

# EXPECTED RATES OF RETURN TO OVERSEAS STUDENT POSTGRADUATE STUDY IN AUSTRALIA

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## Introduction

In 1951, Australia introduced a training programme via the Colombo Plan under various schemes such as the South Pacific Aid Programme (SPAP), the Special Commonwealth African Assistance Plan (SCAAP), the Commonwealth Co-operation in Education (CCE) etc., which allow nominees from less developed countries to train in Australia. During 1982, some 3,642 overseas students received some form of education in Australia at a cost of \$23.7 million, or 3.6 per cent of Australia's aid expenditure for 1982. Virtually all of these fall under the administration umbrella of the Australian Development Assistance Bureau (ADAB)

This form of aid is based on the expectation that the rates of return to the recipient society will be positive and, it is hoped, high. That education can be a worthwhile investment has been adequately demonstrated. For example, Psacharopoulos reports mean social rates of return to primary, secondary and higher education in 22 developing countries of 27, 16, and 13 per cent respectively.<sup>3</sup> Yotopolous and Nugent summarize a number of estimates of social rates of return for the 1960s: for developing countries, the rates ranged from 9 to 50 per cent for secondary education, and from 9 to 23 per cent for university level education.<sup>4</sup>

The objective of this paper is not to measure social rates of return but expected private rates, i.e. the net returns anticipated by the individuals involved. Private returns will in fact be indicative of social returns: the marginal productivity theory of labour predicts that a worker's wage will be equated with his or her productivity. Thus a better educated, and therefore more productive, worker will receive a higher wage. If, then, the expected return (in terms of higher wages) to individuals is sufficient to attract them to apply for study in Australia, it may be assumed that their contribution to society on their return will also be significant.

This article reports a study of overseas postgraduate students at the University of New England (UNE). Using the data derived from a questionnaire, private expected rates of return (ERR) are calculated.<sup>5</sup> The calculations involve a comparison of the major benefit — expected increased earnings for the remainder of their working life — with such

costs as income foregone during training and any income foregone by the spouses of students. Other costs and benefits which were considered were vacation earnings whilst in Australia, differences in costs of living whilst in Australia (e.g. lower costs of educating their children), and non-monetary benefits and costs.

## Sample Characteristics

The data were obtained in March and April, 1983 from a sample of 200 students drawn from a total of 266 overseas students studying at the University of New England.<sup>6</sup> These included undergraduates and postgraduates, and privately funded as well as ADAB-sponsored students. Originally it was intended to survey at least three universities in New South Wales (Newcastle, New South Wales and New England) so as to include such fields as Engineering and Medicine and also to have a larger sample size for the analysis. Unfortunately time and cost factors prevented this.

The questionnaire was anonymous and an attempt was made to keep personal questions to a minimum.<sup>7</sup> Nonetheless, the effective response rate was a disappointing 50 per cent.<sup>8</sup> We believe that in the societies from which many of the students come, it is considered unwise or improper to reveal such information, even anonymously. We are satisfied, however, that the quality of data received is quite high.

The sample was fairly evenly spread across five year age groups from 20-24 years through to 35-39 years. The sample contained students from a total of 26 countries, including 29 from South East Asia, 16 each from Africa and South Asia, 14 from the Pacific Islands, 12 from East Asia and 14 from elsewhere. Almost half (47 per cent) were undertaking masters degrees with 28 per cent taking first degrees, 13 per cent postgraduate diplomas and 10 per cent doctoral studies.

Approximately half were employed by governments in either professional or administrative capacities; a quarter were teachers and a quarter (almost all undertaking first degrees) had no previous job. The majority (68 per cent) ranked themselves as medium income earners in their home country, and 30 per cent as having high or very high incomes.

Half were financed by the Australian Development Assistance Bureau, a third from private sources (including their own savings) and the remainder from other sources, including U.N.E. grants.

## Calculation of expected rates of return (ERR)

Some simplifying assumptions were made in order to facilitate calculation of ERR. These are:

- All costs of living in Australia are covered by the ADAB grants i.e. private saving and dissaving in connection with overseas study in Australia are assumed to be zero. This includes the costs of

family air fares to and from Australia which are not met by ADAB, although additional living allowances are paid in respect of families.

- Earnings foregone by spouses, and holiday earnings were found to be negligible, and are assumed to be zero.
- Expected monetary benefits — that is, the difference between salary before and after training — are assumed constant over the entire working life of the individual student. This is an assumption which may well not be true. Study in Australia may well lead an individual onto a more rapid promotion path than would have occurred otherwise, rather than simply growth at the same rate but commencing at a higher level. Personal predictions of changed promotion paths are, however, very difficult to derive.

Several other points should be noted.<sup>9</sup> Respondents were requested to report all money values in constant value Australian dollars: they will have converted their home currency, when necessary, to Australian dollars using an approximate (probably current) exchange rate. Second, only a limited proportion (36 per cent) of students had an opportunity cost in terms of foregone income: some had no previous job and the majority of ADAB sponsored students were still receiving incomes from their job, although in many cases these were being retained at home. Thus for 64 per cent, the most important cost normally incurred (i.e. income foregone) was zero. The calculation of expected rates of return therefore relate to only 36 students — 33 male and three female; for the others, it was not possible to calculate an ERR value in the absence of an opportunity cost.<sup>10</sup>

The overall ERR was 51 per cent, and this was cross tabulated against age, region of origin, qualification sought, field of study and source of finance. With respect to age, it was anticipated that ERR would be higher for younger people, since they would have a longer period over which to earn and cover costs. This proved to be the case with a very high rate (85 per cent) for those in the 20-24 year group and a low 6 per cent for those 40 years and over.

There was considerable variation between ERR as regards region of origin as is indicated in Table 1. To the extent that expected private rates of return are indicative of social rates, these suggest that from an aid standpoint, South East Asian and South Pacific students are the most desirable recipients.

TABLE 1  
EXPECTED RATE OF RETURN BY STUDENTS' REGION OF ORIGIN

Region	Number of respondents	ERR
Africa	4	15.5
East Africa	4	23.6
South Asia	9	29.0
South East Asia	6	60.4
South Pacific	7	48.7

Note: Six students did not indicate country or region of origin.

With respect to qualification sought, Table 2 indicates that substantial differences occur between qualifications.

TABLE 2  
EXPECTED RATE OF RETURN BY QUALIFICATION SOUGHT

Qualification Sought	Number	ERR
Bachelor's degree	12	81.9
Postgraduate diploma	5	19.8
Master's	14	31.9
Ph.D.	5	41.1

First degrees give by far the highest ERR, and postgraduate diplomas the lowest. This appears to explain the low esteem which overseas students appear to give to diplomas. As regards field of study, the economic studies/social sciences fields had the highest rate (59 per cent) followed by accounting (51 per cent); the ERR for science students value was 34.6 per cent and education students much lower at 9.3 per cent. This ranking is consistent with that for social rates of return from selected developing countries.<sup>11</sup>

Table 3 reports ERR values by source of finance. Self-financing or privately-financed students had much higher rates than ADAB-sponsored students, and this, together with previously reported data, points to the existence of two quite distinct groups of students: older (normally in their late 20s or over), ADAB-sponsored students studying for a master's degree; and younger, self-financed or privately-financed students studying for a bachelor's degree. Home governments tend to nominate students from among public servants or others with at least some years of work experience. There was a smaller group of mixed age/source of finance students.

TABLE 3  
EXPECTED RATE OF RETURN  
BY SOURCE OF FINANCE

Source of finance	Number	ERR
Self, private	13	87.0
A.D.A.B.	18	30.6
Other	5	39.0

The ERR for the first group (younger, self or privately-financed and studying for a bachelor's degree) is much greater (69.3) than that of the older, ADAB-sponsored master's students (17.5 per cent). This is explicable in terms of longer working life and the previously-reported greater ERR for bachelor's degrees. In the next section, we concentrate on those students whose studies form a part of Australia's aid commitment.

TABLE 4  
EXPECTED RATE OF RETURN BY GROUP

Group	Number of respondents	ERR
Younger, self/privately financed, bachelor's degree	14	69.3
Older, ADAB-sponsored, master's degree	14	17.5
Mixed age, source of finance	8	74.7

#### Returns to ADAB-sponsored students

The ERR values calculated in this study for expected private rates of return to ADAB-sponsored students are higher than the actual rates to university level education reported by Yotopolous and Nugent<sup>12</sup> and Psacharopoulos<sup>13</sup> for developing countries. Anticipated rates are likely, of course, to be different to actual rates, but there are reasons for expecting the difference between the rates to have been in the other direction. In particular, it would have been expected that the rates of return in the 1960s, when educated manpower was in more limited supply, would be higher than actual rates during the 1980s. In addition, the present study reports return from postgraduate study only, which we would expect to be less than the return on 'university level' education in general.<sup>14</sup>

A probable explanation lies in the countries included as 'developing' in the samples of the two studies previously cited. They include such middle income countries as Kenya, Malaysia, South Korea, Brazil, Chile, Mexico and Venezuela.<sup>15</sup> It is recog-

nized by these studies (e.g. Psacharopoulos<sup>16</sup>) that as a country's level of development increases, the rate of return to education (both social and private) diminishes; it is likely that rates of return to education in middle income countries will be lower than in the lower income countries which dominate our sample.<sup>17</sup>

#### Conclusion

Private rates of return are normally used to explain the private demand for education. In order to evaluate public investment in education, or to estimate the effectiveness of educational aid programmes, social rates are desirable. Given the complexity of calculating social rates, and the link assumed by marginal productivity theory between social and private rates, this study's estimates of expected private rates of return are a useful indicator that this form of aid is worthwhile.

#### REFERENCES

1. This article is a shortened version of a research paper 'Ex ante Rates of Return to Education: A Case Study of Overseas Students at the University of New England', by E.C. Totimeh; a copy is held in the Lewis Library of the University of New England.
2. The authors are respectively Economic Planning Officer, Ministry of Finance and Economic Planning, Accra, Ghana, and Lecturer in Economics, University of New England.
3. G. Psacharopoulos, 'Education as Investment' in *Finance and Development*, 19, 3, 1982 and 'Returns to Education: An Up-dated International Comparison' in *Comparative Education*, 17, 3, October 1981.
4. P.A. Yotopolous, and J.B. Nugent, *Economics of Development: An Empirical Investigation*, New York, Harper, 1976.
5. For succinct critiques of human capital theory, see Yotopolous and Nugent, op.cit., pp 195-196, and G.K. Sahota, 'Survey on Personal Income Distribution' in *Journal of Economic Literature* 16 March, 1978, pp 14-19.
6. Private overseas students make up about half the U.N.E. overseas student number. These, of course, do not comprise part of Australia's aid commitment.
7. A copy of the questionnaire is incorporated in the original paper.
8. The general limitations of surveys of this nature have been well summarized by C.A. Moser, and G. Kalton, *Survey Methods in Social Investigation*, Heinemann, London, 1971, pp 260-262.
9. Non-monetary costs and benefits were also examined, with students broken into three categories: those with families in Australia, those married but without their families and those who were not married. For the first group, the most commonly reported cost was that their wives were unhappy in Australia (reported by 37 per cent of respondents in this category). For the second group, loss of contact with wife and children was most important (78 per cent).

As regards benefits, 49 per cent of respondents indicated that training would increase their job mobility outside their country and 41 per cent that it would increase mobility within their country. These data have interesting implications for educational aid administration.

10. In the original paper, ERR values were also calculated for students without foregone income by assuming they had foregone their salary; for those without a previous job, it was assumed that their foregone salary was half their expected future salary and return. With a zero cost figure, the ERR is infinity.
11. See Psacharopoulos, op. cit. 1982.
12. Yotopolous and Nugent op. cit. p 192, report a median actual private rate of return for thirteen developing countries during the 1960s of 14.5 per cent; this was above the social rate by an average of three per cent. Psacharopoulos, op. cit., 1981, reports private rates of

return to higher education in 14 developing countries for the 1970s. These lie between 9.5 and 37.0 per cent with a median of 26.2 per cent.

13. Neither of the studies indicate the nature of the higher education considered. Presumably, the data relate to first degrees.
14. Of the 22 developing countries considered by Psacharopoulos (1981), only six fit into the World Bank's low income category.
15. Psacharopoulos, op. cit., 1981, p. 326.
16. Another possible explanation, on which our data provides no hard evidence, is that Australian degrees result in more rapid promotion than domestic degrees.
17. Three-quarters of the ADAB-sponsored students in the sample come from countries classified by the World Bank as low-income countries.