



The Australian experience in using tenders for conservation



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ABSTRACT

Over the past 15 years Australia has been trialling conservation tenders and other market based instrument approaches to generate environmental outcomes, particularly on private lands. The best known of these is the BushTender auction for vegetation protection in Victoria, begun in the early 2000s. Subsequently, nearly 100 other tenders for biodiversity protection have been run in Australia with substantial variations in application and methodology generated by a mix of both intended design and case study differences. The number of separate conservation tenders that have been performed, and the variations in environmental targets, state jurisdictions, case study circumstances, design and implementation, provides a rich data base of projects for analysis – unique at the international level.

The review section of the paper covers three broad areas. The first aim is to provide an overview of the various tenders and their history and design in different settings. The second is to review their application, particularly in relation to auction design, metric design and contract design aspects, while the third is to identify the extent to which tenders provided more cost-effective outcomes than alternatives such as a fixed rate grants. An additional goal is to explain why, after so many trials, conservation tenders are not more widely used in Australia. Key conclusions are that the multiple trials show that tenders are robust, relatively simple to apply and deliver more cost-effective allocations of public funding than other grant mechanisms. The reasons for their limited use can be related more to political and bureaucratic forces and inertia rather than to economic and design limitations.

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1. Introduction

Much biodiversity exists on private lands, and agricultural management practices can impact both positively and negatively on biodiversity stocks. While the public good outcomes of improved management provide a case for government involvement, the existence of private property rights, the difficulties of designing and enforcing regulatory mechanisms, and the political issues with imposing restrictions that generate private opportunity costs have led policy makers to consider voluntary approaches to generating improved environmental outcomes (Hanley et al., 2012). Five broad types of voluntary mechanisms are available to increase biodiversity conservation on private lands: mechanisms that change attitudes (e.g., education programs), mechanisms that improve landholder awareness of positive synergies between conservation and production (e.g., extension programs), mechanisms that

improve technical efficiency (e.g., technology research programs), mechanisms that provide simple incentives to change behavior (e.g., flat-rate grants), and hybrids of voluntary and regulatory programs known as market based instruments (including mechanisms such as taxes, subsidies or payments for ecosystem services).

Using market mechanisms to encourage private landholders to produce public good environmental outcomes has become more common in the past three decades (Hanley et al., 2012; Schilizzi and Latacz-Lohmann, 2013), through schemes such as the Conservation Reserve Program (CRP) in the United States, the English Countryside Stewardship Scheme in the UK and the BushTender program in Australia. While the use of flat-rate grant schemes remain the norm in most conservation programs (Schilizzi and Latacz-Lohmann, 2007, 2013), mechanisms such as conservation tenders (also called reverse auctions or procurement auctions) have been trialled to increase both the amount of conservation outcomes per unit of expenditure (economic effectiveness) and the incentives to reveal information and search for more cost-effective options (economic efficiency) (e.g., Latacz Lohman and van der Hamsvoort, 1997; Stoneham, 2003; Ferraro, 2008; Hanley et al., 2012). Despite the inefficient allocation of funds through fixed-rate payment grant programs (e.g., Babcock et al., 1996; Pannell and

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Roberts, 2010), the use of alternative mechanisms such as conservation tenders has remained limited. Governments face information, capacity and strategic behavior challenges in designing and implementing efficient conservation tender schemes. Yet there have now been numerous examples of successful implementation around the world (Connor et al., 2008a,b; Jack et al., 2008; Claassen et al., 2008; Groth, 2011; Ajayi et al., 2012).

Australia has been a hotbed of trials and development for conservation tenders. Following the development in 2000–2001 of the BushTender program (Stoneham et al., 2003), which was a conservation tender designed to protect areas of native vegetation on private property in Victoria, there has been substantial public investment, research and interest in these types of reverse auctions to allocate public funding for environmental outcomes more efficiently (Hajkowicz, 2009). A number of trials have been held together with some longer running programs, with substantial involvement from researchers. The diversity of approaches provides a natural test environment to identify how conservation tenders can be designed and conducted efficiently. While the results of many individual projects and research inquiries have been reported and published, there has never been a systematic review of the use of conservation tenders in Australia and the learnings that have been generated. That is the focus of this paper.

This review is concentrated on the use of conservation tenders in Australia from 2001 to 2012. Other grant programs and market based instruments such as offsets are not covered to concentrate the research focus. The review is largely restricted to the application of conservation tenders for biodiversity protection, particularly vegetation. The evidence that is assembled in this paper shows that there has been a large number of conservation auctions held in Australia, with almost 100 separate tenders conducted across multiple programs in the period between 2001 and 2012, and many reporting cost-effective outcomes relative to other funding approaches. Despite this level of activity and the knowledge gains that have been generated, the use of conservation tenders has remained minimal in the allocation of public funds for environmental goals, and the number of new programs or organizations using conservation tenders has fallen from the late-2000s with no new initiatives at the national or state level emerging since 2009. Understanding why applied economics appears to have ‘won the battle but lost the war’ over funding mechanisms for environmental programs is a key challenge.

The paper is structured as follows. A brief review of the underlying theory is provided in the next section, followed by an overview of the use of conservation tenders to protect biodiversity in Australia. This is followed in section four with an assessment of their design and performance, together with an evaluation of the key learnings that have been generated. In Section 5, reasons are reviewed why conservation tenders are not more widely applied in Australia, despite such the breadth of field applications and successful outcomes. Conclusions and recommendations follow in the final section.

2. Theoretical background for conservation tenders

Conservation tenders are primarily used to address problems of asymmetric information and complexity involved in purchasing environmental improvements from private landholders (Latacz-Lohmann and Van der Hamsvoort, 1997; Ferraro, 2008). Asymmetric information arises because the managers of agricultural enterprises are the only actors with detailed knowledge about the opportunity costs of changing management practices to generate environmental improvements, while the government holds the knowledge about the public demands for conservation outcomes. Heterogeneity in both agricultural and conservation

systems means that there are large variations in the private opportunity costs of making land management changes and the public benefits of those changes at the enterprise level (Hanley et al., 2012). As these private costs and public benefits are not (or only weakly) correlated, a decision maker faces a complex task of trying to select actions that will achieve the largest public benefits at lowest private costs, given that the decision maker has limited information about either.

Conservation tenders solve for these problems by replicating some aspects of a market discovery process. Under the programs, landholders are invited to submit tenders specifying their proposed actions and compensation (bid) levels, and a subsequent evaluation process identifies the biodiversity benefits involved and the most cost effective proposals. Typically those bids offering the highest environmental benefit per unit cost are selected to the point where the available funds are exhausted or some threshold rule is breached. The tender mechanism is essentially a one-sided auction with a single buyer and many sellers (hence the term procurement auction), so the standard theoretical basis for conservation tenders is in auction theory (Latacz-Lohmann and Van der Hamsvoort, 1997, 1998; Cason and Gangadharan, 2004; Latacz-Lohmann this issue).

Latacz-Lohmann and Van der Hamsvoort (1998) identify three major advantages of competitive tenders over fixed rate payment schemes (the latter are typical of grant mechanisms in agri-environmental schemes). These are that (a) issues of asymmetric information are addressed, (b) the auction prices are more likely to reflect the marginal value of the resources being used to produce the environmental outcome, and (c) the scope for rent seeking bids is reduced by competition between landholders. These advantages mean that there is scope for competitive tenders to improve the cost-effectiveness of public funding for conservation contracting on private land compared to grant schemes (Latacz-Lohmann and Van der Hamsvoort, 1997, 1998a,b; Connor et al., 2008a,b; Ferraro, 2008; Windle and Rolfe, 2008).

While the theoretical base for conservation tenders has been outlined by Latacz-Lohmann and Van der Hamsvoort (1997, 1998), a number of potential variations in the design, application and performance of conservation tenders make it difficult in practice to measure the relative cost-effectiveness of this policy instrument. The key areas where the design of a conservation tender can vary relate to auction design, metric design and contract design¹. The first relates to the performance of the actual auction, the second to the evaluation of the bids, and the third to the operation and enforcement of the contracts, once the successful bids have been selected. These three stages are complicated by the varying interactions with human participants that are possible, where knowledge gaps, learning effects, strategic behavior, reactions to risk and uncertainty, varying levels of participation, perverse incentives and rent seeking are potential behavioral issues that have to be considered. This is only on the supply side (the landholders); there are also human interaction issues around knowledge gaps and perverse incentives (public choice theory) that can influence design on the demand (public sector) side.

Auction theory indicates that with risk adverse bidders, discriminatory, single round mechanisms may be the most efficient form of a competitive tender (Latacz-Lohmann and Van der Hamsvoort, 1997; Stoneham et al., 2003; Milgrom, 2004; Cason and Gangadharan, 2004). The selection of discriminatory rather than uniform price bids means that bidders would not receive any surplus on top of their bid amounts, while having only a single round means that bidders have incentives to reveal their true opportunity costs as they only have one bid opportunity. However, an

¹ Fixed-rate grants can also vary across similar dimensions.

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