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Fiscal Research Center

Child Policy Partnership: Supply and Demand for Georgia's Pre-K

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ACKNOWLEDGMENTS

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Many intervening factors help to create a mismatch between the number of children whose parents would like for them to enroll in Georgia pre-kindergarten (Pre-K) and the number who enroll. Oversupply of Pre-K slots, observed as classrooms with empty Pre-K slots, could be considered as resources better used elsewhere. Undersupply of Georgia Pre-K, observed as children who would like to participate in Georgia Pre-K but are not able to enroll, results in families who are not able to gain access.

This policy report examines the potential factors that Bright from the Start: Georgia Department of Early Care and Learning (DECAL) might consider when allocating new Pre-K grant awards. The critical variables are the changes in the population of 4-year-olds, the numbers and types of Georgia Pre-K providers in the market, and availability of credentialed teachers. The analysis is generated using data provided by DECAL on final Pre-K roster counts, licensed provider locations, and Pre-K teacher credentials. Age 4 population data was obtained from the Surveillance, Epidemiology, and End Results Program (SEER). Tract level demographic data was obtained from the American Community Survey's (ACS) five-year summary files.

The population of 4-years-olds in Georgia grew between 2007 and 2011 along with the number of Georgia Pre-K slots (slots is equivalent to capacity). Starting in 2012, the population of 4-years-olds started going down, vacancy began increasing, and capacity began decreasing. The percentage of sites reporting full capacity as of their final roster count, in April or May, fluctuated between 53.2 and 71.3 percent with the lowest being in 2014. The percentage of sites that reported a greater-than-zero waitlist varied from 37.6 to 46.6 percent. The percentage of vacant slots statewide varied between 1.81 and 3.76 percent.

Table I. Statewide Capacity and Vacancy Summary FY 2007-FY 2014

	AGE 4 POPULATION ¹	CLASSROOMS	SITE CAPACITY RATE ²	SITE WAITLIST RATE ³	SLOTS	STUDENTS	VACANT SLOT RATE ⁴
2007	135,532	3,850	71.3%	44.7%	76,998	75,299	2.21%
2008	139,142	3,930	66.9%	45.1%	78,600	76,491	2.68%
2009	138,741	3,981	71.3%	43.7%	79,620	78,129	1.87%
2010	139,531	4,128	70.0%	41.2%	82,560	81,068	1.81%
2011	141,036	4,215	68.6%	46.4%	84,300	82,608	2.01%
2012	140,048	3,877	61.1%	37.6%	85,294	82,868	2.84%
2013	135,322	3,819	61.2%	41.9%	84,018	81,683	2.78%
2014	136,855	3,847	53.2%	38.6%	84,634	81,453	3.76%

1) Sources: SEER Population by individual age data for age 4 population and final roster counts otherwise.

2) Percentage of unique sites with an equal number of students and slots at their final roster count.

3) The percentage of unique sites indicating one or more individuals on the waiting list at year's end.

4) The percentage of statewide slots that were vacant as of the final roster count.

Georgia Pre-K capacity increases from year to year through the addition of new Pre-K locations (sites) or adding classrooms at existing Pre-K providers. A decline in Georgia Pre-K capacity can occur when providers no longer participate in Georgia Pre-K by choice or by not having their grant renewed. It can also happen from existing providers operating fewer classrooms. Between 2011 and 2012, two changes occurred simultaneously making comparing capacity and vacancy before and after those changes complicated. A large decrease in classrooms occurred due to budget restrictions and an increase in the number of slots available per classroom. Statewide, the number of classrooms dropped by 338 between 2011 and 2012 and kept declining in 2013. The number of slots supported per classroom changed from 20 students to 22 students increasing capacity per classroom. The large decline in classrooms, therefore, did not produce as large a decline in capacity because the remaining classrooms could serve more students. The site capacity and vacant slots rates are slightly different statistics before and after 2012 because of these changes. Table 2 breaks down the net changes to the number of classrooms in Georgia.

Table 2. Breakdown of Net Change in Pre-K Classrooms FY 2007-FY 2014

	ADDITIONAL CLASSROOMS ASSOCIATED WITH NEW SITES	CLOSED CLASSROOMS ASSOCIATED WITH CLOSED SITES	NEW CLASSROOMS ASSOCIATED WITH EXISTING SITES	CLOSED CLASSROOMS ASSOCIATED WITH EXISTING SITES	NET CHANGE IN CLASSROOMS ¹
2006-2007	287	-216	129	-53	147
2007-2008	236	-215	115	-55	81
2008-2009	209	-231	116	-44	50
2009-2010	279	-221	148	-57	149
2010-2011	273	-277	130	-39	87
2011-2012 ¹	191	-335	23	-217	-338
2012-2013	185	-240	66	-69	-58
2013-2014	116	-126	91	-55	26

Source: Final roster counts for each year.

1) The change between 2011 and 2012 in classrooms does not represent the same change in capacity as measured by slots because beginning in 2012 Pre-K classroom capacity increased from 20 to 22.

The mechanism used for allocating Pre-K capacity is relevant to oversupply because capacity is added one classroom at a time (with 20 or 22 slots each) due to the funding structure of Georgia Pre-K. By allocating new Pre-K one classroom at a time, vacant slots can be created if the excess demand for Pre-K is not adequate to completely fill the entire new classroom. Table 3 compares aggregate vacancy rates by the change status of the provider in that year and the state total (column A). Churning sites are classified as: being in their first year (column B), recently closed (column C), recently opened a new classroom(s) (column D), or just closed classroom(s) (column E). Recently added capacity appears to be more difficult to fill compared to the statewide vacancy rate. With a few exceptions, recently opened (B) or closed sites (C) have higher vacancy rates than the statewide average (A). Existing providers that added to or subtracted from their number of classrooms are slightly higher than the statewide average but to a lesser degree than opened or closed sites. This indicates that the stable portion of Pre-K providers and classrooms are more likely to operate at capacity compared to the churning (opening, closing, adding or subtracting capacity).

Table 3. Vacant Slot Rate by Provider Change Status FY 2007-FY 2014

	STATE TOTAL (A)	SITE IN FIRST YEAR (B)	RECENTLY CLOSED SITE ¹ (C)	SITE THAT JUST OPENED A NEW CLASSROOM ² (D)	SITE THAT JUST CLOSED A CLASSROOM ² (E)
2007	2.21%	3.50%	1.11%	2.38%	2.20%
2008	2.68%	4.30%	3.07%	3.07%	2.23%
2009	1.87%	1.94%	5.78%	1.91%	2.50%
2010	1.81%	2.08%	4.37%	1.87%	1.75%
2011	2.01%	2.86%	2.35%	2.04%	1.76%
2012	2.84%	3.52%	3.90%	3.33%	2.58%
2013	2.78%	5.31%	5.87%	3.83%	3.12%
2014	3.76%	7.41%	2.71%	3.97%	4.98%

Source: Final Roster Counts for each year.

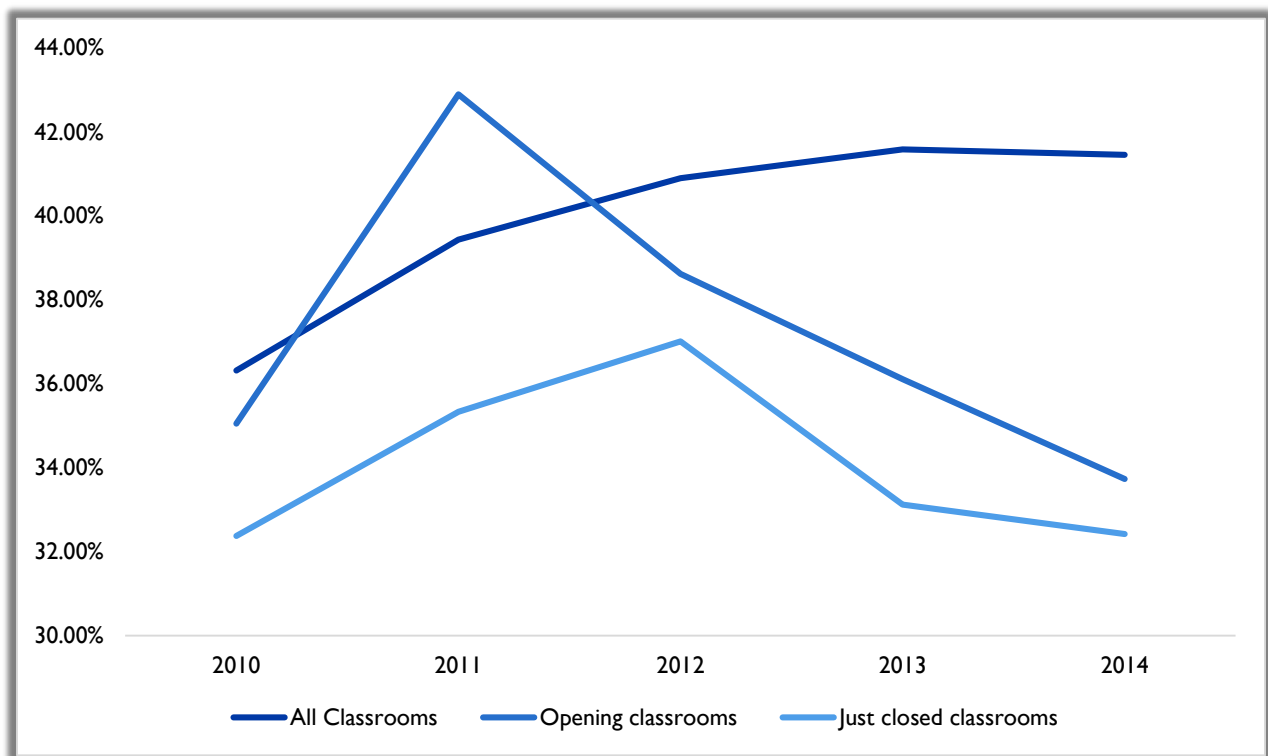
1) The vacancy rate from the previous year for sites whose last year was the previous.

2) The vacant slot rate for providers who number of classrooms increased or decreased compared to last year.

Quality of care provided is difficult to measure for an individual Pre-K provider over time, but it is relevant to parents and could heavily influence the demand for a particular provider's available slots. DECAL keeps track of Pre-K lead teachers and assistant's college degrees obtained and any early learning credentials that they have earned. Based on this information they are classified by a credential level where the highest level is defined as "certified." For lead teachers, this plays a role in Pre-K funding and likely their pay, but some assistant teachers also have obtained a certified credential level. The percent of lead teachers and assistants who are certified is used as a measure of quality in this analysis.

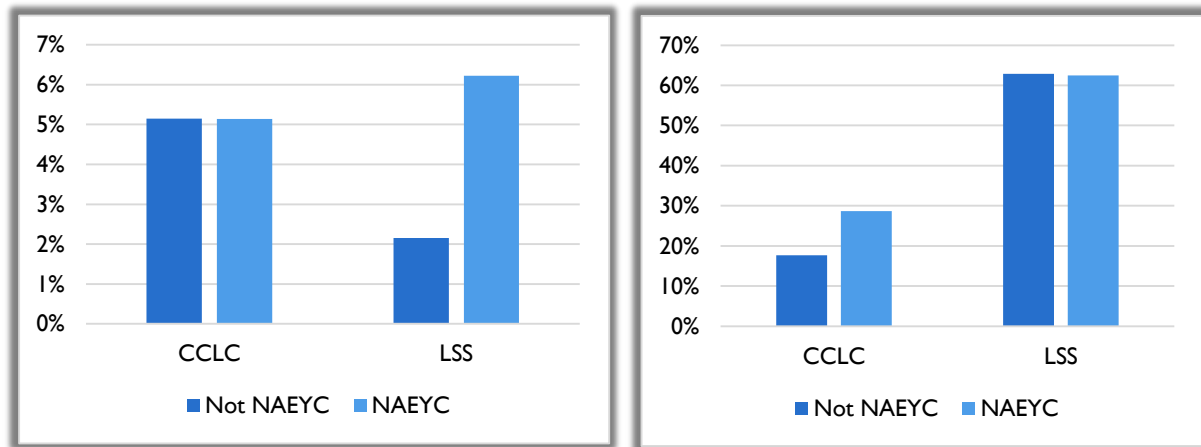
Between FY 2010 and FY 2014, the percentage of certified personnel was increasing (Figure 1). This growth slowed and flattened after 2012, as there was less concentration of certified teachers and assistants when opening classrooms after 2011. An opening classroom is an instance where a current Pre-K site increased its number of Pre-K classrooms or a new Pre-K site opened. A closed classroom is an instance where a current Pre-K site reduced its number of classrooms or a Pre-K site stopped offering Pre-K for some reason. More than 95 percent of those receiving this credential level were lead teachers, so these percentages would approach 100 percent rather than 50 percent if assistant teachers were excluded.

**Figure I. Average Percentage of Certified Lead Teachers and Assistants
FY 2010-FY 2014**



The National Association for the Education of Young Children (NAEYC) is a professional organization that promotes high-quality early learning. NAEYC accreditation indicates to parents that the provider is committed to providing quality care and early learning. Not all centers that provide high-quality care are NAEYC accredited, but any center that chooses to participate and gains accreditation must adhere to a set of standards that NAEYC defines as high quality. For 4-year-olds, NAEYC recommends a maximum class size of 20 with two teachers, which could create pressure for NAEYC Pre-K providers to not enroll more than 20 students. This is anecdotally supported by Figure 2, which compares vacancy rates and waitlist percentages between NAEYC centers and centers that are not NAEYC accredited. Vacancy rates are almost identical between NAEYC accredited and non-accredited, but the percentage that have a non-zero waitlist on the final roster count was larger for NAEYC accredited.

Figure 2. Average Vacant Slot Rate by NAEYC Status and Provider Type FY 2014



The degree of competition for students in a local market among Pre-K providers could influence vacancy rates. Table 3 organizes Pre-K providers by how far geographically they are from the physically closest Pre-K competitor. The first quartile represents the quarter of Pre-K providers with the physically closest competitors, and the fourth quartile represents the quarter of providers with the greatest distance between themselves and their closest competitor. Vacancy was generally higher at sites that had other providers geographically closer to them, and vacancy grew faster over the period at these sites as well. However, the difference among vacancy rates is still relatively small even in a geographic context.

Table 4. Vacancy Rate by Proximity Quartile and Fiscal Year FY 2009-FY 2014

QUARTILE	2009	2010	2011	2012	2013	2014
1	2.39%	2.10%	2.35%	3.84%	2.91%	4.66%
2	2.03%	2.13%	2.04%	2.93%	3.31%	4.08%
3	1.84%	1.66%	2.19%	2.80%	2.44%	3.41%
4	2.20%	1.99%	1.85%	2.01%	2.43%	3.33%

In certain instances, Pre-K providers could face competition from centers that do not offer Pre-K but provide alternative childcare and learning environments for 4-year-olds. To examine the potential effect of this type of competition on supply and demand, each Pre-K provider was described by how many centers were close by (within 10 miles) that were classified by DECAL as licensed to provide preschool but not Georgia Pre-K. Table 5 organizes providers into quarters by the count of preschool competitors, where the first quartile is the quarter of providers with the fewest number of physically close preschool competitors, and the fourth quartile is the quarter of Pre-K providers with the most. This type of competition does not appear to affect Pre-K vacant slots rates based on the very similar vacant slot percentages across the four quartiles of level of close competition. The waitlist percentage is higher for the quarter of provider's with the most close-by preschool providers, but the second-highest waitlist percentage is the smallest quarter. The uptick in waitlist for the providers with most local preschool competition might reflect the metro-Atlanta effect where the market for childcare provides greater opportunity to consider multiple providers.

Table 5. Vacant Slot Rate and Waitlist Rate by Number of Preschool Competitors FY 2014

QUARTILE	VACANT SLOT RATE	WAITLIST PERCENTAGE
1	3.80%	38.49%
2	3.45%	35.51%
3	3.99%	35.70%
4	3.83%	46.48%

Population growth of 4-year-olds increases the local demand for Pre-K slots. When the number of 4-year-olds in an area is going up, the number of those who would like to enroll in Georgia Pre-K is likely to also increase. Predicting where population changes in 4-year-olds will occur and matching it with corresponding changes in Pre-K capacity is difficult. The mismatches in changes to capacity and changes in the 4-year-old population could be driving some local oversupply or undersupply.

The next section of the report breaks down the state into the six DECAL defined resource and referral regions (R&R) and the five largest counties in Georgia based on the population of 4-year-olds. For each of these areas, year-to-year percent changes in the age 4 population and Pre-K capacity are analyzed along with the local vacancy rate. The vacant slot rate for a year is calculated as the available slots minus the final roster count divided by their available slots. This represents the percentage of capacity that was left empty by the end of the year.

The appendices provide detailed information for all of the referral regions and counties analyzed. For each of these areas, the percent changes in the allocation of Pre-K slots, percent change in age 4 population and the vacancy rate are detailed. These allow for the comparison of changes to age 4 population and the corresponding changes in capacity and what effect these might have on vacancy rates.

Looking across these figures, increases in capacity that did not align with population growth appeared to shift vacancy rates upward to a greater degree than increases in capacity that matched a corresponding increase in population. Examples of this include referral region one in 2013, referral region two in 2012, and referral region three in 2014. There are other county examples as well. Population changes are related to vacant slot rates, after changes to local capacity have been taken into account. Some counties

or referral regions appear to be more likely to have vacancy in general, even after changing age 4 population and capacity are considered.

In order to bring these many factors together and consider local factors, each provider was tagged to its census tract to describe the community where it is located. Using Census data, a regression model was used to investigate which local factors (such as percent of children in poverty, household income, employment status of parents, and percent of 3- and 4-year-olds in married or single-parent households) influence the chances that a provider was operating at capacity. The regression output of that model is included below.

The topics already discussed have expected signs from the model. Higher county saturation rates (the share of age 4 population being served) are negatively related to chances of a provider having full classrooms. As a county serves more and more of the age 4 population, it becomes less likely that the providers located within that county will operate at full capacity. Providers that have recently added classrooms are less likely to have full classrooms. Providers that have higher percentages of certified teachers and assistants are more likely to operate at full capacity. School-based providers are more likely than private providers to operate at capacity.

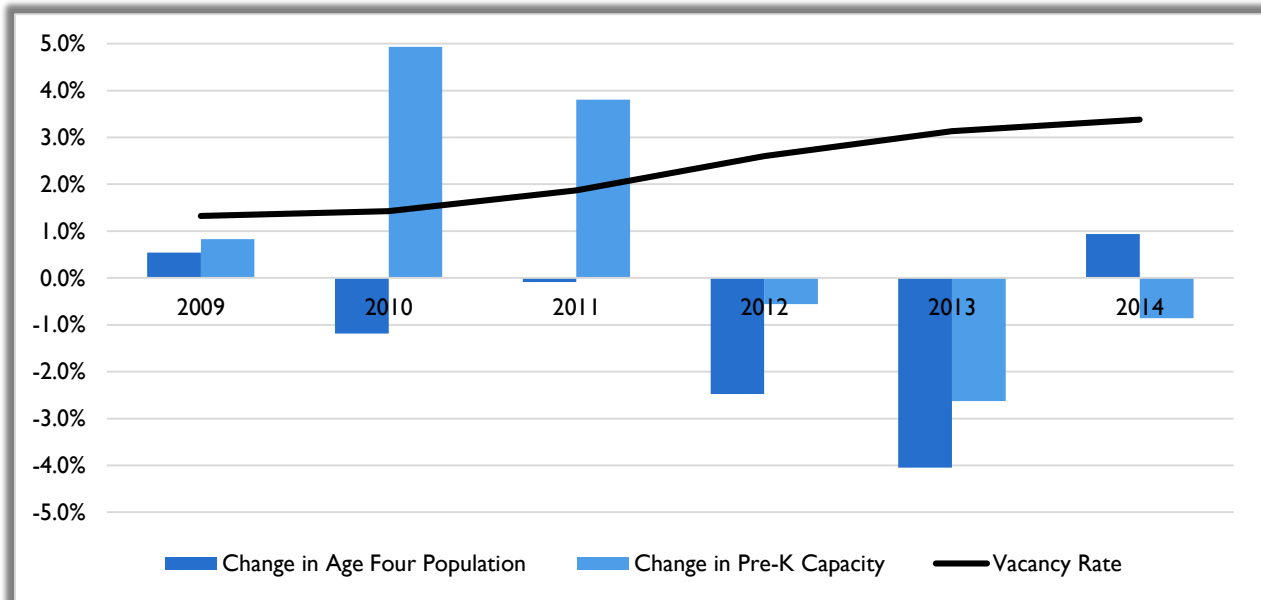
Providers located in communities with higher percentages of children living in middle-income households were more likely to operate at capacity. The percentage of people living in poverty was not statistically related to the chances that a provider was operating at capacity nor was the percentage of high-income households. The percentage of children under the age of 5 who were black or white was not a predictor of operating at capacity. Providers located in communities with higher percentages of 5-year-olds who were Hispanic were more likely to have full classrooms.

In conclusion, there are many factors related to the supply and demand for Pre-K classrooms. Newly added capacity is more difficult to fill. Added capacity during periods of stable or shrinking population creates pressure toward empty Pre-K slots. During periods of growing age 4 population, decreasing or stable capacity creates pressure toward more children being left without access. School-based providers were more likely to operate at capacity or have students on the waiting list than private providers. Providers located in communities with high shares of middle-income families were more likely to operate at capacity than communities with either higher-poverty or high-income families. Demand for Pre-K was not related to a community's racial makeup with one exception. Communities with higher percentages of Hispanic children were more likely to operate at capacity.

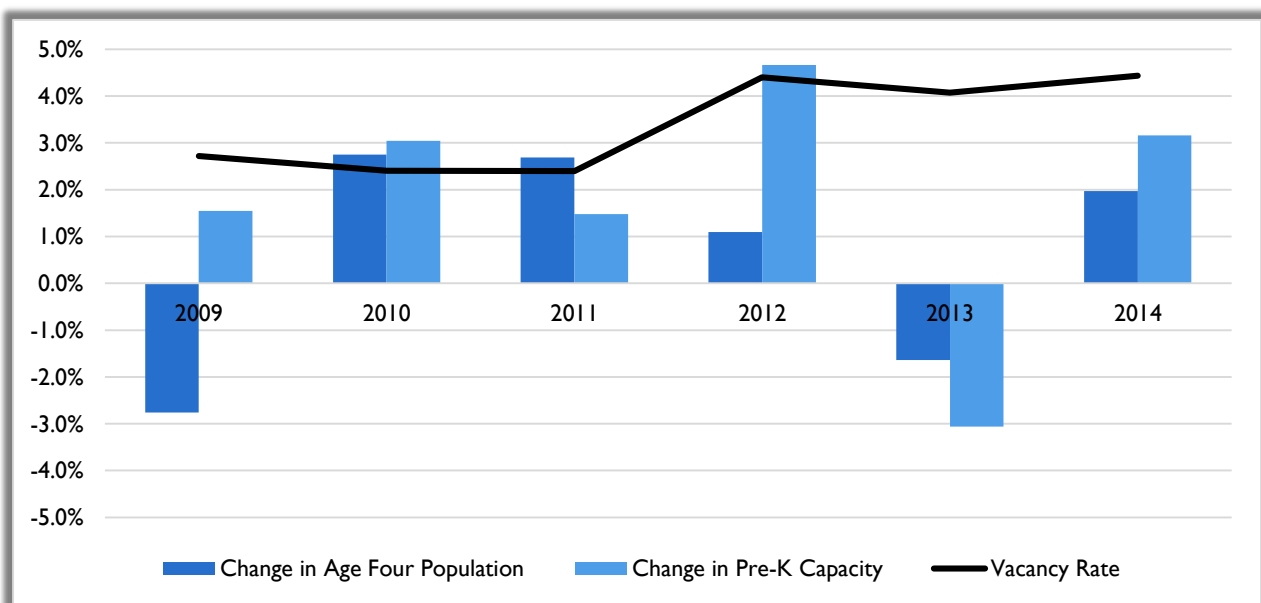
Referral Region Details: Appendix A

Age 4 populations are based on data obtained from Surveillance, Epidemiology, and End Results Program (SEER). Capacity, as measured by Pre-K slots and vacancy rates are based on final roster Pre-K data obtained from DECAL.

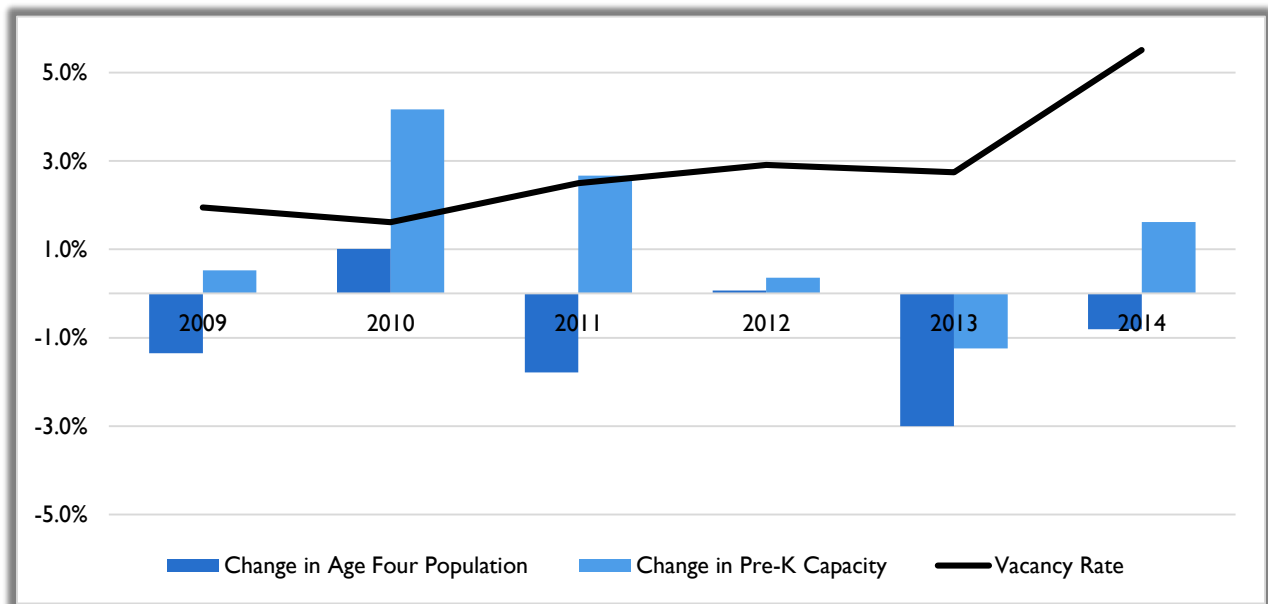
Referral Region 1: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate



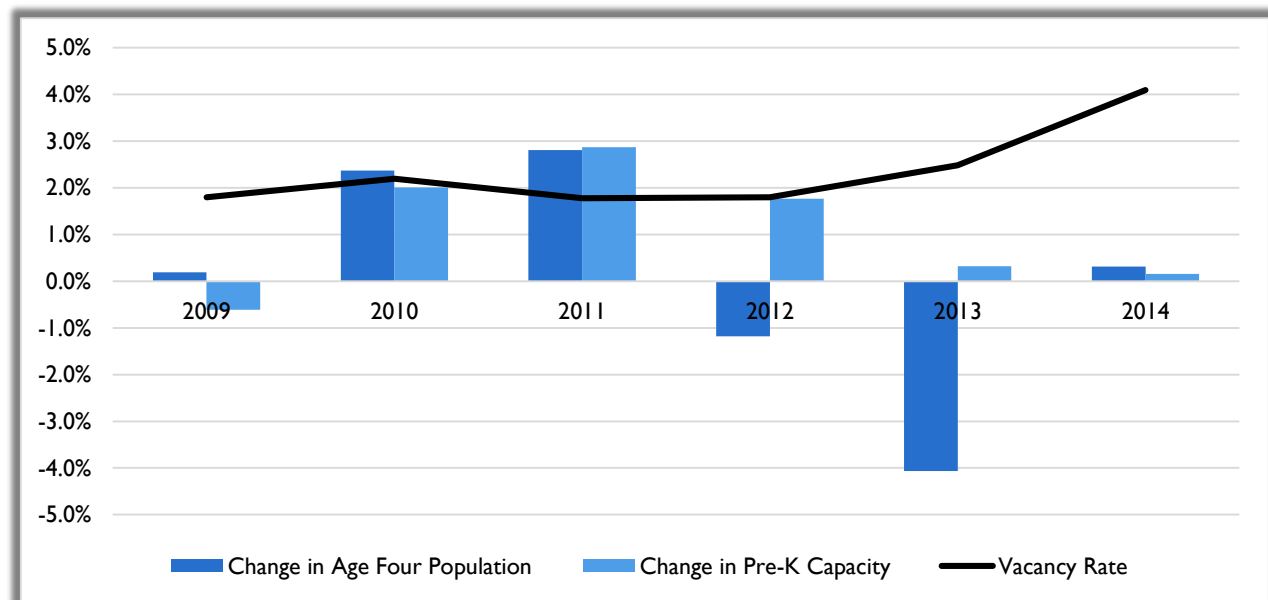
Referral Region 2: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate



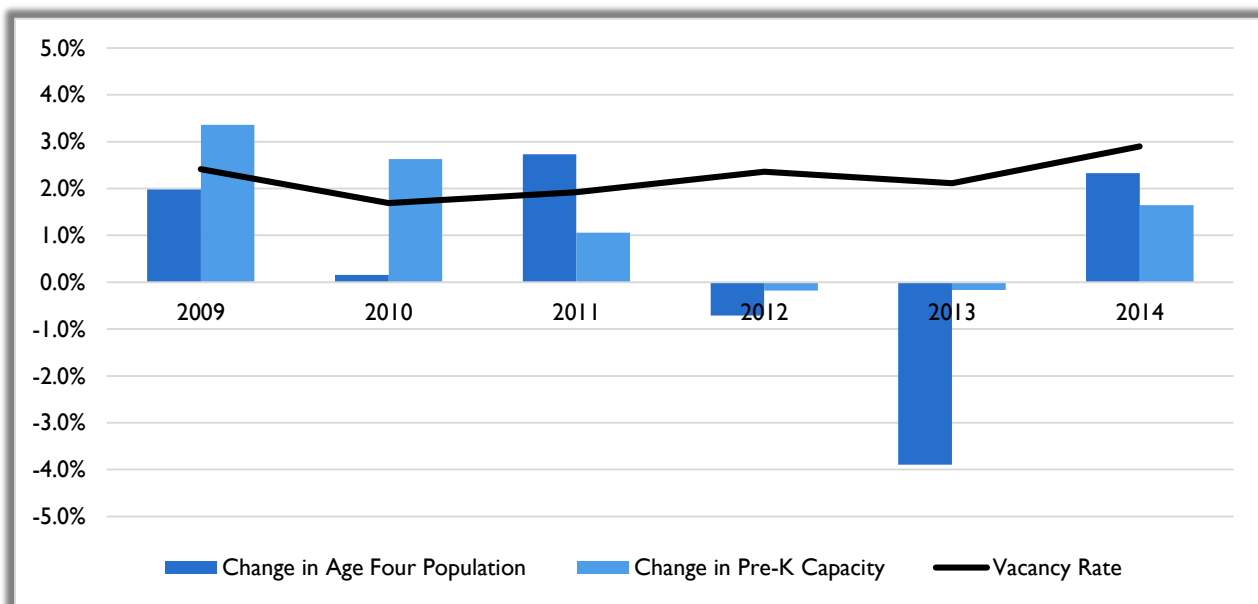
Referral Region 3: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate



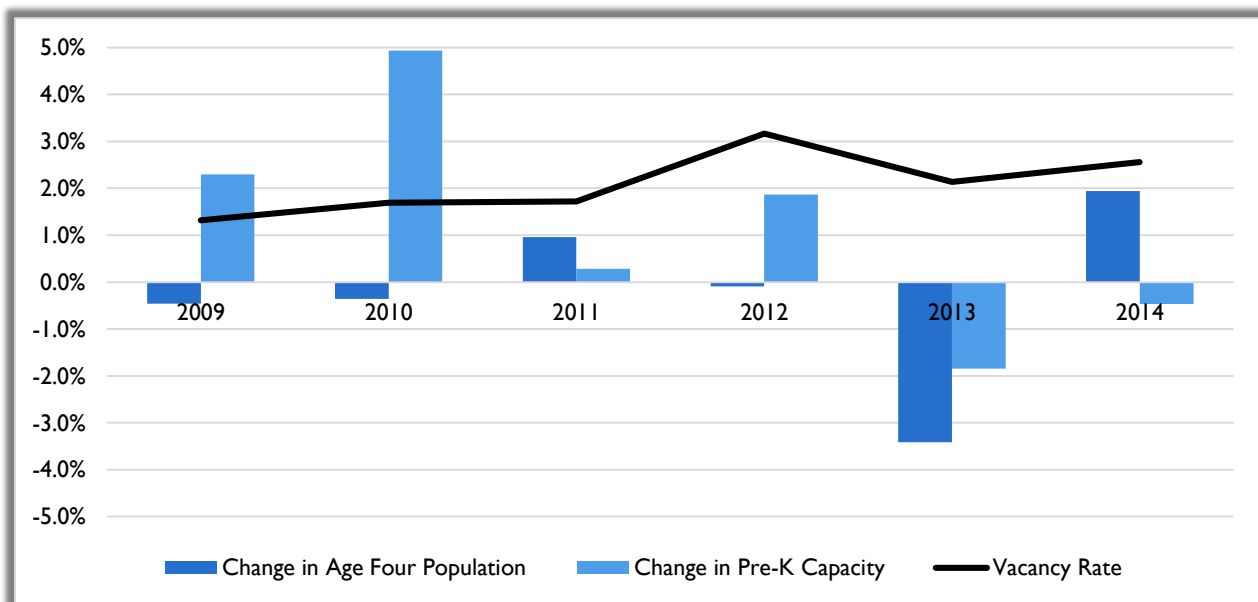
Referral Region 4: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate



Referral Region 5: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate

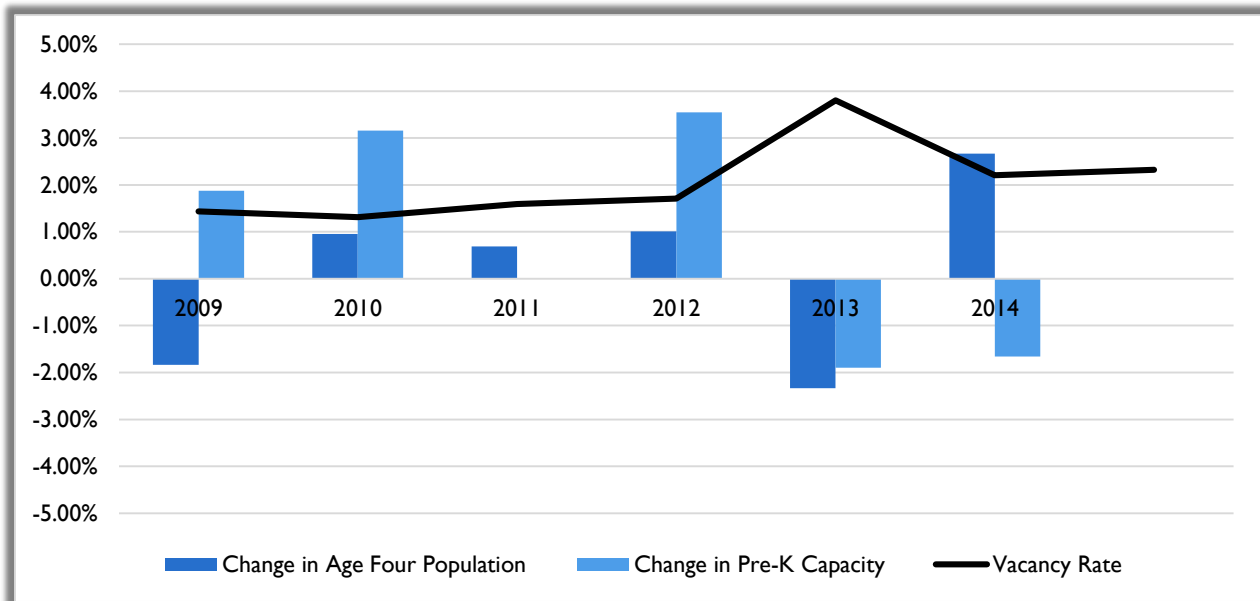


Referral Region 6: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate

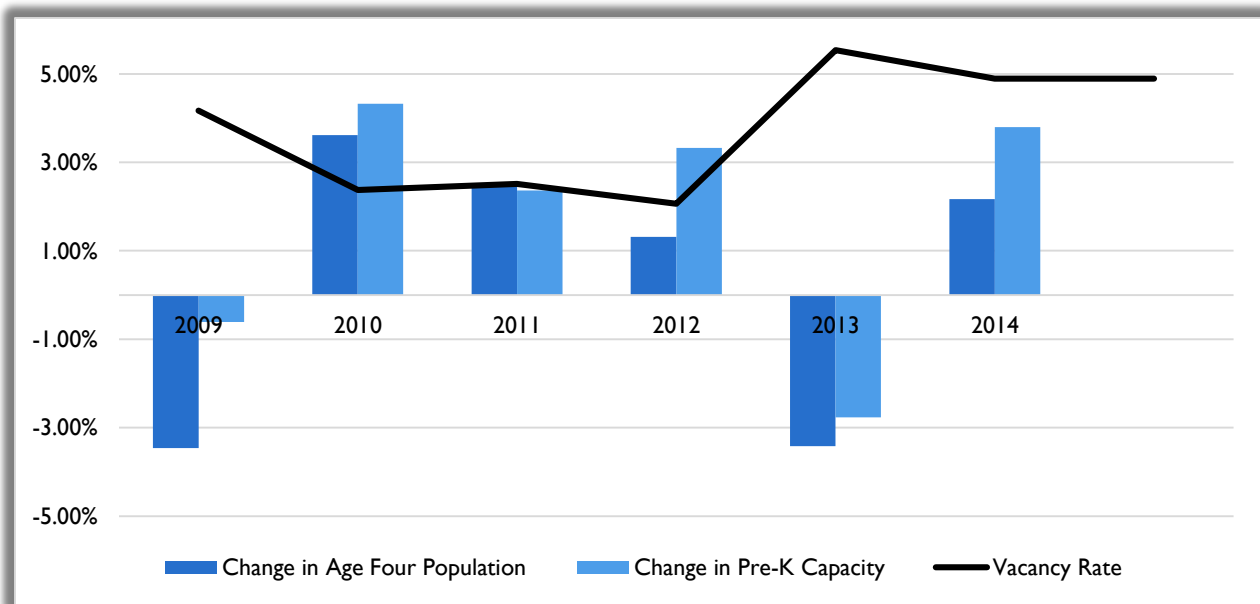


County Details: Appendix B

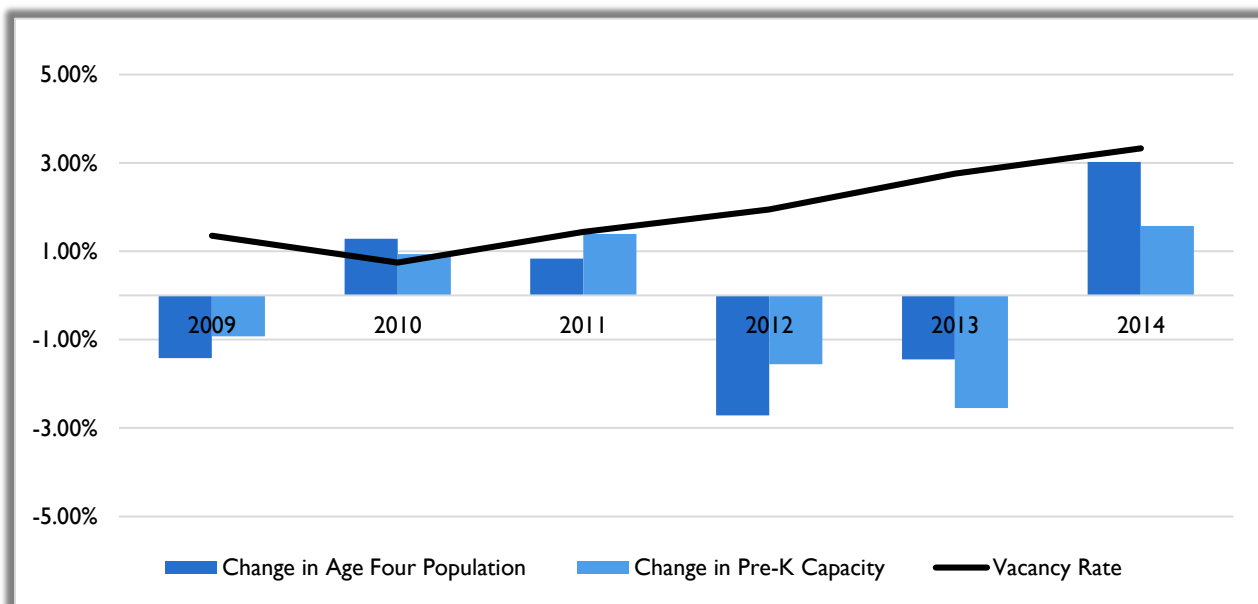
Gwinnett County – Rank 1: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate



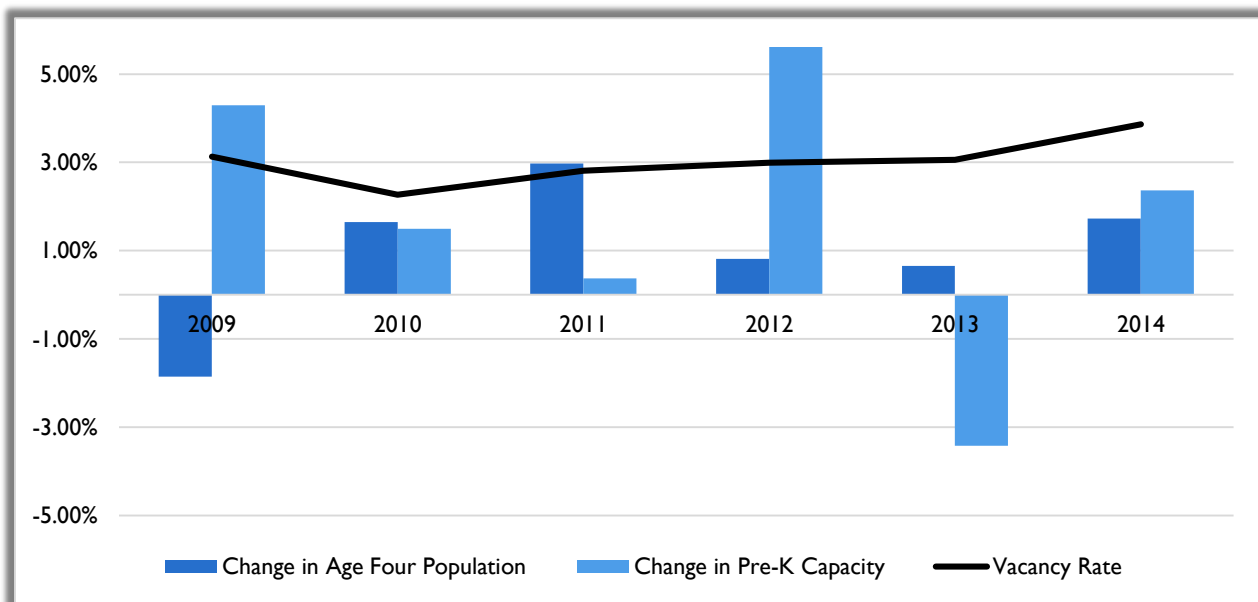
Fulton County – Rank 2: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate



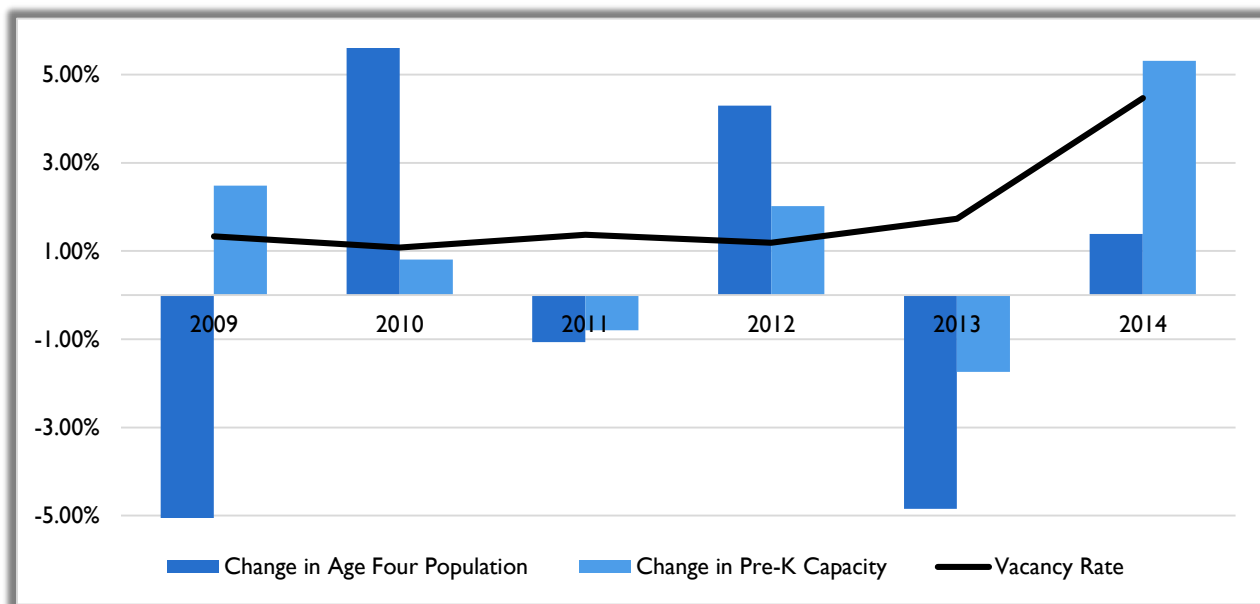
Cobb County – Rank 3: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate



DeKalb County – Rank 4: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate



Clayton County – Rank 5: Year-to-Year Changes in Age 4 Population and Pre-K Capacity with the Current Vacancy Rate



Regression Results: Appendix C

Panel Logit Regression Model. The statistical relationship between explanatory variables and the probability of a provider operating at capacity.

VARIABLES	CAPACITY(=1) NOT CAPACITY(=0)
County Saturation Rate	-0.0166*** (0.00406)
Recently Added Classrooms	-0.551*** (0.149)
Percent Black	-0.463** (0.185)
Percent Hispanic	0.855* (0.445)
Percent Living in Poverty	-0.769 (0.627)
Percent in Married-Parent Households	0.0886 (0.168)
Percent in Households earning between \$20K and \$100K	1.637*** (0.402)
Percent Living in Household with Employed Parents	0.300 (0.192)
Percent of Teachers/Assistants Certified	0.522*** (0.191)
Other Private Provider	-0.357 (0.384)
Local School Provider	0.926*** (0.101)
Constant	0.138 (0.417)
Observations	
Number of Provider Site ID	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

About the Authors

NICHOLAS WARNER, a research associate at the Center for State and Local Finance at Georgia State University, specializes in education finance. His recent research has focused on school district expenditure and revenue portfolio analysis, tax expenditure estimation, examination of Georgia's special option sales tax for school facility funding, and school districts' responses to the Great Recession. His work has been published in the *Journal of Education Finance* as well as by the Georgia Department of Early Care and Learning. Warner received his master's degree in economics from the Andrew Young School of Policy Studies.

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