



Contents lists available at ScienceDirect

Journal of School Psychology

journal homepage: www.elsevier.com/locate/jschpsyc

Effect of retention in elementary grades on dropping out of school early



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ARTICLE INFO

Editor: Andy Garbacz

Keywords:

School dropout
Grade retention
Early school leaving
Propensity score analyses
Prospective study
Ethnicity
Gender

ABSTRACT

This study investigated the effect of grade retention in elementary school on dropping out of school by age 16. Participants were 538 (54% males) ethnically diverse, academically at-risk students recruited from Texas schools into a longitudinal study when they were in first grade (mean age = 6.58). Propensity score weighting successfully equated the 171 retained students and the 367 continuously promoted students on 65 covariates assessed in grade 1. Fifty-one students dropped out of school by age 16 and 487 persisted. Retention (vs. promotion) led to an increased early dropout rate (odds ratio = 1.68), even after controlling for 65 covariates associated with school achievement, retention, or both. Implications of findings for dropout prevention and grade retention policies are discussed.

1. Introduction

The substantial percentage of students who leave school without a high school diploma is a major concern for educators, policy-makers, and society at large. In 2013, 7% of 16- to 24-year-olds in the United States were not enrolled in school and had not received a high school diploma or a general education development (GED) certificate (NCES, 2015). Failure to attain a high school degree or GED predicts life-long economic, occupational, social, and health disparities (Pleis, Ward, & Lucas, 2010). In Texas, the location of the current study, students enrolled in grade 9 in 2012 who fail to obtain a high school diploma are predicted to earn, on average, \$263,440 less over their lifetime compared to members of their cohort who obtain a high school diploma. The cumulative impact on the nation's economy is staggering (Alliance for Excellent Education, 2015).

The current study is part of an on-going longitudinal study of the effects of being retained in the elementary grades on subsequent academic success and psycho-social adjustment. Results of previously published studies with this same sample (summarized below) have found that retention in the elementary grades does not impede students' academic achievement or educational motivation in elementary school, middle school, or the first year of high school. Despite these findings, we expected that students who were retained in the elementary grades would be more likely than their promoted peers to leave school at age 16, even after adjusting for pre-retention differences between retained and promoted students. At age 16, previously retained students are, on average, one year further away from graduation than are their promoted peers. Similar to their promoted peers, they have options to pursue employment, assume family responsibilities, or hang out with friends. Thus, leaving school at age 16 may be a more attractive "exit" strategy for them than it is for their same-age promoted peers who are closer to graduation (Alexander, Entwisle, & Dauber, 2003; Cham, West, Hughes, & Im, 2015).

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<http://dx.doi.org/10.1016/j.jsp.2017.06.003>

Received 13 September 2016; Received in revised form 2 May 2017; Accepted 14 June 2017

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1.1. Grade retention and school completion

1.1.1. Methodological challenges in estimating a causal effect

Given the serious negative consequences of dropping out of school for the individual and for society, researchers have sought to identify factors that predict dropping out in hopes of developing interventions that could ameliorate risk processes. Retention in grade is the most consistent predictor of dropping out of school (Alexander, Entwisle, & Kabbani, 2001; Bowers & Sprott, 2012). However, the association between repeating a grade and subsequent failure to obtain a high school diploma or GED may be a result of a host of interrelated confounds. For example, low academic achievement and poverty at the beginning of first grade are strongly correlated with both retention in the elementary grades and dropping out of school during high school (Alexander et al., 2001; Willson & Hughes, 2009).

The ideal approach to estimating the average causal effect of grade retention on school completion would be to conduct a randomized experimental design. Given the impracticality of such an approach, prior longitudinal studies have attempted to estimate the effect of grade retention on school completion by statistically adjusting for a few potential confounds, such as family demographic variables and children's academic skills, measured prior to grade retention (Alexander et al., 2001; Reynolds & Ou, 2004). Although these studies are an improvement over studies that fail to control for known confounds, it is unlikely that a limited number of covariates adequately captures the important preexisting differences between the retained and promoted groups (Cook, Steiner, & Pohl, 2009; Steiner, Cook, Shadish, & Clark, 2010). Furthermore, these statistical adjustments make assumptions that are rarely tested and which, if not met, lead to biased estimates of the effect of grade retention (Shadish, Cook, & Campbell, 2002).

The current study applies propensity score analyses, a method of equating groups on a large number of potential confounders measured prior to the administration of some “treatment” such as grade retention, to isolate the effect of grade retention in the elementary grades on dropping out of school. In this approach, students are measured on a wide variety of baseline measures believed on the basis of prior substantive theory and empirical research to be related to selection into the “treatment” (retention in grade) and the outcome (school completion) (West et al., 2014). Based on these measures, a statistical model is used to estimate a single propensity score for each participant, defined as the predicted probability that the participant will be in the treatment condition. If the treatment groups can be equated on the propensity scores, then, according to statistical theory (Rosenbaum & Rubin, 1983), they will be equated on all covariates used in the construction of the propensity score. If the covariates include all potential confounds, an unbiased estimate of the treatment effect can be obtained (Rosenbaum & Rubin, 1983). If not, bias in the estimate of the treatment effect will be reduced, often substantially.

The authors know of only one study utilizing propensity score analyses to test an effect of grade retention on high school completion. Analyzing archival data from two studies of youth attending high school prior to the early 1990s, Andrew (2014) employed propensity score matching to estimate an effect of retention in the elementary grades. He found that retention had a negative effect on high school completion. However, study results must be interpreted cautiously due to the retrospective nature of the study, changes in school populations and school retention policy over a 25 year period, reliance on youth-report of both the independent and dependent variables, and the examination of only a very limited number of potential confounding variables.

1.2. Cohort and context considerations

The history of grade retention in the United States has been characterized by large fluctuations over time in the incidence of this educational intervention (Bali, Anagnostopoulos, & Roberts, 2005). These fluctuations have been associated with, and presumably reflect, shifts in educators' and policymakers' beliefs about the effectiveness of grade retention and the conditions under which it should be applied. The “No Child Left Behind” federal legislation passed in 2001 extended to a national level the movement begun in the mid-1990s to end social promotion (i.e., the practice of advancing children who had not mastered the competencies at one grade level to the next). This act required that assessments, aligned with state standards, measure the achievement of all children at each grade level (U.S. Department of Education, 2002). The implementation of these educational policies corresponded with a substantial increase in the percentage of students retained in grade from the 1995 to 2004. For example, from 1995 to 2004, the retention rate in Texas for grade 1 increased from 5.8% to 6.4%, and the rate in grade 3 increased from 1.3% to 2.6% (Texas Education Agency, 2005).

Few published, prospective studies have investigated the effect of grade repetition on school completion. The majority of these studies were conducted with cohorts of students who entered urban, minority-serving public schools prior to 1990 (Alexander et al., 2003; Jacob & Lefgren, 2009; Ou & Reynolds, 2010). Given the significant changes in the educational policy context and the limited ethnic and income diversity in the samples used in these earlier studies, the results may not generalize to more diverse samples that characterize the current educational context. Additionally, these early studies dropped from the analysis those students who left the district in which the study was conducted (Alexander et al., 2003; Jacob & Lefgren, 2009). Mobility is common in US schools. Based on the US Census, between the years 2005 and 2010, 44.7% of youth ages 5–9 years of age and 34.6% of youth ages 10–17 years of age moved households at least once (Ihrke & Faber, 2012). Furthermore, mobility rates are higher for lower income students and for students who leave school without a high school diploma or GED (Engec, 2006; South, Haynie, & Bose, 2007). Hence, dropping students from the analysis who leave the district may lead to biased estimates of an effect of grade retention.

1.3. Gender and ethnic differences in grade retention and school completion

The risks of both grade retention and dropping out of school are higher for boys than girls (Alexander et al., 2001; Andrew, 2014), and for African American and Hispanic students than for White students (Stark & Noel, 2015). For example, in Texas in the

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