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Who Chooses? An Analysis of Student Characteristics in the Hartford Public School System

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Who Chooses?

An Analysis of Student Characteristics in the Hartford Public School System

By: Marissa Block '14, Gaurav Toor '14, and Stephen Spirou '15
Professor Diane Zannoni

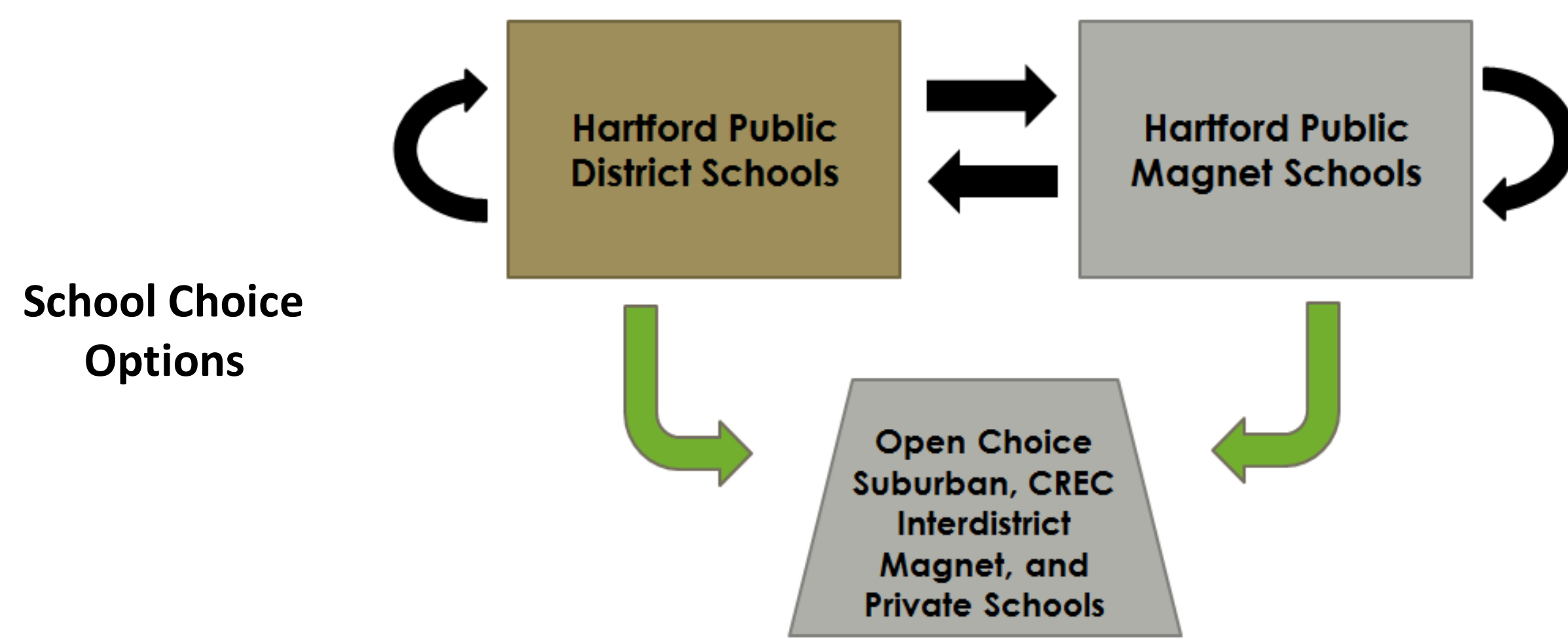


Introduction

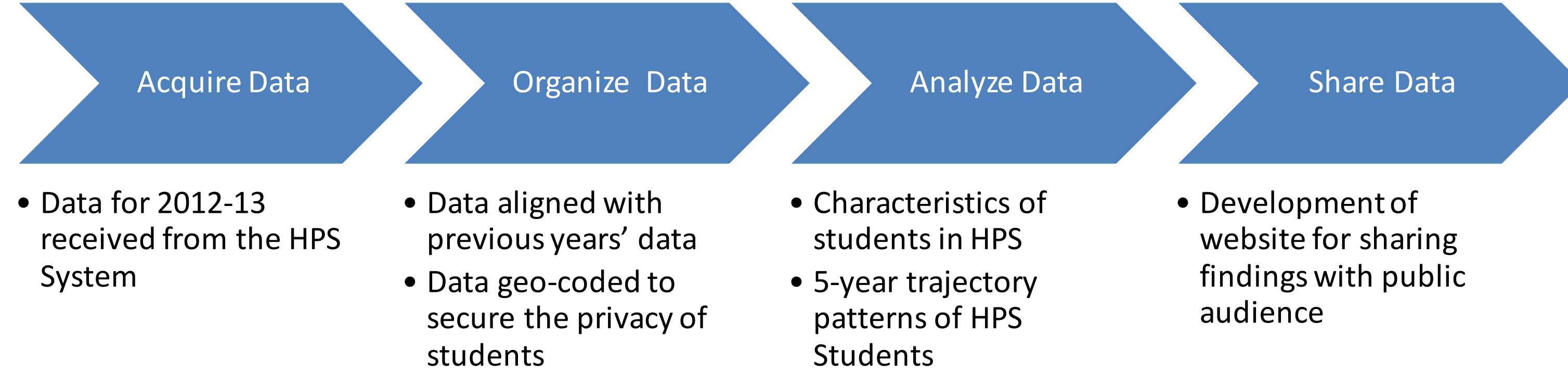
Hartford resident students can choose from among many schools, but not all exercise their right to choose the school they attend. The effectiveness of School Choice in Hartford has not been evaluated fully. In order to do this, understanding the differences between those who choose and those who do not is essential. But, we first need to analyze the entire pool of Hartford students.

This semester we ask: Who are the students living in Hartford who could potentially exercise their right to choose? Demographic, school attendance, performance, and continuity characteristics of Hartford residents attending Hartford Public Schools (district and magnet) in grades 3-8 over a five-year period (2008-2013) are evaluated.

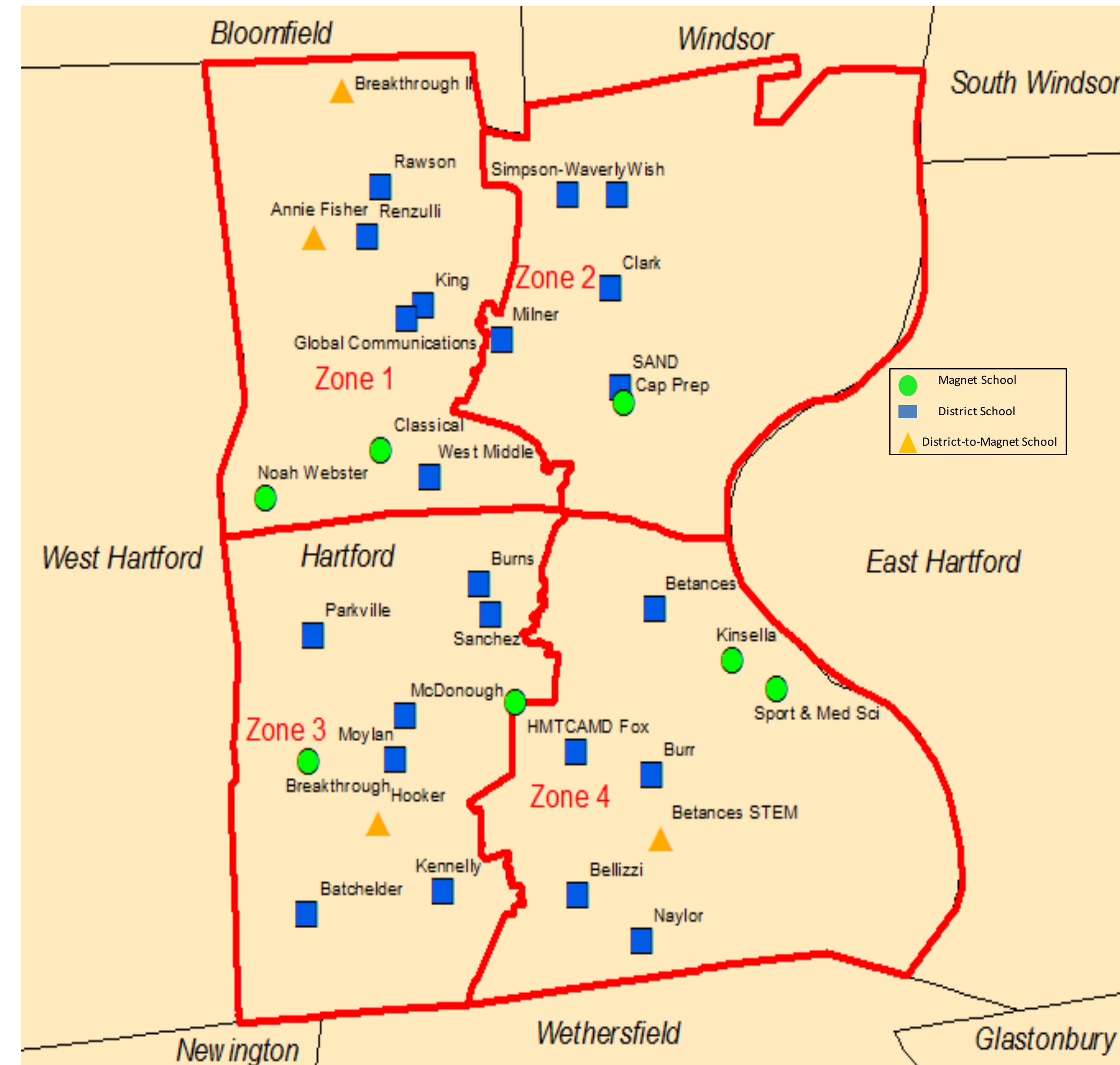
To share our results with a much broader audience, we are in the process of implementing a WordPress site.



Methodology



Hartford School Zone/Area & Residence Zone/Area: 2012/2013



Summary of Findings

Finding 1: While the percentage of Hispanic, Special Education, English Language Learners, and Magnet School students have increased, Black students have decreased in the HPS system over five years.

Finding 2: While the majority of students attend a school in the same zone in which they reside, in 2012-13, there is an increase in students residing in Zones 1 and 4 who attend a school outside their school zone.

Finding 3: Over the five years, only 7% of the students whose CMT test results place them as "below basic" or "basic" in 2008-09 became "high-achievers" in 2012-13. Of those who were "proficient," only 27% improved their score to "high-achiever" status. Of those who were "high-achievers" in 2008-09, 42% performed worse in 2012-13.

Finding 4: The percentage of students who leave the HPS system and are high achievers is not different from the percentage of students who stay in the HPS system and are high achievers for each of the five years.

Conclusion

Accomplishments

- Analyzed HPS data from 2012-13 school year
- Consolidated results with past findings to identify trends
- Created a WordPress website to share the results of the ongoing study "Who Chooses?" with a broader audience

What's Next?

- Conduct analysis of Hartford students leaving the HPS system
- Continue to update website to make all findings available to the public

Finding 1: About Students

Demographic Characteristics of Hartford-resident HPS students in grades 3-8 (2008-2013)

	2008-09	2009-10	2010-11	2011-12	2012-13
HPS Students (Hartford Residents Grades 3 to 8)	8473	8217	8169	7988	7773
% Male Students	50.82	50.94	50.62	50.56	51.24
% English Language Learners	18.06	19.16	19.26	18.48	19.51
% Special Education Students	13.36	13.95	13.5	15.46	16.72
% Black Students	37.77	36.94	36.28	34.48	33.35
% Hispanic Students	56.73	57.21	57.6	56.42	58.23
% White Students	4.17	4.20	4.00	4.46	4.37
% Students non-dominant race in their school	27.71	28.93	29.51	31.31	30.95
Av. % Black Students in School	37.00	36.83	33.91	32.94	30.47
Av. % Hispanic Students in School	55.61	55.04	53.65	53.01	55.26
% Magnet School Students	14.45	16.43	17.97	18.14	20.25

Finding 2: About Attendance

Do Hartford Students Attend HPS-run Schools Where They Live?

		2008-09				2012-13					
		School Zone/Area				School Zone/Area					
		North End		South End		North End		South End			
		Zone 1	Zone 2	Zone 3	Zone 4	Zone 1	Zone 2	Zone 3	Zone 4		
Residence Zone/Area	North End	Zone 1	82.29%	9.85%	4.09%	3.77%	Zone 1	58.74%	15.67%	6.56%	19.03%
		Zone 2	16.98%	74.24%	4.77%	4.01%	Zone 2	11.88%	70.21%	7.55%	10.37%
	South End	Zone 3	10.16%	10.31%	68.32%	11.21%	Zone 3	10.17%	6.66%	71.03%	12.14%
		Zone 4	2.04%	7.36%	7.23%	83.37%	Zone 4	4.12%	6.61%	16.98%	72.29%

Finding 3: About Performance

How many students become high-achievers from 2008-09 to 2012-13?

	2008-09 / 2012-13		
2008-09 score categories	# of Students in 2008-09	# of Students who were High-Achievers in 2012-13	Percent who were High-Achievers in 2012-13
1s (Below Basic)	318	3	0.94%
2s (Basic)	421	24	5.70%
3s (Proficient)	371	103	27.76%
4s (Goal)	193	112	58.03%
5 (Advanced)	6	6	--

Who Chooses?

A Spatial Analysis of School Choice Activity in Metropolitan Hartford

By: Marissa Block '14 and Stephen Spirou '15
Prof. Diane Zannoni and Jack Dougherty

Introduction

In our previous research we analyzed the characteristics of students in the Hartford Public Schools (HPS). We now seek to understand which HPS students were more (or less) likely to apply to interdistrict magnet schools and the Open Choice city-suburb transfer program run by the Regional School Choice Office (RSCO). We analyze those who choose to apply to the RSCO lottery based on student and school characteristics, achievement, and neighborhood demographics. We aim to answer the following questions:

- Which students are more likely to apply?
- Are higher achieving students more likely to submit an application?
- Are “more privileged” (i.e., higher family income) students more likely to apply compared with “less privileged” students?
- Is there any geographical pattern to the applications?

Our study also details differences by race and ethnicity, free or reduced-price meal status, and other characteristics.

I. Bivariate Statistical Analysis

	All	Applicants	Non-Applicants
by Student demographics			
% Male			
% English language learners (ELL)			
% Special education needs			
% Free or reduced-price meals			
% Black			
% Hispanic			
% White			
by Grade level			
% grade 3			
% grade 4			
% grade 5			
% grade 6			
% grade 7			
by School type and composition			
% already enrolled in Magnet school			
Avg % Black students in school			
Avg % Hispanic students in school			
Avg % students in racial minority in school			
by Home location			
% in HPS zone 1			
% in HPS zone 2			
% in HPS zone 3			
% in HPS zone 4			
by School location			
% attend HPS zone 1			
% attend HPS zone 2			
% attend HPS zone 3			
% attend HPS zone 4			
Avg distance home to current school (miles)			

Results Under Review by State Dept. of Education

Characteristic	Significant Difference: Yes or No?	Probability of Applying
Gender		
English language learner		
Special Education		
Free or reduced-price meals		
Race/Ethnicity		
Grade level		
Magnet school		
Student's racial minority status		
Distance from home to current school		
by Housing and Income		
Owner Occupied Housing		
Median Household Income		
by Achievement		
Math CMT level (1-5)		
Reading CMT level (1-5)		
Writing CMT level (1-5)		
High-Achieving Math CMT (4-5)		
High-Achieving Reading CMT (4-5)		
High-Achieving Writing CMT (4-5)		
High-Achieving in All Tests (4-5)		
Math CMT vertical score (200-700 range)		
Reading CMT vertical score (200-700 range)		
SPI Index		

Results Under Review by State Dept. of Education

	Total number of students	Actual number who applied	Expected number to apply	Difference in number of students
by Student demographics				
Gender				
English Language Learner				
Special Education				
Free or reduced-price meals				
Black				
Hispanic				
White				
by Grade level				
grade 3				
grade 4				
grade 5				
grade 6				
grade 7				
by School type and Student composition				
Currently enrolled in Magnet school				
% Black students in school				
0 to 20%				
20 to 40%				
40 to 60%				
60 to 80%				
80 to 100%				
% Hispanic students in school				
0 to 20%				
20 to 40%				
40 to 60%				
60 to 80%				
80 to 100%				
Student in the racial minority in his/herschool				

Results Under Review by State Dept. of Education

The Data

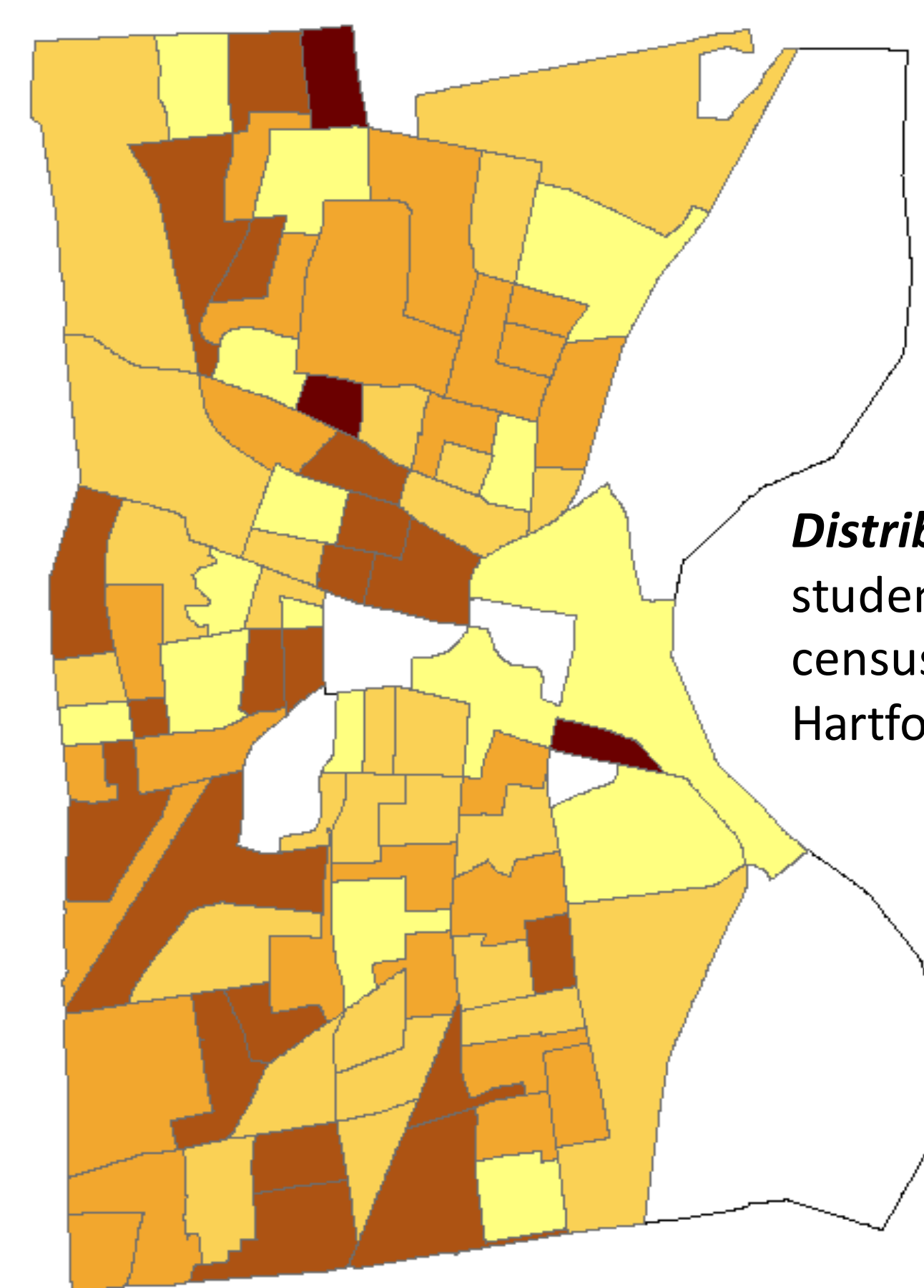
We combined numerous data sets provided by the state of Connecticut and HPS schools to answer these questions. The data sets we combined include:

- Public School Information System (PSIS) records
- Connecticut Mastery Test (CMT) subject scores
- Regional School Choice Office (RSCO) student applications

By merging these data sets using SPSS and other applications, we have a sample of 6,673 Hartford-resident students enrolled in Hartford Public Schools (HPS) — both district schools and interdistrict magnet schools — from grades 3 through 7 in Spring 2012. This is a restricted data set that no other researchers have been able to study.

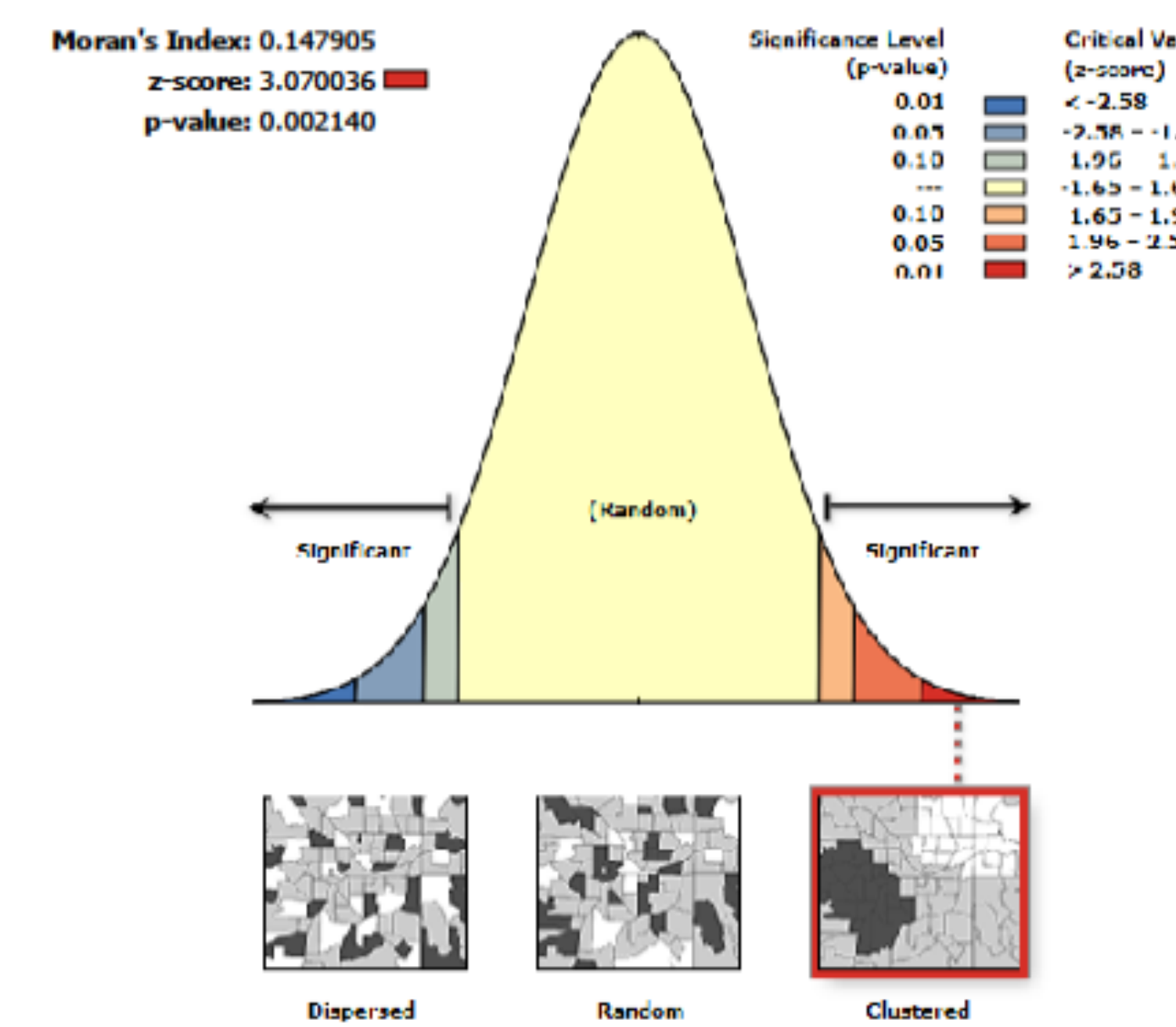
II. Spatial Analysis

Distribution



Distribution: Map of specific student characteristic across census block groups in Hartford.

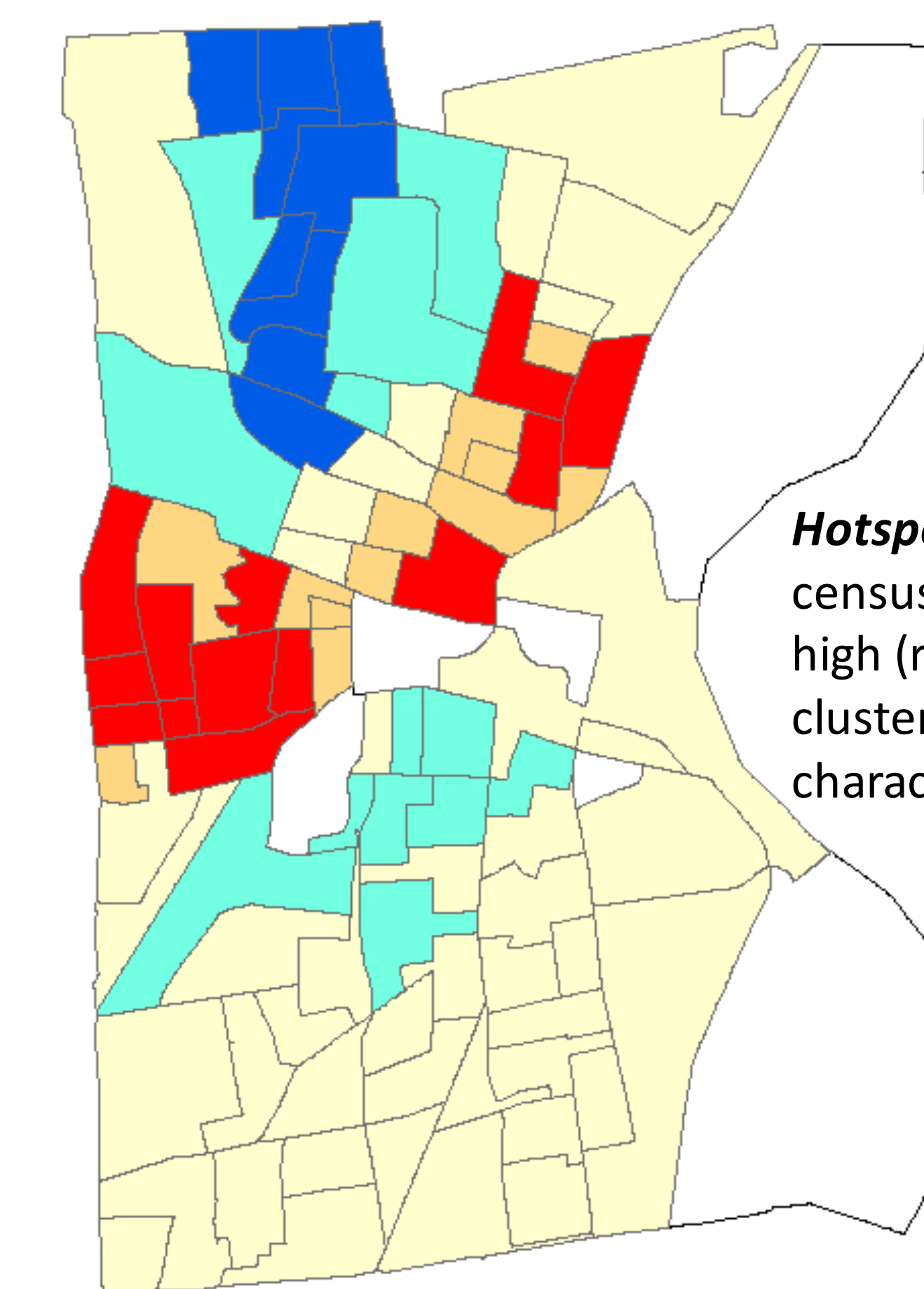
Spatial Clustering



Given the z-score of 3.07, there is a less than 1% likelihood that this clustered pattern could be the result of random chance.

Spatial Clustering: Test for the statistical significance of spatial clustering of a specific student characteristic across census block groups.

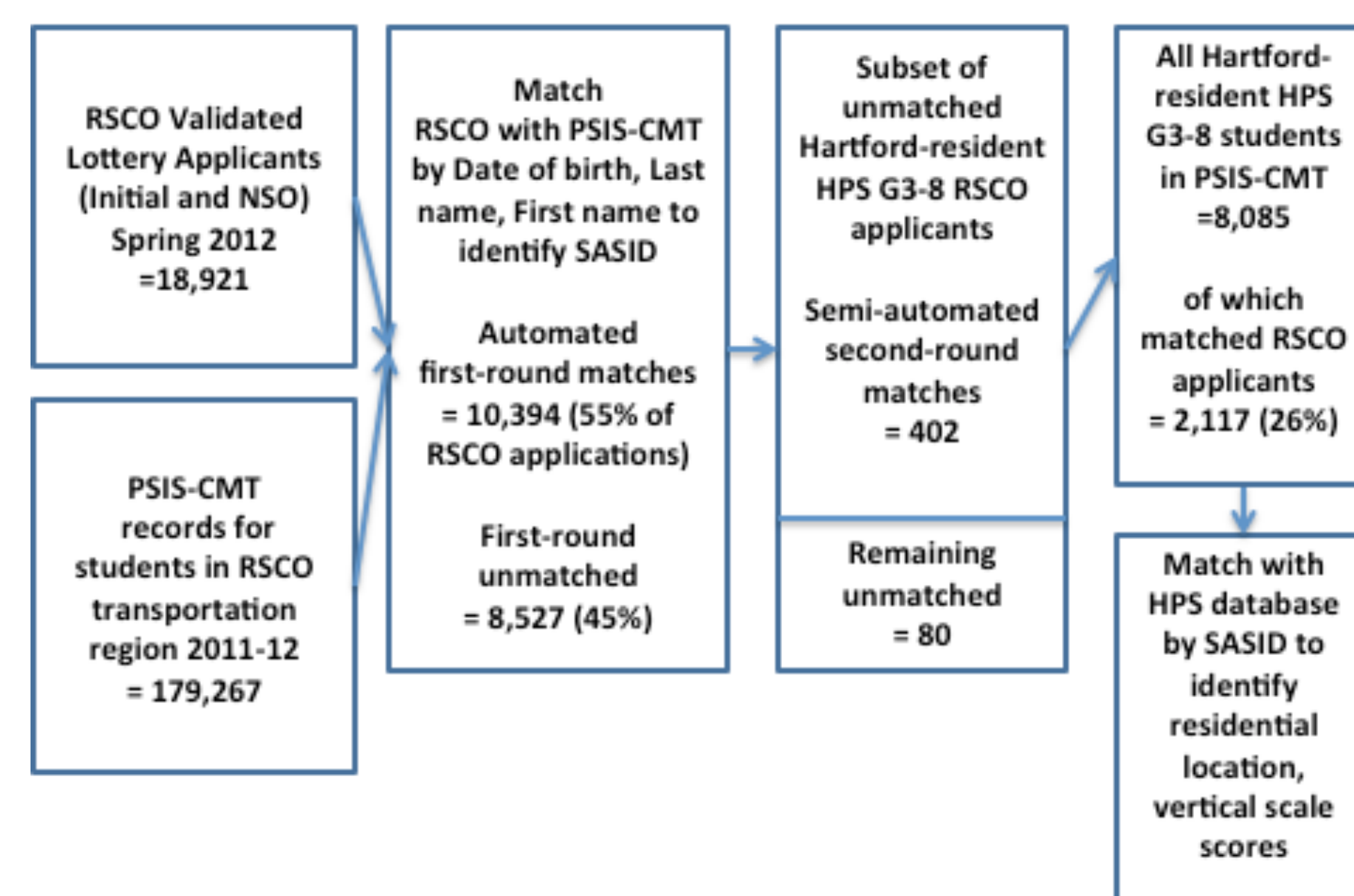
Hotspot Analysis



Hotspot Analysis: Map of census block groups where high (red) and low (blue) clustering of a specific characteristic occurs.

Data Matching Process

Figure 1: Data Matching Process, 2011-12



III. Multivariate Regression Analysis

- Conduct a logistic regression of RSCO participation as a function of student characteristics, to identify the effect of each characteristic on the probability of submitting an application.
- Perform a spatial regression analysis to identify the effect of each student characteristic on the percentage of students applying across census block groups.

Conclusion

Due to our no-cost contract with the Connecticut Department of Education, we cannot release any results at this time. Once our findings are reviewed by the State, we will share out results with the public. Stay tuned!

Acknowledgements

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