

School quality and educational attainment: Japanese American internment as a natural experiment[☆]



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Abstract

In 1942, the United States incarcerated all Japanese Americans on the West Coast, including children, in internment camps. Using non-West Coast Japanese Americans and non-Japanese Asians as control groups, I estimate the effect of attending a War Relocation Authority school on educational attainment. Non-linear difference-in-differences estimates suggest that attending school within the internment camps decreased the probability of receiving a post-collegiate education by approximately 4 to 5 percentage points and decreased the probability of receiving a college degree by between 2 and 7 percentage points. I find some evidence that attending a WRA school may have decreased the returns to education as well. By using un-incarcerated birth cohorts and races, placebo tests find no evidence that the identifying assumptions are violated.

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1. Introduction

A central question in education economics is to what extent school quality affects final educational attainment and wages. If the returns to school quality are high, then investments into low performing schools may decrease adult economic disparities a generation later. If the returns to school quality are low, then

investments to increase school quality might be better spent elsewhere, for example, on programs intended to improve the health of children. Most research on this question uses cross-sectional or panel data and measures school quality by pupil/teacher ratios or teacher pay. The problem with this approach is that school quality is not exogenously determined. The parents most likely to raise successful children may sort into school districts with better measures of school quality. Although conditioning on family income, parental education, and other measures of socioeconomic status does decrease this problem, it may not eliminate it. Experiments randomly assigning children to class sizes suffer from selection into the experiment. Parents may withdraw students assigned to larger classes and may enroll them in private schools.

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This paper analyzes how school quality affects educational attainment and the returns to education by examining the internment of over 100,000 Japanese Americans during World War II. Following Pearl Harbor, the US incarcerated nearly all Japanese Americans, including children, on the West Coast in internment camps for an average of 3.5 years (Ng, 2002). These camps were small communities consisting of rudimentary housing facilities, churches, hospitals, and schools. Incarceration within internment camps unexpectedly and drastically changed the schooling conditions that school age internees faced. For example, the War Relocation Authority (WRA) paid teachers \$16 per month to teach overcrowded classes with few books or desks (Ng, 2002). The non-voluntary nature of internment and the standardization of schools within the ten internment camps limit the possibility that parents sort into higher quality schools.

I analyze internment as a natural experiment that shocked school quality exogenously. Following Aimee Chin (2005), I exploit the fact that 97% of Japanese Americans on the West Coast were incarcerated in one of the ten relocation centers, whereas only one percent of Japanese Americans outside of the West Coast were incarcerated in internment camps. To account for the effects of incarceration unrelated to school quality, I compare internees who were of school age in 1942 to internees who had not yet reached school age. I then use data from two controls groups that were not incarcerated to difference out secular cross-cohort trends. For the first control group, I use Japanese Americans born outside of the West Coast; for the second control group, I use non-Japanese Asians who were born on the West Coast. I then present non-linear triple difference estimates using data from both control groups. Using data pooled from the 1980, 1990, and 2000 Censuses, non-linear difference-in-differences and triple difference estimates suggest that internees who attended WRA schools were between 4.2 and 5.4 percentage points less likely to obtain any post-collegiate education and were between 1.9 and 7 percentage points less likely to obtain a college degree. Correcting for attenuation bias, I find that the true estimates are 19% larger. Placebo tests using data from Hispanics and from Japanese cohorts born after WWII suggest that the difference-in-differences assumption is satisfied. Lastly, using data from the 1980 Census, I find some evidence that treatment decreased the returns to schooling.

Although I cannot identify the precise inputs driving these results, back-of-the-envelope calculations put upper bounds on the effects of class size and teachers' education. I find no evidence that these results are driven by losses of

family wealth or competition with veterans in higher education admissions as a result of the G.I. Bill.

An early paper on school quality by Card and Krueger (1992) analyzes the effects of school quality using Census and state-level school quality data. They find that men from states with higher quality schools received a higher return to education. Julian Betts (1995) uses data from the NLSY and finds that high schools matter in the sense that earnings are not independent of the high school attended, but that standard measures of school quality such as pupil/teacher ratios do not account for these differences, suggesting that unobservable school characteristics matter more. Using panel data from the British National Development Survey, Dearden et al. (2002) find that pupil/teacher ratio does not affect educational attainment, but does have some effect on wages, especially for low ability women at the age of 33. Most of these studies examine small variations in school quality. For example, in Dearden et al. (2002), the mean pupil/teacher ratio for males is 17.1 with a standard deviation of 1.9. During the 1940s, the pupil/teacher ratio in California was 27.2 (Card and Krueger, 1992). Internees likely attended schools with similar pupil/teacher ratios before entering the camps. However, within the camps, internees recall pupil/teacher ratios that were at times over 60 (Hirabayashi, 1986). This paper also relates to work on Project STAR. Chetty et al (2011) find that children randomly assigned to smaller K-3 classes were more likely to be enrolled in college. A concern with the STAR experiment is that families may have selected into and out of the experiment, particularly if high socioeconomic status families were assigned to large classes. The near universal and non-voluntary nature of Japanese American incarceration limits that possibility in this paper.

In addition to contributing to the literature on the long-run effects of school quality, this paper adds to our understanding of an important and often neglected chapter of American history. Over 30,000 children were educated within the WRA school system. Social scientists have debated the philosophy, implementation, and outcomes of the WRA educational system (James, 1987; Hirabayashi, 1986). However, the previous literature on the WRA educational system lacks data-driven studies. This paper attempts to fill this void.

2. Historical background

2.1. From immigration to incarceration

The first Japanese immigrants arrived in Hawaii in 1868, and the first Japanese immigrants arrived in

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