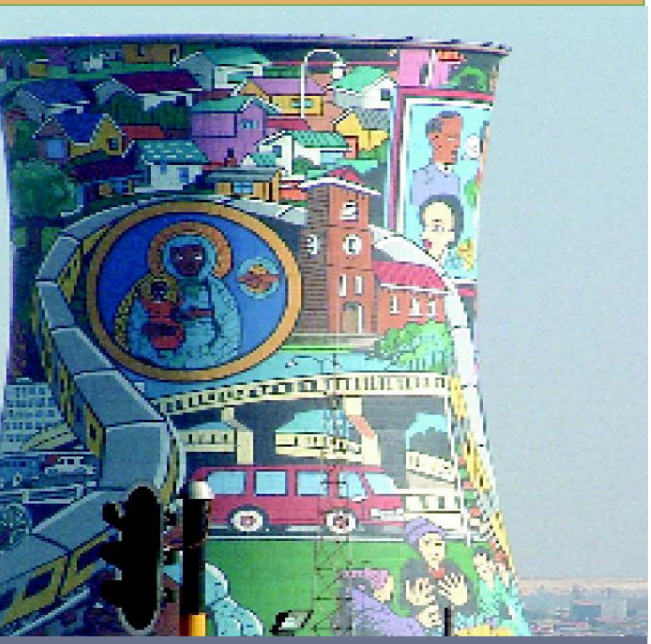



Review of Labour Markets in South Africa



Education and Training

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EDUCATION AND TRAINING

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1. Introduction

The effects of education and training on the labour market outcomes of labour market participants are considered here. Education and training, referred to as human capital, explain differences in labour market status, occupational distributions and earnings. Given the positive benefits of education, it can be expected that individuals would want to acquire the maximum level of education that they can afford. However, it turns out that the decision to acquire the desired levels of education is influenced by other factors such as financial resources and ability, amongst others. Training, on the other hand, refers here to labour-market-related training. Training complements education and enhances the human capital of individuals and increases market skills. It has implications for labour market outcomes as well in so far as it affects mobility in the labour market, progression up the job ladder and earnings.

This paper focuses on the distribution of education and training in South Africa and the reasons for the observed skewed distribution. The premise is the recognition that education is one of the most important determinants of individuals' levels of earnings and status in the labour market.

1.1. Theoretical background: human capital theory

The analysis of the effects of education and training on the labour market is what economists call human capital theory. Thus education and training, as human capital investment, have received the most attention (from labour economists in particular). Notwithstanding, it is recognised that for some individuals education is pursued partly as a consumption good, i.e. for the pleasure and satisfaction of the experience. The essence of human capital theory is the idea that expenditures on education and training are investments that individuals make in themselves to increase their market skills, productivity and earnings. In explaining earning differentials, human capital theory focuses on individual differences in years of schooling and length of on-the-job training and the factors that cause some individuals to invest in more human capital than others.

The decision on the amount of investment to make in education is influenced both by the demand for human capital and the supply of funds for investment. The demand for human capital is influenced by the return a person can earn from an additional amount spent on it. This in turn is dependent on other factors such as a persons' ability, quality of schooling received, and the extent to which a person is discriminated against, etc. Demand for human capital has two aspects. It is subject to diminishing marginal returns. Because a person has a fixed mental capacity, additional expenditure on education will raise the productivity at a diminishing rate, causing the rate of return to decline as more and more education is acquired. Thus additional schooling leaves the person with fewer working years to recoup the costs of education. Differences in demand for education are due to various factors. Differences in **ability or intelligence and learning capacity** only partly explain the differences in demand. A more able individual is likely to demand relatively higher levels of education and would gain more from it than a less able individual. **Discrimination in the labour market** is also a factor that explains these differences: because the person who is discriminated against earns less, the result is a lower rate of return for any given expenditure on education, and therefore the demand for education is lowered.

Quality of schooling is a third factor that may lead to differences in demand for education. An individual who received schooling of a higher quality would receive higher earnings and a greater return than one who received a lower quality of schooling even if the two individuals had similar abilities and access to funds.

The availability and cost of funds, on the other hand, influences the amount of human capital a person obtains. One of the most important determinants of the supply of funds for education and training is the parents' income. The supply of investable funds also has a significant influence on the amount of education acquired. Human capital theory recognises that the **differences in opportunity** influence the amount of education acquired. Opportunity can be represented by various factors, and refers to the differences in access to funds or the cost of available funds. For example, an individual from a rich family has a low cost of investment if the parents pay the fees. Similarly, if an individual has access to a bursary and does not have to take out a loan, cost of investment is low and that person may choose to acquire more education. Inequality of opportunity leads to inequality in years of schooling and labour market earnings. The more unequal the distribution of opportunity in the population, the more unequal the distribution of earnings.

This interaction of demand and supply in the market for human capital determines the amount of funds each person invests, the rate of return on the investment and the level of earnings. The predictions of human capital theory are to some extent validated by the actual behaviour of people. Based on the principles of this theory, the following predictions can be made:

- Any factor that reduces the cost of education should lead to an increase in participation in education. Bursaries, scholarships, availability and access to loans, etc. make education accessible and attractive.

- Age plays a significant role in decision to acquire human capital. The older a person is, the fewer the years of working life remain over which to recoup the investment. Hence younger people are keener on education than older people.

- People with more education have higher earnings in their peak work years. This could be regarded as the reward for postponing earnings and consumption while acquiring an education. If the earnings of a person with less education were similar to the earnings of a person with more education, there would be little financial incentive to acquire education.

- Those who do not expect to spend a long period in the labour force working continuously will acquire less education. This is because the shorter time spent working will not be enough to recoup the investment. For example, women may knowingly choose to acquire less education because they plan to interrupt or stop work to raise a family.

In the real world it is debatable whether individuals actually base their decision to acquire more education on calculations of investment costs versus returns. However, it is evident that individuals are aware that education is a good investment. This can be attributed to the mounting evidence that having a higher level of education markedly increases individual earnings in the labour market. Education opens doors to substantially higher-paying jobs for most individuals. Given the recognised benefits of education, and if the predictions of human capital theory are valid in the real world, the critical question is why some people invest less in education. In a nearly perfect world where choices are relatively unconstrained, most people would invest more in

education because of factors that raise the rate of return they will receive or lower the cost they must pay for funds. In South Africa the realities are such that for a majority of the people the decision regarding the amount of education to acquire is heavily constrained.

2. Human capital in South Africa

2.1. Education

Education was, like other aspects of the South African labour market, differentiated along race and gender lines by the apartheid system. The result of this is the highly unequal distribution of educational attainment in society, particularly between Africans and whites and between gender groups. Access to education by Africans was deliberately limited by law, and where it was available its quality was highly compromised by poor funding, amongst other factors. From the individual's point of view, there were financial constraints that prevented access. The attainment of education was therefore constrained from the supply side, although not entirely by the cost of funds, but also by the unavailability of or lack of access to education.

It is difficult to disentangle the independent effects of all the factors that affect demand for and/or supply of education. This is because in some cases these factors are interrelated, for example, a person from a poor family background has no access to investment funds and may have a low ability (perhaps due to poor nutrition) and be discriminated against in the labour market. Such a person would acquire less education although not by choice. The critical question for policy is what kind of intervention is required to reduce the huge earning differentials which result from differences in education. The positive correlation between demand for education and supply or investment in education is quite evident. For example, whites have relatively accessible investment funds and a relatively higher educational attainment. On the other hand, it is clear that the availability of bursaries has had a positive effect on the number of Africans acquiring more education.

Empirical evidence in South Africa points to the importance of both demand and supply factors in explaining the differences in education acquired. Availability of investment funds has long being recognised as a factor which affects the level of education acquired by Africans in particular. Hence there have been interventions in the form of bursaries and scholarships aimed at Africans, (termed previously disadvantaged individuals, or PDIs) with the intention of equalising opportunities. Therefore the supply of investment funds is not predominant in most research analyses as a constraint or a contributor to earning differentials due to education differences. What is predominant in research are the demand side factors, i.e. discrimination or remnants of it from the apartheid era and quality of schooling, which are regarded as significant sources of earning differentials caused by differences in education. The analyses also take into account the interventions by government to do away with discrimination through the integration of schools and equalising of expenditure per pupil to tackle school quality. These interventions extend to the labour market where employment equity and skills development legislation has been enacted to tackle discrimination and enhance the acquisition of human capital.

2.2. Differences in educational attainment

2.2.1. Racial distribution

Despite the continuing unequal distribution of educational attainment, there has been a considerable improvement in the past decade, particularly within the African population. For example, overall school enrolment increased by 111.4% between 1975 and 2000, primary school enrolment increased by 66% and secondary school enrolment by 329% in the same period. The increases in enrolment were largely a result of the increased participation of Africans in schooling (Perry and Arends, 2003).

Table 1 below shows the numbers of primary and secondary school learners enrolled and the growth rates in each province. Although the numbers show a decline in primary school enrolment, it should be noted that this is accounted for by change in the age-grade admission policy, which requires that learners must turn seven years of age in the year of admission to Grade 1. Secondary school enrolment on the other hand has grown, with the exception of that in the Eastern Cape, Free State and North West provinces. The drop in the North West and Free State is accounted for by a decline in Grade 12 learners. The Eastern Cape has shown a decline in all secondary school grades (Perry and Arends, 2003).

Table 1: Number of learners and growth rates in ordinary public schools by province, 1997 and 2000

Province	Phase	1997	2000	Total growth	Average annual growth
Eastern Cape	Primary	1 730 618	1 496 042	-13.6	-4.7
	Secondary	669 533	609 957	-8.9	-3.1
	Total	2 400 151	2 105 999	-12.3	-4.3
Free State	Primary	494 519	440 130	-11	-3.8
	Secondary	278 045	272 443	-2	-0.7
	Total	772 564	712 573	-7.8	-2.7
Gauteng	Primary	899 528	892 947	-0.7	-0.2
	Secondary	486 039	523 911	7.8	2.5
	Total	1 385 567	1 416 858	2.3	0.7
KwaZulu-Natal	Primary	1 945 390	1 649 886	-15.2	-5.3
	Secondary	886 109	895 617	1.1	0.4
	Total	2 831 499	2 545 503	-10.1	-3.5
Mpumalanga	Primary	576 330	559 105	-3	-1
	Secondary	291 933	318 744	9.2	3
	Total	868 263	877 849	1.1	0.4
Northern Cape	Primary	129 923	129 282	-0.5	-0.2
	Secondary	56 185	61 632	9.7	3.1
	Total	186 108	190 914	2.6	0.9
Northern Province	Primary	1 133 439	1 086 627	-4.1	-1.4
	Secondary	660 830	664 927	0.6	0.2
	Total	1 794 269	1 751 554	-2.4	-0.8
North West	Primary	602 739	576 324	-4.4	-1.5
	Secondary	326 483	322 084	-1.3	-0.5
	Total	929 222	898 408	-3.3	-1.1
Western Cape	Primary	576 493	569 570	-1.2	-0.4
	Secondary	278 184	305 620	9.9	3.2
	Total	854 677	875 190	2.4	0.8
Total	Primary	8 088 979	7 399 913	-8.5	-2.9
	Secondary	3 933 341	3 974 935	1.1	0.4
	Total	12 022 320	11 374 848	-5.4	-1.8

[Source: Perry and Arends (2003)]

However, despite these improvements, educational attainment is still skewed/uneven by race and gender as measured by the number of years of education attained. Whites have a higher level of education attainment, followed by Indians with coloureds and Africans lagging behind. Table 2 below shows the distribution of education attainment of adults by race groups based on the census information. It is hoped that the improvements in education participation recorded in the past decade will improve the distribution shown in Table 2.

Table 2: Highest level of education in the 20-year and older group by race, 2001 (%)

	No schooling	Some primary	Completed primary	Some secondary	Completed secondary	Higher education
African	22.3	18.5	6.9	30.4	16.8	5.2
Coloured	8.3	18.4	9.8	40.1	18.5	4.9
Indian	5.3	7.7	4.2	33.0	34.9	14.9
White	1.4	1.2	0.8	25.9	40.9	29.8
Total	17.9	16.0	6.4	30.8	20.4	8.4

[Source: Census (2001)]

Participation by Africans in higher education also shows an increase. African enrolments increased from 29% of the total in 1988 to about 60% in 2002. White enrolments on the other hand dropped from 58% to 27% in 2000. However, Africans were concentrated in lower qualification levels. They comprised 87% of undergraduate diplomas and certificates, 26% of master's degrees and only 19% of doctorates. On the other hand whites comprised 71% of doctorates and 61% of master's degrees (Subotzky, 2003). Of greater significance are the racial differences by field of study. Whereas Africans comprised a higher number of those who graduated, in 2000 they comprised a higher proportion of education graduates (85%), public administrators (74%), and social scientists (58%). They only comprised a smaller proportion in business and commerce (39%), engineering (32%) and computer science (37%) (Subotzky, 2003).

2.2.2. Gender distribution

Education attainment is also unequal by gender. It is shown that women have lower education attainment levels than men. At the school level though, there are signs that the gap between men and women is closing as reflected in the enrolments of girls versus boys. Throughput is, however, still male-dominated. In 2001 for example, despite the fact that women comprised 55% of candidates in senior certificate exams, they achieved a 60% pass rate compared to a 63% pass rate for men. Sixteen per cent of men passed with endorsement compared to 15% (Perry and Arends, 2003).

Improvements in participation are also seen in higher education where women constituted a majority by 2000. They increased their participation from about 43% in 1988 to 53% in 2002 (Subotzky, 2003). Despite the increased participation of women in education there are signs of inequities as reflected in the types of study programmes women embark compared with those of men and the throughput rate. The proportion of women in professional study fields is still comparably low, with many concentrated in study programmes with low labour market prospects. Despite being in the majority, it is shown that the high number of women in higher education is accounted for by their high numbers in distance education programmes in the field of education (Subotzky, 2003). Women are also under-represented at postgraduate levels. Although the enrolment of women in postgraduate studies has over the years increased, they are still under-represented. In 1993, of the 19 865 MA students enrolled, 66% were male and 34% female, and of the 4 904 PhD students, 71% were male and 29% female. By 2001, of the 31 924 MA students 52% were male and 48% female, and of the 6 238 PhD students, 61% were male and 39% were female (Koen, 2005).

2.2.3. Quality of education

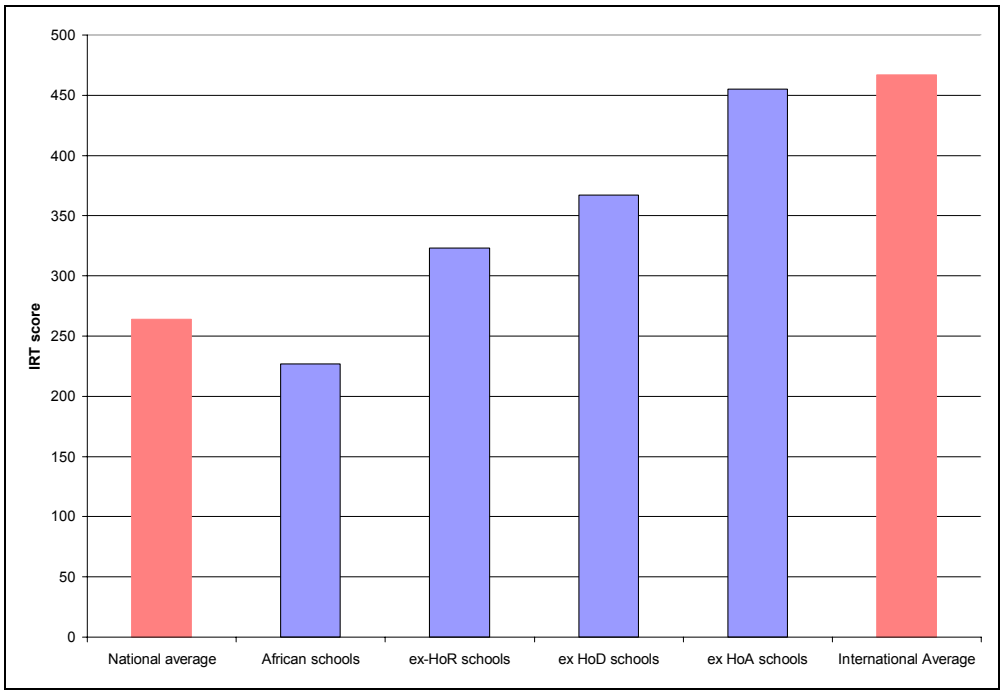
Differences in educational attainment are not confined to years of schooling only. Evidence is mounting which points to the equal importance of quality of education in accounting for the differences in labour market outcomes. Quality of education is an elusive concept which is difficult to measure, but there are proxies that can be used as measures of quality which are cited in the literature. These are school resources, the pass rates of senior certificate students and the pass rates of senior certificate holders in mathematics and science.

The legacy of the apartheid education system continues to plague education for the majority of Africans. Despite the increase in resources and funding directed at African schools in attempts to equalise education, there is still evidence of persisting inequalities which are reflected in differences in the quality of education. According to Reddy (2005) a quarter of (mostly African) schools do not have running water, and about a 45% do not have electricity. About half of the schools sampled for the TIMSS study had neither a biology, general science nor physical science laboratory. Case and Yogo (1999) categorised schools in magisterial districts and used these categories as indicators of quality of schools. They found that in some districts (with poor quality schools) the teacher/pupil ratio was high, and this had a negative impact on enrolments and test scores for numeracy.

The differences in quality are also reflected in the proportion of African students versus students of other race groups (particularly white), mostly from predominantly African schools who pass senior certificate with endorsement, and those who pass mathematics and science. Based on Department of Education data, the number of candidates passing senior certificate has increased in comparison those sitting for exams. However, of those who passed senior certificate, only 13.6% passed with exemption in 2001 (Perry and Arends, 2003). The Department of Education does not aggregate the statistics by race; hence it is difficult to discern the differences by race. However, there is evidence that the proportion of Africans passing senior certificate with endorsement is low.

The performance of learners in mathematics and science is also another indicator of quality of education. Reddy (2005) looked at learners' performance in mathematics and science at various schools using the TIMSS database. She used the previously racially classified schools as a proxy for race and class. She found that learners in the African schools had the lowest average scores, lower than the national score; compared to those from the former House of Assembly schools who had the highest scores and whose scores were close to the international mean score (see Figure 1 below). Whereas most of the schools within the former House of Assembly are integrated, the African schools are not. The TIMSS results are corroborated by Van der Berg and Burger (2003), who also reported that schools which are not integrated, i.e. predominantly African schools, perform poorly in senior certificate exams. It can be concluded from this that it is mostly African learners whose performance and quality of education is a matter of concern.

Figure 1: TIMSS 2003 mean mathematics scores of schools categorised by ex-racial departments



[Source: Reddy (2005)]

These differences in quality of education are regarded as more enduring and much larger than differences in attainment of education (Van der Berg and Burger, 2000) and have dampening effects on labour market outcomes. These effects become clear when one looks at the passage or progression from school to higher levels of learning or entry into the labour market. The poor outcomes from the secondary education system directly affect the distribution in higher education. Firstly, the lack of good grades in the senior certificate constrains the choice of educational institution. A matric exemption is an entry requirement in most universities and technikons. Although there are exceptions whereby concessions are made to accept those without the required grades, it is not applicable to all those who wish to gain entry. Lack of mathematics and science also constrains the choices one can make with regard to the area of study. Thus the majority of those who enter higher education are 'pushed' into areas of study with lower entry requirements. The majority of those pushed into these areas of study are African.

2.2.4. Responsiveness of institutions

As in schooling, the quality of higher education is hard to measure. Assuming that part of the function of education is to prepare people for the work environment, the success of graduates in the labour market can be used as a proxy for quality. Firstly, what should be taken into account are the consequences of poor quality of education of the schooling level. This is reflected in the disproportionate distribution of university graduates, for example, whites dominate the typical science, engineering and technology-related areas of study while Africans dominate the more general fields. These figures are a matter of concern particularly when they are compared with those

of 2000 (see section on racial distribution). Not only has the proportion of Africans in science, engineering and technology-related fields decreased, but their proportions in education and public administration has also increased.

Table 3: Degrees, diplomas, and certificates awarded by public universities by race and field of study, 2002

Area of study	% African	% Coloured	% Indian	% White
Agriculture and renewable natural resources	46.8	1.4	1.2	50.6
Architecture and environmental design	21.7	4.2	4.6	69.5
Business, commerce and management sciences	25.8	4.8	13.5	55.8
Communication	34.4	2.1	5.9	57.6
Computer science and data processing	28.1	3.7	13.6	54.6
Education	83.7	3.0	2.2	11.1
Engineering and engineering technology	21.4	2.6	11.0	65.0
Health care and health sciences	40.4	5.6	12.3	41.6
Home economics	27.9	3.8	3.4	64.9
Industrial arts, trades and technology	5.1	4.1	1.0	89.8
Language, linguistics and literature	46.7	4.6	5.3	43.4
Law	34.9	6.2	9.0	49.9
Libraries and museums	47.4	5.7	4.1	42.8
Life and physical sciences	34.2	4.9	9.8	51.2
Mathematical sciences	38.6	3.5	10.2	47.7
Philosophy, religion and theology	42.5	6.7	5.0	45.7
Physical and health education	13.0	3.1	3.4	80.4
Psychology	32.8	6.8	7.9	52.6
Public administration and social services	69.0	9.0	3.4	18.7
Social sciences and studies	50.8	5.3	7.1	36.9
Visual performing arts	19.5	4.4	2.4	73.7
Total	48.3	4.5	7.7	39.5

[Source: Department of Education, cited in SAIRR (2003/04)]

This distribution of graduates directly affects the structure of or outcomes in the labour market. It is clear that the education system continues to produce graduates for which there is little demand in the world of work, namely mismatches. The employment experiences of new labour force entrants indicate that the educational institutions are not responding well to changing economic conditions. This is the case in all levels of education. It is particularly evident in the levels of further education and training and higher education where some tracer studies were conducted to provide indicators of responsiveness (Moleke, 2005, and HSRC, 2004). The results of these studies show that the output of these educational institutions is not aligned to the needs of the economy. Employment outcomes of the graduates from FET and HET indicate that certain areas of study are over-supplied and therefore absorbed slowly in the labour market. Within the HET (universities in particular) it is evident that humanities and arts graduates constitute a majority. Graduates from these areas of study struggle to find employment. On the other hand, graduates in science, engineering and technology-related fields are a minority yet the demand for them in the labour market is high (Moleke, 2005). The mismatch becomes evident when one compares the number of graduates with the number of those absorbed by the labour market by field of study (Table 4).

Table 4: Immediate employment by race

Field of study	Asian		African		Coloured		White	
	Not immediately employed	Immediately employed	Not immediately employed	Immediately employed	Not immediately employed	Immediately employed	Not immediately employed	Immediately employed
	%	%	%	%	%	%	%	%
Natural science	70.0	30.0	54.1	45.9	47.8	52.2	40.1	59.9
Engineering	50.0	50.0	11.1	88.9	50.0	50.0	21.7	78.3
Agriculture	100.0		46.7	53.3	16.7	83.3	35.7	64.3
Medical science	54.0	46.0	34.3	65.7	67.5	32.5	8.8	91.2
Humanities & arts	46.4	53.6	61.3	38.7	66.7	33.3	43.6	56.4
Education	28.6	71.4	50.7	49.3	71.4	28.6	25.0	75.0
Law	63.6	36.4	73.2	26.8	48.4	51.6	30.4	69.6
EMS*	46.5	53.5	62.5	37.5	57.8	42.2	25.2	74.8
Total	52.4	47.6	57.0	43.0	57.8	42.2	29.6	70.4

[Source: Moleke (2005)]

** Economic and Management Sciences*

The unequal racial distribution found in the schooling system, where differences in race and, most importantly, type of study programme were found, trickles down to the labour market.. There was found to be a large concentration of Africans in study programmes with low labour market prospects (also shown in the section above). This in turn affected their labour market absorption negatively as they took longer to find suitable employment, as seen in Table 5 below.

Table 5: Period before finding employment by field of study and institution attended

Field of study	Immediately		Between 1 & 6 months		Between 7 & 12 months		Between 1 & 2 years		More than 2 years	
	HBU	HWU	HBU	HWU	HBU	HWU	HBU	HWU	HBU	HWU
	%	%	%	%	%	%	%	%	%	%
Natural Science	40,0	59,5	47,3	36,2	10,9	1,6	1,8	2,2	0,0	0,5
Engineering	60,0	77,7	20,0	18,3	0,0	3,0	20,0	0,5	0,0	0,5
Agriculture	53,3	63,4	33,3	31,0	13,3	4,2	0,0	1,4	0,0	0,0
Medical Science	57,3	88,8	37,8	10,1	4,9	1,1	0,0	0,0	0,0	0,0
Humanities & arts	34,0	55,8	36,3	30,9	10,9	6,9	11,2	4,6	7,6	1,8
Education	49,7	72,6	38,1	24,7	5,8	0,0	5,2	2,7	1,3	0,0
Law	27,4	67,5	37,1	24,7	14,5	3,9	12,9	2,6	8,1	1,3
EMS	38,5	73,5	26,9	22,2	16,9	3,0	13,1	0,9	4,6	0,5
Total	40,5	68,8	35,9	24,8	10,5	3,6	8,6	2,0	4,5	0,8

[Source: Moleke (2005)]

On the other hand, FET is inherently biased towards technical subjects; therefore it is impossible to distinguish by area of study. However, absorption rates are slow. According to the HSRC study (HSRC, 2005), 34% of graduates from these institutions were in jobs within two years of completing their studies, 35% were in further studies because most of them could not find employment, and 31% were unemployed. Although it is acknowledged that the labour market is complex and the relationship between education and the labour market is not straightforward, there are signs that the responsiveness of learning institutions is slow and not well aligned to the needs of the economy.

Whereas some measures of quality are tangible, quality can also be based on perceptions of prospective employers. This can also be seen in the labour market absorption of university graduates. It was found that graduates from historically African universities took longer to find employment than those from historically white universities irrespective of race, gender or field of study (see Table 5 below). These differences were attributed to the perceptions of these institutions, partly because of their history - they were under-funded and under-resourced. Funding and resources are proxies for quality; hence graduates from these institutions are regarded as not having received quality education (Moleke, 2005).

2.2.5. Returns to education

Returns to education analyses are mostly carried out by economists using mathematical/econometric techniques. What they measure are the returns on the investment made in education. Two methods are used. The first is to estimate the yield on the investment in education that is received by the person making the investment. This method takes into account the costs actually paid by the student versus the income earned after tax. The second method estimates the earnings

function which relates annual earnings to years of formal education, taking into account variables such as school quality, race, gender, age, work experience and family background. The second method is the widely used approach to estimating returns to education in South Africa. Due to the differences in econometric techniques used, i.e. differences in conceptualisation, specifications, estimation techniques and data used, there are differences in the extent or size of the returns to education.

The analysis of returns to education reveals a complex pattern with a significant influence by the historical context of the country. It also reveals the differences in returns to education by race and gender. Estimations show two types of returns. The first is the returns based on the opportunities to access employment, and the second is the returns based on the earnings in the labour market.

Bhorat and Leibbrandt (1999) estimated returns to education for Africans in the labour market. Firstly they estimated the employment probability and the earnings function for this selected group. They found that primary education, or lower levels of education, did not improve chances of finding employment. For women in particular, even secondary education did not have a positive effect on employment. Tertiary education on the other hand improved chances of finding employment. Primary and secondary education had a significantly positive impact on earnings. An extra year of education increased earnings. However, the returns to men on secondary education were higher than for women, but lower than women on primary education. Also, mostly African men in urban areas gained higher returns while the returns for women were lower. Higher levels of education on the other hand have an insignificant impact on earnings, although it is significant for gaining employment.

On the other hand Fryer and Vencatachellum (2002) found negative earning returns to primary education. Higher levels of education, namely secondary and tertiary education on the other hand were correlated with increasing returns. Their data were also largely based on Africans but in a selective region (Machibisa). Their findings were congruent with those of other authors, i.e. Moll, 2000; Rospabé, 2001; Van der Berg and Burger, 2003; and Mwabu and Schultz, 2000.

Studies using national data which look at returns for all race groups, i.e. Keswell and Poswell, 2002 and Keswell, 2004 show that these returns were not similar for all labour market participants. They argue that returns for Africans are particularly lower at all levels of education compared to that of whites, who had higher returns to education at all levels of education. Keswell (2004) argues that this differential has increased in the past decade. He estimated returns to education at the end of apartheid (1993) to be equal for Africans and whites at about 11%. By 2001/02 the rate of returns to education for Africans had dropped to about 7%, while that of whites had increased to about 43%.

The quality of schooling was found to contribute significantly to the returns to education and in particular to the low returns in education for Africans. Within the schooling level this quality was measured in various ways, but largely focused on pupil/teacher ratio and school resources. Van der Berg, 2002, Case and Yogo, 1999 and Case and Deaton, 1999, attributed the low returns to education for Africans to the low quality of education. They reported that the low quality of schooling for a majority of Africans explains the low returns to education, educational attainment and employability.

Another indicator of returns to education is the extent to which education facilitates employability and the type of jobs in which individuals find themselves. A study of university experience of graduates in South Africa (Moleke, 2005) indicated that returns to university education in terms of gaining employment were high. This was shown in the period it took graduates to find employment. Apparent in the findings was the speed with which graduates were absorbed into the labour market, as shown in Table 5. Within six months almost 88% of graduates had been absorbed into the labour market, with 60% finding employment immediately after obtaining their qualifications. This clearly indicates that education facilitated employment, given the high rate of general unemployment in the country.

In principle it is clear that the country has come a long way in addressing access to education as judged by the increased participation rates. However, empirical evidence shows that educational institutions are not responding well in their role of redressing the inequities of the past. The main reason for this is the persisting differences in the quality of education.

2.3. Training

As mentioned above, it is difficult to disentangle the separate effects of all factors that affect demand for and supply of education. However, in South Africa it can be assumed that the institutional interventions during the apartheid era had one of the greatest effects. It is clear that the remnants of those policies still linger and that much of the observed distribution of education is a consequence of that system. As part of the post-apartheid interventions to be redressed, such as complement education and improved access to education, various interventions were put in place in the labour market. These include the skills development strategy and employment equity legislation whose overall aims are to redress and improve access to human capital accumulation. These interventions are within the ambit of the labour market and take place post-school. Training mostly occurs in the labour market and affects the progression up job ladders, but it also improves outcomes as it complements education and also or increases the accumulation of human capital. Thus it affects the distribution of earnings and other labour market outcomes. It falls within the compass of employers as they pay for most of the training with workers carrying a small proportion of the cost.

The amount of training taking place in the South African labour market is very difficult to measure because it is not well documented. There is nevertheless evidence that the culture of training was/is low and that training is highly segregated. There is also anecdotal evidence that the interventions embarked upon have not made headway in achieving their intended objectives. According to Lundall (2003), the anecdotal data available on performance of sectoral education and training authorities (SETAs) reflects a pessimistic picture. He attributes most of the problems to the ambitious targets set at the outset, and the enormous tasks involved in the setting up of these institutions, coupled with the complex and bureaucratic legislative framework informing skills development strategy. As a result, the new interventions through the SETAs have done little to improve the distribution of education/human capital accumulation so far.

Standing *et al.* (1996) characterise the training system as one dominated by the racial legacy of apartheid whereby whites were the main beneficiaries, and as a market-led and employer-dominated system. The training model meant that employers had the power to decide on the extent and nature of vocational training, organisation of work,

diffusion of new technologies and investment in research. Job reservation automatically implied that training, when it took place, was limited to and concentrated in the types of skilled jobs reserved for whites. The apprenticeship system, for example, was the main form of industrial training and took place in racially separate colleges administered by racially defined education departments. When Africans received apprenticeship training it was concentrated in the relatively low-skill trades, i.e. welding, boiler-making, fitting and sheet-metal working (see also Lundall and Kimmie, 1992). Even then, those who did receive apprenticeship training found it hard to find placements within industry.

Post-apartheid, the Department of Labour commissioned a study to 'capture the extent of training prior to the implementation of the new training dispensation'. The DoL study revealed trends that were common in the apartheid era as characterised by Standing *et al.* (1996). It was found that overall on average; firms spent about 4.4% of their budget on training, which was boosted by the energy sector which spent 8.8% of their budget on training. Adjusting for this outlier in a later study, the training budget declined to 1.3% (HSRC, 2005). The variations in other sectors indicate that the training budget was very low in almost all sectors. For example, the forestry, manufacturing and engineering, food and beverage, and service industries spent 0.2%, 0.7%, 0.7% and 0.3% percent respectively of their total remuneration on training (Kraak *et al*, 2000). The low level of spending was confirmed by a study of manufacturing firms in the Greater Johannesburg area, which found that 16% of respondents spent nothing on in-house training and 27% spent nothing on external training (Bhorat and Lundall 2002).

The baseline study also revealed common trends in terms of differentiated spending by size of firm. Small and medium-sized firms were spending less on training, especially externally accredited training. Overall, firms recorded a higher rate of on-the-job training. The report also showed that whites dominated training in the managerial, professional and technical occupational categories. Africans, on the other hand, were the main recipients of training in the operative and clerical occupational categories. For example, in the operative occupational category, 83% of those trained were African compared to 4.9% white. In the managerial and professional category whites constituted 71% of those trained compared to 16% Africans. Women were also not only under-represented in certain occupations, especially those requiring high levels of skill, but they also had limited access to training opportunities within these occupations.

Post-reform training is also sparsely recorded and measured. The Department of Labour reports labour market training based on reports submitted by SETAs and also on employment equity reports. Based on these reports, there is little change with regard to the beneficiaries of training and skills development. The culture of training as reflected in the numbers of people who participate in training seems to have changed in a positive direction, encouraged by the skills development framework. However, the training recipients are still largely whites, particularly in skilled occupations. Table 6 below illustrates the point. It is taken from the employment equity report data published by the Department of Labour (2002-2003). Participation of Africans in training according to the HSRC (2005) study has increased but is mostly in unstructured training.

Table 6: Total number of employees who received training in each occupational category, including people with disabilities, 2002-2003, %

Occupational categories	Male				Female			
	African	Coloured	Indian	White	African	Coloured	Indian	White
Legislators, senior officials & managers	13.7	4.9	4.7	46.7	5.5	3.5	2.3	18.7
Professionals	16.0	3.0	3.4	32.6	11.8	3.2	2.7	27.4
Technicians & associate professionals	20.0	7.2	5.8	32.7	10.9	4.0	2.6	16.9
Clerks	17.7	5.1	3.8	8.6	18.7	10.7	5.7	29.7
Service & sales workers	31.5	7.6	3.7	15.9	17.9	8.0	2.6	12.8
Skilled agricultural & fishery workers	37.9	24.0	1.3	11.2	12.0	9.6	0.5	3.5
Craft & related trades workers	41.7	8.2	3.4	39.2	5.0	1.2	0.3	1.0
Plant & machine operators & assemblers	68.3	9.9	2.5	5.8	6.1	5.5	1.3	0.7
Elementary occupations	69.6	4.5	0.8	1.6	18.2	4.2	0.4	0.8
Total permanent	40.8	6.6	3.3	15.9	13.1	6.0	2.3	12.0
Non-permanent employees	40.4	6.1	1.6	5.3	31.5	9.6	1.9	3.6
Total	40.8	6.5	3.2	15.3	14.3	6.3	2.3	11.5

[Source: Employment Equity Report, Department of Labour (2003)]

Some micro-level and qualitative information does, however, give a picture of training-related aspects. The general participation trends show improved access to training for the previously disadvantaged groups, Africans in particular. However, the National Skills Survey revealed that most of the training Africans had access to was not structured learning (HSRC, 2003), which is critical for human capital accumulation and progression in the labour market. Results by Maserumule and Madikane (2004) also raise some concerns with regard to training beneficiaries. Based on the survey of metal and engineering companies in the East Rand region, they reported that most of the training was generic or basic on-the-job type training. There was also reported discrimination particularly in the training of artisans, with whites getting more opportunities and being given higher status through grading and/or being paid more compared to their African counterparts.

2.3.1. Returns to training

Analyses of returns to training have not been undertaken in South Africa. This could be partly due to the lack of data and the fact that the culture of training has only picked up recently in the labour market. In any case, returns to training are particularly complex to determine. It is not known what the economic benefits of training are for individuals and/or firms. It can be assumed that firms benefit by improved productivity levels. However, in the case of workers it is not known if training leads to progression up the job ladder or even to improved pay.

3. Conclusions

Education is regarded as a major tool to redress the inequalities of the past with regard to human capital accumulation, the labour market and standards of living. This is largely because of the well-documented role of education as the determinant of labour market outcomes. Education plays a significant role in determining labour force participation, employment and earnings.

Empirical evidence on education shows that there is tremendous progress with regard to access and equity in education. This is shown by high participation rates in education, particularly in the previously disadvantaged groups, i.e. Africans and women at all levels of education. However, despite these improvements, success has been low. This is due to the enduring differences in the quality of schooling. Quality of schooling is said to account for a significant part of earning differences in the labour market. The skewed distribution of education partly explains the skewed distribution of earnings in the labour market.

Evidence regarding training and its role in complementing education and augmenting human capital gives a pessimistic view. Because it is not well documented, measured and/or assessed, it is difficult to gain a comprehensive picture of the role of training in augmenting human capital and redressing the inequalities of the past. However, anecdotal evidence suggests that training is in fact not succeeding in redressing inequalities of the past. The post-apartheid training framework has not taken off as anticipated because of complexities involved in setting it up. When the training that is occurring is measured, it is clear that the beneficiaries are still predominantly white and those in skilled positions.

4. Research gaps

The effect of education on labour market outcomes is well documented. This could be due to the fact that education was used as a tool during apartheid to disadvantage Africans. It could also stem from the recognition that education is a critical tool for redressing the injustices of the past and increasing the human capital of the country. There is abundant evidence regarding the effect of education on labour market earnings. However, the important questions that need to be answered are: Why, despite the low labour market prospects of some areas of study, do students continue to pursue them, and why do institutions continue to produce graduates in these areas in high numbers? Is there a need for intervention in this regard, and what sort of intervention is needed?

Research results on training on the other hand are sparse. As indicated above, the training culture in this country has been traditionally low. The post-apartheid attempts to improve this culture are showing signs of serious problems. These are largely caused by the complex task of setting up institutions and making them operational. Because training is not much measured and assessed, it is not possible to know what the returns to training are for both employers and employees. Neither is it clear to what extent training has succeeded in redressing the imbalances of the past and improving the labour market outcomes of the intended beneficiaries. In this regard it is critical to make a distinction between formal and informal training and specific and on-the-job training.

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