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Policy Brief
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Identifying policy priorities to improve outcomes for poor primary school learners

Socio-economic status has a significant impact on primary school learner performance. Poorer learners often suffer poor educational outcomes: They start school with a disadvantage that stays with them because they face financial, resource, infrastructure and institutional constraints.

Although such broad observations should inform the basic foundations of education policy, they are not particularly useful when it comes to formulating and prioritising practical, detailed and actionable policy measures.

A recent study analyses the reading and maths test scores of a set of Grade 6 school learners and identifies various key factors that affected their performance. In addition, results are broken down according to socio-economic grouping to identify those policy measures which, if implemented, will have a positive impact on educational outcomes in general, and on the performance of poor learners specifically.

These findings are based on a working paper by Nic Spaull, analysing results from the 2007 SACMEQ III[1] survey. The project surveyed 9083 Grade 6 learners and 1163 teachers from 392 schools across South Africa, capturing learners' scores in Maths, Reading and Health tests whilst recording extensive demographic, learner-specific, school and teacher data. In addition, Reading, Maths, and Health teachers were tested in their respective disciplines. This policy brief constitutes an overview of the key policy implications from Spaull's Working Paper, which can be found at http://www.ekon.sun.ac.za/wpapers/2011. Readers are encouraged to consult the Working Paper for a more comprehensive treatment of the findings.

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POLICY ISSUES

The impact of socio-economic status on children's future prospects is widely recognised in the literature and in policy circles. The poor are at a disadvantage when it comes to job opportunities because they are less likely to have benefited from a good education equipping them with the necessary skills to compete in the labour market. Providing a quality education to poor children is therefore a logical policy priority. Two previous policy briefs covered important nuances in this policy debate. Firstly, it is important to consider poor learners' access to pre-primary schooling because they will otherwise enter primary school with a disadvantage compared to richer learners[2]. Secondly, poor learners are more likely to attend badly managed schools with a lack of school discipline, both of which will have a large negative impact on their educational performance[3].

While there are numerous measures we can implement to improve educational outcomes, choosing which of these measures will yield the greatest benefit is not possible without detailed analyses of school data. Such analysis is therefore vital if one is to prioritise among the many available policy options.

[1] SACMEQ: Southern and East African Consortium for Monitoring Educational Quality
[2] Gustafsson, M. 2010. Policy note on pre-primary schooling: An empirical contribution to the 2009 Medium Term Strategic Framework. Stellenbosch Working Paper No. 05/2010. Stellenbosch University: Department of Economics
[3] Taylor, S. 2011. Uncovering indicators of effective school management in South Africa using the National School Effectiveness Study. Stellenbosch Working Paper No. 10/2011, Stellenbosch University: Department of Economics

THE RESEARCH QUESTIONS

The new SACMEQ III survey (2007) provides detailed data on learner demographics, socio-economic status and learner performance. This enables us to determine which factors are important for learner performance, and thus the areas that policy-makers should focus on. It is also the first nationwide education survey where teachers were tested in addition to learners, allowing us to measure the impact of teacher-knowledge on learner performance.

Spaull's paper maps out differences in student test performance according to the usual socio-economic and demographic variables. In addition, due to the detailed level of available data, he is also able to formulate specific questions that go beyond the broad-brush impact of socio-economic status. Put differently, this data provides the opportunity to look at those secondary characteristics of "being poor" that have a direct impact on educational outcomes. This is extremely useful when trying to formulate specific policies.

KEY FINDINGS

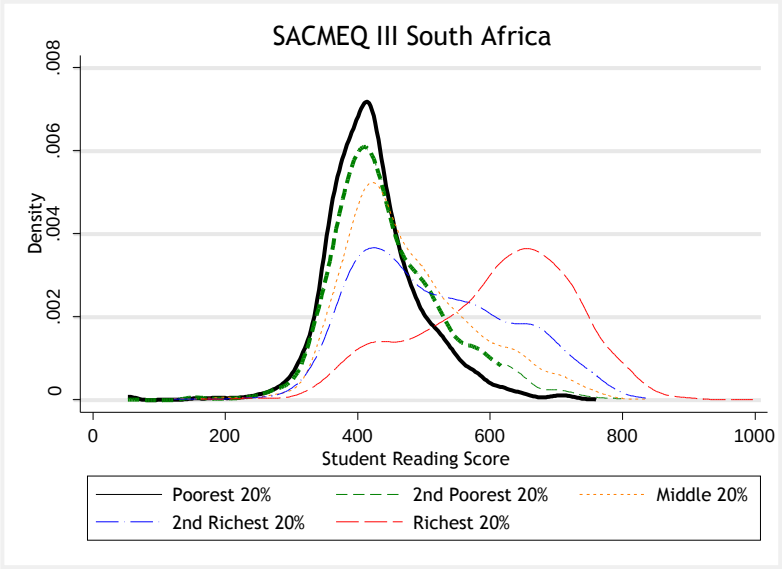
Although the paper had a slightly wider research remit, this policy brief focuses on some specific, key observations around Reading and Maths performance.

1. Test performance and socio-economic status

The average Reading test score for the richest 20% of learners in Grade 6 was 605, compared to an average of 436 for the poorest 20% of learners. This difference was also seen in the Maths test, although the difference was slightly smaller with averages of 583 and 454 respectively.

Figure 1 below shows the distribution of test scores amongst the various socio-economic groups. The striking fact here is that performance does not improve evenly across the various income groups. Being part of the richest 20% brings a disproportionate advantage, whilst the lower four income groupings attain remarkably similar results. Surprisingly, the mean score for the poorest 80% of South African learners is below the SACMEQ average across all countries of 500, although these learners have better access to resources, more qualified teachers and lower pupil-to-teacher ratios than most of these other African countries.

Figure 1: Grade 6 reading test score distribution for various socio-economic groups



The detailed analysis also shows that learners from the Western Cape and Gauteng significantly outperform learners in other provinces. It is interesting to note that these two provinces have a higher proportion of wealthier learners than the other provinces, although we can't necessarily deduce that these provinces performed better *because* they are wealthier.

Spaull's work confirms previous findings that a school's *overall* socio-economic status has a greater impact on learner performance than a child's *individual* status does. This means that placing a poor child in a wealthy school is likely to more than compensate for any negative effects of a poor home background. Since it is not possible to move all poor learners into wealthier schools, it is imperative to understand *why* schools serving poorer learners under-perform.

2. The role of pre-school education

Overall, learners who attended pre-primary school for at least one year achieved a higher average score in both tests, but the difference was particularly noticeable in the reading test.

The wealthiest 20% of learners benefit the most from attending pre-school, most probably because they attend better quality pre-schools than poorer students. This being said, the poorest 80% of learners still benefit when they attend at least one year of preschool. This is especially evident for learner reading performance.

Given the clear benefits of pre-primary school attendance, it is of particular concern that only 57% of learners in the poorest 20% bracket received one year or more of pre-school education. This compares to 84.9% for the richest 20% of learners (see Table 1 below). It should be noted, however, that the situation has improved since 2007, with increased access to pre-school education seen across the board, and specifically on the part of poorer learners[4].

TABLE 1: Pre-school education distribution across income groups

	Amount of pre-school education					
Income group	**None**	**Few months**	**1 year**	**2 years**	**3+ years**	**Total**
Poorest 20%	39.4	4.2	35	11.2	10.3	**100**
2nd Poorest 20%	32.1	5.7	37.4	11.8	13	**100**
Middle 20%	27.7	5.1	35.1	15	17.1	**100**
2nd richest 20%	19.5	5.2	31.9	18.4	25.1	**100**
Richest 20%	10.9	4.2	25.3	21.7	37.9	**100**
Total	**26.4**	**4.9**	**33.1**	**15.4**	**20.3**	**100**

3. The impact of reading textbook availability

Previous studies have shown that providing access to textbooks delivers significant returns in terms of educational outcomes, and this is confirmed by the recent analysis. The research shows that only when learners have their own reading textbook, or when they share it with no more than one other person, do they experience performance gains. The same positive effect of textbooks was not seen for maths.

Amongst the poorest 20% of learners only around 63% were in a position where they either had their own reading textbook or they were sharing it with just one other person. In comparison, just under 85% of the richest learners had their own reading textbook or were sharing their reading textbooks with no more than one other.

4. The surprisingly small impact of teacher knowledge and skills

To gauge their subject knowledge, teachers were given similar tests to those that were completed by their pupils. We would expect teacher knowledge to increase student achievement, and this is marginally supported by the results. However, the impact of improved teacher knowledge on pupil outcomes is strikingly small: A 100 point increase in average Reading teacher scores leads to a 7.1 point increase in learner reading scores. This is extremely small. A similar rise of 100 points in average Maths teacher scores leads to an even smaller 4.7 points increase in student maths scores.

This doesn't mean, however, that teachers do not matter; only that teacher knowledge is not as strongly correlated with teacher quality as we initially expected. Factors such as teacher motivation and the ability

[4] Gustafsson, M. 2010. Policy note on pre-primary schooling: An empirical contribution to the 2009 Medium Term Strategic Framework. Stellenbosch Working Paper No. 05/2010. Stellenbosch University: Department of Economics

of the teacher to convey their subject-knowledge may better capture what makes a 'good' teacher. Thus, it would seem that the ability to teach students well at a Grade 6 level is not very dependent on subject-knowledge, but perhaps more on the teacher's ability to convey that subject-knowledge.

5. Homework frequency

In general, learners who received homework at least once or twice a week scored significantly higher in both the Maths and Reading tests. It is unfortunate to see that poor students are not typically given enough homework: amongst the poorest 40% of learners, 15% received homework only once or twice a month, or in some cases no homework whatsoever. This is well below the expected frequency for Grade 6. The emphasis here is on the benefits of homework i.e. practising to read and practising mathematical problems. It is likely that the home-background of many poor students is not conducive to students completing homework since students may have many chores and little private time to work. Consequently, innovative solutions such as "after-school home-work clubs" or similar initiatives may be necessary.

DATA ISSUES

In SACMEQ III, as is the case with most surveys which target children, it is not possible to get an accurate representation of the monetary value of family income. To overcome this, children were asked a series of 31 "possession questions" (e.g. "do you have a TV in the household?") which together act as a proxy for household income.

Teachers were allowed to opt out of the subject and health tests, which decreased the sample size when it came to analysing the impact of teacher knowledge. This means that the real level of teacher knowledge may have been over-estimated since one would expect that weaker teachers would be more likely to refuse to take the test.

POLICY IMPLICATIONS

Preschool education: Providing at least one year of quality pre-school education to all students is likely to improve student performance. This is especially true for poorer students who would otherwise start primary school at a disadvantage. Improving the quality of preschool education offered to the poor is also necessary if the full benefit of this policy intervention is to be felt. These recommendations are in line with those made in previous policy briefs.

Access to reading textbooks: Learners from low-income households are less likely to have direct access to textbooks. Since there is a strong positive correlation between reading-textbook access and reading performance, targeting policies and funds towards reading-textbook provision will have an impact on student performance. This is especially true for learners from a disadvantaged socio-economic background.

Homework frequency: The research shows performance gains associated with those students who received homework either once or twice a week or most days of the week. Practical policies that encourage teachers to prescribe homework and enable students to complete that homework should be explored. These policies are likely to be inexpensive, but yield significant gains in student performance.

Teacher knowledge and quality: Teachers' subject expertise has a small positive impact on learner performance. While improving teacher subject-knowledge is likely to provide modest gains, at the Grade 6 level policy should focus rather on helping teachers convey the subject material to their students.

FURTHER QUESTIONS

Comments and questions are welcomed, and can be directed to the author of the paper at spaull@sun.ac.za