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BOOK REVIEWS

Agricultural Development: An International Perspective. By YUJIRO HAYAMI and VERNON W. RUTTAN. (The Johns Hopkins University Press, Baltimore, Maryland, 1985.) Pp. 506, ISBN 0 8018 2376 5.

This is a revised and expanded version of an earlier book published by the same authors in 1971. One of the highlights of the 1971 edition was the recognition that technical change in agriculture was regarded as a process which was endogenous to the economic system and the development of a model of innovation whereby technical change was induced by changing relative prices of inputs. The empirical support for this proposition was based on an analysis of changing factor prices in the United States and Japan. In the former case, the changes in the relative prices of land and labour induced agricultural innovation which was of a mechanical kind and essentially labour saving. In the case of Japan, the relative availabilities of land and labour led to a biological innovation which economised on the use of land. The early econometric analysis was essentially directed at a two-factor world where input ratios could be correlated with input price ratios. The statistical methodology has developed along more sophisticated lines since then with the use of more complex model specifications.

The induced innovation hypothesis is essentially a demand induced model with relatively little consideration of the supply of innovations. Moreover, the model is essentially applicable to public institutions and little recognition is given to innovations which originate from the private sector. Such innovations may reflect not demand considerations but the predispositions of the scientific researchers themselves. In this more recent version of the book, the concept of induced innovation has been elaborated to apply to institutional innovations which are similarly induced by changes in relative resource endowments. The current revised edition also expands on a number of interactions between technical change and land and water development, the relationships between growth and equity as agricultural development occurs, government efforts to alter the direction and rate of development in developing countries and the problems of structural change which may subsequently appear. The authors take the view, first promulgated by Theodore W. Schultz, that traditional farming systems cannot yield increased productivity and higher standards of living by the reallocation of existing resources. New resources in the form of innovations developed primarily by research and development are required; rapid technical change then becomes a prime mover so far as agricultural development is concerned and, by extension, a prime mover so far as national economies are concerned, particularly where there is a heavy reliance on the rural sector.

The book consists of five major parts. Part I comprises Chapters 2, 3 and 4. Chapter 2 provides an excellent summary of the role of agriculture in economic development. The book begins with the

classicists, Smith, Malthus and Ricardo, and the latter's pessimistic view which led him to formulate the law of diminishing marginal returns but with a model which did not allow for the impact of technical progress in agriculture. While we usually think of the classicists as comprising the English speaking economists, Hayami and Ruttan incorporate the German tradition, principally the writings of List and Marx which in turn influenced writers in the 1930s. The writings of Colin Clark were influential in assessing the contributions that agriculture made to the process of economic growth. In more recent times, Rostow's 'leading sector' model came to hold centre stage. A common theme in most growth stage theories which the authors review is that the transition from an agricultural to an industrial society is the major problem of development policy. However, the observation that many developing countries did not move smoothly from a rurally based economy to an industrially based economy led to the development of dual economy models where high technology industries — and indeed large scale farming — exist alongside traditional agrarian structures.

Most of the models which have been considered up to this stage by the authors are essentially based within a given nation state and relationships between nations enter through tradable commodities in some cases, but those relationships do not play a central part in the growth process. When the perspective is widened to incorporate an international dimension, then the dependency models of growth (which impose a dominance of forces operating in the international system over those operating within national systems) become fundamental. These dependency models in turn lead to views about the nature of exploitation by dominant countries of the centre of the dependent countries of the periphery. This chapter is a very valuable review of development theories and the authors contrast the earlier growth models with their attempts to apply microeconomics and, in particular neo-classical microeconomics, to the process of development.

The authors next proceed to develop theories of agricultural development, given their stated premise that agricultural development is an essential precursor to industrial and general economic development. They review six approaches to agricultural development, of which their preferred model is that of induced innovation and much of the material on this latter process has appeared in various journals and will be familiar to readers of this *Journal*. The empirical support for the induced innovation model of technical change in agriculture is not unequivocal. Nevertheless, the model has contributed materially to our understanding of the ways in which innovations occur in agriculture. However, in this reviewer's opinion, a theory of the demand for technical innovation — and the induced innovation model is essentially demand driven — is still incomplete and we need considerably more information about the nature of the investment process in agricultural research and extension. We also need considerably more understanding of the supply side of agricultural innovations. There are a number of contentious elements in using the induced innovation model in applying it to explain how public research institutions allocate their resources and, in particular, the proposition that the induced innovation model applies not only to applied agricultural research, but 'that basic research tends to be directed also towards easing the limitations on production imposed by relatively scarce factors'.

The authors place a very substantial burden on relative factor and product prices as conveying the relative priorities which society places on the goals of research. It is debatable whether using the existing market signals as a basis for resource allocation in agricultural research necessarily moves the allocation of such resources into a more efficient path. If we start with considerable distortion in relative factor and product prices, because of government intervention of one sort or another, then we are in a second best world and to use such prices as allocative devices does not necessarily result in an efficient set of research priorities. At the same time, government willingness to supply public institutions devoted to agricultural research may reflect a whole complex of political objectives, not least the one of trying to ensure re-election. In the Australian context, I can point to a number of research institutions which have been established, and which have been located in particular marginal electorates; such decisions have relatively little to do with either relative factor or product prices. One example which Hayami and Ruttan give of the demand for institutional innovation goes back to the enclosure movement in England between the 15th and 16th centuries. They attribute the causal mechanism to an increase in the demand for wool and that this resulted in a substantial increase in the productivity of land and labour and was accompanied by the enclosure of open fields. The leap from an increase in the demand for wool to the institutional innovation embodied in the enclosure movement omits the step of how this increase in productivity took place. It is arguable that the increase was mainly due to the fact that the enclosure of the fields permitted controlled mating and lambing and the introduction of culling policies, and in addition the rent seekers in the form of the landlords were simply reflecting their attempts to capture increased rents. In general, I find the extension of the induced innovation hypothesis to account for institutional change less convincing than that for the induction of technical change in agriculture. However, the authors are aware of the fact that the model is partial and they do speculate about a more general model of institutional change which embodies a number of non-price factors such as resource and cultural endowments.

Part II of the book is devoted to a substantial amount of empirical work comparing agricultural productivity between countries, and again the authors argue that the 'productivity gap among countries is based on differences in the prices of modern technical inputs in agriculture and differences in the stock of human capital capable of generating a sequence of innovations'. The model specification is essentially based on a Cobb-Douglas production function which implies unitary elasticity of substitution between inputs. In a supplementary statement, the authors conclude that 'there is no strong *prima facie* case against the use of the Cobb-Douglas'. The problem of any simultaneous equations bias which may exist from the uni-equational specification of the model is not mentioned.

Part III of the book is heavily focused on the agricultural development experience of Japan and the United States, and much of the empirical material contained in this section of the book has already been published. To repeat, the general conclusion is that the major difference in the historical changes in technology between the two

countries is that technology in the United States was biased in the labour saving direction while that in Japan was biased in the labour using and land saving direction up to 1915; but thereafter, as relative factor prices altered, the biases were reversed.

Part IV of the book is devoted to the consideration of agricultural technology transfer among countries and the proposition that such technology transfer is dependent on complementary investments in land and water development. Again the major emphasis is on experience in the United States and Japan, reflecting perhaps the background and experience of the two authors. They recognise that if agricultural innovation is to play the role that they attribute to it, in so far as agricultural development is concerned, then it is necessary to have a set of educational research institutions which will provide a source for a possible flow of such innovations. Their argument is that because the gains from agricultural innovation, particularly on the supply side, are largely captured by consumers rather than by farm producers — predominantly in the form of lower prices — then there will be strong social incentives for the creation of such institutions. In contrast to the earlier chapters in the book, I find the arguments in Chapters 8 and 9 somewhat less well developed. In particular, the statement above about the distribution of the relative gains of scientific research between consumers and producers, in my opinion, ignores the potential gains to farmers where an export commodity is involved and where the constraints of inelastic demands do not give the results that the authors conclude about the distributional effects between producers and consumers.

The impact of technological change (which is pervasive and alters many relationships, social, political and economic) leads the authors to consider, somewhat briefly, the implications of technical change for property size, whether there is a role for the small farm and indeed whether there is any future for the rural community as such. These are massive questions and the attention given to them is out of balance with the earlier part of the book which is devoted to the questions of how the induced innovation model works, both with respect to technical change and with respect to institutional change. In the context of Japanese experience, the authors hypothesise that 'failure to invest in public sector experiment station capacity, is one of the factors responsible in some developing countries for the unbalanced adoption of mechanical, relative to biological technology'. One serious omission, in my view, in this whole question of public sector agricultural research is the failure to address the way in which the provision of the human capital in the form of scientists and technicians actually occurs through the education system.

Part IV of the book (Chapters 9 and 10) is supposedly devoted to the conditions for successful transfer of agricultural technology among countries. Chapter 9 certainly is concerned with that proposition, and the authors highlight the difficulties of the direct transfer of agricultural technology between different ecological regions and emphasise that much agricultural technology is location specific, particularly biological technology. The development of the international agricultural research system is seen by the authors as an attempt to generate agricultural technology which can be transferred. There is non-acceptance of the

FAO position, which the authors describe as one where the failure of agricultural development to occur is attributable to a failure to make effective use of *available* technology. The development of the international agricultural research institutes is described and in particular the role of CIMMYT and IRRI, the former largely responsible for developing the dwarf wheat varieties and the latter for dwarf rice varieties. The lack of sensitivity to day length of wheat meant that the diffusion of the new wheat varieties was much more rapid than the diffusion of the new rice varieties, which had a greater degree of location specificity. This location specificity in turn leads the authors to discuss the need for the complementary development of the national agricultural research systems with an indigenous capacity to carry out research. However, the discussion on such requirements is accorded less than a paragraph in Chapter 9. Although Chapter 10 is ostensibly directed at the international transfer of technology between countries, the discussion seems more concerned with the effect of technology transfer and land infrastructure. Chapters 9 and 10 do not sit neatly together since Chapter 10 is concerned with how 'land productivity increases in response to growing population' and the way in which the land infrastructure contributes to that increase in land productivity rather than with the transfer of technology between countries as such.

The final section of the book is entitled Retrospect and Prospect and directs attention at some of the more macroeconomic questions that arise in the context of agricultural development. These are related to the problems of growth and equity and the introduction of the high yielding dwarf varieties of wheat and rice is discussed. Much of the material on the green revolution has appeared in a number of journal articles with contributions both by these two authors and by others and is reasonably well known. The authors come to the conclusion, particularly based on Hayami's work, that the trade-off between growth and equity is more a matter for 'ideological debate' than the situation that we find in the real world, so that 'new technologies that meet the test of efficiency and productivity are also those most likely to advance equity objectives'.

The final two chapters are devoted to the proposition that world agriculture is in a state of disarray — few Australian farmers would disagree with that proposition — and to the more philosophical discussion of some of the policy dimensions of how agriculture can be transformed to contribute to economic growth. These last two chapters also tend to be somewhat less well articulated than the earlier discussion and some treatments tend to be a little too succinct.

In summary, the book is something of a *tour de force* and contains many insights into the process of agricultural development, some excellent summaries of received theories in economics and excellent backup references to the propositions that are made in a number of areas. Given the complex nature of the subject, some of these propositions will be contentious, but the book certainly should be required reading for any economist concerned with agricultural development.

F. G. JARRETT

*University of Adelaide,
Glen Osmond, SA 5064*

Agriculture and the Development Process: A Study of Punjab. By D. P. CHAUDHRI and AJIT K. DASGUPTA. (Croom Helm, London, 1985.) Pp. 216, ISBN 07099 3408 4.

The theme of this book is that increases in output in the agricultural sector can have quite complex implications for economic development in developing countries. The authors amplify this theme by analysing agricultural growth in the Punjab region in northern India. Their premise is that India has been a leader among developing countries in the formulation of new development strategies. By examining the processes of agricultural growth in Punjab, and the contribution made by the agricultural sector to development, the study is claimed to provide some valuable insights into ways of solving development problems throughout the Third World.

The book begins with an historical perspective of agricultural growth in Punjab and an outline of the context in which this growth has taken place. In Chapter 2, an account is presented of the main indicators of growth, covering agricultural inputs and outputs, land use and cropping intensity, labour use, movements in capital stock and its composition, and technological change and its effects on factor usage and productivity for the period 1950–79. Chapter 3 is devoted chiefly to an assessment of the important part played by infrastructural development in agricultural growth (and, more generally, rural development). The scope of this chapter is broadened to include a brief survey of the role of the state in encouraging rural development.

In Chapter 4, the authors digress somewhat to review demographic transition in Punjab in an attempt to demonstrate how agricultural output affects, and is affected by, demographic changes. The role of product and factor markets in generating agricultural growth and influencing economic structure is the topic of Chapter 5, with the emphasis strongly placed on analysis of factor markets. Questions concerning income distribution and rural poverty are dealt with in Chapter 6. Evidence is offered that there have been improvements in living standards and, at least since the mid-1960s, decreases in poverty and inequality.

These six chapters are presumably meant to provide the building blocks for discussing strategy and policy implications in the final two chapters. In Chapter 7, the authors study the implications of agricultural growth for emerging patterns in the structure of the Punjab economy. The final chapter comprises an attempt to generalise from the experience of agricultural growth in Punjab to India as a whole and to elsewhere in the Third World.

It is clear from the outline of the book that the authors set themselves a most ambitious assignment. The approach they have chosen to aid them in their quest is to synthesise the findings from other studies on the Punjab region and to combine this evidence with some tabulations of the secondary data available on pertinent variables influencing agricultural growth and structural change. Despite the inevitable gaps and shortcomings in secondary data on rural activities, a useful account has been given of the main changes which have taken place in agriculture and the Punjab economy since 1950.

In order to explain why these changes took place, and to evaluate their effects, it was found necessary to rely more heavily on the results of other studies. In this respect, the going was clearly more difficult and the result is a set of rather tenuous findings, based on evidence of uneven quality, which are used to substantiate the key arguments developed.

An inability to provide a comprehensive set of reasons for agricultural growth and its impact on development in Punjab reflects the constraints more generally faced by analysts of agricultural and economic development. The complex nature of development in Third World countries requires rigorous analysis of a number of interrelated issues to test the validity of propositions about the relations between agricultural growth and economic development in a particular country. Inevitably in a book of this length, important areas of study will be given only superficial treatment or, as in the cases of agricultural research and product marketing, will be virtually ignored.

In the case of agricultural research, the authors probably felt that it was time to redress the imbalance of concern with the adoption and impact of green revolution technology in Punjab. While some redress might be needed, the neglect of research as a factor in agricultural growth detracts from the value of the study. The cursory analysis of agricultural product marketing is especially disappointing given the importance attached to the generation of an increased agricultural marketed surplus.

Two areas of study which have not been neglected but which are dealt with rather unsatisfactorily are demographic transition and the implications of technology choice for employment and income distribution. The chapter on demographic transition sits rather uneasily among others in the book. Only sparse use is made elsewhere in the book of the material contained in this chapter, so that this material appears peripheral to the general theme.

As they acknowledge, the authors find it difficult to apply the development principles that they have presented in an admirably clear and concise manner. On occasions, they have faced deficiencies in data which have prevented them from rigorously testing certain propositions. Elsewhere, they have been forced to rely on results from studies in which the methods used have been of limited validity. This constraint is instanced by the references made to the many Cobb-Douglas production function studies when discussing technological change, input usage and returns to scale. After giving a thorough review of numerous such studies, the authors comment that 'it is difficult to conclude that these studies have succeeded in estimating the true elasticities of input substitution for Punjab agriculture' (p. 94). It certainly is, given the restrictive assumption about elasticities of input substitution using a Cobb-Douglas function! The issues relating to choices of agricultural technology and their implications for employment and income distribution are central to explaining the role of the agricultural sector in development. This topic deserves a more thorough treatment than the authors have been able to give it. However, such treatment might have to wait until stronger empirical evidence becomes available.

The hope was expressed at the beginning of the book that something could be learned about the contribution of agricultural growth to the

development process. In this respect, the final two chapters of the book are a little disappointing. First, the treatment of linkages between agriculture and the rest of the economy in Punjab is unsatisfactory. Second, primarily because of a lack of evidence or superficial treatment of many key issues in agricultural development in the first six chapters, there is an insufficient base from which to draw together many useful findings. Third, the authors have failed to demonstrate their claim that the conclusions drawn can be related to problems and trends worldwide. All that they could manage was a brief comparative analysis of agricultural growth in Punjab and Japan and a briefer treatment of Punjab growth in the 'All-India perspective'.

The main conclusion to be drawn is that the ambitious goals set for the book have not been achieved. Nevertheless, there are benefits to be derived from reading it. There are useful sections that students of Indian agricultural and economic development will find well-written, authoritative and insightful. The authors have also succeeded to a limited extent in confirming some accepted truths about agriculture and development while casting doubt on others (such as growing inequality with growth). However, policy makers concerned with agricultural and economic development in Third World countries other than India will certainly not find many answers to their problems in this book.

EUAN FLEMING

*University of New England,
Armidale, NSW 2351*

Agricultural Change and Rural Poverty: Variations on a Theme by Dharm Narain. Edited by JOHN M. MELLOR and GUNVANT M. DESAI. (The Johns Hopkins University Press, Baltimore, 1985.) Pp. 233, ISBN 0 8018 3275 6.

India now has a fairly long time series of the interpersonal distribution of consumer expenditure. The country also has a widely accepted poverty line: a consumer expenditure of Rs 15 per person per 30 days at 1960-61 rural prices. So it is possible to assemble a time series of the headcount index of poverty starting from the mid-1950s. When combined with other data, this provides an unusually rich laboratory for investigating the dynamics of rural poverty and its determinants. And a large literature has responded to that opportunity.

The recent book edited by John Mellor and Gunvant Desai is a significant addition to that literature. It is also so closely linked with its antecedents that it is impossible to review the book without surveying at least some of the literature.

The starting point for the Mellor-Desai book is the late Dharm Narain's (unpublished) work exploring further aspects of Ahluwalia's (1978) seminal paper. To give some background: Ahluwalia modelled the time-series relationship between rural poverty indexes (the headcount index and the Sen index) and real agricultural output (net domestic product) per person for India between 1956 and 1973. Ahluwalia found a significant negative coefficient on the output variable in regressions with each poverty index as the dependent variable. Furthermore, no significant time trend was revealed, independently of agricultural output. Narain added a nominal price

index to Ahluwalia's equation (as Saith 1981 had also done, independently). The coefficient on the price index had a significant and positive sign and the coefficient on the time trend became significant and negative.

Agricultural Change and Rural Poverty is mainly devoted to some important questions raised by these results: Why is the price variable in the regressions and why is it nominal and not real? What is the theoretical basis of Narain's (and, indeed, Ahluwalia's and Saith's) model specification?

Ahluwalia has argued (in correspondence with Narain during 1980 and in his paper in *Agricultural Change and Rural Poverty*) that Narain's price effect is spurious. Ahluwalia raises two issues. First, there is the fact that the price index has been used *both* as an explanatory variable and in constructing the dependent variable. On this point, there is clearly nothing wrong with using a nominal price variable to 'recover' (as Sen nicely puts it in his paper in *Agricultural Change and Rural Poverty*) the underlying real variable from nominal data. And there can be good reasons for also using that price variable in explaining variations over time in the distribution of real consumption. Nominal price changes can matter here because of (commonly observed) short-run stickiness of another important nominal price for the rural poor: the agricultural wage rate. Also the poor often hold their wealth in the form of money. The paper by Sen is particularly good on these points; a short piece by Bliss is also worth noting.

However, the 'fact' that nominal price changes can have real effects (at least in the short run) is not, of itself, a good enough reason for putting the price variable in the regression as the *only* nominal variable. Data on agricultural wage rates are readily available and should have been included, with tests made for homogeneity. The neutrality of an equiproportional change in *all* nominal prices is a plausible and testable long-run restriction. A number of authors, such as Bliss and Sen, were clearly worried about the long-run properties of the Narain specification. It is surprising that so little has been done about the problem in the empirical literature.

The second issue concerning the price variable is more subtle. It is likely that the price variable has been measured with error. This results in an unusual 'errors in variables' problem: there are errors (let us assume with zero mean) in both a regressor and the regressand *and* these errors are likely to be correlated. This will introduce two sources of bias: that arising from the measurement error on the regressor, and that arising from the correlation between the two errors.

A number of papers in *Agricultural Change and Rural Poverty* discuss this problem. Srinivasan (p. 50) seems to be saying that the two sources of bias will just cancel each other out, while Bliss (p. 19) and Ahluwalia (p. 67) say that the bias will be unambiguously positive.

Neither view seems correct. If, as is plausible, the two errors are positively correlated and the price variable has a positive coefficient, then the two sources of bias will oppose each other but they need not cancel out. The sign of the bias is indeterminate. (Under otherwise regular conditions, the asymptotic bias in the OLS estimator when both regressand and regressor are measured with errors e_1 and e_2 , respectively, has the sign of $E[e_1 e_2] - \pi E[e_2^2]$ where π is the coefficient on the regressor.)

In modelling poverty, it would be useful to have a coherent theoretical argument underlying the regressions. As always, this helps the researcher formulate the econometric model and interpret the results.

Srinivasan's paper goes some of the way in this direction. He offers a simple model which can generate Narain's specification, although it relies (too much in my view) on *ad hoc* assumptions about the determinants of the distribution function of real incomes. Thus, the nominal price variable appears in the latter with only weak justification:

The reason for introducing p_t^a [the nominal price level of agricultural goods] is that while q_t^a , the quantity available for distribution, is determined by the past season's resource-allocation decisions, current resource-allocation decisions (which depend on current prices, p_t^a) determine its distribution among the rural population (p. 42).

Clearly a *non sequitur* has crept in here. The question as to why they are nominal rather than relative prices is left unanswered. Of course, having put p_t^a in the model, it is a small step to Narain's specification.

Srinivasan's paper goes on to make a number of other (I think more interesting) comments on this literature (including other papers in the book). The paper should be read carefully by anyone who is embarking on empirical work on poverty.

Bardhan's paper takes a different tack from the main body of the empirical literature by using a cross-section of individual rural households (in west Bengal). Again the dependent variable is the headcount poverty index, although now, of course, it is binary so a discrete regression model is used, in this case logit analysis. Bardhan's results are interesting, particularly his significant *positive* coefficient on the agricultural growth rate in the region in which the household resides. With some qualifications, Bardhan interprets this result (and some others he presents) as rejecting the view that growth has a 'trickle down' effect on poverty. Like Ahluwalia's opposite result, I suspect this will attract further critical attention (as it should), although access to Bardhan's data is not nearly as easy as to Ahluwalia's.

The main difficulty I have with Bardhan's paper is one I have already mentioned; without a consistent and sufficiently rich theoretical model, it is difficult to interpret the regressions. For example, the same regression which gives the positive sign on the local growth rate (Table 8.3, p. 82) also includes: area cultivated by the household, number of dependants, adult male education, number of non-farm workers, distance to nearest town, village irrigation level, average wage rate in the village, district rainfall and fertiliser use and dummy variables for local public works, seasonality and caste. 'Trickle down' effects of growth on poverty presumably arise *via* some of these variables, such as wages, non-farm employment opportunities and village irrigation level. It is hard to say what Bardhan's results mean for 'trickle down' theories without a convincing account of these indirect effects.

The book has surprisingly little to say about the interpretation of the time trend in the work of Ahluwalia, Narain, Saith and others. And there is occasional confusion in this literature about what is being held constant when the 'time trend' is discussed. Indeed, the whole issue of dynamics is treated lightly.

There is clearly much more that could be said here. For example, van

de Walle (1985) has recently found (by combining the cross-sectional and time-series data for India) a significant effect of population growth on poverty, and that this effect exists independently of output per person and real wages. This merits further investigation.

The volume contains a number of other papers of interest, many of them providing succinct summaries of past and current thinking on these questions, such as the papers by Mellor and Dantwala, and Mellor and Desai's overview. The papers on other countries and regions are also welcome, particularly Lele's piece on rural poverty in Africa, but also those by Hirashima (on Japan's experience) and Hayami and Kikuchi (on agrarian changes in two Philippine villages).

MARTIN RAVALLION

*Australian National University,
Canberra, ACT 2601*

References

- Ahluwalia, M. S. (1978), 'Rural poverty and agricultural performance in India', *Journal of Development Studies* 14, 298-323.
 Saith, A. (1981), 'Production, prices and poverty in rural India', *Journal of Development Studies* 19, 196-214.
 van de Walle, D. (1985), 'Population growth and poverty: another look at the Indian time series data', *Journal of Development Studies* 21, 429-439.

Farming for Farmers? By RICHARD W. HOWARTH. (The Institute of Economic Affairs, London, 1985.) Pp. 142, ISBN 0 255 36178 5.

Determinants of Agricultural Policies in the United States and the European Community. By MICHEL PETIT. (Research Report 51, International Food Policy Research Institute, Washington D.C., 1985.) Pp. 80, ISBN 0 89629 052 2.

Just like the butter, beef and other food mountains spawned by Europe's Common Agricultural Policy, the literature which would attempt to comprehend and pronounce upon the CAP is growing and growing. And so it must. Most economic and political analysts can sense a bottomless pit of rewarding challenges in the tangled morass of market intervention that is the CAP.

Despite the title, the book by Howarth is an attack on agricultural support generally. But the example used throughout is the CAP and particularly its implications for Britain. The story begins with the usual expressions of wonderment at why the subject has, until recently, been ignored. The agricultural economics profession in Britain is accused of not having been sufficiently vigilant about the CAP. Howarth says:

Many of the people who called themselves agricultural economists . . . had neither the training nor the inclination nor the motivation to question the broader issues of policy. And it was not in the interest of members of agricultural economics departments to antagonise either the bureaucrats and politicians of the Ministry, for fear of depriving their departments of funds and prestige, or the farmers, for fear of losing their co-operation . . . (p. 104).

There was, however, a small 'distinctive and dissenting group' which included our adopted son, Gwyn James. The spark that ignited the great debate on agricultural policy in Britain was a book written by Tory M.P.,

Richard Body (1982) entitled *Agriculture: The Triumph and the Shame*. Howarth describes this book as '... a devastating polemic attacking the whole concept of support' (p. 3), and notes that the debate it sparked continues to rage.

Chapter 2 gives a very sparse account of events in this century that have influenced agricultural policy in Europe and the United States. The chapter is superficial since events themselves are not enough to explain the variations in policies adopted between countries. Chapters 3, 4 and 5 are concerned with the nature of agricultural support, the rationale commonly used to justify support and the arguments economists are able to make against government intervention in agricultural markets. These chapters have little educational value for Australian agricultural economists since the local profession not only understands economic rationality but has openly displayed a hard line preference for market orientated systems for the past 20 years. Even so, Howarth is to be commended for the breadth of his case against support policies. He points to the effect of the CAP on employment within the agricultural sector and the effect of agricultural trade wars on Third World countries.

After using the benchmark of normative economics to exhaust his critique of agricultural support, Howarth moves on '... to find the real explanation of the continuation of economically costly and inefficient policies ...' and says 'we need look no further than the politics of agriculture' (p. 103). Four political variables are discussed. Under the 'general climate of opinion', the relative influence of groups being taxed compared with those being subsidised is identified. It is quite evident that, until recently, the interests of British farmers have been essentially unopposed. Oddly, Howarth suggests the traditional complacency of British consumers was because British farmers were supported from general taxation rather than by artificially high food prices. In this country, agricultural economists have always argued that any subsidies should be raised from 'general taxation' so that the amounts can be accurately identified. In any event, consumers have little political influence since the logic of collective action reminds us that large groups are disorganised and therefore politically benign.

Another political variable is 'the agricultural interest groups'. It is interesting to note that Britain's National Farmers Union '... strictly avoids political partisanship by maintaining close contacts with interested members of all parties' (p. 108). Whilst their Australian counterpart (the National Farmers' Federation) also proclaims itself 'non-party political' its ability to behave thus in practice must at times be doubted. Like everyone else these days, Howarth characterises the bureaucracy as being a tax funded farmer lobby because of its 'entrenched personal interest in support policy' (p. 112).

Additional political variables considered include the agricultural vote and the presence of farmers in Parliament itself. Whilst it seems most British farmers vote Tory, there are still enough swinging voters to create at least mild competition for the rural voter. It is doubtful whether a similar situation exists in Australia, where farmers exhibit extraordinary loyalty toward the conservative non-Labor parties.

The best thing about this book is that it adds to the arsenal which will eventually blow the CAP apart. Howarth recommends that Britain

withdraw from the CAP; this would be a giant step in the right direction. *Farming for Farmers* is a convincing, non-technical and fast moving book; but I don't believe its readership in this country need extend beyond those people particularly interested in the CAP. We can only hope, of course, that it will be widely read in Britain and Europe, where it would bring about a strengthening of opposition to the CAP.

The report by Michel Petit, the current President of the International Association of Agricultural Economists, is not concerned with whether support policies are good or bad, or how they should be, but rather with the actual determinants of policy. The positive approach is taken to help understand the evolution of agricultural policies and predict their future.

This is an excellent piece of research which should provide guidance and inspiration to local policy workers. In a very succinct presentation, Petit cites the pertinent literature, develops some insightful and original hypotheses and tests the hypotheses using three case studies. The conclusions stress that conflicts of interest are continuously regulated through the political process but, in the long term, economic forces are major determinants of policy choices. The commodity programs initiated in the 1930s

... were born out of a deep economic crisis and under specific political circumstances. Their evolution during the last 50 years has been strongly influenced by variations in the short-term balance between supply and demand. Over the long term, the most politically important economic variables influencing these policies have been agricultural prices, farm incomes, the Government budget and the balance of trade (p. 72).

Petit proposes two hypotheses about the determinants of agricultural policy. In the short run, the process is driven by conflicts of interest related through political institutions. In the long run, economic forces play a critical role but these can often be perverted by the relative influence of economic groups and prevailing ideologies.

The study of the evolution of commodity programs in the United States and France since the 1930s provides an explanation of how agricultural price support levels have declined through time. Price support at higher than market clearing levels brings about an excess of supply over demand. This creates political pressure to reduce prices due to the social cost of the surpluses. So far, farmer organisations and their friends have been powerful enough to prevent full adjustment to market clearing prices. However, the balance between supply and demand has also been influenced by technological change and shifts in foreign demand for agricultural products. It is concluded that 'the present crisis does not seem deep enough to bring about a major shift in policy, analogous to the birth of commodity programmes in the 1930's' (p. 37).

In a consideration of the US Dairy Production Stabilisation Act of 1983, Petit observes that the professional economists, journalists and others interested in agricultural policies had very little influence on the process of its development. He likens these groups to observers of an ancient Greek drama with much to say, but playing no active part. I hope the consensus judgment is that Australian agricultural economists are not so impotent.

The study of the European Community and the United States confrontation over international trade in agricultural products was clearly the most difficult policy issue; the influence of long-term economic forces was not specifically considered and ideological differences appear a major determinant of policy choices. However, international trade can still be seen as an economic variable which will influence policy. The concomitant political process takes the specific form of negotiation among sovereign governments.

To sum up, this report is highly recommended to all those who dabble in agricultural policy and particularly those who are involved in trade negotiations with the European Community and the United States. For most of us, the report offers real scope for enhancing our understanding of how policies are made. It should be especially useful for making mere commentators aware of the extremely tortuous and protracted nature of policy making in practice.

I. F. WHAN

*Livestock and Meat Authority of Queensland,
Brisbane, Qld 4000*

Reference

Body, R. (1982), *Agriculture: the Triumph and the Shame*, Temple Smith, London.

Industry Assistance — The Inside Story. By ALF RATTIGAN. (Melbourne University Press, Carlton South, 1986.) Pp. 290, ISBN 0 522 843131.

The subtitle *The Inside Story* is certainly very apt for this interesting book by Alf Rattigan, Chairman of the Tariff Board from 1963 to 1973, and the first Chairman of the Industries Assistance Commission, from 1974 until 1976.

Rattigan briefly traces the history of tariff policy in Australia since early federation, covering the establishment of the Tariff Board, the imposition of the very high 'Scullin tariffs' a few years prior to the Depression, the 1932 trade treaty between Australia and the United Kingdom, and through the post World War II period of unstable balance of payments and quantitative restrictions to 1963, when he was appointed Chairman of the Tariff Board. At that time, John McEwan, Leader of the Country Party and Deputy Prime Minister, was also Minister for Trade with responsibility for policy on assistance to secondary industry.

The relationship between John McEwan, his permanent head, Alan Westerman, and Alf Rattigan, provides a focal point for much of *The Inside Story*. The McEwan era, during which the policy was one of protecting both primary and secondary industries at the expense of developing tertiary sectors and the economy as a whole, dominates the book.

Rattigan describes the development of the original rationale for tariffs based on the 'infant industry' approach, the 'needs' approach and the more recent concept of the impact of assistance in the wider economy affecting the overall welfare of the community.

He exposes the manoeuvring and intrigue in the public administration arena between the political arm, the bureaucracy and the special interest groups. Rattigan highlights the strategies used to attempt to

limit the influence of the Tariff Board and the Industries Assistance Commission. Such strategies include appointments to the Board or the Commission, staffing levels, terms of reference of inquiries and the use of the by-law mechanism to change assistance without reference to the Board or Commission. The role of special interest groups is also highlighted.

The various elements of Rattigan's strategy to achieve a more efficient outcome for industry policy in the wider community interest are illustrated. For instance, he pressed for greater public openness and transparency in matters relating to assistance, and for a sounder quantitative basis for decision making through improved data bases and the use of more critical analytical techniques. He supported the development and use of the measure of effective rate of assistance to express the net level of assistance provided, giving guidance on the efficiency of resource allocation. The use of contract consultants, mostly from academia, proved to be somewhat contentious; so also did the development of economic models, through the IMPACT project, as a means of studying the wider economic impact of various proposed changes to assistance. Even the assessment of the levels of assistance across all industries was contentious. The pivotal importance of employment effects of changes in assistance is evident throughout the period as is the constant concern about where the new jobs would be generated, even though many highly assisted industries were contracting and growth areas developing.

One could well question how far we have progressed in the ten years since Alf Rattigan retired. Governments have always faced great difficulty in coping with the intense lobbying by interested parties and it is understandable that they would want to 'buffer' the impact of change. However, there have been instances when, as a result of the negotiated industry plan, resources have shifted in the wrong direction against the reality of economic forces, inevitably resulting in an even more difficult decision at a later date.

The book is well-written, easy to read and provides an insight into an area of human activity which the ordinary citizen gets little opportunity to view. Overall, it confirms one's faith in the limits placed on political power by the Constitution and the Parliament and it underlines the importance of having persons of intelligence and integrity in influential public service positions.

J. C. McCOLL

*Industries Assistance Commission,
Belconnen, ACT 2617*

A Course through Life: Memoirs of an Australian Economist. By H. W. ARNDT. (National Centre for Development Studies, Australian National University, Canberra, 1985.) Pp. 117, ISBN 0 86784 657 7.

For this detailed account of his career, Heinz Arndt takes as his starting point the day in October 1933 when, as an eighteen-year-old German refugee, he enrolled at Oxford in 'Modern Greats' (philosophy, politics and economics). His decision to specialise in politics meant that

barely a quarter of his three-year course consisted of economics, a subject which he studied with little real understanding. The deficiencies of his basic training in economics, and especially the lack of mathematics and statistics, are a recurring theme of this book.

Arndt explains his decision to specialise in politics as a very natural choice for a German refugee in 1933. But the reader might be forgiven for wondering what caused Arndt to become a refugee, what happened to his parents, how he came to go to Oxford, and how he supported himself as a full-time student there. The answers to these questions will not be found in the book, but were given in an earlier autobiographical essay (Arndt 1969).

After graduation, Arndt spent some years as a research student in politics at Oxford and the London School of Economics, and eight months in internment as an 'enemy alien'. After his release in 1941, he successfully applied for a position as research assistant at the Royal Institute of International Affairs (Chatham House). Of this move he writes:

What made the decision at once impertinent and momentous was the fact that it was a research assistantship in Economics: impertinent because I knew virtually no Economics and momentous because it proved to be the starting point of my career as an economist (p. 4).

Arndt's work at Chatham House led to the publication of his first book, *The Economic Lessons of the Nineteen-Thirties* (O.U.P. 1944), and to his appointment in 1943 as Assistant Lecturer in Economics at Manchester University. In 1946, he came to the University of Sydney as a Senior Lecturer, and in 1950 he was appointed to the newly created Chair of Economics at Canberra University College.

The first ten years of Arndt's teaching career were largely devoted to macroeconomics. As the result of his contacts and experiences whilst on sabbatical leave during 1954, however, his professional interests began to shift from macroeconomics toward growth and development. A chance encounter seems to have played a crucial role: flying out of Jakarta on his way to Europe, Arndt found himself sitting near Gunnar Myrdal. He reports that their conversation 'continued without a break for about ten hours' (p. 38). Other influential contacts on this sabbatical included H. W. Singer and W. A. Lewis.

Arndt's new interests led him to spend some months in India during 1957, and to participate during 1960 in a United Nations research project on the trade needs of developing countries. In 1963, he was invited by John Crawford to take charge of the newly created Department of Economics in the Research School of Pacific Studies at the Australian National University — a department whose mission it was to undertake research in the economic development and problems of the countries in Australia's neighbourhood.

'By far the largest and most important of Australia's neighbours was Indonesia, yet economic research in or about Indonesia appeared [in 1964] to have become well nigh impossible' (p. 52). Against the advice of most experts, Arndt set off on an exploratory visit to Indonesia, for which he soon developed a profound affection. He came away 'determined to go ahead with a major project on the Indonesian economy, whatever the difficulties presented by increasing political tensions and economic disorder' (p. 54). As things turned out, of course, the whole

situation was transformed not long afterwards by the fall of Sukarno and the emergence of Suharto as the new leader. In 1965, Arndt inaugurated the *Bulletin of Indonesian Economic Studies*, which quickly gained an international reputation as an authoritative source of information about the Indonesian economy. He remained its editor and a principal contributor for fourteen years, visiting Indonesia as often as he could, usually four or five times a year. The chapter describing this work simply glows with an infectious enthusiasm.

Indonesia was, of course, only one of the concerns of Arndt's department. The next chapter describes his work on other Asian countries, especially Japan, Thailand and Malaysia. It concludes with a brief account of some rather frustrating experiences with UNCTAD, ILO and CHOGM.

A chapter entitled 'History of Thought and Political Economy' falls into two distinct parts. In the first part, Arndt gives an account of his work during the sixties and seventies on the Australian economy, including a stint in Paris with the OECD, and of his writings on the theory of economic development. The second part of this chapter is a continuation of his earlier autobiographical essay (Arndt 1969). In that essay, he had traced the development of his political views from a youthful flirtation with Marxism, through Fabian socialism, to a much more sceptical position in which, however, he still remained a member of the Australian Labor Party. Taking up the story from where he left off in 1969, he tells of his resignation from that Party in 1971, his loss of faith in the Keynesian approach, and his growing conviction that 'something had to be done to limit the role of government' (p. 97).

In the final chapter, titled 'Preliminary Assessment', Arndt wonders whether the sense of purpose and achievement which he had derived from his work as an economist might not have been largely illusory. In his reflections on that question, he reviews the decline of public confidence in the economics profession, the effect which the limitations of his training have had on his career, the difficulty or impossibility of framing value-free policy advice, and the profound changes which have occurred in his political views. Concerning the latter, he asks: if I could be so completely wrong earlier, what grounds for confidence have I that I am right now? To this question, he replies with what is probably the longest sentence in the book:

What others may diagnose as a banal example of the common drift to senile conservatism, reflecting that gradual loss of openness to new ideas and sensitive compassion that comes with hardening of the arteries, presents itself in my mind as a process of learning from experience, both in the general sense of discovering that the world's problems are not as simple as they seemed when one was young, that we do not necessarily know what is good for other people and that the path to hell is paved with good intentions, but also in the sense more specific to those who, in this century, have been compelled to observe the political and economic consequences of excessive extension of state power over the economy (p. 105).

In the end, Arndt's doubts about the worthwhileness of his career are resolved: he feels confident that his work 'has contributed, over the years, to a better understanding, by students, by the general public and by policy makers, of the nature of the problems and the available

options' (p. 108). This is a judgment with which it would be difficult to disagree.

F. K. WRIGHT

*The University of Melbourne,
Parkville, Victoria 3052*

References

Arndt, H. W. (1944), *The Economic Lessons of the Nineteen-Thirties*, Oxford University Press, Oxford.

— (1969), 'Three times 18: an essay in political autobiography', *Quadrant* May-June, 18-37.

Microcomputing in Agriculture. By J. LEGACY, T. STITT and F. RENEAU. (Reston Publishing Company, Inc., Virginia, 1984.) Pp. 254, ISBN 0 8359 4353 4.

Microcomputers as Management Tools in the Sugar Cane Industry. By J. ALVAREZ, R. A. LEVINS and S. M. SMILEY. (Elsevier, Amsterdam, 1985.) Pp. 205, ISBN 0 444 42425 3.

The titles of these two books may imply that they have similar content, with one being more specific to a particular industry. However, nothing could be further from the truth. The book by Legacy, Stitt and Reneau is 'Dedicated to the continuing advancement of agribusiness' (p. v) but, in this reviewer's opinion, the four sections of the book contribute little to this objective.

Section One is titled 'Microcomputers in Agriculture' and includes 'Computer History' (3 pages) from ENIAC to microwave ovens, 'A Place on the Farm for Computers' (4 pages) which is about increasing farm size and specialisation, and 'Advantages and Uses of Computers on the Farm' (4 pages) which has a discussion of computer designed agricultural machinery.

Section Two is titled 'Microcomputer Components' and is about hardware and input-output devices (with a surprising section on the use of the cassette recorder). The third section, 'Selecting a Microcomputer' includes the sensible suggestion that the prospective microcomputer purchaser should 'make software choices first' (p. 43). However, the authors promptly begin discussing the hardware choices, referring to equipment that is out of date.

The authors discuss modems, hard disks, plotters and digitisers as the hardware options and word processing, VisiCalc and information services as software options. No mention is made of spreadsheets in general, data base systems, accounting packages, or special purpose software such as least-cost ration formulation or irrigation scheduling.

The final section, comprising over half of the book, is designed to provide self-instruction in computer literacy. Selected items of BASIC are explained, demonstrated, and applied to an agricultural situation. While the ideas of including agricultural situations in the examples and user self-tests are good ones, the coverage of BASIC and the clarity of the explanations in this section are poor.

There are many books that present a more comprehensive introduction to BASIC programming than this one, albeit without the agricultural examples. If a farmer, extension officer or other agricultural

professional is interested in learning how to program in BASIC, this work will be of little assistance.

The book concludes with a series of appendixes including a list of 'Periodicals', a 'Glossary of Computer Terms', 'BASIC Definitions' and 'Error Messages' and a 'Comparison of BASIC Language for Apple, Commodore and TRS80'. The last of these appendixes is potentially useful for those wishing to convert programs from one machine to another.

Microcomputers as Management Tools in the Sugar Cane Industry by Alvarez, Levins and Smiley is what microcomputing in agriculture should be all about. The authors could easily have titled their book 'Microcomputers as Management Tools in Agriculture (With Special Reference to the Sugar Cane Industry)' as they address most of the areas in which managers in any agricultural industry should have an interest.

The authors suggest that the purpose of their book is to 'show sugar cane producers how they can use microcomputers to manage their cane farming operations' (p. xv) and they go about this in a very thorough way.

Section I introduces the microcomputer as a management tool and outlines some of the general uses to which a microcomputer could be applied, such as financial recording, physical recording, payroll processing, and word processing. The authors state very early in the book that 'Readers are assumed to be interested in better management and not in a technical course in computer design' (p. 5). This approach makes this book a valuable contribution to 'the advancement of agribusiness'.

In Chapter 2, the authors consider the selection of a microcomputer system and properly suggest that the 'best first step the manager can take in selecting a computer system is to carefully define the tasks which the system will be expected to perform' and then 'look for programs that will perform the jobs on the list' (p. 9). After a consideration of whether managers should purchase 'off the shelf' software, use custom programming, or write their own programs, the authors present a set of general guidelines for the selection of computer hardware. They also discuss operational difficulties that may occur in developing countries, such as foreign languages, screen displays and documentation, lack of dealer support, power supply problems and environmental conditions.

In Chapter 3 financial record systems are considered and the options of mainframe mail-in services versus microcomputer systems are discussed. A section outlining two growers' experiences with microcomputers is included. The authors conclude with the statement that the era of the 'shoebox' is long past and has no place in today's agribusiness industry. Field record systems and the importance of good field records are discussed in Chapter 4. The authors recommend the use of a general database management system such as dBASE or pfs. In two subsequent chapters, payroll processing and general office uses of a microcomputer, such as mailing list management and word processing, are examined.

In Section II six topics related to decision making are presented. In the chapters in this section the productivity and/or economic considerations involved in the particular decision making application are discussed, and MBASIC programs to assist in the decision making

process are presented. Chapter 7 contains a program to analyse land investment decisions incorporating such factors as possible changes in net income over time, potential future land appreciation, impact of financial terms, and income and capital gains taxes effects. It also includes a loan analysis program for use in any situation where borrowing funds is required. Two approaches to the sugar cane stubble replacement decision are presented in Chapter 8 to assist with the decision as to how many successive ratoons to grow before replanting. Budgeting and financial planning using electronic spreadsheets are the subject of Chapter 9.

Chapter 10 contains programs to analyse the 'mechanical versus hand harvesting' and 'machinery purchase versus using contractors' decisions. Chapter 11 deals with machinery management applications including replacement analysis, while marketing uses are the subject of Chapter 12.

Section III discusses the development and operation of a LOTUS 123 based integrated software package project undertaken by the authors to combine field record keeping with the stubble replacement decision in southern Florida.

In the final section of the book microcomputer technology is assessed as a management tool in sugar cane operations. Finally, there is an appendix containing sources of information (magazines and newsletters) for microcomputer users. This section is far more comprehensive than the similar section in the book by Legacy *et al.*, and not only lists the publication's name and address, but also its frequency of publication, cost, and intended audience.

Overall, the book by Alvarez *et al.* addresses the topic of microcomputers as management tools in an excellent manner and should have wider appeal than just managers in the sugar cane industry. In fact the entire book, with the exception of Section III and small parts of Section II, has applicability to any agricultural industry.

ANDREW M. J. ARCH *Department of Agriculture and Rural Affairs,
East Melbourne, Victoria 3002*