Redlining - All Grades

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February 2023

- January 31, 2023: added median values
- February 1, 2023: combining grades A and B
- February 2, 2023: added more variables
- February 6, 2023: added 1940 data
- February 10, 2023: expanded out racial "other" category, cut tenure by race different ways

Redlining Data

Pulling some demographic / descriptive variables and categorizing based off HOLC grades for Redlining Presentation for Black History Month 2023.

Pulling the categorical data

The spreadsheet created by Emily to classify census tracts

GEOID	Census Tract	HOLC Grade	A (%)	B (%)	C (%)	D (%)	pop1950
25025070103	701.03	D	NA	NA	NA	26.9107341	21
25025060603	606.03	NonRes	NA	NA	NA	NA	75
25025060602	606.02	NonRes	NA	NA	NA	NA	121
25025981100	9811	NonRes	NA	0.1884359	1.309991	NA	122
25025070104	701.04	NonRes	NA	NA	NA	0.1182820	168
25025061204	612.04	NonRes	NA	NA	NA	0.3834014	232

Census Data

Now to look at specific variables.

Population

NOTE: I replaced some of the missing 1950 population values with 0 to use the summary values, but that kind of throws off the % change (as I'm assuming some of the 2020 tracts in Boston were not "Boston" in 1950, or they weren't developed at all)

HOLC Grade	pop1940	pop1950	pop2021	% Change 1940 - 2021	% Change 1950 - 2021
A/B	42431	47848	44649	0.0522731	-0.0668575

HOLC Grade	pop1940	pop1950	pop2021	% Change 1940 - 2021	% Change 1950 - 2021
C	369959	385069	364149	-0.0157044	-0.0543279
D	350573	360731	245221	-0.3005137	-0.3202109
NonRes	NA	7796	18795	NA	1.4108517
Total	762963	801444	672814	-0.1181565	-0.1604978

Tenure

Housing Units:

HOLC Grade	totunits_1940	totunits_1950	total_housing	% Change Units 1940 - 2021	% Change Units 1950 - 2021
A/B	13017	13625	19375	0.4884382	0.4220183
C	101714	110020	140100	0.3773915	0.2734048
D	95255	96958	105036	0.1026823	0.0833144
NonRes	NA	NA	7439	NA	NA
Total	209986	220603	271950	0.2950863	0.2327575

Ownership Rates:

HOLC Grade	Ownership Rate 1940	Ownership Rate 1950	Ownership Rate 2021	% Change in ownership rate 1940 - 2021	% Change in ownership rate 1950 - 2021
A/B	0.3037566	0.3889174	0.4842323	0.1804756	0.0953148
C	0.2318560	0.2974823	0.3694575	0.1376015	0.0719753
D	0.1414309	0.1641123	0.2950322	0.1536013	0.1309199
NonRes	NA	NA	0.3289421	NA	NA
Total	0.1952940	0.2445116	0.3477808	0.1524869	0.1032692

Tenure by Race:

- 1940 Data

Here, ownership rate is owner-occupied units of the specified race/ethnicity over total housing units

HOLC Grade	Ownership Rate - All	White Ownership Rate	Black Ownership Rate	Other Non-White Ownership Rate
A/B	0.3037566	0.3028348	0.0006146	0.0003073
C	0.2318560	0.2309908	0.0008160	0.0000492
D	0.1414309	0.1353525	0.0058265	0.0002520
NonRes	NA	NA	NA	NA
Total	0.1952940	0.1920604	0.0030764	0.0001572

- 2021 Data:

HOLC Grade	White Ownership Rate	Black Ownership Rate	APIA Ownership Rate	Hispanic/Latinx Ownership Rate	Other OWnership Rate
A/B	0.3852387	0.0366968	0.0358194	0.0217290	0.0047484
C	0.1958173	0.0971877	0.0289222	0.0371378	0.0103926
D	0.2077288	0.0340740	0.0271336	0.0196599	0.0064359
NonRes	0.2523189	0.0010754	0.0560559	0.0129050	0.0065869
Total	0.2154587	0.0658724	0.0294650	0.0286266	0.0083582

- 1940 Data

Here, ownership rate is owner-occupied units of the specified race/ethnicity over total owner-occupied units units

HOLC Grade	White Ownership Rate	Black Ownership Rate	Other Non-White Ownership Rate
A/B	0.9969651	0.0020233	0.0010116
C	0.9962685	0.0035195	0.0002120
D	0.9570220	0.0411966	0.0017815
NonRes	NA	NA	NA
Total	0.9834427	0.0157526	0.0008047

- 2021 Data:

HOLC Grade	White Ownership Rate	Black Ownership Rate	APIA Ownership Rate	Hispanic/Latinx Ownership Rate	Other OWnership Rate
A/B	0.7955660	0.0757834	0.0739714	0.0448732	0.0098060
C	0.5300129	0.2630552	0.0782829	0.1005197	0.0281293
D	0.7040885	0.1154926	0.0919681	0.0666365	0.0218142
NonRes	0.7670617	0.0032693	0.1704128	0.0392317	0.0200245
Total	0.6195244	0.1894078	0.0847228	0.0823121	0.0240328

- 1940 Data

Here, ownership rate is owner-occupied units of the specified race/ethnicity over the population of that particular race/ethnicity

HOLC Grade	White Ownership Rate	Black Ownership Rate	Other Ownership Rate
A/B	0.3378182	0.2758621	0.2500000
C	0.2435094	0.2150259	0.0434783
D	0.1606564	0.0824176	0.0558140
NonRes	NA	NA	NA
Total	0.2140590	0.0903623	0.0588235

- 2021 Data:

HOLC Grade	White Ownership Rate	Black Ownership Rate	APIA Ownership Rate	Hispanic/Latinx Ownership Rate	Other Ownership Rate
A/B	0.5367853	0.4705493	0.3974800	0.2263441	0.2606232
C	0.4389510	0.3498099	0.3341580	0.2247419	0.4282353
D	0.4027875	0.2122146	0.2563641	0.0998743	0.3061594
NonRes	0.3746507	0.0211640	0.2978571	0.1804511	0.4117647
Total	0.4321601	0.3105864	0.3036492	0.1684372	0.3738487

Race and Ethnicity

Race and Ethnicity in 5 categories, counts:

HOLC Grade	White	Black	APIA	AIAN	Other	Hispanic/Latino
A/B	30002	3882	4115	15	1268	5367
C	140979	105091	30732	434	19603	67310
D	113480	35609	26726	869	9957	58580
NonRes	11426	1368	3236	45	645	2075
Total	295887	145950	64809	1363	31473	133332

Race and Ethnicity in 5 categories, as a share of each HOLC grade:

HOLC Grade	White	Black	APIA	AIAN	Other	Hispanic/Latino
A/B	0.6719523	0.0869448	0.0921633	0.0003360	0.0283993	0.1202043
C	0.3871465	0.2885934	0.0843940	0.0011918	0.0538324	0.1848419
D	0.4627662	0.1452119	0.1089874	0.0035437	0.0406042	0.2388866
NonRes	0.6079276	0.0727853	0.1721735	0.0023943	0.0343176	0.1104017
Total	0.4397753	0.2169247	0.0963253	0.0020258	0.0467782	0.1981707

Race and Ethnicity Comparisons 1940 - 2021:

NOTE: "Non-White" includes Black

HOLC Grade	white_1940	nonwhite_1940	black_1940	White	Non White	Black	% Change White	% Change Non White	% Change Black
A/B	42293	138	112	30002	14647	3882	-0.2906155	105.137681	33.6607143
C	368362	1602	1372	140979	223170	105091	-0.6172814	138.307116	75.5969388
D	327367	23201	22024	113480	131741	35609	-0.6533554	4.678247	0.6168271
NonRes	NA	NA	NA	11426	7369	1368	NA	NA	NA
Total	738022	24941	23508	295887	376927	145950	-0.5990811	14.112746	5.2085248

Poverty

HOLC Grade	total	in_pov	Poverty Rate
A/B	40224	4694	0.1166965
C	345858	58277	0.1684998
D	230212	44803	0.1946163
NonRes	13827	3221	0.2329500
Total	630121	110995	0.1761487

Aggregate Hosuehold Income

HOLC Grade	Aggregate Housheold Income
A/B	3242063900
C	14517522400
D	13502691100
NonRes	NA

Education

HOLC Grade	Less than HS	HS or equiv	Some College	BA+
A/B	1601	3813	3675	23662
C	26675	51501	51739	118324
D	26137	30143	25006	93604
NonRes	876	955	1389	7859
Total	55289	86412	81809	243449

Share by HOLC grade:

HOLC Grade	Less than HS	HS or equiv	Some College	BA+
A/B	0.0488840	0.1164239	0.1122103	0.7224818
C	0.1074569	0.2074654	0.2084241	0.4766535
D	0.1494482	0.1723541	0.1429813	0.5352164
NonRes	0.0790685	0.0861991	0.1253723	0.7093601
Total	0.1184023	0.1850526	0.1751953	0.5213498

Household Type

HOLC Grade	Married	Male HH	Female HH	Non-family
A/B	7391	337	1157	10490
C	40480	6744	24706	68170
D	27213	3951	13164	60708
NonRes	2308	153	543	4435
Total	77392	11185	39570	143803

Share by HOLC Grade:

HOLC Grade	Married	Male HH	Female HH	Non-family
A/B	0.3814710	0.0173935	0.0597161	0.5414194
C	0.2889365	0.0481370	0.1763455	0.4865810
D	0.2590826	0.0376157	0.1253285	0.5779733
NonRes	0.3102568	0.0205673	0.0729937	0.5961823
Total	0.2845817	0.0411289	0.1455047	0.5287847

Median Values

- Also being pulled will be household income, value, and gross rent
- The dollar values are in 2021$

.	A/B	C	D	NonRes	Boston
housing value	733309	532588	709458	265181	659700
household income	113797	76738	80874	118673	79283
gross rent	1535	1385	1357	2205	1808
travel time to work (minutes)	30	32	28	19	27

Other Data Sources

Crime Rates

- Looking at the crime rate per HOLC grading zones
- The crime data comes from https://data.boston.gov/dataset/crime-incident-reports-august-2015-to-date-source-new-system
- Used the data from 2021
- dropped "NA" assigned HOLC grades, something to investigate later?

HOLC Grade	Reported Crimes	Population	Crime Rate
A/B	2478	44649	0.0554996
C	30835	364149	0.0846769
D	31863	245221	0.1299359
NonRes	3600	18795	0.1915403
Total	71721	672814	0.1065986