

WORKPLACE EXCHANGE OF PERSONNEL BETWEEN COMPANIES IN AUSTRALIA AND IN JAPAN: ECONOMIC/ TECHNOLOGICAL ADVANTAGES AND POLICY CONSIDERATIONS

by

Clem Tisdell*

ABSTRACT

This paper examines the suggestion that Australia and Japan should exchange company personnel on secondment in order to provide on-the-job experience for them and improve knowledge of and communication between these countries and the business communities involved in order to diversify their trade and increase technological transfer. Because of the changing trade balance between Australia and Japan, in part due to Japan's focus on knowledge-intensive industries, the Australian Government perceives a need for Australia to obtain greater penetration of the Japanese market in manufactured and more knowledge-intensive commodities. The scheme could also help Japan to sell more technology to Australia and in general increase transfer of technology between the countries. Useful organizational attitudes and attributes may also be transferred. However, the costs of an exchange scheme must be weighed against its benefits and compared with alternative strategies and considerations, including the scope for penetrating other markets and transferring technology from other countries.

Introduction

Australia and Japan do not at present have governmental backed schemes for

* Professor of Economics, University of Newcastle, 2308, Australia.

This paper is based upon a presentation to a Workshop organized by the Japan Secretariat, Canberra. I wish to thank Workshop organizers and participants, as well as Mr K. Ono, Japanese Language Section, University of Newcastle, A. Ekahitanond and A. Magai for their comments on the original material. The usual *caveat* applies.

exchanging personnel between their businesses so that such personnel obtain on-the-job experience in each others country. This contrasts with the European Communities which have an Executive Training Programme in Japan (Delegation of the Commission of the European Communities in Japan, 1983). While the Australia-Japan Foundation is one of the main Australian body promoting exchange between Australia and Japan, few if any, of its grants are to support on-the-job business experience. Indeed, by far the majority of grants in value terms are to individuals not directly involved in business although it might be observed that \$30,000 was used in 1982/83 to support "visits to Japan by groups of Australian trade union officials to observe management/worker relationships and role and structure of unions in counterpart or related Japanese industries". (Australia-Japan Foundation, 1983). A large number of Australian students (about 400) are on exchange in Japan either at high school level, undergraduate or postgraduate university level sponsored by a variety of organizations. However, such exchanges are not designed nor intended to give in-house business training.

The purpose of this paper is to consider the economic advantages and disadvantages to Australia and Japan of promoting workplace business exchanges. Apart from cultural benefits, there may be advantages for trade both in products and in know-how. Such exchange may lead to the direct transfer of skills, improve the knowledge of participants about economic potentials in the country visited, establish business communication links and reduce misunderstanding and in general reduce the transaction costs involved in trade between the countries.

It is important to consider personnel exchanges in view of the importance of bilateral trade both to Australia and Japan. While such exchange is likely to be advantageous even when language and cultural differences between countries are similar, in the case of Australia and Japan there are significant differences in language and culture, Australian culture being essentially a Western one. Saracheck et al. (1984, p. 181) say in this respect that:

"A substantial literature suggests that Japan succeeded in modernizing its economy while retaining much of the uniqueness of its cultural values... Lacking a significant history of Western colonization, Taiwan and South Korea have also developed without abandoning many of the traditional values. In Malaysia and other Asian countries that have experienced Western colonial occupation, however, economic development has probably been accompanied by substantial westernization of values" As far as Japan is concerned, this is given support by a British team which studied "the experience of Japanese companies in industrial relations and employee participation, and how they have involved their workforce in the introduction of new technology" (Bell, 1981).

Outside of Japan, Australia is reputed to have the highest per capita ratio of students learning Japanese of any country. (High-level Trade Mission to Japan, 1984).

However, this resource is not being effectively tapped by Australian businesses to expand markets in Japan. Indeed, the Australian High-Level Trade Mission to Japan (1984) reported that in Australian business there is a lack of appreciation of Japanese culture and business practice and this inhibits effective communication at the business level. The Mission recommended that to overcome this problem consideration be given to 25 scholarships per annum for young Australian business representatives "to spend a year in Japan working on secondment to major corporations and trading companies" and that a similar number of Japanese representatives spend a year on secondment in Australian industry (High-Level Trade Mission to Japan, 1984). Concern about this matter has arisen from Australia's declining trade balance with Japan and the desire of Australia to expand its exports of manufactures. Let us consider this matter.

International Trade and Exchange of Personnel

Australia is Japan's most important single source of imported raw materials (excluding oil) and Japan is Australia's main export market. While the balance of trade between Australia and Japan used to be very much in Australia's favour, this is no longer so, even though a favourable trade balance continues. Statistics given in Table 1 indicate the changing position.

Furthermore, the room for expanding exports of Australian primary products to Japan may be limited for a number of reasons such as competition from other suppliers, slower growth rates of the Japanese economy and the reduction in the material resource - intensiveness of the Japanese economy. (Tisdell, 1984, 1985). In addition, a number of economic risks face countries that are *heavily* dependent on exports of primary products as a source of income (Economic Commission for Latin America, 1951, Prebisch, 1959). These include the possibility of a long-term deterioration in the terms of trade and fluctuations in commodity prices. In the light of this and given an imbalance in the nature of trade between Australia and Japan, Australia should take advantage of openings for the export of non-primary products to Japan. The exchange of personnel from companies in Australia and Japan could help.

TABLE 1 : AUSTRALIAN TRADE SURPLUS WITH JAPAN AS A PERCENTAGE
OF AUSTRALIAN EXPORTS TO JAPAN FOR SELECTED YEARS

YEAR	%	YEAR	%
1957-58	76.81	1979-80	50.16
1967-68	53.46	1980-81	30.5
1977-78	45.79	1981-82	6.49
1978-79	40.95	1982-83	24.42

Source : Based on official Australian trade statistics

A business personnel exchange scheme, such as that suggested by the High Level Trade Mission in Japan (1984), could help Australian companies obtain access or improve access to markets in Japan. As a result of the scheme, Australians should be able to discover additional opportunities for export to Japan. Furthermore, contacts and connections established should help turn opportunities into realities. The European Communities Executive Training Programme in Japan (Delegation of the Commission of European Communities in Japan, 1983) seems to have already had positive benefits of this type for Europe. In addition, Australians training in Japan may discover commodities and ideas that Australia can beneficially import from Japan. Japanese executives studying in Australia under the exchange scheme should have similar effects from Japan's point of view. Increased trade and exchanges of ideas can be *mutually* beneficial to both nations. Even if the scheme involved only Australians going to Japan, it could still be mutually beneficial to Japan and to Australia.

As evidence of Australian concern about its declining trade balance with Japan, a Japanese government trade mission visited Australia in November 1984. This Japanese Market Access Promotion Mission was in response to earlier talks of the Australian Prime Minister with the Japanese Prime Minister. "Worried about the declining importance of Australia's traditional resource exports as Japan restructures into high-tech, knowledge-intensive industries for the next century, Mr. Hawke asked Mr. Nakasone for help in developing new export industries" (*The Weekend Australian*, 1984, p. 19). The high-level Japanese Trade Mission suggested a number of strategies that Australia could adopt to increase Australian exports to Japan. These included strengthening price competitiveness, studying Japanese consumer demands more carefully, safeguarding intellectual property, development of joint ventures and encouraging young businessmen to spend time in Japan (Munton, 1984a). The Mission indicated that the Japanese Government is taking steps to improve access to Japanese markets. Joint ventures with foreign companies are being fostered by Japan. "The importance of forming partnerships with the Japanese and using the Japanese distribution network has been particularly emphasised during this Mission" (Munton, 1984a, p. 37). The Mission also suggested that through the Japanese Specific Products Trade Expansion Program (STEP) Japan might be able to assist Australian manufacturers to penetrate the Japanese market in selected products. "The Mission have also proposed that in 1985 and 1986 young Australian businessmen be invited to spend time in Japan". (Munton 1984a p. 37). Such exchange should improve bilateral business communication.

As the nature of Australian trade with Japan alters, the need for improved business communication between Australia and Japan is likely to increase. Sales of raw materials involve bulky relatively standardised commodities and usually sales between large producers and communication costs and negotiation costs are relatively low. Agreements are often government to government or involve large Australian companies acting through

Japanese trading houses. However, manufactured commodities are more diverse and in many cases must be marketed directly to consumers or to smaller companies involved in distribution. According to a manager of one of Japan's largest advertising agencies (Munton, 1984b, p. 38), "communication with potential Japanese customers could be the most costly part of entry into the Japanese market" by Australian manufacturers because compared to the Australian consumer "the Japanese consumer had a very different history and culture which had to be understood to create the most effective advertising approach."

Exchange of business personnel on secondment should be valuable in promoting contracts between Australian and Japanese manufacturers and other enterprises because they are likely to reduce transaction costs, including costs of making contact and developing trust. By improving the information available to both parties, such personnel exchanges also improve the prospects of business contracts being entered into because the risks faced by contracting parties are lowered (Cf. Cheung, 1969; Brown & Jackson, 1982). Such factors are not only important in the sale of products but also in the international transfer of technology.

Technology and Skill Transfer

Technology transfer is an important aspect of international trade. Teece (1977, p. 242) suggests that "the economic growth of every nation is inextricably linked to the successful international transfer of technology". All nations import a considerable proportion of their technology. Australia as a comparatively small economy is particularly dependent on foreign technology for its economic well-being (Ganicott, 1982). On the other hand, Australians do have technological skills of their own and have some technology to export directly or embodied in products. Australia, however, is far from a major exporter of technology-based products. (Minister for Science and Technology, 1984, p. 169, et seq.) Nevertheless, Australia has an interest both in the import and export of technology.

Despite the importance of Australian-Japanese trade, Japan has been a comparatively small source of technology for Australis. It is difficult to measure trade in technology precisely but the data set out in Table 2 give some indication of the position as far as Australian technology imports from Japan are concerned. Technology imports from the U.S.A. are by far the greatest, those from the U.K. are large and even imports from West Germany exceed those from Japan several fold.

The transfer of technology between companies is not costless. Teece (1977) found from a sample of companies, that international technology transfer costs added 19% on average to projects. Teece points out that language and cultural and additudinal differences can add to transfer costs and create barriers. He says "language differences

TABLE 2 : PAYMENTS OVERSEAS FOR TECHNICAL KNOW-HOW BY PRIVATE
ENTERPRISES, AUSTRALIA : 1976-77 AND 1978-79.

COUNTRY TO WHICH PAYMENTS WERE MADE	% 1976-77	% 1978-79
U. S. A.	54.3	62.9
U. K.	20.9	13.4
Federal Republic of Germany	7.5	8.2
France	4.3	2.3
Japan	3.1	2.7
Canada	1.8	1.0
Other countries	8.0	9.3
Total	100.0	100.0

Source : Based on Hill and Johns (1983), p. 149.

can add to communication costs, especially if the translation of engineering drawings is required. The experience of Polyspinners at Mogilev in the Soviet Union (Jones, 1973) is ample testimony to the extra cost than can be encountered... Additional sources of difficulty are rooted in the cultural and attitudinal differences between nations, as well as differences in the level of economic development and the attendant socioeconomic structure" (Teece, 1977, pp. 255-256). One factor contributing to the relatively low level of Australian technology trade with Japan could be language barriers and cultural differences.

Despite these difficulties, as Japanese direct investment in Australia increases (and especially as Japan's proportionate amount of direct investment in Australian manufacturing rises) an increase in Australian technology imports from Japan can be expected. While Japanese direct investment in Australian industry is comparatively small, it is expanding. For example, Mitsubishi manufactures cars in Australia having acquired Chrysler's plant in Adelaide. Furthermore, the increasing emphasis of Japan on knowledge-intensive industries and rising Japanese expenditure on R & D can be expected to increase the importance of Japan as a worldwide supplier of new technology. This factor also should work in favour of Australia importing more technology from Japan.

Although Australian direct investment in business in Japan is embryonic, some companies have successfully begun operations there. These include the Myers Emporium group (manufacturing sheep skin seat covers) and a small Australian veterinary products firm distributing its products and exploiting gaps in the Japanese market. Such ventures could be facilitated if a group of young Australian businessmen have a good working knowledge of their industry in Japan and this may also foster transfer of Australian technology to Japan. With international direct investment by companies the communication requirement of management expand considerably (Chorofas, 1969).

TABLE 3: METHOD OF TRANSFER OF 102 IMPORTANT IDEAS USED
IN AWARD-WINNING INNOVATIONS AND OBTAINED FROM
OUTSIDE THE FIRMS WINNING THE QUEENS AWARD FOR
INDUSTRY IN U.K.

Transfer via person joining the firm	20.5
Common knowledge via-industrial experience	15.0
-education	9.0
Commercial agreement (including takeover and sale of know-how)	10.5
Literature (technical, scientific and patent)	9.5
Personal contact in U.K.	8.5
Collaboration with-supplier	7.0
-customer	5.0
Visit overseas	6.5
Passed on by government organization	6.0
Conference in U.K.	2.5
Consultancy	2.0
Total	102.0

Note: 0.5 indicates that some sources are not mutually exclusive

Source: Based on J. Langrish *et al*, (1972), *Wealth from knowledge*, Macmillan, London, Table 7.

Turning to the process of transfer of technology. This process can be complex. One needs to identify technology that might be suitable for transfer, specify it in some way and take action to translate the specifications into reality. All this requires creativity, search, knowledge and trial-and-error. Few techniques can be successfully transferred purely by means of specification in a written document (Teece, 1979; Lowe, 1984). First hand contact is important. Much knowledge is in fact transferred informally or by the movement of people (Cf. *Report of the Committee of Inquiry into Small Firms*, 1972). Table 3 indicates that formal agreements are on the whole a minor source of technology exchange. Evidence from Japan concerning small and medium firms supports this view (Saito, 1974).

The question might be asked whether small and medium sized enterprises (SMEs) are well placed to transfer technology. Lowe (1984) finds that such firms are less likely to be engaged in licensing than larger firms. This, however, is not to say the SMEs cannot be important agents of technology transfer and it is important that they not be neglected in any scheme for exchange of business personnel.

In the area of technology transfer, it is important for personnel to be well trained in the areas of technology and industrial practices that interest their companies. They require relevant skills for communicating about technology. Expertise in the Japanese language without complementary skills and knowledge and appropriate industrial areas is likely to be of little value. One can only agree with the view that there is need for training in basic industrial skills and relevant industrial knowledge and Japanese should

be learnt as an important complement to those skills (Cf. *Australia-Japan Foundation*, 1979). In this respect the European scheme, which requires at least 2 years work experience from applicants, has much to recommend it.

Transfer of Organizational Attributes and Attitudes

It is possibly unlikely that host firms will introduce invited guest personnel to techniques of considerable value that might give the sponsor a competitive advantage and which could be informally transferred. Host companies may understandably wish to protect their intellectual property, not all of which can be guarded by legal means. An exception might be where an agreement already exists for the transfer of the appropriate skills or techniques. On the other hand, if on-the-job experience is to be obtained as a result of the exchange it is important that the visitor not be relegated to the periphery of the company.

The success of Japanese business, however, is not due solely to the state of its technology. Industrial relations and industrial practices also play a role in Japan's economic success. In this respect Bell (1981, p. 4) notes that:

"There are of course many characteristics that are peculiar to Japan, many attitudes and behaviour patterns and practices that are rooted in Japanese culture, and are certainly not transferable to a Western cultural environment. We cannot simply lift the whole package of Japanese industrial relations and industrial practices and transplant them into British or European soil. But the non-transferable elements are not the real key to Japan's success".

He goes on to suggest that the best elements of current Japanese industrial practices and policies can be grafted onto those in Britain.

Company personnel on secondment are likely to become very familiar with general industrial practices and attitudes. Bell (1981) suggests that quality circles, group involvement, definition of group tasks and election of group leaders play an important role in Japan's industrial success. Secondees are likely to become aware of different approaches to business decision-making. For instance, one of the participants in the executive training programme in Japan of the European Communities said after 6 months in-house training in C. Itoh & Co. Ltd. that:

"Problems are approached differently in Japanese companies. There is a long and exhaustive preparation, where all aspects are analyzed before making a decision... The Western approach is rather different, almost opposite: the decision often comes before the preparation when starting a new project". (Delegation of the Commission of the European Communities in Japan, 1983, p. 14).

While it may be possible and desirable to transfer some Japanese management practices and business attitude, in this respect one has to be selective. As Basu (1968,

p. 11) points out, "management philosophy and principles evolved in one country can usually be applied across cultural frontiers, but their application for practice must necessarily reflect cultural differences."

General Economic and Practical Issues

Experience with the European Communities program is indicative of the possible costs and benefits of a secondment scheme designed to give on-the-job experience to foreign executives in Japan. The scheme was introduced in 1979 and approximately 100 trainees aged 25-38 years have benefited from it. The course is of 18 months duration with 12 months intensive Japanese language study followed by 6 months in-house experience in a Japanese company. The recipient of the awards are placed with Japanese companies by the Japanese Federation of Economic Organizations (Keidanren) and lectures and seminars about Japan are given over the whole training period. Many of the recipients have stayed on in Japan after their training to represent their original sponsor companies and a couple have joined Japanese companies. European companies are becoming increasingly aware of the benefits of the scheme and competition for places is increasing.

The scheme, however, is far from costless. The direct cost of training an employee is believed to be around \$70,000. These costs are currently met by the European Community (E.C.). However, to this cost must be added other attributable costs such as the cost of E.C. general administration and selection procedures and administrative costs borne by the E.C. Delegation in Tokyo. The 'sponsor' company also bears some cost in so far as it has a productive staff member out of service for the period of the traineeship. The host company and Keidanren also have some additional costs on account of the scheme because of their 'duty of care'.

The question arises of who should pay for the costs of such an exchanges scheme. Should companies sponsoring a staff member do so or should the staff member pay or should the government pay or should the cost be shared? These are difficult issues to determine but on market failure grounds, there could be a case for the government of the home country of trainees to subsidize the scheme. Not all the benefits from the exchange are likely to go to the trainee or the company sponsoring the trainee. A trainee on his/her return or subsequently may transfer to another company in his/her own country which may take advantage of his/her special skills or knowledge. Hence, the sponsor would not recoup or only recoup a proportion of his contribution to the exchange scheme. This may be a particular problem for smaller companies. Where staff movements of this kind occur, sponsors confer an external economic benefit on other firms or institutions.

It may also be that government assistance is required to provide sufficient momentum

to the exchange pattern so that it reaches sufficient size to become self-sustaining or sustaining without continuing government subsidy. (This argument is similar to infant industry one.) There may also be risk arguments in favour of government financial assistance for such schemes and/or the provision of 'seeding money' for them (Cf. Tisdell, 1981, p. 4).

In assessing the scheme one needs to take account of alternatives and the most effective method of achieving the economic objective of expanding trade. The alternatives to be considered should include the possibility of employing Japanese nationals fluent in English. In fact, Australia seems to rely rather heavily on this avenue at present. It has the advantage that such individuals are available and hence have a better working knowledge of Japanese society than Australians could ever hope to attain. On the other side of the coin such employees would be less familiar with Australian society than Australians fluent in Japanese. Hence, in large companies having extensive trading relations with Japan there would be a place for both types of employees. One may also wonder about the extent to which foreign employers can like and perceive trade opportunities and be motivated to pursue there for a parent company located some way off.

From a practical point of view consideration must be given to the most effective type of training given the sums to be budgeted for it. To what extent should training of future Australian exchange personnel be carried out in Australia? What should the curriculum contain? What criteria should be used to select trainees?

It is clear that a training in Japanese language is not *in itself* a suitable guide to the selection of trainees. As suggested by the Australia-Japan Foundation (1979), "Unless the employee wishes to become a professional interpreter, it is advisable that he obtain qualifications or commercial experience in other fields, such as business, accounting, law. From the business viewpoint, a person with a top degree in say economics or law who also speaks Japanese would be much more attractive than a top Japanese student with some background in economics or law."

Australian students of Asian languages and societies have had considerable difficulty in finding employment using their skills (AASA, 1980, p. 16). In many cases this has been because their training has not been combined with suitable other vocational studies. There is an urgent need to remedy this deficiency in Australian tertiary education. In addition, the Asian Studies Association of Australia claims that Australian firms and government departments do not sufficiently appreciate the advantage of employing such graduates. The Association expresses the following opinion:

"The often-expressed view that Australia's dealings with Asian countries can be conducted quite satisfactorily in English alone, and by people without any specialist knowledge of the countries concerned, reflects short-sightedness and ignorance of the realities of communication across cultural boundaries. Problems are caused and

opportunities lost through linguistic misunderstandings... Effective dealings with the countries of the region should require the employment of Australians with a combination of linguistic skills and other expertise relevant to those dealings. To date, people have not been encouraged to acquire those skills. As a nation we are not equipping ourselves to promote our own interests in the Asia-Pacific region". (AASA, 1980, p. 19).

Australia also needs to consider whether it is wise for it to concentrate solely on exchanging business personnel with Japan. It has other important trade links in the Pacific. For example, with New Zealand, U.S.A., ASEAN countries, Taiwan and Korea and trade with China is expanding rapidly. Any scheme that is devised by Australia should ideally be assessed in terms of its overall policy for trade expansion, marketing and market penetration. It may be that other overseas markets are also at the stage where economic benefits would flow from an international business secondment scheme in these. The economic benefits in one country should be weighed against those in other countries to maximize returns from the allocation of funds provided for a business exchange scheme.

Clearly the trading relationship between Australia and Japan is changing. This calls for adjustments in Australian trade policy. In this respect, Australia is aiming to expand its exports of raw materials and primary products to countries other than Japan such as China. It hopes also to find ways of expanding its exports of manufactures and Japan is one of its current prime targets in this respect. Exchange of personnel between companies in Australia and in Japan therefore need to be assessed in the light of this goal.

REFERENCES

- Anon. (1981), "Stimulating Innovation in Small Firms", *The OECD Observer*, No. 113, 21-25.
- Australia-Japan Foundation, (1979), "Employment Prospects for Australian Graduates of the Japanese Language", Sydney.
- (1983), *Annual Report 1982-83*, Australian Government Publishing Service, Canberra.
- Basu, K.S. (1968), *Management Similarities and Differences under Different Cultures*, Nederlands Instituut voor Efficiency, Rotterdam University Press, Rotterdam.
- Bell, D.W. (1981), "Report on Japan", *Industrial Participation*, No. 574, pp. 4-20.
- Brown, C.V. & Jackson, P.M. (1982), *Public Sector Economics*, 2nd revised edition, Martin Roberson, Oxford.
- Cheung, S. (1969), "Transaction Costs, Risk Aversion and the Choice of Contractual Arrangements", *Journal of Law and Economics*, Vol. 12, pp. 23-42.
- Chorofas, D.N. (1969), *The Communication Barrier to International Management*, American Management Association, New York.
- Delegation of the Commission of the European Communities in Japan (1983), *The European Communities Executive Training Programme in Japan*, Tokyo.

- Economic Commission for Latin America (1951), *Economic Survey of Latin America, 1949*, United Nations, New York.
- Ganicott, K. G. (1982), *Australia's Dependence on Foreign Technology*, Department of the Parliamentary Library, Canberra.
- High-Level Trade Mission to Japan (1984), *Report*, Department of Trade, Canberra.
- Hill, H. and Johns, B. (1983), "The Transfer of Industrial Technology to Western Pacific Developing Countries", *Prometheus*, Vol. 1, 60-83.
- Langrish, J., Gibbons, M., Evans, W. G. & Jevons, F. R. (1972), *Wealth from knowledge: Studies of Innovation in Industry*, Macmillan, London.
- Lowe, J. (1984), "Competitive Strategy Through Technology Licencing for the Small Firm", *Industry Economics Discussion Paper*, University of Newcastle, 2308, Australia.
- Minister for Science and Technology (1984), *Science and Technology Statement 1983-84*, Australian Government Publishing Service, Canberra.
- Munton, J. (1984a), "Trade Mission's Magnificent Seven", *Australian Financial Review*, 28 November, 1984, p. 37.
- (1984b), "Exporters Must Learn How to Communicate", *Australian Financial Review*, 28 November, 1984, p. 38.
- Prebisch, R. (1959), "Commercial Policy in the Underdeveloped Countries", *American Economic Review*, Vol. 49, 251-273.
- Report of the Committee of Inquiry into Small Firms*, (1972), H. M. S. O., London.
- Saito, M. (1974), "Diffusion Mechanism of Technology and Industrial Transformation: Cost of Small Scale Industries in Japan", pp. 161-176 in *Transfer of Technology for Small Industries*, OECD, Paris.
- Sarachek, B., Hamid, A. A., and Ismail, Z. B. (1984), "An Opinion Survey of Malaysian Middle Level Managers and Professionals", *Asia Pacific Journal of Management*, Vol. 1, pp. 181-189.
- Teece, D. J. (1977), "Technology Transfer by Multinational Firms: The Resource Cost of Transferring Technology know How", *The Economic Journal*, Vol. 87, 242-261.
- Tisdell, C. A. (1981), *Science and Technology Policies: Priorities of Governments*, Chapman and Hall, London and New York.
- (1984), "Technological Change in Australia and Japan and its Transfer: A Persepective on Australia-Japan Relationships and the Pacific", *Industry Economics Discussion Paper*, No. 24, University of Newcastle, 2308, Australia.
- (1985), "Technological Change and Transfer in the Pacific: The Position of Australia and Japan", *Australian Outlook: The Australian Journal of International Affairs*, forthcoming.