



# Principal leadership changes and their consequences for school performance in South Africa



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## ABSTRACT

School leadership changes are gaining momentum in South Africa as larger proportions of incumbent principals near retirement age. While this presents opportunities to replace weaker school leaders with better ones, these changes may also destabilize school environments and impede on learning. This study explores this issue using payroll data on public school principals in South Africa linked to national data on schools and matriculation examination outcomes. School fixed effects and propensity score matching with difference-in-difference estimations confirm that principal changes are indeed detrimental to school performance with larger disruptive effects observed in poorer schools.

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## 1. Introduction

Internationally, the age profile of school leaders is rising across high and middle-income countries (Pont et al., 2008). With confirmatory evidence on the importance of quality school leadership for student outcomes (Branch et al., 2012; Coelli and Green, 2012; Chiang et al., 2016; Grissom et al., 2015), rising principal retirements present an opportunity for improving the leadership trajectories of schools if better quality replacements are hired. This is especially the case where school leaders have long average tenure and are seldom dismissed for poor performance. However, anticipated principal exits also pose significant challenges. In addition to the cost of recruiting principal replacements, there may be unintended negative consequences of leadership changes (or otherwise referred to as principal turnover) as these events disrupt the school environment and impact on learning.

Using a unique administrative dataset linking South African data on schools to payroll information on the population of public school principals, this study considers how school leadership changes impact on student performance in the short to medium term across secondary schools. The country is facing a substantial and rising number of school principal retirements (Wills, 2015). This occurs in a context of growing concern about corruption, nepotism and union interference in the appointment and promotion of school personnel (RSA DBE, 2016). Moreover, current

policies and their implementation in the area of school leadership development, selection, hiring and performance management remains weak while no policies exist to manage school leadership successions.

In estimating the relationship between school leadership changes and student performance, a key challenge is disentangling the impacts of a leadership change from various factors that may influence both a principal's decision to move out of a school and student learning. A school fixed effects strategy including various time-varying school and student compositional characteristics is initially used to control for unobserved school factors that may bias estimates. The results suggest that leadership changes are very detrimental to school performance in the short to medium term, particularly if the disruption is initiated by a principal exit from public education. The validity of the school fixed effects results is supported using an alternative approach which combines propensity score matching with difference-in-difference estimation (PSM-DiD)<sup>1</sup> following Heckman et al. (1997). I obtain a suitable counterfactual group of schools not experiencing a leadership change by constraining the potential control group of schools to

<sup>1</sup> Abbreviations/Acronyms used in this article: CIA—Conditional Independence Assumption; DBE—Department of Basic Education; EMIS—Education Management Information System; FET—Further Education and Training (grades 10–12 level); NSC—National Senior Certificate; OLS—Ordinary Least Squares; PSM-DiD—Propensity score matching with Difference-in-Difference; REQV—Relative Educational Qualification Value (a system of grading professional and academic qualifications); SGB—School Governing Body.

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those whose principal changes in a later period. Two mechanisms through which school leadership changes may impact on school performance are also considered, namely rising grade promotion rates and teacher turnover.

The significance of this study is twofold. Firstly, it brings empirical evidence to a growing literature on school leadership and principal turnover effects on learning. To my knowledge it is the first large quantitative study in a developing country on how school leadership changes may disrupt learning outcomes. A few studies located primarily in the United States explore whether the event of a principal leadership change may initially negatively influence learning outcomes (Beteille et al., 2012; Miller, 2013). These studies have been initiated in response to concerns about high levels of principal transfers within and across districts, in part related to accountability systems which incentivize principals to move from underperforming schools to better performing ones to protect their jobs (Clotfelter et al., 2007). Little, however, is known about leadership change impacts in contexts where principal turnover is primarily due to voluntary principal exits for largely retirement reasons, or in developing country contexts where it is more likely that institutional arrangements informing school leadership hiring and successions are weak. Secondly, it provides an example of how integrating administrative data facilitates opportunities for education research that goes beyond what is possible with school survey data. Analyzing relationships at the school, rather than student level, requires larger sample sizes than what is typically collected in school surveys.

The next section reviews previous empirical studies on principal turnover effects while Section 3 describes the data. Sections 4 and 5 follow with a discussion of the estimation strategies used to identify the relationship between principal turnover and school performance and report on relevant results. Section 6 considers how teacher turnover responds to principal leadership changes. There is suggestive evidence that teacher turnover rises when a principal change occurs, at least among primary school teachers. However, rising teacher turnover does not explain the decline in examination outcomes related to principal changes in secondary schools.

## 2. Background

### 2.1. Literature on principal turnover effects

In recent years quantitative studies have confirmed claims in a larger number of qualitative studies in education that principals are only second to teachers in terms of their importance for learning (Branch et al., 2012; Coelli and Green, 2012; Grissom et al., 2015; Leithwood et al., 2004). This implies that changes in leadership can be beneficial for learning when lower quality principals are replaced with better ones. Yet principal turnover may create instability in school environments, mitigating the intended gains expected from principal replacements (Miller, 2013; Beteille et al., 2012; Weinstein et al., 2009). Organizational stability has been identified as an important aspect of well-functioning education systems and schools (Hallinger and Heck, 1996; Mourshed et al., 2010). At the school level, studies on organizational instability in the form of teacher turnover have suggested that frequent changes in teachers can undermine efforts to implement a school's instructional program (Ronfeldt et al., 2013, p. 2).

In other organizational contexts, such as private sector firms, positive effects of managerial replacements are commonly observed. Managerial exits are often driven by shareholders replacing poor performing managers with those more suited for the job (Denis and Denis, 1995). By contrast, in public education systems the majority of principal exits are usually voluntary so

that it is less likely that more effective principals replace those who exit (Branch et al., 2012). This is especially the case in South Africa where less than 1 in a 1000 principals are dismissed per year and retirement usually informs principal exits (Wills, 2015).

Even if lower quality principals are replaced with better ones, school performance may initially decline before rebounding. In Miller's (2013) study in North Carolina, school performance declines in years surrounding a principal leadership departure<sup>2</sup> and only rebounds from the third year. It is argued that substantial changes and disruptions to 'business as usual' may have to take place before improvements can be realized. Citing Miskel and Cosgrove (1985), Hart (1991, p. 451) identifies that a leadership succession is a disruptive event that alters lines of communication, realigns relationships of power within the school, affects decision-making processes and generally disturbs the equilibrium of normal activities. It may also lower teacher morale as they resist the new leaders' ideas and systems. It may also take several years for new school leaders to have their full effect on student learning (Coelli and Green, 2012), particularly where their influence on learning is largely indirect. It is argued that their influence on learning is mediated through mechanisms such as establishing purposes and goals, through selecting and hiring better teachers, good administration and establishing a healthy organizational culture (Leithwood et al., 2004; Hallinger and Heck, 1996; Grissom and Loeb, 2011; Branch et al., 2012). These improvements take time, particularly attracting and hiring better teachers. In South Africa, specifically, public school principals are not directly responsible for the hiring and firing of teachers and a combination of strong labor laws and powerful teachers' unions make it difficult to dismiss any educator for poor performance. Adopting new policies and procedures for school improvement may also be slow processes requiring buy-in from School Governing Body (SGB) members, staff and school-based union members (Heystek, 2015).

A challenge of estimating principal change impacts is that a principal's decision to leave a school may be related to the unobserved conditions of the school or student ability which in turn may be related to lower school outcomes. A negative estimate of a leadership change on school performance in an ordinary least squares (OLS) regression may be entirely attributed to conditions that are not observed by the researcher. School and student fixed effects models go some way in rectifying this estimation challenge, but they don't control for the likelihood that principals' decisions to move out of a school may also be correlated with their own preferences or quality which also affect school outcomes.

For example, in South Africa motivation levels may be lower among principals that transition out of their schools compared with those that don't. Significantly higher numbers of sick leave days are taken (out of 36 days of paid sick leave available in a 3 year cycle) by principals who move out of schools compared with those that don't as reflected in Table 1. This may also suggest that some principals depart from their schools because of health issues.<sup>3</sup> A principal turnover effect will be overestimated where driven by negative selection effects.

Whether one wants to control for principal ability in the estimations, however, depends on the research question. To

<sup>2</sup> Miller (2013) adopts a method by Jacobson et al. (1993) to measure how schools perform relative to their usual performance before, during, and after a principal change. Application of the estimation procedure by Jacobson et al. (1993) is data intensive and not suited to shorter panel datasets as used in this study.

<sup>3</sup> Only two years of data on sick leave days taken is available to the author and therefore it cannot be included as a time-varying control in the school fixed effects regressions that follow.

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