Book reviews

Auctioning Public Assets: Analysis and Alternatives, edited by Maarten C.W. Janssen. Published by Cambridge University Press, Cambridge, UK, 2004, pp. 332 IBSN 0 521 53757 6 (pbk), $79.95.

Governments routinely allocate access to crown resources and infrastructure. These decisions have clear implications for economic efficiency, the distribution of wealth and can have political ramifications. It is in this context that the book *Auctioning Public Assets: Analysis and Alternatives* provides valuable reference material for those involved or interested in resource allocation processes. This book is a compilation of papers, edited by Maarten Janssen, that deal with the theory and application of auctions to public sector assets. There are two parts to the book. Part one consists of five chapters that focus on theoretical concepts relevant to auction design. Part two contains seven chapters that describe, analyse and evaluate the performance of various applications of auctions to public sector resource allocation problems. The chapter authors and headings are summarised as follows:

1. Tilman Borgers and Eric Van Damme, *Auction theory for auction design*
2. Maurice Dykstra and Nico Van Der Windt, *Beauty contest design*
3. Timothy C. Salmon, *Preventing collusion among firms in auctions*
4. Emiel Maasland, Yves Montangie and Roger Van Den Bergh, *Levelling the playing field in auctions and the prohibition of state aid*
5. Maarten Janssen and Benny Moldovanu, *Allocation mechanisms and post-allocation interaction*
6. Timothy C. Salmon, *Spectrum auctions by the United States Federal Communication Commission*
7. Emiel Maasland and Benny Moldovanu, *An analysis of the European 3G licensing process*
8. Tanga Morae McDaniel and Karsten Neuhoff, *Auctions of gas transmission access: the British experience*
9. Joseph Swierzbinski and Tilman Borgers, *The design of treasury bond auctions: Some case studies*
10. Benny Moldovanu, *Matching markets*
11. Maurice Dykstra and Jaap De Koning, *Competitive procurement of reintegration services in the Netherlands*
12. Luisa Affuso and David Newbery, *The provision of rail services.*

The first observation about part one of the book is that relevant theoretical concepts are explained in a very accessible manner. Although auction theory can be complex, the editor has chosen to pitch the book at an operational rather than theoretical level. Key concepts are illuminated in a relatively simple and non-mathematical form that will appeal to some and not to others. In this respect the book fills an important gap – to

assist public administrators to become aware of the importance of designing auctions to suit the purpose for which they are intended and to increase awareness about the hazards of poor allocation processes. The book does not set out to provide a 'DIY' auction design manual and should not be approached in this way.

The book does provide a discussion of the important design decisions faced by public administrators interested in establishing efficient allocation mechanisms. The subject matter covered here includes pre-auction decisions and design, choice of auction format involving single and multiple-unit allocation problems, reserve price strategy, collusion etc. One chapter is devoted to the characterisation and analysis of the 'beauty contest' approach to allocation problems. Although most economists correctly dismiss this approach because it lacks objectivity, the book correctly reminds the reader that there are certain situations where this approach is relevant and appropriate, such as architectural design competitions.

The theory section of the book dedicates one entire chapter to collusion. In this chapter, the reader is alerted to the factors that predispose collusive behaviour including auctions involving multiple items, small numbers of bidders and situations where bidders have diverse preferences. A review of literature is used to summarise strategies available to limit the harm caused by collusion and to identify the alternative auction formats that might be used to minimise the possibility of collusion. These include sealed-bid formats for single-item auctions, sequential sealed-bid and combinations of auction formats such as the Anglo-Dutch hybrid auction. This area of auction design continues to attract research by economists using experimental approaches. This chapter documents the well-known example of collusion evident in the early FCC spectrum auctions. In these auctions, bidders were able to collude through a process called 'bid signalling with trailing digits'. Finally, the reader is alerted to the trade-offs, with respect to economic efficiency and revenue, that need to be considered as a consequence of managing collusion.

Two important general messages can be drawn from the theory part of the book. The first is Klemperer's maxim about auction design 'one shoe does not fit all' and the second is that auction design is clearly a complex and evolving discipline where a little knowledge could be a dangerous thing.

The second part of the book examines some of the many applications of auctions to public sector allocation problems. Seven case studies are examined including the FCC spectrum auction in the USA, several of the European 3G auctions, access to gas transmission infrastructure, provision of rail services, treasury bond auctions and procurement auctions. These case studies prove fascinating reading from an auction design perspective, but also highlight many other factors that influence the success or failure of allocation processes more generally.

The case studies highlight many of the design and implementation issues that public administrators need to be aware of when implementing any allocation process. Although the case studies reinforce many of the messages that are highlighted in the earlier theoretical sections of the book they also bring to light many of the more practical issues that are confronted when public resources are allocated between interested firms.

Chapters 6 and 7 contain an illuminating comparison of the many alternative methods of allocating spectrum licences needed by mobile phone companies. These include the beauty contest, fixed prize auction and variable prize auction approaches used in the USA and Europe. These case studies highlight the problem of designing auctions that involve asset aggregation problems and the examples included have clearly been selected to illustrate the different approaches that have been adopted. In some auctions, government has assumed responsibility for defining the bundles of spectrum offered, that is, bureaucrats have determined the scale and scope of licences needed to operate a 'viable' phone business. Other case studies describe auctions that have been specifically designed to allow bidders to assemble packages of spectrum that meet their individual needs. These studies illustrate the far-reaching consequences that different property right structures can have on relevant sectors and implications for the design of property rights and allocation mechanisms.

Chapter 8 provides an account of the process used to allocate gas transmission access in the UK. This provides an interesting insight to a class of problems where natural monopolies exist. Although the auction format used in this situation is of interest from a theoretical perspective – it involves a concurrent, sequential approach with multiunit demands – there are equally interesting issues associated with the definition of property rights and control structures that deserve attention from a policy design perspective.

Other chapters of the book provide case studies dealing with more unusual applications of auctions including that of matching markets. This class of problem has received considerable attention in the mechanism design literature from Milgrom and other economists.

The book offers many insights into specific auction design problems, however, it is also possible to draw many general lessons, which become apparent upon consideration of both parts of the book. Three of these are worthy of further consideration. The first is that there is clearly more to auction design than the choice of auction format. Many of the pre-auction and post-auction decisions that confront governments have significant implications including defining the objectives of the allocation process, specifying property rights and contract design. A second general observation is that each allocation problem is different and will need to be investigated separately. Finally, designing efficient allocation systems, particularly where multiple, interrelated-units are offered, will require input from specialised skills in economic theory, experimental economics, specialised knowledge about an industry or sector and specialised skills in political processes.

Overall the book forms an important resource for economists involved in designing allocation systems, particularly those relevant to public assets. It provides insights into the complexity of auction design and the need for specialist input from appropriately trained economists. However, the book should not be approached as a substitute for detailed training in auction design for which there is a large body of published literature. The only criticism of the book is that it does not provide a summary of either the theoretical or case study sections and would have benefited from a combined summation of both sections. This aside, this is a book that can be read in sections and stands as an

enduring reference source for those interested and involved in public sector resource allocation and procurement problems.

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Agricultural Biotechnology and Transatlantic Trade: Regulatory Barriers to GM Crops, by Grant E. Isaac. Published by CABI, Wallingford, UK, 2002, pp. xii + 303, ISBN 0 85199 580 2, $US90.00.

This book is a timely publication raising important issues, especially for countries like Australia and New Zealand, regarding non-traditional barriers to trade. Although the subject matter concentrates on issues of genetic modification (GM), the book has wider implications and messages about barriers to trade in general.

The author aims to show how different attitudes towards GM technology in North America and the EU are reflected in their respective laws and regulations. The book centres on the non-tariff-barrier nature of GM regulation and classes these as social barriers to trade.

Chapter 1 defines the types of regulation and categorises these according to the social or economic rationale behind their implementation. Thus, non-tariff barriers tend to be classed as social whereas quantifiable regulations are called economic. As the author recognises, this is a simplistic classification but does have its uses. However, I am not sure Australians or New Zealanders would like food safety laws to be called social regulations rather than economic regulations given the laws are vital to these countries to protect the economic performance of their agricultural industries and have not been introduced just on the basis of internal social values!

Chapter 2 gives a good review of current biotechnology, identifying different types and clarifying some of the confusion around this technology. Three distinctions are made. These are crops with production traits, output traits and bioengineered products. These distinctions are useful but not really followed up in further chapters. There are four distinctions made regarding consumer acceptance of biotechnology. The chapter also explains why GM technology is a credence good. The problems associated with this are illustrated through the different acceptance of the technology in the EU and the USA.

Chapter 3 is called 'Economic interest in biotechnology' and attempts to cover the regulatory framework and economic background. The first part of Chapter 3 involves assessment of the structure of the GM industry and how this has evolved. The development of vertically integrated companies from research through to the production and marketing of the technology is argued as being consistent with the theory and rationale for capturing the benefits of GM technology. Although this is an interesting review of the industry structure, it does not seem of major relevance to the

main theme of the book. The author then goes on in chapter 3 to describe regulatory interventions such as the Sanitary and Phytosanitary (SPS), Technical Barriers to Trade (TBT), Codex, and Intergovernmental Panel on Climate Change (IPCC) and Multilateral Environmental Agreements (MEAs). This is a useful review and helps to frame the international regulatory context in which countries can negotiate or protect access, in general or specifically in relation to GM technologies.

Chapter 4 focuses on the social interest in biotechnology and social regulatory development. The author argues that social interest groups are important. These are grouped into consumer, environmental and social development non-government organisations. This grouping does seem to ignore the government social bodies and organisations such as the UNEP (United Nations Environment Program) and the ILO (International Labor Organization). It is argued that social interest groups are against the top–down approach of the economic interest groups. Moreover, it is argued that social interest groups have a different perspective on two principles, which are fundamental to economic interest groups. The first of these principles is that technology and innovation are fundamental to economic growth and social welfare. The second is that price is the main factor with which consumers are concerned, and that trade-offs are made between GM technologies and lower prices. Many economists would certainly disagree with this second principle (that prices are the main factor), a fact recognised further on in the chapter.

The chapter also includes reference to the Cartagena Protocol on Biosafety as an example of an international agreement which incorporates a social perspective and yet one which could be used as the basis for trade rules. It is surprising that more is not made of this in the book. It is barely mentioned in the conclusion of this chapter, most of which is spent criticising the role of social interests in their reaction to GM technology with even a side swipe at the EU policy. This may be something with which many Australians and New Zealanders would agree but it did seem out of context here.

Chapter 5 is the central chapter to the book, focused on developing a Risk Assessment Framework (RAF) that could be used as the basis for regulation of GM technologies. The chapter highlights the two different approaches to an RAF, one based upon scientific rationality and the other based on social rationality. These two are often in conflict with the social rationality approach arguing that science cannot be divorced from its social context. The author also associates scientific rationality with an innocent till proven guilty approach to new technology and social rationality with a guilty until proven innocent approach. The author argues this leads inevitably to regulatory instability which organisations such as the WTO (World Trade Organization) are unable to deal with.

Chapters 6 and 7 then outline the US and EU regulatory framework to GM technology. These are thorough chapters, reviewing the development of regulations in these regions/countries. The conclusion is, not surprisingly, that the USA generally supports the scientific rationality approach, whereas the EU generally supports the social rationality approach, encompassing the precautionary principle. The author also argues that the EU regulations are unstable.

In Chapter 8, the author bravely attempts to combine these two approaches into the ideal regulatory framework. Although he lauds the social approach in recognising

social concerns with the technology, he argues that this approach does not have a solid foundation and proponents are constantly reacting to perceived risk. This is discussed in the three identified components of risk analysis, which are risk assessment, risk management and risk communication. The author then argues that risk assessment must be based upon science, but that the questions it addresses should incorporate normative ones. However, the framework excludes speculative risks, as these cannot be assessed through science. This may seem a bit naive seeing that many of the concerns regarding the technology which are currently influencing policy are based on untested hypotheses, something not just confined to the development of policy for GM technology.

The book, therefore, gives an interesting analysis of the types of GM regulation and their impact on trade. It highlights the differences between the sociocultural approach of the EU and economic focus of the USA. The EU's approach to agriculture incorporates the social aspect through multifunctionality and thus, achieves explicit social objectives, in contrast to the more productionist 'economic' approach of the USA. The consequences of this are divergence in their trade polices and conflicts within the WTO, according to the author. The example of GM technology is relevant to this argument, showing the importance of the precautionary principle to the EU against the more pro-technology approach of the USA.

The author argues that a risk-assessment approach which incorporates both the US and EU approaches would solve this dilemma. It would enable policy-makers and negotiators to include social and other factors but on a transparent basis. This is certainly laudable. However, concerns still occur, especially in relation to GM technology. The author is keen to point out that he regards as indisputable the benefits from GM technology. However, this is questionable. The benefits from the existing GM crops are certainly not without doubt, and the existence of crops/technology which provide attributes that consumers want seems a long way off (over 10 years away for most products) (Ministry for the Environment 2003). Therefore, to make sweeping statements regarding the benefits from these products is, perhaps, a little premature. Moreover, the author argues that while social criteria should be considered, risk analyses of GM technology should be based upon scientific evidence. The assessment of the risk of GM technology, however, is in its infancy and most researchers into, for example, the ecological impact of GM technology, argue that it will be a few years before reliable evidence becomes available. Thus, it could be argued that a main reason behind the reluctance of some to adopt the technology is the potential risk attached with its release. What the author suggests may recognise the risk but does not really propose anything that can alleviate it. For example, the author states in the last chapter:

> By addressing the credence nature of GM crops the polarity is minimised, resulting in informed consumerism based more appropriately on the actual benefits and risks, and fully in support of consumer choice. Given the enormous economic, human health and environmental benefits, it is difficult to believe that consumers, truly informed, would reject GM crops. (p. 266)

This contradicts earlier statements on page 53 that acceptance of the technology is positively related to education in the USA whereas the opposite is true in the EU.

Overall, the book is a useful addition to the literature on trade regulation and how it differs across different countries. It gives a good review of biotechnology and the development of this technology and offers interesting solutions on how to combine social and economic approaches to the assessment of technology. The book also gives a review of non-tariff barriers based on the type of product and/or how it is produced. GM is a good example of a technology subject to this kind of trade restriction and the arguments in the book can be expanded to other issues such as beef produced with hormones.

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Reference

Ministry for the Environment (2003). *Economic risks and opportunities from the release of genetically modifies organisms in New Zealand*, Report to the Ministry and Environment and Treasury, Wellington, NZ.