

# Teacher Remuneration in South Africa: Incentivizing Performance

Economics Masters Minor Dissertation

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## Abstract

Despite high government expenditure, education in South Africa is poor quality. We focus on how teacher quality can be improved by improving the structure of their remuneration. Performance-related pay, which can be based either on measuring learner test scores, or by measuring teacher content knowledge or pedagogical skills, has sometimes been successful in countries with low levels of teacher effort, and may be applicable in South Africa. However, measures to enhance accountability or reward performance need to take into account resistance by teacher unions. We situate the discussion in the context of South Africa's existing framework for teacher remuneration under the Occupation Specific Dispensation. From this, we criticize the relatively flat progression of salaries as teachers' experience increases, which discourages skilled teachers from remaining in the profession. We propose that performance-based pay be integrated into the existing salary structure through bonus salary notch progressions, thereby also increasing the slope of salary progression.

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## Acronyms

ANA	Annual National Assessments
CEPD	Centre for Education Policy Development
DBE	Department of Basic Education
DSG	Development Support Group
ELRC	Education Labour Relations Council
EMIS	Education Management Information System
GDP	Gross Domestic Product
IQMS	Integrated Quality Management System
ISPFTED	Integrated Strategic Planning Framework for Teacher Education and Development in South Africa
ITE	Initial Teacher Education
J-PAL	Abdul Latif Jameel Poverty Action Lab
NAPTOSA	National Professional Teachers' Organisation of South Africa
PGCE	Postgraduate Certificate in Education
PIRLS	Progress in International Reading Literacy Study
PSCBC	Public Service Co-ordinating Bargaining Council
RCT	Randomized Controlled Trial
SA	South Africa
SACE	South African Council for Educators
SACMEQ	The Southern and Eastern Africa Consortium for Monitoring Educational Quality
SADTU	South African Democratic Teachers' Union
SGB	School Governing Body
SMS	School Management Service
UNISA	University of South Africa

For more South-African education-related acronyms, see

<https://wcedonline.westerncape.gov.za/labour/training/terms.html>

# 1 Introduction

When considering the development of South Africa (SA), a fundamental constraint is our education sphere. This is because education is an important determinant of future labour market earnings, but the levels of education in the South African population is low. Although there is near-universal attainment, the quality is very poor. For example, South Africa's grade fours scored at the bottom of 50 participating countries in the recent Progress in International Reading Literacy Study (PIRLS) 2016 (Mullis, et al., 2017: 24). Also, research based on the The Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) III test shows that grade six learners performed worse than their comparator learners in Botswana, Namibia and Mozambique, despite government expenditure on primary education being comparatively high in South Africa (Spaull, 2012: 1). Amongst these countries, South Africa has the highest rate of functional illiteracy (27%) (ibid.). These facts conflict with our aims of ensuring people in South Africa have the necessary skills to be employed, to function in society, and the aim of our country developing a productive stock of human capital that can contribute to economic prosperity. In addition, the inequality of quality in education contributes to the persistence of inequality in incomes, which is significantly high in South Africa.

Van der Berg (2007: 849) notes that, "despite massive resource shifts to black schools, overall matriculation results did not improve in the post-apartheid period." Despite a massive amount of government expenditure on basic education in South Africa, there has been little improvement in educational outcomes due to weak administration, and teacher absenteeism and lack of effort (Spaull, 2015: 116). This points to the need for better quality and accountability in our education sector. However, there are salient challenges with achieving that, as this paper will describe.

The paper begins with an overview of ways to think about how educational outcomes can be improved, and introduces how teacher quality can be improved in South Africa. The main approach this dissertation takes is to investigate the remuneration offered to teachers in the public sector, so the following section investigates the potential for teacher performance pay in South Africa, and evaluates the salary schedule currently offered to teachers, which could present a disincentive for skilled teachers to remain in the profession. A constraint for remuneration reforms and improved accountability, trust, is briefly explored before ending with the conclusion.

## 2 Improving educational outcomes

The education sphere is multifaceted and complex, with no ‘silver bullets’. Understanding where improvements can be made requires a view from many academic disciplines—sociological, psychological, economic, and political. The sociological aspect relates to the human relationships between teachers, pupils, parents, headmasters and communities; knowing how personal intellectual aspirations are constrained by one’s context; or evaluating the status afforded to teachers, and how that can be changed in order to improve the incentives faced by teachers. The psychological aspect relates to the pedagogy (teaching methods) that is used by teachers, which can be a major determining factor in the quality of education. There is a science to what teaching methods work and for what reasons, although ultimately there is an art to applying the science. Econometricians have attempted to provide direction to which inputs are needed to make education production work, either through randomized controlled trials (RCTs) or through regression analysis of observational data, which highlights which variables are the most cost-effective. Other economic aspects, which are more the focus of this dissertation, include questions on how teachers can be incentivized to perform better, how to attract better quality candidates into the teaching profession, and how teachers’ wages affect these issues. Ultimately, the political perspective is very important, as government’s decisions have a large impact and reach. A failure of government to follow scientific advice holds back the project, so lobbying, advice and recommendations are needed to sustain the link between research in academia and politicians who make public policy decisions. Furthermore, in South Africa teacher trade unions have a large influence on public policy decisions.

One aspect of analysing how educational outcomes can be improved is to look at the provision of physical resources (see Bhorat & Oosthuizen, 2009; Evans & Popova, 2015; Murtin, et al., 2015; Masino & Niño-Zarazúa, 2016; Pellicer & Piraino, 2019; Gustafsson, 2007). This type of study typically uses econometric techniques (often on observational data) to determine which variables have the most cost-effective improvement in learning outcomes, based on a multivariate regression.<sup>1</sup> However, there is not a lot of congruence across studies. One study concludes, “increasing the quantity or quality of resources, at home or at school, has had at best modest impacts on student achievement” (Ganimian & Murnane, 2016: 744). The effect of a particular intervention often depends on the context in which it takes place (Ganimian & Murnane, 2016: 744). Contextual factors such as home background, community and individual socio-emotional characteristics are significant influences on learning outcomes (Shepherd, 2011;

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<sup>1</sup>Future research could repeat Bhorat and Oosthuizen’s (2009) analysis when new Schools’ Register of Needs data become available.

Hofmeyr, 2018; Taylor & Yu, 2009; Timæus, Simelane & Letsoalo, 2013).

A meta-study would standardize effect sizes to units of the standard deviation in the population in the study, in order to compare multiple studies. Snilstveit, et al. (2015) provide a comprehensive meta-analysis of the literature on interventions for improving education outcomes in the developing country context. They examine the estimated effects of a variety of schooling inputs, including child-, household-, school-, teacher- and system-level interventions, on various outcomes, such as maths or language scores, enrolment, completion, attendance or nutrition. One of the highest average effect sizes they found is that 'structured pedagogy' can improve language test scores by 0.23 standard deviations (and maths test scores by 0.14 standard deviations). 'Structured pedagogy' interventions typically seek to introduce new content or instructional approaches that use structured lesson content, or provide training to teachers to deliver such material. The large and significant average effect shows that pedagogy is an important aspect of education and transferring knowledge down the generations. It shows that research into the best practices for pedagogy is relevant and would best contribute to our understanding of how education should be improved. The study of pedagogy is often psychological, but econometricians nevertheless have value to add by being able to test different teaching methods in randomized trials, or evaluate the results of such interventions. An example of RCTs on pedagogy are those run by the Abdul Latif Jameel Poverty Action Lab (J-PAL) in partnership with Pratham, in India, with a pedagogical method called "[Teaching at the Right Level](#)". This method, where some time is periodically taken to gather learners according to ability and focus on the basics of what they are being taught, has yielded effect sizes ranging from a 0.08 to a 0.75 standard deviation improvement in test scores, depending on the design of the treatment (Teaching at the Right Level (TaRL), 2019). With the right design, this treatment effect is massive (as a rule of thumb, effect sizes above 0.10 standard deviations can be thought of as being practically significant).

Another significant finding of Snilstveit, et al. (2015) is that community-based monitoring is expected to increase enrolment by 0.17 standard deviations, language scores by 0.12 standard deviations, and completion of schooling by 0.06 standard deviations. Decentralized governance at schools has the potential to complement bureaucracies, with more local-level insight and advantages in appointments or governance decisions. Local-level governance can also support government bureaucracies as some functions can be undertaken by local bodies (such as School Governing Bodies (SGB) or the school management) where those functions are not carried out adequately by the bureaucracy. Levy (2018) tackles the question of how effective decentralized schooling governance is, and argues that the balance between decentralized and hierarchical governance depends on context. Parental involvement in school governance is



only effective if the parents are educated enough to know how to make a difference. The results of decentralized governance across Western Cape and Eastern Cape schools in South Africa are not always positive. Levy (2018) compares case studies and concludes that decentralized governance only works when the rules binding the operation of the school-level governance are somewhat formalized or commonly understood by stakeholders. The school principal has a significant influence on the success of the school, but where success has only been a result of the principal's charisma, the school has later faltered (when a successor is chosen). In contrast, in schools where the principal is embedded in a supportive and cohesive framework of stakeholders—teachers, the School Governing Body and other local actors—who all understand the rules of how the school is governed, then those schools sustainably perform well over time, and across principal appointment transitions. This evidence is positive because it means there is potential for the government to intervene in school governance in order to strengthen it and encourage structures to develop horizontally.

With so many angles from which to tackle the education dilemma, and a likewise number of angles that are problematic in South Africa, one should be cautioned to prioritize the problems that present the biggest constraint (Spaull, 2015: 130). This is because there is a limited amount of financial and human resources at our disposal to tackle it. All stakeholders should agree on how to rank the problems in order of priority, although this evaluation is subjective. Unlike other developing countries, South Africa has high enrolment rates, so the focus in South Africa is on how to improve the *quality* of education. As evidence of poor quality in the South African education system, The SACMEQ 2007 results indicate that 79% of grade six mathematics teachers had content knowledge below the level at which they were teaching (Venkat & Spaull, 2015). South African teachers are thus poor quality, and fixing this constraint would yield large improvements. Keeping in mind that there are a significant number of questions that educationalists ask when trying to figure out how to improve education, this paper perceives the biggest constraint to improving learning outcomes in South Africa to be the quality of teachers.

### **3 Improving teacher quality**

There are a few dimensions along which teacher quality can be improved: effective recruitment of high-quality candidates into initial teacher education (ITE); ensuring that ITE is high quality; and attracting people to the teaching career with incentives ranging from social prestige, non-pecuniary benefits and pecuniary benefits. The first dimension is to make sure that high-aptitude people are recruited into initial teacher education (ITE). The Department of Ba-

sic Education (DBE) should screen school-leavers and focus its recruitment efforts on higher-aptitude people (as per Output 2 in the Integrated Strategic Planning Framework for Teacher Education and Development in South Africa (ISPFTED) (DBE, 2011: 11)). The Funda Lushaka bursary scheme is noteworthy, as it selects the top applicants and promotes ITE in South Africa by addressing the financial cost to tertiary training.

The second dimension is to ensure that initial teacher education is of a high quality. Following the post-Apartheid reforms to the education sector, many teacher training colleges in former homeland areas were merged with university teacher education departments, in an attempt to raise the standard of training offered to teachers. Unfortunately, this resulted in the former training colleges losing their capacity, as funding for teacher training in universities is minimal. This lack of training opportunities for aspiring teachers severely reduced the number of teachers graduating and entering the system. On top of that, currently half of each cohort of new teacher graduates do not start teaching the year after they finish their degree (van Broekhuizen, 2015: 82), and a quarter plan to leave the country to teach abroad immediately after qualifying (Bertram, Wedekind & Muthukrishna, 2007). However, Bertram, et al. (2007: 78) qualify this by noting that the majority of emigrant teachers plan to return to South Africa, “signifying a ‘brain circulation’, rather than a ‘brain drain’.” Van Broekhuizen (2015: 34) details how there is a shortage of new teacher graduates entering the profession, with the balance being made up of people returning to the teaching career, ITE graduates who were previously unable to find work, or migrants (both immigrants and skilled South Africans who previously emigrated). This “reserve teacher stock” is finite, so a reliance on it will reckon with a shortage of supply in the future (van Broekhuizen, 2015: 34).

Most teacher students attempt to earn their teaching degree through UNISA, but the drop-out rate from UNISA’s distance-learning programme is higher than any other ITE programme at contact universities (van Broekhuizen, 2015). The reliance on distance education for the training of the majority of our country’s teachers thus results in low graduation rates. Also, one can argue that it results in low quality of teacher education, as face-to-face lectures and practical experience are needed in order for students to learn teaching skills. Furthermore, the curriculum that teachers are assumed to know has not been stipulated. It is assumed that graduates with a Bachelor of Education have the required skills and content knowledge to teach, but this may not be true, and teacher board exams which test the requisite knowledge for a particular grade and subject do not exist (Spaull, 2015: 126). In this respect, the South African Council for Educators (SACE) should oversee the development of the professionalisation of teachers.

The third dimension along which teacher quality can be improved is with attracting people to the teaching career, and this is done via social prestige, non-pecuniary benefits and the

salary incentive. One reason why Finland's education system is one of the top in the world is because there is high prestige associated with being a teacher. There, selection into teacher training is competitive, with only the top 20% of learners being considered and many further rounds of screening (Armstrong, 2014a: 38). Students there are required to obtain a Masters degree before starting teaching (ibid.)—no wonder the profession in Finland is seen as signalling high skills. Unfortunately, in South Africa the people starting out tertiary education in order to become a teacher tend to have a below-average skill level (Armstrong (2014b: 24–29) shows evidence of this from Stellenbosch University enrollment data). Thus, teaching in South Africa does not signal high skills, which downplays the social status afforded to teachers. There seems to be a positive feedback mechanism at play.

Non-pecuniary benefits can certainly be a huge incentive for somebody to become a teacher. Holidays are extensive, there is the enjoyment of working with children, and formal working hours can be shorter than other professions. Research into this area would be qualitative and would need a survey to gather evidence on how responsive working-age people are to various non-pecuniary incentives offered by the teaching career. Suffice to say that (given the low wage for the upper-end of the skill distribution, to be discussed later) the existence of higher-skilled people who choose to teach provides evidence that non-pecuniary benefits do encourage those individuals to choose this career.

The pecuniary incentive is a particularly important question for economists, so the rest of this paper will be devoted to addressing this topic.

## **4 Teacher remuneration**

The salaries offered to teachers may be a significant source of incentive. *Prima facie*, a higher base level of pay may improve the quality of teachers: it would increase the supply of skilled teachers, and, given a limited number of posts, those skilled teachers would replace less-skilled candidates. However, there is more than meets the eye with regards to the level of pay offered to teachers. In Indonesia from November 2009 to December 2011, the base teacher salary was doubled (de Ree, et al., 2015:12). Even though this improved teachers' satisfaction with their income, there was no improvement in teacher effort, and learning outcomes did not improve (de Ree, et al., 2015). In another study, Hanushek, Kain and Rivkin (1999) give further evidence from Texas that a shift in the salary schedule has modest impacts on learner achievement. This contradicts the "efficiency-wage" hypothesis, which states that higher wages will improve the level of effort employers put in to their job. In South Africa, average teacher wages are in fact quite high relative to per capita GDP (Armstrong, 2014b: 0), yet the level of effort and

productivity amongst many teachers is low (van der Berg, et al., 2011: 4). It is thus hard to argue that the base level of pay should increase. Rather, we argue that the focus should be on how to adjust the salary structure in order to reward good performance, or to retain high-performing candidates in the profession. Such an approach would at least be easier on the fiscus.

We focus solely on the public sector, as this is the sector that can realistically be changed on a large scale through government policy and research recommendations, and this is the sector constrained by finance. The private sector could use the research presented in this paper to improve structures of teacher remuneration, although the private sector (and well-funded School Governing Bodies in public schools) have both more funds available, and often have a higher skill-level of teachers with higher levels of effort, so they face a different context.

#### **4.1 Performance-linked pay**

One idea for improving incentives faced by teachers is to directly link pay to performance. Linking teacher pay to performance has been implemented on a substantial number of occasions across the world, and the results are generally positive. We discuss the disadvantages and advantages.

Teacher performance can be measured by the average test scores achieved by their pupils. The main disadvantage of this is that effort becomes distorted. Measuring performance based on test scores has the risk of distorting the teacher's effort towards "teaching to the test", in a way that improves short-term learning outcomes (such as through routine practice), or by focusing too narrowly on syllabus-specific knowledge, at the expense of long-term learning outcomes, such as conceptual, critical and creative thinking, or on skills that improve their future labour market outcomes. In Kenya, a randomized controlled trial rewarded teachers for the performance of their pupils in a government exam, but the pupils' performance did not improve in an alternate exam that wasn't linked to remuneration (Glewwe, Ilias & Kremer, 2010). Furthermore, the improvement in test performance did not persist even a year after the programme (ibid.). In a developed country context, we also see negative consequences of measuring performance based on test scores. Teacher salary schedules are a nearly universal feature of American K-12 public district schools (Podgursky & Springer, 2007), so research has emanated from the American setting. For example, Jacob and Levitt (2003) investigate whether teachers in Chicago schools respond to the monetary incentive by corrupting their pupils' test results. Using statistical techniques, they identify behavioural responses from the teachers to the incentive schemes—i.e. cheating on the test scores. Furthermore, evidence from the New

York City bonus program shows that poor design of teacher incentive pay schemes can result in a minimal effect on learner achievement (Goodman & Turner, 2013). Group incentive schemes can result in free-riding.

In developed country contexts, the level of teacher effort is often so high that the disadvantages of measuring their performance based on test outcomes often outweigh the advantages. However, it seems that where teacher effort is low to start off with, performance linked pay can nevertheless improve overall learner outcomes. Distorted effort is less desirable than well-intentioned effort, but in low effort scenarios distorted effort is a good start. A widely cited RCT in the Andhra Pradesh state of India tested whether bonuses paid to teachers based on the performance of their pupils were effective at improving outcomes (see Muralidharan and Sundararaman, 2011). A significant positive effect on teacher effort and learner outcomes was found, more so for individual performance bonuses rather than group performance bonuses. At the end of two years, treatment schools had test scores that were 0.27 and 0.17 standard deviations higher in math and language respectively (ibid.). Furthermore, the intervention was more cost-effective than comparative ones where the same amount of money was spent on providing an extra contract teacher, or on a grant for school materials. The cost of the intervention would have been even lower if it were intended to replace inflationary increases in teacher pay.

The optimal formula for incentive pay, and proportion of the baseline salary, are questions that need more attention, especially if the intervention is scaled up and implemented as government policy. It was noted by Muralidharan and Sundararaman (2011) that their result can extend to similar scenarios where teacher effort is low. Many teachers in South Africa show low productivity and effort (van der Berg, et al., 2011: 4), so we recommend that a similar RCT be run in South Africa, to investigate if the results can be replicated.

In designing performance pay in South Africa, it is useful to learn from the successes of other countries. In the Pernambuco state of Brazil, teachers are awarded bonuses at the school level based on their schools' performance. Although, targets are set according to the performance quintile in which the school sits (Armstrong, 2014a: 31), making the the program more equitable. Such a feature would be feasible and desirable in South Africa—for example, performance targets could differ within the already-existing quintile structure in South Africa. Chile's 'System for Measuring the Quality of Education' also spreads performance awards out amongst various socio-economic categories, and also boosts the bonuses paid to rural or remote areas (Armstrong, 2014a: 33). Such a practise of spreading out bonuses (so that not only the top-performing schools receive them) makes the incentive more attractive for lower-performing schools, and the bonuses can also be awarded based on *improvements* in learning outcomes, encouraging the lower-performing schools to catch up. In South Africa particularly, there is a

problem with teachers in rural or remote areas being poor quality compared to teachers in urban areas, so if a performance-based pay system were introduced in South Africa, an additional monetary incentive awarded to rural areas would address that problem. Another point to note is that as urbanization proceeds, rural schools will tend to shrink or be closed, whereas urban schools open or expand. This provides an opportunity to leverage improvements: the selection of which schools should be closed and where to allocate additional resources is an important way of indirectly rewarding performance and promoting improved quality.

Given the evidence of the possible benefits that performance pay can bring, one may wonder why this hasn't been tested in South Africa already. In fact, there have already been attempts at making such reforms, with various schemes such as the Integrated Quality Management System (IQMS) from 2003, or to use Annual National Assessments (ANAs) to tie learner performance with their teachers and schools, making them more accountable. However, to date these attempts have been stagnated by the main teacher union, the South African Democratic Teachers' Union (SADTU). SADTU strongly resists teacher performance evaluation, as it is perceived that performance monitoring is controlling towards teachers. In our analysis, the interests of SADTU can be seen as representative of the interests of all teacher unions in South Africa, as SADTU constitutes most teacher union membership.

Although scientific evidence points to the benefits of performance-based pay, the political arena presents obstacles. Teachers (represented by the SADTU) feel that performance monitoring is controlling and does not have their best interests at heart. A conflict exists between assessors and teachers (Mosoge & Pilane, 2014), which harks back from the way teachers were monitored during Apartheid. During Apartheid, performance monitoring used paperwork as a way to ensure compliance, and was a way to control teachers' activities. Ultimately, it was a way to control what knowledge was disseminated to the population, so as to preserve Apartheid ideology. So, it is understandable that this practice was an anathema for labour unions such as SADTU. The legacy of Apartheid performance monitoring thus sits deep in the memory of the teachers' union, but there is a lack of embrace of a new, developmental form of performance assessment.

The IQMS attempts to develop teachers, through self assessment, and reporting to a development support group (DSG) (Mosoge & Pilane, 2014: 5). Achievement of a score in the IQMS framework which represents at least a minimum level of performance allows the teacher to be awarded a progression in their salary, either by a few notches (of the salary schedule), or by a "level" (a jump of several notches), depending on how well they performed (Education Labour Relations Council [ELRC], 2003: 1.6.2–1.7). However, the merging of the development support group (which is meant to be a non-judgemental and supportive space for teachers to

grow critically) with the performance assessment being tied to remuneration, has conflated the purpose of the evaluations. Teachers, understandably, become reluctant to expose their weaknesses when completing performance growth plans, due to the fact that the outcome determines their salary progression (Cameron & Naidoo, 2018: 69). Peer evaluations from the DSG often bunch at the minimum required score for teachers to receive a salary progression, and teachers sometimes threaten their DSG in order to inflate their score (Nkambule, 2010: 75). The DSG is able to do this, as they are not held accountable by the school development team (ibid.). The use of the IQMS to develop teachers is thus lost, and we recommend that salary progression determination should be untied from self- and peer-assessments.

The question still arises as to why teacher unions would oppose performance-based pay that isn't linked to personal evaluations, but rather objective metrics, such as learner test scores. SADTU rejects performance measurement based on learner test scores on the grounds that it is unfair to evaluate teacher performance based on something they do not have complete control over. However, a metric provided to the public giving information about how schools (teachers) are performing relative to other schools (teachers) gives valuable information, not only as a form of accountability, but also to show where the most funds and attention is needed in the system. The Annual National Assessments (ANAs) were an attempt to provide this form of accountability. The ANAs were a national standardized test implemented in 2011 and 2012, before being discontinued under the influence of SADTU. However, these tests were not well administered (Spaull, 2015: 133). Measurement was not accurate, as a globally unprecedented improvement in learning outcomes was recorded between 2011 and 2012, a highly unlikely situation given the poor state of the education sector in SA (ibid.). The measurement of future standardized tests would need to be more rigorous, and administered externally by an independent body (such as Umalusi). Such a test would provide the potential for performance-based pay linked to test scores, on a national scale.

Another possible solution could be to test teachers' knowledge or pedagogical skills, and award the top performing teachers. A competitive test such as this is used in Chile, called the Pedagogical Excellence Award, and it awards teachers with high content knowledge or pedagogical skills (Armstrong, 2014a: 34). If offered to enough teachers, the perception that one can win a bonus would be real, and this can be a way to offer higher income to more experienced teachers. This teacher test should only be run every few years, to give teachers enough time to focus on their teaching in-between the tests.

## 4.2 Compensation for experience

A second recommendation regarding teacher remuneration has been to increase the slope of the relationship between remuneration and experience, which has been too flat (Centre for Education Policy Development [CEPD], 2011: 14–15; van der Berg & Burger, 2010: 25–26). Potential higher-skilled teacher candidates are discouraged from entering the teaching profession due to low potential salary progression over their career. Again, there were attempts at fixing this, which SADTU pushed back. Following massive public sector strikes in 2004 and 2007, the state agreed to develop a system of differential pay for different skill levels of an occupation (Cameron & Naidoo, 2018: 70). The initiative, called the Occupation Specific Dispensation (OSD), intended on attracting and retaining skilled workers through providing a progressive salary structure. The schedule of salaries in the teaching profession was divided into 221 “notches”, with each notch offering a salary 1% higher than the previous one, and 12 “levels”, where the levels partition the schedule into about 20 notches each. Every year, the salary at each notch is increased, mostly to compensate for inflation. However, what is more of concern is how educators move up the notches over time, in order to earn real salary increases as their experience increases.

In comparison to other sectors, such as the OSD in the health sector, the OSD in the education sector has been weak at providing a progressive salary schedule. In the education sector, the DBE initially proposed sizable biennial salary promotions based on performance, with a 3-notch increase for “satisfactory” performance (3% above inflation), and an additional 3-notch increase for “good”, or 6-notch increase for “outstanding” performance (ELRC, 2008: 5.5–5.6). However, following opposition from teacher trade unions, the OSD promulgated in 2009 was weaker than the one proposed, with the 3-notch and 6-notch incentives being scrapped, and only a 1-notch annual (sic) increase being offered (ELRC, 2009: 4.3). Table 1 gives an outline as to which notches various teacher job categories were eligible for. “M+3” refers to a teacher with matric plus three years of tertiary education, which used to be all that was required to qualify as a teacher, and “M+4” refers to a teacher with matric plus four years of tertiary education, which is nowadays the requirement in order to qualify as a teacher (i.e. either through a four-year Bachelor of Education, or a three-year Bachelors plus a Postgraduate Certificate in Education (PGCE)). Teachers usually enter the profession on the bottom-most notch. Teachers who have been in service for many years are given a special job title: it changes from ‘Teacher’ to ‘Senior Teacher’ when they reach notch 103 (after 18 years of normal salary progression, with an M+4 qualification) and to ‘Master Teacher’ when they reach notch 120 (after 35 years of normal salary progression, with an M+4 qualification) (National Professional Teachers’ Or-



Table 1: Salary notches for teacher job categories in the OSD, 2009 (NAPTOSA, 2019a)

Job title	Qualification	Notches		Example annual salary in April 2019	
		Minimum	Maximum	Minimum	Maximum
Teacher	M+3	56	138	R211 098	R466 527
Senior Teacher	M+3	103	138	R330 822	R466 527
Master Teacher	M+3	120	138	R390 018	R466 527
Teacher	M+4	85	168	R279 198	R620 046
Senior Teacher	M+4	103	168	R330 822	R620 046
Master Teacher	M+4	120	168	R390 018	R620 046

ganisation of South Africa [NAPTOSA], 2014). Given that the annual progression in the salary has, up until 2018, only been one notch, it was impossible for a worker to attain the maximum possible salary within their lifetime. If no promotions are awarded, it would theoretically take 83 years for an M+4 teacher to reach the maximum salary! This shows the reason why the progression in salary has been too flat, resulting in skilled personnel being remunerated at a level below those of their counterparts in other professions. The original proposal for the OSD had a way of rewarding good performance by accelerating progression up the salary schedule in response to good performance, so such a system would improve salary progression as well as making it more responsive to effort or performance.

Armstrong (2014b) utilizes a Lemieux Decomposition technique to compare the salaries of highly skilled teachers with salaries in other professions with a similar skill level. She finds that the teaching profession is unattractive to these individuals, based on the monetary compensation, which may result in poorer quality candidates entering the teaching profession, and skilled teachers leaving the profession. SADTU pushed for a compressed salary structure for the teaching profession because most of their membership comprise of teachers with the lowest salaries, so they rationally serve their membership better by lifting the salaries of teachers with lower experience and qualifications (van der Berg & Burger, 2010: 11). Historically, unions prefer less spread in wages for the sector they represent.

It has been recommended to revise the salary schedule, to provide a steeper progression of teachers' salaries as their experience increases. In 2011, the Centre for Education Policy Development (CEPD) recommended to increase the step of each notch to 1.5% (from 1%), in order to accelerate the progressions in salaries. This idea of progressing teacher salaries annually by 1.5% above inflation (as opposed to just 1%) was implemented recently, over 2018–2019 (Pub-

lic Service Co-ordinating Bargaining Council [PSCBC], 2018; NAPTOSA, 2019b). It was a move that brought educator pay progression up to the same level as all other professions in the public sector (ibid.: 4.1). The new schedule has increased the number of notches to 432 so that each is 0.5% above the previous one, but the progression in salary each year is 1.5% above inflation, or three notches. Table 2 shows the old and new schedules for teachers and school managers (the levels of the salaries for the corresponding notches were basically unchanged when the number of notches increased). What is important to observe is that teachers, under the Occupation Specific Dispensation, are able to earn a salary higher than some managerial workers. The OSD introduced this feature to allow professionals to choose which career path they take, in the so-called “dual career pathway”—prior to the OSD, non-School Management Service (non-SMS) teacher salaries were capped at the minimum managerial salary.

A 1.5% annual increase in salary above inflation is notably better than the previous 1%, but it will still take 54 years for an M+4 teacher to reach the maximum salary available, under

Table 2: OSD salary notches for educators, pre- and post-2019 (NAPTOSA, 2019a)

Job category		Old notches		New notches		Example annual salary in April 2019	
		Min	Max	Min	Max	Min	Max
<b>Teachers (post level 1) (non-SMS)</b>							
Teacher	M+3	56	138	107	267	R 211 098	R 466 527
Senior Teacher	M+3	103	138	199	267	R 330 822	R 466 527
Master Teacher	M+3	120	138	231	267	R 390 018	R 466 527
Teacher	M+4	85	168	163	325	R 279 198	R 620 046
Senior Teacher	M+4	103	168	199	325	R 330 822	R 620 046
Master Teacher	M+4	120	168	231	325	R 390 018	R 620 046
<b>School managers (SMS)</b>							
Departmental Head	2	108	201	209	391	R 347 703	R 861 069
Deputy Principal	3	126	209	243	407	R 414 003	R 932 397
Principal 1	4	108	186	209	361	R 347 703	R 741 675
Principal 2	4	126	201	243	391	R 414 003	R 861 069
Principal 3	4	144	215	279	419	R 495 213	R 989 748
Principal 4	4	159	218	307	425	R 569 625	R 1 019 727
Principal 5	4	180	221	349	431	R 698 688	R 1 050 657

normal salary progression. This is still an inordinate amount of time for a working life, so it would still be desirable to initiate a system of bonuses based on good performance, as we have mentioned above.

If a national standardized test is re-implemented, and trial interventions show a significant positive effect of performance-based pay, the potential is there for performance-based pay to be implemented. It could be integrated with the existing salary schedule by translating performance bonuses into salary notch progressions, which will make salary progression steeper for skilled or well-performing teachers. We have argued that teacher effort is low, and that performance-based pay would improve the incentives faced by teachers, especially at the low end of the skill spectrum. The performance bonuses could be linked to learner test scores on national, external annual assessments, and be awarded on an annual basis. Or, the bonus could be awarded to the top performers in teacher content-knowledge and pedagogical skills tests every few years (as mentioned above). A gap between content-knowledge tests of a few years would give teachers the chance to focus on their teaching in-between the tests.

Large performance bonus notch increases would raise salaries too high, as the average level of salaries already are high in relation to per capita GDP, and the fiscus is tight. Thus, large performance bonuses would need to be accompanied by a lowering of the base level of pay. This is unlikely to be well-received, so we recommend that the nominal base level of pay is kept constant for a while, which will lower the *real* base level of pay over time (by about four or five percent per year for each notch). Salaries should still automatically increase annually by three notches based on satisfactory performance (as is done currently), in order to reward general experience, although the starting salary (and overall nominal level of salaries) need not shift upwards in conjunction with the introduction of performance bonuses. In other words, noting that wages are usually adjusted upwards over time to compensate for inflation, this strategy would remove those inflationary increases for a while. Thus, performance bonuses can be introduced fairly gradually (starting off at a few notch increases relative to the base level of pay, so that overall expenditure is restrained), which will also help to introduce it conservatively. Ex post analysis should be done to determine how average real teacher wages changed, including performance bonuses, to inform the formulae for bonuses.

## 5 Trust and accountability

It is instructive to understand an underlying issue with improving teacher accountability: that of trust. What is lacking is the amount of trust between assessors and teachers in South Africa, which prevents formal accountability systems from operating (Ehren, Paterson and Baxter,

2019). Monitoring and evaluation has a knife-edge effect (Näslund & Hallström, 2017, as cited in Ehren, Paterson & Baxter, 2019: 7): if trust between teachers and their evaluators is high, teachers perceive evaluation as being in their interests and promoting their development, however, where trust is low, then monitoring and evaluation will exacerbate that trust, as teachers perceive the intervention as an attempt to garner further control over their activities without serving their interests. The second situation is what exists in South Africa, mainly due to the hostile form of monitoring during Apartheid (Ehren, Paterson & Baxter, 2019: 9).

Ehren, Paterson Baxter (2019: 20) point out that the existing teacher evaluation framework fails because its main outcome is merely to generate paperwork. There is little feedback from the evaluation metrics towards an effort to improve teachers' behaviour. Indeed, Ehren, Paterson and Baxter state

Multiple indicators which require excessive reporting with no follow-up support, and labour laws which prevent any real consequences for teachers and principals who are employed on permanent contracts, limits any meaningful accountability through the IQMS, according to Van der Berg et al. (2011) and Dssing et al. (2011).

(2019: 17)

The perception is that there is a trade-off between the paperwork involved with performance monitoring (in its current form) and the time given to teaching children (Mthiyane, et al., 2018, as cited in Ehren, Paterson & Baxter, 2019: 20). This needs to change towards a more developmental (supportive) process if performance evaluation is to improve.

Performance incentives by themselves may not be a magic solution that boost outcomes by realising untapped motivation. If a teacher does not have the means to improve their performance, they will not be able to respond to an incentive by putting in more effort (Spaull, 2015). The problem may be that the teacher is incapable of improving outcomes, rather than unwilling. In this scenario, the constraint is *capacity*, and professional teacher development programmes are needed to complement accountability measures. As Spaull (2015: 113) describes mnemonically, there cannot be "accountability without capacity or capacity without accountability". By this he means that accountability cannot be successful without enabling teachers to improve (by providing an avenue for their professional development). And vice versa: even with some degree of capacity in the teaching force, a lack of accountability relationships can result in unutilised capacity due to low effort, low performance, absenteeism or poor administration. Both problems seem to be evident in South Africa.

Another way that accountability is low is with the degree of proactiveness of the South African Council for Educators (SACE). SACE's role (as mandated by the South African Council

for Educators Act (Act No. 31, 2000)) is to “develop and train teachers”, and to “develop, promote and uphold ethical practice by educators” (van Onselen, 2012). In maintaining the standard for ethical practice, SACE should sanction teachers for contraventions of the code of ethics. However, van Onselen (2012) shows that a marginal number of teachers have been sanctioned in practice, and laments that the interests of SACE have been conflicted due to half their council comprising of teacher union members.

Both sides of the coin (accountability building and capacity building) require rigorous evidence from programme evaluations, to know what types of interventions should be implemented on a large scale. We require knowledge on the theory of change of how interventions lead to performance improvements, and RCTs can give empirical evidence towards that theory. Spaul (2015: 126) states that we still do not know of a single programme, or set of programmes, that have been proven to raise mathematics teacher content knowledge at scale (one of the areas presenting a major constraint). Thus, it would do well to focus attention on this area in future. Educational interventions (of which there are already many) should be preceded by an evaluation mindset, which will improve the way we understand which interventions are most effective.

## 6 Conclusion

This paper introduced the education sector by giving an overview of various findings of ways educational outcomes can be improved. Resource inputs are not always a clear solution, and outcomes depend on context. Home background, community and individual socio-economic characteristics are significant predictors, and the political framework plays an important role. The body of the thesis investigated teacher remuneration in the public sector in South Africa, and the various political constraints to achieving progress.

Performance monitoring and the issue of how to hold teachers accountable is arguably the main constraint to improving the quality of teachers in South Africa. We provided evidence that performance-linked remuneration can incentivise teachers to increase effort, which can lead to improved learning outcomes, and argued that such a measure should be experimented upon in South Africa. However, there are some pitfalls with performance pay, such as the challenge of teacher effort being distorted towards the test outcome (rather than broader educational outcomes), cheating on test scores by teachers, or teachers simply not having the skills to know how to improve their pupils’ outcomes in the first place.

To address the problem of teacher accountability, an innovative and experimental ap-

proach is needed. Greater accountability is needed in the education sector—to ensure that teachers are turning up to class, teaching during class-time, and putting in effort. Headway has been made towards this goal in the past, but political processes have prevented much success in this area. Further efforts towards accountability measures are welcome, although these need to steer clear of conflating teacher development with incentives for remuneration (as has been done). It also needs to steer clear of monitoring that feels controlling and antagonistic towards teachers, as this has historically been the main fault with teacher accountability in South Africa. On the other hand, we have shown that mere accountability is not the only answer—accountability and capacity building are mutually beneficial. Indeed, from their review of 223 rigorous impact evaluations in low- and middle-income countries, Ganimian and Murnane conclude that “well-designed incentives increase teacher effort and student achievement from very low levels, but low-skilled teachers need specific guidance to reach minimally acceptable levels of instruction” (2016: 719). The way forward is to conduct impact evaluations of different interventions that improve accountability or facilitate improved capacity. With that approach, we can build a body of knowledge of the theory of change of how teacher performance responds to certain stimuli.

We found that the most skilled teachers are not incentivized to stay in the profession, due to a relatively flat progression of their salary as their experience increases. Although wages start off relatively high at the bottom end of the skills spectrum, the lack of salary progression presents a real problem with retaining the best quality candidates. The situation exists due to SADTU’s need to serve the interests of their (mainly low-skilled) members. Although the progression of salaries has recently improved from 1% to 1.5% above inflation annually, a teacher will still require 54 years to progress to the top salary without bonus notch progressions, which is too long of a time frame. Bonus salary progressions based on good performance need to be introduced in order to compensate those teachers at the upper end of the skills distribution, lest we lose such good-quality human capital in the education sector. With regards to resistance from teacher unions, the government should recognise that parents are atomized in comparison to a minority but cohesive union of teachers, and this asymmetric power balance does not serve the interests of learners (Spaull, 2015: 135–136). Understanding this, the favour afforded to SADTU’s position should be restrained.

Since 1994, the government has made education expenditure equitable and ensured near-universal enrollment. The challenge is now to improve the quality of our education. The quality of our teachers is a binding constraint, so improving the incentives faced by teachers is a ripe opportunity to make significant gains in educational outcomes.

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