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BOOK REVIEWS

Analysis of Future Agricultural Change: A Farm Economics Approach Applied to Dutch Arable Farming. By G. A. A. Wossink. (Agricultural University, Wageningen, 1993) Pp. 220, ISBN 90-6754-265-2 (soft cover).

Reading about Australian farmers again losing millions due to the Byzantine machinations of the European Community's (EC) Common Agricultural Policy (CAP) and watching truckloads of imported lamb barbecued *au truck* in France, gives a lopsided impression of Western-European agriculture. The situation that gave rise to Wossink's study is far from this destructive outpouring of self-righteousness. The place is Holland, and the agricultural system, voraciously intensified to its physical limits, is threatened by public concern about agrochemicals used in, and organic pollution generated by, farming, as well as the long-overdue reforms to the CAP.

Wossink's study constitutes a contribution to fine-tuning a sophisticated farming system so that it can respond better to the new challenges. The basic tenet of the exercise is that modelling and measurement of technology and institutions needs to be done at the micro level to avoid the pitfalls of macro models — common sense, really, but how often ignored. The research is built around a linear-programming analytical engine, going by the catchy, albeit loose, acronym of MIMOSA (for MICRO MOdelling to Simulate changes in Agriculture) and applied to the North-East Polder of Holland, one of the areas heroically reclaimed from the sea in Lake IJssel.

The main components of the MIMOSA system, in addition to the core farm model, are modules for the continuation/cessation of farming operations, innovation adoption, regional aggregation and land transfer. (We are told on page 31 that as MIMOSA encompasses a number of modelling techniques, it is to be called a system.)

The picture of Dutch agriculture, depicted on p. 37 of Chapter 3, is one of static farm firms with low labour mobility where the level of investment is unresponsive to family liquidity levels. This apparent lack of connection between the household and the farm allows the household side to be ignored in the MIMOSA project. Land consolidation was given a module of its own. It would seem that as land offered for sale is a mere 2 per cent of the total arable area a year (p. 47) this aspect of farm changes could have been disregarded also.

The institutional setting, the evolution of which farms will have to accommodate, is simplified to two main influences; possible avenues for reforming the CAP and environmental regulations in Holland. The CAP reforms can either be through a radical change in pricing policy resulting in a fall in EC agricultural prices, or through a milder package of measures built around setting aside farm land (a system succinctly described in the

best reading on public policy, Catch 22). Environmental policy is focused on the ground water concentrations of nitrates and chemicals used in plant protection. The standard policy version modelled is that under development by the Ministry of Agriculture, while the lenient and strict versions are what, respectively, farmer organisations and the greens would like to see. The combination of these environmental factors gives the six basic scenarios modelled in MIMOSA.

Farms on the North-East Polder are small by Australian standards (24 to 48 ha in size), highly mechanised and very similar in production structure (p. 86). It is mind-boggling for someone accustomed to Australian farming methods that the average 30 ha farm is smothered with over two tonnes (in active ingredients) of various poisons every year to kill weeds, pests and diseases. Being the owner of the land, the government can, and does, set such rules as the compulsory retirement of farmers at 65 and the distribution of farm land among the neighbours below 30 ha while re-tenanting above that (p. 154). Technology options are represented by potential new activities in the LP model, and are there a few! In the main crop, potatoes, 23 variants are identified for rotation, cultivar and nematode control; 3 variants for the method of N dressing; 2 for haulm killing; 2 for late blight control; and 3 for weed control. These 33 activities can form 828 different combinations! However, this itself is a simplification from the 1440 combinations originally identified by an agronomic study.

The number of constraints imposed (p. 93) makes one wonder how much scope there is left to really optimise the model. (It is likely to have been much simpler to use a spreadsheet model to calculate the outcomes of the environmental/production policy mix). Hence, results of the simulation, suggesting that cropping patterns will mainly stay the same and change will manifest itself in different cultivars and/or techniques being used, must be approached with some caution. The finding that potential technical change will not be sufficient to compensate farmers for the income-reducing effects of more radical reform in the CAP indicates the potential difficulties facing Dutch (and other EC) agriculture. The up side is that new techniques would allow a significant reduction in the use of agrochemicals. A set-aside policy would better preserve incomes and also reduce chemical input, pointing to the likely path of politically more palatable decisions to come.

The lack of formal risk analysis, acknowledged by the author, is probably not very critical, given the apparently predictable nature of Dutch agriculture. The tested scenarios account for potential long-term developments in the institutional environments which may be the most serious sources of risk facing farmers.

The book is based on Wossink's thesis. Hardly flamboyant but meticulous and sensible (very Dutch), it should serve as an excellent yardstick for Ph.D. students about the necessary effort and rigour in building and presenting a good thesis. While the amount of quantitative analysis involved would satisfy even the macho types of the profession, the reader

is, thankfully, not drowning in formulae. Among the very few omissions are the lack of information about handling the dynamic aspects of modelling (in contrast to the painstaking details about the static model on pages 109-110) and a list of acronyms and abbreviations.

The book is also a budget production, with minor blemishes of presentation such as the imperfect integration of figures into the text, resulting in, for example, the three-quarters blank page 18. There are a few minor idiosyncrasies, such as using pesticide as a collective term to depict all agrochemicals used to kill any kind of unwanted organism in a crop; the lack of English translations for the titles of non-English references; and preference for the spelling "Nakayima" to the extent of changing the quoted reference.

In the end, the only substantial outstanding question is: why do this expensive fiddling with an already over-sophisticated agricultural system when the resources could be used much more efficiently in other parts of the world? But this would take us away from Wossink's book. It is a useful reference for those modelling agricultural systems for impact analysis.

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The Farming Game Now. By J. P. Makeham and L. R. Malcolm (Cambridge University Press, Melbourne, 1993) Pp xi + 399, ISBN 0 521 40452 5 (hardback) 0 521 42679 0 (paperback).

For me the reading of *The Farming Game Now* was a revisitation to my professional past. Integrating the roles of farm technology, production economics, finance, farm records, accounts, budgets and control procedures was my bread and butter during the 1960s. But two decades of working on the reform of agricultural marketing and pricing policies, and more recently of tackling micro-economic reform on a wider front than the farm sector, have diverted my attention from the basics of what is (or should be) happening on the farm. So the question which lay behind my reading of this book was 'is the farming game *now* all that different from what it was *then*?'

Analytically, the answer clearly is *no*. In the final chapter on farm management history, we are told that nothing much has changed in the theory or techniques of farm management since the 1960s other than a mellowing of expectations that were held by some academics about the usefulness of formal production theory and quantitative methods. The authors claim that the world has proved too complex for the complex but ultimately narrow-in-scope quantitative (operations research) type approaches to analysing farm decisions. Traditional budgeting, augmented by the spreadsheet which the modern PC facilitates, remains the core technique because it allows the full dimensions and complex inter-relationships of the problems at hand to be appreciated and taken into account in the decision-making process (p 351).

But to dismiss *The Farming Game Now* on the grounds that it contains nothing which is analytically new would be to turn our backs on a wealth of wisdom which the book contains. Its analytical value is that this wisdom is organised within the framework of formal production and marketing theory. That framework is incremental — it focuses on identifying and evaluating changes which help the farm family to make the ‘bit more’ that they need, and to do the ‘bit better’ that they want (p vii). The second chapter on the farm business is entitled ‘Many bits and pieces make up the big picture’. To this end the wealth of material contained within the book is illustrated by numerous partial budgets, culminating in the penultimate chapter on ‘Planning for change’, which is cast in the framework of comparative partial budgeting. The approach to planning is ‘bottoms up’ rather than ‘tops down’ — adjusting from where we are now rather than designing the best of all possible farms. The human side of management is faced up to throughout.

After a brief introduction and the overview of the farm business, chapters follow on financial management, animal farm management, crop farm management (including vegetables, pastures and trees), machinery, buying and leasing farmland, risk, and analysis and planning for change, terminating with farm management history. The authors describe *The Farming Game Now* as a textbook, but they do not suggest that we start at the beginning and work our way systematically through it. Rather, they encourage us to use the whole book and not to try to master the material in any single chapter in isolation — that is best done in the context of analysing problems and making decisions about real farm case studies (p. viii). Indeed, it is not a ‘methods’ or a ‘procedures’ handbook. It is a book to be absorbed through frequent reference to it by those whose real business is farm business.

This would not have been my style of teaching farm management in the 1960s, which in retrospect was oriented to the researcher and professional adviser rather than to the practising farmer, and was certainly more austere in the language used. But I warmed to the style, which is simple without being simplistic. *The Farming Game Now* seeks to address a balance of issues for people aiming to be involved in farming in the 21st century, and in this regard it is not a simple rewrite of *The Farming Game* published by the same authors in 1981.

If *The Farming Game Now* is assimilated by those to whom it is directed, Australian agriculture will become far more adaptive to change and be the richer for it. And that brings me to my professional present. Australian governments are increasingly committing themselves to removing impediments which lie in the way of individuals and institutions acting in their own best interests, and to redesigning market rules so that individual and social welfare need not diverge as a result of those actions. In this process of micro-economic reform, far more of the responsibility for good social outcomes is being devolved to individuals and away from regulators.

In farming, as in any other way of life, this devolvement is creating new management needs and stresses. A response by the authors to devolvement of financial regulation in the early 1980s was to give greater emphasis to financial management in *The Farming Game Now* than they gave in their earlier book. Other responses will clearly be needed as micro-economic reform proceeds. For example, quality assurance is currently emerging as a major management issue on many farms as centrally regulated standards and inspection requirements give way to mutually negotiated contractual agreements. This is not an issue which is foreshadowed in *The Farming Game Now*. But that is not a worry. Any farmer well grounded in the calculus of making a 'bit more' and doing a 'bit better' will be advantageously positioned to meet the challenges of continuing micro-economic reform.

Highly skilled and flexible managers, particularly at the level of our small decentralised firms, are a prerequisite for making micro-economic reform work. Books like *The Farming Game Now* are vitally important if Australia is to reap the full gains from its commitment to a more open and less regulated economy.

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Commodity Price Stabilisation. By C. O'Donnell (Avebury Press, 1993) Pp. xi + 145, ISBN 1 85628 497 2.

O'Donnell evaluates a hypothetical stabilisation scheme for the Australian prime lamb industry. The book was written during the eighties when the Reserve Price Scheme (RPS) operated in the wool market and stabilisation policy still had a high level of credibility with policy makers and economists.

The book originated from O'Donnell's Ph.D. thesis and this is reflected in its style, organisation and structure. The presentation is elegant and its terseness will appeal to those who are not averse to some demanding algebra.

Chapter 2 describes the prime lamb industry and the magnitude of the industry relative to the agriculture sector and rest of the economy. Stability of prime lamb prices *vis-a-vis* other agricultural products is also discussed.

Chapter 3 provides a theoretical background for the evaluation. The focus is primarily on the welfare and transfer effects of stabilisation policy from Waugh, Oi, Massell and Turnovsky and the famous book by Newbery and Stiglitz. Supply response under uncertainty and some theoretical options for modelling welfare are also discussed. Work by Subotnick and Houck, Baron and McCall, and Newbery and Stiglitz is outlined in detail.

Chapter 4 is the economic model of the sheep industry used for the evaluation. It is a composite output model assuming strong separability

between sheep and non-sheep farm enterprises. The model incorporates the wool bufferstock and proposed prime lamb stabilisation policy. It is ingenious and original and will be of great interest to economists modelling supply and wishing to avoid the estimation problems associated with the currently popular multiple output models.

In considering theoretical aspects of price stabilisation, O'Donnell focuses on different commodity market specifications and how equations representing stabilisation instruments might be nested in them. As with most of the literature in the area, no attempt is made to include reactions to stabilisation policy in associated markets for risk or to address the policy question of when market failure warrants intervention.

Chapter 5 and 6 specify the econometric models used in the evaluation and present empirical results. The econometric approach is imaginative and is possibly the major contribution made by the book. Production functions are estimated using an error components approach that is innovative by virtue of the weighting of the variance-covariance matrix to deal with problems associated with pooling of time series and cross sectional data. Inverse demand functions for wool and prime lamb are estimated simultaneously under the restriction that some of the endogenous variables are truncated and, finally, a latent variables approach is used to estimate the utility functions. The econometrics is far more sophisticated than that usually found in agricultural policy evaluation.

The results of the policy evaluation are presented in Chapter 6. Price stabilisation is found to be useful under very restrictive conditions. Merino wool producers were found to benefit in the long run if price stabilisation was not pursued too aggressively while lamb and non-merino wool producers lost from the policy. Everyone lost in the short run.

Reviewing this book left me with mixed feelings. The author has added to the Newbery and Stiglitz framework for stabilisation theory by relaxing some restrictive assumptions about enterprise mixes and sources of instability. Presumably if future policy evaluation uses this framework, then the book must be viewed as valuable. However, I also felt that the approach taken was dated. Today, discussion of stabilisation issues is more likely to be about producers' use of markets to deal with risk rather than specifically about the role for government. O'Donnell's approach is contrary to this. Without any reference to private savings, he evaluates a form of bufferfund which mimics saving behaviour with payments in high income years and payouts in low income years. No mention is made of the type of capital market failure necessary for the policy to be efficient in a Pareto or any other sense. Also, no mention is made of 'farmers banks' which would be the first-best solution with agricultural capital market failure. Rather, the emphasis is on transfers and gains within a classical commodity framework that only partly represents the problem. While more recent literature has dealt with private savings and stocks in the context of stabilisation issues, these risk markets still seem to be treated as 'add ons' to the traditional commodity framework inherited via Newbery and Stiglitz from Waugh, Oi and Massell.

O'Donnell suggests in his Introduction that the book will be of interest to economists, econometricians and policy makers. In my opinion economists who have worked on stabilisation issues using the Newbery-Stiglitz framework will find the book valuable as a summary of some of the major points and because of the extensions to theory. Applied econometricians who are interested in commodity market modelling are also likely to find the book valuable. However, I would not recommend the book to policy makers unless they have a penchant for algebra and restrictive assumptions.

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Aid to African Agriculture. By Uma Lele (ed.) (Johns Hopkins University Press, 1992) Pp. *xix* + 627, ISBN 0-8018-4366-9.

This book comprises one of the most comprehensive and informed assessments of donor assistance and agricultural development in Africa. It is based on the findings of a study on 'Managing Agricultural Development In Africa' (MADIA), conducted by the World Bank and seven other donor agencies between 1984 and 1988. The study concentrated on six selected African countries: Cameroon, Kenya, Malawi, Nigeria, Senegal and Tanzania. The purpose was to examine the actual and potential sources of agricultural growth in these countries and the effect of donor assistance and domestic and external policies on this growth.

There are a total of twelve chapters in the volume, including eight papers on the experiences of the various donor agencies in the MADIA countries. In chapter one Uma Lele provides an introduction covering the framework and conceptual basis of the study and the methodological issues in the assessment of aid. The background on the MADIA countries, presented by Lele in chapter two, is helpful in setting the context for the evaluation of donors. She outlines trends in aid inflows and analyses country performance in terms of macroeconomic, sectoral and microlevel factors. This chapter is based on extensive (and documented) research which is evident from the depth of analysis, as well as the comprehensive statistics and figures provided.

In chapter three Lele and Rahul Jain, both attached to the World Bank, evaluate the Bank's experience in the MADIA countries. Each country is considered in turn with emphasis on the consequences of the Bank's policy advice and financial assistance. A candid assessment is made of the constraints imposed by the Bank's operational style, which is characterised by centralised decision making from the Washington headquarters. The Bank is also criticised for its lack, until recently, of a long-term development strategy and the neglect of human and institutional capacity building.

Ellen Hanak and Michael Loft, from the World Bank's Special Studies division, review Danish aid to Tanzania and Kenya between 1962 and

1985 in chapter four. The influence of domestic constituencies on the overall policy of the Danish International Development Agency (DANIDA) is clearly outlined, as are the institutional constraints on Danish aid. The impression is given, therefore, of a frank and open evaluation. Rather than a country-by-country analysis, the various forms of DANIDA's assistance in each of the two countries are discussed. Policy recommendations are based on the observation that Danish assistance has been primarily supply-driven and institutional constraints need to be addressed by achieving a balance in the overall portfolio.

In chapter five Swedish aid to Kenya and Tanzania during the period 1970-84 is evaluated by Marian Radetzki from the Institute for International Economic Studies in Stockholm. The focus of this chapter is the review of six projects carried out in Kenya and Tanzania. Radetzki comments on several problems regarding Swedish aid which also apply to many other aid programs. Swedish aid has not been planned in the context of a macroeconomic framework and difficulties have arisen owing to overambitious plans and unclear definition of responsibilities. In terms of policy conclusions, aid is suggested as a means of resolving economic crises, and the importance is highlighted of understanding the macroeconomic conditions in recipient countries and coordinating donor efforts.

The contribution of the United States Agency for International Development (USAID) in the MADIA countries is the focus in chapter six. The paper was written by Allan Hoben from Boston University, William K. Jaeger from the World Bank and Bruce F. Johnston from Stanford University. The role of USAID in Sub-Saharan Africa is shown to be erratic owing to the lack of a clear domestic constituency. Circumstances in Africa and institutional factors are emphasised as additional constraints on the effectiveness of USAID programs. Infrastructure development and agricultural education and training are singled out, however, as activities which have achieved a measure of success. To increase the effectiveness of USAID activities it is recommended that more attention be given to host country conditions, that donor coordination be improved, and that emphasis is given to supporting existing institutions.

In chapter seven Walter Kennes from the Commission of the European Communities (EC) reviews EC Assistance in Cameroon, Senegal and Tanzania between 1960 and 1987. The main concern in this chapter is direct support for agriculture, food aid and the system for the stabilisation of agricultural export earnings (STABEX). Mention is given to the fact that the EC recognised policy deficiencies at the beginning of the 1980s and introduced policy dialogue as a result. Kennes concludes that export production projects appear to have been more successful than food production projects while the results of integrated projects have been generally disappointing. It is observed that small projects have significant potential.

French Economic Cooperation with Senegal and Cameroon is discussed by Claude Freud from the French Ministry of Cooperation in

chapter eight. This paper is disappointing in the sense that it does not provide a thorough assessment of French aid. The focus is on development evaluations of Senegal and Cameroon with virtually no consideration of the constraints of French aid. Therefore, the conclusions relate to the policies pursued by Senegal and Cameroon. Their rural development policies are seen as a continuation of those followed during the colonial period, with export crops favoured at the expense of traditional food crops.

In chapter nine the effect of British aid on the agricultural development of Kenya, Malawi and Tanzania is considered by John Howell from the Overseas Development Institute in London. A country-by-country analysis is presented in terms of the colonial legacy, trends in agricultural aid and specific aid activities. Howell draws together several lessons that emerge from this analysis. Once again the significant influence of domestic policy on the effectiveness of aid is stressed. The provision of technical services and research support are seen as a priority in view of the comparative advantage the U.K. appears to have in these areas.

Christian Heimpel from the Deutsches Übersee-Institut in Hamburg and Manfred Schulz from the Free University in Berlin review German aid to Cameroon, Kenya, Malawi, Senegal and Tanzania in chapter ten. Significant attention is devoted to the background and context of German Aid. Individual country profiles are then presented with an example of a German aid project for each country. Several problems regarding German aid to Africa are highlighted. It appears that there are often too many goals, that there are problems with defining the target group, and that institution-building has been neglected in favour of technical assistance.

In chapter eleven John Mellor and Rajul Pandya-Lorch, from the International Food Policy Research Institute, evaluate food aid to the MADIA countries. Although food aid has made important contributions to foreign exchange and food security in these countries, it has had little impact on food stabilisation and overall development. In order to improve the contribution of food aid to developments several recommendations are made concerning recipient and donor countries. It is suggested that donors condition aid on the necessary policy changes, increase technical assistance for food projects, coordinate food and financial aid, and enhance the stabilisation impact of food aid.

In the final chapter Uma Lele provides an excellent assessment of the donors' overall experience in the MADIA countries. Two aspects are discussed: the contribution that donors have made to long-term strategies for agricultural development; and donor country constraints on the effectiveness of aid. In conclusion, a number of general lessons for the donors and governments involved in the MADIA study are outlined. A central feature is the need for long-term development strategies. In this context governments and donors need to assign priority to the development of human and institutional capacity. The record of donor assistance shows that donors have various strengths and weaknesses and they should

concentrate, therefore, on their comparative advantage in formulating strategies.

The wealth of information and analysis contained in this book not only make it fascinating to read, but constructive in many respects. The reports of experience in aid to African agriculture and the recommendations drawn from this will be useful to all those concerned with or involved in this field.

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