FINANCING EDUCATION – INVESTMENTS AND RETURNS

ANALYSIS OF THE WORLD EDUCATION INDICATORS

2002 EDITION

EXECUTIVE SUMMARY

UNESCO INSTITUTE FOR STATISTICS

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

WORLD EDUCATION INDICATORS PROGRAMME
UNESCO

The constitution of the United Nations Educational, Scientific and Cultural Organization (UNESCO) was adopted by 20 countries at the London Conference in November 1945 and entered into effect on November 4, 1946. The Organization currently has 188 Member States.

The main objective of UNESCO is to contribute to peace and security in the world by promoting collaboration among nations through education, science, culture and communication in order to foster universal respect for justice, the rule of law, and the human rights and fundamental freedoms that are affirmed for the peoples of the world, without distinction of race, sex, language or religion, by the Charter of the United Nations.

To fulfill its mandate, UNESCO performs five principal functions: 1) prospective studies on education, science, culture and communication for tomorrow’s world; 2) the advancement, transfer and sharing of knowledge through research, training and teaching activities; 3) standard-setting actions for the preparation and adoption of internal instruments and statutory recommendations; 4) expertise through technical co-operation to Member States for their development policies and projects; and 5) the exchange of specialized information.

UNESCO is headquartered in Paris, France.

The UNESCO Institute for Statistics

The UNESCO Institute for Statistics (UIS) is the statistical office of UNESCO and is the UN depository for global statistics in the fields of education, science and technology, culture and communication.

UIS was established in 1999. It was created to improve UNESCO’s statistical programme and to develop and deliver the timely, accurate and policy-relevant statistics needed in today’s increasingly complex and rapidly changing social, political and economic environments.

UIS is based in Montréal, Canada.

Organisation for Economic Co-operation and Development

Pursuant to Article 1 of the Convention signed in Paris on December 14, 1960, and which came into force on September 30, 1961, the Organisation for Economic Co-operation and Development (OECD) shall promote policies designed to:

• achieve the highest sustainable economic growth and employment and a rising standard of living in Member countries, while maintaining financial stability, and thus to contribute to the development of the world economy;

• contribute to sound economic expansion in Member as well as non-member countries in the process of economic development; and

• contribute to the expansion of world trade on a multilateral, non-discriminatory basis in accordance with international obligations.

The original Member countries of the OECD are Austria, Belgium, Canada, Denmark, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The following countries became Members subsequently through accession at the dates indicated hereafter: Japan (April 28, 1966), Finland (January 28, 1969), Australia (June 7, 1971), New Zealand (May 29, 1973), Mexico (May 18, 1994), the Czech Republic (December 21, 1995), Hungary (May 7, 1996), Poland (November 22, 1996), Korea (December 12, 1996) and the Slovak Republic (December 14, 2000). The Commission of the European Communities takes part in the work of the OECD (Article 13 of the OECD Convention).

Photo credit: Corbis Paris.
Financing Education – Investments and Returns is the third in a series of publications that seeks to analyse the education indicators developed through the OECD/UNESCO World Education Indicators (WEI) programme. Financing Education examines both the investments and returns to education and human capital. It begins by looking at the results of a specially commissioned study of the impact of human capital on economic growth in WEI countries which shows new findings relative to those found in studies of OECD Member States. It also sets out the context for trends in educational attainment as well as current levels and future prospects of educational participation and expenditure in WEI countries.

The report addresses the financing of education systems by examining spending and investment strategies in WEI countries from both public and private perspectives. It looks at the rationale for public spending, how public resources are distributed across levels of education and the role of the private sector both as a provider of educational services and a source of educational expenditure. A national statistical profile that sets out selected contextual and finance indicators against both OECD and WEI benchmarks, together with a comprehensive statistical annex covering both WEI and OECD countries, complements the analysis.

The countries participating in the OECD/UNESCO WEI programme are: Argentina, Brazil, Chile, China, Egypt, India, Indonesia, Jamaica, Jordan, Malaysia, Paraguay, Peru, the Philippines, the Russian Federation, Sri Lanka, Thailand, Tunisia, Uruguay and Zimbabwe.

For more information or to purchase the full report, please contact:

www.unesco.org/publications  www.oecd.org/bookshop

UNESCO Publishing OECD Publications
7, place de Fontenoy 2, rue André-Pascal
75352 PARIS 07 SP 75775 PARIS Cedex 16
France France
EXECUTIVE SUMMARY

Fuelled by an historic convergence of globalization, knowledge-driven economies, human rights-based development and demographic trends, the recognition of the key role of education is growing in countries around the world. These developments are particularly relevant for those countries participating in the OECD/UNESCO World Education Indicators (WEI) programme.

It has become clear that educational attainment is not only vital to the economic well-being of individuals but also for that of nations. Access to and completion of education is a key determinant in the accumulation of human capital and economic growth. Educational outcomes also extend beyond individual and national income. Education is a force that develops well-rounded and engaged citizens, and builds more cohesive and participatory societies.

Meanwhile, demands for educational opportunities are growing across WEI countries – participation in post-compulsory education has been increasing steadily due to population growth, higher rates of primary school completion and recognition of the positive gains to be realized from progressing to and completing secondary- and tertiary-level programmes.

However, many WEI countries face constraints in meeting the cost of expanding higher levels of educational opportunities. Expanding educational systems appears to imply a proportional increase in resources, but governments are proving increasingly unable to cope with the higher costs. This underscores the importance of policies that allow greater participation in the education process while maintaining equity in the sharing of the costs and benefits of education.

THE IMPACT OF EDUCATION ON THE ECONOMIC ACTIVITY OF INDIVIDUALS AND SOCIETIES

There is now robust evidence that human capital is a key determinant of economic growth and emerging evidence indicates that it is also associated with a wide range of non-economic benefits such as better health and well-being. Investment in human capital, and by implication in education, has thus moved to centre stage in strategies to promote economic prosperity, fuller employment and social cohesion. As a result, education is increasingly considered an investment in the collective future of societies and nations, rather than simply in the future success of individuals.
However, it takes more than great expectations to achieve the benefits that can flow from greater investment in human capital. It takes a good understanding of the nature and role of human capital and how to design specific measures to enhance its supply. At present, these issues are imperfectly understood and measured in terms of capturing human capital in its various forms, analysing its relationships with individual and social outcomes, and measuring human capital formation, stock and returns.

Until now, it has only been possible to develop limited cross-nationally comparable proxies for human capital – largely in the form of years of initial formal education. Existing cross-national evidence is also only available on attributes that have benefits related to economic activity. Methods must be developed to capture, measure and analyse the relationships between human capital and its full range of impacts on personal, social and economic well-being.

Despite these limitations, it has been possible to bring together crucial evidence on the role of human capital, and thus education, in fostering economic well-being for both individuals and societies in WEI countries.

The evidence shows that better-educated people are more likely to be in work and, if economically active, less likely to be unemployed. In all WEI countries, labour force participation rates increase with the level of education attained by individuals. Better qualifications also attract higher wages for individuals. In some WEI countries, as Figure 1 shows, these wage premiums are very large, reflecting a greater wage spread in the labour market and possibly higher returns to education. One noteworthy pattern is that, while earnings increase with each additional level of education in most countries, attainment of upper secondary and especially tertiary education constitutes an important earnings threshold in Brazil, Chile and Paraguay. For men, the earnings advantage of tertiary compared to upper secondary education ranges from 82 per cent in Indonesia to almost 300 per cent in Paraguay. Overall, WEI countries in Latin America display the largest difference in income by level of education, while those in Asia reflect less variation in earnings relative to education.

One way of assessing the impact of human capital for the collective performance of nations is by measuring the impact of various factors on growth in gross domestic product. GDP alone, or even economic well-being, cannot adequately reflect the full dimensions of human well-being – which include the enjoyment of human rights and civil liberties, good health, a clean environment and personal safety – but the role of economic growth in this equation should
not be underestimated. Growth in economic output not only provides the resources for tackling poverty, social exclusion and poor health but also expands the range of human choice. Economic well-being – flowing from economic output – should thus be recognized as an important component of human well-being.

As indicated, GDP has significant limitations as a measure of economic output. It captures current production of those consumption and investment goods and services accounted for in the National Accounts but excludes non-market household activity (such as parenting) and activities such as conservation of natural resources that contribute to future well-being through net additions to the capital stock of society. GDP also includes goods and services which do not contribute to well-being as exemplified by so-called ‘regrettables’ arising from outcomes such as pollution or crime. Nevertheless, GDP is clearly a significant component of economic well-being and the only one that the report found to be measured reliably across countries and over time.

---

**Figure 1**

Earnings differentials by level of educational attainment, population aged 25–64, 1999

<table>
<thead>
<tr>
<th></th>
<th>Multiplier effect relative to upper secondary earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>No schooling</td>
<td>Men</td>
</tr>
<tr>
<td>Completed primary education</td>
<td><img src="chart1" alt="Bar Chart" /></td>
</tr>
<tr>
<td>Lower secondary education</td>
<td><img src="chart3" alt="Bar Chart" /></td>
</tr>
<tr>
<td>Tertiary Type A and advanced research programmes</td>
<td><img src="chart5" alt="Bar Chart" /></td>
</tr>
</tbody>
</table>

*Source: OECD/UNESCO WEI.*
The relationship between human capital and economic growth can be assessed through cross-country regressions of data incorporating explanatory variables for physical capital, education, level of income and, in some cases, proxy variables for various social and institutional factors. Some studies have pursued such analyses by including both developing and developed countries. This increases the power of the statistical tests employed because of the greater variation in the posited determinants of growth. However, it also implicitly assumes common determinants of growth in developing and developed countries. This assumption is often difficult to justify.

Thus, the analysis for this report was conducted separately for WEI and OECD countries. The result of the analysis is a consistently strong and positive association between improvements in the stock of human capital and economic growth among WEI countries, an association that is even greater than that observed among OECD countries. On average, improvements in human capital may have accounted for about half a percentage point in the annual growth rates of almost all WEI countries in the 1980s and 1990s compared to previous decades. Among OECD countries, only Greece, Ireland, Italy and Spain attained similar levels. Overall, the results in WEI countries suggest that for every single year the average level of schooling of the adult population is raised, there is a corresponding increase of 3.7 per cent in the long-term economic growth rate.

Over the past two decades the link between human capital and economic growth has been strongest in Argentina, Chile, Jamaica, Malaysia, Peru, the Philippines and Uruguay and, in the 1990s, in Brazil, Indonesia, Thailand and Zimbabwe. The impact of human capital on economic growth has been more limited in Egypt, India and Tunisia which started off with considerably lower levels of educational attainment than these other WEI countries. This pattern may suggest that human capital plays a stronger role in the economic growth process once the level of human capital reaches a critical threshold. In that respect, the strong correlation between schooling and growth performance in Argentina, Chile, Malaysia and Uruguay suggests that high levels of upper secondary and tertiary attainment are important for human capital to translate into steady growth.

A comparison of economic growth patterns between WEI and OECD countries, or between WEI countries at different stages of industrialization, further suggests that, while financial capital investment is most strongly associated with growth at early stages of industrialization, the role of human capital increases with industrial development and overall level of educational attainment and eventually becomes the strongest driver of economic growth.
PREPARED FOR THE FUTURE?

As WEI countries move towards ‘knowledge-based’ economies, the importance of human capital will continue to grow. In the foreseeable future, workers who create and use knowledge to add new value to products and services will be a prominent and perhaps the dominant group in the workforce of some WEI countries. These ‘knowledge workers’ will be found across economic sectors – from information technology to agriculture – and across occupations – from computer programmers to teachers. They will have a high degree of upward mobility because knowledge is potentially available to everyone. Their work will be increasingly borderless because knowledge travels even more effortlessly than money.
Some forecasts suggest that by 2020 – about the time it would take for current school reform to show its effects in the labour market – manufacturing output in many of the WEI countries will have at least doubled while manufacturing employment will have shrunk, at least in the most economically productive countries, to 10–15 per cent of the total workforce. Manufacturing jobs will increasingly be replaced by knowledge-intensive work with knowledge becoming a key economic resource. Without effective investment in human capital, that resource will be scarce; with effective investment, knowledge can become not only abundant but renewable and self-generating – a distinction that will be critical to future economic prospects.

Are WEI countries prepared for these challenges? One way of examining this question is to look at the current rates of output of educational institutions. WEI countries have achieved significant progress in raising access to and participation in education over the past generation. In Argentina and Brazil, the school expectancy of a 5-year-old child is now around 16 years, about twice the level for adults which reflects the large-scale change that has occurred within a generation. Among WEI countries, seven nations now enrol more than 90 per cent of youths up to age 15 – Argentina, Brazil, Chile, Jamaica, Peru, the Russian Federation and Uruguay. These enrolment rates will spur a significant increase in the availability of human capital in these countries as better-educated young people join the workforce.

Enrolment patterns, however, provide only part of the picture. The translation of increased access to school into increased availability of human capital depends critically on participation in and the successful completion of higher levels of education. At the upper secondary level, which the first part of the report links strongly to individual economic success, graduation rates range from about 30 per cent of the population of typical graduation age in Indonesia and Tunisia to more than 60 per cent in Jamaica, Jordan, Malaysia and the Philippines. Wide differences can also be observed at the tertiary level. Graduation rates in the Russian Federation reach the OECD benchmark for university-level tertiary programmes at around 27 per cent of the population of typical age. Other WEI countries that display high tertiary graduation rates are Chile, Malaysia and Thailand. By contrast, Brazil, China, Paraguay, Tunisia and Uruguay see barely 10 per cent of their corresponding cohorts graduate from tertiary education.
Despite significant progress, much more needs to be done in WEI countries in order to attain the educational levels found in most OECD countries. The dramatic gap in the school expectancy of the young and the actual educational attainment of the adult population suggests that efforts to this end will need to go far beyond basic education and target specific skill gaps in the adult workforce.

Shifts in the demographic composition of populations, that many but not all WEI countries will experience in coming decades, will make these challenges even more significant. At one extreme, it is estimated that Paraguay, Malaysia and Jamaica would require additional investments in education amounting respectively to 2.6, 1.6 and 1.0 per cent of their current GDP in order to reach the WEI average for upper-secondary educational participation rates.

Figure 3
Change in expenditure on education relative to current GDP as a result of demographic pressures, by level of education, 2000–2015

Source: OECD/UNESCO WEI.
PROVIDING AND PAYING FOR REQUIRED EDUCATIONAL SERVICES

The push to extend the coverage and thus the benefits of education carry considerable financial demands. The predominantly middle-income WEI countries have largely met the goal of universal basic education and now seek to widen access to and improve the quality of secondary and tertiary educational programmes. However, many WEI countries face constraints in generating additional public and private resources to meet the high cost of post-compulsory education.

WEI governments are committed to improving educational outcomes but they do so in the context of often highly unequal societies. In fact, inequality in the education system, particularly at post-secondary levels, may actually reinforce broader social inequalities. Some governments have made great efforts to mitigate the effects of poverty and social exclusion through the education system, but many challenges remain.

These challenges include both ensuring that educational opportunities are equitably distributed at all levels of schooling and that the expansion of higher levels of education does not come at the expense of maintaining good-quality primary education. Such challenges must guide investments as they will shape the returns. Economic arguments also suggest that a more equal distribution of educational opportunity helps to sustain economic growth and that investment in universal primary education results in large benefits for society.

The goals of expanding education systems and maintaining equitable access to education are inextricably linked to questions of education finance. How much do countries invest in education? How do governments support schools? What role does the private sector play in the provision of education? How do students and households contribute financially to education? Perhaps, the main question is: who pays for education in WEI countries? In the past decades, some WEI countries have achieved rapid educational progress as a result of proactive but often costly education policies. At the same time, other governments have invested markedly less in education and educational progress has been much slower. The question of whether current funding patterns need to adapt is relevant for both groups of countries.

To weigh these questions, it is necessary to examine the public and private stakeholders involved, the way they share the management and financing of educational institutions, and what constitutes the underlying financing mechanisms.
Figure 4 shows that the level of public and private investment in education varies widely among WEI countries, from 1.2 per cent of GDP in Indonesia to 9.9 per cent of GDP in Jamaica. Private spending often makes a substantial contribution to overall levels of education spending.

The distribution of education expenditure roughly indicates the policy priorities in a country. In Zimbabwe and the Philippines, the majority of resources are focused on primary education where the majority of students in the system are found. In fact, the Philippines is the only WEI country where the share of expenditure devoted to primary education exceeds the share of primary students in the total school population. Generally, the ratio of spending to population is fairly similar at the primary and secondary levels.

Figure 4
Expenditure on education as a percentage of GDP, 1999

Source: OECD/UNESCO WEI.
This is much less the case at the tertiary level where the ratio of public spending is disproportionate to the share of students. The difference is particularly large in Zimbabwe where the share of total spending that goes towards tertiary education is 12 times more than the share of tertiary students. This difference is also apparent, to a lesser extent, in China and Tunisia. In Peru and the Philippines, the share of tertiary spending is almost twice the share of students.

The differences in costs per student by level of education can influence overall proportions of spending and constrain efforts to expand enrolments. For example, in Malaysia, costs are twice as high for a secondary student as for a primary pupil and eight times as high for a tertiary student. The relative difference in costs is highest in China, Brazil and Indonesia where the cost of a tertiary student is more than 12 to 16 times the cost of a primary student. In China and Indonesia, the relative cost per secondary student is more than twice that of a primary one. Differences in costs between primary and other levels of education are more moderate in the Philippines, Uruguay and Peru.

Figure 5
Differences in per-student expenditure by level of education, 1999

Source: OECD/UNESCO WEI.
In light of public budget constraints, it is often argued that efforts to expand the coverage of secondary and post-secondary education institutions can move ahead only with greater cost-sharing and the wider implementation of ‘user fees’ for educational services. The argument continues that, from the perspective of equity, greater cost-recovery should be sought at higher levels of education where individual returns are the highest. Others argue that such an approach may come at the expense of equitable access for post-secondary education among poorer households and individuals. Concerns have been raised that extending user fees in the education system creates barriers to participation and undermines a commitment to equality of educational opportunity, a commitment that is also important to national economic and social goals. Maintaining the balance between these two positions is often a difficult challenge for WEI governments.

New funding strategies aim not only at mobilizing the required resources from a wider range of public and private sources but also at providing a broader range of learning opportunities and improving the efficiency of schooling. In the majority of WEI countries, publicly funded primary and secondary education is organized and delivered by public institutions. In a fair number of WEI countries public funds are transferred to private institutions or given directly to households to spend on educational services. In the former case, the final spending and delivery of education can be regarded as subcontracted by governments to non-governmental institutions whereas, in the latter case, students and their families choose the type of institution that best meets their requirements. In fact, in most WEI countries, a proportion of public funding goes towards private schools and, at the same time, there are significant private contributions to public schools. Other types of distinctions between public and private can be more relevant than sources of funding, including ownership of property and buildings, and control over curriculum, admissions, teacher appointments and payment, and supplies.

There are large differences in household expenditure per student across WEI countries. For primary and secondary levels of education, the share of private expenditure ranges from 2 per cent in Jordan to 30 per cent in Chile. Such private spending on education includes direct payments to educational institutions that take on several different forms: student tuition or fees; other fees charged for educational services; fees paid for lodging, meals, health care and other welfare services provided to students by and at educational institutions. While most expenditure goes towards fees and other costs related to private schools, a certain proportion is spent on public schools. At the tertiary level, the proportion of costs per student that is made up by private contributions is considerably larger. The share is by far the highest in Chile (73 per cent) followed by Indonesia (48 per cent), then Peru (45 per cent), even though enrolment levels in these countries vary considerably.
The level of household expenditure often depends on the type of school, as public schools require fewer fees than government-dependent or independent private schools. For example, in Paraguay, students and households play only a very small role in the financing of education in public schools. Parents make voluntary contributions to primary schools to provide additional funds for maintenance and supplies which are not covered by the state budget. In upper secondary education, families pay an annual tuition fee and other fees paid directly to the school. By contrast, in government-dependent private schools in Paraguay, private households pay tuition and fees at all levels since the state does not pay the salaries of all teachers. In independent private schools, private households pay tuition and fees that must cover the full cost of provision since the state does not subsidize independent private schools.

In some WEI countries, such as Indonesia, tuition fees for both public and private schools are set by the state. In other countries, fees are set only for the public sector and are unregulated in the private sector. In a number of WEI countries, parent-teacher associations play an important role in setting fee
structures, collecting fees from households and sometimes allocating expenditure at the primary and secondary school levels. These fees often support school activities, primarily extra-curricular activities and sports events.

At the tertiary level of education, private contributions (and private providers) are much more prominent in WEI countries than in most OECD countries. While expansion of higher education should permit more equitable access, what often happens instead is a strengthening of exclusion mechanisms. Thus the issue of equal access to secondary and tertiary education should be considered relatively more important in countries with high levels of socioeconomic disparities. Low-income families cannot meet the cost of higher levels of education and this barrier, some feel, may even serve to discourage students from achieving good results, even as early as primary school.

Private schooling, whether financed through public or private sources or through a combination of both, has arisen as a response to different contexts. One of the more common contexts is where private schools meet excess demand due to shortfalls in public-sector supply. Private schools have also emerged in response to differentiated demand, i.e. offering specific educational opportunities that are not provided by the state. These range from elite academies to schools with religious content and those that cater to drop-outs from public schools. Thus, across WEI countries, the term ‘private school’ is interpreted in many different ways.

The distribution of enrolment across types of educational institutions reflects the relative importance of the private sector in educational provision. In 9 out of 16 WEI countries, the proportion of private primary enrolment exceeds 10 per cent. Zimbabwe has the largest proportion of private primary enrolment with almost 9 in 10 children enrolled in government-dependent primary schools that are managed at the community level. The smallest proportion is found in the Russian Federation (0.4 per cent) where less than a decade ago private schools were illegal. In comparison to OECD countries, WEI countries have a somewhat higher proportion of primary students enrolled in the private sector. The majority of OECD countries have, on average, about 1 in 10 pupils enrolled in private schools at the primary level. At the secondary level, private enrolments are more prevalent and the share found in WEI countries is closer to that found in OECD countries. Nonetheless, at each educational level, almost every WEI country exceeds the OECD average share for independent private enrolment.
An intriguing question arises about the relationship between the management of educational institutions and the quality of their learning outcomes. There is some evidence available from international assessments such as the Primer Estudio Internacional Comparativo (PEIC) and the OECD Programme for International Student Assessment (PISA). However, the outcomes from these analyses remain mixed and often do not suggest significant effects associated with public or private school management once other factors, such as differences in the socio-economic intake of schools, have been taken into account.

Cost-sharing among participants in the education system and society as a whole is an issue that is under discussion in many WEI countries and is likely to become more prominent in the future. This question is especially relevant at the beginning and ending stages of education – pre-primary and tertiary education – where full or nearly full public funding is less common than at other levels. The expansion of education appears to imply a proportional increase in resources, but governments are proving increasingly unable to cope with the high costs of developing higher education.

As new client groups participate in a wide range of educational programmes and have more opportunities made available by increasing numbers of providers, governments will need to continue forging partnerships to mobilize the necessary resources to pay for education. Moreover, the challenge to design new policies that allow the different actors and stakeholders to participate more fully in the education process and to share costs and benefits equitably will be even greater.

It is important to re-iterate that while expansion of higher levels of education should permit more equitable access, what often happens instead is a strengthening of exclusion mechanisms. Issues of access to secondary and tertiary education should be considered relatively more important in countries with high levels of socioeconomic disparities. As the role of private sources changes in funding education, attention is needed to ensure that the balance between public and private support does not shift so far as to create barriers for potential learners rather than opening the doors of opportunity.