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The matric certificate is still valuable in the labour market

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Increasing levels of youth unemployment and learners' poor performance at school have led to claims that the matric certificate no longer has much value in the labour market. However, the evidence does not support this claim. While the labour market conditions facing secondary school graduates have indeed worsened with time, the value of a matric certificate relative to that of grade 10 and 11 has remained positive both in terms of earnings and the likelihood of finding employment.

Introduction

South Africa has made enormous strides in expanding access to primary and especially secondary education. There is almost universal primary school enrolment, with most learners continuing far into secondary education. However, regular reports that matriculants have difficulty finding jobs have spurred claims that the returns to matric have collapsed in recent years and that the matric certificate no longer has value in the labour market.

On the contrary, a recent research paper by Branson and others (2013) presents evidence that the labour market value of matric (i.e. the returns to matric) has remained positive in the post-apartheid era. They find that the labour market conditions faced by all secondary-school graduates have indeed worsened over time, but that the premium to matriculation in terms of earnings *and* the probability of finding a job has remained positive. This article explores these views and key evidence from data surveys.

Background to the issues: the quality of education and the labour market

Many countries have managed the expansion of secondary education without a concomitant deterioration of quality (World Bank 2005). Unfortunately, South Africa has not

been so lucky. There have been growing differences in the earnings of matriculants. This suggests significant disparities in the quality of their education. In both international and local standardised educational tests, South African learners score well below those from other countries of similar socio-economic status and perform below the target levels set by the Department of Education (2008; also Van der Berg 2009). While the number of learners that complete secondary school (i.e. matriculate) has risen over time, it has risen less than general secondary school enrolment. This is evidence of poorly-prepared learners struggling to pass the externally set matric exams.

The falling quality of secondary education, combined with a pattern of economic growth that has increasingly demanded higher levels of skills, has resulted in recent generations of matriculants' successively facing deteriorating labour market conditions: compared to older generations, they earn less in real terms and are less likely to find jobs.

So why would this general pattern of falling returns *not* imply that the matric certificate has lost its value in the labour market? As discussed below, this apparent contradiction can be resolved by clarifying the confusion between the *absolute* and *relative* returns to education.

Trends in educational attainment, earnings and employment

Branson et al. (2013) use 17 years of data from national household surveys from the period 1994-2010 to estimate the wage and employment returns to educational attainment (also see Branson et al. 2009). They use the lens of birth cohorts – groups of people born in the same year(s) – to analyse the changes in educational attainment and the returns to education over time. They analyse cohorts that were born between 1944 and 1985, in three-year categories.[1]

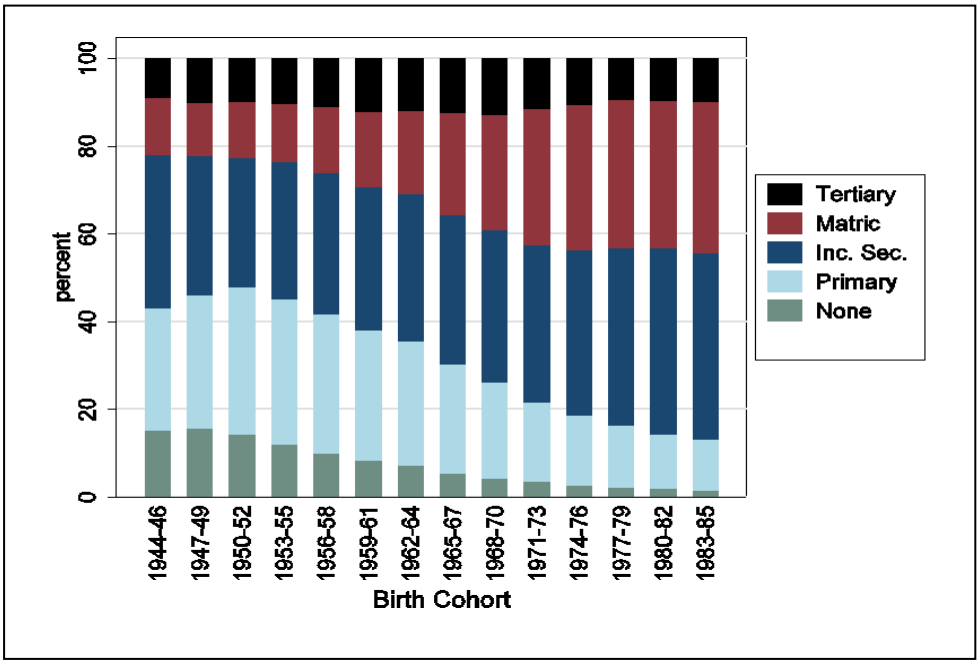
(a) Matriculation rates: rising and then stabilising

Figure 1 shows the educational attainment for each of the different cohorts. It clearly shows the rapid expansion of secondary education since 1944. In particular, the proportion of people who passed matric (indicated by the red bars) grew rapidly for successive cohorts born up to the mid-1970s (after which it stabilised).[2]

[1] This method allows one to identify any changes in the relationship between educational attainment and the labour market, since individuals born in the same year (i.e. in the same birth cohort) experience similar economic, education and labour market conditions. Thus, one can disentangle the generational components from the life-cycle and other components for individuals with similar levels of educational attainment, and thus reveal the benefits of matric.

[2] At the same time, the proportion of people that carried on to complete a tertiary qualification has been more or less stable during the entire period, even while matriculation rates were increasing rapidly. Together these

Figure 1: Distribution of educational attainment for adult males aged 25-50 (by birth cohort category)



Notes: Data from OHS 1994-1999, LFS 2000-2007 and GHS 2008-2010. Education classification based on highest completed education. No schooling is no completed schooling, primary is grade 1-7, incomplete secondary (Inc. Sec.) is grade 8-11, grade 12 is matriculation. Tertiary includes any post-matriculation qualification.

Here one should remember that, as noted above, observed increases in average educational attainment hide large inequalities between schools (Lam & Branson 2013). The decline in the proportion of matriculants that have completed a tertiary qualification (especially among those born since 1970), evident in figure 1, is consistent with these results.

Table 1 presents more information on the education and labour market experiences of each birth cohort. The middle panel shows the average percentages of the highest qualification attained in a cohort. These illustrate numerically what figure 1 shows graphically: educational attainment has risen steadily over the last five decades, with more recent cohorts having larger proportions of post-primary graduates than their predecessors. For example, while only 13% of men born in 1944-46 attained matric as their highest qualification, for those born in 1983-85 the corresponding percentage is 35%.

mean that the percentage of matriculants who carried on to tertiary institutions declined from about 40% of the 1944-1946 cohort to around 18% of the 1983-1985 cohort. This figure obscures the differences in terms of race. Although it is not the focus of this article, it is worth noting that black South Africans have made substantial progress and that the gap between the educational attainment of black and coloured South Africans has been closed. However, both races continue to attain approximately two years less education than whites (Lam & Branson 2013).

Table 1: Characteristics by birth cohort (men)

Birth cohort	Average age of cohort	Highest educational attainment (% of cohort)				Labour market status of cohort		
		Primary	Incomplete secondary	Matric	Tertiary	Economically active (%)	Employed (%)	Real earnings (1994 rand)
1983-85	25.6	13.3	42.3	34.6	9.8	94.2	61.0	1736
1980-82	26.6	14.4	42.5	33.4	9.6	93.4	63.9	1660
1977-79	27.9	16.5	40.4	33.7	9.4	93.8	63.3	1787
1974-76	29.3	18.7	37.6	33.2	10.5	93.7	66.6	1837
1971-73	31.3	21.7	35.8	31.1	11.5	93.3	71.1	2497
1968-70	33.3	26.3	34.7	26.3	12.7	92.6	75.2	2412
1965-67	36.2	30.4	34.0	23.3	12.4	92.8	78.0	2563
1962-64	39.1	35.6	33.6	18.8	12.0	92.3	79.5	2599
1959-61	42.0	38.2	32.5	17.2	12.2	91.6	80.3	2914
1956-58	44.2	41.8	32.2	15	11.0	90.1	80.4	2910
1953-55	45.7	45.2	31.3	13.3	10.2	89.5	81.8	2943
1950-52	47.0	48	29.3	12.8	9.9	88.5	82.3	2952
1947-49	48.0	46.2	31.7	12.0	10.1	86.3	82.9	3706
1944-46	49.4	43.1	35.0	13.0	8.8	86.3	85.9	4169

Notes: The data are from OHS 1994-1999, LFS 2000-2007 and GHS 2008-2010. The sample includes males aged 25-50, and is weighted to be nationally representative. For more details, see the full table in Branson et al. 2013.

(b) Earnings and the odds of being employed: have they changed?

The last panel in table 1 illustrates three important changes that have occurred in the labour market experience of the male cohorts. Successively,

- a greater proportion of these men (with a growing proportion of matric graduates among them) became economically active in the labour market; at the same time,
- the probability of finding employment fell steadily and
- real earnings more than halved over the period.

The latter two trends need further scrutiny before one can say unambiguously that the returns to matric have fallen. The problem is that the observed trends may be due to effects *other than* a decline in the intrinsic value of education. For example, the average age of each cohort is lower than the one preceding it (column 2 of table 1). As age is closely tied to work experience (which is highly valued in the labour market), it is to be expected that younger, more recent cohorts will earn less on average than older cohorts.

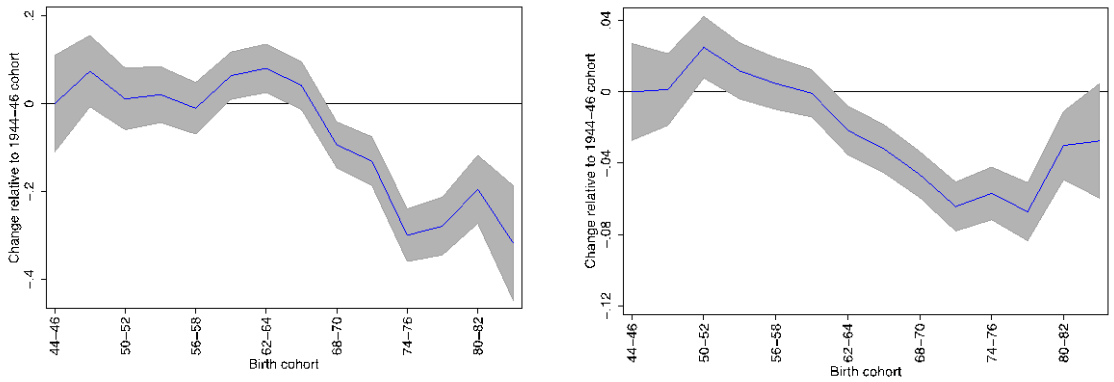
To overcome this challenge, Branson et al. (2013) show that these trends in earnings and employment can be decomposed into three components relating to (a) the age of people and where they are in their life cycle, (b) the year in which they matriculate, and (c) the birth

cohort (or generation) to which they belong.[3] The authors use statistical techniques to isolate each of these effects. The age and cohort effects are most relevant for our analysis.

They find that, as expected, earnings increase with the age of a worker. The probability of employment also rises with age (but only while a worker is in his or her 20s). Turning to the 'cohort effect', figure 2 shows the *change* in the real earnings and in the employment probability of different cohorts *relative to those of the 1944-46 cohort* (with the effects of a worker's age/experience and the year of matriculation having been removed from the data).

The left-hand panel shows that more recent generations of matriculants indeed earn less in real terms than members of older generations. The main, and largest, earnings drop occurred for cohorts born between the mid-1960s and mid-1970s. On average, cohorts born after the mid-1970s have been earning approximately 30% less in real terms than those born between the mid-1940s and mid-1960s.

Figure 2: Changes in cohort earnings (left) and employment probability (right)



Note: The grey band indicates the 95% confidence interval. It shows the degree of statistical precision of the estimate. A wider band indicates a less precise estimate. The band gets wider at either end of the figure due to fewer data points being available for those birth cohorts.

The right-hand panel of figure 2 shows that the likelihood of matriculants' finding employment also fell up to those born in the mid-1970s, but turned around thereafter. However, the net change in the employment probability over the period is still negative.

These cohort effects confirm that the *absolute* returns to matric – in terms of real earnings and employment probability – clearly have declined in the last several decades.

But does this mean that the *value of matric in the labour market* has declined?

[3] A summary of the results is presented here. For the full results, see Branson et al. (2013).

The premium to matriculation

Matric will carry value in the labour market as long as it endows an individual with a greater probability of employment and/or higher earnings than somebody who has attained a lower level of education (but who otherwise has similar characteristics). This would mean that the 'relative return' to matric is positive. This could be the case even during worsening labour market conditions if the returns to lower levels of education are falling as fast, or faster than the returns to matric.

To determine whether or not falling absolute returns to matric translate into falling *relative* returns, we compare the deterioration in the labour market experiences of matriculants with those with an incomplete secondary education. Branson et al. (2013) calculate the ratio between the average earnings of those with matric and those with only grade 10 or 11. This ratio is the earnings premium to matric. If the ratio is larger than one, it means that, relative to having only grade 10 or 11, matric provides an earnings premium in the work place. A similar ratio can be calculated for the probability of being employed.

Table 2 illustrates the premiums to matric for a selection of recent cohorts at ages 25 to 29.

Table 2: Earnings and employment probability premiums

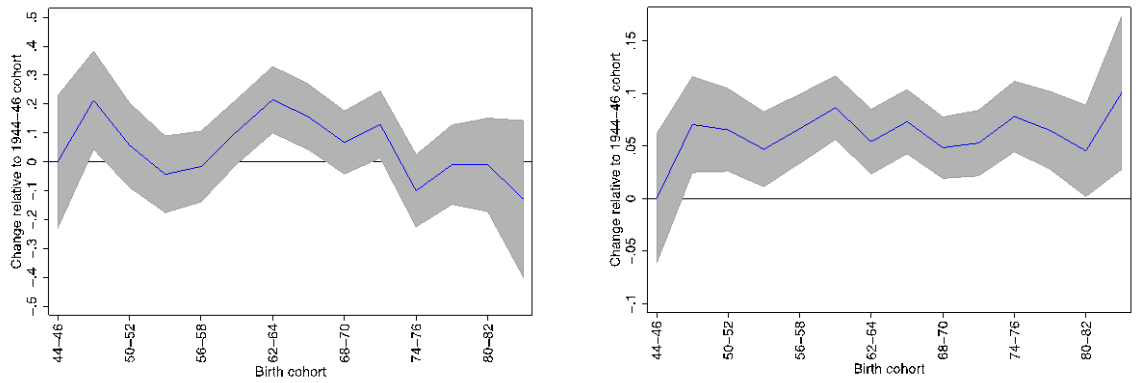
Birth cohort	Earnings premium						Employment probability premium					
	Age						Age					
	25	26	27	28	29	Average	25	26	27	28	29	Average
1968-70	1.32	1.59	1.60	1.57	1.39	1.49	1.07	1.20	1.07	1.06	1.07	1.10
1971-73	1.47	1.53	1.58	1.50	1.52	1.52	1.09	1.10	1.08	1.11	1.15	1.11
1974-76	1.33	1.29	1.40	1.54	1.32	1.37	1.28	1.06	1.16	1.20	1.20	1.18
1977-79	1.60	1.46	1.50	1.45	1.41	1.48	1.15	1.10	1.15	1.19	1.07	1.13
1980-82	1.48	1.44	1.24	1.91	1.78	1.57	1.11	1.11	1.19	1.09	1.19	1.14
Average	1.44	1.46	1.46	1.59	1.48	1.49	1.14	1.11	1.13	1.13	1.13	1.13

The ratios for earnings and employment probability are significantly greater than one for all these cohorts; notably this is also so for the more recent generations of matriculants. This indicates that, although the absolute earnings of younger cohorts have fallen with time, matriculants are still significantly better off in terms of earnings and employment probability than those with an incomplete secondary education. For example, at the age of 25, matriculants born between 1980 and 1982 earned 48% more on average and were 11% more likely to be employed than individuals with only grade 10 or 11 in the same cohort (i.e. this cohort has ratios of 1.48 and 1.11 respectively, highlighted in red above). Thus, the

premium to matric clearly has remained positive despite deteriorating labour market conditions.

However, these numbers still include age effects and year effects. As before, they can be removed from the data to isolate the cohort effect for the matric premium. This is shown in figure 3, which depicts the *change over time* in the earnings and employment premiums in relation to the premiums of the first cohort (i.e. the deviation from the premium of the 1944-46 birth cohort).

Figure 3: Changes in the matric premium – earnings (left) and employment (right)



Note: As in Figure 2, the grey band indicates the 95% confidence interval, or the precision of the estimate. The band gets wider at either end of the figure due to fewer data points being available for those birth cohorts.

It is apparent that on the whole, apart from a spike in the early 1960s and a few smaller fluctuations, the matric earnings premium has not deviated significantly from the premium of the 1944-46 cohort. (The 1983-1985 cohort does show a decline in the earnings premium, but the grey band extends above the zero line, indicating that this drop is too close to nil to be statistically significant).

The employment premium has also been stable, but at a level consistently higher than that of the first cohort, suggesting that matriculants born since 1947 have continually faced better employment prospects than those without matric. This also is true for the most recent cohorts.

Conclusion

Matric continues to carry weight in the labour market. Worsening labour market outcomes of matriculants should not be confused with a negative valuation of the matriculation certificate relative to fewer years of education. While there has been a net decline in the *absolute* return to matriculation – consistent with an increased supply of matriculants and a deteriorating quality of education – the earnings premium of matriculants compared to

those with only grade 10 or 11 has remained positive and relatively stable across generations. Similarly, matriculation continues to improve the odds of employment; this premium also has remained fairly constant across cohorts. This evidence helps us to understand why South African youth still endeavour to attain the matric certificate, even under very difficult circumstances.

An important additional factor must be mentioned. The premiums reported above are for people whose *highest* level of education is matric. Given that passing matric is the launching pad into higher education, one must also consider the earnings and employment premiums to tertiary education. These returns are positive and substantial. For example, in the youngest birth cohort that was analysed, the average person with a tertiary qualification earns two to three times more than a matriculant and is up to 20% more likely to find employment, depending on his or her age (Branson et al. 2013, p.13). Moreover, both the earnings and employment premiums to tertiary education (relative to matric) have increased steadily across generations and continue to do so.[4] Passing matric remains the gateway to these benefits.

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[4] See van der Berg and van Broekhuizen (2012), as well as the associated *Econ3x3* article (12 May 2013) for more on the returns to tertiary education.