

A quarter of a century of Australian agricultural economics — some personal reflections[†]

Fred Gruen*

The late Fred Gruen (1921–1997) was asked to write these previously unpublished reflections for the twenty-eighth Annual Conference of the Australian Agricultural Economics Society in 1984; they were circulated in working paper format as Gruen (1986). In this paper, Fred, who made the transition from agricultural to general economics later in his career, offers a modest perspective on his contributions to agricultural analysis and policy. The unifying theme in this outstandingly productive life was his focus on public policy issues whose resolution would impact importantly on the lives of many — that is, his intellectual curiosity was driven ultimately by his philanthropy.[‡]

1. Introduction

Reflection on one's earlier professional history is a pastime which seems the fashion these days. *Banca Nazionale de Lavoro Quarterly Review* has for some years published a series of recollections and reflections on professional experiences by distinguished economists — including those of such luminaries as Hicks, Tinbergen, Kindleberger, Brunner, Triffin, Machlup and Shackle. Having despaired of being asked to join this group, I accepted with alacrity your President's invitation to provide my reminiscences to this august gathering. At the time of being asked, I felt that there was a good deal in the development of agricultural economics in Australia after World War II which warranted describing — and perhaps arguing about. Since then I was informed of, and subsequently attended, a one-day Symposium at the University of New England on 24 September 1983 celebrating the Silver

[†] Paper given at the twenty-eighth Annual Conference of the Australian Agricultural Economics Society. I am indebted to Keith Campbell and Alan Lloyd for helpful comments on an earlier draft.

* Department of Economics, Research School of Social Sciences, Australian National University, 1959–63 and 1972–86; 1986–97 (emeritus).

[‡] This abstract is by John L. Dillon and Alan A. Powell, authors of the obituary which follows.

Jubilee of the Department of Agricultural Economics, and reminiscences were the order of the day. We are now perhaps in danger of too many reflections on these earlier years. However, once such a commitment has been made, it is churlish to withdraw.

The quarter century of Australian agricultural economics that I refer to is the period 1947 to 1972. I got into agricultural economics by being recruited to the Division of Marketing and Agricultural Economics (DMAE) of the NSW Department of Agriculture in 1947, after a fairly average Melbourne Arts/Commerce degree — and a thoroughly urban background. My quarter of a century in Australian agricultural economics came to an end when I resigned from the Chair of Agricultural Economics at Monash University in 1972 and moved to the Australian National University in Canberra.

2. The immediate post-war period — war service land settlement

By mid-1946 two governmental agricultural economic research organisations had been established — the then Bureau of Agricultural Economics (BAE) in Canberra (predecessor of the current Australian Bureau of Agricultural and Resource Economics, ABARE) and the DMAE in the NSW Department of Agriculture.

The DMAE had had a very rapid turnover. J.G. Crawford, who was connected with its establishment, had moved to Canberra; its first full-time head, W.H. Pawley, had moved to UNRRA; K.O. Campbell had joined the DMAE but had gone to the United States on a Walter and Eliza Hall Research Fellowship. There were really very few people around who either knew what we were supposed to do or who could give us any guidance, direction or encouragement. My first major professional work related to the optimal size of farm units and the War Service Land Settlement Scheme. This scheme provided for government acquisitions of rural land and its transfer to ex-servicemen — after any possible subdivision had been carried out.

It did not require much economic study or sophistication to determine that the government policy of so-called closer settlement was running counter to longer-term economic forces which were going to lead to a decline in the proportion of the Australian labour force employed in agriculture and perhaps also to an absolute decline in farm workers and operators. This was the message one got from reading, for instance, T.W. Schultz's *Agriculture in an Unstable Economy* (1945) or Colin Clark's *Conditions of Economic Progress* (1940).

Further, the soldier settlement scheme after the First World War had been a disastrous failure. Public monies to the tune of many millions had been lost

in attempting to settle ex-servicemen on the land and more than half the ex-servicemen settled on the land had had to give up — after years of struggle and heartache attempting to make ends meet.

In spite of the obvious lessons both from economics and from past history, there was strong pressure to settle as many ex-servicemen on the land as possible. As the second report of the Rural Reconstruction Commission (1944) put it, this strong pressure often emanated

from the job seeker, the land seller seeking a profit, the badly informed self-styled patriot, or local interests thinking selfishly in terms of the number of men settled and the amount of money spent in the district, instead of in terms of the number of men who can be successfully settled in the district. . . . [S]uccessful settlement cannot be forced against the dictates of long-term market requirements and prices, suitability and availability of land to produce for those markets, and general considerations relating to farm finance, farm economics and social conditions.

In my view it is not the function of junior public servants to query policies — especially when these are bipartisan policies adopted by all State and Federal governments. I did write a long article in the March 1949 *Review of Marketing and Agricultural Economics* (our house journal) pointing to past trends, the greater productivity of resource use on larger farms, ‘that economic losses are sustained as a result of inadequate farm size’ and ‘that considerations of economic efficiency must necessarily weigh more heavily in a country like Australia which exports a very large proportion of its primary production’. I don’t think it would have mattered if I had been more outspoken since little notice was taken of our activities.

I spent some time on Inter-Departmental Committees in the NSW Lands Department considering the actual subdivision of estates acquired for soldier settlement. This proved to be a depressing experience — with little evidence of consideration being given to either the long-term welfare of the settlers or the proper use of the public funds involved. In my opinion, what saved us from a repetition of the mistakes of the previous scheme were, firstly, the much better economic conditions in the 15 years following World War II than in the corresponding period after World War I and, secondly, the much more sensible guidelines laid down by the BAE.

Before the State authorities could subdivide a property they had to certify that the subdivided holdings were of a sufficient size ‘to enable settlers to operate efficiently’. For instance, in the case of farms running sheep, this minimal size was fixed, I think, somewhere near 1000 sheep. On the North Coast of NSW, dairy farms had to be fairly near to the median size to be approved. I have no doubt that this saved many ex-servicemen from financial trouble in later years — in spite of its great unpopularity at the time.

3. Graduate work overseas

It was fairly obvious that training in agricultural economics in Australia was in its infancy in the late 1940s.¹ Being disappointed with Sydney and with the likely training I was to receive there in economics and, in particular, in agricultural economics, I looked towards better tertiary educational institutions. The obvious place was the United States, partly because I was more likely to get monetary assistance, and partly because agricultural economics training was much better there than in England. I wrote to some 15 American universities. I was offered a number of different research assistantships, but Wisconsin seemed the best of the group of those willing to help me financially. In particular, I was impressed with a Professor of Agricultural Economics by the name of Walter Wilcox. Unfortunately, within three months of my arrival, Wilcox became Agricultural Economist in the Legislative Reference Service of the Library of Congress. This meant that the main person I had come to study under had disappeared. I completed my master's degree in 12 months without being really stimulated by the process. In Wisconsin at that time, institutionalism was dominant, and the local hero was the late John R. Commons. I found Commons' writings obscure and of limited relevance. In addition, the Wisconsin institutionalists seemed unduly negative. They pointed to the limitations of neo-classical economics without having anything positive or constructive to contribute.

During my year at Wisconsin, T.W. Schultz, the Chairman of the Department of Economics at the University of Chicago, gave a seminar at Wisconsin. I was impressed and wrote to him asking whether I could do some graduate work at Chicago and whether he had some financial assistance available. Schultz asked me to come to Chicago for an interview and took me to lunch at the Quadrangle Club. The lunch was one of the more nerve-racking experiences I have had. I was interviewed by Schultz and D. Gale Johnson. Most of the time Schultz would talk to D. Gale Johnson. Occasionally he would throw a question in my direction; e.g., 'Would you say that the competitive position of Australian wheat growers has improved as compared with American wheat growers since the thirties, and if so, why?' Whatever answer I gave, Schultz would accept without any indication either of approval or disapproval. At the end of the lunch he said: 'Thank you very much for coming down, Mr Gruen. We will let you know the result of our deliberations.' I returned to Wisconsin quite convinced that I would have to

¹ I took two fourth-year economics courses at Sydney University during this period but remember relatively little about them — except two of my 'fellow' students, Don Lamberton and Bill McMahon (later Prime Minister) with whom I had a number of political arguments which appear to have had very little effect on the political position of either of the participants.

spend a second year at Madison. However, Schultz did offer me a research associateship at Chicago during the academic year of 1950–51.

We moved to Chicago in the summer of 1950 and, since I only had one more year's leave from my NSW Department of Agriculture job, I threw myself into the graduate program with a lot of energy. In addition, it was the most stimulating university I have ever attended. I was taught by or could listen to five economists who afterwards received Nobel Prizes — Arrow, Friedman, Hayek, Koopmans and Schultz. Apart from this galaxy of stars, there were many other stimulating and impressive lecturers. I remember in particular Lloyd Metzler, Frank Knight, D. Gale Johnson and Jacob Marschak. Chicago in those days was not as monolithic as it has become since. The Cowles Commission still had its headquarters there, and Metzler then was a strong intellectual force able to hold his own against a man like Friedman.

Both the teaching at Chicago and its atmosphere have recently been captured brilliantly by Melvin W. Reder (1982). Whilst the highlights of my Melbourne course related to Keynes, *The General Theory* and possibly to the theory of monopolistic competition, Chicago disdained these, but treated micro-economics much more rigorously and applied it to real world problems. For instance, Schultz was beginning to think in terms of human capital theory and micro-economic analysis was generally used for the elucidation and solution of real economic problems. Politically too, I found Chicago stimulating since its brand of conservative economics represented an intellectual challenge to the type of fellow-traveller I was in those days. By contrast, during my Melbourne undergraduate programme, whenever real world micro-economic issues were discussed, institutional minutiae seemed to become the dominant consideration²

4. The 1950s and the formation of the Australian Agricultural Economics Society

When I returned to Australia at the end of 1951 the DMAE had been staffed with about eight or nine Economic Research Officers and had settled down to a number of investigations. We had procured a Holden utility and set off doing a large number of farm surveys in all parts of the State. I do not remember when the various people arrived, but we managed to recruit a good group of research workers during this period — including John Dillon, Alan Lloyd, Ross Parish and John Rutherford — just to name those who

² I believe it is generally beneficial that one should attempt to send graduate students to those economics departments where their political biases are challenged and not reinforced. On this criterion, left-wingers should probably be sent to Chicago and right-wingers to Amartya Sen (then at) Oxford!

afterwards managed to get chairs in Australian universities. Most of the work was done on our own initiative.

Our boss, Charles King (the Chief of the Division) was a veterinarian by training who had completed a lengthy history of the first fifty years of Australian agriculture (King 1948–49) for which he had received a Master of Arts (Sydney). In addition, he had a Diploma in Public Administration from Sydney University. While a vet turned historian/public administrator might not have been an ideal leader of a new group of economic research workers, there were not many experienced agricultural economists around in those days. Also, King was willing to ‘allow a hundred flowers bloom’ and we were able to pursue our research interests pretty freely.

To the best of my knowledge the moving spirits behind the formation of the Agricultural Economics Society in 1957 were K.O. Campbell and John Crawford. As you will notice from looking at Campbell’s contribution to that first Proceedings volume, K.O. was critical of a lot of the research work being done in Australia at this time (Campbell 1957). His criticism was directed partly at the lack of an analytical framework for much of this work and partly at the lack of investigative independence of the BAE. This criticism was particularly resented by the BAE and its senior officers. While a good deal of Campbell’s criticism was valid, I feel that he could have been more diplomatic.³ He could have recognised some of the strengths as well as the weaknesses of the agricultural economic research work being carried out — not to mention the political and bureaucratic pressures senior BAE officers were subject to.

One reason senior BAE officers felt defensive about their work under K.O.’s onslaught, I believe, was that the quality of some of the work deserved criticism. A lot of it was of a semi-political *ad hoc* nature which had relatively little lasting value. There was some justification for Campbell’s scathing reference to the ‘independent fact-finding institution’. As a senior BAE officer put it privately about this time: ‘The government tells us what facts to find, and, by God, we find them.’ Competence was often judged by the ability of a research worker to come up with research findings pleasing to his superiors. I had a very minor experience of this when I wrote a letter to the *Sydney Morning Herald*, setting out some facts about low incomes

³ In addition to not being as diplomatic as possible, Keith did take the professional standing of agricultural economics very seriously. I remember writing in my paper for the first Conference about credit restrictions, that it was difficult to obtain evidence about the reality and severity of credit restrictions for the creditworthy farm borrower on the grounds that ‘what goes on in the sanctum of a bank manager’s office is seldom revealed to the prying eyes of the agricultural economist’ (Gruen 1957, p. 104). Keith asked me to take this phrase out on the grounds that it denigrated the fledgling profession by suggesting that we were given to ‘prying’!

gleaned from a Commonwealth-State dairy survey. Unbeknown to me, Tom Strong, the then Director of the BAE, was trying to convince someone higher up (either John Crawford or John McEwen) that there was no need to increase the dairy subsidy and my letter threw doubt on some of his interpretations. He thereupon sent Don Williams, then a BAE Assistant Director, to Sydney to tell the local people of his extreme displeasure with my letter (which I had, fortunately, cleared with King) and even to suggest that I was too incompetent to be kept on as an Economics Research Officer in the Division. Some 12 months later, all this was forgotten as some piece of research of mine pleased him and he offered me a substantial promotion if I would join the BAE!⁴

Gradually the BAE's performance improved — especially during and after Stuart Harris' term as Director. I believe he was able to recognise quality better than some of his predecessors who had not done any graduate work in economics. Also, he was prepared to stand up for the independence of the BAE to a greater extent, with beneficial effects on morale. Lastly, he was helped by the growing number of BAE officials who had been sent overseas (mostly to the United States) for their graduate work.

5. The 1960s — some agricultural economics debates

In 1959 I left the NSW Department of Agriculture and became an academic — at first for five years at the Australian National University and then from 1964 until 1972 as Professor of Agricultural Economics at Monash University. Apart from teaching, and commenting on various policy issues — which are discussed briefly below — my major research work was to carry out a crystal ball-gazing exercise financed by the US Department of Agriculture. The aim was to project Australian agricultural supply and demand from 1965 to 1980. I assembled a team of seven and we proceeded to make the projections the contract called for — with relatively little faith in the reliability of our results. John Freebairn (1975) later tested our 1970 price projections against the facts and found them 'neither significantly more or less accurate than the naive model price forecasts'. Our main interest in the work was to analyse Australian agricultural demand and supply relationships. Here I think we achieved some useful results; in particular Alan Powell's six-sector model of the Australian livestock/cereal complex

⁴ It is my recollection that there was an informal anti-body-snatching agreement between the various governmental employers. This made movement between States or between State and Commonwealth employment almost impossible in the first five or six years of my employment in the NSW Department of Agriculture.

(Powell and Gruen 1967) did, I believe, break new ground and add to our understanding.

The 1960s saw two major debates arise: the dairy debate, and the debate over the wool reserve price scheme.

5.1 The dairy debate

The dairy debate within the economics profession has been concisely surveyed by Max Corden and it seems unnecessary to add anything to his account (Corden 1968). My major involvement in this issue consisted of presenting a joint submission with six other agricultural economists to the Dairy Industry Committee in 1960.⁵ We argued that the continuing and, at the time, growing community financial support for the dairying industry encouraged a misuse of human and capital resources yet at the same time did little to solve the long-term low income problem in dairying. We argued for either a gradual reduction in overall financial assistance to the industry coupled with special help to low income producers, or tradeable quotas.

The quota scheme was, I believe, seriously considered by 'the industry'. I am not sure why it was rejected. One important reason may have been that the co-operative butter and cheese factories were opposed, since it would reduce their supplies and thus accelerate pressure for amalgamation of factories. Another probably was the higher costs it would have imposed on new producers or on producers who were expanding. Both Victoria and Tasmania were expanding production quite substantially. Hence, even though quotas represented a Pareto-optimal improvement, this was only true for a static industry, not for a changing one. It shows how restrictive Pareto-optimality conditions really are in practice. In his well-argued foray into agricultural economics, Ted Sieper suggests it was somewhat naive of 'us' to believe that a negotiable quota scheme could have been a possibility in the dairying industry — given that expanding producers stood to lose from such quotas. Yet Sieper cannot explain why transferability of egg quotas became a reality. 'Why these farmers were unable to achieve the introduction of a system that would have captured them a substantial part of the present value of dairy rents, while small egg producers did achieve negotiable quotas in 1974, is a political question deserving of further study' (Sieper 1982, p. 68).

⁵ My colleagues who signed the joint submission were Owen McCarthy, University of Queensland, Will Candler and Jack Lewis from the University of New England, Ross Parish, Sydney University, Alan Lloyd, Melbourne University, and Henry Schapper, University of Western Australia.

5.2 The reserve price debate

The 1960s saw continuing debates on the wool marketing system. Whenever wool prices declined, agitation for a reform of the marketing system increased. Whenever the agitation got too fierce, government appointed another Committee of Enquiry to report. Most of the arguments advanced by the fierce participants on the two sides had little economic substance. The reserve price enthusiasts often seemed to believe that the mere announcement of a floor price would automatically lead to unchanged quantities being sold slightly above the floor price. I think Max Newton once irreverently labelled this the Hovercraft theory of pricing. The main strength of the opposition to reserve pricing came from those who had an objection to government intervention either on philosophical grounds, or because it would reduce somewhat their freedom of action (e.g. buyers and selling brokers). Admittedly, there was no reason to believe that a marketing agency subject to political pressure was likely to do better than a freely competitive market — but there was some evidence of lack of competition, of occasional collusion, and of a good deal of ingrained traditionalism among wool marketing agencies which could be partial counter-arguments. Personally I have always been rather ambivalent about the reserve price scheme — with the dangers of a badly run scheme looming somewhat larger than the slight gains from a well-run one.

Such considerations — and the debates among agricultural economists about hidden gains and losses — were peripheral to the main arguments among the committed participants, as they attempted to apply political pressure on governments. The forensic gladiatorial combat among agricultural economists probably yielded useful insights, even though it was an intellectual side-show to the main agri-political battle — a battle which ended with the adoption of a Reserve Price Scheme at the beginning of the 1970s.

5.3 Second-best arguments and tariff compensation

During the second half of the 1960s I became disturbed by the tendency of some of my academic colleagues in agricultural economics to assume a crusading role — a role of exposing special interest provisions in various agricultural protective schemes. It was not that the special interests were not prominent or that they did not, on many an occasion, succeed in obtaining political benefits which had no economic justification. But an attitude developed that anything any farm pressure group asked for was *ipso facto*

unjustifiable.⁶ A similar crusading spirit has been noted later among some Industry Assistance Commission (IAC) Commissioners — that *any* subsidy or protective arrangement automatically reduces real national income — even when the level of effective protection afforded to an industry was considerably lower than that for rival products which might be substitutes in production or consumption.

For instance, in 1965–66 the effective protection of the wheat industry resulting from the home consumption price scheme amounted to some 7 per cent. At that time general effective protection in manufacturing probably averaged around 30 to 40 per cent. Yet agricultural economists published estimates of real losses resulting from this level of protection of wheat — making the implicit assumption that resources released from wheat (if protection were reduced) would all find employment in other unprotected industries.

In 1968 I wrote a paper entitled ‘Welfare Economics, the Theory of the Second Best and Australian Agricultural Policy’ which became the most widely quoted unpublished paper I have ever written. I did not publish it because I could not solve an intellectual conundrum which puzzled me for some time. The conundrum was as follows: Suppose we have three industries A (dairying or wheat or any other protected primary export industry); B (‘unprotected’ pastoral); and C (all other industries). Given the usual conditions about lack of external economies, presence of competition, etc., what level of protection is economically justifiable for A if:

1. there is no protection in B and an effective 20 per cent rate of protection in C;
2. the input mix in A is such that 40 per cent of its resources would ‘come from’ C if protection of A products was increased (or alternatively 40 per cent of the resources would go to C industries if protection was lowered)? The remainder of A inputs would come from, or go to, the B group of industries.⁷

I remember asking Max Corden, Eric Russell, Richard Snape and once even Kelvin Lancaster about how to solve this problem. In the end, other things

⁶ I suppose the fact that my wife and I had become practising farmers in 1960 and have lived and worked part-time on farms since then may have had something to do with my attitude. Our farming activities have also given me a continuing interest in the agricultural sector of the economy, even though practically all my professional work is now concentrated on the other 93 per cent of the economy.

⁷ The paper produced some rough ‘order of magnitude’ estimates suggesting that some 75 per cent of the resources used in wheat and dairying were not specific to agriculture in the long run. Perhaps 40 per cent might go to non-farming industries if protection was reduced.

intervened and I never got back to it. However, my 'second best' paper was embraced with enthusiasm by some of my bureaucratic friends in Canberra. I think it was Frank Grogan who told me that, with the paper, I had provided a rationale for all the industry-supporting activities ever undertaken in the Department of Primary Industry! Needless to say, this was not my main aim — which was basically to achieve a greater wariness about the condemnation of low levels of protection (which existed in such industries as wheat). Although I later was a co-author of the Green Paper on Rural Policy⁸ which overstated the tariff-compensation argument — see Lloyd (1978, p. 266) — I tended to withdraw from the later tariff compensation debate between, for instance, Stuart Harris and Alan Lloyd, on one side, and Peter Warr and the IAC, on the other.

6. Conclusion

Both the farm sector and agricultural economics have come a long way since the times of which I have been writing. With some conspicuous exceptions (market milk, tobacco, eggs and citrus) most Australian farming industries now receive very little effective protection. According to the IAC, the weighted average effective protection level has dropped below 10 per cent since 1978–79, after having been as high as 28 per cent at the beginning of the decade. Most of the major extensive industries are in the 5 to 6 per cent category (wool, beef, grains). The heavily protected areas tend to be those where state rather than federal instrumentalities determine marketing arrangements (market milk, eggs). Most Australian farming industries have shown a great ability to adjust to the very sizeable economic (not to mention climatic) shocks to which they have been subjected in recent years — with relatively little governmental financial assistance.

Agricultural economic research has had an increasing influence on policy. These effects have been gradual — perhaps some would describe them as snail-like. Yet Campbell's campaign against the arbitrary nature of cost-of-production pricing eventually had its effect — as did our advocacy of lower levels of protection for butter and cheese producers. No doubt a good many other examples of this kind can be cited.

The BAE has become a respected professional research organisation within government and the prototype for no less than three other research bureaux: the Bureau of Transport Economics, the Bureau of Industry Economics (BIE) and the Bureau of Labour Market Research. The growing sophistication both of research and of agricultural policy making is evident

⁸ See Working Group on Rural Policy (1974).

as one casts one's mind back to the pre-Agricultural Outlook Conference days when crude partisan assertion and rural anti-intellectualism were often the order of the day in rural policy discussion. One also detects a growing professionalism on the part of the farm organisations — a professionalism which compares very favourably with the quality of the arguments advanced by some of the other pressure groups within the community.

Finally, agricultural economists, both in academia and in government, have been lured increasingly to other areas where the problems are greater and where their professional training can also be used fully. Many erstwhile agricultural economists in government are now to be found in some other area of applied economic policy research (the IAC, the BIE, the Economic Planning and Advisory Council, or EPAC) or in some administrative area outside agriculture (e.g., Trade, Prime Minister's). In academia, many of us have become applied economists turning at least partially to other economic issues (e.g. Alan Powell, Frank Jarrett, Ross Parish). I believe our success in moving into other branches of economics is attributable mainly to our more rigorous US training — at a time when most promising non-agricultural economics students were channelled to Oxbridge or London School of Economics where post-graduate training was then in its infancy.⁹

References

- Campbell, K.O. 1957, 'Contemporary agricultural economics in Australia', *Australian Journal of Agricultural Economics*, vol. 1, no. 1, pp. 22–31; also in *Review of Marketing and Agricultural Economics*, 1957, vol. 25, nos 1–2, pp. 22–31.
- Clark, C. 1940, *The Conditions of Economic Progress*, Macmillan, London.
- Corden, W.M. 1968, *Australian Economic Policy Discussion: A Survey*, Melbourne University Press. Also published (under a slightly different title) in, *American Economic Review* vol. 58, no. 3, part 2, supplement, pp. 88–138.
- Freebairn, J.W. 1975, 'Forecasting for Australian agriculture', *Australian Journal of Agricultural Economics*, vol. 19, no. 3, pp. 154–96.
- Gruen, F.H. 1949, 'Farm size and factors influencing changes in farm size with particular reference to New South Wales (1900–1948)', *Review of Marketing and Agricultural Economics*, vol. 17, no. 1, new series, pp. 6–65.

⁹ In the decade after World War II most promising economics graduates in Australia were automatically advised to get further training in England — partly by their English-trained seniors and partly by the existence of various prestige scholarships. Given the research work being done in the two countries, a choice of an English over a US course of further training would have been bizarre for would-be agricultural economists. In addition, the US training provided for advanced course work, while UK universities at that time provided no such graduate training.

- Gruen, F.H. 1957, 'Capital formation in Australian agriculture', *Australian Journal of Agricultural Economics*, vol. 1, no. 1, pp. 92–105; also in *Review of Marketing and Agricultural Economics*, vol. 25, nos 1–2 (1957), pp. 92–105.
- Gruen, F.H. 1986, *A Quarter of a Century of Australian Agricultural Economics — Some Personal Reflections*, Australian National University, Centre for Economic Policy Research, Discussion Paper No. 135, January.
- Gruen F.H., Powell, A.A., Brogan, B.W., McLaren, G.C., Snape, R.H., Wachtel, T. and Ward, L.E. 1967, *Long Term Projections of Agricultural Supply And Demand: Australia, 1965 to 1980*, Monash University, Department of Economics, Report of a Project Commissioned by the United States Department of Agriculture, 2 volumes, pp. xix+650 (also published in the US — USDA, Washington, DC, May 1968).
- King, C.J. 1948–49, 'The first fifty years of agriculture in New South Wales', published serially in *Review of Marketing and Agricultural Economics*, vols 16 and 17, August 1948 through December 1949.
- Lloyd, P.J. 1978, 'Protection policy', chapter 5 in F.H. Gruen (ed.), *Surveys of Australian Economics*, vol. I, George Allen and Unwin, Hornsby NSW, pp. 241–96.
- Powell, A.A. and Gruen, F.H. 1967, 'The estimation of production frontiers: the Australian livestock/cereals complex', *Australian Journal of Agricultural Economics*, vol. 11, no. 1, pp. 63–81.
- Reder, Melvin W. 1982, 'Chicago economics: permanence and change', *Journal of Economic Literature*, vol. 20, no. 1, pp. 1–38.
- Rural Reconstruction Commission 1944, *Report No. 2 Settlement and Employment of Returned Men on the Land*, Government Printer, Canberra.
- Schultz, T.W. 1945, *Agriculture in an Unstable Economy*, McGraw-Hill, New York.
- Sieper, E. 1982, *Rationalising Rustic Regulation*, Research Studies in Government Regulation 2, Centre for Independent Studies, St Leonards, NSW.
- Working Group on Rural Policy 1974, *Rural Policy in Australia*, AGPS, Canberra.



Fred Henry Gruen 1921–1997