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Book reviews

Regionalisation and Integration in China: Lessons from the Transformation of the Beef Industry, by Colin G. Brown, John W. Longworth and Scott A. Waldron. Published by Ashgate Publishing, Hampshire, UK, 2002, pp. xiv + 299, ISBN 0 75461 753 X (hdbk), £45.00, US\$79.95.

Regional development has been a major component of China's effort to modernise its economy. The major challenge for the Chinese central government is to ensure that regional development and specialisation leads to widespread prosperity for all regions, rather than deepening income disparity across regions. The question is: should regions pursue economic activities independently of, or integrated with, other regions? On the one hand, the transfer of power from the state to the market has encouraged regional specialisation, interregional trade and integration. On the other hand, the increased power of regional governments has provided them with incentives to pursue economic activities independently of other regions. This book investigates the process, and extent, of regionalisation in China using the beef industry as a case study.

The beef industry provides a good case study because it is a relatively new industry, developed since 1978 when policy reform meant a move away from central planning to a more market-based economic system. As such, it provides a relatively clear picture of the Chinese government's commitment and policy direction on regional development after the reform, and of the impacts of these on regionalisation and integration. Second, the beef industry presents a challenge to regional policy makers because of the difficulty in co-ordinating cattle and beef production in China where it is fragmented and scattered across a large and diverse land. Moreover, the beef industry has been targeted as a means of raising incomes of poor households in both agricultural and pastoral regions. Therefore, what has happened to the beef industry may be useful for gaining insights into other industries that are at a similar development stage or going through a similar transformation process.

The book is divided into two parts. The first part, consisting of Chapters 1–7, discusses the general nature of, and forces that influence regionalisation and integration in China. Past studies on regionalisation in China are reviewed in Chapter 2, and regionalisation of the Chinese beef and cattle industry is described in Chapter 3. Chapter 4 examines how, and to what extent, the development of markets for beef and cattle has promoted

greater regional specialisation and integration in accordance with the factor endowments of different regions. Chapter 5 looks at the role and influence of central and local governments on regionalisation. Chapter 6 reports on an empirical investigation of market integration based on price movements in the mass beef market in major beef producing regions and consumption centres. Chapter 7 highlights the findings of the study of the process, and degree, of regionalisation.

Part 2 of the book consists of a series of 15 self-contained chapters. Organised as an Annex to the main text, it describes in more detail the characteristics of the 12 major beef cattle producing provinces and three major consumption centres (Beijing, Shanghai and Hong Kong). It also provides details of production, marketing and distribution systems, and consumer attitudes, in respect of beef and cattle in major markets. The Annex, which takes up about two-thirds of the space in the book, can be read independently of the main text and is designed for readers who are interested in knowing more about the specifics of the beef industry in major producing and consuming areas.

In the book, there are three levels of classifications of 'region' upon which discussion of regionalisation is based. At the first level, the Chinese cattle and beef industry is divided into three regions: Agricultural, Pastoral, and Other. At the second level, there are four beef zones, including the Central Plains and the North-east zones in the Agricultural region, and the South-west and the Western Plains zones in the Pastoral region. The Other region was also divided at this level into 'industrialised' and 'miscellaneous'. Each of the four beef zones consists of a number of provinces. At the third level, there are intensive cattle and beef producing prefectures and counties within the provinces.

The question of integration is analysed in respect to the following aspects: interregional trade flows for different products and market segments; investment flows and strategic alliances across companies in different regions; extent of specialisation of activities in particular areas; and awareness of developments in other areas including co-ordination and co-operation. The analysis is conducted based on intensive fieldwork and interviews with participants across the cattle and beef marketing chain in all the major cattle and beef producing regions and key consumption centres in China. The market informants interviewed include cattle breeders, beef suppliers, farmers, feedlot managers, slaughter households, cattle dealers, abattoir operators, stallholders, supermarket managers, animal husbandry officials, and local government officials. Quantitative analysis, involving investigation of market integration based on price movements, is also conducted. However, it constitutes only one small part of the overall analysis.

One of the conclusions is that the beef industry remains highly localised with a low degree of integration. Moreover, it is found that the current industry structure does not reflect factor endowments or economic conditions of the regions under examination but rather the influence of government policies and politics. More specifically, it is concluded that cattle and beef development policies and market strategies have largely ignored opportunities for regional specialisation and have not been tailored to suit the characteristics of particular regions. However, it is noted that as the currently small, but rapidly growing, market segment for premium quality beef continues to gain momentum, a higher degree of integration may be required to meet customer demands.

For some reason, no concluding remarks are provided at the end of each chapter. As such, the chapters seem to end somewhat abruptly. Shortcomings of the book also include imprecise definition of key concepts, such as regional development, regionalisation, regionalism, regional specialisation and integration, and lack of clarity about how these concepts relate to one another. Although definitions for regionalisation and regionalism are alluded to in Section 2.4, neither the definitions nor the literature review provided in Chapter 2 are very enlightening for setting the scene for the qualitative analysis and quantitative testing of regionalisation and integration in the chapters that follow. The three-level regional classification also adds to confusion because it is not always clear which level the discussion of regionalisation, interregional and intraregional trade or integration relates to. If the empirical investigation presented in Chapter 6 and the 15 provincial chapters presented in the Annex are any guide, the unit of investigation appears to be the province. This unit lies somewhere between the second and third levels of the regional classification scheme presented in the book. However, assessment of regional specialisation is hardly mentioned in the provincial chapters, let alone the linkages or integration between provinces. As such, readers who are interested in gaining more knowledge from the Annex about regionalisation or integration are likely to be disappointed.

A further weakness in the book is the lack of theoretical basis for the analysis. The authors make it clear that the book 'concerns the practice rather than theory of regional development. Although economic concepts and theoretical constructs are widely used in the analysis, findings of the study are not drawn directly from regional theory supported by anecdotal examples. Instead, observations from a large number of regions are analysed systematically to build a picture of regionalisation' (pp. 2–3). Unfortunately, the divorce between theory and practice makes it difficult at times for the reader to keep track of what the arguments are for and against regionalisation. This is especially a problem when it comes to empirical

investigation of integration in Chapter 6, simply because the authors fail to make clear the relationships they expect between key variables and between regionalisation and integration. As such, I found the materials presented in Chapter 6 somewhat unhelpful in elucidating the process of regionalisation and integration.

My overall assessment is that the book is more about describing the provincial beef industry in China, as opposed to the previous book *Beef in China* (Longworth *et al.* 2001) by the same authors that focuses on the national beef scene, than presenting an in-depth analysis of regionalisation or integration. Its title might therefore mislead some prospective readers. In any case, the authors should be commended for taking on the tremendous challenge of gathering and organising primary data from a vast and diverse land, and placing this much needed information into perspective for their readers.

Reference

Longworth, J.W., Brown, C.G. and Waldron, S.A. 2001, *Beef in China: Agribusiness Opportunities and Challenges*, University of Queensland Press, St Lucia.

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Efficiency in the Public Sector, by Kevin J. Fox (ed.). Published by Kluwer Academic Publishers, Boston, USA, 2002, pp. x + 302, ISBN 0 79237 563 7 (hdbk), €140.00, £90.25, US\$129.00.

Public services such as electricity, telecommunications, transport, water, law and order, and education are vital inputs for business activities and are also essential to the health and well being of the broader community. Over the last decade, Australian and international governments have become increasingly aware of the important influence that government services have on economic development and community welfare, and have introduced reforms to improve their productivity and effectiveness. However, public services are often difficult to measure because they are heterogeneous and multifaceted – law and order, for example. Thus, it is extremely challenging to derive measures of world best practice for government services, which hinders assessments of public sector reform.

Efficiency in the Public Sector is a volume that contains revised papers on public sector performance that were presented at the ‘International Conference on Public Sector Efficiency’, which was held at the University of New

South Wales in November 1997. The book has 10 papers that are organised into two sections. Section 1, which has four papers, addresses issues in evaluating public sector efficiency. Section 2, which has six papers, presents advances in the theory and practice of measuring public sector efficiency.

The papers are written by people who are well known in the field of productivity measurement. The papers cover a diverse range of topics. There are papers on potential approaches to address the difficulties of defining and measuring public sector services. In other papers, productivity measurement techniques are applied to a broad range of government services such as fisheries management, hospitals and electricity generation. The eclectic contents of the book target a niche audience that work in field of public sector productivity measurement. The book does not strive to be a textbook on public economics, regulation economics or productivity measurement for those seeking a basic understanding in these areas.

The book has several excellent chapters on the theoretical and empirical advances in measuring the output and productivity of the public sector. For example, the use of distance functions to produce measures of productivity or efficiency. Distance functions can accommodate the multiple inputs and outputs of the public sector and do not require assumptions about firm behaviour like cost minimisation, which is a rather heroic assumption for the public sector. Thus, distance functions are preferred to production or cost functions when analysing public sector performance.

The publication has several limitations. Some applied papers are dated given the lag between the publication of the volume and the 1997 conference. Many papers use only one technique like data envelopment analysis (DEA) or stochastic frontier analysis (SFA) to produce measures of productivity or efficiency. However, since each technique relies on assumptions that can limit the veracity of the results, Australian public service providers and regulated businesses are demanding that governments and regulators use several techniques to assess performance. Some applied papers do not present an ideal model for the production of government services. Deficiencies in data sets require the contributors to use less than ideal measures for public sector services and resources. However, the limitations of the measures are often not discussed, making it difficult to assess the potential bias in the empirical results.

Another disappointment is that all but two of the contributors are academics. The enthusiasm displayed by some that performance techniques such as DEA and SFA are readily applicable to help set government agency budgets or evaluate regulatory reforms requires temperance. The techniques have undergone refinement over several decades but their use in the public sector is limited for several reasons. First, it is extremely difficult to secure agreement among politicians, bureaucrats and community groups on the

specific outputs and outcomes of government services. Second, the general lack of information on these aspects of service restricts assessments of public sector performance. The views of a public sector economist on how political sensitivities influence the selection of the output and outcome measures for government services and the choice of benchmarking technique would have provided the volume with more balance. The Steering Committee for the Review of Commonwealth/State Service Provision (1997) presents several case studies on the efficiency of government services that were produced by government agencies.

Given the inherent difficulties of measuring the output and the quality of public services, governments and regulators often use a range of financial and economic information and seek the views of interested parties before making judgements on the scope for productivity and effectiveness gains for service providers. However, the weight that government and regulators place on the various financial and economic indicators and the views of community groups is not always transparent. Hence, decisions can arise to the detriment of the broader community.

Used carefully within current government and regulatory decision-making frameworks, performance measurement techniques provide a disciplined approach that encourages people to think about the actual outputs, inputs and quality of government services. This process contributes to both improved transparency and effectiveness of judgements on public sector productivity. This issue is attracting the attention of Australian regulators that set price or revenue caps for utilities. The Australian Consumer and Competition Commission website (<http://www.accc.gov.au/utipubreg/pubreg.htm>) has several papers and submissions that discuss the merits of using performance measurement techniques to improve the setting of price and revenue caps.

In Chapter 1, Lovell presents a comprehensive overview of the challenges of measuring the performance of the public sector, such as deficient data sets and the inherent difficulties of quantifying some services. He notes that several Australian government exercises, like the Council of Australian Governments' annual review of government services (<http://www.pc.gov.au/gsp/index.html>), are developing consistent effectiveness and efficiency indicators for government services, which will provide better insights on government performance. Lovell also discusses several approaches to measure the performance of the public sector given existing data deficiencies.

In Chapter 2, Quiggin states the gains of microeconomic reform in Australia are disappointing, in part because of the inappropriate use of international benchmarks and benchmarking techniques by several government agencies which were subsequently used to help estimate the gains of microeconomic reform. Nevertheless, he argues that DEA and SFA can provide useful insights on government performance provided the limitations of the

techniques and the different operating environments that face service providers are better understood and taken into account by researchers.

In Chapter 3, Yaisawarng develops a framework to allocate resources to government agencies using DEA. Incentive and monitoring mechanisms are presented to help improve public performance along with several caveats associated with implementing the framework; for example, the difficulties in defining public sector outputs, and information asymmetries between government agencies and governments.

In Chapter 4, Grafton and Squires evaluate the efficiency of a British Columbia fishery before and after its privatisation. In Chapter 5, Diewert and Lawrence estimate the deadweight costs of taxation in Australia. In Chapter 6, Coelli uses several techniques to measure the productivity of Australian electricity generators. The techniques produce very different results, which underlines the importance of using sensitivity analysis to test the veracity of the assumptions that underpin performance measurement techniques.

In Chapter 7, Färe, Grosskopf and Roos investigate the advantages of using a consumer satisfaction index to measure quality of service, compared to other measures of quality of service, such as speed of filling prescriptions and hours of business, in the assessment of the productivity of Swedish pharmacies.

In Chapter 8, Morrison Paul measures the efficiency of NSW public hospitals and in Chapter 9, Roos discusses approaches to measure hospital services. These papers provide an interesting contrast on how to measure the services of health care providers. Morrison Paul uses hospital treatments to measure hospital services. By contrast, Roos advocates measures that reflect the change in the health and the daily activities of the patient. Finally, in Chapter 10, Erlandsen and Førsund measure the efficiency of Norwegian nursing homes and home care.

To sum up, the book is likely to appeal to those with a technical interest in measuring public sector efficiency. Some contributions to the book are excellent. However, several applied studies are rather dated or require better presentation to inform the reader of the assumptions that underpin the analysis.

Reference

Steering Committee for the Review of Commonwealth/State Service Provision 1997, 'Data envelopment analysis: a technique for measuring the efficiency of government service delivery', Australian Government Publishing Service, Canberra, [Online]. Available: <http://www.pc.gov.au/service/gsp/dea/index.html>.

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Economic and Social Issues in Agricultural Biotechnology, by R.E. Evenson, V. Santaniello and D. Zilberman (eds). Published by CABI Publishing, Wallingford, UK, 2002, pp. xviii + 421, ISBN 0 85199 618 3 (hdbk), £70.00, US\$130.00.

In June 2001, the International Consortium on Agricultural Biotechnology Research convened a conference entitled 'Biotechnology, Science and Modern Agriculture: a New Industry at the Dawn of the Century'. Selected papers from that conference form the basis of this book. It is a collection of 21 papers involving 68 authors.

The editors do not state their criteria for selecting papers, yet they reveal their intention to compile papers that address 'some of the major economic and institutional problems affecting the creation and international exchange of agricultural biotechnologies.' (p. xi) The result of their labours is a 421 page book comprising five sections.

The first section is a set of four papers that consider intellectual property rights. Most of the papers focus on the implications for developing countries of the range of national and international agreements that define or affect intellectual property rights in plants. For example, the nature and importance of the Trade Related Intellectual Property obligations of the General Agreement on Tariffs and Trade is discussed, along with its relationship to the Convention on Biological Diversity. Special plant variety protection and patent systems of providing and protecting intellectual property rights in plants are outlined and examples of problems in defining or enforcing property rights in plants are presented. Of interest to an Australian readership is the case of 'biopiracy' by Australian agencies in 1998, outlined in Chapter 4. This occurred when two chick pea varieties bred from International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) material were subject to an application for Plant Breeder's Rights in Australia. The unfolding story is told mostly from an international perspective. However, knowing some of the Australians involved in the 'biopiracy', their side of the story would also have been worth noting.

This first section is a useful starting point for readers who wish to become familiar with developing country issues such as farmers' rights and their relationship to various agreements on intellectual property rights. A slightly annoying feature of its papers, and relevant for later chapters, is the repetitious use of acronyms. A glossary of terms and acronyms at the start of the book would have aided readers less familiar with the topic.

The second section comprises three papers on public and private sector issues in funding, protecting and utilising intellectual property rights in plants. These papers are relevant to the first section because when research and development (R&D) is mostly carried out by public sectors then intellectual

property rights in plant genetics tend to be less of a priority. However, private sector involvement in the funding and provision of plant breeding services and biotechnologies is increasing and external funds are becoming increasingly important to public sector R&D agencies. Hence, many of the observations and comments of the various authors in this section are likely to remain relevant for some years. The section includes a paper by Koo *et al.* (Chapter 8) on the practical issue of how much it costs for *ex situ* conservation of genetic resources.

These papers outline only some of the issues facing public and private sector agencies. There is a growing literature not represented in this section that expands on the problems and opportunities for public and private sector agencies that provide and utilise plant material and biotechnologies. Some of these issues include determining rules of access to germplasm maintained by the public purse; the role of public agencies in variety evaluation; variety pricing decisions; equity share arrangements for private and public institutions; the impact on the mix of basic versus applied breeding R&D of different funding mechanisms and the merits and dangers of supply chain linkages involving plant breeding organisations.

The third section is a set of four papers that consider biotechnology innovations that may affect the supply of plant material to farmers. Two of the papers focus on the impact of terminator technologies. These are biological technologies that prevent farmers from saving seed. The seed harvested is not viable, causing farmers to purchase new seed each year from the technology owner. Another paper contrasts the economic merits of marker-assisted selection compared to conventional breeding methods. The paper comprising Chapter 11 could perhaps have been more suitably included in Section 2, rather than Section 3, as it largely deals with intellectual property right issues for publicly funded national and international agricultural R&D agencies.

The comment about the papers in Section 2 also applies to these papers in Section 3. Namely, the papers only deal with a subset of biotechnologies and issues surrounding their use. They are therefore illustrative of the topic rather than a comprehensive treatment. The pace of technological advancement in genomics, proteomics and bioinformatics is such that, even since the publishing of this book, there are new innovations that will revolutionise the nature and speed of plant breeding.

The fourth section is by far the largest part of the book, consisting of 122 pages and containing 7 papers or chapters. Its focus is the experience of various developing countries with issues surrounding biotechnologies. Some chapters deal with the institutional capacity in various countries to capitalise on biotechnologies and deal with intellectual property issues. Other chapters examine the likely impact of certain technologies on farm production in particular developing countries. For readers interested in

developing countries and the impacts of plant biotechnologies this section provides some well-documented case studies.

The final section contains two papers on international aspects of biotechnologies. A paper by Anderson *et al.* estimates the economic effects of various genetically modified crops. The other paper by Huang *et al.* Chapter 21, may have been more aptly included in Section 4, as it describes the impact of transgenic varieties upon Chinese cotton farmers. Perhaps the paper in section three by Goeschi and Swanson, Chapter 10, could have been better inserted in this final section as it generates a set of forecasts for developed countries and three developing countries of the hypothetical introduction of terminator gene technologies.

Developing countries face many issues regarding the emergence of biotechnologies and their accompanying property right regimes. Although it does not deal comprehensively and in equal detail with these issues, this book does provide a wealth of reference material for researchers and policy-makers needing to either develop or maintain an understanding of these issues.

Generally, the papers are well written, with data and findings presented clearly in tables and figures. Not all papers have abstracts and not all have conclusions. This hampers the ease of reading somewhat. All chapters start on a right-hand page so there are several intentionally blank pages throughout the book. Chapter 17 is incomplete as at the time of publication analytical results were still being generated. Several of the papers contain sections outlining qualifying remarks as some of the papers appear to be works-in-progress in need of some refinement or extension.

Overall, the book is a worthy addition to the libraries of those needing to be abreast of issues involving plant biotechnologies, intellectual property rights and their joint impacts on developing countries.

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Environmental Economics for Sustainable Growth: A Handbook for Practitioners, by Anil Markandya, Patrice Harou, Lorenzo Giovanni Bellù and Vito Cistulli. Published by Edward Elgar, Cheltenham, UK, and The World Bank, 2002, pp. xxiv + 567, ISBN 1 84064 812 0, (paperback), \$A134.00.

‘Environmental issues are not a luxury for the rich.’ (Foreword, page xxi)

The book is designed primarily for trainers and practitioners, and for government advisors involved in formulating and implementing environmental policies in developing countries and economies in transition.

The handbook is in two parts. 'Part I – Economy-wide policies and the environment' has chapters on: sustainable development vision in a global context; macroeconomic policies and the environment; sectoral policies and the environment; policies, instruments and the environment; laws, regulations and institutions; national environmental strategies; and economy-wide policies and the valuation of environmental impacts. The overall objective of Part I is to link economy-wide policies, both macroeconomic and sectoral, with the environment.

'Part II – Environmental valuation methods for policies and projects' has chapters on: economic principles and overview of valuation methods; revealed preference – direct proxy methods; revealed preference – indirect proxy methods; stated preference – contingent valuation methods; use of monetary values of environmental and natural resources for benefit-cost analysis – an application to a soil moisture conservation project in Tunisia; use of monetary values of environmental and natural resources in the framework of national accounts – an application to Costa Rica; and valuing health impacts – a case study of air pollution in New Delhi, India. The overall objective of Part II is to provide the basic principles of valuation, and to show how they can be used for decision-making at the project as well as policy level.

The institutions represented by the authors include the World Bank, Food and Agricultural Organisation of the United Nations and United Nations Environmental Program, so it is not surprising that there is a developing countries theme in the handbook. The book was prepared initially as part of a contract between the World Bank Institute and the Commission of the European Union and has been developed over some years.

'The flavour of the handbook is represented by the summary description of Chapter 2 entitled "Sustainable Development Vision in a Global Context". In the spirit of the Rio Summit, a vision of global context, backed by a national strategy, is an important precondition to implementing successful strategies for sustainable development. The strategy itself must be translated into a plan of action. The plan should be flexible and adaptable to new circumstances over time. This chapter places the training on political economy of the environment in the broader perspective of sustainable development as envisaged at the Earth Summit in Rio and enunciated in Agenda 21.' (p. 8)

In other words, as is probably appropriate to a 'handbook', many of the concepts and ideas which some economists may seriously question, such as 'sustainability', are taken to be widely accepted. There is also the perception that governments can have a major role in improving environmental

outcomes, even for poorer countries. While institutions such as the World Bank may have had some impact in this area in recent years, others would claim that non-governmental organisations such as the World Resources Institute are having more impact than most governments.

Consistent with the currently fashionable ‘triple bottom line’ analysis supported by most, if not all, Australian governments, the authors claim that the book offers three perspectives that are essential to any successful economic policy that has claims to meeting the goals of sustainable development; namely, economic valuation; ecological accountability; and social impacts.

The authors at times take the supposed deficiencies of mainstream economic analysis a little too far when they refer to the need for a new science of ‘sustainomics’, as proposed by Munasinghe:

[I]mplementing sustainable development will need a new science of “sustainomics”, in which a transdisciplinary approach has to be followed.... each dimension requires a mixture of skills and disciplines, from ecology, economics and sociology; sustainomics also draws on related areas like anthropology, biotechnology, botany, chemistry, demography, engineering, ethics, geography, information technology, law, philosophy, physics, psychology, zoology and so on. Methods that bridge the economy–society–environment interfaces are especially important, including environmental and resource economics, ecological economics, conservation ecology, energetics and energy economics, economics of sociology, environmental sociology, environmental ethics and so on. While building on such earlier work, sustainomics projects a more neutral image which focuses attention explicitly on sustainable development, and avoids the implication of any disciplinary bias or hegemony.’ (p. 17)

Mercifully, the authors do not take these ideas further. They focus instead on describing extensions of economic analysis which address environmental and social dimensions in a rigorous and practical manner.

The handbook is mixed in its approach to theoretical issues. At times these issues are examined at some depth while at other times important theoretical issues, such as those lying behind ‘benefit transfer’, are given scant attention. It might be suggested that given the paucity of data on environmental values in developing countries, ‘benefit transfer’ holds significant potential for practitioners. Most of the ‘non-market’ valuation studies to date have been done in developed countries. A contra view is that it would be inappropriate in most cases to transfer the environmental values held by people in high income countries to those in low income countries.

In any case, it is to be expected that theoretical issues should take a back seat in a work of this type which is only one volume in extent and focused on applying principles rather than developing them. The authors explicitly state (p. 3) that the book is not a book on environmental economics in the 'pure sense'. But the topic of 'choice modelling' is a surprising omission from the book given its growing practical importance to the areas of non-market valuation addressed in Part 2.

Limitations on time and space do not permit a comprehensive review of all the good things – for example, the extensive and ordered coverage of methods, and case studies which illustrate them – and the few bad things, in this book. It includes a number of spelling and grammatical errors, and is missing some key references that are referred to in the text. However, these blemishes do not detract from a valuable reference work which should find its place on the bookshelves of anyone who regards themselves as a professional practitioner of environmental economics or related disciplines. While there are many books on environmental economics, I doubt that there is an equivalent work which is directed at developed economies – perhaps someone could be encouraged to produce a companion handbook.

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Environmental Policy and Technological Innovation: Why do Firms Adopt or Reject New Technologies?, by Carlos Montalvo Corral. Published by Edward Elgar Publishing, Cheltenham, UK, 2002, pp. xiv + 304, ISBN 1 84064 957 7, (hdbk), £65.00.

Most people agree that the self-interest profit goal of firms can conflict with broader societal goals including environmental protection. The author of this book argues that in attempting to overcome this conflict, government environmental policies address the symptoms rather than the origin of problems. He claims that the reliance by governments on a paradigm assuming that a narrow view of the profit motive wholly explains firms' environmental behaviour has been unproductive. In his view, this is not because maximising profit and self-interest is wrong or should be ignored. Rather, he argues that focusing on this assumption alone leads to a vicious cycle of resistance to change that entrenches antagonism between firms and regulators. Policies are inappropriate because policy makers don't understand

how their incentive-based instruments work and don't consider the importance of other factors such as social norms and attitudes and ethics of Chief Executive Officers. Consequently, lobbying by firms seeks to dilute environmental objectives because they are perceived as a threat to their self interest, rather than a source of ideas to improve their longer-term economic efficiency. Regulators then attempt to defend their position, adding to the antagonism, resulting in confrontation rather than collaboration.

The author seeks to show, using a case study involving the adoption of cleaner technologies by the In-bond industry located in Mexico on the US border, that behavioural models can improve understanding of the conditions under which incentive-based instruments might lead to a collaborative rather than confrontational process and hence to a greater willingness to change. Behavioural models explain and predict behaviour in terms of intentions, attitudes, norms etc. rather than say expected utility. The questions he specifically seeks to address are: '(1) Is it possible to reconcile the individual interest with the social interest regarding environmental protection?; (2) If so, under what conditions?; and (3) If not, why not?' (p. 111).

Chapter 1, entitled 'Resistance to Change', outlines how existing environmental policy processes driven primarily by assumptions of self interest exacerbate conflict, and thus worsen 'social traps', rather than promote a process of change. As a result, there is 'a huge gap between intent and the real operation' (p. 2). Does this sound familiar? The chapter includes a discussion of the theory of social traps and the reasons for suboptimal environmental policies.

It is argued in Chapter 2 that 'strategy follows structure' when it comes to firms innovating in the area of adopting cleaner technology. In other words, the context of the decision-making environment of firms is influenced by the macro (external) determinants of technical change and the micro (internal) dynamics of change within the organisation. While the discussion in this chapter focuses on the study area in Mexico, it illustrates that issues such as global competition for resources and employment can lead to severe pressure on firms and governments to accept behaviour that is not in the broader long-term interests of society. In addition, as Corral observes, government agencies have limited capabilities to encourage environmental protection policies while firms are following a technological paradigm that is inconsistent with sustainable development. It is argued that the necessary scientific and technological base for a change towards a more consistent paradigm is not present. This has parallels in the challenge of addressing environmental sustainability in rural Australia (e.g., salinisation) where new scientific insights are needed to open new technological opportunities, while existing technologies are still sufficient in most cases to satisfy farmers' production needs.

The Theory of Planned Behaviour (Ajzen 1991) applied in the book has been widely used throughout the world, including in Australia (e.g., Gorddard 1991), to improve our understanding and prediction of human behaviour. Chapter 3 provides an excellent outline of this model. Corral departs from the expectancy-value model normally associated with this theory, in part because of perceived problems with multiplying an outcome by its perceived likelihood and also due to evidence that managers are more focused on outcome scenarios rather than outcome probabilities. This is similar to criticisms that have been made of subjective expected utility theory and is akin to arguments made about wool producers' decision-making by Murray-Prior and Wright (2001).

A framework based on the Theory of Planned Behaviour is developed in the book. The framework links willingness to innovate in the development of cleaner technology to attitudes toward innovation, social norms, and control over innovation. This framework supports in Chapter 4 a rigorous exploration of the behavioural domains underpinning the attitudes, social pressures and control of firm managers in the case study setting. Based on this exploration, a series of attribute scales are developed to measure: environmental risk, economic risk, community pressure, market pressure, regulatory pressure, technological capabilities, organisational learning capabilities, capabilities of outsourcing strategic alliances, and networks of collaboration. These two chapters provide an exemplary illustration for other researchers, and in combination with the references and lists of scales should prove a valuable resource.

The author is to be commended on the rigour and detail involved with the modelling presented in Chapter 7 and associated Appendices. Key variables found to influence current willingness to develop cleaner production technologies were 'perceived economic risk' and 'perceived technological capabilities', while 'perceived social pressure' was found to be the least important. Reasons advanced for these findings pertain mainly to the study context. However, perhaps a lack of 'technological opportunities' and 'improvement capabilities', which are modelled as determinants of 'technological capabilities', could also be important here. A series of scenario analyses to assess the impact of various policy instruments on behaviour found attitudinal changes and changes in social pressure alone did not demonstrate a substantial increase in willingness to change.

Based on the study findings, the author suggests that the appropriate policy process for motivating adoption of cleaner technologies should be one of focusing on 'willingness to change' rather than on 'self interest'. He argues that this process should encourage a collaborative rather than conflictive approach. Policy makers should also be aware, he observes, that change is not always within the firm's power and that regulatory pressure

can have a negative impact. This suggests a changed role for regulatory agencies.

Who might be interested in this book? On the cover it is suggested that 'it will become an indispensable companion for local, national and international environmental regulators, environmental policymakers and analysts, and those interested in technological innovation and technological policy'. This is a big call. I personally found it a valuable read, even though the Mexican case was outside my areas of expertise and interest. It certainly adds ammunition to claims that behavioural models have something to say about environmental policy development above and beyond the simple question of 'Is it profitable?'. The modifications to implementing the Theory of Planned Behaviour model outlined in this study may strengthen its appeal to those using it already as well as attract new converts.

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New Perspectives on Foreign Aid and Economic Development, by B. Mak Arvin (ed.). Published by Praeger Publishers, Greenwood Publishing Group, Westport, CT, USA, 2002, pp. 13 + 297, ISBN 0 27597 549 5, (hdbk), US\$68.95.

A lot has been said already about the allocation and efficiency of foreign aid, so coming up with 'new perspectives' is a tall order. This book is a useful combination of predominantly empirical papers that successfully adds to this burgeoning published literature. The most important contribution is the inclusion of the roles of governance, democratisation and equity issues in the analysis of aid effectiveness. The book is separated into two sections, with six chapters considering different aspects of aid allocation and four chapters considering the question of aid effectiveness.

The book begins with an introduction by the editor. This describes the structure of the book and provides a useful summary of how the papers fit

together and the issues they examine. The first section jumps into the old issue of the motivation for aid. The starting point is the recipient need versus donor interest paradigm, an issue similar to the chicken and egg problem. The authors in this book highlight some of the shortcomings of the paradigm and consider some creative add-ons that assist our understanding of the aid motivation question.

Feeney and McGillivray (Chapter 1) take a realistic approach to aid allocation by attempting to include both recipient need and donor interest in their quantitative analysis of aid allocation decision-making. They also attempt to relax the assumption that 'aid flows are determined independently of such flows to all countries' (p. 13) a necessary and logical assumption to relax. In contrast to the findings of other reported studies, they conclude that Australia's aid to Papua New Guinea is based primarily on recipient need.

Rowland and Ketcheson (Chapter 2) consider the changing role of Canadian overseas development assistance (ODA) in the post-Cold War, budget-cutback era. They consider whether or not this changed aid environment will lead to greater or lesser co-ordination between donors through multi-lateral agencies. Using simple correlation and regression analysis the authors conclude that 'no single clear pattern emerged' (p. 49). The bottom line is that more research is required in this area.

McGillivray, Leavy and White (Chapter 3) use a utility maximising approach to compare expected aid allocations for France, Japan, UK and USA with actual aid allocations. The results indicate that there are significant diversions between the utility-maximising and actual direction and levels of aid. Therefore, 'donors do not follow a systematic aid allocation mechanism.... [C]ommercial and political factors matter and ... these conflict with development objectives ...' (p. 72). Donors do not allocate ODA the way that these three authors expect. It may be that donors misallocate aid or it may be that the authors are not defining the utility function fully. A paper that considers this alternative would have been useful at this point. There is a significant published literature (beginning with Tullock 1980; Schelling 1981, and Mosley 1987) in this area.

Johnson (Chapter 4) diverges from the previous three papers by moving from the macro to the micro level. He presents an interesting case study that considers the role that non-governmental organisations (NGO) may play in the development process. While NGO are often regarded as more altruistic and less bureaucratic (this will often depend on size) they are rarely self-sufficient and can therefore become answerable and accountable to donors. Johnson concluded that in his experience, villagers could influence the type of activities undertaken by an NGO but warned that the success of this relationship was still influenced by local custom, bureaucracy and agency issues.

The last two chapters of this section consider donor motivations. Schonherr and Vogler-Ludwig (Chapter 5) look directly at the potential trade benefits that the provision of un-tied aid can provide to the donor. They conclude that 'aid rewards donors generously' (p. 122) and the trade benefits of providing untied aid may have been underestimated in the past. Lahiri and Raimondos-Moller (Chapter 6) evaluate the effects of donors' free riding in recipient countries. The opportunity to free ride and take advantage of another country's ODA investment in a recipient country may result in lower than expected total aid allocations. They conclude that coordinating donor aid activities may result in a higher level of ODA being provided.

Assessing the impact of aid is a huge issue which cannot be covered adequately in four papers. The section assumes that the 'main task of foreign aid is to bring about conditions that would allow democracy to flourish and be sustained' (p. 6). However, the evidence provided in the first section of the book indicates that this assumption may not hold. Even if it does, measuring effectiveness is always going to be difficult because, as the authors admit, there are many impacts that cannot be assessed adequately in either the short or medium term. In a small economy such as the Solomon Islands, measuring the effect of aid on economic performance may be possible. Gounder (Chapter 7) uses a neo-classical production function approach to examine the relationship between aid and economic growth in this small Pacific nation. She concludes that in this case study there is a significant relationship between aid and economic growth. Issues such as accountability, political stability and the level of aid as a percentage of gross domestic product will be important influences on the ability to measure the effects of aid.

Arvin, Barillas and Lew (Chapter 8) add an extra dimension to the foreign aid question. It concerns the role of democracy in donor decision-making. This study attempts to examine the effect of aid on democratisation. Which comes first, democracy encourages donors to provide aid, or aid encourages the development of democratic government? The answer is – it depends! A conclusion is that 'donors do not take into account improvements or declines in the level of democracy in recipient countries when allocating their aid' (p. 183).

Beynon (Chapter 9) provides an overview of the debate concerning the role of good governance in influencing the effectiveness of aid. This is a very useful chapter, providing a good summary and explanation of recent econometric analyses concerned with understanding when aid will work at the macro level.

In the final chapter (Chapter 10), Benarroch and Gaisford examine how foreign aid affects the wage gap between skilled and unskilled labour in both donor and recipient countries. They conclude that investments in

basic education and skills training will, in the long term improve the productivity of labour in the South and lead to a decline in wage disparities. Development of domestic labour force is seen as more beneficial than simple transfer of foreign skills into a developing country.

The book is well organised with short chapters of similar format. All chapters (except for Chapter 4) consider macro issues of aid allocation and effectiveness. While these issues are interrelated, attempting to discuss both topics adequately in one book may have been a bit optimistic. The alternative of two associated books may have allowed more expansive discussion of both areas.

I believe there are still some basic questions to be asked when considering the allocation of aid. One concerns what taxpayers in donor countries actually want out of providing aid. Do voters really expect their government to give altruistically to consumers in other countries? There is a compelling school of thought that would answer in the negative. According to this line of reasoning, donor governments have a responsibility to maximise utility of the community. Effectiveness may thus be gauged by questions such as: Is aid allocated in a way that the donor society approves? Does the allocation of aid maximise the donor society's desire for feeling good as well as receiving economic benefits? If such questions are answered affirmatively, the targeting of aid might justifiably be judged as effective. What's needed is to develop a more encompassing approach to analysing aid allocation and effectiveness. The analyses used in most chapters of this book follow neo-classical production function type approaches when some useful insights may also be gained by incorporating insights from political economy and institutional economics.

While I am not convinced that the book offers a 'new perspective' as its title claims, it does provide a very useful bringing together of similar styles of thinking regarding the provision of foreign aid. As such, the book will be a valuable addition to the development economics library.

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Providing Global Public Goods: Managing Globalisation, by Inge Kaul, Pedro Conceição, Katell Le Goulven and Ronald U. Mendoza (eds). Published by Oxford University Press for the United Nations Development Programme, New York and Oxford, 2003, pp. xx + 646, ISBN 0 19515 741 9, \$US35.00.

Providing Global Public Goods is a result of an effort of the United Nations Development Programme (UNDP) and its Office of Development Studies to both sponsor and to focus international attention and research on the equitable provision of global public goods (and bads). The book consists of 24 separate chapters on various aspects of global public goods, plus a glossary, and follows up on a volume published in 1999 by Oxford University Press (also under the auspices of the UNDP) entitled *Global Public Goods: International Cooperation in the 21st Century* (Kaul *et al.* 1999).

The book covers a large range of topics including the theory and the practice of the optimal provision of global public goods, governance issues associated with the provision of global public goods, and case studies of global public goods that include international financial stability, communicable disease control, biodiversity and climate stability. The breadth of the book ensures that it provides something for almost everybody interested in global public goods and globalisation. Given its scope, the book would serve well as a 'reader', or as a useful supplementary text, for a number of different courses in economics, political science, environmental studies and other academic programs.

For economists interested in 'cherry picking' the following contributions are recommended: 'International Aspects of Public Goods Provision' (by Agnar Sandmo), 'Assessing the Optimal Provisions of Public Goods' (by Todd Sandler) and 'Creating Incentives for Cooperation: Strategic Choices' (by Scott Barrett).

Sandmo extends Samuelson's famous result for the optimal provision of a public good; namely, that the aggregate marginal willingness to pay (sum of marginal rates of substitution between public good and private good) for a public good must equal its marginal cost of production (marginal rate of transformation in production). Sandmo shows that unless there exists extensive transfers of income across countries, global production efficiency of public goods is, in general, not desirable for equity reasons; that is, poor countries (with lower levels of consumption of the private good) should not necessarily contribute to the provision of global public goods that their comparative production advantage would imply.

Sandler provides a very useful taxonomy for the provision of global public goods: weighted-sum (global provision equals the contribution of each country weighted by each nation's marginal effect of each unit of effort) such as with greenhouse gas emissions where the weight for every country

is one; weakest-link (the country providing the least contribution determines the provision of the global public good) such as with communicable diseases; and best-shot (the country providing the greatest contribution determines the provision of the global public good) such as finding a cure for a disease which is then available for everyone, but need only be supplied by one country. Understanding the nature of the global public good helps us better understand the failures (or otherwise) in their provision. Barrett uses Sandler's classification of global public goods to assess the respective incentives for their provision and also examines how international treaties and agreements can be used to facilitate their provision.

Another valuable contribution is 'Advancing the Concept of Public Goods' by Inge Kaul and Ronald U. Mendoza. They provide an overview of the issues of global public goods and also extend the analysis of 'publicness' beyond consumption to include decision-making and the distribution of benefits. This is important because a principal concern of antiglobalisation activists (such as in Seattle in December 1999 and Genoa in July 2001) is the perceived lack of public participation in decision-making regarding international trade, finance and investment. In other words, how (and by whom) a global public good is provided matters. For example, with a public good like global security people likely have strong preferences in how it is provided and whether it arises from multilateral action (such as through the United Nations) or by the action of a single country or a small coalition of allies.

For readers interested in the environmental aspects of public goods the contribution 'Combining Efficiency with Equity: A Pragmatic Approach' by Blanchard, Criqui, Kitous and Viguier analyses the question of climate change. The issue of biodiversity is addressed by Perrings and Gadgil in their contribution 'Conserving Biodiversity: Reconciling Local and Global Public Benefits'.

In sum, the book offers a smorgasbord of perspectives on global public goods. The volume is timely, insightful and achieves its aim to inform the debate about the efficient and equitable provision of global public goods. The book would be a welcome addition on the bookshelves of both policy makers and academics interested in learning more about global public goods and globalisation.

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Market Development for Genetically Modified Foods, by Vittorio Santaniello, Robert E. Evenson and David Zilberman (eds). Published by CABI Publishing, Wallingford, UK, 2002, pp. x + 318, ISBN 0 85199 573 X, hdbk, £55.00, US\$100.00.

The revolution in agriculture that biotechnological innovation represents is very recent. Its commercial presence is identified in this book as beginning in 1995 with recombinant bovine somatotropin (rbST) and herbicide-tolerant maize, cotton, canola and soybean varieties (p. 192). Consumer and political reaction has been rapid. The need is high for analysis to inform policy and debate.

There is a rich variety of issues under consideration, ranging from the welfare effects of labelling, the impact of specific information on consumer attitudes and beliefs, the structural implications for agribusinesses of genetically modified organisms (GMO), and appropriate regulatory regimes. The currency of these issues lends a topicality to research that agricultural economists have not experienced across such a broad front in recent decades.

This book is a collection of 26 chapters, involving 54 contributors. The papers are drawn from the August 2000 conference of the International Consortium on Agricultural Biotechnology Research. The first chapter is a presentation of a comprehensive model that encompasses key dimensions of agricultural products derived from GMO inputs. It enables comparison of the consequences of more and less reliance on high regulation approaches to the structuring of markets in foods in which GMO may have a presence.

All other chapters are grouped under the heads: Evaluating consumer attitudes to genetically modified foods; Acceptance by farmers of biotechnology products; The role of information systems and of associated regulatory developments; and Industry structure issues.

The chapters reveal a variety of states of development of research activity in addition to the variety of intentions. Some, such as those modelling information asymmetry, are valuable principally for their conceptual approach. Others are detailed histories of critical incidents in the evolution of biotechnology. Others are reports of quite thorough empirical analysis.

Inevitably, the quality of the contributions is mixed although this is somewhat masked by the diversity mentioned above. From time to time, the preferences or inclinations of authors in the matters covered influences their analysis but this is by no means common.

It is neither possible nor fair to attempt to evaluate a selection of individual papers. The value that readers will derive from them will depend, inevitably, on the initial familiarity with respect to the areas covered. Specific economic and industry structure issues will appeal to readers variously.

For this reviewer, the most interesting material is the thorough historical coverage and the attempts to grapple with the impact of the information flow on public perception and policy. The saga is very recent and, compared to other issues demanding policy attention and influenced by public perception (water and salinity in Australia, for example), has occurred over a quite compressed timeframe. A consequence of this is relatively heightened awareness among interested observers of issues that might otherwise be thought esoteric. An example is the insight the marketing story for genetically modified foods offers into the dimensions of non-tariff barrier debates; the argument between the USA and Europe over GMO bans drives home how, more than trade, game-playing may be involved in issues that come before the World Trade Organisation.

The history of 'poor science' or, more alarmingly, poor self-regulation by scientific communities, and its argued role in the creation of a fundamentally negative and threatening position for biotechnology in the public consciousness, is also interesting. So is the consequential attempt, in some of the papers here, to attempt to model the information asymmetry between science and the public. The economic analysis of the cost and market implications of more comprehensive labelling of products which may have characteristics of concern is intriguing, putting a hard edge to issues that many might have thought had ethically obvious answers.

The book is a valuable source of: historical biotechnology innovation detail; conceptual frameworks for the analysis of consumer responses, supply chain integration and regulation surrounding biotechnology; and analysis of costs and benefits of regulation and analysis of information (including labelling). Given the pace of evolution (pun intended) in this arena, the principal value of this book is the wealth of descriptive and analytical information it assembles. The editors protest that the book is not a comprehensive coverage of all policy issues associated with GMO market matters. It is, nevertheless, an extremely useful compendium.

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