

## **Economic Justification for Investment in Education**

The scale of public and private expenditures on different levels and types of education provides an indication of de facto priorities. However, it does not indicate the rationales for those priorities. Behind the expenditures are institutional and individual decisions that have social, political, and economic goals. The social and political goals include raised levels of education in order to improve public awareness of important issues, efforts to preserve existing social orders, desires to reduce inequalities of access, and concern to reduce population growth rates. However, more relevant to this particular document are the economic goals.

Among the dominant strands of thought on the role of education in economic development is that it is an investment in human capital (OECD 1998). Within this, is the view that it is possible to calculate rates of return from investment in education, and to do so by level and type of education. The work of Psacharopoulos (e.g., 1994, 1995) has become particularly well known in this domain. Other key researchers include Schultz (e.g., 1961, 1987), Becker (e.g., 1975, 1995), and McMahon (e.g., 1997, 1998).

Table 6 shows statistics from a large number of studies of rates of return to investment in education compiled by Psacharopoulos (1994). Private returns accrue to individuals, while social returns accrue to the whole society (including the individuals). In most cases, private returns are greater than social returns because governments give more in subsidies than they take away in taxes. Regional aggregates are shown in Table 7.

On the basis of the figures in Table 6, together with related work, Psacharopoulos has argued that education is generally a good investment both for individuals and for whole societies. Within the education sector, Psacharopoulos has argued, rates of return are particularly high at the primary level, and especially in less developed countries. This suggests that in most circumstances primary education deserves priority in the allocation of extra resources. This view has helped shape World Bank policy, and has also been widely accepted elsewhere (e.g., UNDP 2000). The World Bank (e.g., 1995, 56) has argued on such evidence that expenditures in many countries have been misallocated between education subsectors, with too much emphasis on secondary and higher education.

However, evidence from some countries seems to indicate that private rates of return are falling over time (Tilak 1997a, 69). Moreover, the very concept of rate-of-return analysis in education has been subject to criticism (e.g., Leslie 1990; Bennell 1996; Curtin 1996). One argument is that greater earnings for individuals with higher levels of education do not reflect the intrinsic value of education so much that school systems operate as screening devices in which only the more talented get through to higher levels. This view does not nullify the value of investments in education, but casts a different light on the reasons for earnings differentials at different levels of education. Other criticisms of rate-of-return analysis are that the presentation of exact numbers gives the illusion of precision. Also, since rates are calculated on past data, they cannot necessarily predict what will happen in the future. Indeed, of

**Table 6: Rates of Return to Education - International Comparisons (percent)**

<i>Economy</i>	<i>Year</i>	<i>Private</i>			<i>Social</i>		
		<i>Primary</i>	<i>Secondary</i>	<i>Higher</i>	<i>Primary</i>	<i>Secondary</i>	<i>Higher</i>
Argentina	1989	10.1	14.2	14.9	8.4	7.1	7.6
Australia	1976	—	8.1	21.1	—	—	16.3
Bolivia	1989	9.8	8.1	16.4	9.3	7.3	13.1
Botswana	1983	99.0	76.0	38.0	42.0	41.0	15.0
Brazil	1989	36.6	5.1	28.2	35.6	5.1	21.4
Canada	1985	—	20.7	8.3	—	10.6	4.3
Chile	1989	9.7	12.9	20.7	8.1	11.1	14.0
Colombia	1989	27.7	14.7	21.7	20.0	11.4	14.0
Hong Kong, China	1976	—	18.5	25.2	—	15.0	12.4
India	1978	33.4	19.8	13.2	29.3	13.7	10.8
Indonesia	1989	—	11.0	5.0	—	—	—
Jamaica	1989	20.4	15.7	17.7	7.9	—	—
Japan	1976	13.4	10.4	8.8	9.6	8.6	6.9
Korea, Republic of	1986	—	10.1	17.9	—	8.8	15.5
Malaysia	1978	—	32.6	34.5	—	—	—
Mexico	1984	21.6	15.1	21.7	19.0	9.6	12.9
New Zealand	1966	—	20.0	14.7	—	19.4	13.2
Nepal	1982	—	15.0	21.7	—	—	—
Pakistan	1975	20.0	11.0	27.0	13.0	9.0	8.0
Papua New Guinea	1986	37.2	41.6	23.0	12.8	19.4	8.4
Paraguay	1990	23.7	14.6	13.7	20.3	12.7	10.8
Peru	1990	13.2	6.6	40.0	—	—	—
Philippines	1988	18.3	10.5	11.6	13.3	8.9	10.5
Senegal	1985	33.7	21.3	23.0	8.9	—	—
Singapore	1966	—	20.0	25.4	6.6	17.6	14.1
South Africa	1980	22.1	17.7	11.8	—	—	—
Sri Lanka	1981	—	12.6	16.1	—	—	—
Taipei, China	1972	50.0	12.7	15.8	27.0	12.3	17.7
Thailand	1970	56.0	14.5	14.0	30.5	13.0	11.0
United Kingdom	1978	—	11.0	23.0	—	9.0	7.0
United States	1987	—	10.0	12.0	—	—	—
Zimbabwe	1987	16.6	48.5	5.1	11.2	47.6	-4.3

— Data not available.

Source: Psacharopoulos 1994, 1340-1.

the full sets of social returns for Asia reported in Table 6, only two are based on data more recent than 1978.

Even within the World Bank, the reliability of estimates of rates of return as guides for investment has been called into question, with one publication, for example, stating (World Bank 1997c, 37) that:

Despite some claims that returns to primary education are invariably high across countries of Africa, Asia and Latin America, there is growing scepticism. The work of such authors as Behrman and Birdsall (1985), Hinchliffe (1986), Knight and Sabot (1990), and Glewwe (1991) suggests that calculations have often incorporated upward biases. This has led Weale (1993) to argue that social returns to education will only rarely be in double digits.

This paragraph was used to explain how the relatively low estimates of rates of return in India could be reconciled with the higher figures reported for other countries. The World Bank publication (1997c, 36-8) presented two tables of rates of return, one from the state of Andhra Pradesh in 1977 and the other from the state of Maharashtra in 1988. The former showed social rates of return which, after adjustment for wastage, unemployment, nonparticipation in the labor force, and student ability, were only 7 percent at the primary level, 6 percent for middle schools and general degrees, and negative for secondary schools. The latter showed rates of return for primary and middle schools that were higher in urban than rural areas, and in most cases higher for females than males, but that ranged from 3.5 to 8.3 percent. Nevertheless, the document pointed out, future rates of return could at least be expected to be positive, and investment in education would also bring noneconomic benefits.

Challenge to Psacharopoulos' work with specific reference to Asia has also been presented by Bennell (1998). Two particular criticisms have been leveled (p.110). The first is that regional aggregations presented by Psacharopoulos are problematic because the individual country studies do not all cover every level and type of education, and because they vary widely in the periods of history when they were conducted. The second criticism is that Psacharopoulos relied wherever possible on unadjusted rates of return, which implied very simplistic relationships between education and incomes and which failed to take sufficient account of the many other factors which influence incomes. Table 8 reproduces figures on the impact of such adjustment, which showed significantly lower estimates.

Bennell also highlighted two reporting errors among the 13 Asian countries used in Psacharopoulos' regional aggregate, and noted the existence of other studies that had been excluded from Psacharopoulos' survey. He concluded (p.118) that aggregations "should be discarded altogether in any serious discussion of education investment priorities both for the Asian continent as a whole and individual countries." He agreed on the value of the concept of rates of return, but added that the majority of studies that have attempted to calculate rates of return for specific types of education and training are seriously flawed, mainly because sufficient data are rarely available to take

**Table 7: Rates of Return to Education, by World Region and Level**  
(percent)

Region	Private			Social		
	Primary	Secondary	Higher	Primary	Secondary	Higher
Sub-Saharan Africa	41.3	26.6	27.8	24.3	18.2	11.2
Asia <sup>a</sup>	39.0	18.9	19.9	19.9	13.3	11.7
Europe/Middle East/ North Africa <sup>a</sup>	87.4	15.9	21.7	15.5	11.2	10.6
Latin America/Caribbean	26.2	16.8	19.7	17.9	12.8	12.3
OECD	21.7	12.4	12.3	—	10.2	8.7

— = not available.

<sup>a</sup> Excluding Organisation for Economic Co-operation and Development (OECD) countries.

Source: Psacharopoulos 1994, 1328.

**Table 8: Unadjusted and Adjusted Social Rates of Return, by Level (percent)**

<i>Economy</i>	<i>Year</i>	<i>Unadjusted</i>			<i>Adjusted</i>		
		<i>Primary</i>	<i>Secondary</i>	<i>Higher</i>	<i>Primary</i>	<i>Secondary</i>	<i>Higher</i>
India	1988 (Male)	27.5	16.8	10.8	8.5	-ve	7.0
		18.7	11.7	9.5	-ve	-ve	2.8
Pakistan	1977	14.0	10.0	9.0	10.0	8.0	7.0
Philippines	1974	7.0	6.5	8.5	5.0	6.0	7.5
Taipei, China	1972	33.0	14.8 <sup>a</sup>	16.7	27.0	12.0 <sup>a</sup>	17.7
Thailand	1977	87.5	45.1	22.0	34.3	18.5	11.4

<sup>a</sup> Data refer to junior high school.

Source: Bennell 1998, 115.

account, in an econometrically sound manner, of all the key factors other than education that influence individual incomes.

Also significant is work by Mingat and Tan (1996), who aimed to estimate the “full” social returns to education in economies with different strengths. By the “full” returns, Mingat and Tan meant calculations that allow for the many externalities that accrue to whole societies and that are not normally taken into account by studies that merely aggregate the returns to individuals. Such externalities include the fact that a worker's enhanced productivity can have a spillover effect of enhancing coworkers' productivity; and that the general level of education in the workforce expands production possibilities by facilitating the discovery, adaptation, and use of more economically rewarding production processes. Mingat and Tan used this conceptual framework to reappraise the extent to which investments in education had contributed to economic growth in a range of countries during the period 1960 to 1985. Their findings call into question the rather generalized recommendations from some previous studies of rates of return. In particular, they suggest that for low-income countries primary education was the best investment, but that in hindsight for middle-income countries expansion of secondary education would have yielded the highest social returns, and that in high-income countries the returns would have been greatest in tertiary education. This last observation is consistent with the work by Toh and Wong (1999) who indicated that in Singapore rates of return appeared to increase with the level of education, though in the period 1980-1994 the tertiary rate of return seemed to decrease over time.

Further complexities arise from the fact that former socialist countries have inherited wage structures that may work differently from those in long-standing capitalist countries. Newell and Reilly (1999) have presented data from 10 former socialist states, of which two – Kazakhstan and Uzbekistan – are in Asia. In these 10 countries, rates of return appeared generally to have risen as the 1990s progressed; the returns from tertiary education appeared to be higher than those for technical education and, where data were available, for secondary schooling. Wei et al. (1999) conducted a study in the PRC, and found that rates of return varied considerably in different parts of the country. They tended to be higher in more developed regions. These researchers also suggested, contrary to the general view of Psacharopoulos, that rates of return might be higher for secondary than for primary education. These studies add

further weight to the argument that policy recommendations based on data on rates of return should not be oversimplified.

The role of technical/vocational education at the secondary level also remains controversial (Lewin 1993, 222-4; Mingat 1995, 24-5). One view is that academic studies do not provide sufficient ties to the needs of the labor market, especially for students who leave school at the secondary stage, and that technical/vocational training is necessary both for the direct skills that it provides and for the attitudes that it inculcates. During the 1980s, this perspective led to substantial expansion of secondary technical/vocational education in the PRC, for example (Yang 1998). Between 1989 and 1994, enrollments in PRC secondary vocational schools increased by 45.8 percent, while enrollments in regular senior secondary schools declined by 7.2 percent (Jiang 1996, 40). This change reflected official policy, which encouraged both the opening of new secondary vocational schools and the conversion of regular secondary schools. Along related lines, a 1994 policy in Taipei, China has led to experimentation with comprehensive high schools which seek to integrate the goals of general and vocational high schools and "to increase students' opportunities for exploring their vocational aptitudes" (Rau et al. 1996, 1).

An alternative view is that technical/vocational schools are necessarily more costly than academic ones, and that the outcomes from such forms of education do not usually justify the investments (Psacharopoulos 1991). This view is influenced by Foster's seminal (1966) paper entitled "The Vocational School Fallacy in Development Planning," and asserts that curricula are by themselves unable to change students' attitudes toward work when labor market signals indicate that academic studies are more likely in reality to bring greater private economic returns. Middleton et al. (1993, 187) have added that:

The prevocational skills provided in diversified curricula do not provide much of an employment advantage because employers still need to provide additional training. Larger modern-sector employers care less about whether young school-leavers have practical skills suitable for entry-level jobs and more about whether the students have the broad conceptual and communicative skills that support continued learning. These latter skills, of course, can be developed at comparatively low cost in good quality academic secondary programs.... To the extent that vocational courses have substituted for more thorough preparation in broad, general skills, a diversified curriculum may even reduce a graduate's chances for employment.

However, Bennell and Segerstrom (1998, 286) have asserted that the World Bank's reluctance to fund vocational education and training in the context of an expanding education sector budget is "essentially an ideologically driven overreaction that has been justified on the basis of a serious misreading of the evidence concerning the role of public sector VET [vocational education and training] at all stages of economic development." They agree that public-sector VET has certainly been beset with a number of deep-seated problems, but they caution against overgeneralized approaches.

Similarly, Haq and Haq (1998, 97) have described the World Bank view as

"misleading," adding that:

The lower social rates of return for technical education often result from adopting education patterns which are less cost-effective and not twinned with employment opportunities in the market. Several studies have demonstrated that if school-based vocational education responds to market demand, the earnings of such graduates are higher than those of their counterparts in general education.... Thus, social returns to vocational and technical education are sufficiently high, so long as this education is cost-effective and linked closely with market employment opportunities. Irrelevant studies are no basis for sensible policies.

Haq and Haq then proceeded to make a vigorous case for technical and vocational education to be given more attention in policy making. Their particular focus was on South Asia, but their case has wider applicability.

Nevertheless, the facts remain that much technical and vocational education is not closely linked to the labor market, that it has high unit costs, and that secondary technical/vocational schools are not necessarily the best place to provide the types of technical and vocational skills needed by economies. Thus, many forms of specific skills training may be better provided by polytechnics and on the job by employers rather than by school systems. Although school-level technical and vocational education may be an excellent investment in some circumstances, it requires careful planning. Among the factors that policies on technical/vocational education must take into account are costs, labor market outcomes, and institutional flexibility (Box 2).

The studies reported above are almost exclusively concerned with formal education systems ranging from primary to tertiary levels. Fewer studies have been conducted on preprimary education or on adult nonformal education. These might be considered areas of neglect. However, preschool education has been given some attention. For example, Young (1996, 6) has pointed out that preschooling can be a good investment for economic as well as social reasons. She observed that:

Research has shown that half of a person's intelligence potential is developed by age four and that early childhood interventions can have a lasting effect on intellectual capacity, personality, and social behavior.... By increasing children's desire and ability to learn, investment in early child education can increase the return on investment in their later education by making that education more effective. It can also enable participants to earn more and can raise their productivity in the workforce.

In Nepal, UNICEF (1997) has asserted that preprimary classes can more than pay for themselves by improving quality and readiness for schooling and so reducing repetition and dropout rates in primary schools. Investment in 1,000 preprimary schools, the document argues, could save Nepal between \$3.5 million and \$12 million a year. This statement is based on major assumptions which, when the argument was made, had not been tested empirically. However, the basic thrust of the point should be taken seriously.

**Box 2: The Balance between General and Technical/Vocational Education**

Particularly in contexts of unemployment and perceived irrelevance of academic education, many policy advocates have favored investment in technical/ vocational education more than general education. Indonesia is one country in which technical/vocational schools have been given emphasis. The sixth five-year plan (1993-98) called for 7.4 percent annual growth of technical/vocational senior secondary places, compared with only 5.1 percent for general senior secondary places.

A 1997 World Bank report on Indonesia questioned the wisdom of this policy. It noted that technical/vocational schools were about 40 percent more costly than general schools, that general schools were more popular among students and parents, and that the labor market outcomes for graduates of technical/vocational schools were typically no better than for their generalist competitors. The report added that because technical/vocational programs depend on bureaucratically determined factors, institutions cannot easily expand operations when there is more demand, and have no incentive to contract operations when there is less demand.

The World Bank (1997b, 78) recommended the Indonesian authorities to reconsider the budgetary priority given to technical/vocational schools, to find ways to reduce costs in the sector, and to increase the general-education content in the technical/vocational education streams. More specialized training, it was suggested, could be left to polytechnics and to job-specific training in firms. Recommendations such as these do not attract universal agreement, but they do match those made by education economists in many other countries.

A further point, made for example by Klugman et al. (1997), is that preprimary education can play an important custodial role, freeing parents for activities other than child care, including paid work. While the economics of preschool education has not received the same research-based and numerical attention as have other levels of education, it would seem that a strong case could be made for investments in the sector from an economic as well as social viewpoint.

A good case can also be made for investment in forms of adult nonformal education. The Report of the Amman Mid-Decade Meeting of the International Consultative Forum on Education for All, otherwise known as the follow-up on the 1990 Jomtien World Conference on Education for All, suggested (p.19) that "The best predictor of learning achievement of children is the education and literacy level of their parents," and that "investments in adult education and children are, thus, investments in education of entire families."