

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Explorations in Economic History

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

Returns to school resources in the Jim Crow South

Celeste K. Carruthers^a, Marianne H. Wanamaker^{b,c,d,*}^a University of Tennessee, 702 Stokely Management Center, Knoxville, TN 37996-0570, USA^b University of Tennessee, 524 Stokely Management Center, Knoxville, TN 37996-0550, USA^c IZA, Germany^d NBER, USA

ARTICLE INFO

JEL classification:

J31

I22

I24

Keywords:

School quality

Discrimination

Race

Returns to schooling

Segregation

ABSTRACT

We estimate returns to school resources in the Jim Crow era, as measured by young males' 1940 wage earnings, occupational status, and cognitive aptitude scores. Results point to a 16 cent annual return on each \$1 invested in public schools. To the question of whether some school inputs mattered more than others, we find comparable 25–32 cent returns per dollar invested in extended school years, teacher salaries, and smaller classes. School spending and inputs had much more bearing on labor market outcomes than aptitude scores. We document diminishing returns to school expenditures, which, in combination with segregated schools, resulted in higher returns to expenditures in black schools relative to white.

1. Introduction

Two hallmarks of U.S. public schools in the early part of the 20th century are racial segregation and the decentralization of taxation and budgeting. A consequence of these features was substantial variation in resources available to students in different locations and across segregated schools in the same district. Districts differed widely on overall school funding as well as the allocation of funds across school inputs, choosing varying investments in teacher pay, length of the school year, class size, and so on. In this note, we rely on variation in the level and allocation of school resources to examine labor market returns to public school expenditures in the Jim Crow South, calculating the relative return to particular school inputs and the comparative returns by race. In doing so, we present estimates of returns to local school resources for the broadest and earliest sample of young men examined in the literature to date.

We draw on county-level school statistics for four segregated Southern states – Alabama, Georgia, Louisiana, and South Carolina – covering school years 1921–1922 through 1939–1940. We estimate flexible Mincer equations that allow for non-linear returns to school inputs alongside interactive effects of inputs and educational attainment. Outcomes of interest include labor market wages reported in the 1940 U.S. Census, occupational status in the 1940 Census, and 1943 aptitude scores from the Army General Classification Test (AGCT). Results point to a 16 cent gain in 1940 earnings for each additional dollar of per-pupil annual expenditures, corresponding to a payback period of 6–7 working years under the assumption that the human capital premium persists. Longer school terms, smaller class sizes, and higher teacher salaries each yielded comparable income returns of 25–32 cents per dollar equivalent.

Cross-sectional identifying variation in school inputs leaves results vulnerable to biases from omitted variables that determine individual labor market success as well as public school inputs. Nevertheless, findings for labor market outcomes are very similar when we restrict the analysis to men who were educated somewhere other than their 1940 county of residence.

* Corresponding author. University of Tennessee, 524 Stokely Management Center, Knoxville, TN 37996-0550, USA.

E-mail addresses: carruthers@utk.edu (C.K. Carruthers), wanamaker@utk.edu (M.H. Wanamaker).

<http://dx.doi.org/10.1016/j.eeh.2017.02.004>

Received 16 October 2015; Received in revised form 25 February 2017; Accepted 27 February 2017

0014-4983/© 2017 Elsevier Inc. All rights reserved.

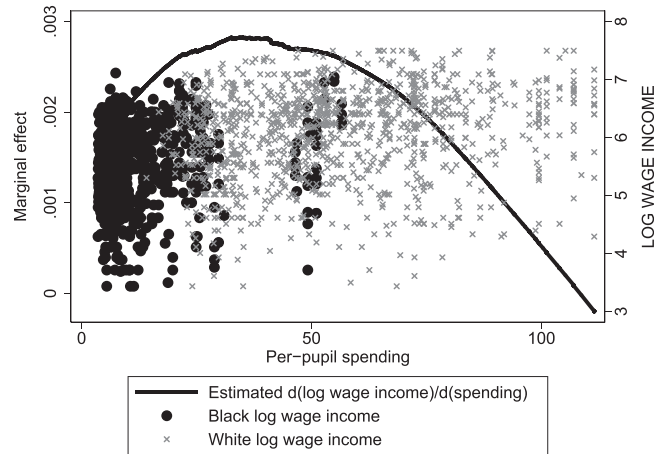


Fig. 1. Marginal effects of per-pupil expenditure, by race. *Notes:* The figure depicts marginal effects of per-pupil expenditure on 1940 log income. Estimates are derived from kernel-based regularized least squares and a random one percent subsample of young men in the 1940 Census.

As a preview of findings, Fig. 1 documents the relationship between a summary measure of school resources – per-pupil spending – and the log of wage income in the 1940 Census. Circles represent log earnings for black men and x markers represent the same for white men. The smoothed, solid line traces marginal effects of per pupil spending on wage income. In the figure, pointwise partial derivatives are estimated by kernel-based regularized least squares (KRLS).¹ Foremost, the KRLS analysis shows that school expenditures played a meaningful role in labor market wages. The average of pointwise partial derivatives was 0.0024 with a standard error of 0.0005 (corresponding to a 10% one-year rate of return). Second, we note a range of increasing returns to school investments, followed by a noticeable taper at higher (predominantly, but not exclusively, white) levels of expenditure. This motivates a non-linear characterization of school inputs, which we describe in Section 4. Although it is beyond the scope of this paper to fully explore the source of these nonlinearities, increasing marginal returns at low levels of education inputs are not inconsistent with informed local decision-making. Rather, they are consistent with extraordinarily low support for black public schools in the South at this time. Black constituents were effectively barred from voting, and thus unable to hold policymakers accountable for foregone labor market returns to education.

2. Literature

We are not the first to measure the labor market effects of school expenditures in this era. Previous work, however, has been limited to state-level aggregate education metrics, blind to wide variation in school quality within states.^{2,3} Morgan and Sirageldin (1968) detect a relationship between state-level school expenditures from 1930 to 1950 and hourly earnings observed in the 1960s, and Akin and Garfinkel (1977) find similarly positive results for income reported in the early waves of the Panel Study of Income Dynamics. The effect of school resources may operate primarily through their effect on attainment (Morgenstern, 1973) or, more specifically, their effect on *returns* to attainment (Johnson and Stafford, 1973; Carruthers and Wanamaker, 2017). At the same time, a number of studies, notably Ribich and Murphy (1975), fail to find a relationship between school resources and labor market earnings in this period.

This note adds to the existing literature in three ways. First, we estimate returns to school quality at the county, rather than state, level. Second, in addition to the empirical import of local school resources overall, the literature has yet to confidently identify *which* historic school resources mattered for labor market success. We assess the return to dollar equivalents of three specific education inputs: teacher salaries, term lengths, and teachers per pupil.⁴ Finally, we document how segregated schools, and the associated racial differences in resource levels, produced different returns to some school inputs by race.

¹ KRLS is a machine learning technique that relaxes functional form assumptions, draws inferences from more observably similar individuals, and permits much more flexible specifications while penalizing excessive model complexity. See Hainmueller and Hazlett (2014) for statistical properties and Ferwerda et al. (2015) for implementation details. KRLS demands extraordinary computing power, and accordingly, we do not rely on this method for our main results to follow. Fig. 1 depicts KRLS marginal effects for a random one-percent sample of young men in the 1940 Census. In addition to per-pupil spending, controls include categorical attainment, age, race, and county covariates listed in Section 3.

² Wachtel (1975) provides one exception. Using disaggregated high school expenditure data collected in the 1940s–1960s for a sample of males likely limited to white students, he finds a positive effect on labor market earnings as well as on academic achievement.

³ If there are nonlinear labor market returns to school quality for Southern workers, the direction of bias from state-level aggregations is uncertain. Reviews by Hanushek et al. (1996) and Betts (2010) suggest that estimated returns to school resources *rise* with the level of aggregation, which is more consistent with omitted variable bias than classical measurement error. Carruthers and Wanamaker (2017) find that state-level aggregated data are inferior to county-level data in explaining overall racial wage inequality in the 1940 Census.

⁴ To our knowledge, Raymond's (1968) study of West Virginia is the only statistical “horse race” pitting various school resources against each other to determine the historic importance of each. He finds that teacher salaries matter for standardized test scores and college freshman grade point averages, whereas class sizes, library book availability, and non-instructional spending were insignificantly related to these outcomes.

Download English Version:

<https://daneshyari.com/en/article/5068641>

Download Persian Version:

<https://daneshyari.com/article/5068641>

[Daneshyari.com](https://daneshyari.com)