

# WORKING PAPERS IN ECONOMICS

THE REFORM OF AUSTRALIAN AVIATION

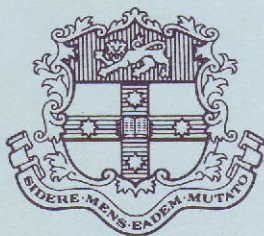
by

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## THE REFORM OF AUSTRALIAN AVIATION

Gordon Mills

For almost four decades, the essential features of the structure and organisation of Australian aviation have remained largely unchanged. Domestic airline service has been dominated by two carriers, Ansett Airlines (a privately-owned company) and Australian Airlines (formerly called Trans Australia Airlines, and owned throughout by the Australian government). The government's 'two-airline policy' has ensured that both airlines served each 'trunk' route, and that other airlines have been almost totally excluded from these routes. Similarly, on international routes, the government authorised only one Australian airline, namely Qantas (also owned by the government).

The major airports were constructed and have been operated by the relevant government department (at some times a separate aviation department, and at other times a multi-modal transport department), which also directly provided air navigation services. Charges to the airlines for the use of this infrastructure have been determined so as to give some desired relationship between aggregate revenue and the aggregate cost of provision; but the structure of individual charges has had little discernible rationale in relation to costs and economic incentives.

During the last two years, however, the Australian government has begun to implement several major new policies. By the time the presently-envisaged processes are completed in 1990, many of the structural features of the aviation industry will have been altered radically, and it is hoped that there will be some major associated and consequential changes in economic behaviour.

## Airline regulation

The Civil Aviation Agreement Act 1952 established the two-airline policy for domestic services. One aim of the then right-wing government was to protect the major private airline, after the failure (on constitutional grounds) of the attempt by the previous labour government to give to the government-owned airline a legal monopoly of interstate services. (Intra-state services are under the legislative authority of state governments.)

Over the years, that major private airline has become the stronger organisation. Its financial backing was greatly enhanced in 1979 when almost all its shares were purchased by, and divided equally between, two very large companies, viz. Sir Peter Abeles' multi-modal transport firm TNT (which now has operations in Europe and the U.S.A., as well as a very large transport role in Australia), and News Limited (part of Mr. Rupert Murdoch's media and communications group which has developed major interests in Britain and the USA that now far outrank its Australian base).

In 1981, the two-airline policy was revised in ways which make it harder for other airlines to challenge the two incumbents on the principal interstate routes. Indeed, as becomes clear from detailed examination of the legislation (the Airlines Agreement Act 1981, the Independent Air Fares Committee Act 1981, and the Airline Equipment Amendment Act 1981), although grandfather rights were recognised, additional entry to these routes can not occur unless both of the incumbents are willing to concede; and since 1981 no such entry has occurred.

Notwithstanding this adoption of an even stricter regulatory regime, there was (at that time, and subsequently) increasing public disquiet about the two-airline policy. In 1985, the then (Labor) government appointed a committee to conduct an Independent Review of Economic Regulation of Domestic Aviation; its report (Independent Review, 1986) was published at the end of 1986. Although the terms of reference allowed a wide-ranging review of the existing scheme of regulation, the committee was not asked to recommend a new policy; instead it was to report "on possible options for the future".

In finding that the two-airline policy resulted in major loss of economic efficiency, the committee noted (in Chapter 2 of its report):

- (1) Government regulation of aircraft capacity owned "has in effect allowed the airlines themselves to determine their own future capacity levels", while the market-sharing and consultation arrangements have "muted competition" and discouraged the development of new markets.
- (2) Rate-of-return regulation, practised by the Independent Air Fares Committee, has allowed profit of "up to 28% before tax on shareholders' equity calculated on an historic cost basis", but subject to further adjustment for costs disallowed because incurred unnecessarily.
- (3) This has encouraged employment of excessive capital assets, "reflected in low density [aircraft] seating configurations and relatively low hours of aircraft utilisation".
- (4) "On the other hand, load factors are high and capacity controls have enabled the worst excesses of capacity competition to be avoided".
- (5) Regulatory restriction of output (measured in seat-kilometres) has encouraged the airlines to focus on serving high-yield (business) passengers, and to give relatively little attention to those willing to travel at discount fares for recreational purposes.
- (6) Fare-determination (based on fully-distributed cost allocations) has been practised in such a way as to average cost differences over aircraft types and over routes of differing densities.

- (7) The airlines have not offered off-peak fares, and travel on discount fares has been only a modest part of total sales, because of the restrictive conditions associated with discount fares.
- (8) As a consequence, there has been a lack of alternative offerings on the price-quality spectrum, and less air travel than might otherwise be expected in Australian conditions.

In sketching policy options, the committee identified ways in which the present regulation could be adapted to reduce efficiency losses while retaining a comprehensive and strict regulatory approach. It also identified ways of relaxing the regulations, short of complete deregulation. In particular, it noted that

- (1) If regulation of aircraft capacity owned were retained, restriction of output (seat-kilometres) could be relaxed or eliminated.
- (2) Economic incentive mechanisms could be introduced to drive changes in permitted capacity owned.
- (3) Fare control could specify fare ceilings only.
- (4) The regulator could require or actively promote off-peak fares, and also discount fares with fewer restrictive conditions.
- (5) The number of airlines permitted on each route could be varied according to route density, or route entry might be left uncontrolled.

Although not so invited, the committee chose to offer a limited number of recommendations, having what might be called a contextual character; some of these are noted later.

In the public discussion following the publication of the report, it soon became taken for granted that the prevailing scheme of regulation must go. But there was no immediate indication of what new policy the government would adopt. In evidence to the committee, Ansett Airlines had favoured the status quo. But within days of the publication of the report, Sir Peter Abeles said (Ansett Airlines, 1987) "Put simply, you just cannot be a little bit pregnant. The only viable alternatives for the future are to continue with the present arrangements or to give open competition a go." He went on to argue that a necessary part of deregulation would be the sale of Australian Airlines to private owners.

In the event, after some nine months had passed (during which time a general election saw the return of a new Labor government, which consolidated portfolios to create a Department of Transport and Communications (DOTC) under a new minister), the government decided to "bring the two airlines policy to an end, and open Australia's interstate air services to free competition" (DOTC, 1987).

Putting aside (for the present) some policy initiatives on airports and other matters, the principal features of the new policy for interstate airline services are:

*Repeal of legislation:* with effect in October 1990, the government will repeal the 1981 legislation that regulates capacity, route entry and fares

*Foreign participation:* any foreign international airline operating services to Australia will not be allowed to hold more than 15% of the equity in any company providing domestic airline services; otherwise foreign companies may invest in Australian airline companies, subject to the normal guidelines of the Foreign Investment Review Board.

*Consumer protection:* airlines will become subject to all the provisions of the Trade Practices Act; and air fares will become subject to scrutiny by the Prices Surveillance Authority, though the

need for continuing involvement of the PSA will be reviewed after an interim period of three years.

*Domestic rights for Qantas:* with effect from 1 July 1988, Qantas has the right to carry on its domestic sectors, passengers of other international carriers (in addition to its previous right to carry its own international passengers).

As the Minister himself noted, the restriction on investment by foreign airlines will prevent Air New Zealand from offering domestic services. And this policy is advanced notwithstanding the Closer Economic Relationship agreed between the two countries as part of general economic policy, and notwithstanding the fact that Ansett Airlines has established a subsidiary company offering domestic services in New Zealand, in competition with Air New Zealand. Furthermore, critics fear that the restrictions on foreign participation greatly reduce the chances of any entry to the deregulated industry. (See also the discussion below on industry structure.)

It may also be noted that the government has not adopted certain recommendations of the review committee, which argued (inter alia) that no matter what the overall regulatory posture eventually adopted, all consumer protection activity "should be the responsibility of a single regulatory body that is specific to the industry" (Independent Review, 1986, Vol.1, p.28); and that body should, at a minimum, actively monitor, and intervene as necessary in certain areas including any cases of airline predatory behaviour, and airline access to airport facilities and to computer reservation systems.

### **The airline industry**

In December 1983, East-West Airlines, which had been based predominantly in the state of New South Wales, was purchased by a new owner, who greatly expanded the scale of its operations. Measured in terms of revenue passenger-kilometres, its output sold in 1985-86 was 77% higher than in 1983-84, and in the later year was about 5.5 per

cent of the industry total (Independent Review, 1986, Ch.5). Apart from the two majors, it was the only holder of a full airline licence to operate jets (viz. a fleet of four F28-4000 aircraft).

However, its expansion was hampered (1) by the route-entry provisions of the two-airline policy, which meant that on trunk routes it could do little more than serve more intensively a few routes on which it had grandfather rights, and (2) by the capacity controls of the two airline policy, which prevented it from acquiring all the extra jet aircraft it wanted. Also, East-West's financial health suffered when the two majors introduced parallel services on many of its inter-state routes and offered regulator-approved special fares on some of those routes (Independent Review, 1986, section 15.16). In 1986 and 1987, East-West was widely thought to be incurring significant financial deficits, and it was not altogether surprising when, in July 1987, the owner sold it. After being owned by another party for a few days, the airline became the property of TNT and News Limited, with the two companies taking equal shares (just as in their ownership of Ansett).

The sale inevitably required the Trade Practices Commission to examine the situation. In dealing with mergers, the Trade Practices Act 1974 is based on a philosophy that sees a single dominant company as the major demon (Trade Practices Commission, 1986); it may be argued that this gave the Commission little scope for intervention. For whatever reason, the Commission chose not to challenge the purchase in relation to the national market. However, it did make some attempt to alter what it saw as monopoly situations arising in intra-state services in New South Wales and in Western Australia (Trade Practices Commission, 1987). In the outcome, Australian Airlines has purchased certain assets and will control some services in New South Wales.

However the Commission was less successful in regard to Western Australia, where over several years, the state government had carefully nurtured competition on selected routes (including some jet routes) that have sufficient traffic to support two airlines. It did so by licensing East-West (and its subsidiary Skywest) to operate alongside the established airline, a division of Ansett. On some of

these routes, the result had been to give consumers some choice over trade-offs between fare levels, aircraft types and service frequencies. In 1988, notwithstanding the wishes of the Trade Practices Commission, Australian Airlines declined to take over the jet services operated by East-West (and to lease the one F28 aircraft offered), one reason apparently being that the asking price (including goodwill) was considered to be too high. Subsequently, the Ansett interests terminated the intra-state jet services operated under the East-West name, leaving Ansett itself as the sole intra-state jet operator there.

The future of Skywest took longer to determine. In the initial negotiations with the Trade Practices Commission, the Ansett interests had agreed to dispose of Skywest's scheduled services, operated with small turbo-prop aircraft. The months went by without resolution: several parties had discussions with Ansett, but apparently it was not possible to reach agreement on the terms of sale (TPC, 1988a). Eventually (in September 1988), the Trade Practices Commission "decided not to insist further on divestiture of the Skywest operations" (TPC, 1988c, p.7). In support of this decision, the Commission noted that: (1) the Ansett interests had "informed the TPC that they would prefer to close down the Skywest operations concerned than to be involved in Court proceedings for divestiture" (TPC, 1988a - see also TPC, 1988b); (2) the shutdown of Skywest scheduled services "would obviously not be in the public interest" (TPC, 1988b); (3) "The TPC does not have significant human resources to devote to merger issues and must choose carefully which matters it pursues." (TPC, 1988a).

Elsewhere in Australia, East-West continues to operate under its own name, with handling and other services now provided by Ansett. For the national market, with output sold measured in terms of revenue passenger-kilometres, very approximate estimates of current market shares of (inter-state and intra-state) scheduled services are: Ansett Airlines (together with associated companies owned or effectively controlled) 54 per cent; Australian Airlines (together with associated companies) 44 per cent; other airlines (all of which are commuter operators, operating under supplementary airline licences) 2 per cent.

Consideration also has been given to the future of Australian Airlines. Although Labor Party policy has long regarded the airline as an inalienable part of the public sector, speculation arose in 1987 about government desires to privatize. Subsequently, and as a first step, incorporation of the airline as a public company was effected on 30 April 1988, by means of the Australian Airlines (Conversion to Public Company) Act 1988. This followed a report (Advisory Group, 1988) urging removal of major as well as minor controls, and the injection by the government of a sizeable amount of equity capital, failing which there should be total or partial privatization.

In his May 1988 statement, the then Minister announced removal of day-to-day controls, but otherwise was cautious: "the Government will further review whether it is possible to exempt Australian Airlines ... from Loan Council global borrowing limits" (Minister for T & C, 1988, p.16); and he made no mention of privatisation. It is widely thought that the Minister - and other senior Cabinet ministers - were keen to privatise both Australian Airlines and Qantas (where too there is a debate over the injection of equity capital). On the other hand, some Labor Party groups are strongly opposed, and the June 1988 conference of the Party did not resolve the matter by calling for privatisation.

#### Airports and airways

Although the long-standing arrangements for cost recovery were unsophisticated (to say the least), they did serve to give users an increasing incentive to press for cost containment. In particular, this led to criticism of the level of operating costs within the aviation department, and to industry pressure not to go ahead with full redevelopment of Brisbane airport. Notwithstanding that pressure, and some cautious counsel expressed in Bureau of Transport Economics (1975), the decision was taken in 1978 to build a new runway at Brisbane (to replace the old one) and to house domestic flights at a new terminal of high quality and great size. (In the

outcome, the new airport was opened in 1988, at a total cost of the order of A\$600 million, at 1988 prices.)

Facing those industry concerns in 1983, the new Labor government established an Independent Inquiry into Aviation Cost Recovery, whose report was published at the end of 1984. Among the Inquiry's many recommendations are these:

- Recovery of the costs of provision of airport and airway services should be increased, to approach full cost recovery within ten years (Recommendation 96).
- The charging processes should be used to discipline industry users seeking public sector investment in facilities (R54).
- Airports should be hived off from the aviation department to a separate commercially-motivated organisation, as already proposed by the government (R3 and elsewhere).
- The existing all-purpose flight charges should be replaced by separate airport and airway movement charges, as already proposed by the government (R69).
- The new charges "should be set as far as possible according to the costs of and demand for particular facilities and services and not on average system costs" (R70).
- "Costs should be allocated on an incremental cost basis for the purpose of setting industry charges but flexibility should be maintained in allocating joint costs and overheads to user categories" (R92).
- The Department of Aviation should raise its productivity by at least 9 per cent, over a ten year period (R59).
- Initially, costs to be recovered from the industry in relation to the new Brisbane airport should be limited to the smaller amount that would have been incurred if the airline wishes for modest extension had been granted (R56).

The government accepted most of the recommendations, and implementation has begun. As reported in Department of Aviation (1987) p.1, over the three years to June 1987, the Department reduced attributable cash costs by about 7 per cent (in real terms). After more than a decade of studies, the government announced (in Dept. of Aviation, 1986a) that it would not embark on construction of a third runway at Sydney nor on construction of a second Sydney airport; rather it reserved a site for later construction of a second airport, and offered to acquire immediately properties within the boundary of the eventual airport. (See also Dept. of Aviation, 1987, p.43, and Mills, 1982.)

From 1 July, 1986, the government introduced a new system of charges for all airline movements. The landing charge comprised three separate elements, to cover certain airport costs, and also (where the services are provided) the costs of terminal navigation, and of rescue and fire fighting. Each charge was proportional to aircraft weight, and is a uniform amount irrespective of which airport is used. For domestic airlines and other domestic users, the costs of enroute airways services were recovered from fuel excises; being exempt from such excises, international airlines paid charges related to aircraft weight, and to the distance travelled within the Australian air traffic control area. (See pp.9-11 and Appendix 8 of Dept. of Aviation, 1987). Later changes include the abolition of excise on fuel used by domestic airlines; for 1988-89, with the advent of the new corporate bodies (see below), the charges have been further restructured; all are related to aircraft weight, with en route navigation charges depending also on sector distance.

By virtue of the Federal Airports Corporation Act 1986, the FAC was established in June of that year, with the task of taking over from the Department of Aviation most capital-city and other major airports, and running them on a more commercial basis. The Corporation assumed its responsibilities on 1 January 1988, just after the government had granted Ansett and Australian Airlines extended, twenty-year leases on their existing passenger terminals (notwithstanding the emphasis given by the Independent Review of Economic Regulation of Domestic Aviation to the inflexibility, and

the possibility of hindrance to entry by new airlines, arising from long-term leases - see chapter 28 of the Review's report). Apparently in recognition of this point, the new leases require the two major airlines to give entrants access to up to two gates of each airline at each of Sydney and Melbourne, and one gate each at most other principal ports (except Brisbane where the new terminal has a substantial common-user area - not presently used at all) - see Minister for T & C, 1987.

In the earlier determination of the new aircraft movement charges at airports, the government had "accepted that the aviation industry should not be required to pay for facilities that are provided in excess of industry requirements. As a result, the attributable cost of the new Brisbane airport will be adjusted in accordance with the recommendations of the [report of the Aviation Cost Inquiry], as this facility was provided earlier than required and against the advice of industry" (Dept. of Aviation, 1986b, p.2). This was taken into account in determining the initial debt to be serviced by the FAC.

The FAC inherited this new system of airport charges. Although this has some way to go before the individual charges can be said to relate "to the costs of and demand for particular facilities", so far (November 1988) the Corporation has not announced any significant structural changes. However it has canvassed the introduction of annual fees for most general aviation aircraft seeking to use the Corporation's GA airports (essentially, secondary ports in the capital cities), to improve the financial viability of those airports; see Federal Airports Corporation, 1988. It appears that the Corporation is also considering, for GA aircraft at all capital city airports, the introduction of parking charges and a sizeable increase in the minimum aircraft movement charge, together with a peak period surcharge on GA aircraft movements at Sydney Airport (which has by far the most severe runway congestion). These proposals undoubtedly reflect concern about the high opportunity cost of GA use of the principal airports - see also Mills (1982). Implementation of some scheme along these lines would support the belief that the commercial brief given to the Corporation should help to improve the economic efficiency of airport operations. It may be

noted however that each of the Corporation's principal airports has a regional monopoly of airline facilities, and hence the Corporation will not have the benefit of competitive pressures.

The other major step in commercialisation of the activities previously undertaken in the Department of Aviation is the creation of a separate Civil Aviation Authority to provide airway facilities, and air traffic control and related services, including control of surface traffic of aircraft and vehicles at airports. This change is effected in the Civil Aviation Act 1988, which specifies (in much the same way as for the FAC) that the Authority shall maintain the government's equity, earn a reasonable (commercial) rate of return on assets, and pay a reasonable dividend to the government (section 45 of the Act). The Minister may direct the Authority as to the performance of its functions, and the Authority is to be reimbursed by the government where such direction leads to financial detriment (sections 12 and 48 of the Act). The Authority started work on 1 July 1988.

Apart from airport security, the only operational function that remains within the (now) Department of Transport and Communications is the Bureau of Air Safety Investigation. Here the government has sought to reassure the public that deregulation and commercialisation of the industry will not lead to any relaxation in the high safety standards achieved in Australia. That same public will now be interested to see whether deregulation will lead to airline services that are more competitive in price and quality, and whether the corporatisation of the provision of infrastructure services will lead to greater economic efficiency.

## References

- Advisory Group on Australian Airlines (1988) *Report* (to the Minister for Transport and Communications) Canberra: AGPS
- Ansett Airlines (1987) *Aviation Deregulation* Press Release, 10 January 1987
- Bureau of Transport Economics (1975) *Brisbane Airport: Economic Evaluation of Alternative Development Strategies* Canberra:AGPS
- Department of Aviation (1986a) *Second Sydney Airport Final Site Selection*
- Department of Aviation (1986b) *Aviation Cost Recovery - Outline of Government Policy Plan* (paper issued 30 May 1986)
- Department of Aviation (1987) *Annual Report 1986-87* Canberra:AGPS
- Department of Transport and Communications (1987) *Domestic Aviation: a new direction for the 1990s* (Statement by the Minister, 7 October 1987) Canberra: Department of Transport and Communications
- Federal Airports Corporation (1988) *Financial Viability of General Aviation Airports* Sydney
- Independent Inquiry into Aviation Cost Recovery (Chairman: H.Bosch) (1984) *Report* Canberra:AGPS
- Independent Review of Economic Regulation of Domestic Aviation (Chairman:T.E.May) (1986) *Report* (2 volumes) Canberra:AGPS
- Mills, Gordon (1982) "Investment in airport capacity - a critical review of the MANS (Major Airport Needs of Sydney) Study" pp.171-210 of *Seventh Australian Transport Research Forum Papers*, Volume 1, Hobart

Minister for Transport and Communications (1987) *Federal Airports Corporation on Track* Media Statement 53/87, issued 22 December 1987

Minister for Transport and Communications (1988): *Reshaping the Transport and Communications Government Business Enterprises* Canberra: AGPS.

Trade Practices Commission (1986) *Guidelines for the Merger Provisions of the Trade Practices Act 1974* Canberra

Trade Practices Commission (1987) *East-West Airlines Limited* Media Release 87/19, Canberra 10 November 1987

Trade Practices Commission (1988a) *TNT/News Divestiture of Skywest* Media Release 88/12, Canberra 6 September 1988

Trade Practices Commission (1988b) *TPC Final Decision on Skywest* Media Release 88/15, Canberra 28 September 1988

Trade Practices Commission (1988c) *Decision in Respect of Divestiture by Ansett Interests of Certain Parts of East-West Airlines* Canberra 28 September 1988

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- W.P. Hogan Economic Papers, No. 55, The Economic Society of Australia and New Zealand
- I.G. Sharpe & P.A. Volker Economics Letters, 2, (1979)
- I.G. Sharpe & P.A. Volker Kredit and Kapital, Vol. 12, No.1, 1979
- W.P. Hogan Some Calculations in Stability and Inflation, A.R.Bergstrom et.al. (eds), John Wiley and Sons, 1978
- P. Gill Australian Economic Papers, Vol. 19, No. 35, December 1980
- I.G. Sharpe Journal of Banking and Finance, 4, 1980
- B.L. Brown Australian Journal of Management, Vol. 3, No. 1, April 1978
- I.G. Sharpe & P.A. Volker The Australian Monetary System in the 1970s, M. Porter (ed.), Supplement to the Economic Board 1978
- V.B. Hall Economic Record, Vol. 56, No. 152, March 1980
- I.G. Sharpe & P.A. Volker Australian Journal of Management, October 1979
- W.P. Hogan Malayan Economic Review, Vol. 24, No. 1, April 1979
- P. Saunders Australian Economic Papers, Vol. 19, No. 34, June 1980
- W.P. Hogan Economics Letters, 6 (1980)
- I.G. Sharpe & P.A. Volker Economics Letters, 7 (1981)
- W.P. Hogan Australian Economic Papers, Vol. 18, NO. 33, December 1979
- R.W. Bailey, V.B. Hall & P.C.B. Phillips Keynesian Theory, Planning Models, and Quantitative Economics, G. Gandolfo and F. Marzano (eds.), Vol. II, 703-767, 1987
- C.R. Kohli Australian Economic Papers, Vol. 21, No. 39, December 1982
- C. Mills Journal of the Operational Research Society 33, (1982)
- C.R. Kohli Canadian Journal of Economics, Vol. XV, No. 2, May 1982
- W.J. Merrilees Applied Economics, Vol. 15, February 1983
- P. Saunders Australian Economic Papers, Vol 20, No. 37, December 1981
- W.J. Merrilees Canadian Journal of Economics, Vol. XV, No. 3, August 1982
- W.J. Merrilees Journal of Industrial Economics, Vol. XXXI, March 1983
- C.R. Kohli Review of Economic Studies, Vol. L(1) No. 160, January 1983
- P. Saunders Economic Record, Vol. 57, No. 159, December 1981
- J. Yates AFSI, Commissioned Studies and Selected Papers, AGPS, IV 1982
- J. Yates Economic Record, Vol. 58, No. 161, June 1982
- C. Mills Seventh Australian Transport Research Forum-Papers, Hobart, 1982
- V. B. Hall & P. Saunders Economic Record, Vol. 60, No. 168, March 1984
- P. Saunders Economic Record, Vol. 59, No. 166, September 1983
- P. Gill Economie Appliquee, Vol XXXVII, 1984, No's 3-4, pp. 523-541
- C. Mills & W. Coleman Journal of Transport Economics and Policy, Vol. XVI, No. 3, September 1982
- J. Yates Economic Papers, Special Edition, April 1983

61. S.S. Joson Australian Economic Papers, Vol. 24, No. 44, June 1985
62. R.T. Ross Australian Quarterly, Vol. 56(3), Spring 1984
63. W.J. Merrilees Economic Record, Vol. 59, No. 166, September 1983
65. A.J. Phipps Australian Economic Papers, Vol. 22, No. 41, December 1983
67. V.B. Hall Economics Letters, 12, (1983)
69. V.B. Hall Energy Economics, Vol. 8, No. 2, April 1986
70. F. Gill Australian Quarterly, Vol. 59, No. 2, Winter 1987
71. W.J. Merrilees Australian Economic Papers, Vol. 23, No. 43, December 1984
74. J. Yates Australian Quarterly, Vol. 56 (2), Winter 1984
77. V.B. Hall Economics Letters, 20, (1986)
78. S.S. Joson Journal of Policy Modeling, Vol. 8., No. 2, Summer 1986
79. R.T. Ross Economic Record, Vol. 62, No. 178, September 1986
81. R.T. Ross Australian Bulletin of Labour, Vol. 11(4), September 1985
82. P.D. Groenewegen History of Political Economy, vol. 20(4), Winter 1988
84. E.M.A. Cross,  
W.P. Hogan &  
I.G. Sharpe Australian Economic Papers, Vol. 27, No. 50, June 1988
94. W.P. Hogan Company and Securities Law Journal, Vol. 6, No. 1, February 1988
97. F. Gill Australia's Greatest Asset: Human Resources in the Nineteenth and Twentieth Centuries, D. Pope (ed.), Federation Press, 1988
99. R. Ross Australian Bulletin of Labour, vol. 15(1), December 1988
101. J. Piggott Public Sector Economics - A Reader, P. Hare (ed.), Basil Blackwell, 1988
107. B.W. Ross Prometheus, vol. 6, No. 2, December 1988
108. S.S. Joson Rivista Di Diritto Valutario e Di Economia Internazionale, vol. 35, No. 2, June 1988