

## 1 PRECIS

**BACKGROUND.** In 1983, Zemsky and Oedel authored *The Structure of College Choice*. Based on an analysis of 1980 SAT score-sending behavior and published by *The College Board*, Zemsky & Oedel (1983) developed the Market Segment Model and created “Geomarkets.” The Market Segment Model predicts how student demand for a particular college varies across local geographic markets based on the characteristics of students in those local markets.

Geomarkets are geographic areas that divide states and large metropolitan areas into “community-based enrollment markets” (Zemsky & Oedel, 1983, p. 14) for recruiting purposes. Figure 1 shows New York City area Geomarkets. The Market Segment Model and Geomarkets are the basis for the College Board Enrollment Planning Service (EPS), founded in 1984 and still active today. EPS software recommends which Geomarkets a college should recruit from and which high schools within targeted Geomarkets a college should visit.<sup>1</sup>

Geomarkets were incorporated into the *College Board* “student list” product named Student Search Service. Student lists have been the primary source of lead generation in U.S. higher education for over 50 years (Author, XXXXa; Belkin, 2019).<sup>2</sup> Lists contain contact information for prospective students. The Student Search Service database consists of College Board test-takers. Colleges pay a fee for each prospect (e.g., \$0.50). Colleges control which prospect profiles they purchase by selecting search filters, such as high school graduation year, SAT score, AP score, state, etc. Geomarket filters enable colleges to target prospects living in particular Geomarkets.<sup>3</sup>

**THEORY & RQs.** We analyze the Market Segment Model and Geomarkets using scholarship on quantification (e.g., Espeland & Sauder, 2016), particularly the discussions of correlation and homophily from Chun (2021). Predictive analytics are based on correlation. The 1980 SAT score-sending data analyzed by Zemsky & Oedel (1983) can be conceived as “training data,” which was used to define four “market segments” of students: “local” students, who send most SAT scores to colleges in their Geomarket; “in-state” students, who primarily send scores to colleges in their state; “regional” students, who send most scores to colleges outside their state but in their region (e.g., New England); and “national” students. Zemsky & Oedel (1983) analyzed the student characteristics correlated with student market segment and concluded that student demand was primarily a function of class. The overarching thesis of the Market Segment Model is homophily, the idea that similar colleges compete with one another for similar students. Zemsky & Oedel (1983, pp. 42–45) states that selective colleges primarily draw from students in the “regional” and “national” segments and, therefore, their recruiting visits and student list purchases should focus on Geomarkets with large numbers of affluent, highly educated households.

When we use data on past correlations to make recommendations about the future, we amplify the effects of historic structural inequality (Burrell & Fourcade, 2021). A snapshot of student demand in 1980, itself a consequence of historical structural inequality, became inscribed into the EPS and Student Search Service products used by colleges to plan and implement recruiting strategy. The result is a supply-side that reinforces structural inequalities observed on the demand-side. We address two research questions:

1. What is the socioeconomic and racial variation between Geomarkets in metropolitan areas?  
How does this variation change over time?
2. How does the socioeconomic and racial composition of included versus excluded prospects vary when student list purchases filter on particular Geomarkets?

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<sup>1</sup>In 1995, 37% of 4-year public institutions and 49% of 4-year private institutions used EPS (Noel-Levitz, 1998).

<sup>2</sup>Ruffalo Noel-Levitz (2022) reported that 87% of private and 86% of public four-year institutions purchase lists.

<sup>3</sup>An analysis of 830 student lists purchased by 14 public universities found that 16% of purchases filtered on Geomarket (Author, XXXXb).

**SIGNIFICANCE.** Scholarship on quantification in the sociology of education (e.g., Espeland & Sauder, 2007; McArthur & Reeves, 2022) has not analyzed third-party products that colleges use to classify and identify prospective students. More broadly, the concept of “organizational fields” includes all organizations that “constitute a recognized area of institutional life” (DiMaggio & Powell, 1983, p. 143). In the enrollment management industry, third-party vendors and their products structure college access in ways that funnel certain kinds of students to certain kinds of institutions. Higher education policy over the last 20 years – dominated by economists – has focused on regulating consumers (students) and direct providers (colleges). However, federal regulatory agencies (e.g., FTC, CFPB) are increasingly interested in regulating the entire organizational field because they know that third-party oligopolies can wield market power over consumers and providers (Philippon, 2019). Therefore, scholarship from sociology should guide which problems and actors become the focus of future federal regulation.

**DATA SOURCES.** To answer RQ1, we utilize census tract-level data from the 1980 Decennial Census, 2000 Decennial Census, and 2020 5-year American Community Survey (ACS). Variables of interest include: race/ethnicity; mean and median household income; percent of households below poverty line; and BA attainment of people aged 25+. We obtained shapefiles for College Board Geomarkets from a 2012 *R-bloggers* post. We assigned census tracts to Geomarkets by implementing a partial spatial join.

To answer RQ2, we issued public records requests about student lists purchased by 14 public universities from 2016 through 2020. For 414 College Board student list purchases, associated with about 2.6 million prospects, we received both (1) the order summary – showing which search filters were utilized – and (2) the de-identified prospect-level data, including race, ethnicity, zip code, and high school. Figure 2 shows the partial order summary, which we converted to tabular data, for a purchase by Arizona State University that filtered on the 2020 high school graduating class, PSAT scores of 1070 to 1180, and selected Geomarkets.

**METHOD.** The methods are simultaneously descriptive and spatial. We utilize a case study design in which metropolitan areas are cases. Like Salazar (2022), we envision focusing on 2-4 metropolitan areas, including the historical context of segregation and gentrification. An appendix will show results for a larger number of metropolitan areas.

To answer RQ1, we produce tables/graphs that show how Geomarkets around a metropolitan area vary on racial and socioeconomic characteristics and how they vary over time. We produce interactive maps at the census tract-level to show more granular variation within and between Geomarkets. We address RQ2 by analyzing actual student list purchases that encompass all Geomarkets around a given metropolitan area, showing which prospects would have been excluded if had the purchase had filtered on particular Geomarkets.

**PRELIMINARY FINDINGS.** For RQ1, Table 1 shows racial and socioeconomic characteristics for Geomarkets around Chicago. Figure 3 is a screenshot of an interactive choropleth map of Los Angeles, showing Geomarket borders and the tract-level %Hispanic in 2020. Figure 4 shows tract-level median household income around Los Angeles.

Results for RQ2 show how many purchased prospects from each racial/ethnic group live in each Geomarket. These prospects would have been excluded had the purchase filtered on Geomarkets and not selected that Geomarket. Table 2, Table 3, and Table 4, respectively, show counts, column percentages, and row percentages for the Philadelphia metropolitan area, based on a purchase that filtered on students from the 2020 high school class who scored between 1070 and 1180 on the PSAT. Table 3 shows that “PA5–Philadelphia County” contains 15% of all purchased prospect profiles but 44% of Black prospects, indicating that opportunity for Black students is sensitive to the inclusion of this Geomarket. Figure 5 is a screenshot of a (very) preliminary interactive map for this purchase, with marker size indicating the number of purchased prospect profiles who attended that high school and separate markers by race/ethnicity.

## 2 References

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### 3 Appendix

Table 1: Racial/ethnic and socioeconomic characteristics of Geomarkets around Chicago-land

Geomarket name	2000					2020				
	Mean	SD	P25	P50	P75	Mean	SD	P25	P50	P75
<b>% White, non-Hispanic</b>										
IL 7, Chain of Lakes	73.0	26.6	59.2	86.2	91.6	58.7	26.5	38.2	68.2	81.2
IL 8, Northwest Suburbs	77.3	15.9	67.7	82.7	89.2	61.5	19.5	46.7	65.2	75.4
IL 9, North Shore	84.2	12.7	77.8	90.2	93.2	74.2	16.1	60.8	78.8	86.9
IL10, Evanston & Skokie	73.8	19.2	65.7	77.1	89.1	63.7	18.6	52.6	65.7	78.7
IL11, City of Chicago	32.2	32.6	1.2	20.2	62.5	32.8	29.5	3.3	26.2	60.4
IL12, Western Suburbs	68.3	25.3	55.8	78.3	86.5	55.6	25.6	39.3	60.6	76.0
IL13, South & Southwest Suburbs	65.5	30.8	40.1	80.1	90.9	53.4	30.4	24.1	59.8	79.7
<b>% Black, non-Hispanic</b>										
IL 7, Chain of Lakes	7.6	14.2	0.7	1.5	7.6	7.6	10.7	0.7	2.3	10.4
IL 8, Northwest Suburbs	2.0	2.2	0.6	1.2	2.6	3.0	3.9	0.5	1.8	3.9
IL 9, North Shore	2.2	5.6	0.4	0.9	1.5	2.6	4.5	0.2	1.1	2.7
IL10, Evanston & Skokie	7.0	14.7	0.3	0.9	4.0	6.7	10.7	0.8	2.2	7.7
IL11, City of Chicago	40.2	42.7	1.8	13.3	96.2	32.9	38.2	2.1	8.0	77.0
IL12, Western Suburbs	9.3	20.6	0.9	2.0	5.3	9.3	16.9	1.5	3.8	8.5
IL13, South & Southwest Suburbs	22.7	29.8	0.7	5.7	38.6	23.8	29.6	2.2	8.4	38.5
<b>% Hispanic</b>										
IL 7, Chain of Lakes	14.3	18.0	3.0	5.4	17.8	23.5	21.5	6.4	13.7	36.2
IL 8, Northwest Suburbs	11.1	12.4	3.3	6.1	12.5	18.2	17.6	6.1	11.8	23.8
IL 9, North Shore	5.5	8.4	1.6	2.5	3.5	7.9	9.6	2.4	4.7	9.7
IL10, Evanston & Skokie	5.9	5.1	2.9	4.4	7.2	10.0	7.4	4.7	8.5	12.6
IL11, City of Chicago	21.9	27.6	1.5	7.4	34.3	25.8	27.9	4.8	13.7	39.0
IL12, Western Suburbs	15.9	20.2	3.6	6.5	18.7	23.4	24.4	5.8	13.9	31.1
IL13, South & Southwest Suburbs	8.9	10.9	3.1	4.9	9.3	17.9	16.7	6.6	12.4	23.0
<b>% API, non-Hispanic</b>										
IL 7, Chain of Lakes	3.5	3.6	1.0	2.1	4.7	7.4	8.3	1.7	4.9	9.9
IL 8, Northwest Suburbs	8.1	6.3	3.0	7.0	11.1	14.8	11.3	6.2	12.4	21.3
IL 9, North Shore	7.0	6.6	2.4	4.7	7.7	12.6	9.9	4.4	9.4	17.6
IL10, Evanston & Skokie	11.1	9.0	3.2	7.2	18.8	16.0	11.8	5.7	12.3	25.9
IL11, City of Chicago	4.0	8.7	0.1	0.8	3.8	6.1	9.9	0.0	2.3	7.9
IL12, Western Suburbs	5.1	4.6	1.7	3.6	7.2	9.2	9.4	2.2	6.0	13.5
IL13, South & Southwest Suburbs	1.3	1.6	0.4	0.9	1.7	2.8	4.9	0.1	1.1	3.1
<b>% Native, non-Hispanic</b>										

Table 1: Racial/ethnic and socioeconomic characteristics of Geomarkets around Chicago-land (*continued*)

Geomarket name	2000					2020				
	Mean	SD	P25	P50	P75	Mean	SD	P25	P50	P75
IL 7, Chain of Lakes	0.2	0.2	0.1	0.1	0.2	0.2	0.8	0.0	0.0	0.0
IL 8, Northwest Suburbs	0.1	0.1	0.0	0.1	0.1	0.1	0.4	0.0	0.0	0.0
IL 9, North Shore	0.1	0.1	0.0	0.0	0.1	0.2	1.0	0.0	0.0	0.0
IL10, Evanston & Skokie	0.1	0.1	0.0	0.1	0.1	0.1	0.3	0.0	0.0	0.0
IL11, City of Chicago	0.2	0.3	0.0	0.1	0.2	0.1	0.3	0.0	0.0	0.0
IL12, Western Suburbs	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0
IL13, South & Southwest Suburbs	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.0	0.0	0.0
<b>% two+ races, non-Hispanic</b>										
IL 7, Chain of Lakes	1.2	0.6	0.8	1.1	1.5	2.3	2.1	1.0	1.8	3.2
IL 8, Northwest Suburbs	1.3	1.2	0.8	1.1	1.5	2.1	1.9	1.0	1.7	2.7
IL 9, North Shore	1.0	0.5	0.7	0.9	1.2	2.3	2.0	1.0	1.8	3.0
IL10, Evanston & Skokie	1.9	1.2	0.9	1.6	2.7	3.2	2.2	1.6	2.5	4.4
IL11, City of Chicago	1.4	1.2	0.6	1.1	1.9	2.1	2.2	0.3	1.5	3.0
IL12, Western Suburbs	1.3	1.0	0.8	1.1	1.5	2.1	1.9	0.7	1.7	2.9
IL13, South & Southwest Suburbs	1.3	0.8	0.8	1.2	1.6	1.9	1.9	0.6	1.4	2.8
<b>Median income</b>										
IL 7, Chain of Lakes	131.0	50.0	99.0	119.0	160.0	116.0	52.0	78.0	106.0	144.0
IL 8, Northwest Suburbs	129.0	39.0	104.0	119.0	143.0	115.0	37.0	87.0	109.0	136.0
IL 9, North Shore	189.0	74.0	142.0	179.0	216.0	170.0	71.0	117.0	164.0	211.0
IL10, Evanston & Skokie	123.0	40.0	96.0	115.0	146.0	116.0	44.0	84.0	116.0	141.0
IL11, City of Chicago	72.0	35.0	50.0	71.0	88.0	79.0	43.0	50.0	69.0	100.0
IL12, Western Suburbs	117.0	39.0	89.0	113.0	137.0	113.0	46.0	81.0	104.0	137.0
IL13, South & Southwest Suburbs	99.0	29.0	78.0	96.0	115.0	93.0	36.0	66.0	87.0	118.0
<b>Mean income</b>										
IL 7, Chain of Lakes	159.0	70.0	109.0	136.0	192.0	143.0	64.0	95.0	131.0	179.0
IL 8, Northwest Suburbs	157.0	59.0	120.0	138.0	172.0	140.0	47.0	105.0	131.0	164.0
IL 9, North Shore	273.0	122.0	185.0	256.0	318.0	242.0	107.0	159.0	225.0	312.0
IL10, Evanston & Skokie	159.0	61.0	121.0	139.0	188.0	162.0	69.0	114.0	152.0	188.0
IL11, City of Chicago	96.0	46.0	68.0	88.0	110.0	107.0	60.0	66.0	90.0	129.0
IL12, Western Suburbs	143.0	55.0	105.0	132.0	165.0	141.0	62.0	100.0	126.0	170.0
IL13, South & Southwest Suburbs	116.0	35.0	93.0	110.0	133.0	111.0	40.0	81.0	105.0	137.0
<b>% in poverty</b>										
IL 7, Chain of Lakes	5.8	5.9	2.0	4.3	6.7	8.7	7.9	3.3	6.6	11.2
IL 8, Northwest Suburbs	3.7	2.6	1.8	3.1	4.9	6.9	4.8	3.8	5.8	9.3

Table 1: Racial/ethnic and socioeconomic characteristics of Geomarkets around Chicago-land (*continued*)

Geomarket name	2000					2020				
	Mean	SD	P25	P50	P75	Mean	SD	P25	P50	P75
IL 9, North Shore	2.9	2.2	1.4	2.1	3.6	6.2	6.0	2.4	4.1	7.5
IL10, Evanston & Skokie	5.7	5.9	2.6	3.9	5.9	8.5	6.7	4.0	6.9	10.8
IL11, City of Chicago	20.0	15.7	8.2	15.3	29.0	17.7	12.2	8.4	14.8	24.0
IL12, Western Suburbs	5.7	5.4	2.5	4.1	7.0	8.0	6.0	3.7	6.5	10.9
IL13, South & Southwest Suburbs	8.0	7.6	3.4	5.6	9.4	10.6	8.7	4.4	8.5	14.9
% with BA+										
IL 7, Chain of Lakes	32.7	20.1	15.7	30.0	52.2	39.6	22.8	19.0	35.4	58.7
IL 8, Northwest Suburbs	36.3	14.4	26.4	34.6	46.9	45.2	16.2	32.4	44.1	56.3
IL 9, North Shore	59.7	17.5	50.7	63.0	72.2	68.0	18.2	58.3	73.6	81.3
IL10, Evanston & Skokie	46.5	17.7	33.6	42.2	59.9	57.6	16.8	45.9	55.6	71.7
IL11, City of Chicago	23.2	22.2	7.1	14.4	33.6	37.6	25.9	15.3	30.1	57.1
IL12, Western Suburbs	32.8	19.3	15.5	31.4	48.0	42.8	21.5	24.7	42.3	60.7
IL13, South & Southwest Suburbs	19.6	11.0	10.9	17.7	26.6	28.5	14.4	17.5	26.9	38.7

Table 2: Count of Philadelphia area students included in student list purchase that filtered on 2020 high school class and PSAT scores 1070 – 1180 (Not shown: American Indian/Alaska Native (AI/AN); and Native Hawaiian and other Pacific Islander (NHPI))

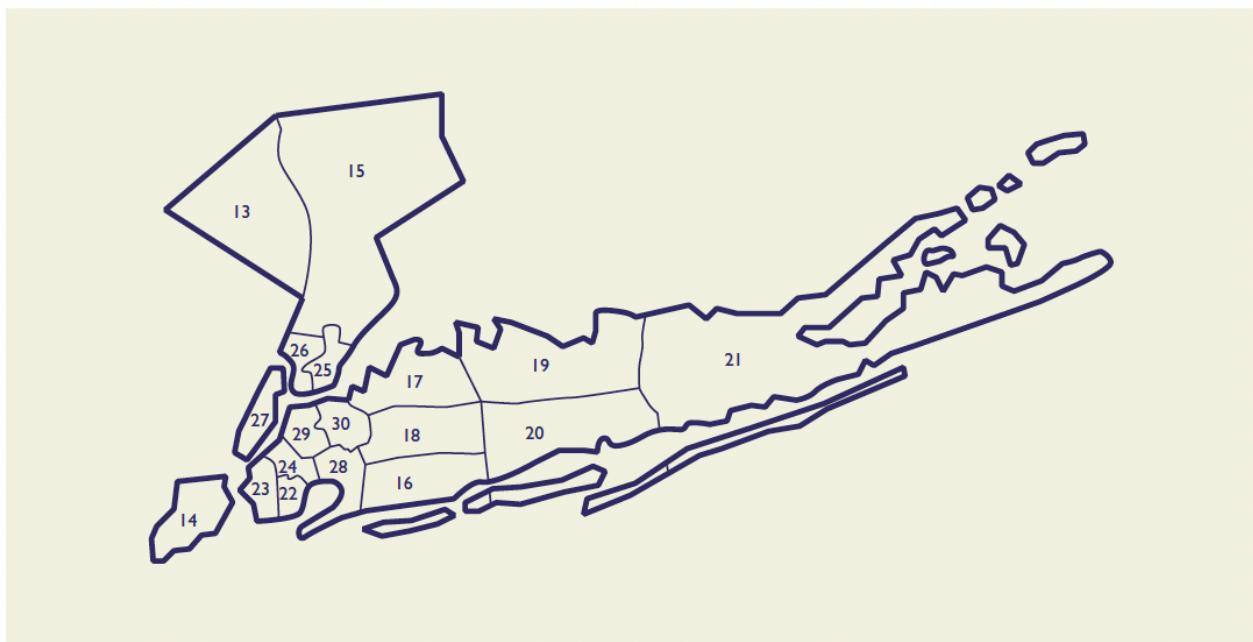
<b>eps_codename</b>	<b>all</b>	<b>race_known</b>	<b>white</b>	<b>asian</b>	<b>black</b>	<b>hispanic</b>	<b>two_races</b>
PA 1, Bucks Co	1,075	1,038	869	68	16	52	29
PA 2, Chester Co	1,104	1,027	826	57	28	71	40
PA 3, Delaware Co	715	665	529	40	38	26	25
PA 4, Montgomery Co	1,715	1,621	1,205	132	101	111	66
PA 5, Philadelphia Co	802	764	369	112	142	106	34

Table 3: Percent of total prospects purchased from each geomarket, Philadelphia area students included in student list purchase that filtered on 2020 high school class and PSAT scores 1070 – 1180 (Not shown: AI/AN, NHPI)

<b>eps_codename</b>	<b>race_known</b>	<b>white</b>	<b>asian</b>	<b>black</b>	<b>hispanic</b>	<b>two_races</b>
PA 1, Bucks Co	20.3	22.9	16.6	4.9	14.2	14.9
PA 2, Chester Co	20.1	21.7	13.9	8.6	19.4	20.6
PA 3, Delaware Co	13.0	13.9	9.8	11.7	7.1	12.9
PA 4, Montgomery Co	31.7	31.7	32.3	31.1	30.3	34.0
PA 5, Philadelphia Co	14.9	9.7	27.4	43.7	29.0	17.5

Table 4: Racial composition of purchased prospects from each Geomarket, Philadelphia area students included in student list purchase that filtered on 2020 high school class and PSAT scores 1070 – 1180 (Not shown: AI/AN, NHPI)

<b>eps_codename</b>	<b>race_known</b>	<b>white</b>	<b>asian</b>	<b>black</b>	<b>hispanic</b>	<b>two_races</b>
PA 1, Bucks Co	100	83.7	6.6	1.5	5.0	2.8
PA 2, Chester Co	100	80.4	5.6	2.7	6.9	3.9
PA 3, Delaware Co	100	79.5	6.0	5.7	3.9	3.8
PA 4, Montgomery Co	100	74.3	8.1	6.2	6.8	4.1
PA 5, Philadelphia Co	100	48.3	14.7	18.6	13.9	4.5



Geographic Market Name	EPS Code
<b>New York (NY)</b>	
13. Rockland County	NY13
14. Staten Island	NY14
15. Westchester County	NY15
16. Southern Nassau County	NY16
17. Northern Nassau County	NY17
18. Central Nassau County	NY18
19. Northwest Suffolk County	NY19
20. Southwest Suffolk County	NY20
21. East Suffolk County	NY21
22. Southeast Brooklyn	NY22
23. West Brooklyn	NY23
24. Northeast Brooklyn	NY24
25. East Bronx	NY25
26. West Bronx	NY26
27. Manhattan	NY27
28. South Queens	NY28
29. Northwest Queens	NY29
30. Northeast Queens	NY30

#### Major Metropolitan Area

#### Middle States Region

1. New York

Westchester and Rockland Counties: 13 and 15

Long Island: 16 through 21

City of New York: 14, 22 through 30

Figure 1: Geomarkets in New York City Area, NY state

# FA20 - OOS PSAT AD (JAN19)

 Print

Created by: [REDACTED] last updated: 1/9/19

Order Number 448922

## Order Summary

Order type:	Name License / Single Order	Name license status:	Fulfilled
Search owner:	[REDACTED]	Start date:	Wed, Jan 09, 2019
Search created:	1/7/19	End date:	Wed, Jan 09, 2019
Submitted by:	[REDACTED] Arizona State University PO Box 870112 Tempe , AZ 85281	Projected volume:	129,884 names
Submitted:	1/9/19	Maximum volume:	129,884 names
		Volume to date:	244,517 names
		Runs to date:	2 runs

## Billing Details

Payment type:	Bill Me
Billing address:	[REDACTED] Arizona State University Office of Undergraduate Admis Tempe , AZ 85287

## Delivery Options

File recipients:	[REDACTED]
Sorting sequence:	Alphabetic
Print format:	Upper and lowercase
File format:	Comma Delimited - .csv
Delivery frequency:	N/A

## Search criteria

Criteria	Selections
Graduating Class	<b>Assessment Search</b> 2020 HS grad class <b>New prospects</b> Include only new students not included in my other orders
Geography	<b>Geomarket</b> WA - WA05 - Greater Washington (West) WA - WA04 - Greater Washington (East) WA - WA03 - Greater Spokane NJ - NJ08 - Essex & Southern Passaic Co WA - WA02 - South Sound NJ - NJ09 - Hudson Co WY - WY01 - Casper & Cheyenne WA - WA01 - Greater Seattle

<https://collegeboardsearch.collegeboard.org/pastudentsrch/report-file-summary.htm?savedSearchId=460519>

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Figure 2: Partial order summary from a College Board student list purchase

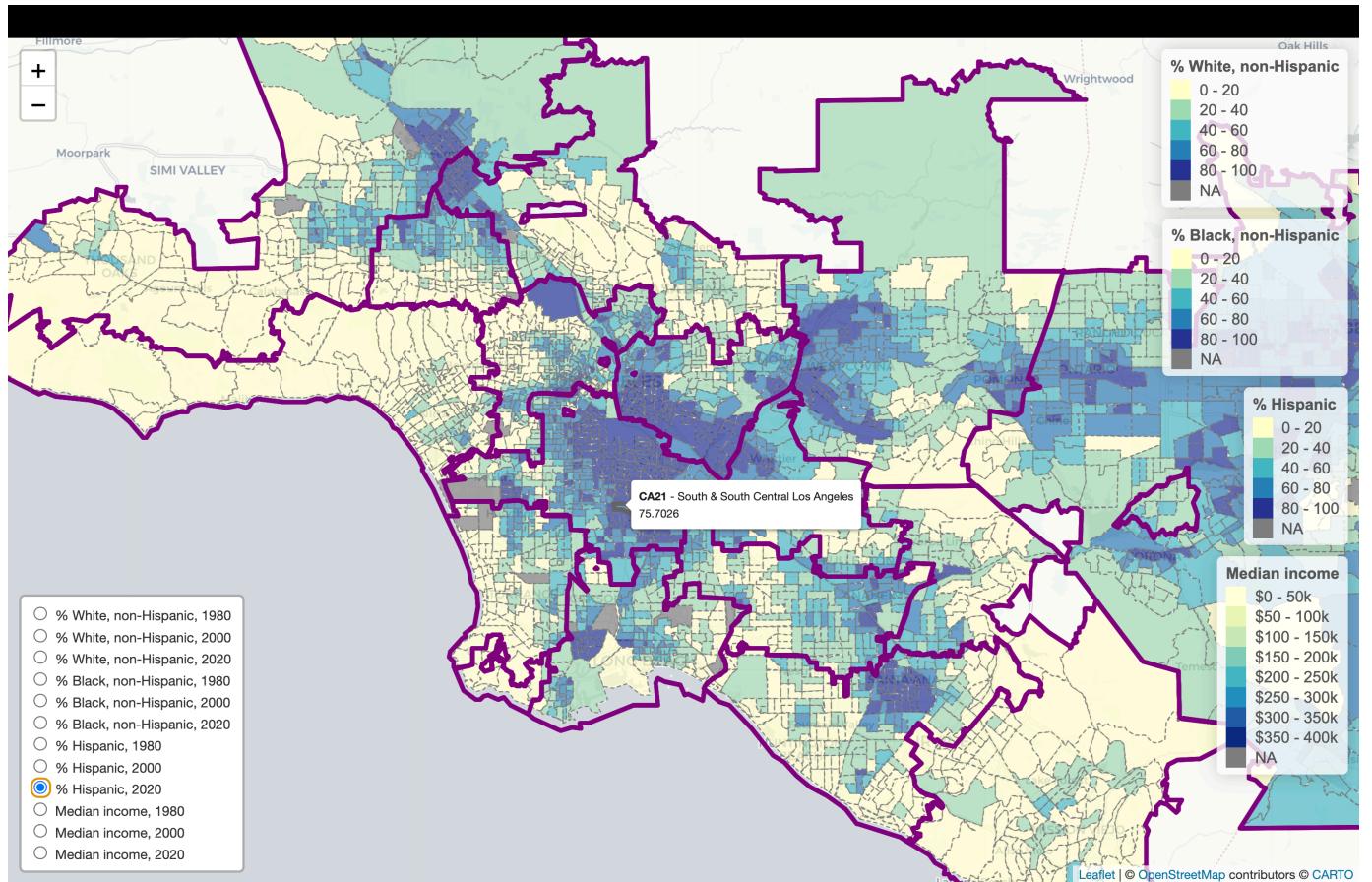


Figure 3: Screenshot of Los Angeles area Geomarkets, showing 2020 percent Hispanic by census tract

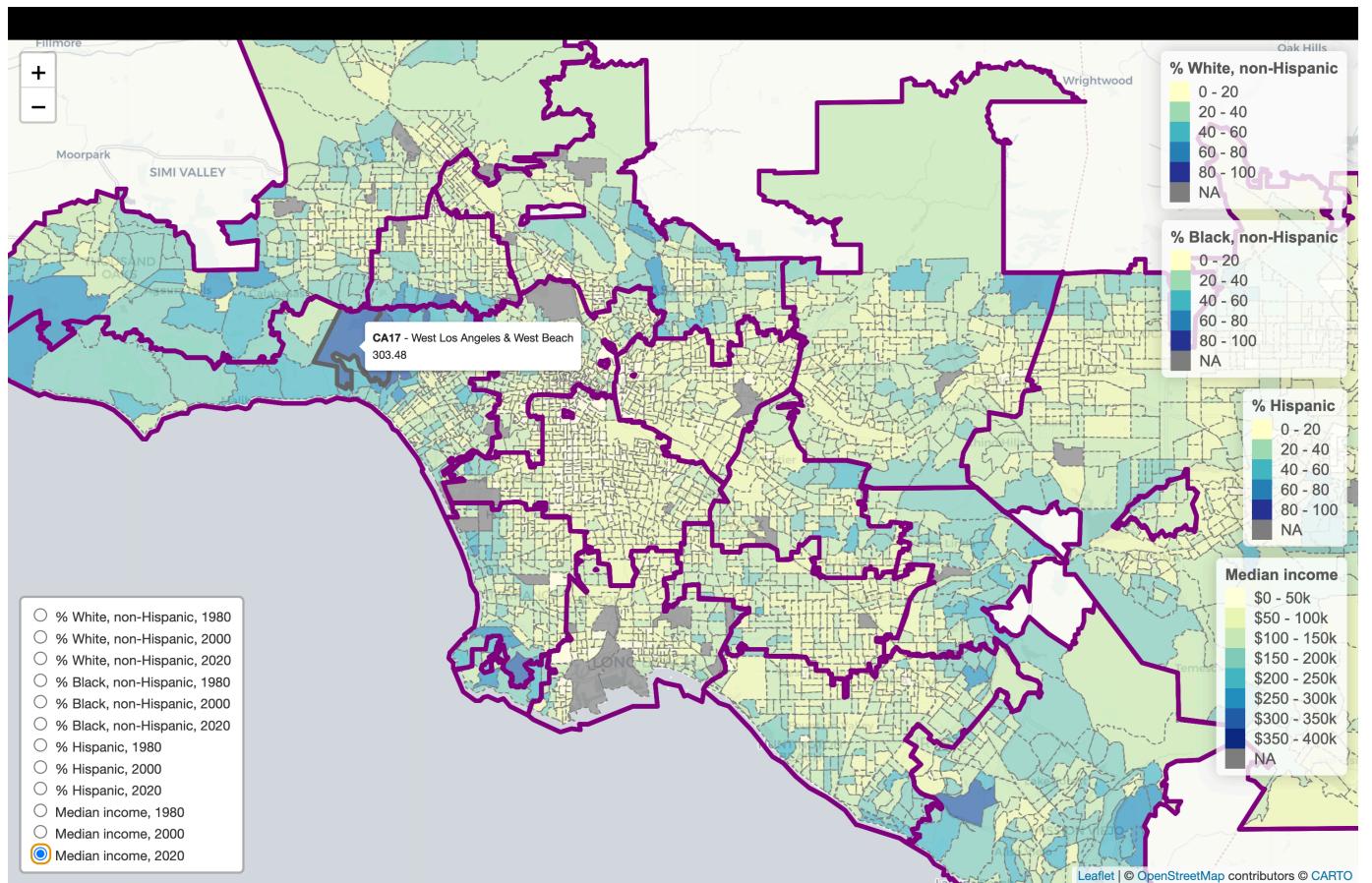


Figure 4: Screenshot of Los Angeles area Geomarkets, showing 2020 median household income by census tract

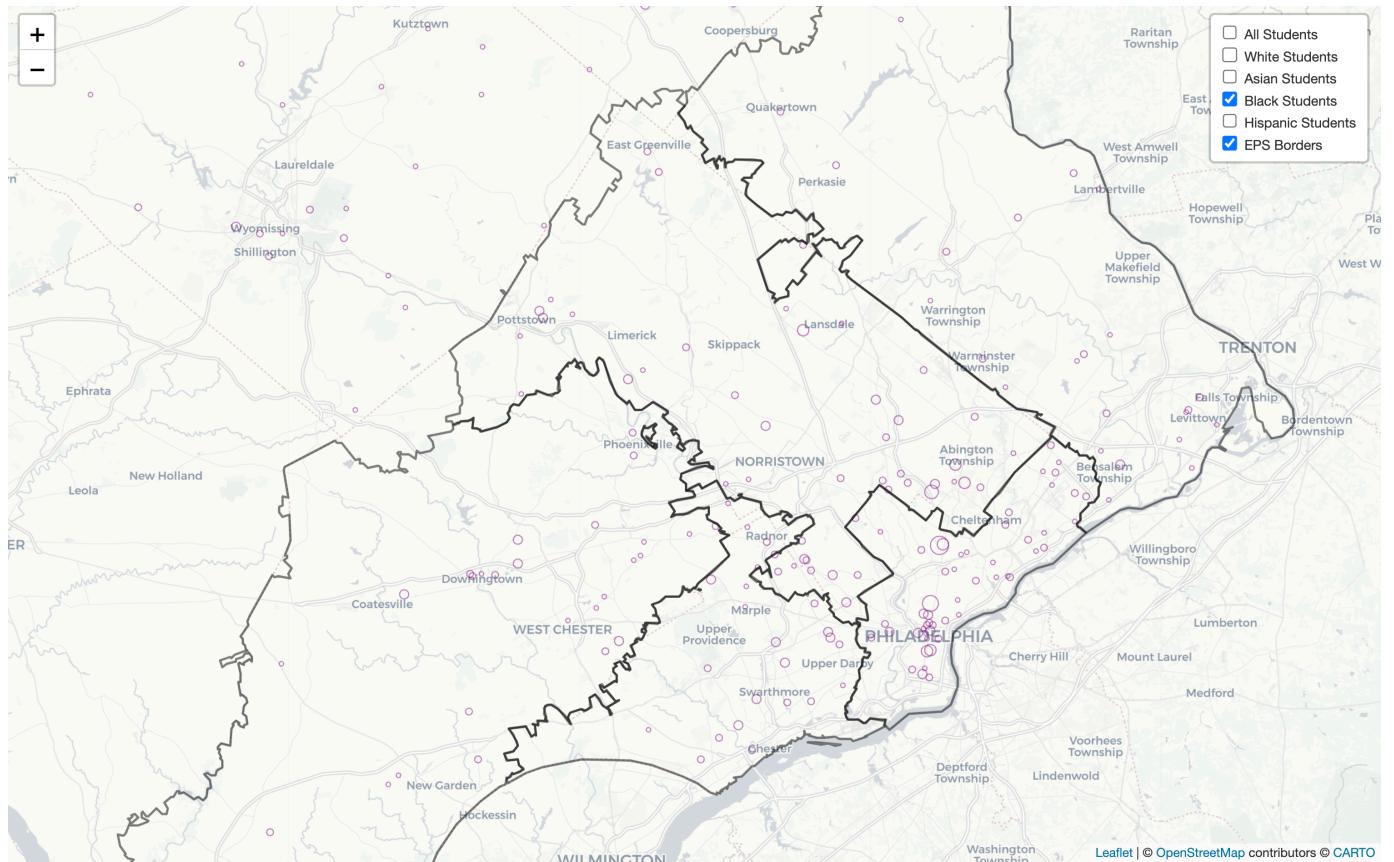


Figure 5: Screenshot of Philadelphia area Geomarkets, markers are high schools and marker size a function of number of Black student profiles purchased (2020 HS class, PSAT scores 1070 – 1180)