CONFERENCE PROCEEDINGS

ECONOMICS '94

A NATIONAL ECONOMICS TEACHERS' CONFERENCE

Edited by Tim Riley

ERC

The Economics Education Resource Centre

The main purpose of the Economics Education Resource Centre (EERC) is to encourage a better understanding of the principles of economics and to promote their practical application. Secondary economics teachers are the main target group and they are encouraged to telephone, write, fax or visit the EERC for assistance with resources on a range of topics.

The major functions of the EERC include:

- Accumulation of a comprehensive resource base.
- Organisation of professional development days, seminars and conferences.
- Development of new resources for economics teachers.
- Liaison with other Australian economics teachers' associations.
- Publication of *The Economics Education Review*.

The present bank of resources at the EERC includes the following:

Textbooks	Reference books
Videos	Country case study information
RBA bulletins	Past examination papers
Topic box information	Journals of economics associations
Audio tapes	Stock exchange/Futures information
Company reports	Bank bulletins and newsletters

The EERC sells many of the lecture papers presented at the range of professional development activities run throughout Australia. These papers cover topics such as Macroeconomic Management, Labour Economics, International Trade, Industry Economics, Microeconomic Reform, Environmental Economics, Comparative Economics, Development Economics, Income & Wealth Distribution and Evolution of Economic Ideas.

Contact:
Tim Riley, Director
The Economics Education Resource Centre
4th Floor, 38 Oxley Street
St Leonards 2065
Mail to:
PO Box 92 St Leonards NSW 2065.
Hours:
8.30am – 6.00pm, Monday to Friday.
Ph: (02) 438 4377 • Fax: (02) 439 7310

ECONOMICS '94

CONFERENCE PROCEEDINGS

CREATING JOBS BY INVESTING IN GROWTH

ECONOMICS '94

CONFERENCE PROCEEDINGS

CREATING JOBS BY INVESTING IN GROWTH

edited by
TIM RILEY

EERC The Economics Education Resource Centre 1994

Published September 1994 by
The Economics Education Resource Centre
a division of The Centre for Independent Studies Limited
ACN 001-495-012
All Rights Reserved

Views expressed in the publications of The Economics Education Resource Centre and The Centre for Independent Studies are those of the authors and do not necessarily reflect the views of the Centre's staff, Advisers, Trustees, Directors or officers.

National Library of Australia
Cataloguing-in-Publication Data:

Economics '94, conference proceedings:
creating jobs by investing in growth.

Includes bibliography and index.
ISBN 0 949769 99 1.

1. Economics – Congresses. 2. Economics – Study and teaching (Secondary) – Australia – Congresses. 3. Saving and investment – Australia – Congresses. 4. Job creation – Australia – Congresses. 5. Australia – Economic conditions, 1965 – Congresses. I. Riley, Tim, 1953- . II. Economics Education Resource Centre. III. Title: Creating jobs by investing in growth.

330.994

Sponsored by

AUSTRALIAN STOCK EXCHANGE
LIMITED

and

© 1994 The Centre for Independent Studies Ltd.
Designed by Heather M. Clements.
Printed by Australian Print Group, Maryborough, Victoria.
Typeset in 9 point Palatino and Futura.

CONTENTS

EDITORIAL NOTE

This is the fourth book in a series which records the proceedings of the National Economics Teachers' Conference organised by the Economics Education Resource Centre (EERC). **Economics '94** was held at Shell House in Melbourne over July 5th and 6th 1994.

Ten papers were presented to the conference by economists and educators under the theme of **'Creating Jobs by Investing in Growth'**. The conference theme addressed the issue of Australia's prospects for higher economic growth in the medium term and the likelihood of a permanent fall in unemployment, especially long term unemployment. Of equal importance was a discussion of the policies needed to encourage private sector investment to underpin a sustained rise in growth and employment.

I am indebted to all of the speakers who gave permission for their papers to be published and for their co-operation in dealing with matters of consistency in style and presentation. Indeed one of the difficulties in editing a set of conference papers is the degree of consistency that has to be achieved. The quality of the content and analysis contained in the papers presented in *Economics '94 Conference Proceedings* is a reflection of the authors' attention to detail and expertise in their chosen field. The book is a valuable resource for teachers and students of economics at the secondary level. Librarians will also find it a valuable reference for the school library.

I wish to thank Heather Clements for her creative and technical expertise in preparing the manuscript so quickly for publication and Helen Collins and Andrew Norton for their assistance with proof reading and editing. My thanks must also be extended to Betty Ernst and the staff at Shell House for their help with conference organisation. I would also like to thank the teachers and resource exhibitors who attended the conference and contributed to its ultimate success. Such commitment to professional development is laudable and hopefully their students will be the ultimate beneficiaries of conference information on the latest trends in the Australian and world economies.

Finally I would like to acknowledge the Australian Stock Exchange Limited as the major conference sponsor and the Australian Bankers' Association (ABA) as conference sponsor. My thanks must also go to Christine Reid and Sue Corcoran from the ABA for their assistance with conference registration and organisation. The EERC is also indebted to The Shell Company of Australia Limited for supporting Economics '94 by making their Melbourne theatrette available for the conference.

Tim Riley

INTRODUCTION

TIM RILEY

The Australian economy emerged from recession in the second half of 1991, but the recovery was initially very weak, slow and restricted to the household and housing sectors. It was termed the 'jobless recovery' because even though real GDP was rising, employment growth was negligible, and unemployment remained at unacceptably high levels. Recovery strengthened in 1993-94, but there was no discernible fall in unemployment, and business investment continued to be weak. However, the strong growth recorded in 1994 led the government to forecast in its May 1994 budget growth of 4.5 per cent for 1994-95, largely driven by a pick up in private business investment of 14.5 per cent.

A sustainable recovery where strong economic growth leads to job creation and investment spending (without high inflation and external debt) was encapsulated in the Economics '94 Conference theme of **'Creating Jobs by Investing in Growth'**. Each of the ten conference papers addressed particular issues raised by the conference theme in the context of providing a professional update for the teachers who attended Economics '94. Day one of the conference explored aspects of **'Australia's Recent Growth and Employment Performance'**.

Professor David Penington in opening the conference discusses the link between education and economic performance. He argues that recent government education policy has stressed increasing participation in education rather than an improvement in the quality of education. The high retention rates at the secondary level and increasing numbers of university graduates do not necessarily lead to better economic performance. Indeed, Professor Penington questions the supposed link between education, productivity and earnings which underlies much human capital theory.

His view of education stresses the need to equip people with a sound general education (emphasising literacy, numeracy and scientific knowledge) as a means of adapting to technological change and in fostering innovation, especially amongst young people. Over-emphasis on the development of vocational skills and key competencies may not necessarily lead to a more flexible work force capable of undertaking greater levels of research and development in the quest for an improvement in the performance of the Australian economy. Rather, teaching people how to learn and adapt to change is the key to improving economic performance.

Paul McCarthy of the Australian Bureau of Statistics (ABS) explains how the Australian national accounts measure economic growth, using the expenditure, incomes received and value added methods and he distin-

guishes between GDP (A), GDP (E), GDP (P) and GDP (I) as measures of growth. The comprehensive compilation of economic statistics in Australia allows international comparisons to be made quite readily and for researchers to analyse historical trends or forecast future trends. Time series data is presented for example on the relationship between changes in economic growth, investment and employment in Australia for the period 1974-1994.

Keeping pace with changes in the domestic economy and international trends is also a challenge for statisticians and the development of 'satellite accounts' to augment the data in the national accounts is a recent innovation. Paul devotes some detail to current issues in national accounting such as the measurement of unpaid work by households and accounting for the value of environmental amenities.

Alan Oster, the chief economist of the National Australia Bank, undertakes the task of analysing the Australian economy's recent growth performance and compares the National's forecasts with those in the government's 1994-95 budget papers. Whilst growth prospects have improved, there is yet to be a recovery in private business investment although capacity utilisation levels and business confidence are high. Either business is utilising capital more efficiently or is yet to be convinced of the permanence of the recovery in consumer spending.

In the policy area, a rise in interest rates is likely to prevent any rise in inflationary expectations and further fiscal austerity will be necessary to achieve the budget deficit reduction target of one per cent of GDP by 1996-97. Together with responsible macroeconomic policies, the government must push ahead with more microeconomic reform to make the Australian economy more efficient, flexible, dynamic and internationally competitive. Otherwise, we risk a return to the low growth/high inflation scenario of the 1980s where boom to bust cycles exacted a high cost in terms of job losses.

Trends in the Australian labour market is a theme analysed in some detail by **Professor Judith Sloan** and **Associate Professor Mark Wooden** from the National Institute of Labour Studies at Flinders University. Unemployment levels and long term unemployment in particular have remained high in OECD countries in the late 1980s and persisted into the 1990s. Data is also presented for international comparison of economic growth, employment growth, unemployment rates, unit labour costs, inflation rates and current account balances in the OECD area.

Structural changes have occurred in the Australian labour market according to occupations, industries, blue and white collar employment, full time and part time employment, across age groups and between males and females. These changes are found in the various tables presented in the paper.

The analysis of unemployment is interesting because it suggests a pattern in the 1990 recession that is quite different to the one that emerged in

the 1983 recession. A comparison of the profile of the unemployed in 1983 and in 1993 is highlighted. Recovery in 1991 was much weaker than in 1983 and unemployment much slower to fall. The prospects for employment growth is varied throughout the OECD because of the lack of synchronisation in the international cycle.

Australian labour market efficiency will also be influenced heavily by the effects of the new Industrial Relations Reform Act (IRRA) 1993, which sets out guidelines for the formulation of 'enterprise flexibility agreements' and 'certified agreements' and other matters such as secondary boycotts, safety net provisions and the 'no disadvantage test'. How will these guidelines affect the functioning of the labour market? Does the IRRA further entrench trade union power? What effect will its other important provisions have on the role of the Industrial Relations Commission (IRC) and the labour market? These are questions which the authors discuss in some detail as they explain the meaning of the new legislation and its implications for employers and employees.

Any improvement in Australia's medium term economic performance must rest on our ability to increase national savings. **Alex Frino** discusses the effects of transaction costs on saving and investment decisions in share trading. An analysis of brokerage fees, bid/ask spreads and stamp duty (as the main transaction costs) is undertaken using empirical evidence. The conclusion reached is that the abolition of stamp duty in countries like New Zealand, Finland, Sweden and Singapore has increased the turnover of share trading and the incentives for potential savers and investors to participate more actively in the process of equity financing. A similar policy initiative in Australia could assist in boosting the levels of national saving and investment and encourage foreign portfolio investment. It would also bring Australia into line with the USA which has never placed taxes on securities transactions.

Day two of the conference featured the theme of **'Policies Promoting Sustainable and Equitable Growth'**, with five presentations ranging from teaching methodology to a discussion of the most recent trends in income distribution. **Anita Forsyth** and **Judith McKenzie-Jesser** (using some of Edward de Bono's work on how to develop thinking skills) explore the theory behind the construction of concept maps with students, indicating the advantages and pitfalls of their use in the classroom to develop higher order thinking skills. Applying this approach to an article on 'sustainable development' enables students to identify concepts from 'object' and 'event' words as distinct from 'linking' words.

Additional strategies to cultivate thinking in the economics classroom are the use of 'fat' and 'skinny' questions which are cognitive organisers in teaching students the difference between lower order and higher order cognitive thinking skills. Fortune lines can be used to help economics

students to understand and analyse graphical information and the technique of 'prediction-observation-explanation' (POE) helps students to 'track' the economy by trying to forecast trends in key indicators like the level of unemployment and private business investment.

A case study of Australia's largest resource investment project, the North West Shelf Gas Project is presented by **Alf D'Souza** from Shell. He explains the criteria used by companies in evaluating the viability of investment projects and the size, lead time and enormous commercial and technical risks associated with the North West Shelf Gas Project. Natural gas accounts for 23 per cent of the world's primary energy supply, behind oil and gas. Liquefied natural gas (LNG) has become a major export earner for Australia and will earn about $2b in revenue a year after 1995, even at the depressed prices prevalent in 1993.

ORANI simulations reveal some interesting effects of the North West Shelf Project on macroeconomic variables (e.g. GDP, employment, inflation, exports, imports & taxation revenue) and the gross state product of Western Australia. The management of risk and uncertainty by the joint venture partners is also a major consideration in a project where 18 years have elapsed between the discovery of gas in the North West Shelf and the first delivery of gas to Japan in 1991.

Whilst Japan continues to be Australia's major trading partner, the dynamic Asian Tigers (Singapore, Taiwan, South Korea and Hong Kong), China and other countries in south east and north east Asia are becoming increasingly important markets for Australian resource, manufactured and service exports. **Paul O'Callaghan** (Australian Trade Commission) shares his views on the challenges that face Australia in its drive to invest in trade with Asia. Despite the success in establishing APEC (Asia Pacific Economic Co-operation), he argues that the attitudinal changes in Australians (especially in young people) needed to conduct successful business in Asia are still not forthcoming.

Regional trade is being freed up through the APEC and ASEAN (Association of South East Asian Nations) forums, but Australian business must locate 'on the ground' in Asia to exploit the trade and investment opportunities that are emerging.

Many developing countries place a higher priority on economic growth and development than on preserving the environment. The opposite is true of many developed countries which have the resources available to allocate for the preservation of environmental amenities. Visiting **Associate Professor Curt Anderson** (University of Minnesota) argues that economic development can be reconciled with the environment if markets are allowed to place a realistic value on the use of environmental goods and services through removal of government distortions on prices. Using a production possibilities model, he demonstrates that it is possible for a society to increase both

economic growth and environmental quality. This will occur if resources are properly managed and the costs of the choices we face are fully reflected in the prices paid for the use of those resources.

But how are the benefits of economic growth to be shared amongst society as a whole? This question is discussed by the Deputy Director of the Institute of Applied Economic and Social Research (University of Melbourne), **David Johnson**, who explores the various ways in which inequality can be measured. Calculation of Gini coefficients for gross income shares in Australia over 1989-90 reveals growing inequality in the distribution of income. However, calculation of inequality measures using equivalent after tax real income shares indicates a fall in inequality between 1985-86 and 1989-90.

The final section of David's paper discusses estimates of economic and social welfare performance in Australia from 1981-82 to 1989-90; and structural changes in the economy and changes in social welfare policy likely to affect distribution in the future. This research is interesting as it attempts to reconcile economic efficiency with social equity in the context of an economy undergoing structural reform and an increasing level of internationalisation.

Economics '94 Conference Proceedings is an interesting, relevant and useful collection of readings on the issues of education, economic growth, employment and unemployment, investment, trade, the environment and the distribution of income. Whilst it focuses on 'Creating Jobs by Investing in Growth', the book also contains some challenging teaching strategies to encourage critical thinking by students about economic issues. I hope that those who use the material contained herein will gain a deeper understanding of some of the most recent developments in the Australian economy and the need for ongoing economic reform to reduce the level of unemployment, especially long term unemployment. Only high and sustainable rates of economic growth driven by productive business investment will lead to a permanent rise in full time employment and a fall in unemployment.

CHAPTER 1

THE IMPORTANCE OF EDUCATION TO ECONOMIC PERFORMANCE

PROFESSOR DAVID PENINGTON

VICE-CHANCELLOR
THE UNIVERSITY OF MELBOURNE

David Penington is Vice-Chancellor of the University of Melbourne. He had postgraduate medical experience in England and America before returning to Australia to take up a position with the University of Melbourne's Faculty of Medicine. He later became Professor and then Dean of the Faculty. Professor Penington has been involved in and chairman of numerous community, medical and aid committees. He has been advisor to both the federal and state governments, including Chairman of the AIDS Task Force and the Australian Higher Education Industrial Education Association. He was a member of the Victorian Trade and Investment Board and the Board of the Council for International Business Affairs. He is a non-executive Director of Pacific Dunlop.

THE IMPORTANCE OF EDUCATION TO ECONOMIC PERFORMANCE

DAVID PENINGTON

Education is an end in itself for the individual. Accessing the thoughts of others and learning to explore ideas facilitates personal growth, social and cultural development, and a greater understanding of the world in which we find ourselves. These are essential aspects of education, which need to be developed for society's good.

We need to develop in people a capacity to make perceptive judgements about the important issues we face. Teaching about economics in a way that helps young people understand society better must be of great value. We need future leaders who have the capacity to understand economic issues, regardless of which course they choose, who have explored ideas relating to economic development, and have studied alternative ways of managing economies. Society is made up of people, but people must interact in an economic sense. Unless these issues are understood, effective development of society cannot be safeguarded.

Teaching young people to think independently, to investigate and research ideas, and to test the veracity of claims is important for the development of society. The contribution of education to social development is difficult to quantify. However, it is clear that education is widely assumed to provide economic benefits to both the individual and society.

The Economic Value of Education

The relationship between education and economic performance is a topic that has attracted much attention in the second half of this century. It is judged that investment in education increases the productivity and economic success of a nation. This is perhaps the main reason why societies around the world have funded post-compulsory education.

Unfortunately, some have adopted a simplistic approach to the relationship between education and economic growth. In recent years in Australia, there has been a tendency to assume that there is a directly proportional relationship between the number of people graduating from universities and the economic growth of a country. This has been partly driven by political and social pressures.

We have seen a massive increase in the number of people participating in the Australian post-compulsory education system. Year 12 retention rates

have increased from 36 per cent in 1982 to 77 per cent in 1992. The number in higher education has increased by nearly 70 per cent since 1980 and 16 new universities have been created as a result of the abolition of the binary system in 1987. The Australian Bureau of Statistics cites the number of Australians now holding a higher education qualification is more than four times the number it was in 1971.

According to an OECD report released last year, *Education in OECD Countries*, Australia ranks fourth in the percentage of the population who are university graduates. The countries ahead of us are, in order, Canada, Norway, and the USA. It is difficult to produce comparative data between countries that have different education systems. Australia includes two year community education courses in our TAFE system. If we included such programs in our university system, it appears we would rank even higher in terms of the percentage of university graduates.

Despite our extraordinarily high investment in higher education, and our wealth of natural resources, Australia's economic performance is poor compared with most other OECD countries. In 1990, Australia was ranked equal seventeenth out of twenty OECD countries according to GDP per capita.[1]

It is time to reassess our approach to education. Our obsession with the number participating in education needs to be replaced with a commitment to the quality and appropriateness of the education provided.

Human Capital Theory

The expansion of the Australian education system was partly based on a simplistic representation of human capital theory. The idea that people have economic value dates back to the earliest civilisations. Adam Smith sharpened this concept. He contended that there were four aspects to the capital of a society: tools and machinery, buildings used to create wealth, improved land, and 'the acquired and useful abilities of all the inhabitants or member of the society. The acquisition of such talents, by the maintenance of the acquirer during his education, study or apprenticeship, always costs a real expense, which is a capital fixed and realised, as it were, in his person.'[2]

The modern version of human capital theory was developed in the 1950s and 1960s by economists such as Schultz, Becker and Denison. The simplistic view of this theory, which appears to have had wide credibility in Australia, draws on the observation that better educated people in the community, particularly those with university degrees, end up with higher incomes. It is presumed that an increase in the number of university

[1] Business Council of Australia (1993), *Australia 2010: Creating The Future Australia*, p. 2.

[2] See Marginson, S. (1993), *Education and Public Policy in Australia*, Cambridge University Press, Melbourne, p. 22 - 23.

graduates will, therefore, increase productivity and the economic well-being of the nation.

It is important to recognise the limits of human capital theory. Leo Maglen, from the Centre for the Economics of Education at Monash University, in an extensive review, notes that when more and more human capital was being pumped into the U.S. system in the 1970s, productivity growth fell. A better educated work force should have made it rise. The same is true of a number of other countries.

Human capital theory assumes a link between education and productivity and between productivity and earnings. Leo Maglen points out that the first link is virtually impossible to verify. Most micro-studies, comparing the productivity of workers within occupations, show differences between those with some education and those with none. However, as many workers are overqualified, such studies do not indicate the critical level of education required for a particular occupation. Inter-country macro comparisons are very limited and there is no observable pattern of relationships between educational expansion and economic growth.

Maglen concludes:

> Even the most promising evidence of links between education and productivity calls for different policy responses from those usually prescribed by the orthodoxy. ... productivity gains associated with education are not so much to do with the amount of education people undertake prior to entering the work force as with, on the one hand, the quality of the grounding they receive in mathematics, science and languages, and on the other, the extent and thoroughness of the on-the-job training they subsequently are given.[3]

It is assumed there is a link between productivity and earnings. Again, this is hard to verify. There is a link between education and earnings. However the economic benefits of having higher degree qualifications are diminishing as more attain these qualifications.

The expansion of higher education in the late 1980s fitted with the Labor government's agenda of promoting equity and social reform. With many wanting to enter higher education, expansion of the system had political appeal. Interestingly, Leo Maglen's research shows that the distribution of earnings between 1968-9 and 1985-6 was not affected by the expansion of the education system. One view is that the economic value to the individual of higher education qualifications lies in their scarcity, and therefore status, as opposed to the increased productivity or capacity of the person.

One of the products of the expansion of the higher education system has been **credentialism**. The Australian National Audit Office released a paper

[3] Maglen, L. R. (1990), 'Challenging the Human Capital Orthodoxy: The Education Productivity Link Re-examined', *The Economic Record*, p 292.

in November last year which found that most of the growth in higher education enrolments had been taken up by an increased number undertaking postgraduate study. Although there was an increase in the number of places in 1991 and 1992, the proportion of places for school leavers actually declined. As well as an increase in the number pursuing postgraduate study, more people are undertaking second degrees.

Professor Peter Karmel, a former Vice-Chancellor of the Australian National University, notes:

> It is clear enough that the expansion of student numbers (in higher education) in the past few years has largely, if not wholly, been the result of a lengthening of the average period spent in higher education rather than an expansion of access.[4]

In the last six years, the total number of higher degree students in Australia has more than doubled. In the employment market, people with degree qualifications are doing jobs that do not need these qualifications. Further, there are an increasing number of unemployed graduates. The Department of Employment, Education and Training (DEET) figures show that between 1987 and 1990, full-time employment rates for graduates fell from 88 per cent to 70 per cent. The situation in Victoria and South Australia is particularly bad.[5]

Rethinking the Relationship Between Education and Economic Growth

It is time that we re-thought the relationship between education and productivity . It is not as simple as some would have us believe.

In the 1980s Paul Romer, an influential American economist, broke away from traditional neo-classical explanations of economic development.[6] Rejecting Schumpeter's view that economic growth is primarily the result of entrepreneurial activities and capital investment, he argued that growth results from the rapid spread of technology across the economy. If this is the case, education plays an important role in economic development by equipping people to deal with changing technology and cultures, producing people capable of developing new ideas and technology.

Equipping People to Adapt to Changing Technology

Education must equip people to adapt to change. During his recent visit to Melbourne the former Prime Minister of Singapore, Lee Kuan Yew, told of the greater efficiency of Japanese workers using highly automated equip-

---

[4] Karmel,P., 'School leavers lose race for places', *The Australian*, 24/3/93.

[5] *The Age*, 29/11/93.

[6] See Romer, P., (1990), 'Two Strategies for Economic Development: Using Ideas and Producing Ideas' (prepared for World Bank Annual Conference on Development Economics in 1992), *Journal of Political Economy*, Vol.98, p. 71-101.

ment compared with American workers using identical equipment. The difference resulted from the fact that when the equipment needed reprogramming, the Japanese workers had sufficient understanding of mathematics to reprogram the equipment themselves. The American workers, on the other hand, lost much time when things needed adjustment because they had to call in experts to do the reprogramming as their grasp of mathematics was insufficient to cope with the technicalities.

To ensure that the workforce is able to cope with technological changes we need to be certain that those graduating from school have a sound grounding in numeracy and literacy and a basic knowledge of science. This view is particularly important for those completing vocational training. This concurs with Leo Maglen's findings that we need to improve the basic education received at the primary and secondary level.

There is a lack of data on the achievement levels of school children because teacher unions have resisted any form of testing. What evidence there is, however, suggests that general standards need to be improved. Last year's Literacy Report by a federal Parliamentary Committee claimed that 25 per cent of young people coming out of primary school could not read or write adequately.

A 1988 Victorian study conducted by the Australian Council for Educational Research (ACER) found that only 77 per cent of Year 9 students reached the minimum reading competency required in adult society and that a statistically significant decline in the spelling ability of 10 year olds had occurred from 1980 to 1988.[7] The 1988 ACER study defined the minimum level of mathematics required as the ability to carry out everyday mathematical applications like calculating change from whole dollars. Only 52 per cent of Year 5 students in the study operated above the minimum level of competence, although this rose to 94 per cent for Year 9 students. Sixteen per cent of Year 5 students did not understand the concept of a quarter, as compared to only 9 per cent in 1980. Almost 30 per cent of Year 9 students could not calculate the simple interest on $900 dollars at 10 per cent per annum. In 1980, only twenty per cent of students could not answer the same question.

As well as improving school standards, there is a need to revitalise vocational education and training. In the recent past, insufficient attention has been given to this sector in Australia, although this is now changing. Unfortunately, the competency-based approach has dominated recent reforms of vocational training. This movement is inevitably taylorist, despite claims to the contrary, as it seeks to define specific skills required for a job and to teach these skills. If young people are to cope with ever changing

[7] McGraw, B., et al, [1988] *Literacy and Numeracy in Victorian Schools: 1988*, Australian Council for Education Research (ACER) Monograph No.34, ACER Ltd, Victoria.

technology they must receive a broad education, not a narrow focus on skills required at the present time. Students in Germany's vocational education and training system, called the dual system, are taught industry skills in special 'training firms' and concurrently receive a general education in vocational education institutions. Japanese firms recruit school leavers and provide a quality education at the same time as teaching skills required. Vocational training that does not provide a general education base will inevitably be seen by young people as a second rate option. If we are to have a competitive workforce, Australia needs to re-think the direction of vocational education and training.

Developing People Who Can Be Innovative and Generate New Technology

Education must ensure that the most able students are encouraged to develop to their utmost potential so that they are able to move with the cutting edge of knowledge. Those with the potential to conduct research and be innovative must be given opportunities to develop. The de-taylorised workplaces of Japan and Germany provide opportunities for innovation at all levels.

If Australia is to compete with other countries in terms of developing technology and generating new knowledge, we must be prepared to invest more in research and development (R&D). On international comparisons, Australia has a relatively weak investment in R&D. In 1988, Australia spent 1.24 per cent of GDP on R&D, placing us only seventeenth in comparison with twenty five OECD countries. The major deficiency is in expenditure by industry. For example, business sector research in Sweden is six times greater than in Australia.[8]

Strength in R&D requires a commitment to preparing talented people for research careers. Unfortunately, due to our preoccupation with 'cutting down tall poppies', educational achievement has not been sufficiently recognised and encouraged.

Education should stimulate young people to reach for the heights. Students must learn how to learn, to explore new concepts and to challenge ideas. Society's development, including its economic growth, depends on us having a future generation able to analyse society and respond creatively.

Economics is a mathematical approach to the problems of society and how it functions. I strongly commend the discipline as a vehicle to encourage logical and analytical thinking about the big issues which young people will have to deal with later as responsible members of society and in the many professions and occupations which touch the world of commerce.

---

[8] Marginson, op cit, p. 137.

References

Maglen, L.P. (1990), 'Challenging the Human Capital Orthodoxy: The Education-Productivity Link Re-examined', *The Economic Record*, pp292.

Marginson, S. (1993), *Education and Public Policy in Australia*, Cambridge University Press, Melbourne

CHAPTER 2

MEASURING AUSTRALIA'S ECONOMIC ACTIVITY: THE NATIONAL ACCOUNTS

PAUL McCARTHY

ASSISTANT STATISTICIAN
NATIONAL ACCOUNTS AND PRICES BRANCH
AUSTRALIAN BUREAU OF STATISTICS

Paul McCarthy is Assistant Statistician in the National Accounts and Prices Branch of the Australian Bureau of Statistics in Canberra. The National Accounts and Prices Branch has responsibility for the quarterly and annual Australian National Accounts, the State Accounts, the input-output tables, the Consumer Price Index and various producer price indexes. Paul has worked in national accounts since 1969 when he was involved in establishing the quarterly constant price estimates of expenditure on GDP which have been published since 1971, although he has had several short breaks when he has worked in labour statistics, as an economist in the Commonwealth Department of Housing and a brief stint in charge of the Sydney Office of the Australian Bureau of Statistics. He has represented Australia on the United Nations' International Comparison Project, at a United Nations' inter-regional meeting on the review of the system of national accounts and at several OECD meetings of national accounts experts.

MEASURING AUSTRALIA'S ECONOMIC ACTIVITY: THE NATIONAL ACCOUNTS

PAUL McCARTHY

The idea of national accounting can be traced back to the seventeenth century, when attempts to measure national income began in England and France. However, the work of Keynes was the most important influence in establishing the current system of national accounting. His theories regarding macroeconomic relationships, published in the 1930s, form the basis of the structure of contemporary national accounts.

The need for international organisations to be able to compare the economic performance and growth of different countries was an important factor which prompted the development of international standards for national accounting in the late 1940s and early 1950s. These standards were first published by the United Nations in *A System of National Accounts* (SNA) in 1953. This framework became widely adopted by government statistical services throughout the world.

Several other important developments in national accounting in the 1950s and 1960s culminated in the publication of a fully revised version of the SNA in 1968. It drew together all the various threads of economic accounting: estimates of national income and expenditure; input-output production analysis; financial analysis based on 'flow-of-funds'; and balance sheets of national wealth. The SNA provided detailed guidelines on the types of accounting tables required and what should be shown in each table to enable the analysis and comparison of the economic performance of countries using the system.

In February 1994, a revised SNA (commonly referred to as the '1993 SNA') was issued. In addition to developing and updating the principles outlined in the 1968 SNA, the 1993 version has provided for an expansion in the scope of national accounting. Important extensions to the system include the development of so-called **'satellite accounts'** (accounting statements separate from, but consistent with, the system of national accounts providing supplementary data which can be used in conjunction with the data in those national accounts). They can be used, for example, in presenting statistics on natural resource and environmental accounting and on unpaid household work.

Australia's National Accounts

At present, Australia's national accounts comprise national income and expenditure accounts, input-output tables, flow of funds estimates and elements of the national balance sheets, including estimates of the value of the stock of buildings and equipment and financial assets. The Australian Bureau of Statistics (ABS) is currently expanding the range of national balance sheet data to include estimates of the value of land, forests, sub-soil assets and livestock. These experimental estimates are expected to be published later this year.

Description of the system of national accounts

In Australia, there is a wide range of economic data available to anyone who wishes to describe the performance of various components of the economy over time. For example, data is published regularly on the number of houses being built, the number of cars produced, whether employment is rising or falling, the composition of exports and so on. While these and other statistical series are important in their own right, none of them in isolation can provide a complete picture of the state of the economy. The advantage of the national accounts is that they provide a framework within which data from the wide variety of sources available can be combined and presented to describe the overall economic position of the nation.

National accounts are designed to provide a systematic summary of national economic activity and have been developed to assist in the practical application of economic theory. At their summary level, the national income and expenditure accounts reflect the key economic flows of the Keynesian economic system: production, income, consumption and saving. At their more detailed level, they are designed to present a statistical picture of the structure of the economy and the detailed processes that make up domestic production and its distribution.

The central concept in national accounting is economic production. Production is the process in which labour, natural resources, capital assets and knowledge (the factors of production) are applied to produce goods and services.

The concept of economic production is not confined to goods or services which are bought and sold (i.e. those that clearly have a monetary value). It also includes goods and services produced but which do not enter the market. These may be made available without an explicit charge by the person or organisation producing them. For example, most goods and services produced by governments and non-profit organisations are included in this category.

The aim of the Australian national accounts is to cover the production of all goods and services which enter the market, and also that part of production which does not enter the market but for which it is possible to

impute a value from closely matching market transactions.

In measuring production, care must be taken to avoid double counting (for example, of goods and services bought by enterprises for use in their own productive activities). In the national accounts it is the value added in production which is important. This is the essence of the concept of gross domestic product, or GDP. Australia's GDP is formally defined as the total market value of goods and services produced in Australia after deducting the cost of goods and services used up in the process of production (intermediate consumption), but before deducting consumption of fixed capital (or depreciation).

Measurement of GDP

There are three ways of measuring GDP:

- The **income approach**, which measures GDP by summing the incomes accruing from production (wages, salaries and supplements; gross operating surplus; and indirect taxes less subsidies).
- The **expenditure approach**, which involves summing all final expenditures on goods and services (i.e. those goods and services which are not processed any further), adding on the contribution of exports and deducting the value of imports. Final expenditures consist of final consumption expenditure, gross fixed capital expenditure and increase in stocks. Exports are included in GDP because they are part of Australian production even though they are sold to overseas purchasers. Imports are deducted because, although they are included in final expenditures (for example, when someone buys an imported video recorder its value is included as part of private final consumption expenditure), they are not part of Australian production.
- The **production approach**, which calculates GDP by taking the market value of goods and services produced by an industry (its gross output) and deducting the cost of goods and services used up by the industry in the productive process (intermediate consumption), which leaves the value added by the industry (also called its gross product). GDP is then obtained by summing the gross product of all industries.

In theory, the three approaches result in identical estimates of GDP. In practice, because of the need to use different data sources for each method, the value of GDP obtained from each approach differs. The ABS refers to the above three alternative estimates of GDP as **GDP(I)**, **GDP(E)** and **GDP(P)** respectively. A fourth measure, the simple average of these three and referred to as **GDP(A)**, is the preferred estimate of economic growth for Australia when expressed in constant price terms. Constant price data are published for all four estimates in original, seasonally adjusted and trend terms.

A major problem encountered in calculating gross product occurs with producers whose output cannot be directly measured, as in the case of many government departments. For example, government education departments are engaged in the production of 'education', which does not have an output value in government accounting systems. In such cases, the value added is assumed to be the sum of the wages and salaries paid and any depreciation allowances made on capital goods used, such as school buildings.

Example of GDP estimation

The following simplistic example (in **Table 2.1**) illustrates the equivalence of the three measures of production, or GDP, as well as highlighting the care which must be taken to avoid double counting when goods are bought by producers for further use in their own production. In the example, the output from each industry is the input to the next industry in the chain of production.

Table 2.1 **Example of GDP Estimation**

Industry	Input	Output	Value added	Wages	Gross operating surplus
Farming	30	100	70	10	60
Milling	100	160	60	40	20
Baking	160	220	60	50	10
Retailing	200	310	110	20	90
Total	490	790	300	120	180

In this example, a farmer has used some of his stock (wheat seed) as input to generate output (wheat) and so has added value to his input. The value added has been split between the 'factors of production', labour and capital, by way of wages and gross operating surplus (the sum of net operating surplus and depreciation).

A miller in turn uses the farmer's output as his input to produce flour and so adds value to the wheat. Flour from the miller is used by a baker to produce bread, thus adding value to the flour (the baker also sells a small part of his output directly to final consumers). Finally, a grocer buys most of the baker's output as input and adds value to it by providing a distribution service to the final consumers – the customers who buy the bread. Each link

in the productive chain adds value to its inputs and the gross product is distributed as income to the factors of production. It is important to note that only unduplicated output is being measured, not the sum of all outputs in the economy.

The information in the above example can be used to derive the value of production, or GDP, by each of the three approaches which have been described.

- The **income approach** uses the sum of the incomes accruing from domestic production to measure GDP (i.e. wages and gross operating surplus; note that no provision has been specifically shown for depreciation (which is a component of gross operating surplus) or for net indirect taxes).

  GDP = wages plus gross operating surplus
  = 120 + 180 = 300

- The **expenditure approach** to measuring GDP is to sum all final expenditures, plus exports minus imports. Final expenditure was 330 (310 by the grocer's customers and 20 direct from the baker to final consumers). However the farmer used stock valued at 30 to produce his output, thus he had an 'increase' in stocks of minus 30.

  GDP = final consumption plus increase in stocks
  = 330 + (-30) = 300

- The **production approach** defines GDP as the sum of the value added (gross output less intermediate input) by each industry (in this example, it equals 300).

Presentation of the Australian National Accounts (ANA)

While the above example shows that the three measures of GDP should be identical, they can differ significantly in practice, especially in the short term. Using movements in GDP(A) (the average of the three) has been shown to provide a smoother and more reliable indicator of turning points in the economy than do changes in any of the individual measures of GDP. Quarterly changes in the constant price trend of GDP(A) are considered by the ABS to be the best indicator of short-term growth.

For national accounting purposes it is necessary to take a restricted view of production because it is not feasible to put a realistic value on the whole of economic production in the sense defined above. The aim of the Australian national accounts is to cover the production of all goods and services which legally enter the market, and also that part of production which does not enter the market but for which it is possible to impute a value using closely related or analogous market transactions.

As mentioned above, most goods and services provided by general government bodies (as distinct from public enterprises such as electricity supply authorities) are not normally sold but are nevertheless regarded as part of production. In practice, they are valued at cost. Similar considerations apply to non-profit institutions – examples are clubs, trade unions, chambers of commerce and churches.

Imputations are made for some goods and services which are not sold in the market place and which are not amenable to direct measurement. Imputation is confined to a small number of cases where a reasonably satisfactory basis for the valuation of the implied transaction is available, and where their exclusion could result in significant distortions in the accounts. In the ANA, imputations are made for the following:

- rent of owner-occupied dwellings;
- income received in kind (fringe benefits);
- value added by owner-builders in the construction of, or alterations and additions to, their own dwellings;
- goods and services produced by persons in the course of their normal occupation and consumed by them are included where practicable;
- services provided by financial institutions over and above explicit charges made.

The most important activity for which an imputation is not made is the unpaid services of persons working in the home (this is discussed later in this paper).

Constant Price or 'Real' GDP

The expenditure approach to calculating GDP measures Australian production by summing the amounts spent by the final users on the goods and services produced. However, by itself this is not always a good measure of production, since the value of a particular good or service is affected by inflation.

For example, the national accounts may show that the amount spent on motor cars is twice as much this year as it was last year. If the price of cars has doubled over the last year, then the number of cars bought will not have changed – expenditure has risen only because the price of cars has risen.

In a lot of cases, our interest lies in knowing how much physical production (e.g. the number of cars made) has changed, rather than just the current (or dollar) value of production. Constant price estimates are the means of satisfying this interest. They provide a measure, in terms of the prices relating to a particular base year, of changes in the actual quantity of items produced or purchased. As a result, constant price estimates of the change in GDP are often referred to as estimates of 'real growth' in GDP.

In essence, obtaining estimates of GDP at constant prices involves using indicators of price changes in the items included in the national accounts to remove the effects of inflation from the estimates of GDP. Constant price estimates are expressed in terms of the average prices prevailing in the selected base year (currently 1989-90). Some of the main indicators used in this process are the component series from the consumer price index, which measures changes over time in the price of a basket of goods and services bought by households. Other price indexes produced by the ABS (such as the import price index) are also used extensively in compiling the constant price estimates.

A by-product of the calculation of constant price estimates is the **implicit price deflator** (or IPD). An IPD is the price index obtained when a current price estimate is divided by the corresponding constant price estimate. The ABS publishes a time series of IPDs for each of the expenditure side aggregates (excluding increase in stocks) in the domestic production account.

IPDs calculated from the major national accounting aggregates such as gross national expenditure are widely used as a broader measure of inflation in the economy than that available from any of the individual price indexes published by the ABS. However, care has to be taken in the interpretation of IPDs as they do not compare the price of a constant basket of goods between any two periods except when comparing the base period with another period. Therefore, they reflect a combination of the effects of actual price changes and changes in the composition of the aggregate from which the deflator is derived. An alternative set of price indexes based on the expenditure side of the domestic production account was developed a few years ago. They are fixed-weighted price indexes for the major expenditure aggregates, and measure the change in price of the basket of goods and services included in GDP in the proportions measured in 1989-90.

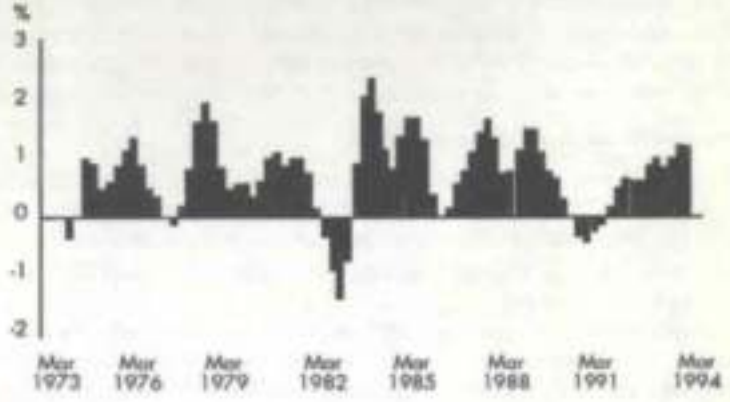
Investment and Economic Growth

The quarterly trend estimates of GDP(A) in the national accounts show that the economy has been recovering from the 1990-91 recession for 11 quarters now. However, they also show that the growth in the first year or so was a lot slower than had typically been the case in the recoveries from earlier recessions, particularly that for 1982-83 (see **Figure 2.1**).

Even though the rate of economic growth has accelerated markedly since the beginning of 1993, commentators frequently comment on investment as being the 'missing' ingredient. **Figure 2.2** shows the proportion of GDP(E) contributed by the two components of private business investment (referred to in the national accounts as private gross fixed capital on non-dwelling construction [NDC] and on equipment [EQP]).

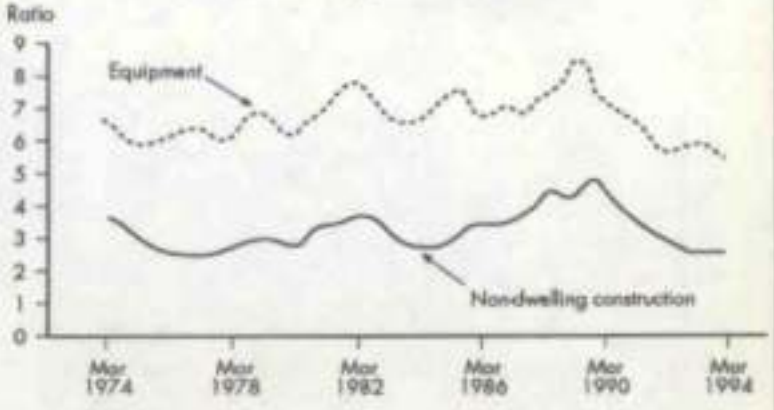
The low level of these ratios in the last couple of years has led a number

Figure 2.1 **Trend GDP(A) Percentage Change at Average 1989-90 Prices**



Source: ABS

Figure 2.2 **Ratio of Private EQP & NDC to GDP (E) Trend at Average 1989-90 Prices**



Source: ABS

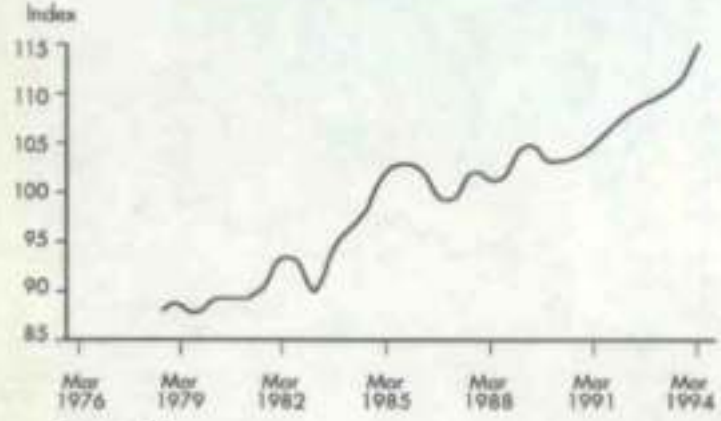
of commentators to question whether the current economic recovery is sustainable or whether the economy is facing capacity constraints because of the relative lack of investment. The alternative hypothesis being presented by some commentators is that there has been a major structural change in the economy and the existing capital stock is being used far more efficiently than in the past. As a result, it is not necessary to achieve the same (proportional) levels of investment as in the past for the current recovery to be sustainable.

Economic Growth and Employment

Typically, the rate of economic growth and the rate of growth in labour inputs (either persons employed or, preferably, hours worked) are correlated in the longer term, but can be quite divergent at times in the short term. If economic growth is higher than the growth in labour inputs then labour productivity is increasing.

In general, employment growth responds to changes in the rate of economic growth with a lag. The main reason is that it is costly for businesses to shed labour and then have to train new staff when demand picks up. In particular, if there is a chance that any downturn in demand is going to be short lived then businesses will bear the cost of less than optimum use of their staff in the short term, with the result being reduced productivity during that period. The initial response to a downturn is to cut overtime and to reduce new recruitment. It is only after some time that staff are either dismissed or become unemployed due to businesses going broke.

Figure 2.3 **Constant Price GDP (P) Per Hour Worked, Market Sector, 1989-90 = 100.0**



Source: ABS

Conversely, in an upturn there is a lag before extra staff are hired. Increased overtime is worked initially, and some businesses find that they no longer need the same levels of staff as in the past because they have developed ways of working more efficiently. The result is that productivity generally rises quite rapidly once a few successive quarters of economic growth are achieved after a downturn. (See **Figure 2.3**).

Some Current Issues in National Accounting

As mentioned above, a major review of the SNA was recently completed. It was undertaken by the United Nations' Statistical Office and a number of other international organisations. Although the conclusion is that major changes to the basic system would not be necessary, a number of issues have been debated and several major conceptual and presentational changes have been recommended. Some of the more topical issues are discussed briefly below.

Unpaid Work by Households

Although it can be argued that **unpaid household work** comes within the definition of economic production, it has been excluded from the scope of GDP as defined by the SNA. This is because the major focus of the national accounts is on changes in the economic market sector. There are also significant conceptual problems and practical difficulties associated with the availability of data and the selection of appropriate shadow prices. Despite significant demand for their inclusion in the accounts, the SNA review has decided that they should remain outside the production boundary. However, it also recommended that the value of unpaid household work should be incorporated into 'satellite accounts'. Satellite accounts are accounting statements separate from, but consistent with, the domestic production account and other existing accounts, providing supplementary information which can be used in conjunction with the data in those accounts.

The ABS produced an Information Paper in February 1990 entitled *Measuring Unpaid Household Work: Issues and Experimental Estimates*. It provided details of the conceptual and measurement problems involved in this field, but also contained a series of estimates of the value of unpaid household work based on different assumptions about the prices that could be assigned to value the various activities. The estimates were based on the results of a pilot survey of time use conducted in Sydney in May 1987 and ranged from 52 per cent to 62 per cent of GDP, depending on the method of valuation used. A publication containing updated estimates, based on an ABS time use survey conducted during 1992, will be released shortly.

The ABS supports the development of such specialised accounts as part of the revised SNA, and proposes to work towards the development of satellite accounts for Australia incorporating estimates of the value of un-

paid household production. Their timing, frequency and quality will depend on the availability of appropriate source data and the resolution of what are accepted internationally as very difficult methodological issues.

Accounting for Natural Resources

Natural resource and environmental accounting is concerned with taking account of these issues within a national accounting framework. It is not the only approach to the development of environmental statistics. For example, indicators of change in an array of environmental conditions would be of interest in their own right as well as being the basic input into a set of environmental accounts.

Environmental concerns may be summarised as follows:

- depletion and/or extension of natural resources;
- conservation of the environment; and
- the effects of pollution and its control.

Although this categorisation sets the conceptual scope of natural resource and environmental accounting, it should be noted that no country has set up accounts, either within or outside the national accounting framework, to encompass all of these issues.

A draft framework has been produced for a set of environmental satellite accounts. Two groups of tables are articulated in this framework. The **first group** shows the supply and use of goods and services, by industry, with environmental protection activities identified separately from other production. The **second group** comprises the opening and closing balance sheets and two tables linking them – a table on volume changes in tangible wealth and one showing re-evaluations of assets.

The framework also outlines the calculation of environmentally adjusted indicators. The first, **'environmentally adjusted GDP'**, is obtained by subtracting the environmental protection services (so-called 'defensive expenditures') from GDP. This reflects the fact that the framework treats the environmental protection services of households and governments as the intermediate consumption of these sectors whereas the SNA currently includes them as final consumption by those sectors. The defensive expenditures of industry are already included in intermediate consumption when deriving unadjusted GDP according to SNA principles.

Another indicator is **'sustainable GDP'**, which is the difference between environmentally-adjusted GDP and environmental costs. Such costs result from the quantitative depletion of natural resources and the degradation of environmental quality by economic activities. Additions to the natural resource base are not included in income until they are exploited. However, their value is entered into the balance sheets when additional reserves are discovered.

The ABS is conducting research into the statistical issues involved in extending the Australian national accounts to include various aspects of natural resource accounting within the 'satellite accounts' framework presented in the 1993 SNA. However, the statistical issues involved are complex, particularly in the area of assigning appropriate values to the various components. These concerns cause the ABS to question the priority that should be allocated at this time to investigating an 'environmentally adjusted GDP', given the amount of statistical development required relative to other environmental indicators.

Summary

The Australian national accounts provide the most important overall indicator of economic activity in Australia. Because they encompass the full range of market activity and some non-market activity, they draw on a very wide range of data. While some data is derived as a by-product of administrative systems, the bulk is collected directly from businesses or households. The ABS is very conscious of the increasing use being made of the Australian national accounts for purposes other than measuring economic activity. Accordingly, work is proceeding on extending the range of data available in the accounts (or on a conceptual basis consistent with that used in the core of the accounts).

CHAPTER 3

IS AUSTRALIA ACHIEVING ITS GROWTH POTENTIAL?

ALAN OSTER

CHIEF ECONOMIST
NATIONAL AUSTRALIA BANK

Alan Oster is the National Australia Bank's Chief Economist. Mr Oster, who joined the National Australia Bank in July 1992, has a background in the Federal Treasury, with special expertise in economic forecasting and monetary policy. He holds a Masters degree in Economics from the Australian National University. Immediately prior to joining the National Australia Bank Mr Oster was a senior advisor in Treasury, with responsibility for economic forecasting and modelling. Before that he represented Treasury at the OECD for three and a half years.

IS AUSTRALIA ACHIEVING ITS GROWTH POTENTIAL?

ALAN OSTER

There are clear signs that the economy has moved up a gear and appears set to kick-up further in the next financial year. The statistician's latest National Accounts suggest that Australian output/income growth picked up to around the 4 per cent mark in the latter part of 1993 and into early 1994. That growth momentum has in turn reached a stage where hours worked have picked up, and employment is now growing by more than 2 per cent per annum.

Consistent with this, the National Australia Bank's (NAB) business confidence index for the June quarter has risen further (see **Figure 3.1**). From an industry perspective, the most positive expectations are recorded in the finance, business services and retail sectors. It is also notable that, in contrast to all other sectors, business confidence in mining has deteriorated over recent quarters (see **Table 3.1**). This appears to reflect the impact of a strengthening in the Australian exchange rate and weakness in some bulk commodity prices, such as coal and iron ore.

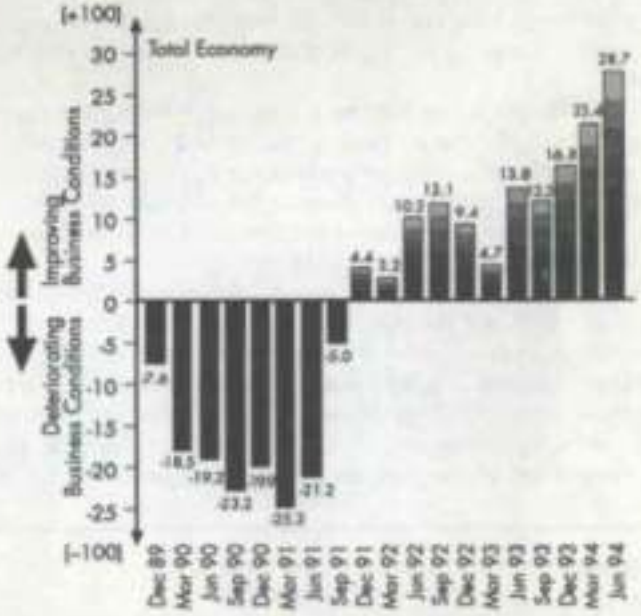
Current Economic Conditions

At the state level, there are signs of a convergence in business conditions. Business conditions appear favourable in all states, with NSW and, for the first time, Victoria apparently leading the way. Queensland and Western Australia have weakened a touch, mainly due to the deteriorating outlook for the mining sector, although activity levels remain high in these states.

In keeping with stronger near-term performance, respondents to the NAB's business survey expect private non-farm business sector output to pick up to 3.2 per cent in 1994-95, up on the 2.7 per cent anticipated in 1993-94. The survey also continues to point to subdued medium-term inflationary expectations, with around 80 per cent of respondents expecting inflation to remain below 4 per cent during the 1990s.

The main missing domestic ingredient in this rosy outlook is business investment – both the statistician's and the NAB's surveys point to relatively subdued expectations. Of course, the external outlook is also a vital ingredient. In that regard, 1994-95 growth among the major industrialised economies is expected to pick up to around 2.25 per cent, and in the developing Asian economies to remain around 7 per cent.

Figure 3.1 **The National's Business Confidence Index**



Source: *Decisions*, NAB, Vol.6 No.1 June 1994.

Table 3.1 **National Business Confidence Index by Industry**

Sector	Previous Outlook	For Upcoming Quarter
Mining	-6.8	-10.0
Manufacturing	24.0	28.7
Construction	24.4	25.0
Retail	26.9	31.3
Wholesale	24.3	30.6
Transport	25.6	31.0
Finance	21.1	34.9
Recreation	26.3	26.1

Source: *Decisions*, NAB, Vol.6 No.1 June 1994.

With business confidence relatively high, private sector expectations improving and a moderate improvement in world economic conditions, we expect that Australian growth could be 4.25 per cent in 1994-95, slightly lower than the government's forecast of 4.5 per cent released in the recent Commonwealth budget (see **Figure 3.2**). In composition terms, there are also few differences between the NAB's and the budget projections for 1993-94 and 1994-95.

Private consumption expenditure is expected to strengthen further in 1994-95, on the back of stronger employment growth and improved dividend and interest receipts. Stronger average asset prices and hence household wealth could also contribute. Following the recessionary lows, household saving ratios have recently shown the first signs of improvement, and we expect to see that continue during 1994-95.

In the face of lower migration levels and lower underlying demand, both the government and the National expect a recent flattening out in dwelling commencements to lead to little growth in new dwelling investment. But keen competition in the home lending market, together with still subdued house prices, have kept this aggregate at higher levels than most forecasters previously envisaged. The slowing could still come later than we expect, but would in that case probably also be more pronounced.

Figure 3.2 **Australian GDP and OECD Industrial Production**

Source: Decisions, NAB, Vol.6 No.1 June 1994.

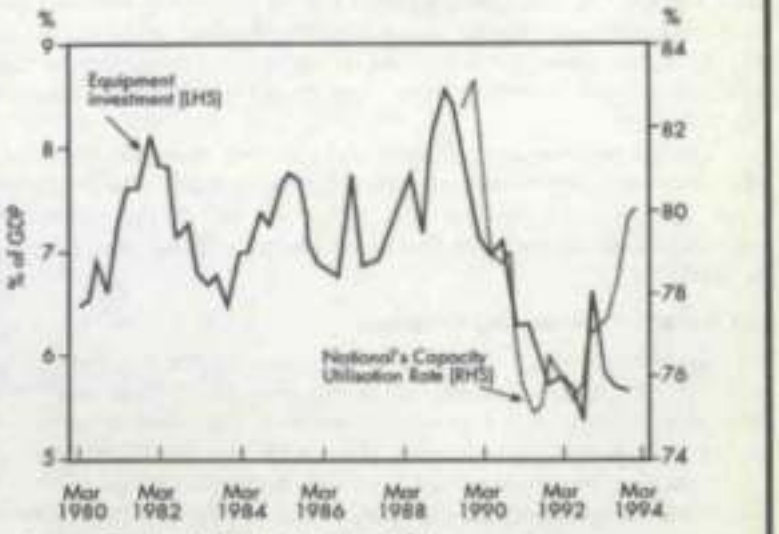
Market commentators have generally overplayed the importance of the projected 14 per cent increase in plant and equipment investment to the achievement of the government's overall growth projections for 1994-95. The government's forecast for consumption of 4.25 per cent is much more important in underpinning these projections. Put slightly differently, investment in plant and equipment of only 5 per cent would, given the components of the government's forecasts, still generate GDP growth of around 4 per cent in 1994-95.

The Outlook for Investment

The investment projections are much more important to the achievement of sustained growth over the medium term. To date, however, business investment has remained surprisingly depressed, notwithstanding relatively favourable conditions as reflected in the traditional drivers of investment: low real unit labour costs; strong actual and expected profitability (albeit mainly on the back of restructuring); improved cash flow; and improved competitiveness (as reflected in the real exchange rate).

Against that, it appears business has delayed investment in the face of demand prospects (three out of four respondents to the National's survey point to this as the key factor restraining further profitability and investment) and continuing high levels of excess capacity (see **Figure 3.3**).

Figure 3.3 **Plant and Equipment Investment and Capacity Utilisation**



Source: *Decisions*, NAB, Vol.6 No.1 June 1994.

Table 3.2 **Key Forecasts[a]**

	1993/94(f)	1994/95(f)		June qtr '94 (f)	June qtr '95(f)
Private Consumption	3.3	3.8			
Dwelling Investment	6.5	.			
Business Investment	3.0	16.0	A$/US$	0.74	0.76
Public Final Demand	0.8	2.7			
Domestic Demand	3.3	4.3	Trade-weighted		
Exports	8.0	8.6	Index	54	57
Imports	5.5	10.0			
GDP(A)	4.0	4.3	90-Day		
Employment	1.7	2.8	Bank Bills (%)	4.9	6.1
Unemployment rate	10.6	9.5			
Consumer Price Index	1.8	3.2	10-Year		
Current Account (% of GDP)	4.0	3.8	bonds (%)	8.6	9.2

(a) Annual average % change unless otherwise stated

(f) forecast

Source: *Decisions*, NAB, Vol.6 No.1 June 1994.

On the latter points, it is worth noting that these constraints now appear to be waning. Our latest findings point to both improving business conditions and confidence, together with an important pick-up in capacity utilisation. On balance then, our projections are for business investment to rise by around 16 per cent in 1994-95, much the same as the government's forecasts (see Table 3.2).

There is, however, the possibility that structural changes and increased efficiency in the use of labour and capital inputs could delay the timing of the investment pick-up in the near term. However, with all the preconditions set, once investment does turn around, it is likely to pick up faster than many currently expect.

The External Sector and Inflation

Turning to the external sector, net exports are expected to detract from growth in 1994-95, after contributing to growth in the previous year. This in large part reflects a cyclical pick-up in imported goods and services, in the face of faster growth, and especially plant and equipment expenditure.

Growth of imports of around 10 per cent is expected to more than offset continuing strong growth in exports, with elaborately transformed manufacturing exports continuing to grow strongly. We expect a moderate improve-

ment in the terms of trade to be partly offset by stronger imports and higher interest rates, with the current account deficit at around 3.75 per cent of GDP in 1994-95.

While inflation remains currently at low levels, around 2 per cent in 'underlying' terms, we expect to see inflationary pressures build a little over the next 12 months. By June 1995, we expect the inflation rate, as measured by the consumer price index (CPI), to be marginally above 3 per cent. This is somewhat higher than the government's projections.

Factors contributing to our view include the costing effects of past fiscal policy adjustments, attempts by producers to repair margins as the cycle continues, and wage claims associated with faster employment. Related to this point, it is interesting to note that recreational and personal services, one of the faster growing sectors in the National's survey, have started to report increased skill shortages and emerging (although still moderate) wage pressures.

Monetary Policy

On this scenario, we would expect to see only moderate upward adjustments in monetary policy settings over the next 12 to 18 months. Over the next 18 months, short-term interest rates are expected to rise to around 7.25 per cent. That tightening of monetary policy, although more moderate than that built in by financial markets, will be necessary to sustain a relatively low inflation environment.

These interest rate projections and, indeed, the sustainability of a 4 per cent plus growth momentum hinge critically on Australia's productivity performance.

It should be noted that despite much public utterance to the contrary, the evidence to date from the statistician is that the degree of structural change experienced during the past downturn, as reflected in aggregate productivity measures, is not more than might have been expected at this stage of the cycle, based on historical relationships (see **Figure 3.4**).

Although the National's survey points to relatively subdued current levels of productivity growth in the non-farm business sector (1.5 per cent in 1993-94), the latest survey provides some evidence that gains from structural change might be more enduring than over the last few years.

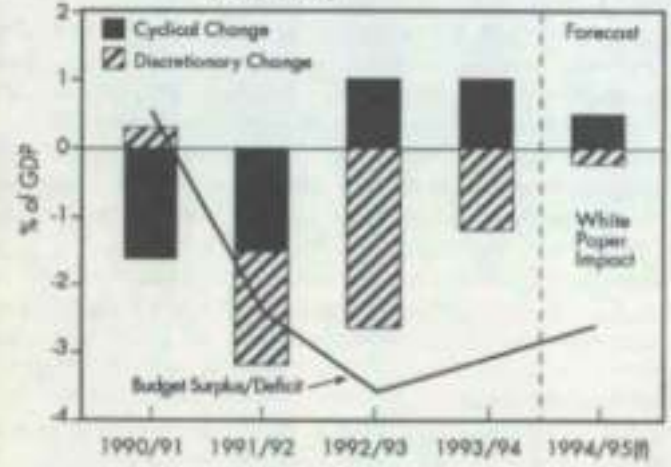
Respondents pointed to expected productivity gains of around 2 per cent in 1994-95, and around 2.25 per cent over the following three years (which contrasts strongly with the experience in the mid-1980s). Above average gains are expected in the wholesale, finance, manufacturing and, to a lesser extent, retail sectors.

While all of the above represents a reasonably optimistic near-term outlook, another very important factor impacting on the credibility of that assessment is the responses of the Federal and State governments.

Figure 3.4 **Productivity**
Real Market GDP (non-farm) Per Hours Worked

Source: *Decisions*, NAB, Vol.6 No.1 June 1994.

Figure 3.5 **Commonwealth Government Budget Outcome**
(Near Term)



Source: *Decisions*, NAB, Vol.6 No.1 June 1994.

Fiscal Policy

At the Commonwealth level, it is vital that the government remains committed to the achievement of its medium-term fiscal objectives (a fiscal deficit of 0.5 per cent of GDP – or around $2 billion – by 1997-98). In that regard, the government's White Paper on Employment and Growth, which committed something in the order of $2 billion per annum, aimed at helping the long-term unemployed, has made achieving that objective more difficult.

With little new revenue measures (other than the Australian Tax Office's increased efficiency at collecting outstanding taxes, worth $1.2 billion in the four years to 1997-98), the government is relying heavily on strong economic growth to close the funding gap (see **Figure 3.5**).

Asset sales worth $2.5 billion in 1994-95 and around $2 billion in the subsequent years to 1997-98 will also help, although their implications for financial markets and real interest rates are, of course quite different from reductions in the underlying budget deficit.

A good deal of focus will also need to be directed towards the quality of spending. Although there are clear equity reasons for helping those currently in long term unemployment, history shows that increased labour market spending usually only 'shuffles the pack' among the unemployed. More to the point, the efficiency of the spending will probably be much less than that associated with lower real interest rates flowing from tighter fiscal policies.

Economic Forecasts

Clearly, much also depends on the credibility of the underlying medium term economic assumptions. While forecasting the next few months is at best a difficult exercise, three to four years ahead is, in any language, heroic. That said, with the government having committed itself to the budget framework,

Table 3.3 **Key Fiscal Parameters**

	1994/95		Avg. 1995/96 to 1997/98	
	National	Budget	National	Budget
GDP	4.25	4.50	3.75	4.25
Wages	4.00	3.50	4.00	3.50
Inflation	3.25	2.25	3.00	2.75
Employment	2.75	3.00	2.50	2.75
End of Period				
Unemployment	9.75	9.75	8.50	n/a
Budget Deficit	2.50	2.50	0.75	0.50

Source: Decisions, NAB, Vol.6 No.1 June 1994.

the provision of medium term forecasts is unavoidable and sends vital signals to economic players.

Our judgement on the medium term projections is that, on the assumption that nothing unexpected happens by way of external shocks and all goes well domestically, the better economic outlook will probably be sufficient to achieve the government's fiscal objectives; provided the second round of the One Nation income tax cuts are abandoned. A comparison of the Commonwealth government's key medium term forecasts with the results of the National's modelling is shown in Table 3.3 of key fiscal parameters.

Although the composition of the government's medium-term forecasts has not been released, the National, compared to other private sector forecasters, is expecting a greater contribution from business investment, and a lesser contribution from private consumption over the next couple of years.

If growth does turn out to be driven by consumption, we doubt that a pace of 4-4.5 per cent per annum would be sustainable over the medium term. In this regard, we suspect that the government's projections are more likely to reflect the factors driving the NAB's projections than the current consensus view.

Despite that, compared to the government's medium-term scenario, we are broadly less optimistic on growth and employment, and marginally more pessimistic on inflation and wages (although even our own forecasts effectively close the gap). Besides these medium-term objectives, the budget reiterated new longer-term goals of achieving a surplus by the end of the decade, together with an unemployment rate of around 5 per cent.

Putting aside the issue of how seriously the government is wedded to these objectives, a key result from our modelling is that although the fiscal objectives might be able to be met , the unemployment target looks well beyond reality. Our unemployment projections, based on similar medium-term economic forecasts, have unemployment falling only to around 8.5 per cent by 1997-98.

Microeconomic Reform

That, of course, raises the question of what the government will do, if anything, to address the shortfall. It is to be hoped that it will involve faster microeconomic reform rather than additional fiscal stimulus.

While sensible macro policies have an important role to play, they are unlikely to be sufficient; further micro-reform is required to help lift the efficiency of the economy, and improve Australia's international competitiveness.

Indeed, it is worth noting that in all macro models of the economy, improvements in micro-reform ultimately produce the largest positive benefits to growth and employment. For example, the Commonwealth government's Economic Planning and Advisory Council (EPAC) recently produced

very large estimates of the potential gains from increased micro-reform (ranging up to 5 per cent of GDP by the year 2001). Further, with the exchange rate expected to appreciate in the next few years, unless more is done to improve productivity, our real competitiveness is likely to deteriorate.

In this context, governments need to further reduce the cost of doing business (i.e. reduce government regulation); improve labour market flexibility (including downward wage flexibility if productivity levels so dictate); undertake further tax reform; improve productivity in public trading enterprises, with the benefits of those reforms increasingly passed back into the cost of structures of business; and continue to focus on internationalising the economy by increased efforts to open up domestic markets to external competition.

Importantly, on the domestic front, increased competition would also include financial services and the provision of longer-term savings.

Focus on these measures would, together with sound macro policy, do most to sustain growth over the coming years, and therefore help to make serious inroads into Australia's unacceptably high levels of unemployment.

CHAPTER 4

RECENT TRENDS IN THE AUSTRALIAN LABOUR MARKET

PROFESSOR JUDITH SLOAN

DIRECTOR
NATIONAL INSTITUTE OF LABOUR STUDIES
FLINDERS UNIVERSITY

&

ASSOCIATE PROFESSOR MARK WOODEN

DEPUTY DIRECTOR
NATIONAL INSTITUTE OF LABOUR STUDIES
FLINDERS UNIVERSITY

Professor Judith Sloan is Director of the National Institute of Labour Studies at The Flinders University of South Australia. Professor Sloan has published widely in journals and books, covering labour market, wages policy and industrial relations issues. She is an Associate Editor of the *Australian Bulletin of Labour*. Her most recent work is *Productive Relations? Australian Industrial Relations and Workplace Performance* which she co-authored with Mark Wooden and Robert Drago. Professor Sloan is also a regular columnist for the *Australian Financial Review*.

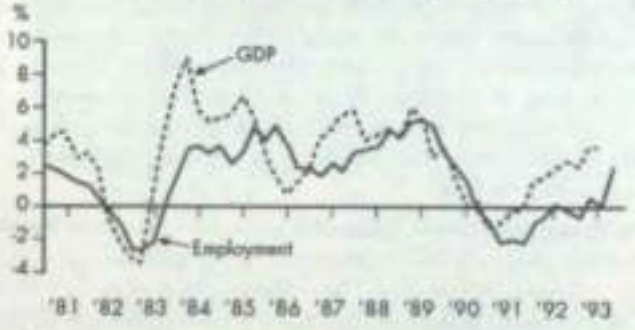
Associate Professor Mark Wooden is Deputy Director of the National Institute of Labour Studies at The Flinders University of South Australia. Professor Wooden has degrees in economics from Flinders University and the London School of Economics. He is the author of over fifty articles and three books. Professor Wooden's research interests include contempory labour market developments, the economics of immigration, absenteeism and the economic impact of trade unions.

RECENT TRENDS IN THE AUSTRALIAN LABOUR MARKET

JUDITH SLOAN & MARK WOODEN

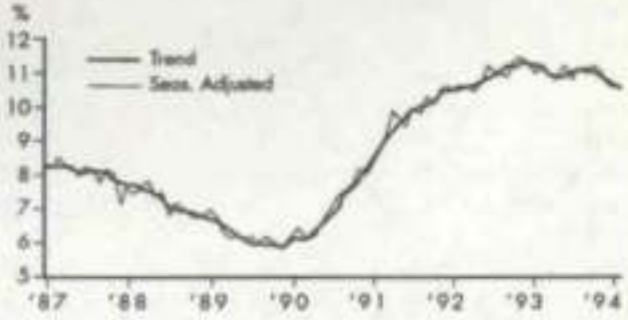
With real GDP now growing by almost 3.5 per cent per annum, there can be little doubt that Australia has at last emerged from the shadow of the recession years of the recent past. Nevertheless, for a period of economic recovery, the rate of output growth is extremely slow by historical standards. Compare, for example, the pattern of growth of the Australian economy following the 1983 recession with that being currently followed. As shown in **Figure 4.1**, after four consecutive quarters of negative growth in 1982-83, real GDP growth accelerated quickly and averaged an annual rate of 4.8 per cent over the next two years. In stark contrast, over the current recovery to date, real GDP growth has been accelerating much more slowly and, at the time of writing, was still yet to top 4 per cent. As a result, employment growth has remained subdued for most of the period since the recession took hold towards the end of 1989. Only in the most recent figures has the rate of increase in employment reached levels which have enabled the rate of unemployment to fall. Indeed, as illustrated in **Figure 4.2**, that fall is still quite small, with the seasonally adjusted unemployment rate for January

Figure 4.1 **Annual GDP Growth and Employment Growth, 1981-1993**



Sources: ABS, *Australian National Accounts: National Income and Expenditure*, ABS Cat. No. 5206.0., ABS, *Labour Force Survey, Australia*, ABS Cat. No. 6203.0.

Figure 4.2 **Unemployment Rates, 1987-94**
(trend series and seasonally adjusted)



Source: ABS, *The Labour Force, Australia*, Cat. No. 6203.0.

1994 (10.6 per cent) being only 0.1 percentage point lower than the minimum at any stage during 1993. Consequently, the trended series is still yet to show any obvious downward movement.

What then of the future? Most economic forecasters are anticipating that the next few years should at least see a return to trend rates of growth; the sorts of levels experienced on average throughout most of the 1970s and mid-1980s. That is, while output growth may continue to rise, and almost certainly at rates in excess of four per cent per annum by the end of 1993-94, over the medium term an average rate of growth of around 3.5 per cent appears more likely. The key question that this leads to is by how much will unemployment change? According to the Committee on Employment Opportunities in its December '93 Discussion Paper (or Green Paper) entitled *Restoring Full Employment*, a return to trend economic growth should see the unemployment rate fall to at least 7.5 per cent by the year 2001. Such a conclusion, however, is critically dependent on what assumptions are made about future growth in the labour force and in productivity.

While labour force growth has slowed dramatically in recent years (see **Figure 4.3**), it seems unlikely that this is indicative of any long-term trend. Instead, it predominantly reflects a reduction in the rate of increase in labour force participation rates as job seekers became increasingly discouraged about the likelihood of finding employment. Indeed, recent forecasts produced by economists at the Office of EPAC assume average labour force growth during the 1990s of 2.1 per cent per annum (Clare and Tulpulé 1993, p. 23-24). The main source of this growth is expected to be further increases in female labour force participation rates.

Figure 4.3 **Labour Force Growth, 1977-1993**
(annual percentage change)

Source: OECD, *Economic Outlook*, No. 54, December 1993.

Clare and Tulpulé also assume an average rate of productivity growth of 1 per cent per annum based on a continuation of recent trends. However, as Clare and Tulpulé note, this estimate is at the lower bounds of likely outcomes. Historically, productivity growth in Australia has averaged 1.3 per cent per annum, and given that the 1990s should see some of the benefits of the various microeconomic reform initiatives implemented by the Hawke and Keating governments become more evident, there are reasons to believe that an even better productivity growth outcome might be possible.

What about the prospects for unemployment? With GDP growing at 3.5 per cent annum, and assuming labour force growth of 2 per cent per annum and productivity growth of 1 per cent per annum, the unemployment rate would fall by 0.5 of a percentage point per year, which seems roughly consistent with an unemployment rate of 7.5 per cent by the year 2001. But if productivity growth turns out to be closer to 1.5 per cent annum, the unemployment rate would remain unchanged, unless rates of output growth were higher. The basic point is that getting unemployment down will be no easy matter and is unlikely to happen quickly if output growth merely returns to past trends.

Indeed, achievement of an unemployment rate of 7.5 per cent by the end of the decade should be judged as an extremely poor outcome. While economic forecasting is hardly an exact science, it is unlikely that many would disagree with the view that economic fortunes will be on the wane again sometime later in this decade or early in the next. If the unemployment rate is 7.5 per cent when that downturn comes, then Australia would be

Table 4.1 **Growth of Real Gross Domestic Product**
(percentage change from previous period)

Rank	1994[a][c]		1993[b][c]		1992		1990-91		1984-89	
1	Canada	3.7	NZ[b]	3.0	US	2.6	Germany	5.1	Australia	4.6
2	NZ	3.3	Australia	2.4	Germany	2.1	Japan	4.4	Japan	4.5
3	Australia	3.1	Canada	2.3	Australia	2.0	Italy	1.7	Canada	4.3
4	USA	3.1	USA	2.3	France	1.4	France	1.6	USA	3.6
5	UK	2.9	UK	1.6	Japan	1.3	Australia	0.3	OK	3.6
6	Italy	1.7	Italy	-0.1	Italy	0.9	USA	0.3	Italy	3.1
7	Sweden	1.5	Japan	-0.2	Canada	0.7	Sweden	-0.2	France	2.8
8	France	1.1	France	-0.7	NZ	0.5	NZ	-0.7	Sweden	2.7
9	Germany	0.8	Germany	-2.0	UK	-0.6	UK	-0.9	Germany	2.7
10	Japan	0.5	Sweden	-3.2	Sweden	-1.7	Canada	-1.0	NZ	1.8
Average of above countries		2.2		0.5		0.9		1.1		3.4
OECD average[c]		2.1		1.4		1.9		1.7		3.6

[a] Second quarter.
[b] The figure for 1993 is an OECD projection.
[c] OECD projections.

Sources: OECD (1993), *Economic Outlook 54*, December.
OECD (1993), *Main Economic Indicators*, January.

confronted by the highest rate of unemployment following any period of sustained economic growth in its history. It is not surprising, therefore, that the Committee on Employment Opportunities argues that we need to target for a rate of GDP growth closer to 4.8 per cent per annum, which should enable the unemployment rate to be lowered to five per cent by the end of the decade. To summarise, for any long-run improvement in Australia's unemployment situation to take place, a period of sustained above average growth is required.

This, of course, leads to the question as to how this is to be achieved, and on this point the Green Paper is not particularly helpful. In particular, it does not outline what it sees as different about the 1990s that will see economic growth climb to rates that have only occasionally been achieved during the last two decades.

Indeed, there are good reasons to be pessimistic about the chances of Australia achieving the rates of growth required to reach the Green Paper's target unemployment rate, given the general weakness of the economic recovery in other parts of the world, and it is to this issue that we now turn.

International Comparisons

As revealed in **Table 4.1**, the economic recovery that is taking place in Australia is not yet a worldwide phenomenon. There appear to be two major clusters of countries. One group consists of predominantly Anglo-Saxon countries Australia, Canada, New Zealand, the United States and the United Kingdom where, following marked falls in interest rates, output growth has recovered from the low trough of 1991, and output looks set to grow by between 3 and 4 per cent during 1994. The second group consists of Japan and most of continental Europe. For these countries, the recession came much later, and output levels were still falling during 1993. Moreover, and as indicated in **Table 4.1**, significant signs of any recovery are not expected until late 1994.

In Europe, the key obstacle continues to be the German economy. The stubbornness of incipient inflationary pressures combined with a desire to maintain confidence in the Deutschemark has meant that the Bundesbank has exercised extreme caution in its application of monetary policy, and hence interest rates continue to fall only slowly. This, in turn, has affected money market rates in other countries participating in the European Exchange Rate Mechanism, given a general commitment to achieving monetary union in Europe.

In Japan, on the other hand, there has been a significant policy shift, as evidenced by a reduction in the official discount rate and the introduction of a range of fiscal stimuli. Nevertheless, the appreciation of the yen has had serious effects on exports, which in turn has hurt investment. Indeed, it had already fallen sharply in the face of over-investment in previous years.

Overall, while world economic fortunes are improving, the speed of recovery in both Japan and Europe is likely to be slow. Indeed, most forecasters appear to be rapidly revising downwards their projections for the rates of growth that are likely to be achieved by both the Japanese and German economies. Thus, the OECD projections reported in **Table 4.1** are almost certainly too optimistic, and our best guess is that any output growth in these countries during the forthcoming year will be extremely small.

How then will Australian economic fortunes be affected? While it is true that Australia is now more dependent on markets in the developing world (especially in Asia) than ever before, and these markets continue to grow at a much faster rate than elsewhere, there can be little doubt that the absence of a strong Japanese economy in particular does have serious ramifications for both world economic growth and growth here in Australia. While we do not envisage that this will prevent Australia returning to trend growth rates, it may well be a significant factor preventing growth from attaining the sorts of rates needed to bring unemployment under control. Furthermore, even in the growing economies such as the US, while further growth in output is expected, there is little expectation of growth at rates consistently in excess of historical trends.

In general, we would expect trends in output growth to be reflected in both employment growth and changes in the level of unemployment, and in the main the figures reported in **Tables 4.2** and **4.3** are consistent with these hypotheses. Of course, as we have already noted, changes in both labour force growth and productivity are important in determining the extent to which output growth is converted into reductions in the unemployment rate. Thus in Australia, despite an acceleration in output growth, unemployment actually worsened during 1993. Indeed, Australia continues to have one of the highest unemployment rates in the OECD. However, improved productivity combined with low inflationary pressure has meant that the growth of unit labour costs has been relatively low (see **Table 4.4**). In fact, only the UK experienced a lower rate of increase in real unit labour costs during 1993 (which was partly the result of a large depreciation in the pound following sterling's exit from the European Exchange Rate Mechanism in late 1992). This factor, combined with low interest rates, has helped keep price inflation down in Australia and has also assisted in the achievement of a stronger performance on the export front. Nevertheless, the continued expansion of imports has seen Australia fall to the bottom of the current account balance table (see **Table 4.5**).

Australia's economic problems, however, pale in comparison with those of Sweden. Once the model economy and the envy of Europe, unemployment in Sweden, at close to nine per cent, stands at a post-war high and has tripled in just two years. Moreover, despite the sharp rise in unemployment, consumer prices have actually risen (see **Table 4.6**), though

Table 4.2 **Employment Growth** [a]
(percentage change from previous period)

Rank	1993[b]		1992		1991		1990		1984-89	
1	NZ (8)	3.2	Japan	1.1	Germany[c]	2.6	Germany[c]	3.0	Australia	3.4
2	Canada (10)	1.8	NZ	0.6	Japan	1.9	Japan	1.9	Canada	2.6
3	US (9)	1.8	US	0.6	Italy	0.9	Italy	1.8	USA	2.6
4	Australia (10)	1.7	Australia	-0.5	France	0.1	Australia	1.6	UK	2.0
5	Japan (10)	0.9	Italy	-0.6	US	-0.9	France	1.0	Japan	1.1
6	France (6)	0.0	Canada	-0.8	NZ	-1.4	NZ	0.9	Sweden	0.9
7	Germany(10)	-1.8	France	-1.0	Sweden	-1.7	Sweden	0.9	Germany[c]	0.9
8	UK (6)	-1.9	Germany	-1.7	Canada	-1.8	Canada	0.7	France	0.5
9	Italy (7)	-3.9	UK	-2.7	Australia	-1.9	USA	0.5	Italy	0.4
10	Sweden (10)	-7.1	Sweden	-4.1	UK	-3.2	UK	0.3	NZ	0.0
Average of above countries		-0.5		-0.9		-0.5		1.3		1.4
OECD average		0.0		-0.3		0.0		1.3		1.7

[a] Not seasonally adjusted.
[b] Change from 1992 to the month denoted by the figure in Brackets.
[c] From 1984 to 1991, data refer to West Germany only.

Sources: OECD (1993), *Economic Outlook 54*, December.
OECD (1993), *Main Economic Indicators*, January.

Table 4.3 **Standardised Unemployment Rates**

Rank	1993[a]		1992		1991		1990		1984-89	
1	Japan (9)	2.6	Japan	2.2	Japan	2.1	Sweden	1.5	Sweden	2.3
2	Germany (10)	4.9	Germany	4.6	Sweden	2.7	Japan	2.1	Japan	2.6
3	USA (10)	6.7	Sweden	4.8	Germany[b]	4.2	Germany[b]	4.8	NZ[c]	5.2
4	Sweden (10)	8.5	USA	7.3	USA	6.6	USA	5.4	USA	6.4
5	NZ (9)	9.0	UK	9.9	UK	8.7	UK	6.8	Germany[b]	6.4
6	UK (10)	10.0	France	10.3	France	9.4	Australia	6.9	Australia	7.7
7	Italy (70)	10.3	NZ	10.3	Australia	9.5	NZ	7.7	Canada	9.2
8	Australia (10)	11.1	Italy	10.5	Italy	9.9	Canada	8.1	France	10.0
9	Canada (10)	11.1	Australia	10.7	Canada	10.2	France	8.9	UK	10.0
10	France (10)	12.0	Canada	11.2	NZ	10.2	Italy	10.3	Italy	10.4
Average of above countries		8.8		8.2		7.4		6.3		7.0
OECD average (10)		7.9		7.5		6.8		6.1		7.3

(a) Annual rate for the month denoted in brackets.
(b) From 1984 to 1991, data refer to West Germany only.
(c) New Zealand figures not available for before 1986.

These unemployment rates are based on ILO/OECD guidelines. The unemployed are defined as persons of working age who are without work, available for work and actively seeking employment. Unemployment is expressed as a percentage of total labour force including all members of the armed forces.

Sources: OECD (1993), *Economic Outlook* 54, December.
OECD (1993), *Main Economic Indicators*, December.

Table 4.4 **Unit Labour Costs in the Business Sector**
(percentage change from previous period)

Rank	1993[a]		1992		1991		1990		1984-89	
1	Sweden	-2.3	Australia	0.6	Australia	1.6	NZ	-1.4	Japan	0.1
2	UK	-0.3	France	1.1	Japan	2.0	Germany[b]	1.3	Germany[b]	1.6
3	Australia	0.4	Sweden	1.3	Germany[b]	2.7	Japan	2.1	France	2.1
4	NZ	0.5	Japan	1.8	NZ	3.2	France	3.4	USA	3.2
5	Canada	1.7	Canada	2.2	France	3.7	Canada	4.9	Canada	3.6
6	Japan	1.7	USA	2.4	USA	3.8	USA	4.9	Sweden	4.4
7	France	2.5	NZ	2.5	Canada	4.2	Australia	6.6	Australia	5.7
8	Italy	2.6	UK	3.2	Sweden	6.6	Italy	7.4	UK	5.8
9	USA	2.7	Italy	4.3	UK	7.6	Sweden	9.0	Italy	6.1
10	Germany	4.3	Germany	5.8	Italy	8.3	UK	9.8	NZ	9.2
Average of above countries		1.4		2.5		4.4		4.8		4.2
OECD average[d]		2.4		2.8		4.1		4.6		3.1

[a] OECD projections.
[b] From 1984 to 1991, the data relate to West Germany only.
[c] Computed on the basis of 1991 GDP expressed in 1991 purchasing power parities.
[d] Excluding Iceland, Luxembourg and Turkey.

Sources: OECD (1993), *Economic Outlook* 54, December.

Table 4.5 **Current Account Balance as a Percentage of GDP**

Rank	1993[e]		1992		1991		1990		1984-89	
1	Japan	3.3	Japan	3.2	Japan	2.2	Germany	3.0	Germany	3.6
2	France	0.8	France	0.3	USA	-0.1	Japan	1.2	Japan	3.2
3	Italy	0.4	USA	-1.1	France	-0.6	France	-1.3	France	-0.3
4	Sweden	-0.2	Germany	-1.3	Germany	-1.2	Italy	-1.4	Sweden	-0.4
5	Germany	-1.1	UK	-1.4	NZ	-1.3	USA	-1.7	Italy	-0.6
6	NZ	-1.7	NZ	-1.9	UK	-1.3	Sweden	-2.6	UK	-1.4
7	USA	-1.7	Sweden	-2.1	Sweden	-1.4	NZ	-2.9	Canada	-1.8
8	UK	-1.8	Italy	-2.2	Italy	-1.9	UK	-3.4	USA	-2.9
9	Canada	-3.6	Australia	-3.7	Australia	-3.4	Canada	-3.9	Australia	-5.0
10	Australia	-4.2	Canada	-4.0	Canada	-4.3	Australia	-5.1	NZ	-5.4
Average of above countries		-1.0		-1.4		-1.3		-1.8		-1.1
OECD average		0.0		-0.2		-0.2		-0.7		-0.5

(e) OECD projections.

Sources: OECD (1993), *Economic Outlook* 54, December.

Table 4.6 **Consumer Prices**
(percentage change from previous period)

Rank	1993[a]		1992		1991		1990		1984-89	
1	NZ[b]	0.3	Australia[b,f]	1.0	NZ	2.6	Germany[b]	2.7	Japan	1.3
2	Japan	1.9	NZ	1.0	Australia[b,f]	3.2	Japan	3.1	Germany[b]	1.5
3	Australia[b,e,f]	2.1	Canada[c]	1.5	France	3.2	France	3.4	USA[c]	3.7
4	Canada[c]	2.2	Japan	1.7	Japan	3.3	Canada[c]	4.8	Canada[c]	4.3
5	UK	2.4	Sweden	2.3	Germany[b]	3.5	USA[c]	5.4	France	4.2
6	France	2.7	France	2.4	USA[c]	4.2	Italy[d]	6.1	UK	5.2
7	USA[c]	3.8	USA[c]	3.0	Canada[c]	5.6	NZ	6.1	Sweden	6.0
8	Germany	4.8	UK	3.7	UK	5.9	Australia[e,f]	7.3	Italy[d]	6.9
9	Italy[d]	5.4	Germany	4.0	Italy[d]	6.5	UK	9.5	Australia[e,f]	7.2
10	Sweden	5.6	Italy[d]	5.3	Sweden	9.3	Sweden	10.5	NZ	10.5
Average of above countries		3.3		2.6		4.7		5.9		5.1
OECD average[a]		5.1		3.2		4.5		5.8		4.5

[a] Annual rate for October 1993, unless otherwise indicated.
[b] Excluding Turkey.
[c] Urban population.
[d] From 1984 to 1991, data refer to West Germany only.
[e] 1993 figure is for August.
[f] Wage and salary earners.

Sources: OECD (1993), *Economic Outlook 54*, OECD December.
OECD (1993), *Main Economic Indicators*, OECD December.

Table 4.7 **Full-time and Part-time Employment Change by Sex**
(percentage change since corresponding month of previous year)

	1991			1992				1993				1994
	May	Aug	Nov	Feb	May	Aug	Nov	Feb	May	Aug	Nov	Feb
Males												
Full-time	-4.0	-4.4	-4.3	-3.3	-2.5	-1.7	-1.5	-0.6	0.6	0.4	2.3	1.7
Part-time	6.7	11.8	15.8	14.4	14.1	14.4	2.5	-5.7	-4.5	-3.3	2.4	11.1
Total	-3.1	-3.1	-2.7	-1.9	-1.0	-0.2	-1.1	-1.1	0.0	0.0	2.3	2.6
Females												
Full-time	-3.0	-1.8	-3.5	-0.8	-1.8	-3.6	-0.1	-0.4	1.4	1.8	1.9	2.7
Part-time	1.9	1.4	0.9	0.8	2.1	6.7	2.5	0.7	0.1	-1.9	3.0	4.0
Total	-1.1	-0.5	-1.7	-0.1	-0.2	0.6	1.0	0.1	0.8	0.2	2.3	3.2
Persons												
Full-time	-3.6	-3.6	-4.1	-2.5	-2.3	-2.3	-1.1	-0.5	0.8	0.8	2.1	2.0
Part-time	4.0	4.1	4.2	3.9	4.9	8.5	2.5	-0.9	-1.1	-2.2	2.9	5.7
Total	-2.3	-2.0	-2.3	-1.1	-0.7	0.1	-0.2	-0.6	0.4	0.1	2.3	2.8

Sources: ABS, *The Labour Force*, Cat. No. 6203.0.

this would seem to be due to a one-off increase in import prices resulting from the depreciation of the krona following its float in late 1992. The only good news for the Swedish economy has been a growth in exports which, when combined with a marked reduction in imports due to the low level of domestic demand, has led to a significant improvement in the current account balance (see **Table 4.5**). In general though, the prognosis for the Swedish economy remains extremely bleak. Not surprisingly, consumer confidence is extremely low. The poor state of the Swedish labour market and the virtual collapse of the housing market have seen a marked reduction in consumer spending. With a government budget deficit amounting to 15 per cent of GDP, it seems unlikely that domestic demand will improve in the foreseeable future. Indeed, the distinct possibility of new taxes and reductions in public spending should further dampen confidence.

The two economies on our list of ten which have exhibited the best performance in recent years are the US and New Zealand. Certainly, these two were the only ones to achieve significant improvement on the unemployment front. In both cases the outlook for further reductions during 1994 and 1995 is bright, although increases in labour force participation, especially in New Zealand, and tightening of fiscal policy, especially in the US, may slow the rate of improvement.

Overall, there are good reasons to believe that Australia's macroeconomic performance in the medium-term will, on most indicators, be better than the average of other industrial nations. Part of the reasoning behind this conclusion is simply our expectation that world economic growth is likely to be relatively subdued. Of course, if this expectation proves to be correct, then it seems unlikely that Australia will be able to maintain output growth at the rate required to reduce the unemployment to 5 per cent by the year 2000, given current policy settings.

The Changing Composition of Employment

One of the main features of the recent recession was the substitution away from full-time employment towards part-time work. That is, while full-time employment declined, part-time employment actually increased. However, as explained in the March 1992 issue of the *Australian Bulletin of Labour*, this growth was symptomatic of a growth in underemployment, with the net growth in part-time employment being accounted for by jobs offering fewer hours than desired.

Coming out of the recession, we might expect a substitution back towards full-time jobs as underemployed workers negotiate with their current employers for longer hours or alternatively switch to jobs with longer hours. The figures reported in **Table 4.7**, however, would not seem to support this conclusion. While the number of full-time jobs is growing, part-time employment growth is continuing at a rate faster than that for full-time

Table 4.8 **Growth of Part-time Employment by Age and Sex** (year ended January 1994)

Age Group	Males		Females	
	'000s	% of total change	'000s	% of total change
15-24	19.0	26.2	16.2	22.3
25-34	-8.5	-11.7	0.0	0.0
35-44	2.1	2.9	15.9	21.9
45-54	-1.3	-1.8	13.9	19.2
55-64	-3.7	-5.1	6.0	8.3
65+	5.7	7.9	7.2	9.9

Source: ABS, *The Labour Force, Australia*, Cat No. 6203.0.

employment. Nevertheless, gross flows data collected by the ABS indicate that, except in the most recent figures (for January 1994), the number of persons moving from a part-time job to a full-time job between surveys (conducted monthly) has tended to exceed the number of persons moving in the opposite direction. Furthermore, closer inspection of the data underlying **Table 4.7** reveals that there has not been any growth in the number of part-time workers wanting to work more hours, and thus virtually all of the growth in part-time employment would appear to be consistent with worker preferences. In other words, the recent jobs growth appears to be concentrated on persons for whom part-time employment is viewed as a satisfactory outcome.

Part of the explanation almost certainly lies in the composition of part-time employment growth, by both sex and age. As shown in **Table 4.8**, almost 50 per cent of net part-time employment growth in the year to January 1994 is accounted for by young persons (aged 15 to 24 years), many of whom are still attending educational institutions and hence do not desire full-time employment. Indeed, the growth in the number of young people staying in education longer is an important reason explaining the growth in part-time employment in these age groups and the offsetting fall in full-time employment. A further 18 per cent of the additional part-time jobs were taken by persons aged 65 years or over, many of whom may be working to help supplement retirement incomes. In other words only one-third of new part-time jobs went to workers in those age groups representing the bulk of the work force (25 to 64 years). Moreover, within these age groups all of the additional part-time employment was accounted for by women. While there were 35,800 additional part-time workers among women in these age groups

Table 4.9 **Employment Growth by Industry, 1993**
(percentage change from corresponding month of previous year)

	February	May	August	November
Agriculture				
Males	0.8	-1.3	3.6	2.2
Females	5.9	-4.0	2.6	-1.6
Persons	2.3	-2.1	3.3	1.1
Mining				
Males	-9.0	2.4	3.1	11.7
Females	0.0	-11.4	-17.2	-1.1
Persons	-8.1	1.2	1.0	10.3
Manufacturing				
Males	-1.2	-2.4	-1.5	-0.3
Females	2.2	6.2	-3.0	-5.2
Persons	-0.3	-0.1	-1.9	-1.7
Construction				
Males	2.2	6.0	4.5	4.6
Females	15.1	11.6	17.3	13.8
Persons	3.7	6.7	6.2	5.8
Wholesale and Retail				
Males	0.5	3.2	1.9	5.8
Females	1.4	1.0	-1.5	1.8
Persons	0.9	2.2	0.4	4.0
Transport and Storage				
Males	-1.0	-2.1	-2.8	2.3
Females	-2.8	-0.8	1.6	5.4
Persons	-1.4	-1.8	-1.9	3.0
Finance, Property and Business				
Males	-0.3	1.5	-2.5	-3.9
Females	-7.5	-9.3	-6.6	4.2
Persons	-3.8	-3.9	-4.5	0.0
Community Services				
Males	-2.6	-2.3	-3.2	3.4
Females	-0.4	2.6	1.5	4.5
Persons	-1.2	0.9	-0.1	4.1
Rec., Personal Services and others				
Males	-6.5	1.4	-2.1	8.0
Females	0.9	-1.5	-2.7	1.6
Persons	-2.5	-0.2	-2.4	4.4
Other				
Males	-2.6	-6.1	1.0	-2.6
Females	2.3	12.2	20.0	0.8
Persons	-1.0	-0.4	7.0	-1.4

Source: ABS, *The Labour Force, Australia*, Cat. No. 6203.0.

compared with a year earlier, among prime age males there were 11,400 fewer part-time workers.

Employment by Industry and Occupation

Changes in employment across the various industrial sectors over the last year can be seen in **Table 4.9**. An obvious feature of this table is the relatively high rates of employment growth in the construction industry over the course of 1993. In general, building activity is very closely aligned with the overall state of the economy and hence a strong recovery in this sector is not unexpected. Nevertheless, it is also true that economic activity has moved ahead much more rapidly in the construction industry than in other sectors over the last year as consumers and investors take advantage of relatively low rates of interest.

Employment growth in the wholesale and retail trade also shows signs of persistent recovery, although the rate of increase has been far more moderate when compared with construction. This is not surprising, and reflects the gradual improvement in consumer confidence.

In other industries, employment growth remains either relatively subdued or has increased only in the most recent figures. In many of the service sector industries, for example, strong employment growth was recorded only over the year ended November 1993. However, such growth has yet to compensate for the earlier job losses. In manufacturing, on the other hand, retrenchments continue. The food, beverages and tobacco group has been especially hard hit, with employment declining by more than 10 per cent over the year to November 1993. Employment in the metals industries, on the other hand, has increased, partly explaining why males have fared better than females in the manufacturing sector. Of course, the metals industries were hardest hit when the recession took hold in late 1989, and employment levels in these industries have yet to recover to their pre-recession levels.

Turning now to employment growth by occupation, as shown in **Table 4.10**, the group that has emerged most rapidly from the recession has been managers and administrators. However, examination of data over a longer period indicates that this group has, on balance, been little affected by the recession, with employment numbers larger now than when the recession began. Such trends may suggest that Australian workplaces are becoming more top heavy, despite the anecdotal evidence indicating that many firms have been streamlining management structures. An alternative explanation lies in the growth of self-employment (and the associated trend towards contract labour), given the likelihood that many individuals working in their own business are more likely to describe themselves as a manager whereas, if employed by a firm, they would classify themselves into some occupation group. The number of self-employed workers has grown by almost 18 per cent since November 1989 which compares with a

Table 4.10 **Employment Growth by Occupation, 1993**
(percentage change from corresponding month of previous year)

	February	May	August	November
Managers and Administrators				
Males	3.2	3.8	2.7	4.9
Females	1.5	3.6	1.5	3.7
Persons	2.7	3.8	2.4	4.6
Professionals				
Males	0.3	-3.2	-2.1	-0.3
Females	-1.6	-1.5	3.5	3.5
Persons	-0.5	-2.4	0.3	1.3
Para-professionals				
Males	-3.8	-2.0	-3.3	6.9
Females	6.4	2.7	1.6	-0.7
Persons	0.7	0.1	-1.0	3.2
Trades				
Males	-2.5	-0.4	0.4	4.0
Females	0.1	11.5	1.9	-5.1
Persons	-2.2	0.8	0.5	3.0
Clerks				
Males	-3.9	0.3	-5.0	-2.5
Females	-1.1	-0.5	-0.5	5.5
Persons	-1.7	-0.3	-1.5	3.6
Sales and Personal Service				
Males	3.1	3.9	4.3	-2.4
Females	2.5	1.1	-0.7	-0.8
Persons	2.7	2.1	1.0	-1.4
Plant, Machine Operators and Drivers				
Males	0.4	-1.9	-3.8	7.5
Females	-11.1	9.4	4.4	7.5
Persons	-1.4	-0.3	-2.6	7.5
Labourers and related				
Males	-4.8	-0.5	1.8	-0.1
Females	-1.5	-1.0	-2.6	1.9
Persons	-3.6	-0.6	0.2	0.6

Source: ABS, *The Labour Force, Australia*, Cat. No. 6203.0.

fall of 2.2 per cent in the number of employed wage and salary earners.

In other occupational groupings, employment growth has been much more patchy. Like managers, the number of persons working in professional occupations grew over the course of the recession, though as can be seen from **Table 4.10**, employment growth was relatively weak during 1993.

Further, much of that growth was concentrated in one sub-group, school teachers, especially female teachers. Employment growth among para-professionals has also been inconsistent, though noticeable improvement was recorded for the year ended November 1993.

Significant gains have also been made in the skilled (tradespersons) and semi-skilled (plant and machine operators and drivers) blue-collar occupations in the last year (but not among unskilled blue-collar workers). Such gains, however, have yet to compensate for the large job losses that took place between 1990 and 1992.

Among clerical workers, significant increases were recorded also in 1993 after a long sustained period of employment declines. All of this growth, however, has been among females, and especially receptionists, telephonists and the like. The number of male clerks continued to fall.

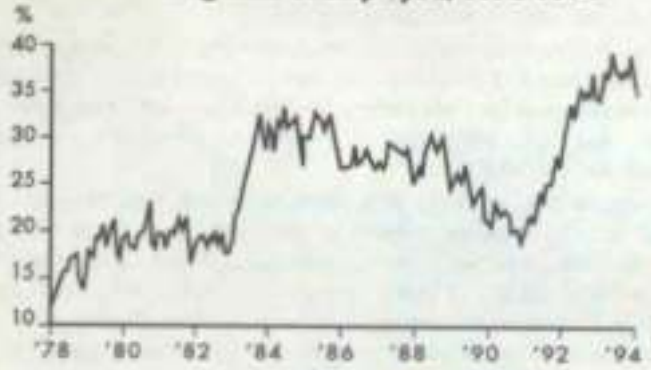
Finally, counter to the general trend, the number of sales and personal service workers is down in the latest figures, despite holding up well throughout most of the recession years. This overall picture, however, disguises a number of divergent trends within this grouping. In particular, the number of personal service workers fell in the most recent figures, after strong growth throughout the recession. A possible explanation here is that many workers who were laid-off or were unable to find other work, were able to find employment in personal service type jobs during the recession. Once economic conditions improve, however, these workers return to jobs in the mainstream labour market. The number of insurance, investment and real estate salespersons also fell, and a similar explanation to that provided for personal service workers may also apply here. In contrast, the numbers of sales persons typically associated with wholesaling and retailing (such as sales representatives, cashiers and the like) have risen, reflecting increased sales.

The Changing Composition of Unemployment

The most obvious consequence of a recession is higher rates of unemployment for all groups in the labour force. Nevertheless, there are a number of features which make this recession unique. First and foremost, this recession has been associated with a marked increase in the duration of unemployment. As shown in **Figure 4.4**, the proportion of the unemployed who have been without a job for a year or more has risen from less than 20 per cent in the late 1970s to reach close to 40 per cent during 1993. This expansion in the numbers of long-term unemployed is a direct result of the protracted nature of the recent recession.

Second, the experience of the sexes has been quite different in this recession compared with earlier periods. As shown in **Table 4.11**, while in 1983 the unemployment rates for men and women were very close, by 1993 a distinct gap had opened up with male unemployment noticeably higher than the rate for women. Moreover, this has occurred despite a 7 to 8

Figure 4.4 **Percentage of Unemployed who are Long-term Unemployed, 1978-1994**



Source: ABS, *The Labour Force, Australia*, Cat. No. 6203.0.

percentage point rise in female labour force participation rates (compared with a 2 to 3 percentage point fall in the male labour force participation rate). In other words, female unemployment has risen by far less than has male unemployment, even though the female labour force grew at a much faster rate (indeed, since 1978 the rate of growth of the female labour force has been about double that for men).

Third, adult unemployment has become much more of a problem in the latest recession. In earlier periods, the effects of a recession were typically felt most by young workers. While it is still true that the highest rates of unemployment are found among teenagers, the 1990s has seen a marked growth in the incidence of unemployment among both prime age and older members of the workforce. Of course, part of the reason why youth unemployment is not any higher in this recession compared with the 1983 recession is that labour force participation rates among youth have fallen, which it could be argued might reflect discouraged worker effects. Nevertheless, figures reported each September by the ABS in their publication, *Persons Not in the Labour Force*, indicate that growth in discouraged job seekers has been most pronounced among prime age workers. For example, in September 1989 5.5 per cent of teenagers not in the labour force were measured as being discouraged job seekers. By September 1993 this figure had risen to 8.2 per cent. By comparison, among persons aged 35 to 44 years the relevant proportion rose from 13.9 per cent to 31.4 per cent (of persons aged 35 to 44 years who were not in the labour force).

Finally, Table 4.11 highlights changes in unemployment according to

Table 4.11 **Comparative Profile of Unemployed, 1983 & 1993**
(percentage change from corresponding month of previous year)

	November 1983		November 1993	
	Unemployment rate (%)	Ratio to total	Unemployment rate (%)	Ratio to total
Gender				
Male	8.9	1.00	10.6	1.03
Female	9.0	1.01	9.9	0.96
Age				
Youth (15-24)	16.4	1.84	16.9	1.64
Prime-age (25-54)	6.5	0.73	8.4	0.82
Older (55+)	5.1	0.57	9.7	0.94
Birthplace				
Australia	8.2	0.92	9.7	0.94
Overseas	11.0	1.24	12.3	1.19
Industry				
Agriculture	3.8	0.70	5.0	0.96
Manufacturing	8.1	1.50	7.9	1.52
Construction	10.3	1.91	7.3	1.38
W'sale & retail trade	6.5	1.20	5.4	1.04
Transport & storage	4.6	0.85	4.9	0.94
Finance, etc.	2.9	0.54	3.1	0.60
Community services	2.1	0.39	2.4	0.46
Recreation, personal & other services	6.4	1.13	7.5	1.44
Other	3.4	0.63	2.3	0.44

industry of last job. In the main, there does not appear to have been much change. The most obvious difference between 1993 and 1983 is the much lower rate of unemployment arising from job loss in the construction industry in 1993 relative to 1983. However, this difference is almost certainly due to the two observation points representing different stages of the economic cycle. Whereas November 1983 was close to the trough of the 1982-83 recession, November 1993 is a time when economic recovery was in progress, and as noted above, the construction industry is a leading sector in the recovery. Perhaps of greater significance is the relative deterioration of employment prospects for persons employed in recreation, personal and other services. One of the growth sectors of the 1980s, it would seem that persons retrenched from this sector are having greater difficulties finding employment, possibly because employment in this industry is not very skill-intensive.

The (Commonwealth) Industrial Relations Reform Act (IRRA) 1993

What is an Act that relies on three Heads of Power in the Constitution, that contains hundreds of amendments made between the Second and Third Reading Speeches (mainly government-inspired) and was rammed through Parliament in less than two months? Answer: Laurie Brereton's Industrial Relations Reform Act 1993.

The Industrial Relations Reform Act 1993 came into operation on 30 March 1994, although certain provisions relating to termination of employment commenced on 26 February 1994. The importance of this Act derives partly from the fact that it prescribes in great detail the means by which enterprise bargaining will be conducted and agreements channelled. Ostensibly designed to emphasise conciliation over arbitration and to establish enterprise bargaining as the very hallmark of the industrial relations system, compulsory arbitration is however retained and the award system strengthened by the Act. Not surprisingly, it is a very pro-union package, with a legislated right to strike, relatively trivial penalties for striking in defiance of Commission orders and the dilution of the laws governing secondary boycotts, which are now positioned in the Industrial Relations Reform Act 1993.

What are the main features of the Industrial Relations Reform Act 1993? While the Act continues to provide for conciliation and arbitration, the emphasis is placed on disputes being solved, as far as possible, by conciliation. Within Part 2 Objects, there is also mention of the need to maintain a framework of awards and to ensure compliance of labour standards with international obligations.

A new and potentially significant Object of the Act is to help prevent and eliminate discrimination on the basis of race, colour, sex, sexual preference, age, physical or mental disability, marital status, family responsibilities, pregnancy, religion, political opinion, national extraction or social origin. Since it is the intention that all instruments of the Commission (awards and agreements) comply with these non-discrimination provisions, this raises the issue of whether, for instance, junior rates of pay fail to meet the non-discrimination criterion. There are a number of other examples where existing award/agreement clauses are also unlikely to comply. Remedying implicit discrimination in awards will be a huge task for Commission members.

There is a new part in the Act (Part 3, The Award System) which explicitly reaffirms the role of awards and indeed lays down statutory guidelines governing award variations (in Section 88A):

> *(a) by awards that set fair and enforceable minimum wages and conditions of employment that are maintained at a relevant level; ...*
>
> *(b) awards ... act as a safety net of minimum wages and conditions underpinning direct bargaining; ...*

(d) regard is had, in connection with the making, reviewing and varying awards, to stable and appropriate relativities based on skill, responsibility and the conditions under which work is performed, and on the need for skill-based career paths.

A key phrase in **Part 3** is 'secure, relevant and consistent' – it becomes a duty of the Commission to ensure that awards conform with this description. The Commission is called on to review all awards at least every three years and to ensure that awards conform with the International Labour Organisation Convention on Family Responsibilities. It is also stated in the Act that awards must be expressed in plain English and that obsolete provisions be deleted and provisions updated.

Under Part 3, the Commission is required to establish expeditiously an interim award to satisfy the requirement that an award is in place prior to an agreement being approved. This has important implications for **greenfields operations**. It is impossible under the Act for greenfields sites to be covered by an agreement without an award first being in place, the latter providing the benchmark for the no disadvantage rule governing agreements (see below). The clear intention is to remove any additional flexibility greenfields sites might gain over existing operations.

The new **Part 4** Minimum Entitlements covers five main topics, viz:

(a) minimum wages;

(b) equal remuneration for work of equal value;

(c) termination of employment;

(d) parental leave; and

(e) leave to care for immediate family.

Rather than comply with the ILO Convention on Minimum Wages by recourse to the setting of a minimum wage, as is the case in many countries, the interpretation the IRRA places on compliance with the ILO Convention on Minimum Wages is the minimum rates of pay specified in awards for all employees in a group. As a consequence, there is a vast range of minimum wages, many of which are not confined to low-paid workers.

The termination of employment provisions involve one of the most radical departures in the Act, especially in terms of the involvement of the federal jurisdiction. There are likely to be a small number of exclusions, including workers engaged under a contract for a specified period or to undertake a specific task; workers serving a probation or qualifying period; and some casual workers.

There are **three basic categories of termination** dealt with under the Act. These are: termination initiated by the employer for good reason; termination resulting from redundancy; and unfair dismissal. Minimum periods of notice are set down in the Act according to years of service and

compensation in lieu of notice. In terms of redundancy, the Act provides for consultative processes and a requirement to notify the CES where 15 or more redundancies occur. 170DE deals with harsh, unjust or unreasonable termination:

> (1) *An employer must not terminate an employee's employment unless there is a valid reason, or valid reasons, connected with the employee's capacity or conduct or based on the operational requirements of the undertaking, establishment or service.*
>
> (2) *A reason is not valid if, having regard to the employee's capacity and conduct and those operational requirements, the termination is harsh, unjust or unreasonable.*

In other words, there has to be substantive fairness as well as procedural fairness.

A number of grounds are laid down which may not form the basis for termination, including: temporary absence associated with illness/injury, union membership/union activities, non-union status, race, sex, colour, sexual preference, age, physical or mental disability, marital status, family responsibilities, pregnancy, religion, political opinion, national extraction, social origin, and parental leave.

Within 14 days of termination, any employee (not necessarily award-covered), or trade union, may apply to the Industrial Relations Court for a remedy in respect of termination. The Commission may be required to establish a conciliated resolution. Failing this, the Court has the power to put the employee in the same position as if the employment had not been terminated, including reinstatement or monetary compensation, on which latter matter however the Act gives no specific guidance. Since there are essentially no federal precedents for the Industrial Relations Court to follow, the early decisions in relation to compensation will be closely followed. Apart from a potential deluge of claims for unfair dismissal from non-award employees, any indications that very generous compensation will be available at the federal level are likely to encourage jurisdiction-hopping by award employees.

Part 5 is entitled 'Promoting Bargaining and Facilitating Agreements'. The Act carries a definition of enterprise which is a business that is carried on by a single employer; or a geographically distinct part of such a business; or 2 or more geographically distinct parts of the same business carried on by a single employer. These definitions are important because they preclude agreements that cover only a portion of workers (say those who are non-union) in an enterprise, as well as individual contracting.

There are essentially two routes for the making of agreements. The first **Certified Agreements** is little changed from Division 3A, Section 134 of the

Industrial Relations Act 1988 as amended, apart from the condition that the wages and conditions of the relevant employees must be regulated by one or more awards that bind the employer, and certification should not be approved if a provision in the agreement is discriminatory. There are 18 steps to comply with for the making and registration of a Certified Agreement, which must be made with a registered trade union.

The second route for agreement making is via **Enterprise Flexibility Agreements**. Ostensibly, this is the route available for employers to make direct agreements with employees that is, non-union bargaining. There are 21 steps to comply with, including that a majority of employees agree to the terms of the agreement. It is the employer that applies to the Commission for approval and the agreement becomes an order of the Commission, akin to an award. Technically, the employees are not parties to the agreement. Under the definition of enterprise in the Act, individual contracts that override awards will not be able to be certified as Enterprise Flexibility Agreements.

One of the preconditions for an Enterprise Flexibility Agreement is that at least some employees be covered by a federal award. This is designed not so much to protect workers under state jurisdictions, but rather to prevent award-free employers from seeking a (federal) Enterprise Flexibility Agreement to protect their arrangements and thereby avoid being roped into a federal award.

The no disadvantage rule applies to Certified Agreements and Enterprise Flexibility Agreements, and this is judged in relation to awards and entitlements under state or Commonwealth laws. In the case of Enterprise Flexibility Agreements, there is also a public interest test (although this is not defined in relation to Commission Principles).

In lightly-unionised plants where an Enterprise Flexibility Agreement is being considered, the relevant unions must be informed of impending negotiations and be allowed to become parties to negotiations if they wish. Indeed, the Commission has the power not to approve an agreement if the employer has failed to notify unions about negotiations or give them the opportunity to participate. In completely non-union settings, unions may intervene in the certification process, although they can only object not veto.

Under all the circumstances, it is difficult to envisage many employers voluntarily choosing the Enterprise Flexibility Agreement route. A possible scenario is that down the track, the federal government will note the lack of use of the provisions and conclude that there is no demand for non-union bargaining. As a consequence, the provisions will be deleted. There is of course an alternative interpretation. That is, the provisions are too forbidding and risky for the average employer to contemplate and therefore other strategies, including sticking with the award, will be followed. It is not that there is no demand for non-union bargaining, it is that there is no demand on the terms provided under the Act.

Part 5, Division 4, deals with immunity from civil liability. Introduced in this Act is the new (for Australia) idea of a bargaining period during which agreements are being negotiated. An employer or union (but not a group of employees) may initiate a bargaining period by giving notice to the other parties. At least three days notice of intended action is required. Action undertaken during the bargaining period is protected action. The Commission may order a secret ballot of employees. The bargaining period ends when the Commission terminates it; when a certified agreement is entered into; or either party decides it does not wish to proceed to a certified agreement.

The grounds on which the Commission may end a bargaining period are either where it is convinced there is not a genuine attempt to reach agreement by either party, or there has been a breach of good faith bargaining (see below). Industrial action threatening life, personal safety, health or the welfare of the Australian population or causing significant damage to the Australian economy are also grounds for termination of the bargaining period. Industrial action outside the bargaining period which is not notified is subject to penalties of $5,000 plus $2,500 per day. It is unclear whether a necessary precondition is a bans clause in the underlying award.

The Act contains provision for the Commission to make orders to ensure 'that the parties negotiating an agreement ... do so in good faith'. In addition, the Commission is able to promote the efficient conduct of negotiations or otherwise facilitate the making of such an agreement. Some of the items listed in the Act as appropriate and enforceable conduct by the negotiating parties include: agreement to meet at reasonable times; attending meetings; compliance with negotiating procedures; not capriciously adding or withdrawing items for negotiation; disclosing relevant information; and negotiating with all those who are entitled to be parties to negotiations under the Act.

Finally, the **secondary boycott provisions** have been placed in the IRRA, re-positioned from the Trade Practices Act. There has been some significant re-wording of the provisions, including the introduction of a 72 hour period of compulsory conciliation and the exemption or re-defining of certain secondary boycott action. For example, peaceful picketing is now exempt, as is industrial action waged in the name of an industry campaign.

Overall, the interpretation that can be placed on the IRRA is as follows. The Act is an extremely complicated one. It seeks to provide means by which enterprise agreements can be ratified while retaining the basic structure of the award system. The principles which will govern award variations are set down in the legislation and deal mainly with continuing the union movement's award restructuring agenda, the main features of which are skills-based career paths and a consistent set of minimum rates across awards. The interpretations placed on the minimum entitlements which are deemed to be

consistent with Australia's signatory to ILO and other international conventions have potentially far-reaching implications. Not only do they potentially override state industrial relations legislation in relation to minimum entitlements, they provide protection to all employees irrespective of award status. This last point is particularly important in terms of the provisions on employment termination.

The conditions under which agreements can be ratified in the Act are highly prescriptive, especially so in non-union settings, with the no disadvantage rule meaning that agreements can only be over-award (on balance). Indeed, early indications are that most federal agreements are merely add-ons to awards. There are a number of quite explicitly pro-union provisions in the Act, particularly in relation to secondary boycott activity. The bargaining in good faith provision may be used by unions to force otherwise reluctant employers to the bargaining table. Greenfields operations are given no advantage under the Act because of the need for an interim award to be in place prior to an agreement being ratified. The extent to which agreements made under the federal jurisdiction will encroach into state territory is unclear, although given the incidence of dual award coverage in some workplaces, the encroachment will not necessarily be marginal.

References

Clare, R. and Tulpulé, A. (1993), *Australia's Ageing Society*, EPAC Background Paper No. 37, EPAC, Canberra.

Committee on Employment Opportunities (1993), *Restoring Full Employment: A Discussion Paper*, AGPS, Canberra.

CHAPTER 5

HOW DO WE BOOST SAVINGS AND INVESTMENT?

ALEX FRINO

DEPARTMENT OF ACCOUNTING
THE UNIVERSITY OF SYDNEY
AND CONSULTANT TO THE AUSTRALIAN STOCK EXCHANGE

Alex Frino is a lecturer in the Department of Accounting at the University of Sydney. He holds a Bachelor of Commmerce, Master of Commerce (Hons), Master of Philosophy and is presently completing his PhD in Accountancy at the University of Sydney. Alex has worked as an accountant in industry and has also acted as an external consultant to CS First Boston and the Australian Stock Exchange. He has a number of published articles, won several academic prizes including a scholarship to Cambridge where he completed his MPhil. Alex's research interests include stock market microstructure, and forecasting financial market and accounting variables.

HOW DO WE BOOST SAVINGS AND INVESTMENT?

ALEX FRINO

When investors buy and then sell shares they expect a certain rate of return as compensation for foregoing their consumption during the period in which they hold the shares. They also expect an additional return as compensation for the risk associated with their investment and the transaction costs incurred in undertaking the investment. Broadly speaking, the larger the risk and transaction costs associated with saving and investing, the higher the returns from investment needed to encourage savings and investment. As a consequence, one of the ways of encouraging savings and investment is through reducing transaction costs associated with the provision of savings for investment. The transaction costs associated with the provision of equity savings[1] for investment are stamp duty, brokerage and bid/ask spreads. This paper will discuss the nature of each of these costs, and provide some unique Australian data on the breakdown of total transaction costs related to equity investment. The data suggests that stamp duty is a significant component of transaction costs, and hence the abolition of stamp duty in Australia has the potential to encourage savings and investment.

Costs of Trading Shares and the Savings/Investment Decision

The economics and finance literature continually iterates the basis for a rational investment decision by a corporation – take on a project if its expected rate of return exceeds the rate of return required by its owners. In the case of shareholders (equity owners), the rate of return generated by a project is passed on as dividends, or more typically, through increments in the value of shares held which can be sold in order to realise gains. Transaction costs incurred in buying and selling shares in order to participate in the net gains from investment can reduce the net benefit realised by investors.

As a consequence, transaction costs either:

(i) increase the required gross return of shareholders; or

(ii) reduce the net return to shareholders.

[1] Equity finance is to be distinguished from debt finance, which involves a contractual obligation to repay the initial amount lent plus interest. Equity finance involves no such obligations, and effectively represents ownership in a corporation and a share in its profits. Equity finance is normally provided to a corporation through the purchase of its shares. This results in a flow of funds from the shareholder to the corporation, which can then be used for investment.

Both (i) and (ii) above have the effect of reducing the likelihood that a given investment opportunity will satisfy the rational investment rule, and as a consequence, reducing the likelihood of equity savings and investment. It will be argued in this paper that the reduction of costs associated with trading shares can directly increase the level of savings and investment.

Costs Associated with Trading Shares

There are three main costs of trading shares, namely, stamp duty, brokerage fees, and bid/ask spreads. Each of these costs will be discussed in turn, together with insights relating to how they may be reduced.

Stamp Duty

Stamp duty is a government tax on transactions levied on the value of shares traded. Stamp duty is presently payable on all market transactions of shares at 30 cents for every $100 or part, payable by both buyers and sellers. This makes the effective cost of buying and then selling shares (a round trip trade) 0.6 per cent. Under certain circumstances, stamp duty on off-market transactions is 0.6 per cent but is payable only by the buyer.

Brokerage Fees

A trade in shares can only be executed on the Australian Stock Exchange by a broker who is a member of the Exchange. In return for providing brokerage or trade execution services, brokers charge commissions or fees. Prior to April 1984, brokerage fees were fixed, after which brokers were free to set their own fees. Aitken (1990) provides some compelling evidence that following the deregulation of brokerage commissions, fees fell considerably for the bulk of trading. Current data on the magnitude of brokerage fees is difficult to obtain owing to its non-public nature, and historical series do not exist. Table 5.1 below contains some descriptive statistics of data acquired from one of the Top 10 Australian brokers for trades executed in January 1994. The trades of the broker were ranked on the basis of trade value, and divided into 10 equally sized groups from the largest sized group of trades to the smallest. The average value of trades associated with each group, and the average brokerage commission charged on each group of trades is contained in Table 5.1.

Table 5.1 suggests that the average brokerage fee paid per dollar of trade is 0.40 per cent. Since investors will be charged brokerage on both buy and sell transactions on a round trip trade, it is conjectured that the average fee paid per dollar of trade on a round trip transaction is 0.80 per cent.[1] Table 5.1 and Figure 5.1 further suggest that the size of the brokerage fee falls as the size of the trade increases. This is consistent with the evidence of Aitken ,

[1] Aitken (1990) found no evidence to suggest that buyers are charged a systematically different brokerage fee to sellers.

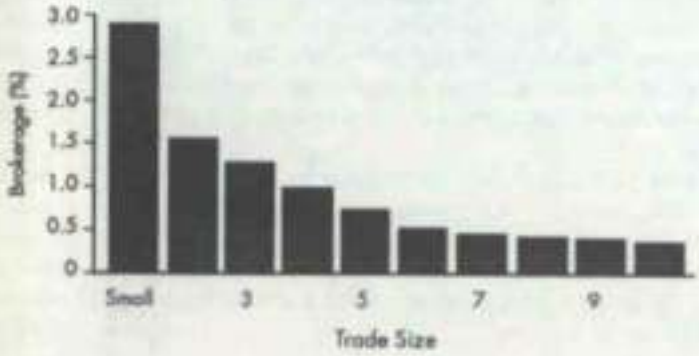
Table 5.1 **Brokerage Charged by a Top 10 ASX Broker in January 1994, by the Dollar Value of Trade**

Trade Size		Average Consideration[1] ($)	Average Brokerage[2] (%)
Small	1	1,710	2.92
	2	4,639	1.54
	3	8,160	1.30
	4	13,359	1.00
	5	23,519	0.72
	6	43,206	0.52
	7	83,084	0.45
	8	163,417	0.43
	9	347,596	0.41
Large	10	1,659,335	0.37
Value Weighted			Average[3] = 0.40

1 Average value of trades in this category.
2 Average brokerage per trade as a percentage of trade value.
3 Average consideration weighted brokerage charge.

Source: Anonymous top 10 broker on the ASX.

Figure 5.1 **Brokerage Fees Charged by One Top 10 Broker in 1994, by the Size of Trade**



Source: Anonymous top 10 broker on the ASX.

who found one of the most important variables explaining the level of brokerage fees is trade value. Aitken also provides evidence suggesting that the amount of research provided by brokers, and the degree of stock price volatility increases the amount of brokerage commission charged.

Bid/Ask Spreads

In Australia, market participants who want to buy shares typically telephone their brokers and ask them to place 'bid' orders to buy shares on their behalf. Each broker then electronically submits the order to the market, stipulating the quantity and price at which the broker's client is willing to buy.[3] If a seller exists in the market and is willing to sell shares at a price less than or equal to the price stipulated by the buyer, a trade occurs. If however, no such seller is available, the buyer must wait to trade and the order remains unexecuted in the market. An analogous process occurs for market participants who want to sell their shares, in which case brokers place 'ask' orders.

At any point in time, there exists in the market a pool of unfulfilled buyers and sellers willing to trade at a variety of different price levels. The highest bid price is called the '**market bid**', whilst the lowest ask price is called the '**market ask**'. The market ask must always be greater than the market bid, otherwise the two orders would be 'crossed' and a trade recorded. The difference between the market bid and ask is called the 'market bid/ask spread'. The market bid/ask spread represents the minimum cost of completing a round trip trade[4] because a trader who immediately wants to buy and then sell shares will buy at a higher market ask price, and then must sell at a lower market bid.

Although data on market bids and asks are reported in the press at the end of each day, descriptive statistics on the size of the bid/ask spread for stocks traded in Australia are virtually non-existent. Some statistics were compiled from data acquired from the Australian Stock Exchange[5] for the purposes of this paper.

The 100 most traded stocks in Australia by the value of trade were ranked according to the value of trading.[6] These were then divided into groups of 10 from the most to the least frequently traded, and the average bid/ask spread over the month of January 1994 was calculated for each stock. **Table 5.2** below provides details of the average bid/ask spread for each of these 10 groups.

---

3 Of course, the process is a little more complicated than described. Often the broker attempts various 'gaming' strategies in order to maximise the price of stock sold, or minimise the price of stock bought.

4 Recall that a round trip trade is the process of buying and then selling shares.

5 The data in the table has been compiled from a unique ASX database which is held at the University of Sydney.

6 Note that the top 100 stocks were used as the infrequency of trading on stocks outside of this group means that spreads were often non-existent.

Table 5.2 suggests that investors trading in the top 100 stocks will, on average, face a bid/ask spread of approximately 0.47 per cent (of the price of the stock). Table 5.2 and Figure 5.2 also suggest that the bid/ask spread falls as the amount of trading activity in the stock rises. This is consistent with the findings of Aitken and Frino (1994), that the size of the spread falls as the level of trading activity in a stock increases. Aitken and Frino (1994) also find that the size of the spread decreases as the price of the stock increases, and increases as the price volatility of the stock increases.

A Breakdown and Estimate of Total Transaction Costs on the ASX

The data description provided to this point suggests that the average total cost of trading shares in Australia is approximately 1.87 per cent, with stamp duty, brokerage and bid/ask spread contributing 0.60 per cent, 0.80 per cent and 0.47 per cent respectively.[7] Figure 5.3 depicts this breakdown of total

Table 5.2 **Average Bid/Ask Spreads of the 100 Most Frequently Traded Stocks in January 1994, by the Value of Trade in the Stock**

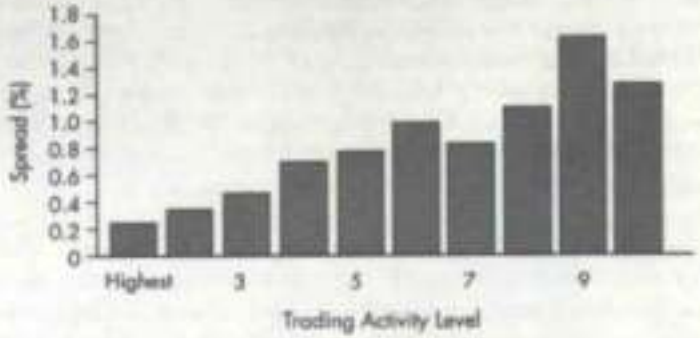
Stock Turnover		Average Trade Volume[1] ($)	Average Spread[2] ($)	Average Spread[3] (%)
High	1	360,713,077	2.21	0.25
	2	116,810,650	1.80	0.35
	3	84,120,270	1.89	0.47
	4	49,887,432	2.57	0.70
	5	33,476,626	3.52	0.78
	6	28,030,202	2.70	1.00
	7	21,492,881	2.81	0.85
	8	18,272,111	3.72	1.09
	9	15,379,316	3.10	1.62
Low	10	13,230,465	5.60	1.28
			Value Weighted Average[4]	= 0.47

1 The average trade value for the stocks in each group.
2 The average dollar bid ask spread of the stocks in the group.
3 The average bid ask spread as a percentage of the price of the stock for the group.
4 The average of spreads weighted by the value of trade in the stock.

Source: ASX Database, University of Sydney.

[7] Note that brokerage fees and spreads are not strictly comparable, as the brokerage fee data is based on trades in all stocks whilst the spread data is based solely on the top 100. However, given that over 82 per cent of trading in January 1994 occurred in the top 100 stocks, then most of the brokerage data relates to the top 100 stocks in any case, and the comparison above is reasonably valid.

Figure 5.2 **Average Bid/Ask Spreads of the 100 Most Frequently Traded Stocks in January 1994, by Value of Trade in the Stock**



Source: ASX Database, University of Sydney.

transaction costs and demonstrates that stamp duty is a one of the main contributors.

At a most optimistic level, the evidence provided above suggests that investors will only undertake an investment if the investment returns their net required rate of return plus at least 1.87 per cent. The risk implicit in any investment (the probability that the return of an investment will be something other than expected) suggests that the premium associated with transaction costs will be somewhat greater than 1.87 per cent.

Figure 5.3 **Breakdown of Total Transaction Costs of Trading Shares**

Source: ASX Database, Sydney University.

Increasing Savings and Investment

The arguments presented earlier suggested that transaction costs deter savings and investment. Hence, an obvious policy implication of the analysis to this point, given an objective of increased savings and investment, is the promotion of change so as to reduce transaction costs. The three transaction costs which can be reduced in order to promote savings and investment are stamp duty, bid/ask spreads, or brokerage. Of these, stamp duty is by far the most contentious, as reflected by the considerable debate on the issue recently and especially in the US. Further, the data reviewed above suggests that stamp duty is a significant cost of trading on the ASX. As a consequence, this paper will focus on stamp duty in further discussion.

The abolition of stamp duty on the ASX would be consistent with recent developments in Finland, New Zealand, Singapore and Sweden – all of which eliminated such taxes in 1992. It would also bring Australia into line with the USA, which has never placed such taxes on securities transactions. Table 5.3 above supports the notion that Australia has a high level of stamp duty on share trading. Australia has the highest level of stamp duty in the world, together with Japan and Taiwan. The reduction of stamp duty would bring the Australian rate down to a more competitive level relative to other nations.

Table 5.3 **Government Imposed Securities Transaction Taxes Around the World**

Nation	Description	Approx. Size on Round Trip Trade
Australia	stamp duty	0.6%
Austria	transfer tax	0.5%
Belgium	stamp duty	0.34%
France	trading tax	0.30%
Germany	Boermuate & Courtage tax	0.37%
Hong Kong	stamp duty & special levy	0.512%
Italy	stamp duty	0.10%
Japan	sales tax	0.60%
Singapore	contract stamp duty	0.2%
Switzerland	various	0.171%
Taiwan	transaction taxes	0.6%
UK	stamp duty	0.5%

Source: Compiled from Frost and Campbell, 1993, Table 1.

Conclusion

This paper has argued that costs associated with trading shares, a source of equity capital, decreases the likelihood that savings will be used to acquire such financial assets. Given that funds from the sale of shares are used for investment purposes, then transaction costs on equities trading acts to reduce the level of savings and investment. The main costs of trading shares are stamp duty, brokerage and the bid/ask spread. It was argued that relative to other nations, stamp duty in Australia is quite high. The policy implication derived from this analysis is that in order to increase savings and investment, stamp duty placed on securities transactions needs to be eliminated.

References

Aitken, M.J. (1990), 'The Australian Securities Industry Under Negotiated Brokerage Commissions: Evidence from the Effects of Change on the Structure of the Industry', *Journal of Business Finance and Accounting*, pp. 213-245.

Aitken, M.J. (1991), 'The Determinants of Brokerage Fees in a Competitive Environment', *Accounting and Finance*, pp. 51-68.

Aitken, M.J. and A. Frino (1994), 'The Determinants of Bid/Ask Spreads on the Australian Stock Exchange', University of Sydney, Department of Accounting, Working Paper.

Froot, Kenneth. A. and John. Y. Campbell (1993), *Securities Transaction Taxes: What about International Experiences and Migrating Markets?*, Catalyst Institute, Chicago.

CHAPTER 6

ENCOURAGING THINKING IN THE ECONOMICS CLASSROOM

ANITA FORSYTH

LECTURER IN EDUCATION
MONASH UNIVERSITY

&

JUDITH MACKENZIE-JESSER

AUTHOR AND TEACHER
GLEN WAVERLEY COLLEGE

Anita Forsyth has a Masters Degree in Education from Monash University. Anita has taught economics in Victorian secondary schools for 15 years and is currently Economics Method Lecturer in the School of Graduate Studies, Faculty of Education, Monash University. She has written a number of publications and textbooks in the economics field and is the convenor of an Economics Interest Group at the Victorian Commercial Teachers Association (VCTA). She is currently the Economics section editor of *Compak* – the VCTA Teachers' Journal. Anita is currently co-authoring with Judith Mackenzie-Jesser a Middle School Business Studies text, *'The Ordinary Business of Life'* due to be published in October 1994 by Oxford University Press.

Judith Mackenzie-Jesser completed her schooling and her under-graduate study in Sydney. She taught for two years in Sydney before going to Victoria where she has spent the rest of her twenty year teaching career, primarily in the state system, with some periods in the private system. Judith is currently curriculum Head of Studies of Society and Environment Faculty at Glen Waverley Secondary College. Judith has a Masters degree in Education from Monash University. Currently Judith is co-authoring with Anita Forsyth a Middle School Business Studies text, *'The Ordinary Business of Life'* due to be published in October 1994 by Oxford University Press.

ENCOURAGING THINKING IN THE ECONOMICS CLASSROOM

ANITA FORSYTH & JUDITH MACKENZIE-JESSER

According to Edward de Bono thinking is the deliberate exploration of experience for the purpose of understanding, making decisions, planning, problem solving, judging and taking action. Thinking is an operational skill through which intelligence acts upon experience and involves the processing of information.[1]

Today, the teacher's role is changing from one of transmitting knowledge to one of facilitating the construction of knowledge. Where students are introduced to strategies which encourage them to use higher order thinking skills, they are forced to justify their thinking as their understanding is developing. That is, students move their thinking beyond mere recall and knowledge.

Our purpose in this article is to provide teachers with four examples of methods we use to encourage students to develop higher order thinking skills. We do not present these methods as a comprehensive list. Rather we hope they will be viewed as a starting point that will stimulate the invention and widespread use of many more imaginative and powerful ways of encouraging students to think.

The four methods to be discussed in this presentation are:

- Concept Maps
- 'Skinny' and 'Fat' Questions
- Fortune Lines
- Predict-Observe-Explain (POE) Exercises.

Concept Maps

What is a Concept Map?

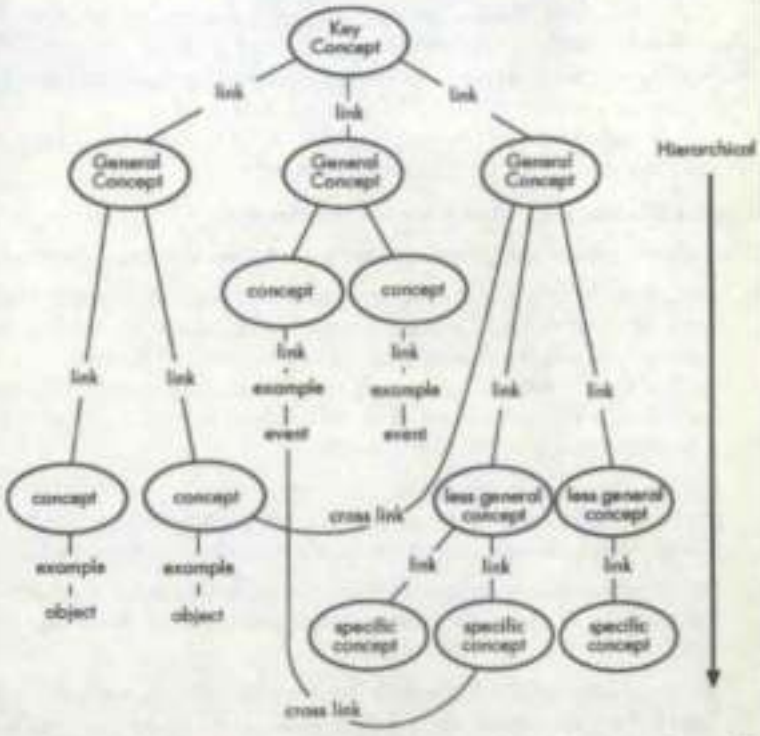
A concept map:

- is a deliberate effort on the part of learners to relate new knowledge to relevant concepts they already possess;
- encourages meaningful learning as distinct from rote learning;

[1] de Bono, 1987.

- is a process that enables students to link or see the relationships between concepts;
- is a probe for student understanding of the structure of concepts in relation to a larger unit such as a topic or issue or discipline;
- provides a way to visualise concepts and their hierarchical relationships;
- is a visual map;
- focuses on and externalises the learners' cognitive processes (thinking skills). In other words it is a means to determine whether a student has not only read or heard the given material but can make some conceptual sense out of it;

Figure 6.1 **Structure of a Concept Map**



Source: J. Novak & D. Gowin (1990), *Learning How to Learn*, Cambridge University Press, p37.

- charts the relationship between concepts;
- is a schematic summary or map of what the students are to learn or have actually learnt (see **Figure 6.1**).

Introducing Concept Maps

Students need to recognise *object words* such as river, court, employee and *event words* such as judging, serving, typing. Both these categories are *concepts* because they are *labels* for regularity in the meaning of objects or events. They provide a *mental image* for words.

Note that *proper nouns* are *not* regarded as concepts as they do not represent labels for regularities in events or objects but rather are names of specific people, events, places or objects. *Linking words* show the *relationship* between *concepts*. There is *no* mental image *associated with these words*, for example: in, that, for, are, because. However the selection of these linking words is *crucial* as they dictate the intent or relationship between concepts.

Concepts are ranked from superordinate (most inclusive and general concepts) through to subordinate concepts (more specific).

The *propositional linkages* between the concepts are revealed via the linking words which tie the ideas together and provide an avenue for observing connections. Again it needs to be stressed that these linking words will dictate the intent or relationship between the concepts.

The linkage lines on the map should reveal a movement from the superordinate concept to the subordinate concept.

Steps for Introducing Concept Maps (The Process)

To introduce concept mapping to students we follow the format below:

1. Introduce the students to the term '**concept**' by listing some **object** words such as 'factory', 'office', 'housespouse', 'stock', and so on. With their eyes closed, the students listen to the words and then are asked to explain their reaction. Their response should indicate that the terms conjure up a picture in their minds. Thus, you would state that this is correct and that they are object words.
2. List the following **event** words: 'buying', 'typing', 'washing', 'crawling', and elicit a response from the students. Again the students have a visual picture of these concepts which are labelled as *event words*.
3. Both sets of words are **concepts**, that is, they are **labels** for **regularity** in the **meaning** of objects or events. They provide a mental image for a word.
4. List the following **linking words**, for example: the, is, such, are, with. Ask students to indicate a response to these. Here students do not have a mental image of the words in isolation. They are *linking words* and

they are used to show **relationships** between concepts. The selection of these linking words is crucial as they dictate the intent or relationship between the concepts.

5. Once the students have demonstrated an understanding of a concept and a linking word the next step is for the students in groups to brainstorm a list of concepts they have gleaned from a piece of written material, observed from a video, or developed from listening to a guest speaker.
6. These concepts are then ranked from superordinate concepts which are the more inclusive and general concepts through to subordinate concepts (more specific concepts).
7. The '**propositional linkages**' between the concepts are revealed via the linking words which tie the ideas together and provide an avenue for observing connections. The selection of the linking words is very important as they dictate the intent or relationship between the concepts.
8. The linkage lines on the map always indicate a movement from the superordinate concept to the subordinate concept. This prevents the concept map from becoming cluttered.
9. Proper nouns are *not* regarded as concepts as they do not represent labels for regularities in events or objects but rather are names of specific people, events, places, or objects.
10. The developed concept maps can be put on overheads or photocopied and distributed to the class.

Implications for Teaching

Concept mapping:

- encourages talk between learners which facilitates metacognition;
- is an efficient and quick method for both learner and teacher to observe how conceptual links are perceived by the learner;
- is non-threatening because this strategy is less concerned with 'right' answers – there is no single right answer – no perceived competitive threat;
- it is a purposeful activity which is overt and requires psychomotor domain skills;
- encourages co-operative group work and sharing of ideas and thoughts;
- removes anxiety that can be associated with individual praise or criticism and concept maps can be openly compared and commented on;

- focuses on links between concepts rather than concentrating on detail – this helps students to interpret the objects and events being observed;
- stimulates both hemispheres of the brain;
- draws on the capacity for recognising patterns in images, that is, it facilitates thinking (cognitive organisation). Research has shown individuals have poor memory for recall of specific details but recall of specific visual images is remarkable, e.g., locating a friend in a crowd.[2]

Common Pitfalls

- A belief that concept maps can be developed correctly at the first attempt — most maps will need to be re-drawn, therefore it is best to complete the map in pencil so alterations are easily made, or write concepts on pieces of paper so they can be moved around as the concept map is modified;
- A belief that concept maps can be used to explore a simple concept — the essence of a concept map is to show the relationships between concepts;
- Where a concept map is confused with a block of terms lumped together, a mind map or a flow chart;
- Where a concept map does not have propositional linkages — these linkages enable connections to be made between concepts and are therefore crucial;
- A belief that a concept map is a summary of a given text — the map portrays the linkages between concepts;
- Where a concept map does not have the over-riding or superordinate concept identified.

Applications for the Classroom

- Pre-topic and post-topic concept maps: enrich the process of learning;
- Planning lessons: use a concept map to determine the sequence of ideas and identify the relations between them;
- Identify changes as they occur in a course of instruction, i.e. the aim of the lesson will influence concepts to be used and students will be aware of the purpose of a lesson;
- Promote metacognition, open debate and class and individual discussion;
- Develop links across topics;

[2] White and Gunstone

- Encourages reflective thinking through massaging of content;
- Helps to distinguish significant information from the unimportant;
- Probe understanding of social situations;
- Reflect on adjustments needed to concept map when a particular concept is changed or deleted;
- Introduce a new concept into a map and make the necessary adjustments;
- Analysing newspaper articles through showing the relationships between the concepts and summarising the concept map – this can be more creative – encourages deeper level thinking;
- Show relationship between concepts in a number of newspaper articles;
- To extract an understanding of the conceptual relationships in a text or other written material.
- To show the relationship between concepts in a talk or lecture;
- Completed concept maps can be used as references for the development of other set tasks such as essays, reports, etc.;
- Means for planning an answer to questions for an essay or report;
- Read to class as a review of a topic or talk;
- To extract meaning from laboratory, studio and/or field studies.

An example of a concept map (see **Figure 6.2**) developed by Judith Mackenzie-Jesser using the newspaper article 'At loggerheads on issues environmental' follows (see **Article 6.1**).

The Value of Using Concept Maps

- The concept map is a method of observing the way a student interprets the structure of a subject, issue, statement, piece of writing, lecture, etc.;
- The concept map facilitates observation of the process of thinking as well as the final product;
- The concept map provides a ready opportunity for the teacher to observe, question, discuss and offer positive constructive reinforcement of individual students;
- The concept map is a focus for the teacher to both lead and promote class discussion;
- A poor concept map but a good performance on a test of detail may indicate that the student has rote learnt the material rather than actually understood and retained the content and concepts;
- Incorrect links between concepts often reflect limited understanding of the material, that is the structure of the topic has not been assimilated;

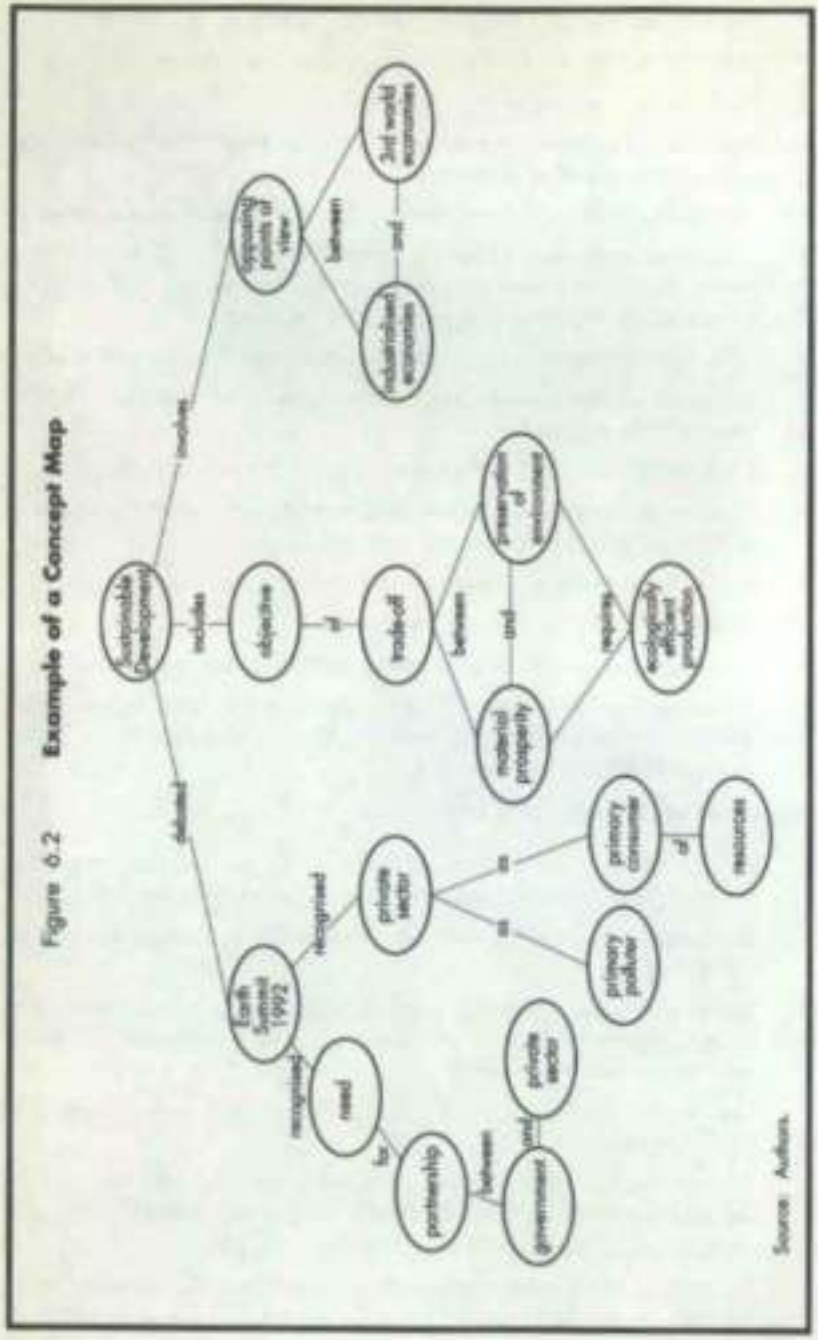


Figure 6.2 **Example of a Concept Map**

Article 6.1 **"At loggerheads on issues environmental"**
by Stephen Ellis
The Sydney Morning Herald,
Saturday, January 16, 1993, p30.

Increased public awareness of green issues during the past decade means almost everyone now realises there is a trade-off between material prosperity and preservation of the environment.

Finding an appropriate balance between these two objectives is central to the notion of sustainable development, a key concept in economic debate on environmental issues.

Sustainable development is the vaguest of terms; there are a host of contending definitions.

Broadly, however, it is a rate of economic development and resource consumption that is compatible with preserving the natural environment in the longer term.

This concept is so central to the environmental debate that at the Earth Summit in Rio de Janiero last year participants agreed to create a United Nations Commission on Sustainable Development.

But at the summit, clear divisions on the dimensions of sustainable development and on the best means of achieving it were apparent between representatives of the wealthy industrialised nations and those from poorer developing nations.

In this North-South divide, industrialised countries increasingly place the preservation of the environment ahead of further economic development; less developed countries reverse these priorities.

Within industrialised economies, a combination of relative prosperity and growing political and community awareness of green issues has prompted an increasingly determined push to solve environmental problems in the past two decades.

In contrast, the governments of less developed countries argue the environment is less important than the need to improve the economic well-being of their citizens.

Malaysia, for example, opposes any international agreement that prevents it from exploiting its rainforest and rejects the notion that its forest is common heritage.

The Malaysian Government argues it has no particular obligation to preserve forests, the logging of which can contribute to an increase in the country's economic well-being, when the richer countries arguing for such a course have already logged their own forests.

At Rio, this conflict also could be seen in the lack of agreement on targets for reduction of greenhouse emissions.

Observers pointed out this lack of consensus reflected nervousness on the part of some less developed countries, worried about the possible curb on emissions that an agreement would place on their economic growth, as well as opposition from richer industrialised countries.

The industrialised economies still account for the vast majority of resource depletion and produce the vast majority of pollution.

But that balance is quickly changing. According to United Nations and World Bank estimates, between now and 2030, world population will rise from 5.5 billion to 7 and 9 billion – with a commensurate increase in consumption of resources and energy.

Almost all that growth in population and most growth in consumption, will take place in less developed economies.

Clearly, encouraging the right sort of economic growth – and "sustainable development" – in these economies is crucial if a vast enlargement of existing environmental problems is to be avoided.

The Rio Summit provided abundant evidence that aid flows from rich countries to poorer countries – the traditional way of encouraging the latter so reconcile economic growth with protection of the environment – were far too small to do the job.

Some possible alternative approaches emerged in Rio, however, which augment the reliance on environmental concessions made by poor countries in return for aid.

In contrast to previous multi-lateral conferences on global environmental issues, the summit for the first time tried to incorporate the private sector – in particular, multinational companies that operate both in developed and developing countries.

The approach to investment and capital flows taken by these companies in less developed countries is central to any attempt to achieve "sustainable development" and more environmentally friendly economic growth in these economies.

Business is the primary polluter and user of resources.

Business decisions – on investment, on technology and on the location of production – are crucial to environmental outcomes.

A Swiss industrialist, Stephan Schmidheiny, was asked to co-ordinate business participation at the Rio Summit and responded by bringing together 48 chief executives from various international corporations to form a Business Council for Sustainable Development.

Writing in the latest International Monetary Fund/World Bank review of finance and development issues, Schmidheiny calls for a partnership between the private sector and governments in less developed countries to ensure that environmental goals are met.

That may sound a little like putting the prisoners in charge of the jail.

But Schmidheiny backs up his argument by pointing out many environmental problems in less developed countries emerge because of distorted pricing of resources caused by government policies and because of the large informal economies many countries have.

(The informal economy is generally traditional and barter-oriented, often substantially black market or illegal, and almost falls outside most taxation and environmental regulations).

He says more open and competitive markets in less developed countries will help include the informal parts of less developed economies, where they can be better regulated.

More efficient markets and better resource allocation would also mean natural resource consumption and pollution have more natural (usually higher) prices placed on them.

It is generally agreed that excessive depletion of limited resources can usually be explained by price. When resources are underpriced, for whatever reason, they are consumed more quickly than should be the case.

Government policies on mineral rights, fishing rights, forestry, and even farming can cause such underpricing.

In part, Schmidheiny's stand reflects the conventional IMF/World Bank line that many of the problems and distortions in less developed economies are the result of government interference.

But it is also a recognition of the fact that environmental problems arise from gov-

ernment failure as well as market failure and that allowing the private sector a greater say in finding solutions to environmental problems is likely to mean that both of these types of failure are addressed.

"Governments in both industrialised and developing nations must clearly understand that private industry can be a force for sustainable development only when it is allowed to act as private industry should" Schmidheiny says.

That is when it is not saddled with public sector chores (such as creating jobs) and is encouraged to internalise environmental costs (when firms, rather than the wider community, are forced to pay for the environmental side-effects of their production).

Schmidheiny points out many of the relatively sophisticated ways of making companies pay for their externalities, such as pollution taxes and tradeable permits, can be implemented only where there is a strong degree of co-operation between government and firms.

And he says multinational corporations, experienced with working with regulators in industrialised countries, could take an active role in helping governments in less developed countries create regulatory frameworks.

It is plain that powerful firms, whose influence is even greater when they are calling the shots on investment in the poorer economies should not be allowed to dictate regulations and policies.

But equally plainly their input can be useful in avoiding the sort of excessive regulation that leads to rules being flouted (as occurred for decades in Eastern Europe) and in obtaining greater uniformity of regulation across different markets.

In industrialised countries, most businesses are already under pressure to become more ecologically efficient – that is, to produce goods and services using fewer resources and creating less pollution.

The pressures on them include tougher regulations, taxes that punish polluters, consumer and media pressure to become green and even the tendency for banks and insurance companies to prefer firms that do not face clean-up bills or environmental law suits.

Several of these influences are absent in the poorer countries, and are unlikely to appear until incomes rise substantially; environmental concerns among the general public tend to be greater once the day-to-day economic pressures of existence abate.

In that context, it's hard to argue with the proposition that effective control of the largest polluters, private companies, is best achieved by incorporating them into the policy process.

And it is also difficult to refute the notion that economic growth, which inevitably has to be generated by companies and investors, is crucial to lifting the degree of importance attached in less developed countries to environmental issues – and to creating more resources to be spent on the environment.

As the World Bank says in its 1992 World Development Report: "The costs of enabling countries to achieve development in an environmentally sound manner are likely to be large in absolute terms but small in relation to resources generated by economic growth.

"Good environmental policies are good economic policies and vice versa.

"Efficient economic growth need not be an enemy of the environment and the best policies for environmental protection will help, not hurt, economic development."

Allowing the private sector a greater role in determining what constitutes appropriate and sustainable development in less developed countries is one way of helping achieve this policy balance, and of finding the right mix for sustainable development.

- Inaccurate concepts or lack of hierarchical development could reflect that no detail has been understood;
- The concept map is an indicator to a teacher that set objectives have been achieved, for example, similar concept maps suggest convergence in the learning outcome by the whole class, while maps that are significantly different suggest divergence and creativity on the part of students;
- The concept map can be used to complement other assessment strategies.

'Skinny' and 'Fat' Questions

These are 'cognitive organisers' which facilitate the teaching to students of the difference between lower order cognitive thinking skills and higher order cognitive thinking skills (Bloom's Taxonomy). In other words, students distinguish between questions which simply require recall of information and questions which are more complex and require analysis and evaluation. Using the newspaper article on 'sustainable development' the following questions could be generated:

Skinny Questions:

1. Define sustainable development.
2. Distinguish between an industrialised western economy and a third world, developing economy.
3. Give some examples of 'ecologically efficient production'.
4. Identify the characteristics of an 'informal economy'.

Fat Questions:

1. Justify why governments in all economies should develop policies that incorporate sustainable development.
2. Account for the different attitudes towards sustainable development between developing economies and western economies.
3. Predict the influence that the 'informal economy' will have on 'ecologically efficient production' in developing economies.

Uses of Skinny and Fat Questions:

1. Students may read an article or view a video and then develop their own skinny and fat questions; these in turn may be shared with other groups and answered.
2. Students may be given a task to do from a text, etc., where there are several questions. Part of the task may be to select only those questions

which they regard as 'fat questions'.

3. 'Research and Investigative' tasks can be commenced by students generating their own list of skinny and fat questions which they will use as the basis of their research.
4. Students generate questions that could be used in a test or review.

Merits of Skinny and Fat Questions

Students are forced to massage the material (content) in order to come up with the questions. This processes develops and deepens their own thinking skills through building on problem solving, decision making and creative ideation skills.

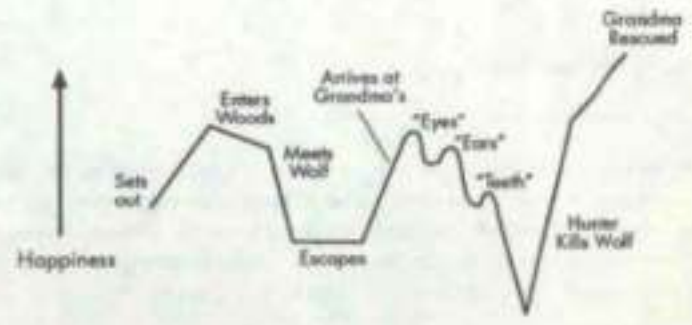
Fortune Lines

A very important skill for economics students involves understanding and analysing graphs. In our experience many students lack confidence when asked to answer questions based on graphical information. Students seem to find it difficult to identify trends and suggest reasons for trends.

Fortune Lines, a technique developed by Laurence Rush (1988), probes students' understanding of events by requiring them to estimate and graph their impact on pre-determined criteria. Rush provides as an example the story of Little Red Riding Hood. He separates the story into ten scenes.

- Little Red Riding Hood sets off from home
- Little Red Riding Hood enters wood
- Little Red Riding Hood meets wolf
- Little Red Riding Hood escapes from wolf, continues through wood

Figure 6.3 **Fortune Line for Little Red Riding Hood**



- Little Red Riding Hood comes to grandma's cottage
- 'What big eyes you have'
- 'What big ears you have'
- 'What big teeth you have'– wolf unmasks, pursues
- Hunter enters, kills wolf
- Grandma found unhurt in cupboard

One dimension that changes through the story is Little Red Riding Hood's happiness. A child who understands the story might graph this dimension or criteria as shown in **Figure 6.3**.

For a student who understands the technique of graphing, any major variation from the form shown in the above figure would indicate a problem with understanding.

How can this method help economics students? When confronted with a list of economic events (in a newspaper article for instance) students could be asked how these events may effect one dimension of the economy. This could be recorded using the fortune line technique of showing:

- an improvement ↗
- a worsening situation ↘
- no change →

A specific example may include the following events and how they relate to the level of business investment:

- a weak international economic environment ↘
- strong domestic economic growth ↗
- high profits ↗
- low inflation ↗
- rising interest rates ↘
- large budget deficits ↘

By adapting this technique, teachers gain a rapid insight into a student's understanding of individual events and of their effect on a pre-determined criteria. Once this process has been worked a number of times in a number of different situations, students have some understanding of the links between the fortune line and the movement in a line graph.

Prediction-Observation-Explanation (POE)

Prediction-Observation-Explanation (POE) exercises encourage thinking and probe understanding by requiring students to carry out three tasks. First, they must predict the outcome of some event and must justify their prediction; second they observe and/or describe what they see happen, and finally they must reconcile any conflict between prediction and observation.

An example of using this method in the economics classroom relates to students keeping up with changes in key data in the economy. At the start of the school year students are asked to build up a data base on the Australian economy. Then, before announcements of key data in the media they are asked for their prediction and reasons for this. Next they are asked to record the actual result and finally say why or why not their prediction matched the actual outcome.

Table 6.1 is provided for students to summarize their notes.

Table 6.1 **Example of Prediction-Observation-Explanation (POE)**

Monitoring Unemployment in 19__

	Prediction (%)	Reasons for Prediction	Actual % Observed	Similarities or Differences between % predicted and observed
February				
March				
April				
May				
↓ and so on...				

Purposes of POE Tasks

1. The POE task measures the ability of students to apply information and knowledge acquired to interpret events.
2. Students are actually practising what economists do, that is making and justifying forecasts.
3. This approach makes students responsible for keeping up-to-date with data – they take responsibility for their learning.
4. Rather than learn the statistics in a vacuum students have to give specific reasons and apply pertinent knowledge to a real situation.
5. The last step which requires students to reconcile any discrepancy between what they predicted and what they observed helps identify any lack of student understanding. This diagnosis then assists students to improve their understanding and correct any misconceptions.

References

Bellanca, B.J. (1992), *Graphic Organizers to Teach Thinking in the Co-operative Classroom*, Hawker Brownlow Education, Melbourne.

De Bono, E. (1987), *Teaching Thinking*, Penguin, London.

Novak, J.D. and D.B. Gowin (1984), *Learning How to Learn*, Cambridge University Press, Cambridge.

Rush, L.N. (1988), *Fortune Lines–a new probe of understanding in the humanities*, Unpublished Master of Educational Studies Project, Monash University, Melbourne.

White, R. and R. Gunstone (1992), *Probing Understanding*, The Falmer Press, London.

CHAPTER 7

CASE STUDY OF INVESTMENT: THE NORTH WEST SHELF GAS PROJECT

ALF D'SOUZA

SENIOR ADVISER
CORPORATE ISSUES AND COMMUNICATIONS
SHELL AUSTRALIA LTD.

Alf D'Souza holds a Masters degree in Economics from the University of Bombay. His Bachelor's degree was in History, Economics and Political Science. He has worked as senior research officer with the Industries Assistance Commission in Canberra, and later as advisor in the Department of the Prime Minister and Cabinet in the Economics and in the Trade and Industry Divisions. Since 1980, when he joined Shell, he has worked as senior economist in Corporate Planning and Economics and was responsible for economic forecasting and Shell Australia's scenario development work. In 1985 he was appointed Planning Manager for Shell Chemicals Australia. Since 1987 he has been working in Public Affairs just as Public Policy Adviser and currently he is Senior Adviser, Corporate Issues and Communications. The focus of his work is on the identification and analysis of long term issues and their integration into Shell's external communications.

CASE STUDY OF INVESTMENT: THE NORTH WEST SHELF GAS PROJECT

ALF D'SOUZA

Investment plays a critical role in raising economic growth and in improving a nation's productive capacity. That is why the recent decline in the share of business investment in GDP in Australia is of understandable concern to economic policy makers. Private sector investment decisions are generally the result of complex processes. Investor 'animal spirits' have to be accompanied by exhaustive financial analysis and detailed technical design focused on economic and commercial opportunities. All investments have an element of risk and, as a result, some investments fail. While risk can be reduced by more effective management it cannot be eliminated.

Most companies today use **discounted cash flow** analysis in their decision making process with appropriate predetermined screening rates or investment 'earning powers'. Since the planning and operating horizons of many energy investments are very long, Shell uses long-term scenarios to test the robustness of investment proposals to assess the risks involved.

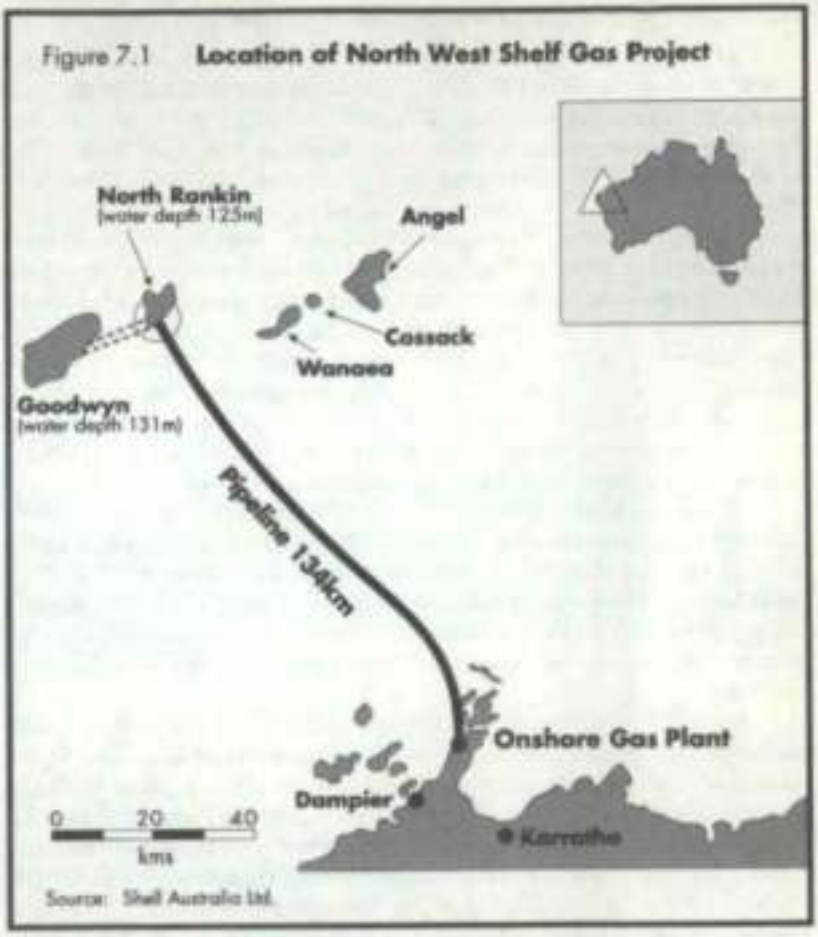
The focus of this paper is not primarily on the process of investment decision making; it looks instead at the economic and technological impact of one large investment decision – the North West Shelf Gas Project .

The North West Shelf Project is located on the Burrup Peninsula 1,260 kilometres north of Perth (see **Figure 7.1**). The gas reserves are tapped via the offshore North Rankin A Platform, which is located 134 kms north west of the Western Australian coastal town of Dampier in 125 metres of water. A second platform is now being completed to tap into the Goodwyn oil and gas field 23 kms to the west of North Rankin and it will be connected to it by undersea pipeline. The onshore facilities are located at Withnell Bay near Dampier and contain domestic gas treatment plants, three LNG processing trains and various LNG and condensate storage and loading facilities.

Shell Australia's interest in the project is as a direct investor and as the principal shareholder in Woodside, the project operator. Shell International is also technical adviser to the project, drawing on its depth of international experience in LNG projects. Internationally, the Shell Group has major gas production, transmission and LNG interests worldwide, and it is the world's leading private natural gas and LNG producer.

The North West Shelf Project is not a typical investment project for a number of reasons. First, the magnitude of its scale is very large. The total

Figure 7.1 **Location of North West Shelf Gas Project**



project cost is estimated at $12 billion making it Australia's single largest commercial project. **Second**, the Project's lead times are unusually long. The Project spanned 18 years between the discovery of gas in the North West Shelf and the first delivery of gas to Japan.[1] The **third** factor which makes this investment atypical is the large technical and commercial risk involved. The project operates in a difficult and hostile physical environment and the engineering and technological requirements are most demanding.

However, before we get into a detailed treatment of these issues there is a need to review some necessary background information about natural gas and LNG.

[1] See Robert Murray (1991) *From the Edge of a Timeless Land*, Allen & Unwin, Sydney.

The Importance of Natural Gas and LNG Today

Natural gas accounts for about 23 per cent of the world's primary energy supply, behind oil and coal. Pipeline gas accounts for about three-quarters of internationally traded volumes and liquefied natural gas (LNG) for one quarter. While natural gas has experienced steady growth since the 1920s, LNG is a relatively new fuel whose rapid growth has been made possible by advances in a number of technologies, including cryogenics.

Although the world has a good spread of proven gas reserves in more than 65 countries, many of the gas fields are located far away from markets. There are many technical difficulties in transporting natural gas across deep seas. The conventional but expensive solution is to ship liquefied natural gas. Liquefaction of any gas reduces its volume enormously. Natural gas can be liquefied by cooling it to minus 162 degrees centigrade at atmospheric pressure. This reduces the gas to about 1/600th of the original volume, permitting its carriage by sea in special tankers to distant markets where it is re-gasified and distributed through pipelines to consumers.

The efficiency and cleanliness of natural gas makes it the fuel of choice today for many industrial and commercial uses, including power generation which is a key growing market. Natural gas enjoys an advantage over other fossil fuels in some energy markets because of its lower environmental impact in use. Natural gas combustion produces no residual ash or airborne particulates, virtually no SO_2 and little NO_x, and of course, no radioactive waste.

The world's first commercial LNG project began thirty years ago with shipments of Algerian LNG to the UK. From that modest beginning of one million tonnes supply per annum, global LNG trade has grown strongly. Last year about 61 million tonnes of LNG were delivered around the world.

The biggest LNG market is the Pacific market with Japan the dominant buyer. Last year Japan imported 39 million tonnes from seven projects in six countries. Future demand in Japan could range between 55 and 60 million tonnes a year by the close of the century, depending on supply. In addition, Korea and Taiwan are in the LNG market and their demand can be expected to grow. China has also signalled its interest in importing LNG, so it is likely that LNG demand in the region could be about 85 million tonnes by the year 2005. The conventional demand picture is quite buoyant.

What Does LNG Mean For Australia?

Nations importing LNG obviously get good economic value from gas to meet their energy and economic needs. Exporting nations can also do quite well as long as the projects are profitable and well managed.

At the end of 1993 the North West Shelf Project completed 306 shipments taking cumulative exports to 17 million tonnes. Next year the project will achieve annual plateau production of seven million tonnes of LNG and

it will generate about $1.7 billion in revenues excluding condensate sales. Investments are still continuing strongly, and this year the participants will spend a further $570 million on the Goodwyn platform and on shipping. Australia now has a new industry to rank alongside its great export industries such as aluminium, gold, iron ore, wool and meat. When the project achieves plateau production in 1995, LNG and condensate sales are expected to earn about $2 billion revenue a year even at today's depressed prices. This compares with total Australian wheat exports of $2.2 billion last year, and wool exports worth $2.9 billion.

However, figures on export earnings only give us a partial understanding of economic benefits flowing to a nation; what is needed is a rigorous analysis of those benefits. Such an analysis of the economic impact of the North West Shelf Project was carried out by Professor Ken Clements and Robert Greig at the University of Western Australia in 1991. Their findings (Clements Report[2]) suggested that in a typical year of the production phase, the project boosts Australian exports by 3 per cent, real GDP by 1 per cent and increases employment by 69,000 jobs. (Some of the original operating assumptions were updated by Clements last year and they show a further improvement in exports and GDP[3].)

The Clements Report (1991)

The size of the North West Shelf Project intuitively suggests that it should have a large measurable economic impact on the national and Western Australian economies. This is confirmed by the econometric simulations carried out by the study.

The simulations and research on the economy-wide effects of the North West Shelf Project were carried out by Peter Hill and Alan Powell using the ORANI model. ORANI is a large scale general equilibrium model of the Australian economy developed by the IMPACT Project (part of the then Industries Assistance Commission) at the University of Melbourne. ORANI was designed to provide a general economic analysis tool to be used by government to gauge the impact of policy changes. It uses an Input-Output type format to produce a comparative-static analysis of changes in key economic variables. In other words it tells us what the equilibrium result would be following a change or a 'shock' in a key exogenous variable working its way through the economy.

ORANI was used to simulate the economic effects of the construction and production stages of the North West Shelf Project. For the purpose of the analysis it was assumed that the two phases were distinct even though there

[2] Kenneth Clements and Robert Greig, *Economic Impact of Australia's North West Shelf Project*, Department of Economics, University of Western Australia, October 1991

[3] GDP revised from 1 per cent to 1.24 per cent employment from 69,000 to 80,000 and exports from 3 per cent to 3.5 per cent.

is considerable overlap between the two stages.

The capital expenditure in a typical year of the construction phase was calculated as the present value of the investment stream (incurred and planned) divided by the number of years of that phase. The typical year's investment was then broken down into expenditures for each supplying industry. The simulation took the form of measuring the impact of the investment on the economy while holding all other exogenous variables constant in the model. The macroeconomic effects flowed directly and indirectly from the size of the investment in the project and from the expansion in the output of the oil and gas industry. The construction phase investment expenditure represents a large stimulus to aggregate demand which in turn has positive effects such as job creation and negative effects such as higher inflation which reduce the competitiveness of export and import competing industries.

When all of these effects are aggregated, the final impact on variables, such as output and employment as a result of the construction phase, is smaller than that of the production phase. Aggregate exports fall by 1 per cent and aggregate imports rise by 0.3 per cent leading to a decline in the balance of trade. There is no increase in Australian GDP. There is a small

Table 7.1 **Macroeconomic Effects of the NWS Project**
(per cent deviation from situation with no NWS Project)

Variable	Phase	
	Construction	Production
Consumer Price Index	0.19	1.75
GDP Deflator	0.21	1.99
Real Household Consumption	0.01	0.99
Real Total Investment	0.72	-0.38
Real Private Investment	1.58	-1.76
Real Government Expenditure	0.01	0.76
Aggregate Exports (foreign currency value)	-0.95	3.00
Aggregate Imports (foreign currency value)	0.30	1.33
Change in Balance of Trade (% of GDP)	-0.14	0.42
Real GDP	-0.02	1.06
Real GNP	0.01	0.76
Real Wage Rate	0.09	0.89

Source: Clements and Greig, 1991.

increase in Western Australian Gross State Product (GSP). Employment is boosted by about 6,000 nationally, with 5,700 of the jobs located in Western Australia (see **Table 7.1**).

In contrast, the production phase entails a major increase in exports, an improvement in the balance of trade and a substantial increase in national output. In a typical year of the production phase of the project, Australian exports rise by 3 per cent, and although imports also rise, there is a net improvement in the balance of trade by 0.4 per cent. The real exchange rate also rises. Australian GDP in the production phase rises by 1.1 per cent and employment by 68,000 jobs. The effects on WA are larger, with GSP projected to expand by 12 per cent and employment by 90,000 jobs.

The effect of the project on income and jobs is much more pronounced in the production phase than in the construction phase. This is intriguing.

Intuitively the reverse should be expected because the construction workforce is larger than the number of people directly employed in operating the project

Clements says that the key to understanding these results is that the construction phase should be likened to an aggregate demand shock. This is because it is assumed that there is no production from the project during the construction phase. The increase in demand leads to a rise in the CPI and GDP deflator, indicating a real appreciation of the exchange rate. This amounts to a loss of Australia's international competitiveness.

The Clements study clearly shows that the North West Shelf Project's production phase is highly beneficial to the Australian economy in terms of employment and income. Other benefits include contributions to government revenues. The latest estimates by Clements has royalties to state and Commonwealth governments growing from $8 million in 1989 to around $240 million by 1995. In excess of $81 million is paid in payroll tax to the Western Australian government over the life of the project. There are further contributions by way of customs duties, fringe benefits tax and corporate income tax paid by the joint venturers.

Behind these figures are other real benefits. Total Australian content is estimated at over 70 per cent which has led to a diffusion of opportunities in Australian manufacturing and engineering. A study by the Allen Consulting Group[8] study enumerates the successful transfer of advanced technology, the raising of local firms' capabilities through joint ventures covering LNG plant construction and sub-sea technologies, and the raising of workforce skills in quality management, industrial relations and, most important of all, safety. The Allen Report estimated that the project had spent more than $70 million on research and development. About 20 establishments were carry-

[8] Allen Consulting Group (1992), 'North West Shelf Gas Project Development Opportunities and Outcomes for Australian Industry – A Stocktake', Melbourne.

ing out in excess of 50 research projects in a wide range of disciplines including meteorology, oceanography and seismic interpretation.

Local communities also benefit. The North West Shelf joint venture participants have invested $250 million on project infrastructure in Karratha, the nearby township of Dampier and the Burrup Peninsula. A further $72 million has been spent on contributions to community infrastructure, including hospitals, schools, roads and airport works.

Managing Risk and Uncertainty

The foregoing is a summary of a number of positive effects of a large project. While there are many positive benefits for the economy the risk assumed by shareholders and others connected with the project can be high and they must be managed.

Although LNG technologies are robust and proven, the sophistication and complexity of liquefaction technology, combined with the magnitude of a world-scale LNG plant, presents a formidable engineering challenge. The logistic challenge of building a large LNG plant is most demanding. For example, during peak production the North West Shelf Project required a workforce of over 4,000 to build the plant, including the installation of 270 kilometres of pipe and 5,500 kilometres of power and instrument cables.

Liquefaction lies at the heart of LNG technology and is one of a project's most expensive components. The North West Shelf Project now has three liquefaction trains in operation. Each process train contains a cryogenic heat exchanger 50 metres high, 1500 kilometres of internal aluminium tubing, four refrigerant compressors driven by 20 MW gas turbines and an air-cooled heat exchanger bank with 132 giant electric fans and would cost in excess of $1 billion to build.

Because of the high costs and long lead times, commercial risk also has to be managed. A joint venture operation helps to spread equity and the risk amongst many players. Risks are of many different kinds including project completion and project performance. Risk goes beyond the joint venturers to cover contractors, lenders and buyers.

LNG projects generally follow a certain pattern of capital expenditure which is mirrored in rising levels of financial exposure until production commences. After exploration and appraisal drilling have established that reserves are adequate to sustain reliable supplies of gas, feasibility studies are undertaken. Marketing and financing studies are then commenced, followed by project definition which leads to a 'proceed/stop' decision. Following a decision to proceed, projects involve four to five years of intense design and construction activity before production begins.

Lenders play a vital role because the scale of LNG projects is so great that joint venturers by themselves will not have, or will not want to outlay, all the necessary finance. Lenders need to be satisfied that the project is basically

sound, that joint venturers are experienced and reliable, and that the assets and income streams are 'politically' secure.

The commercial risks for an LNG project relate to both price and volume. Projects which appeared economic and profitable at the start of the 1980s risked becoming marginal as prices fell later in the decade and at the end of 1993.

Volume risk is distinct from price risk and refers to the ability of customers to absorb production. Lenders can be expected to accept a certain sales price risk. They would be reluctant, however, to take on primary volume risk and they expect buyers to commit fully to the contracted volumes. So 'take or pay' and 'limited flexibility' are essential.

A project would find it hard to attract finance without long-term sales contracts covering the full production capacity over the term of the debt repayment schedule and beyond. Typically these contracts have to last 20 years or more.

Conclusion

To conclude, projects such as the North West Shelf can bring tremendous benefits to the nation directly and indirectly, but they are extremely complex and high risk. Whilst most of the risks are borne by shareholders and those connected with the project, the benefits are diffused through the economy. Other resource projects, small and large, also generate economic benefits commensurate with their size and potential.

Australia is in the process of diversifying its economy, with solid gains recorded in manufacturing and service exports in recent years. Whilst we applaud these achievements we should not ignore the very real economic and technological contributions from Australia's resource investments.

References

Allen Consulting Group (1992), 'North West Shelf Gas Project Development Opportunities and Outcomes for Australian Industry – A Stocktake', Melbourne.

Clements, K. and R. Grieg (1991), *Economic Impact of Australia's North West Shelf Project*, Department of Economics, University of Western Australia.

Murray, R. (1991), *From the Edge of a Timeless Land*, Allen & Unwin, Sydney.

CHAPTER 8

INVESTING IN TRADE WITH ASIA: APEC, GATT & ASEAN

PAUL O'CALLAGHAN

POLICY ANALYST
AUSTRALIAN TRADE COMMISSION

Paul O'Callaghan is Manager of the Market Penetration Task Force at the Australian Trade Commission (Austrade). He is currently writing a major report on the links between investment and trade for Australian firms in Asia, published in September 1994. Paul has a Masters degree in International Economics from the London School of Economics. His career at Austrade has included Manager of Policy Co-ordination, responsible for the APEC Trade Promotion Working Group and Austrade's involvement in the Federal-State Government National Trade Strategy.

INVESTING IN TRADE WITH ASIA: APEC, GATT & ASEAN

PAUL O'CALLAGHAN

It is a pleasure to take part in Economics '94 and share some thoughts with you today. Let me say at the outset that I regard the role of teachers at all levels of our education system as a critical one in meeting the national challenges I see ahead of us. We face major changes on a global and regional level, as well as our own internal ones – particularly in relation to the unemployed.

The challenges we face as a nation are even keener because we have had such an insular economic history. This has pervaded the way that even our youngest people think today.

One of the biggest challenges Australia is already facing is the relative decline in both its political and economic influence in the Asia Pacific region and the relative decline of our living standards compared to the wealthier Asian countries. Singapore has already passed us in GDP per capita.

For a country which until recently saw itself as the advanced economic and cultural outpost of Europe in Asia, this is quite a shake up. I am not here referring to racist views but rather to the long ingrained perceptions of ourselves and of others that developed over 180 years as a real or de facto member of the British Empire. Those views were reinforced by our aid donor status to Asian countries.

You may be surprised to know that in my 20 years of regular visits to Asia, I have seen little change in the way Australians come across to their Asian counterparts. Completely without intention in most cases, there is a common attitude or tone of superiority. I have seen this among the most highly educated Australians as well as the business and other groups.

Of course, such perceptions are not shared by those we meet in Asia. Australia is still seen as a farm and quarry. The most common questions asked of us are about koalas and beaches and increasingly where are the good casinos? We are seen as not especially bright, not at all hard working, not outward looking and rather loud mouthed. In short, not like the image of a technologically advanced, brain-based economy with talented people. Perhaps this is not surprising as long as the primary commodity sector accounts for the bulk of our commerce with Asia.

As I see it, our biggest challenge is to position ourselves within Australia to be able to generate sufficient national wealth to ensure rising living

standards. This is not just an issue for current business people, politicians, professionals and bureaucrats. It is very much an issue for teachers – at all levels of the education system. Wealth generation is first and foremost about people developing their ideas into creating wealth in any of 1,000 ways.

Australia needs to achieve a more business oriented and export oriented younger generation as quickly as possible if we are to keep up with the external changes occurring. One of the hurdles here is that too few young Australians are disposed towards a career in business.

In a recent survey of Australian and American high school graduates, both were asked a series of questions about their views on a future career in business. Over four times more American graduates said that they would like to go into business than their Australian counterparts. In response to a question about how many would aim to become an owner of a business, the gap was even greater.

This problem has been reinforced to me in recent interviews I have undertaken in the retail industry. Medium size firms report that they have difficulty in attracting talented high school or university graduates to commit themselves to the industry. They comment that anything which involves direct dealing with customers in a shop appears to be seen as very down market compared to working for banks or other large firms.

In order to meet Australia's economic and social challenges, we need changes in attitude from all sectors of the community. Even though only a small part of the population is ever directly exporting, all the suppliers of goods and services to them have a major impact on their ability to compete.

Because Australia is an open economy, we need to have more of our young people appreciative of the need for Australia to be globally competitive and to be able to operate at a high standard in international markets. This means being more exposed to the attitudes and skills needed in the business community. Students need to understand why their own and their children's living standards depend on a successful, competitive internationally-oriented business culture.

In primary school, this approach means both encouraging the students to be interested in foreign countries and to learn foreign languages and also includes references to business in the resource material. At senior secondary level, it means developing the economics and commerce curriculum to include focused material on Australia's corporate involvement with the world. At both levels, the resources of recent migrants and of firms within the district can often be drawn upon to achieve results. These ideas need to be nurtured views through into the TAFE and university system. Business should be brought in as far as possible in designing these materials.

Investment in Trade in Asia

Trade and investment can only occur within political and legal boundaries

set by governments. To recall why political boundaries count, we need only think of the 'beggar thy neighbour' policies of the 1930s, in which the world turned away dramatically from international co-operation.

Only one year ago, many people were worried about the outcome of the 7 year old GATT negotiations, the Uruguay Round. You may recall the Prime Minister's efforts on a visit to France to encourage that government to adopt an internationalist rather than a parochial view.

The business community was intensively involved with the Australian government in managing these GATT negotiations because they came down to access of Australian goods and services to foreign markets. Without the political agreement reached in that Round, not only agriculture but many other industry areas would have been stymied in their efforts to expand exports and investment. For Australia, the agreements on intellectual property protection, on sanitary and phyto-sanitary measures, safeguards and anti-dumping all create important potential avenues for exporters.

APEC (Asia Pacific Co-operation)

Regional efforts on the trade and investment agenda by the Australian government have also been substantial over the last 5 years. You will have heard about APEC, which was an Australian initiative. APEC includes North America and all of North, East and South East Asia. This bold idea was put forward by Australia because:

- it would help to 'lock in ' Australia to the fast growing economies of the region;
- it could improve our access to those markets, which already accounted for 70 per cent of exports;
- to push for liberalisation of trade, investment and finance flows;
- to ease the growing economic tussle between Japan and the USA.

APEC was never intended to become a trading bloc. The high level of trade, investment and finance flows as well as technology flows between Japan and the EU on the one hand, and the USA and the EU on the other, make either an APEC or a yen bloc most unlikely.

Having watched the whole process from the Prime Minister's floating of the idea in Asia through two years of negotiations, I believe that APEC is an achievement to be proud of. It was the right idea at the right time, but it also took a great deal of artful persuasion of many governments to 'come to the party'.

Some say that APEC has yet to achieve major results. For me, it is a major result to have the whole regional heads of government attend a meeting together to discuss an agenda for trade and investment liberalisation. That occurred in Seattle last year and Indonesia will host the next one in November.

As anyone who has worked in Asia knows well, a great deal can happen once the various parties are talking openly to one another. Sometimes, as in the case of the first meeting of North and South Korean Presidents, the fact of a meeting occurring at all is a big step forward.

However, there is a much more positive political commitment within APEC. The focus of all work under way within this organisation is on how barriers to trade and investment can be brought down. We need to recall that barriers to imports and investment are not merely economic decisions by governments. They relate to core issues in the way that governments are formed and remain in office. Where, for example, the primary source of tax income derives from import duties, it is not a simple task to commit your government to phasing these out within 2-3 years. These revenues will then have to be raised from corporate or individual sources.

The reason for optimism on the APEC liberalisation agenda is that most members are fully committed to opening their economies in a way which would not have been expected 10-15 years ago. Because a significant share of their growth has been pushed by high export growth, their leaders have become increasingly internationally oriented. All accept that in exchange for expanding their access to other markets, they must be prepared to concede changes in their own arrangements.

This political acceptance has led to progress in negotiations for a trade and investment code in APEC, which would establish comparable standards in many areas. Australian business people are enthusiastic about the directions which APEC is taking in these areas because they will open more areas of business for the most competitive Australian firms.

ASEAN (Association of South East Asian Nations)

ASEAN is the other significant group because it has shown a resilience over nearly three decades and an increasing focus on economic issues. Until the late 1980s, economic co-operation among ASEAN members was very limited and their share of intra-group trade actually declined from 18.6 per cent in 1985 to 17.4 per cent in 1990. There was also minimal use of the ASEAN Preferential Trading Arrangement by members in the 1980s.

But, in the early 1990s, ASEAN governments saw a free trade agreement as desirable to respond to increasing trade and investment flows among members and to increase their benefits from foreign investment. In 1992, an agreement was signed which includes a reduction of tariffs on manufactured goods to between 0-5 per cent over 15 years. The scope of this ASEAN Free Trade Agreement (AFTA) agreement is much more limited than the North American Free Trade Agreement, but it has already impacted on investor thinking about the desirability of locating within ASEAN economies.

The so-called Common Effective Preferential Tariff (CEPT) is the main component of AFTA. Under this, 15 product groups were identified as items

to have a rapid 'phase out' of tariffs. Textiles and electronics accounted for the bulk of these items and it is important to note that Malaysia - Singapore trade, accounts for the overwhelming majority of this trade. However, in almost all cases, trade in CEPT items – excluding Singapore is small in each category.

AFTA is not likely to have a big impact on intra-ASEAN trade. Malaysia will probably derive the greatest benefit of the six members because it has the highest share of intra-ASEAN trade.

ASEAN's trade liberalisation efforts have been far from radical through AFTA even though most of its members have made substantial unilateral reductions in border protection in recent years. But a number of major foreign firms have noted the desire of ASEAN governments to work more co-operatively in this area and have sought to negotiate their own trade arrangements directly with the group in exchange for promises of substantial direct investment throughout the 1990s.

One important difference between the AFTA and APEC agendas to date is that only APEC has been charted a course well beyond tariff cutting. APEC's work now includes other areas which are often regarded by firms as equally important as tariffs – harmonisation of standards, reciprocal recognition of tests and certification of products, removal of barriers on foreign investment and rules for fair competition.

Conclusion

Australia has the potential to gain in many ways from closer economic interaction with Asia. At present we have a tiny share of foreign investment in the region and, apart from commodities, a small presence in manufactures and services. But the outlook for competitive exporters and for investors in the region is very bright and Australian firms of all sizes are responding to it.

It is not hard to see why Australian visitors to most Asian countries return optimistic about the potential for involvement by Australian companies. The rapid expansion of manufacturing industry in the Newly Industrialised Economies (NIEs) and ASEAN is drawing in inputs of goods and services from all around the world. The demand for infrastructure (both physical and human) is great and the affluence of the rising middle class is driving demand for a whole range of foreign consumer goods. These are all areas in which certain Australian firms have strengths.

Another feature of recent change has been that investment on the ground in Asia frequently enables a firm to become more successful in the market. Many Australian and other foreign firms have found that without a local presence in these Asian markets, it is very hard to secure a position within the local industry. The fact that many medium size and smaller European and North American firms are pursuing this strategy has in-

creased pressure on Australian firms.

The lesson in this trend for Australian firms which rely exclusively on selling from Australia through agents is that, in many cases, they will find their market position declining in the 1990s as these other foreign firms become more established with their product range customised to meet local demand.

Finally, the key to sustaining an Australian advantage within these rapid changes is the attitudes and motivations of our younger people. I urge you to assist them to adapt to this changing world and to develop a commitment to excellence in whatever they do. Your influence will help Australia to meet this great challenge.

CHAPTER 9

RECONCILING ECONOMIC GROWTH WITH THE ENVIRONMENT

ASSOCIATE PROFESSOR CURT ANDERSON

ASSOCIATE PROFESSOR OF ECONOMICS
UNIVERSITY OF MINNESOTA

Curt Anderson is Director of the Centre for Economic Education and Associate Professor of Economics at the University of Minnesota (Duluth). His teaching ideas have appeared in the *Journal of Economic Education*, *College Teaching*, *Great Ideas in Teaching Economics* and *The Senior Economist*. He has received awards from his university and the Joint Council of Economic Education National Awards Program for his contributions to undergraduate economic education. During his visit to Australia, Associate Professor Curt Anderson lectured on science, ecology and economics. His visit was initiated and arranged by the Centre for Economic Education, Melbourne and was made possible by the support of both the Australian Council of Recyclers and the National Association of Forest Industries.

RECONCILING ECONOMIC GROWTH WITH THE ENVIRONMENT

CURT ANDERSON

Economic development and environmental protection are often seen as opposing goals. Timber harvesting threatens the habitat of spotted owls. The burning of fossil fuels, which provide energy for industry, is linked to global warming and acid rains. The garbage generated from the goods we use fouls our air and water and stuffs our landfills. Wilderness areas are converted into resorts with condominiums. Chemicals, heavy metals (such as mercury), CFCs (chlorofluorocarbons), dioxins, and nuclear wastes are produced which the environment has little if any natural processes to absorb without significant damage.

Is this the way things have to be? Must the natural environment be sacrificed or ignored to gain additional amounts of goods and services? The answer surprisingly is no.

Economic development based on degrading the natural environment is unlikely to be sustainable. The environment provides many needed resources and valuable services to the economy. As it becomes degraded (soil eroded, resources depleted, water contaminated, habitat destroyed, scenic beauty marred) it becomes less able to support a given level of economic activity, let alone any increases. Protection of the environment or our natural capital is thus a necessary part of a sustainable development strategy.

On the other hand protecting the environment cannot often be ensured unless people's basic economic needs and wants are first satisfied. Until economic development has proceeded enough to satisfy these, it is unlikely that a society will choose to devote many of its scarce resources to environmental protection. Economic development allows a society to produce more of all products, including more environmental quality. In fact, the most heavily polluted cities in the world are not in those countries where production is the greatest, but rather in less developed countries! Thus, economic development is likely necessary to promote better environmental quality. Figure 9.1 helps to illuminate these points.

A Model of Production Possibilities

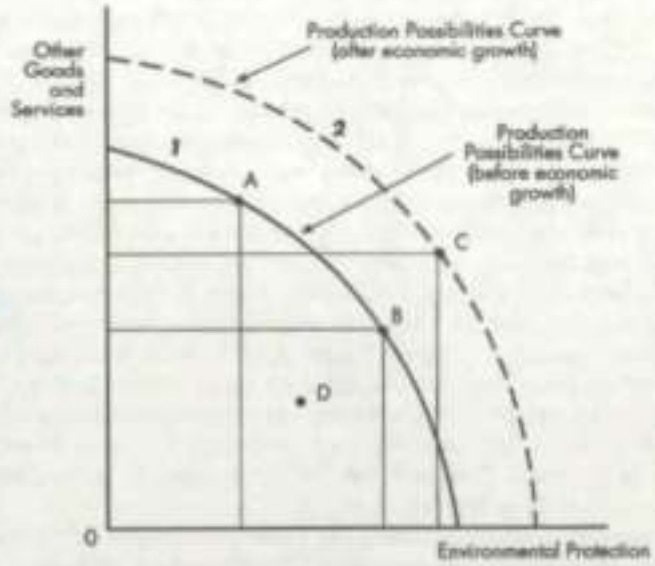
At any point in time society may devote its resources to the production of many different products including consumer goods and services, capital goods, or environmental protection. Because these resources are scarce (that

is, the amount of them available to use is finite or limited), only certain combinations of these products can actually be produced. These feasible alternatives may be illustrated with a production possibilities curve such as shown by the solid line, Curve 1 in Figure 9.1. This curve divides alternatives into two categories. Those which are feasible to produce are all alternatives on or below the curve such as A and D and those that are not are all alternatives outside the curve such as C. Society may choose any alternative which is feasible, but will typically want to choose an alternative on the production possibilities curve since no matter which alternative one picks inside the curve (such as D), it is always possible to find an alternative on the curve which yields more of both products (such as B).

At first glance this curve seems to indicate exactly the message suggested by the examples above: choosing greater amounts of consumer and capital products means less resources are available to protect environmental quality (comparing alternative A to alternative B). But, while this is generally true at a point in time, it is not necessarily true across time.

The choices we make today affect the feasible alternatives we will face in the future. For example, using our resources today to produce capital

Figure 9.1 **Choosing How Resources are Used: The Alternatives**



goods means we will likely have a greater ability to produce products in the future. In other words, the machines and factories we build today will enable us to be more productive tomorrow. In a similar manner, devoting some of our resources today to environmental protection can increase our available alternatives tomorrow. For example, preserving biodiversity may reap the rewards of new drugs and medicines in the future, as well as strengthen the ability of the environment to adapt to changes imposed on it. Improving air quality can lead to greater crop yields and less need for resources to be used in the health care industry. Maintaining a stand of trees or stock of whales will allow these resources to provide sustainable flows far into the future.

Economic growth occurs when a society is able to produce a greater amount of products. Generally this is achieved through technological advances which allow the same resources to produce more or through an increase in the amount of resources available. Economic growth can be illustrated by an outward shift of the production possibilities curve (see **Curve 2**).

Point A on **Curve 1** represents a situation where society devotes relatively little of its resources to protecting the environment. If the environment is large and its services abundant relative to the economy, this may have little negative impact on it. For example, prior to the 20th century people's increasing demands for goods and services led to greater natural resource demands and inevitable waste flows. However, given the immensity of resource stocks and largely organic make up of the wastes, the environment could easily meet the resource needs and assimilate most of the wastes. While there were certainly cases of environmental problems (open sewers, coal soot, dumps, and deforestation), these were largely very localised. Under these conditions devoting few resources to the protection of the environment would have little adverse impact on future economic choices.

However, if the environment starts to become degraded from lack of protection (that is, the our stock of natural capital, becomes worn out or used up) this could reduce society's ability to increase the amount of products it produces (**Curve 2** shifts out, but not as much as shown) or even lead to lower production possibilities in the future (an inward shift of the production possibilities curve!). To avoid this, society might consider choosing an alternative such as B. This choice devotes more resources to the protection of the environment and thus enhances the potential for economic growth.

With economic growth the economy may move from B today to C tomorrow. Such a path over time yields society not only increased consumer and capital products, but also increased protection of the environment. Economic development does not come at the expense of environmental quality, they reinforce each other.

But can an outward expansion of the production possibilities curve be sustained indefinitely? What about simply maintaining a point such as C

indefinitely? If there are limits to growth (either from running out of resources or turning the planet into one huge, uninhabitable waste dump), will economic growth slow and the economy reach a steady, sustainable state or will the economy continue to grow past these limits and collapse? The answers to these questions require an understanding of how people working through markets decide to use resources over time.

While economic activity certainly places demands on the environment, proper management of these demands can ensure not only economic development but environmental protection as well. Proper management, however, requires that all the costs of our choices are fully reflected. This has not been in general the case in the past and is the economic root of many environmental problems today. Simply put, the costs of using the resources and services provided by the environment have not adequately been accounted for in our market economy. For example, energy production costs seldom fully reflect the damages associated with acid rains, air pollution, or global warming. Wood production costs seldom fully reflect the loss of habitat or biodiversity. As a result, economic development has to some degree come at the expense of environmental quality.

One important role of economists is to describe these costs, measure them, and discuss policies which ensure that they are taken into account. If this is done the chances of economic and/or environmental collapse are greatly reduced while the chances for sustainable development are greatly increased.

Summary Points

The following is a summary of discussion points of the contribution of economics in analysing environmental problems and offering alternative policy solutions.

The Environment and the Economy

Why economics? *Economics deals with satisfying society's wants and needs in the face of scarcity.*

The good news:
- The environment provides natural resources (materials and energy) for the production of goods and services.
- The environment provides numerous services: amenity, life-support, assimilation of waste flows.

Reality:
- Physical laws cannot be assumed away.
- The ability of the environment to provide resources and services is limited.
- Trade-offs appear when this limit is reached.

Getting the Most Value from Natural Resources

Why economics? *Economics provides a criteria (allocative efficiency) by which use of the environment may be assessed.*

The good news:
- A valueless criteria in the sense that it does not say what individuals should or should not value, it only says that resources should be allocated to those uses which society values most.
- A common sense criteria which says to weigh the benefits (value received) against the costs (value foregone).

Reality:
- Not a valueless criteria in the sense that a very particular definition of value (based on willingness and ability to pay) is generally implied.
- Many other criteria exist.

The Economic Roots of Environmental Problems

Why economics? *The source of many environmental problems are economic (the result of how society goes about satisfying its wants and needs).*

The good news:
- Under ideal conditions (well-defined property rights with competitive markets), markets can automatically produce the allocatively efficient amounts of all products.
- Environmental quality is a product.

Reality:
- Ideal conditions rarely exist in the real world.
- Property rights to use many natural resources are not well-defined: private ownership does not exist, environmental quality is a public good, and external benefits and costs are common.
- Markets tend to produce too little environmental quality.

Finding Environmental Solutions When Markets Can't

Why economics? *Economics provides the tools to assess the benefits and costs of actions which affect the environment.*

The good news:
- Benefit-cost analysis may be used to determine the allocatively efficient amount of environmental quality.
- Environmental values which cannot be expressed in markets can still be estimated and taken into account.

Reality:

- Environmental effects are not well-known (uncertainty exists).
- Economic valuation techniques are not always reliable.
- Deciding how to account for future values is difficult.

Implementing Environmental Solutions

Why economics? *Even if economic criteria are not used to determine the right level of environmental quality, economics still provides insight on how to achieve a chosen level in the least costly manner possible.*

The good news:

- Some environmental problems could be solved by better defining property rights and relying on private negotiations and the courts.
- Market based solutions (such as emission charges and tradeable permits) can achieve a chosen level of environmental quality in the least costly manner.

Reality:

- Property rights to many natural resources cannot be adequately defined.
- The costs of negotiating or court suits can be very high (especially when large numbers of people are involved).
- Regulatory approaches are seldom cost-effective.
- Market based solutions are not used as much as they could be.

The Management of Natural Resource Stocks

Why economics? *Economics not only deals with the allocation of resources at a point in time, but also across time.*

The good news:

- Market prices can and do reflect growing resource scarcity.
- Rising prices encourages conservation, resource substitution, exploration, and the development of previously uneconomic deposits.
- Price increases are mitigated by new discoveries, technological developments which lower extraction/harvesting costs, and the development of new substitutes.

Reality:

- Rising prices often lead to inefficient governmental intervention.
- Market imperfections often lead to resource exploitation and inefficient non-intervention.

Economic Development in a Finite Environment

Why economics? *The future of the environment will depend on how it is used.*

The good news:

- Recycling not only reduces the amount of wastes put back into the environment, it also provides a source of additional resources which helps conserve natural resources.
- Economic development tends to slow population growth.
- Economic development and environmental protection are dependent upon each other.

Reality:

- Recycling is costly in terms of resources required for collection, transportation, processing, and storage.
- World population is growing by 1.7 per cent per year.
- Markets are not likely to lead to sustainable economic development unless all costs of natural resource use and disposal are reflected in market supply and demand curves.

CHAPTER 10

SHARING THE BENEFITS OF GROWTH: TRENDS IN INCOME DISTRIBUTION

DAVID JOHNSON

DEPUTY DIRECTOR
INSTITUTE OF APPLIED ECONOMIC & SOCIAL RESEARCH
UNIVERSITY OF MELBOURNE

David Johnson is currently Deputy Director at the Institute of Applied Economic and Social Research (IAESR) at The University of Melbourne. He has a Bachelors degree in Agriculture, a Masters degree in Economics and a PhD from Melbourne University currently under examination. David has previously worked with the Victorian Department of Agriculture and the Victorian Department of the Premier. He is joint editor of the *Australian Economic Review*. David has written many reports, journal articles and chapters in books. A recent chapter is 'Productivity and Economic Rent in Government Business Enterprises' in I.R. Harper and K. Davis (eds) *Privatisation – The Financial Implications*, Allen & Unwin, Sydney and recent journal articles include 'Economics and Welfare' and 'Economics in Schools', both in the *Australian Economic Review*.

SHARING THE BENEFITS OF GROWTH: TRENDS IN INCOME DISTRIBUTION

DAVID JOHNSON

The Australian economy is now well into its recovery phase. In comparison to recoveries from previous recessions it has emerged leaner, more competitive and more diversified but also with a much higher level of unemployment and greater dispersion of incomes, or inequality. The period of the 1980s which led up to the last recession was one which saw fundamental changes in both the Australian economy and economies overseas (OECD, 1994). The changes in Australia have been concerned with liberalisation of the economy (the removal of restrictions in the financial markets, the product markets and most recently in the labour markets). The changes in the economy have been concurrent with changes in the political climate (see Kelly, 1992). According to Kelly both major political parties accept that continued liberalisation is necessary.

A matter of great interest is the extent to which the projected growth in the economy is shared. Some commentators have suggested that the increase in inequality, observed in the 1980s is the result of liberalisation.[1] Will growth in the 1990s reduce the level of inequality or will it be bought with further widening of the gap between the haves and the have nots?

In the remainder of this introductory section I discuss the meaning of growth and its relationship to inequality. In the following section I review growth (measured by movements in average per capita income) and income inequality in recent times. The product of the average income and its distribution provides a measure of the well being of the society as a whole and is known as social welfare. Recent measures of social welfare are reported and finally the discussion centres on the influences on the distribution of incomes as the economy climbs out of recession and into the medium term.

The Meaning of Economic Growth and Inequality

The most conventional measure of economic performance is real GDP per capita. This is the average value of the production of goods and services by the economy in a year. It is a measure of performance in well defined markets and therefore excludes many things which contribute to the standard of living but which are not traded, such as activity in the household economy,

[1] Saunders, 1994, p. 127 on.

the state of the environment, cultural and artistic activity, political freedoms, the level of opportunities for future growth, the psychological well-being of the country and so on. In Sen's (1992) terminology the space of measurement is restricted to income. However, provided these other attributes of the standard of living move in the same way as market income then real GDP per capita will be a reasonable measure of the economic performance of the economy.

Partly because of the things which real GDP per capita does not include (some of which have been mentioned) most observers believe that the well-being of the country also should depend on the distribution of well-being among its members. Conventionally, among distribution measures, income is used as a proxy for well-being although it is subject to the same exclusions as those applying to average per capita real GDP, and in addition, to problems of attribution.[2] Notwithstanding these limitations, income is invariably the medium by which variations in the distribution are brought to account.

A large amount of income inequality, it is argued, occurs when the markets fail to allocate income in a fair way because of interference with its working (by rich or powerful people manipulating the system). Large differences in income are said to be unfair, and may lead to envy, crime, social dysfunction etc. On the other hand a certain degree of inequality is necessary to provide appropriate rewards for those people who work harder or achieve more in various ways.

Measurement of Inequality

The income distribution may be portrayed in a number of ways. The simplest presentation of the distribution is obtained by showing the shares of total income earned by successive quintiles of the population. All members of the population are arranged in rank order based on their income (the first member will be the poorest and the last member the richest). The income of the first (the poorest) 20 per cent, the first quintile, is then calculated as a percentage of the income of the society as a whole. The shares of succeeding quintiles are calculated in turn.

For many purposes it is helpful to be able to describe the level of inequality of a population by a single number, or summary measure. A common such summary measure is the **Gini index**. The Gini index measures the average gap between all pairs of incomes in the distribution relative to mean income. Its value varies from one (maximum inequality) to zero when all incomes are the same (i.e. the average gap is zero).

[2] For individual families there is a problem in appropriately attributing the value of government provided or subsidised benefits like health and education, the value of the flow of services from housing and consumer durables, and the value of voluntary leisure. Travers and Richardson (1992) investigate the extent that full income, which includes all of the above, may be proxied by cash income, which excludes all of the above.

Current estimates of inequality in Australia

ABS (1992a) compared the distribution of gross income among different family groups and among a range of income unit types, using data from the 1989-90 Income, Housing and Amenities Survey. The principal basis for comparison was the quintile share of various classifications of income units. **Table 10.1** shows the quintile shares of married couples in column 1, one parent income units in column 2, single persons in column 3 and for all income units in column 4. The shares are the proportion of each group's total gross income earned in each succeeding quintile. Column 4 shows that, for Australia in 1989-90, the first (i.e. the poorest) quintile earned 5 per cent of total gross income, the second 9 per cent, the third 15 per cent, the fourth 24 per cent and the last (i.e. the richest) earned 47 per cent of total gross income.

The highest quintile of married couples earned 40.8 per cent of all gross income earned by married couples while the lowest quintile earned just 6.1 per cent. The quintile shares for one parent and for one person income units reveal slightly higher degrees of inequality within the income unit classifications. The highest quintile of one parent income unit earned 43.9 per cent of all income earned by members of that classification of unit, and the highest quintile of one person income units earned 44.2 per cent of all income earned by members of that unit.

The Gini coefficients confirm the conclusions discussed above relating to the quintile shares. The highest Gini coefficient occurred among all income units taken together, 0.43, followed in order of decreasing within-classification inequality, by one person units, one parent units and married couple units.

The degree of inequality between classifications of unit are indicated by the mean incomes of each of the classifications. Married couples earned an average of $41650, compared to $16020 for one parent units, $17750 for one person units and $30160 for all income units. That is families of married couples earned more than double the income of both the single parent and single person income units (see **Table 10.1**).

Inequality adjusted for needs and inequality over time

In welfare work it is often useful to relate families not only by their income but also by their needs. The device used to make families comparable on a needs basis are equivalence scales. These are explained as follows; suppose a benchmark income unit of, say, a couple with two children, needs an income of $380 per week after tax in 1994 to maintain a certain standard of living. Another income unit composed of, say, a single person with no dependants, needs $200 after tax to attain the same standard of living. If the family composed of a couple with two dependants is allocated a value of one on the equivalence scale, the family composed of a single person has a value of 0.53. **Equivalence scales** such as this have been devised for families of

Table 10.1 **Gross Income Shares by Quintile, Gini Coefficient and Mean Income of Income Unit Types, 1989-90**

Quintile Class	Married Couple Income Units (%)	One Parent Income Units (%)	One Person Income Units (%)	All Income Units (%)
Highest	40.8	43.9	44.2	46.7
Fourth	23.8	22.4	24.4	24.1
Third	17.6	15.0	15.6	15.4
Second	11.9	11.7	9.6	9.1
Lowest	6.1	7.0	6.2	4.5
Gini Coefficient	0.35	0.36	0.39	0.43
Mean Income	$41,650	$16,020	$17,750	$30,160

Source: ABS (1992a, Table 6.5.1)

different size, with different numbers of adults, and for families in which the head or reference person works and in which he or she does not. The main set of equivalence scales used in Australia are known as the simplified Henderson scales.[3]

When income is divided by the value on the equivalence scale, the resulting income is known as equivalent income. Using the above example, if the actual income of the couple and the single person was the same, say $25000 per year, then the equivalent income for the couple would be $25000 while the equivalent income for the single person would be $47170.

Table 10.2 presents shares of quintiles of Australian income units for 1981-82, 1985-86 and 1989-90. The income used in **Table 10.2** has been adjusted in two ways. In addition to the adjustment for needs, personal income tax has been deducted so the measure of income is equivalent after tax income. The years are shown in the headings to the columns and the quintile shares of the population are shown in the first five rows. The final row shows the value of the Gini coefficient (see **Table 10.2**).

The results in **Table 10.2** are not strictly comparable to those in **Table 10.1** because they refer to different populations. In **Table 10.2**, families with self-employed and juvenile heads have been excluded. Also, the results of **Table 10.2** refer to equivalent after-tax income whereas **Table 10.1** refers to gross income. Nevertheless comparing column 4 of **Table 10.1** and the final

[3] Johnson (1987) provides a comprehensive account of the Henderson equivalence scales.

Table 10.2 **Equivalent After-Tax Real Income Shares and Gini Coefficients; Australia, 1981-82, 1985-86 and 1989-90**

Share of Quintiles	1981-82 (%)	1985-86 (%)	1989-90 (%)
Highest	36.4	38.8	38.6
Fourth	23.8	23.4	23.6
Third	18.3	17.4	17.5
Second	13.3	12.5	12.6
Lowest	8.2	7.8	7.7
Gini Coefficient	0.2857	0.3140	0.3124

Source: Calculations by author using ABS (1985, 1987 and 1992c).

column of **Table 10.2** indicate much less inequality in equivalent after tax income than in gross income. Whereas in **Table 10.1** the highest quintile earned 47 per cent of the total in 1989-90, in **Table 10.2** the highest quintile earned 38 per cent of the total and the after-tax equivalent value of the Gini coefficient is 0.3124 compared to 0.43 for gross income.[8]

According to the Gini coefficient in **Table 10.2**, inequality increased between 1981-82 and 1985-86 then fell slightly between 1985-86 and 1989-90. The quintile shares generally confirm this story. However there is some conflict in the measurement of inequality between 1985-86 and 1989-90. The share of the highest quintile fell but so did the share of the lowest quintile.

Social Welfare

Social welfare measures the well being of the society as a whole. A measure of it is the product of indexes measuring efficiency and equity. Suppose for instance, that per capita GDP is the index used to measure the extent to which the society attains the efficiency goal, and that an inequality index such as the Gini index is used to measure the extent to which society attains the equity goal. Then a measure of social welfare is the product of real per capita GDP and one minus the Gini index.

This measure of social welfare has no intuitive meaning but the effect of its construction is that a one per cent increase in real per capita GDP will be offset by a one percent fall in (one minus) the Gini index leaving the measure of social welfare unchanged. That is, an implication of this measure is that

[8] The difference is due to the effect of both the equivalence scales and the taxation system. Both effects are likely to reduce inequality. Income tax is progressive and income units with greater needs (i.e. couples and those with dependants) tend to have larger incomes.

trade-offs are possible between efficiency and equity. Taken to extremes, there is some very large per capita GDP which will be sufficient to overcome really unequal income distributions. However it is not necessary to believe in all such trade-offs to use the welfare index in a situation where the inequality is not extreme. The trade-off may be accepted, only in the vicinity of the levels of inequality that have been recently experienced in Australia.

The other important implication of the use of the suggested measure of welfare is that it is assumed that it is possible to capture the many dimensions of equity in the income space. As has been noted, social welfare has implications over many spaces (for instance opportunities, freedoms, health and so on). The following analysis supposes that income can act as a reasonable proxy for all of these.

Social welfare in Australia in recent years

Social welfare for Australia is measured in Table 10.3 for 1981-82, 1985-86 and 1989-90, and the average annual change between 1981-82 and 1989-90. The rows of the table show real GDP per head, the value of (one minus) the Gini index and the social welfare index defined in the previous section (see Table 10.3).

Over the 8 year period real GDP per head rose by an average of 2 per cent per year.

However (one minus) the Gini index declined by an average of about 0.5 per cent per year offsetting the growth in real GDP per head so that social welfare grew by an annual average rate of 1.5 per cent.

Table 10.3 **Estimates of Economic and Social Performance, Australia: 1981-82, 1985-86 and 1989-90**

Measure of Performance	1981-82	1985-86	1989-90	Average Annual Growth 81-82 to 89-90
Real GDP per head ($)	$18,344	$19,805	$21,471	1.99%
One minus the Gini index	0.7143	0.6860	0.6876	-0.48%
Welfare index	13,103	13,586	14,763	1.50%

Source: ABS (1993) and calculations by the author from ABS (1985, 1987 and 1992c).

Discussion

The measures in Table 10.3 all relate to the period 1981-82 to 1989-90, a period in which the Australian economy emerged from recession into a period of strong growth. Since then, economic growth has fallen dramatically and while measures of inequality are not yet available the likelihood is that it will have increased markedly.

The economy is about to enter a period which the government hopes will produce growth similar to that in the 1980s, the last period of recovery (White paper, 1994).[3] However growth over the 1980s saw a deterioration in income distribution. The policy response to this increase in inequality was to target welfare groups to minimise poverty (such as the Family Allowance Supplement). Growth in the latter part of the 1990s will require further major attention to the interaction of growth and the welfare system. Both will be affected by continued liberalisation of the economy. Specific developments which are likely to particularly affect distribution are:

- continued microeconomic reform, privatisation, government spending restraint and reduction in size of government;
- increase in enterprise bargaining and widening of wage relativities between different groups of workers;
- increased flexibility in production (better utilisation of capital, multi-skilling, increase in available work being part-time);
- sharper focusing of policy so that for instance welfare policies are enacted through the welfare system rather than through labour markets.

These changes are likely to have diverse effects on distribution:

- liberalisation is likely to lead to the removal of distributional goals from factor and product market policies and will necessitate the formulation of stronger policies in the area of social security to maintain the welfare role of government;
- increases in enterprise bargaining are likely to widen wage relativities, increasing earnings inequality;
- increased flexibility in the production process is likely to promote increased flexibility of working arrangements (increases in part-time employment at the expense of full-time employment will increase inequality but reduced overtime will reduce it);

[3] The average growth per capita in the economy over the period 1981-82 to 1989-90 was 1.99 per cent p.a. . The population grew at an annual average rate of 1.5 per cent so the growth in the economy was 3.5 per cent. The first two years of this period covered a recession; in the remainder, from 1983-83 to 1989-90 the annual average rate of growth was 4.3 per cent. The government has aimed to produce average annual growth of 5 per cent in order to meet its unemployment reduction target.

- government spending restraint will lead to continued targeting of welfare benefits;
- should it occur, strong growth will increase the number of jobs and reduce inequality.

Perhaps one of the more interesting areas of likely change concerns the way in which continued liberalisation will impact on the formulation of social security policy. Most economists, including this author, would argue that policies in many areas are bedevilled by conflicting goals. For instance, labour market legislation requires businesses to pay for the cost of meeting social objectives like the provision of maternity and paternity leave. The argument is not about whether there should or should not be maternity and paternity leave, it is about how their cost should be met. Under present arrangements employers pay for them so there is a disincentive to employ people who are potential mothers and fathers. If government thinks that encouraging reproduction is a goal worthy of support then payments should be made by government rather than by businesses.

A major challenge is to devise policies for growth which increase economic performance both currently and in the future but also maintain the social infrastructure needed to minimise inequality and maximise social welfare.

References

Australian Bureau of Statistics (1985), Income and Housing Survey 1981-82, Unit records on magnetic tape.

_____ (1987), Income Distribution Survey 1985-86, Unit records on magnetic tape.

_____ (1992a), *Social Indicators 5*, Catalogue 4101.0.

_____ (1992b), Income, Housing and Amenities Survey 1989-90, Unit records on magnetic tape.

_____ (1993), Australian National Accounts – National Income and Expenditure, September, Catalogue No 5204.0.

Keating, P.J. (1994), *Working Nation: White Paper on Employment and Growth*, AGPS, Canberra.

Kelly, P. (1992), *The End of Certainty*, Allen & Unwin, Sydney.

Johnson, D.T. (1987), 'The calculation and use of poverty lines in Australia', *Australian Economic Review*, 4th Quarter, 45-55.

OECD (1994), *Assessing Structural Reform: Lessons for the Future*, OECD, Paris.

Saunders, P. (1994), *Welfare and Inequality*, Cambridge, Melbourne.

Sen, A. (1992), *Inequality Re-examined*, Clarendon, Oxford.

Travers, P. and S. Richardson (1993), *Living Decently*, Oxford, Melbourne.

APPENDICES

LIST OF CONFERENCE ATTENDEES

Elspeth Adamson	Tintern AGGS	VIC
Bruce Addison	All Saints Anglican School	QLD
Cheryl Ainsworth	John Curtin Senior High School	WA
Judith Alexander	East Gippsland Community College of TAFE	VIC
Gerard Alford	The Hutchins School	TAS
David Allchin	St Peter's College	SA
Curt Anderson	University of Minnesota	USA
Paul Angus	Xavier College	VIC
Vern Banagofsky	Chisholm College	VIC
Michael Bright	Canberra Grammar School	ACT
Jim Brown	Haileybury College	VIC
Basil Caldicott	Downlands College	QLD
Michael Campbell	Marist College Ashgrove	QLD
Peter Cassidy	Cowra High School	NSW
Yolanda Chan	Tintern AGGS	VIC
Anthony Condon	Loreto College	QLD
Ann Crawford	Somerville House	QLD
Darralyn Cusack	Australian International School	SING
Alf D'Souza	The Shell Company of Australia	VIC
Nina De Garis	Strathcona BGGS	VIC
Steve Dillon	University High School	VIC
Chrys Drummond	Berkeley Vale County High School	NSW
David Endean	Geelong Grammar School	VIC
Stephen Faulkner	St Paul's School	QLD
Ken Ferguson	Xavier College	VIC
Anne Field	St George Girls' High School	NSW
Paul Ford	Dominic College	TAS
Anita Forsyth	Monash University	VIC
Alex Frino	University of Sydney	NSW
Andrew Frost	Kilmaire College	VIC
Doug Galbraith	Scotch College	VIC
Richard Gazal	The Kings School	NSW
Anna Gazzo	Strathmore Secondary College	VIC
Peter Gibson	Yeshivah College	VIC
Marilyn Giddens	Macarthur Girls' High School	NSW
Elizabeth Gilbert	Canberra C of E Girls' Grammar	ACT
Lorna Ginn	Oxley Secondary College	QLD
Patricia Girdowt	Blue Mountains Grammar	NSW
Marie Harvey	Wenona School	NSW
Antoinette Hewitt	Loddon Campaspe Campus TAFE	NSW
Annette Jamvold	St Hilda's Anglican School for Girls	WA
David Johnson	IAESR University of Melbourne	VIC
Joy Jones	Swan Hill Secondary College	VIC
Barbara Kerr	Ravenswood School for Girls	NSW
Lap Lam	Westall Secondary College	VIC
Catherine Lee	University of Western Sydney	NSW
Graham Leigo	Meriden School	NSW
Mick Ling	Launceston College	TAS

Ian Mansell	Princes Hill Secondary College	VIC
Nicholas Martin	Ivanhoe Girls' Grammar	VIC
Peter Masters	Scots College Albury	NSW
Guy Masters	Geelong Grammar	VIC
Phil Mau	The Kings School	NSW
Paul McCarthy	ABS	ACT
Bruce McGregor	St Brendan's CBC	QLD
Peter McGregor	Centre for Economic Education	VIC
Judith Mackenzie Jesser	Glen Waverley Secondary College	VIC
Mark McNamara	Anglican Church Grammar School	QLD
Anna Medley	Lockridge Senior High School	WA
Ros Minnikin	St Aidan's Anglican Girls' School	QLD
John Moore	Goulburn Valley Community College	VIC
Narelle Moylan	PLC	NSW
Paul O'Callaghan	The Australian Trade Commision	ACT
Alan Oster	National Australia Bank	VIC
Jane Pelvin	Canberra C of E Girls' Grammar	ACT
Prof. David Penington	University of Melbourne	VIC
Sue Perillo	Wesley College	VIC
Di Perkins	Oxley Secondary College	QLD
John Porteous	Ballarat and Clarendon College	VIC
Jeff Porter	Kingswood College	VIC
Marilyn Price	Penrhos College	WA
Richard Radkovic	Aurora College	NSW
Christine Reid	ABA	VIC
Ron Reilly	Insearch Institute of Commerce	NSW
Chris Ryan	Rockhampton Grammar School	QLD
Chris Saltos	Domremy Collge	NSW
Malcolm Scott	Launceston Institute of TAFE	TAS
Prof. Judith Sloan	NILS Flinders University	SA
Andrew Smith	Willyama High School	NSW
John Snelling	Heathfield High	SA
Lee Stewart	Bellingen High School	NSW
Ross Thickett	Central Coast Grammar	NSW
Lea Treloar	St Columba's College	VIC
Ron Vassil	St Margaret's School	VIC
Beverley Weatherburn	Hobart Institute of TAFE	TAS
Margaret Ziebell	Holy Spirit College	NSW

RESOURCE EXHIBITORS

Michael Brennan	VCTA	VIC
Sue Corcoran	Australian Bankers' Association	VIC
Allida Helleren	ABS	VIC
Basil Kelly	South Pacific Publishing	VIC
Gael Macpherson	Macmillan Education Australia	VIC
Tim Riley	EERC	NSW
Rachel Slattery	Heinemann Educational Australia	VIC

ABBREVIATIONS

ABS	Australian Bureau of Statistics
ACOR	Australian Council of Recyclers
AFTA	ASEAN Free Trade Association
ANA	Australian National Accounts
APEC	Asia Pacific Economic Co-operation
ASEAN	Association of South East Asian Nations
ASX	Australian Stock Exchange
CES	Commonwealth Employment Service
CPI	Consumer Price Index
DEET	Department of Education, Employment and Training
EPAC	Economic Planning and Advisory Council
EQP	Equipment
EU	European Union
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GDP(A)	average of GDP(E), (I) and (P) measures
GDP(E)	Gross Domestic Product by Sum of Final Expenditures
GDP(I)	Gross Domestic Product by Sum of Incomes
GDP(P)	Gross Domestic Product by Sum of Gross Product
GSP	Gross State Product
IAESR	Institute of Applied Economic and Social Research
ILO	International Labour Organisation
IMF	International Monetary Fund
IPD	Implicit Price Deflator
IRRA	Industrial Relations Reform Act
LNG	Liquid Natural Gas
NAFI	National Association of Forest Industries
NAFTA	North American Free Trade Agreement
NDC	Non Dwelling Costs
NO_x	Nitrous Oxide
OECD	Organisation for Economic Co-operation and Development
ORANI	macroeconomic model of the Australian economy
POE	Prediction- Observation- Explaination
R&D	Research and Development
SNA	System of National Accounts
SO_2	Sulphur Dioxide
TAFE	Technical and Further Education

GLOSSARY OF TERMS

aggregate demand	the total demand for goods and services generated by the sum of all spending in the economy.
arbitration	in industrial relations refers to an arrangement whereby disputing parties are given a ruling by an independent body, a state industrial tribunal or the Australian Industrial Relations Commission.
'ask' order	an order to sell a particular quantity of a share on the stock exchange at a nominated price.
barter system	the exchange of goods for goods rather than money.
benefit-cost analysis	an analysis comparing the costs of a project with the resultant benefits, to determine whether the benefits outweigh the costs.
'bid' order	an order to buy a particular quantity of a share on the stock exchange at a nominated price.
biodiversity	large range of living things.
black market	a market operating outside regulations to avoid tax or controls.
brainstorm	a group of people rapidly listing ideas which come into their heads when thinking about a topic.
broker	a person who is a member of the Australian Stock Exchange. Only a broker can trade in shares on the exchange.
brokerage	the fee charged by a broker for executing a trade on the stock exchange.
certificate agreements	enterprise agreements reached by employees represented by a trade union in negotiation with an employer.
capital	one of the factors of production. It may be man-made or a natural resource e.g. machinery, water resources.
competency-based approach	educating by defining the specific skills required for a job and teaching these skills.
concept map	charts the relationship between concepts.

Consumer Price Index (CPI)	measures changes over time in the price of a basket of goods and services bought by households.
consumption	deriving satisfaction from the use of goods and services. That part of income not saved.
credentialism	trend to acquire numerous qualifications.
'crossed'	when a trade is recorded in the market for a share, this occurs when the 'market bid' is equal to or higher than the 'market ask'.
current account balance	is a record of the receipts and payments for goods, services, income and transfers sold to and obtained from the external sector.
customs duty	a tax levied on goods imported from another country.
debt finance	involves a contractual obligation to repay the initial amount lent plus interest.
'defensive expenditures'	the cost of environmental protection services, used in calculating the 'environmentally adjusted GDP'.
depreciation (capital)	an allowance made for wear and tear on a nation's capital during a given period.
developing economy	a traditional, mostly agricultural economy with low per capita income and consumption, also known as a 'third world' economy.
discounted cash flow analysis	a mathematical means of discounting a series of payments, due over future periods, to a single amount in 'today's' money.
dividends	part payment out of company profits to shareholders.
dumping	the selling of goods in another country at a price that is below the cost at which those goods are produced in the home country. GATT prohibits the practice but it is always difficult to prove.
economic benefits	improvements in the satisfaction of wants and needs.
enterprise bargaining	the process of direct negotiation on wages and working conditions between employer and employee within an individual enterprise.

enterprise flexibility agreements
: enterprise agreement negotiated directly by employees and their employer.

environmentally adjusted GDP
: is obtained by subtracting the environmental protection services from GDP.

equity savings/finance
: financing of investment through the flow of funds from the shareholder to the corporation. It represents ownership and is in return for a share in profits.

equivalence scales
: a set of scales devised so that families can be compared on a needs basis. It demonstrates the different income configurations of family units needed to attain a comparable standard of living. The main one used in Australia is the simplified Henderson scale.

equivalent income
: income divided by the value on the equivalence scale of the family earning the income.

European Exchange Rate Mechanism (ERM)
: a monetary system for the European Community set up to provide stable but flexible exchange rates for its members. Members keep their currency exchange rates within a margin of a few per cent either side of a central rate.

exogenous variable
: a variable used in an economic model but whose value is not determined within the model e.g. the demand for exports in a model of the Australian economy.

expenditure approach to GDP
: GDP(E) measures the final expenditures on goods and services, adding on the contribution of exports and deducting the value of imports.

external benefit
: side effect of production that impacts favourably on people who are not directly involved in the production process e.g. education, as the whole economy benefits from education not just the people who receive it.

external cost	side effect of production that impacts unfavourably on people who are not directly involved in the production process e.g. air pollution from a factory, noise from aeroplanes.
externalities	costs (or benefits) that arise from economic activity that accrue to others than those responsible for the activity e.g. water pollution, noise. (see also external costs and external benefits.)
factor market	the market for factors of production where factor prices are set which become the incomes for the owners of production e.g. the labour market sets wages.
feasibility study	a survey or analysis of the need, value and practicability of a proposed enterprise.
financial market	that market which enables funds to flow smoothly and efficiently from those who wish to lend to those who wish to borrow. It includes banks, building societies, finance companies and the short-term money market.
fiscal policy	refers to use of the federal budget by the government to influence the level of economic activity, resource allocation and income distribution. Changes in the level and composition of government taxation and expenditure are used as fiscal instruments to achieve these goals.
fiscal stimulus	increase in the level of economic activity through rising government spending relative to government revenue e.g. budget deficits.
'flow-of-funds'	a national accounting technique which records total money flows in the community; including income flows, expenditure on consumption and investment goods and reallocations of existing assets e.g. exchange of money for capital equipment.
fringe benefits tax	a tax imposed on most employment benefits, other than wages and salaries, received by employees e.g. use of a company car, subsidised home loans. It is paid by the employer.

GDP deflator	an index of the prices of the goods and services in GDP which is used to calculate GDP at constant prices.
Gini coefficients	a measure of inequality (usually income) based on the Lorenz Curve. It is the ratio of the area between the Lorenz curve and the diagonal line and the total area under the diagonal line itself. A higher Gini coefficient shows greater inequality.
Gini index	describes the level of inequality of income in a population. It is the average gap between all pairs of incomes in the distribution relative to mean income.
global competitiveness	producing goods at least as efficiently as our trading partners, that is at the same cost.
green house emissions	carbon dioxide which is released into the atmosphere by man's activity and which causes the earth's temperature to rise in the same manner as glass heats up a greenhouse i.e. allowing the radiant energy of the sun in and trapping the heat there.
greenfields operation	a new business or a new operation of an existing company allowing a fresh start in industrial relations.
gross income	the measure of income before any deductions have been made e.g. tax.
gross return	the return before any deduction for costs.
human capital theory	refers to the improvement of the human capital of a nation by improving their skills through education. It assumes a link between education and productivity and productivity and earnings.
implicit price deflator (IPD)	a price index which is calculated by comparing movements in GDP in current and constant prices. It allows calculation of real rates of growth.
import price index	measures changes over time of the price of imports.

imputations	these are estimated values for goods and services not sold in the market place e.g. the rent for a dwelling owned and occupied by the owner.
'income approach' to GDP	GDP(I) measures the sum of incomes accruing from production.
income distribution	measure of spread of national income throughout the population of a country.
industrial relations	the relationship between employers and employees in particular to the setting of wages and working conditions. It occurs at three levels: at the work place, between unions and employer representatives and in industrial courts and commissions.
industrialised economies	economies which have large-scale industries which use mechanical power, have a small agricultural work force and a well developed capital market.
inflation	a sustained rate of increase in the general level of prices accompanied by a fall in the value of money.
informal economy	the economy outside regulation and taxation, substantially a traditional barter system.
infrastructure	goods and services such as power, transportation, housing, education and health, regarded as essential for the development of a modern economy.
input-output production analysis	a quantitative study whereby all transactions involved in the sale of products and services within and economy during a given period are arranged in a square indicating simultaneously the sectors producing and the sectors receiving delivery of goods and services.
intermediate consumption	the cost of goods and services used up in the process of production.
international markets	the sale of goods and services between nations.

investment	for the economist it is the creation of capital goods to be used in further production. However for the businessman it is the purchase of stock exchange securities, government securities and securities issued by financial institutions.
investor	a person who forgoes current consumption to buy shares in a company, government securities or securities issued by financial institutions in order to make a future profit.
joint venturers	an unincorporated contractual association between parties formed for a specific project. They share the costs and in any resulting output and profits.
liberalisation	freeing up of the economy by the removal of restrictions on the operation of markets.
macroeconomics	the branch of economics relating to the whole economy such as aggregate economic activity including output, income, employment and prices.
market	any situation in which people buy and sell an item or a range of items. It need not be a physical location.
'market ask'	on the stock exchange, the lowest 'ask' order price in the market at the time.
'market bid ask spread'	on the stock exchange, the difference between the 'market bid' and the 'market ask'.
'market bid'	on the stock exchange, the highest 'bid' order price in the market at the time.
market transactions	a transaction of buying or selling goods, services or financial investments.
microeconomic reform	policies designed to improve the efficiency and productivity at the individual industry or market level to make Australia more internationally competitive e.g. reform of waterfront work practices, reducing tariffs, enterprise bargaining in the labour market. They remove impediments to resource allocation and restore incentives for economic agents.

multiskilling	training labour in several tasks so that they can be used flexibly in the work place.
national accounts	a form of statistical reporting designed to reveal the economic impact of the expenditure undertaken by different sectors of the economy and where they get the money to finance that expenditure.
national expenditure	the sum of all final expenditures on goods and services (i.e. those goods and services which are not processed any further), adding on the contribution of exports and deducting the value of imports.
national income	the net income accruing within a given period to residents within a country for their services in supplying factors of production at home and overseas, plus indirect taxes less subsidies.
national wealth	the total stock of assets of a country. They represent goods which can be consumed or stored for satisfaction of future wants.
natural resources	the factor of production 'land', including mineral deposits, water supply, timber and soil fertility.
net return	the return after all costs have been deducted.
North American Free Trade Agreement	an agreement between Canada, Mexico and the USA to promote free trade by eliminating restrictions on the flow of goods, services and investments.
off-market transaction	a private agreement to trade shares.
ORANI model	complex macroeconomic model of the Australian economy containing hundreds of variables and used for econometric modelling research.
per capita GDP	gross domestic product divided by the size of the total population.
price volatility	rapid movement, both up and down, of prices.

privatisation	action taken to sell off part or all of a public asset to the private sector. It can also take the form of competitive tendering by the private sector for the right to provide public services or contracting out of services previously provided by the public sector.
primary volume risk	the ability of customers to absorb production. In an extremely large project, this risk is reduced by having contracts of sale written before the project is begun.
product market	those markets in which buyers and sellers trade in fiscal goods and services.
'production approach' to GDP	GDP(P) sums the gross product of all industries.
public good	a good which once created is available to all consumers and cannot be withheld from one individual without being withheld from all. It must be provided communally e.g. clean air.
quintile	one fifth of the group being studied.
rate of return	the profit arising out of an investment, expressed as a percentage of the sum invested.
rational investment rule	the expected rate of return of a project must exceed the rate of return required by its owner.
real GDP	the total value of final goods and services produced within a country in a specified period of time adjusted so that it is measured in 'constant dollar terms' and therefore can be compared one year to another.
recycling	to treat waste (old bottles, paper etc.) so that new products can be manufactured from them.
'round trip trade'	the process of buying and then selling shares.
royalties	a monetary reward provided by those who benefit from the use of a product owned by someone else, usually measured as a percentage of receipts from sales.

'satellite accounts'	accounting statements separate from, but consistent with, the system of national accounts, providing supplementary data which can be used in conjunction with the data in those national accounts e.g. natural resource and environment accounting and unpaid household work accounts.
savings	that part of income not consumed and used to finance investment spending.
seasonally adjusted	an alteration to time series data to allow the underlying trend to be discerned. It removes the effect on the data of influences unique to that time period e.g. the effect of Christmas holidays on production statistics.
secondary boycotts	industrial action by unions against an employer who isn't their employer. It can take the form of action against other companies unless they cease to trade with the company at the centre of the dispute.
securities	investments offered by a company or authority e.g. shares, debentures, bonds.
share	an equity or part ownership of a company.
shareholders	the owners of public and private companies' paid up capital.
social infrastructure	the network of services in a society which are essential for its cohesion and for the efficient functioning of the economy. They include the transportation and communication systems, education and water supply.
social security	government payments to guarantee a minimum standard of living for all sectors of the population, particularly those who cannot work or are unable to find work.
stamp duty	is a government tax on transactions which transfer ownership of an asset e.g. sale of shares, cars or houses.
sustainable development	the rate of economic development and resource consumption that is compatible with preserving the natural environment in the longer term.

sustainable GDP	is the difference between environmentally-adjusted GDP and environmental costs such as the degradation of the environment.
time series	are data observations for an indicator over a certain time period.
third world economies	countries with a low per capita income, commonly found in Asia, Africa, Latin America and the Middle East.
Trade Weighted Index (TWI)	an index which gives an indication of movements in the value of the Australian dollar compared with the currencies of our major trading partners, weighted according to their share of Australian trade.
trade value	the price times the volume of the trade e.g. shares.
trading bloc	a grouping of nations for the purpose of fostering closer and more liberal trade between the members.
transaction costs	for investment are stamp duty, brokerage and bid/ask spreads. In general, transaction costs are any costs incurred in doing business.
trended series	the general long-term movement of a time series.
'underlying' terms	the fundamental rate when seasonal, one off or policy induced influences on prices are discarded.
wage relativities	the variation in wage rates for different occupations and between different enterprises.
welfare policy	federal and state government cash payments and benefits in kind to low income earners, the aged, unemployed, the sick and disabled members of society.
western economies	those developed capitalist economies associated with countries in Western Europe, America, Japan, Australia and New Zealand. These economies have high per capita incomes reflecting high levels of development.

INDEX

the economics education review

Over 900 secondary schools and colleges subscribe to *The Economics Education Review*, a quality16-page economics newsletter published by the Economics Education Resource Centre for teachers, librarians and students. It offers up-to-date information on the Australian economy with a bi-monthly coverage of the important developments in economic theory and policy issues such as unemployment and economic management.

Features of *The Economics Education Review* include:

- three articles per issue by leading economists;
- questions for students at the end of each article;
- Westpac forecasts on key economic indicators;
- news on EERC professional development activities.

Top quality articles have been commissioned for 1995 and teachers may order class sets of *The Economics Education Review* or subscribe on behalf of their department or school library.

Available from: The Economics Education Resource Centre
PO Box 92 St Leonards NSW 2065.
Ph: (02) 438 4377 • Fax: (02) 439 7310

ECONOMICS '94 CONFERENCE PROCEEDINGS

CREATING JOBS BY INVESTING IN GROWTH

featuring

- Comprehensive coverage of growth, investment, trade, employment, environment, education and distribution issues.
- Up to date content, drawing on recent issues from the current policy debate.
- Readable style which is appropriate for teachers and students.
- Clear figures and tables illustrating current economic trends.
- Comprehensive glossary of terms and an index for quick reference.

ISBN 0 949769 99 1

Recommended Retail Price $17.95