The Long-run Effects of the 1930s HOLC "Redlining" Maps on Children

Daniel Aaronson
Federal Reserve Bank of Chicago
daaronson@frbchi.org

Anna Aizer
Brown University
aizer@brown.edu

Shari Eli
University of Toronto
shari.eli@utoronto.ca

Daniel Hartley
Federal Reserve Bank of Chicago
daniel.a.hartley@chi.frb.org

Adriana Lleras-Muney
University of California, Los Angeles
alleras@econ.ucla.edu

Bhashkar Mazumder
Federal Reserve Bank of Chicago
bhash.mazumder@gmail.com

Martha Stinson
U.S. Census Bureau
Martha.Stinson@census.gov

August 2021

Abstract: We estimate the long-run effect of the Home Owners Loan Corporation (HOLC) maps on children born just prior to the drawing of the maps in the late 1930s. Aaronson et. al. (2021) show the maps led to a decline in homeownership rates, home values, and rents, and an increase in racial segregation over the next seven decades, likely through disinvestment caused by higher borrowing costs in lower-graded neighborhoods. Their estimates, however, exclusively focuses on effects at the *aggregate neighborhood level* and not on *individuals*.

This project takes advantage of data linking the 1940 Decennial Census with contemporary datasets, including the SSA Numident file, the 2000 Decennial Census, the Survey of Income and Program Participation (SIPP), the Current Population Survey (CPS) and IRS tax records from 1974 and 1979 to estimate effects on individuals born from around 1924 to 1940. See Alexander et. al (2015) for more details on this data. With this approach we are able to observe later life outcomes including human capital, earnings, and some measures of wealth and health .

Following Aaronson et al (2021), we employ two identification strategies to estimate the causal impact of the HOLC maps on these later life outcomes of individuals. We compare children growing up within city blocks but separated by an HOLC boundary that resulted in differences in access to household credit. We then compare these differences to a placebo set of children that were separated by either a) boundaries that received the same HOLC grade and therefore should have had no difference in credit access or b) hypothetical boundaries that mimic pre-existing demographic characteristics along our treatment boundaries. Aaronson et al (2021) provides the precise details on the methodology and validity checks on the two identifications strategies.

We find robust evidence that the maps had a statistically and economically significant causal effect on the educational attainment of children, including the propensity to graduate high school, attend college, and graduate from college. We also find evidence that the maps had causal effects of lowered income, and increased disability rates later in life for children in the lowest graded neighborhoods. These results are shown graphically in Figures 1 through 6. Figures 1 and 2 show results using just the first identification strategy. Figures 3 through 6 show results using both identification strategies with some outcomes further disaggregated by race. Table 1 shows the summary statistics for the data.

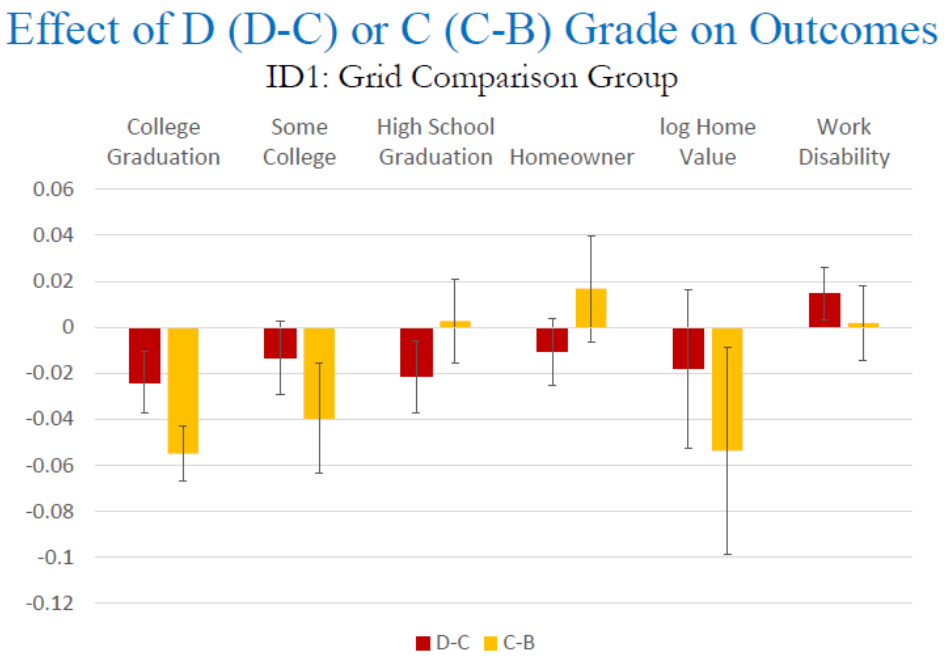
Finally, we have begun to investigate the effects on income during the working career using administrative tax data from 1974 and 1979 and will have those results available for the conference but we have not yet had those results go through disclosure avoidance review.

References

Aaronson, Daniel, Daniel Hartley and Bhashkar Mazumder, 2021, "The Effects of the 1930s HOLC "Redlining" Maps," *American Economic Journal: Economic Policy*, forthcoming.

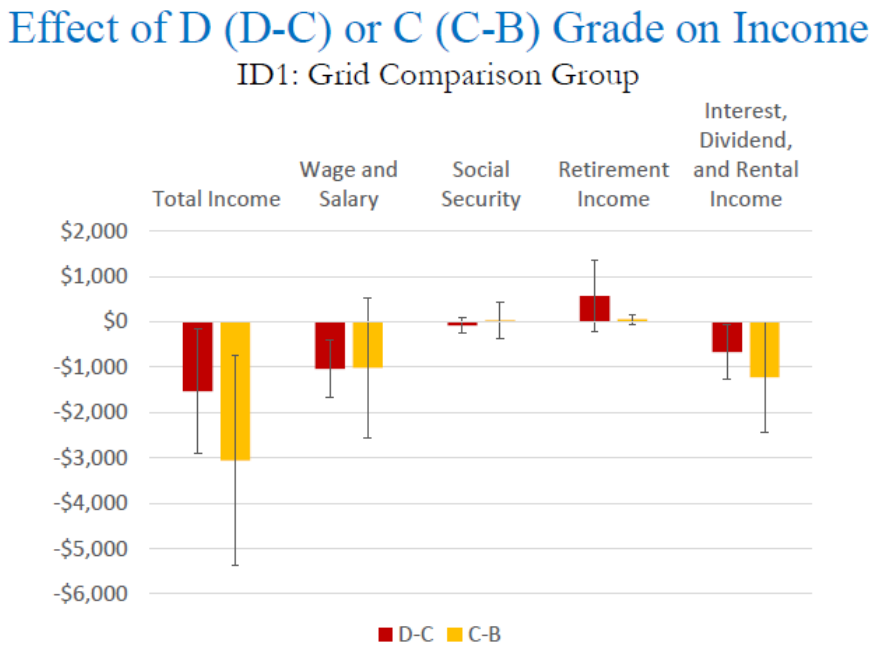
Alexander, J. Trent, Todd Gardner, Catherine G. Massey and Amy O'Hara, 2015, "Creating a Longitudinal Data Infrastructure at the Census Bureau," Working paper, U.S. Census Bureau.

Figure 1



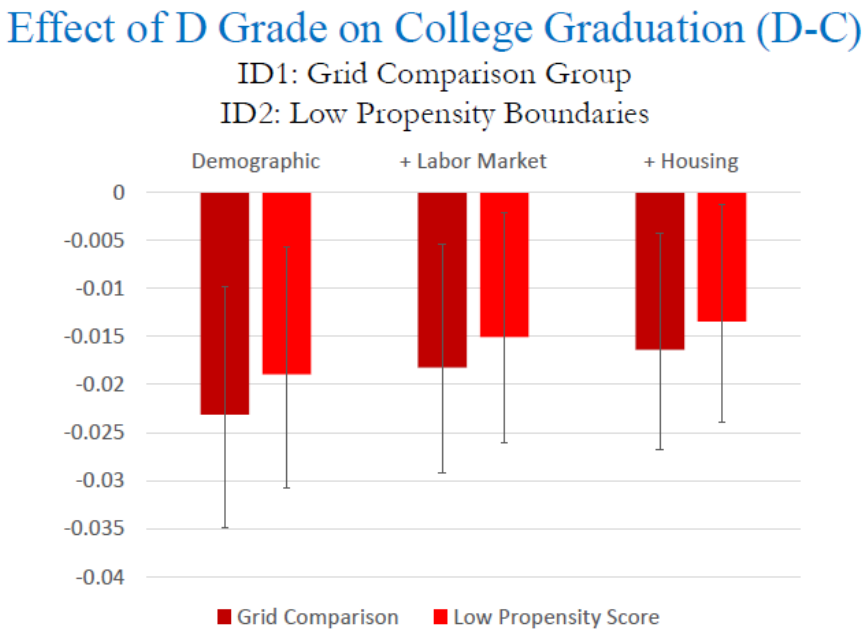
Rounded N = 104,000/43,000 (Except Home Value)

Figure 2:



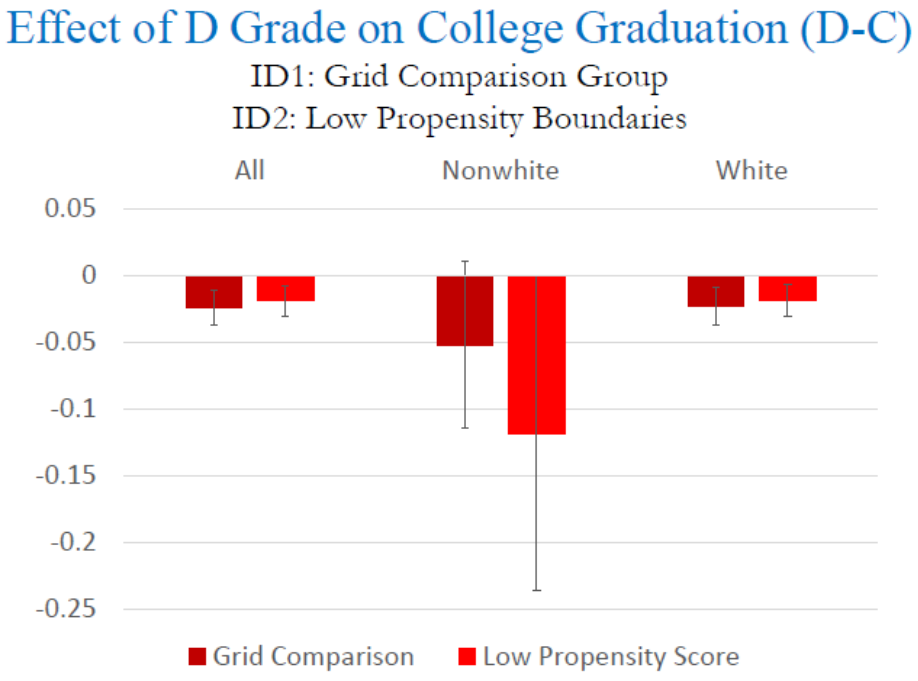
Total Income Mean = $30,310/32,510
Rounded N = 104,000/43,000

Figure 3:



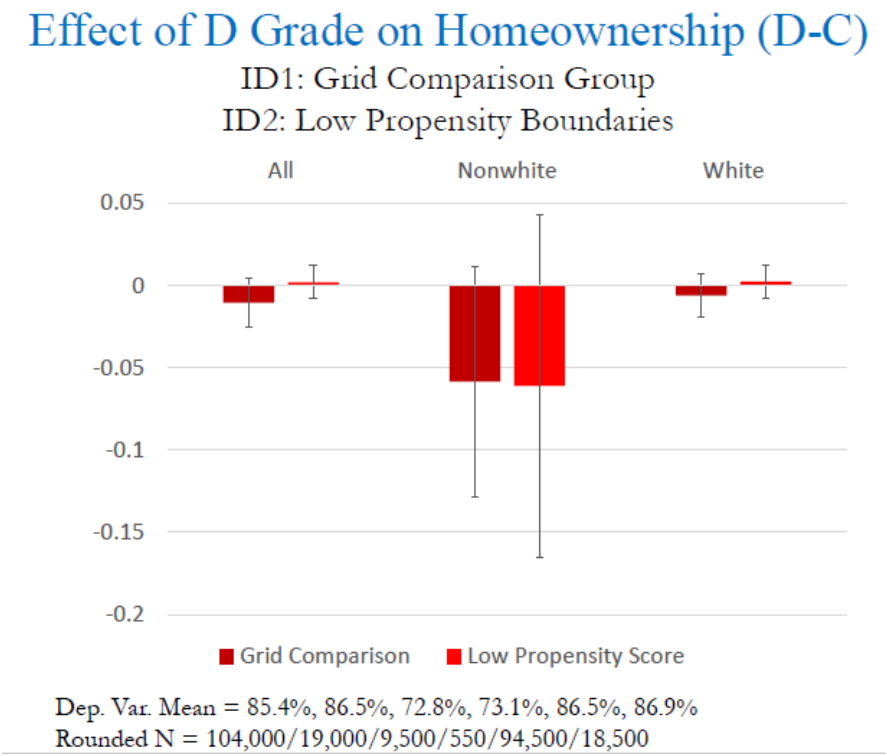
Dep. Var. Mean = 19.7% Rounded N = 104,000/19,000

Figure 4



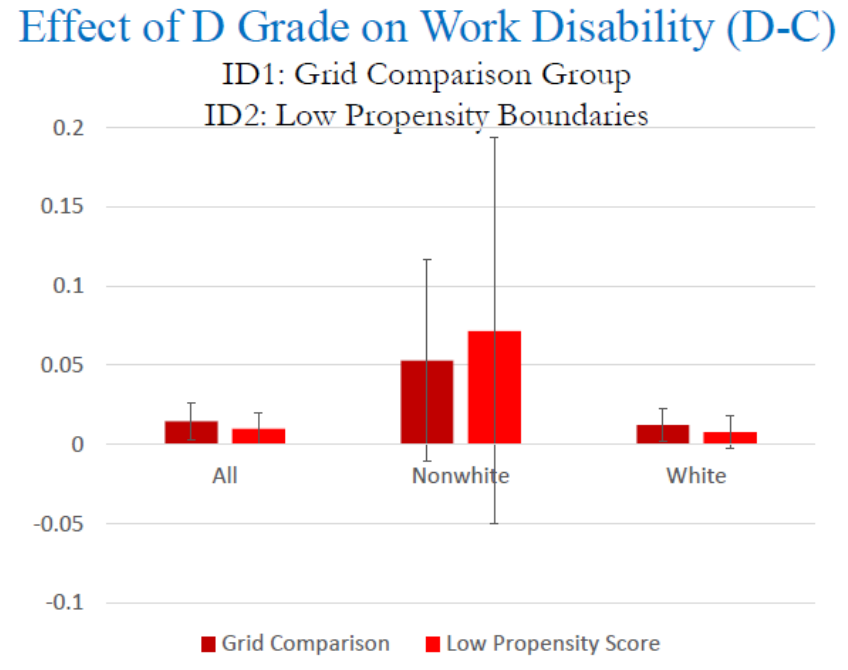
Dep. Var. Mean = 19.7%, 19.7%, 17.4%, 16.0%, 19.9%, 19.9%
Rounded N = 104,000/19,000/9,500/550/94,500/18,500

Figure 5:



Dep. Var. Mean = 85.4%, 86.5%, 72.8%, 73.1%, 86.5%, 86.9%
Rounded N = 104,000/19,000/9,500/550/94,500/18,500

Figure 6:



Dep. Var. Mean = 12.4%, 12.1%, 17.3%, 18.0%, 12.0%, 11.9%
Rounded N = 104,000/19,000/9,500/550/94,500/18,500

Table 1

Outcome Means and Sample Sizes: 2000 Census

		All				Nonwhite		White	
	IPUMS	Grid Comparison		Low Propensity Boundaries		Grid	LPB	Grid	LPB
	Born 1924-1940	D-C	C-B	D-C	C-B	D-C	D-C	D-C	D-C
College Graduation	17.9%	19.7%	23.9%	19.7%	33.4%	17.4%	16.0%	19.9%	19.9%
Some College	32.6%	42.7%	48.7%	42.8%	59.1%	40.5%	42.5%	42.8%	42.8%
High School Graduation	75.7%	80.4%	84.4%	81.6%	90.0%	70.8%	73.8%	81.3%	81.8%
Work Disability	15.7%	12.4%	11.2%	12.1%	10.6%	17.3%	18.0%	12.0%	11.9%
Homeowner	83.0%	85.4%	86.6%	86.5%	88.5%	72.8%	73.1%	86.5%	86.9%
log Home Value	11.57	11.72	11.79	11.75	11.91	11.36	11.41	11.75	11.76
Home Value	$105,940	$123,007	$131,926	$126,754	$148,747	$85,819	$90,219	$126,754	$128,027
Total Income	$27,130	$30,310	$32,510	$30,640	$39,610	$25,540	$24,620	$30,740	$30,820
Wage and Salary	$9,243	$10,210	$10,900	$10,190	$13,750	$8,850	$9,360	$10,330	$10,220
Social Security	$5,699	$6,308	$6,460	$6,437	$6,610	$5,163	$5,143	$6,412	$6,475
Retirement Income	$5,481	$6,352	$6,992	$6,153	$7,260	$7,329	$5,674	$6,263	$6,168
Interest, Dividend, and Rental Income	$4,655	$4,855	$5,713	$5,211	$8,598	$2,023	$2,271	$5,113	$5,298
Rounded N	32,380,384	104,000	43,000	19,000	8,000	9,500	550	94,500	18,500