He shows that a system based on information, normative motivation and regulation solved water shortage problems better than systems based on pricing. In the period 1989–1993 water use fell as the result of public awareness campaigns and regulations. Since then use has increased substantially despite the introduction of price incentives. He emphasizes that two mechanisms seems to be involved. First, many people are actually not aware of the level of the water price, implying that the price cannot be an important factor when deciding upon water use. Second, he argues that moral persuasion may be more effective in a case like this. Using prices weakens the effect of a 'low use norm'. It may change the logic from one where it is about what is the better for the community to do to

what is the better for oneself. If the price for water is low, increased use may very well be the result.

Actually, while prices may be effective in reducing demand, the level necessary may be higher than what is politically feasible. The poor may not be able to pay, and for the rich the price is not an issue. Hence, moving from a norm based to a price based system may create a kind of impasse. Going back to normative persuasion may not work either as the norm may be ruined simply by including payments – e.g., Gneezy and Rustichini (2000b).

5. Conclusion

This paper has documented that PES are not first of all about moving from public policies to market allocations. It is more about a reconfiguration of state-market-community relationships. Hence, PES are rather about another way of using the capacities and funds of states and communities than about abandoning them. As far as there is a clear market component involved, the material reviewed has shown that establishing markets is moreover a demanding process of social and political construction.

There are several reasons for this observation. One is the high level of transaction costs involved when allocating environmental services. This is simply a consequence of the characteristics of the goods. Hence, hierarchies or communities become important as these have the capacity to reduce transaction costs. They can be kept low either through using the power of representative bodies – i.e., hierarchies – or by increasing the necessary trust and engagement – i.e., community.

Another factor relates to the fact that any allocation mechanism will have to be embedded in wider sets of social organization. This concerns the prevailing rights and access structures, but also the broader social and political relationships already established between the potential parties. Especially in the case of local resource use problems, groups have already established relations. Interrelated resource flows may already be regulated, while maybe not in a way handling new or increasing pressures well. Nevertheless, these relationships must be acknowledged when including PES components.

Moreover, this paper has shown that paying is not necessarily just about offering incentives. Introducing payments may be perceived very differently depending on the prevailing institutions and the format used. In some cases one even may risk that payments crowd out normative obligations based on sophisticated cultural process of regulating interconnections. The distinction between payment as an incentive and as compensation is important. These are relationships we know rather little about and much more research is needed.

PES may offer a fair and efficient way to deal with vastly growing interconnections. As they become more and more global, using payments is a way to simplify necessary transfers as more groups can get directly involved in solving problems whose origin or solution may lie far away. This solution needs to be based on well functioning hierarchies and/or communities. From this we may envisage a fundamental challenge to the future development of PES. To the degree that it shifts the logic and our focus towards individual gain as the sole motive for acting socially responsible, a negative circle may be created undermining next the will to engaging in solving collective choice problems. To the extent PES makes it easier to solve environmental problems, it may, however, strengthen the will to act cooperatively. In my view it is crucial to formulate PES in ways tilting the long run effect in this latter direction. To do so, we need better understanding of how PES can be formulated to strengthen, not ruin cooperative will.

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