REINVESTMENT FUND

Childcare Analysis for Metro Atlanta

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Introduction

High-quality early care and learning supports positive development and helps prepare children for success in school and beyond. Quality child care is also critical for families, as it allows parents to maintain employment. With support from the Richard W. Goldman Family Foundation and the JP Morgan Chase Foundation, Reinvestment Fund conducted a study of the supply of and demand for child care in the five-county metro Atlanta region (Clayton, Cobb, DeKalb, Fulton, and Gwinnett counties), hereafter 'five-county region'. In addition, an interactive web based tool was created to present the results of this analysis, accessible at www.atlaccessmap.org.

The analysis and mapping tool complement existing tools and initiatives in the region to increase access to high-quality child care. With this information, funders, practitioners, and advocates can make data-informed decisions about where resources and interventions are needed most. Similar analyses informed the creation of a Fund for Quality in Philadelphia and Washington, DC (in development), which provides training, technical assistance, and funding support to create high-quality options in underserved areas. Since its inception in 2014, Fund for Quality financing has contributed to the creation of more than 1,500 high-quality seats in Philadelphia (Visit www.fundforquality.org for more information).

Main Findings

- **About one-third of the region's demand for child care is unmet.** Across the five-county region, Reinvestment Fund identified nearly 3,000 providers with a total estimated supply of about 173,000. A commuter adjusted demand estimate of 262,000 combined with a total supply estimate of 173,000 resulted in an absolute shortage of nearly 90,000.

- **The vast majority of supply was provided by Regulated and Full-time License-Exempt providers.** About 90 percent of supply was provided by licensed childcare providers (i.e., child care learning centers, family child care learning homes), local school systems, or providers with a license exemption (e.g., full-time accredited private or religious schools). Unregulated supply (i.e., providers that are not monitored by an early childhood education governing body) in the five-county region made up roughly 10 percent of total supply, significantly less than other cities. For comparison, unregulated providers accounted for about 25 percent of total supply in Philadelphia, PA and nearly 50 percent in Newark, NJ.

- **High gap areas can be found across all income groups.** About 11 percent of block groups (i.e., a geographical unit developed by the US Census Bureau) in the five-county region had high gaps between supply and demand *and* a family poverty rate of at least 20 percent. Additionally, about 15 percent of block groups in the five-county region had high gaps *and* a median family income of at least 100 percent of the area median income (AMI).

- **Many gap areas with large minority populations also had high levels of poverty.** Nearly 60 percent of areas with large gaps *and* a majority African American population (i.e., at least 50 percent), also had high poverty rates. Similarly, about two-thirds of areas with large gaps *and* a

sizable Hispanic population (i.e., at least 25 percent) also had high poverty levels.

- **A complete picture of the current landscape of high-quality child care in Metro Atlanta is still developing.** As of March 2017, about two-thirds of eligible providers in the five-county region were participating in Quality Rated, Georgia's Quality Rating & Improvement System (QRIS). Of eligible providers, about 25 percent had a star rating and nearly 40 percent were still in the process of being rated. As of March 2017, there were more than 400 providers with a star rating, accounting for a total supply of 40,100.

Overview of the Process

The Childcare Analysis has three primary steps: (1) Estimating Supply; (2) Estimating Demand; and (3) Estimating Gaps.[1] An advisory group of representatives from the local early education field provided guidance and feedback throughout the process.[2] During four stakeholder meetings, the advisory group vetted the reliability of data sources, established a working definition of high-quality, suggested changes to the methods that are appropriate to the five-county region, and validated the results to ensure they accurately represent the childcare landscape across the five-county region. The geographic level for the analysis is the Census Block Group – an area that represents roughly six city blocks, and home to between 600 and 3,000 residents. Supply and demand estimates described below were created for all 1,723 block groups in the five-county region.

Data Sources

There is no single data source to adequately model the supply of child care or represent demand for services. The analysis reviewed multiple data sources, both local and national, to present the most comprehensive picture of supply and demand. Estimates provided in this report were drawn from the data sources listed in Table 1.

Table 1: Sources to Estimate Supply and Demand

Sources for Estimating Supply	Sources for Estimating Demand
▪ Georgia Department of Early Care and Learning (DECAL) ▪ Quality Care for Children (QCC) ▪ Office of Head Start ▪ National Association for the Education of Young Children (NAEYC) ▪ National Establishment Time Series (NETS) ▪ InfoUSA	▪ Longitudinal Employer-Household Dynamics (LEHD), US Census ▪ American Community Survey (ACS), US Census ▪ The Nielsen Company ▪ Integrated Public Use Microdata Series (IPUMS –USA)

[1] See Appendix VI for a description of the methodology.
[2] See Appendix I for a list of stakeholders.

Supply Data Sources

Six data sources were combined to create an unduplicated list of childcare providers in the five-county region.[3] The primary data source for childcare supply was Georgia's Department of Early Care and Learning (DECAL), the state agency responsible for administering and monitoring early childhood programs in Georgia. DECAL provided information on licensed childcare centers, family child care learning homes, Georgia Pre-K providers, and license-exempt programs (downloaded in March 2017). Data from DECAL accounted for nearly 90 percent of the supply identified by the analysis. The remaining 10 percent was identified using NETS and InfoUSA, national business establishment databases used to estimate unregulated supply (i.e., early childhood operators that are not monitored by an early childhood education governing body).[4] The inclusion of these databases provided a first glimpse of business operators who likely offer childcare services, but have not gone through the licensing process or acquired a legal exemption.

Demand Data Sources

Three demand estimates were calculated, accounting for various factors that may influence the demand for child care. The *baseline demand* represents the projected number of children in a block group between the ages of zero to four in 2017, produced by the Nielsen Company.[5] A *commuter adjusted demand* modifies the *baseline demand* to account for commuting patterns and workforce characteristics of parents, using commuting patterns in the Longitudinal Employer-Household Dynamics database and individual-level workforce characteristics in the American Community Survey (2011 data accessed through IPUMS USA). Lastly, the *maximum potential demand* builds on the *commuter adjusted demand* to account for demand in neighboring block groups.[6]

Defining Child Care

For this analysis, childcare establishments were defined as providers that offer a combination of supervision and educational programming for children under the age of five. In addition, a critical piece of the analysis required a measure of quality for childcare providers. Based on feedback from the stakeholder group, this analysis relied on Quality Rated as a measure of quality to align with ongoing early learning and education efforts in the state. Initially launched in 2012, Quality Rated is a voluntary Quality Rating and Improvement System in which childcare providers undergo an evaluation to receive a star rating (1, 2, or 3 stars). A three-star rating indicates the highest quality, but any program that receives a star rating has exceeded basic licensing and safety standards.

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[3] See Appendix VI for more information on the supply sources, supply types, and data cleaning process.

[4] An additional 13 providers were identified using records provided by Quality Care for Children (QCC), an Atlanta-based early childhood resource and referral organization. These 13 providers were classified as unregulated supply.

[5] Nielsen county level population estimates had a 3.2% mean absolute error rate, based on 2010 estimates compared to 2010 decennial counts. This estimation error increases to 12.0% for block group level population estimates. Visit www.claritas.com for more information.

[6] See Appendix VI for a more detailed overview of demand adjustments.

Three distinct supply estimates provide a comprehensive view of the early childhood education landscape in the five-county region:

1. **Total** – The *Total* supply of child care includes all unique childcare programs identified in the six data sources, including regulated, license-exempt, and unregulated programs.

2. **Regulated plus Full-time License-Exempt –** *Regulated plus Full-time License-Exempt* is a subset of childcare providers that is subject to state or federal oversight. Regulated child care includes full-time licensed childcare providers (e.g., child care learning center, family child care learning home), Head Start providers, and local school systems operating early learning programs. License-exempt programs are childcare programs that have been granted a legal exemption from licensing. Based on feedback from the advisory group, the analysis only included exemption categories that offer full-time early learning services: exemptions 3 & 4 (i.e., accredited private schools), and 14 (i.e., accredited religious schools).[7]

3. **Quality Rated** – *Quality Rated* represents a subset of childcare providers that have completed the evaluation process and received a star rating. Note that some programs, including those in local school systems and selected license-exempt programs, are not eligible to participate in Quality Rated.

Estimating the Supply of Child Care

Across the five-county region, Reinvestment Fund identified nearly 3,000 providers with a total estimated supply of about 175,000.[8] Fulton County had the largest supply, accounting for one-third of the total supply. Clayton County accounted for the smallest share (less than 10 percent), while Cobb, DeKalb, and Gwinnett counties each accounted for about 20 percent of total supply. Figure 3 (see page 6) presents the location of all childcare providers in the five-county region – *Regulated plus Full-time License-Exempt* providers are represented by orange dots; unregulated providers are represented by purple dots.

The majority of supply is provided by *Regulated plus Full-time License-Exempt* providers, accounting for nearly 90 percent of the total supply in the five-county region (see Figure 1, page 5). Fulton County had the smallest share of unregulated supply with fewer than 10 percent of its 53,000 total supply, while Clayton County had the largest share with 16 percent of its 14,000 total supply.

Roughly a quarter of the *Regulated plus Full-time License-Exempt* supply is also *Quality Rated*.[9] As of March 2017, there were 428 providers with a star rating, accounting for a total supply of 40,100 (see Figure 2, page 5). About 660 additional providers were participating in Quality Rated, but had not yet completed the evaluation process.

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[7] See Appendix VI for more information on license-exempt supply.
[8] See Appendix VI for more information on estimating supply.
[9] A subset of *Regulated plus Full-time License-Exempt* is not eligible to participate in Quality Rated: local school systems and selected license exempt programs. Of 1,966 *Regulated plus Full-time License-Exempt* providers, about 12 percent is not eligible to participate in Quality Rated.

Figure 1: Supply of Regulated plus Full-time License-Exempt & Unregulated Providers, n = 172,300 (March 2017)

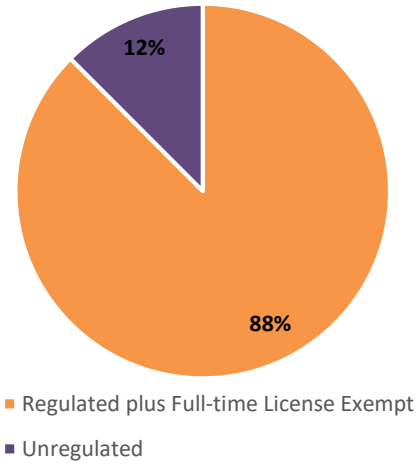


Figure 2: Supply of Providers Participating in Quality Rated by Rating Status, n=95,200 (March 2017)

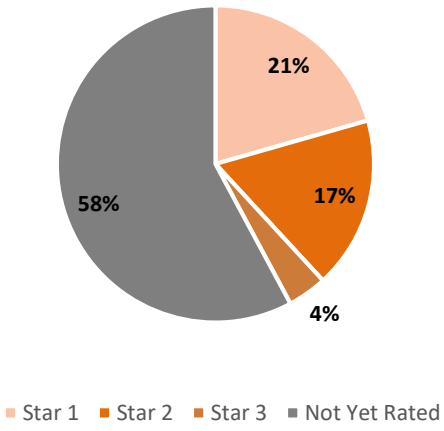
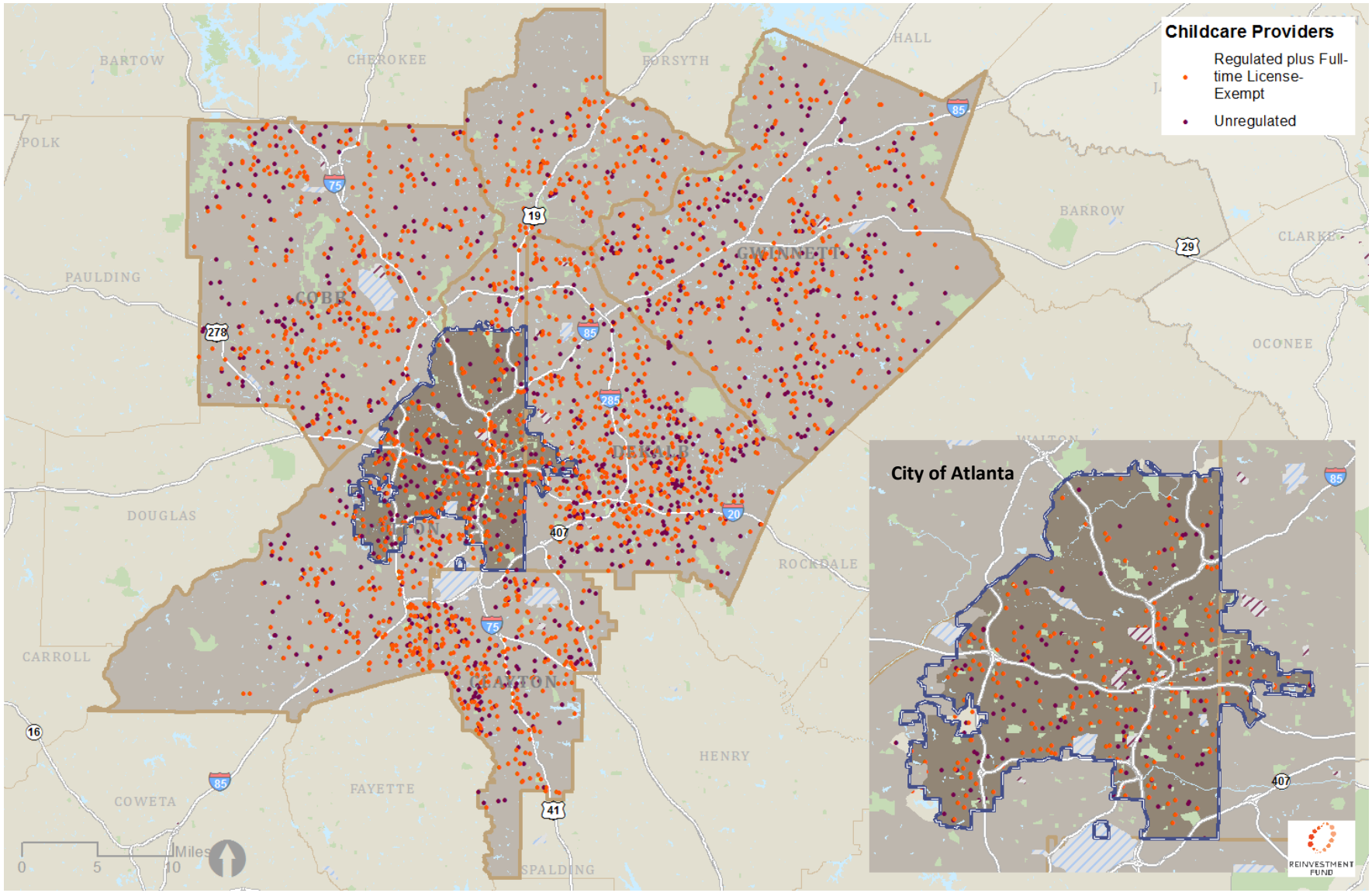


Figure 3: Child Care Providers in the Five-County Metro Atlanta Region; n=2,910 (March 2017)



Estimating Demand for Child Care

The *maximum potential demand* for child care in the five-county region was approximately 378,000 in 2017.[10] Starting with a *baseline demand* of 250,000 children under the age of five living in the five-county region, adjustments were made to account for where people live and work, as well as the income and workforce characteristics of commuters (Figure 4).[11] Accounting for the net inflow of commuters working in the five-county region, an additional 12,000 children were added to the *baseline demand*, to create a *commuter adjusted demand* of 262,000 (Figure 5). Between Figures 4 and 5, the largest increases were primarily in areas with large job centers, whereas sizable decreases were in predominantly residential areas. Accounting for demand in neighboring block groups further magnified demand near major transportation corridors and employment centers (Figure 6).

Figure 4: Baseline Demand

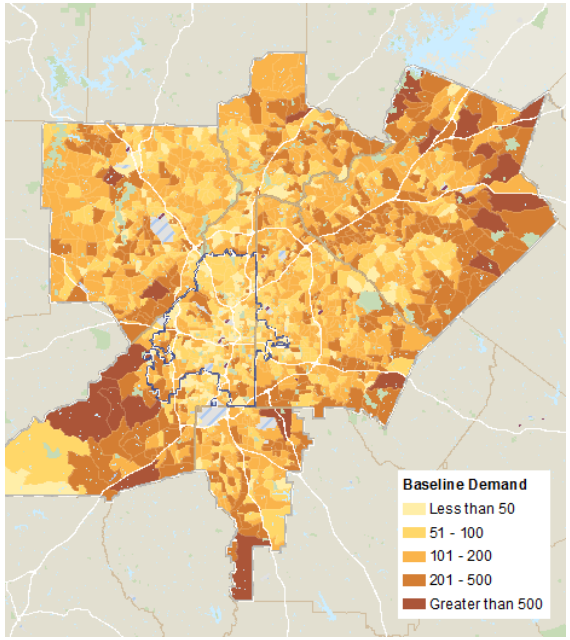


Figure 5: Commuter Adjusted Demand

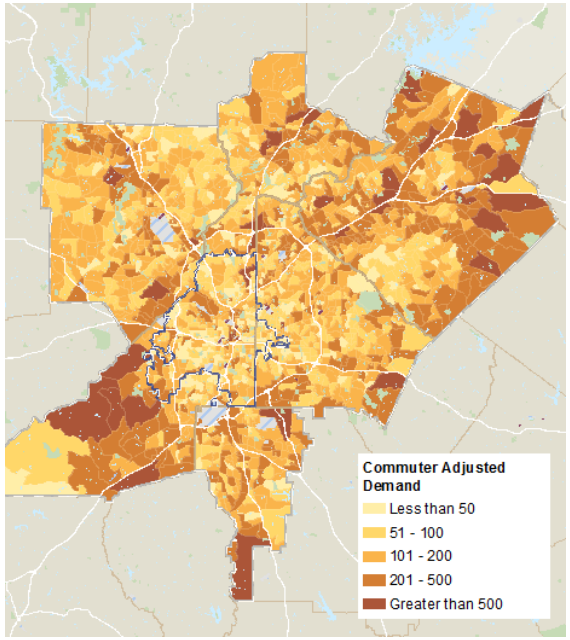
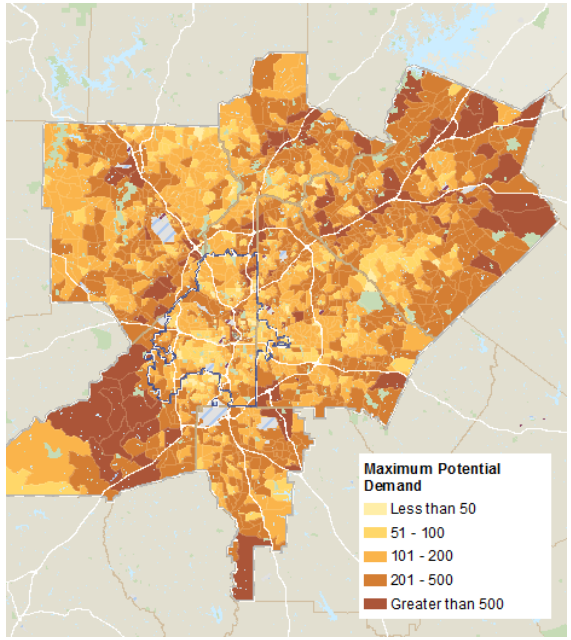


Figure 6: Maximum Potential Demand



[10] See Appendix V for more information on estimating demand.

[11] Overall, there were an estimated 3,546,000 people; 1,279,000 households; and 816,000 families in the five-county region (Census American Community Survey, 2011-2015).

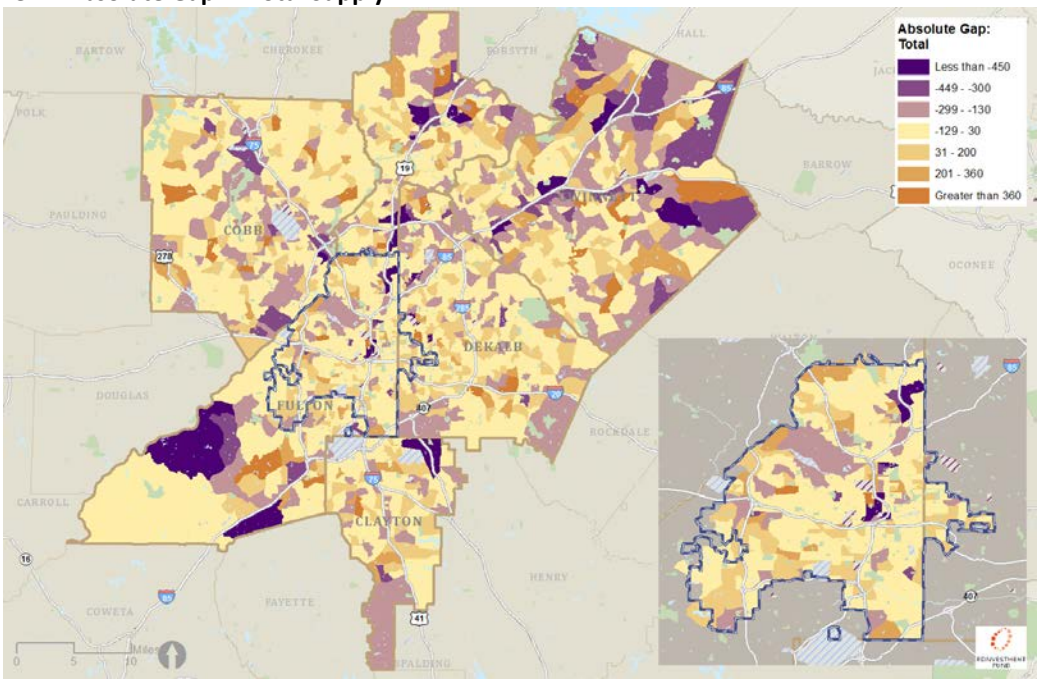
Identifying High Need Areas

After estimating the overall supply of and demand for child care, gaps in access to child care were identified. Two gap measures were calculated, *absolute* and *relative gaps,* for the three supply types - *Total, Regulated plus Full-time License-Exempt, and Quality Rated*. The *absolute gap* is the raw difference between observed supply and *commuter adjusted demand* in every block group. The *relative gap* is the difference between the observed supply and an estimated, expected supply. The expected supply is derived from a spatial regression model that predicts the supply in each block group. The model accounts for the *maximum potential demand* within each block group and the supply observed in neighboring block groups.[12]

Absolute Gaps

Absolute gaps present a simple picture of the disconnect between supply and demand in block groups across the five-county region. Figure 7 presents *absolute gaps* for all block groups across the region; in Figure 7, purple-hued block groups represent larger gaps; yellow block groups have relatively small gaps; and brown-hued block groups represent surpluses.

Figure 7: Absolute Gap in Total Supply [13]



- An overall demand estimate of 262,000 combined with an overall supply estimate of 173,000 resulted in an *absolute gap* of nearly 90,000. The *absolute gap* widened to 111,000 for supply in *Regulated plus Full-time License-Exempt* providers.
- Across the five-county region, there was roughly enough supply to meet two-thirds of the demand. The *absolute gap* in *Total* supply and *absolute gap* in *Regulated plus Full-time License-Exempt* supply were identical for two-thirds of all block groups, meaning there were no

[12] See Appendix V for more information on calculating *absolute* and *relative gaps*.
[13] See Appendix II for maps of *absolute gaps* in *Regulated plus Full-time License-Exempt* and *Quality Rated* supply.

unregulated providers in these block groups.

Relative Gaps

The *relative gap* is a more nuanced measure that accounts for the interaction between supply and demand, the influence of other block groups, and the dynamics of the five-county region. *Relative gap* estimates are presented in five categories: Much Higher than Expected, Higher than Expected, Expected, Less than Expected, and Much Less than Expected. These categories provide a way to understand gaps in specific block groups within the context of the rest of the five-county region.

Figures 8 and 9 (see page 10) present the *relative gaps* in *Total* supply and in *Regulated plus Full-time License-Exempt* supply. In Figure 9, block groups where the *relative gap* in *Regulated plus Full-time License-Exempt* is different from the *relative gap* in *Total* supply are highlighted with an outline, indicating a difference between the concentration of *Regulated plus Full-time License-Exempt* and unregulated supply in an area. [14] Table 2, below, presents the percentage of block groups in each county for each *relative gap* category.

Table 2: Relative Gap in Total Supply by County (Number / Percent of block groups)

	Much Less than Expected Gap	Less than Expected Gap	Expected Gap	Higher than Expected Gap	Much Higher than Expected Gap	Total
Clayton	23 *18%*	12 *10%*	55 *44%*	32 *25%*	4 *3%*	126 *100%*
Cobb	40 *11%*	29 *8%*	169 *48%*	99 *28%*	13 *4%*	350 *100%*
DeKalb	42 *11%*	36 *9%*	196 *50%*	98 *25%*	18 *5%*	390 *100%*
Fulton	75 *14%*	39 *7%*	269 *49%*	138 *25%*	23 *4%*	544 *100%*
Gwinnett	56 *18%*	28 *9%*	98 *31%*	90 *29%*	41 *13%*	313 *100%*
Total	**236** ***14%***	**144** ***8%***	**787** ***46%***	**457** ***27%***	**99** ***6%***	**1,723** ***100%***

- About one-third of block groups in each of the five counties were high-gap areas (i.e., Much Higher than Expected or Higher than Expected). Gwinnett County had the highest share of high gap areas, accounting for 42 percent (n = 313) of all block groups in the county, compared to about 30 percent of block groups in each of the remaining four counties.
- Given that *Regulated plus Full-time License-Exempt* supply constituted about 90 percent of total supply, the *relative gaps* in *Total* and *Regulated plus Full-time License-Exempt* supply were identical in more than 80 percent of the block groups. Most of the differences between the *relative gaps* in *Total* and *Regulated plus Full-time License-Exempt* supply observed in Figure 9 were small, edging up or down one category.

[14] See Appendix VI for a more detailed explanation of the differences.

Figure 8: Relative Gap in Total Supply

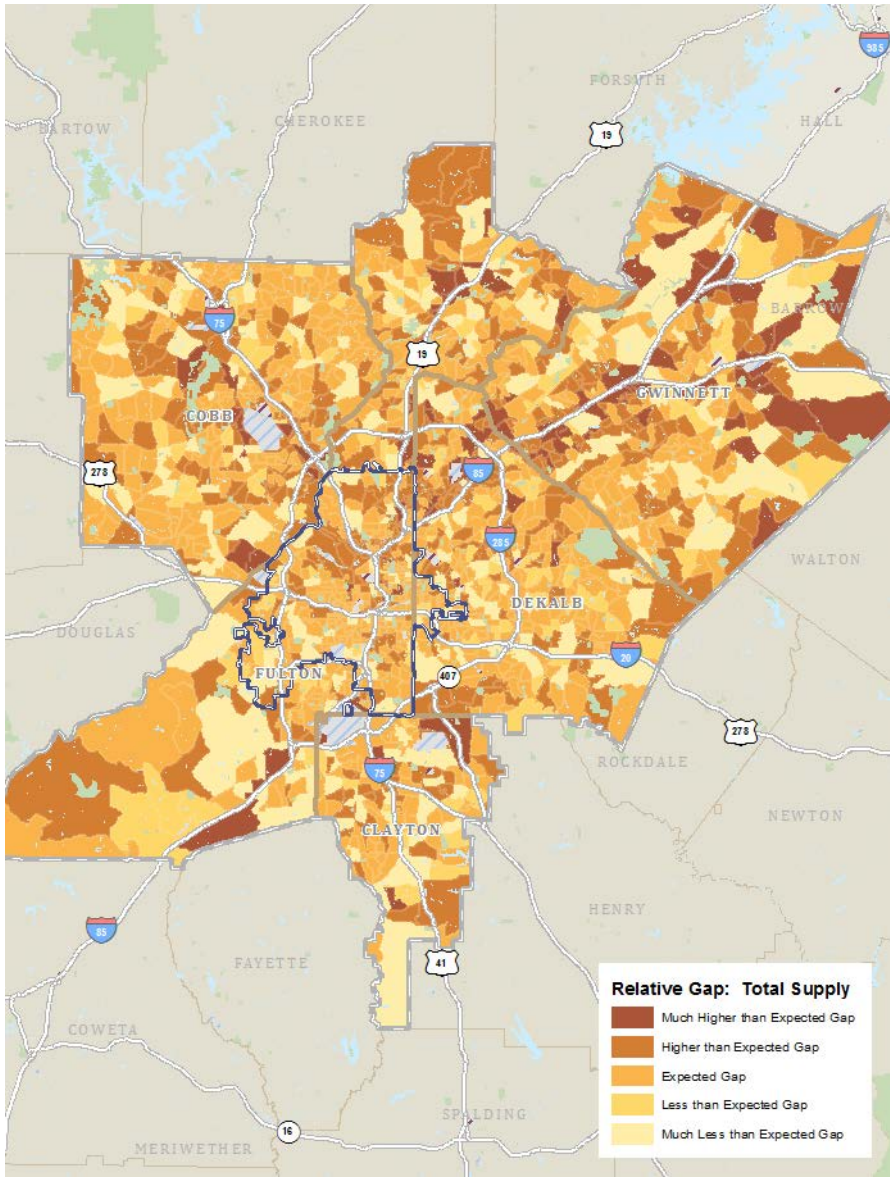
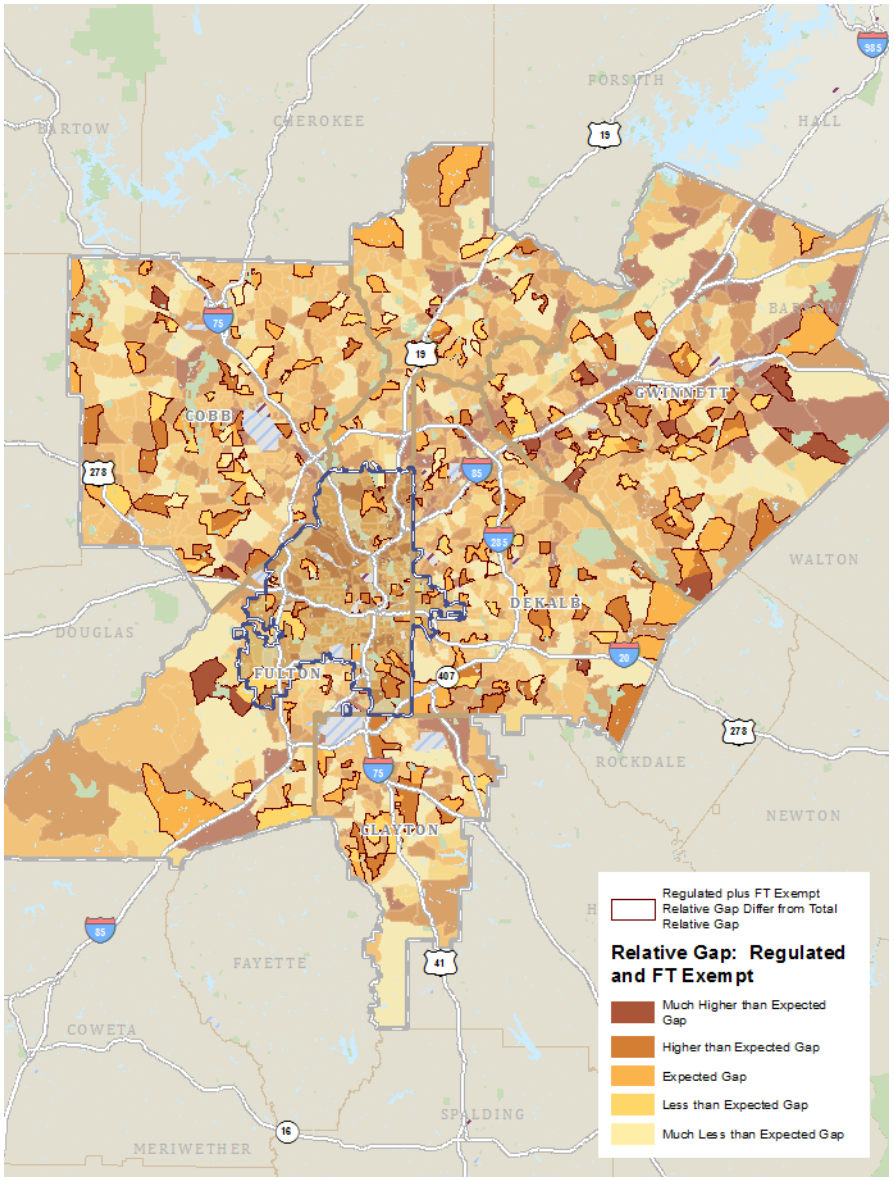


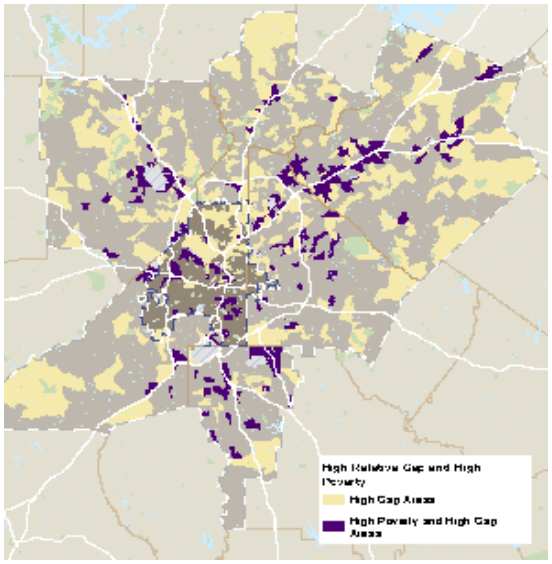
Figure 9: Relative Gap in Regulated and Full-time Exempt Supply



Relative Gap in Total Supply and Demographic Patterns

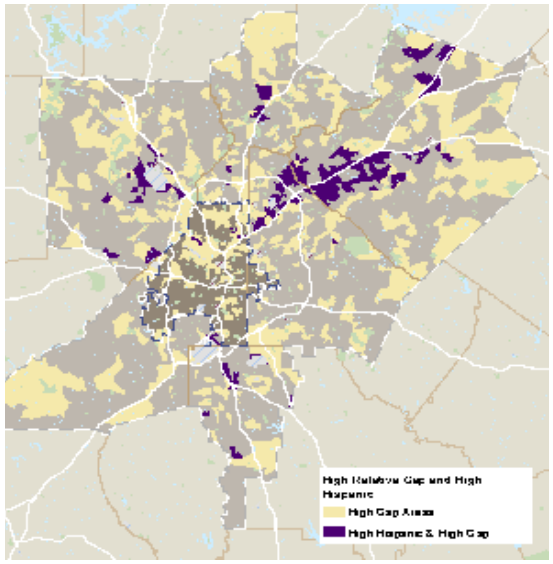
Across the five-county region, there was considerable overlap between areas with high gaps between the supply and demand for child care and concentrations of vulnerable populations (see Table 3 on page 12).[15] The figures below highlight the intersection between high *relative gap* areas (i.e., Much Higher and Higher than Expected Gaps) in *Total Supply and* block groups with high poverty levels (Figure 10); *and* block groups with a high concentration of Hispanic residents (Figure 11); *and* block groups with a high concentration of African American residents (Figure 12).[16]

Figure 10: High Relative Gap in Total Supply and Family Poverty (i.e., at least 20 percent)



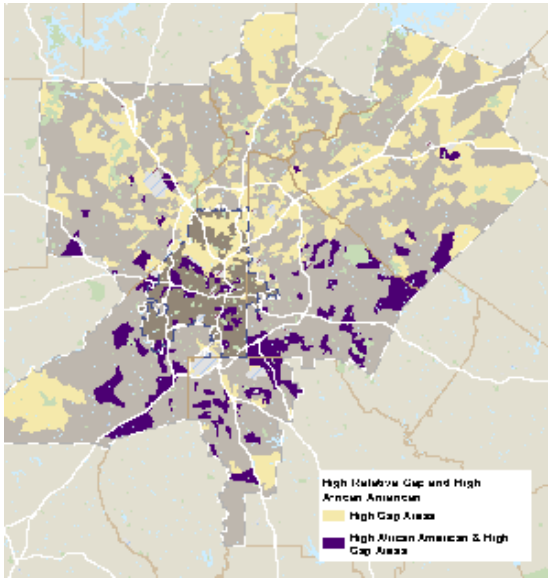
- About one-third of high gap areas in the five-county region also have family poverty rates of at least 20%.
- Fulton County accounted for 36% of high poverty block groups, but only 24% of those with high gaps and high poverty.

Figure 11: High Relative Gap in Total Supply and Hispanic (i.e., at least 25 percent)



- About a quarter of high gap areas also had high concentration of Hispanic residents.
- Gwinnett County accounted for 46% of the high gap and high Hispanic block groups.
- About two-thirds of high gap areas with sizable Hispanic populations also had high poverty levels.

Figure 12: High Relative Gap in Total Supply and African American (i.e., at least 50 percent)



- High gap areas with large African American populations were concentrated in three counties: Clayton, DeKalb, and Fulton.
- Nearly 60% of areas with high gaps and large African American populations also had high family poverty rates.

[15] In the five-county region, about 40 percent of the population were African American; 12 percent of the population were Hispanic; and 13 percent of families were living in poverty.

[16] See Appendix V for maps of *relative gap* in *Regulated plus Full-time License-Exempt* supply and demographic patterns.

Table 3 presents the number and share of block groups with high *relative gap* across different socio-demographic groups in the five-county region. For example, there were 503 block groups in the five-county region with a family poverty rate of at least 20 percent, and 16 percent of these block groups (n = 76) were in Gwinnett County. In addition, there were 186 block groups with high poverty rates that also had a high *relative gap* in *Total* supply, and 24 percent of these block groups (n = 45) were in Gwinnett County.

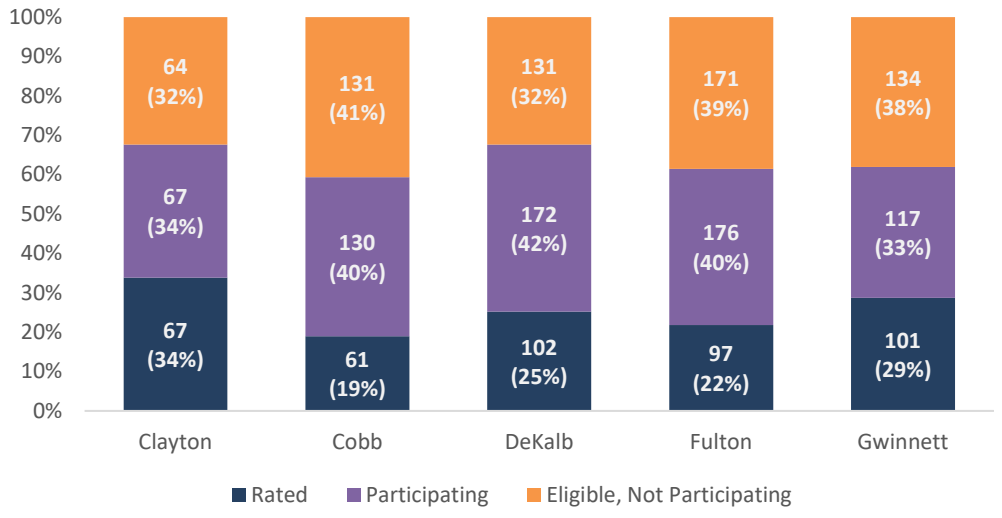
Table 3: Number of Block Groups (BG) with High Relative Gap in Total Supply (i.e., Much Higher than Expected Gap and Higher than Expected Gap) **and Associated Demographic Classification by County**

	Clayton	Cobb	DeKalb	Fulton	Gwinnett	Total
All Block Groups (BG)	126	350	390	544	313	**1,723**
	7%	*20%*	*23%*	*32%*	*19%*	***100%***
BG with High Relative Gap	36	112	116	161	131	**556**
	7%	*20%*	*21%*	*29%*	*24%*	***100%***
BG with 20%+ Family Poverty Rate	69	63	117	178	76	**503**
	14%	*13%*	*23%*	*36%*	*16%*	***100%***
BG with 20%+ Family Poverty Rate *and* High Relative Gap	21	29	47	44	45	**186**
	11%	*16%*	*25%*	*24%*	*24%*	***100%***
BG with 25%+ Hispanic	24	50	42	29	101	**246**
	10%	*20%*	*17%*	*12%*	*41%*	***100%***
BG with 25%+ Hispanic *and* High Relative Gap	8	23	29	14	64	**138**
	6%	*17%*	*21%*	*10%*	*46%*	***100%***
BG with 50%+ African American	92	42	199	239	18	**590**
	16%	*7%*	*34%*	*41%*	*3%*	***100%***
BG with 50%+ African American *and* High Relative Gap	25	13	39	44	7	**128**
	20%	*10%*	*30%*	*35%*	*6%*	***100%***

Quality Rated

As of March 2017, about 60 percent of the eligible providers in the five-county region were participating in Quality Rated, and 25 percent of eligible programs had received a star rating. Figure 13 presents the share of eligible, participating, and rated programs across the five-county region.

Figure 13: Status of Quality Rated Eligible Providers (March 2017)



In each county, at least 60 percent of eligible programs were participating in Quality Rated. There was greater variation in the percent of eligible programs that were rated. Clayton County had the highest share of rated programs (34 percent, n = 198), while Cobb County had the fewest (19 percent; n = 322).

The ongoing rollout of Quality Rated created substantial challenges to estimating gaps in high-quality supply across the five county-region. The location of rated providers was concentrated in a limited number of block groups (See Figure 14). About 1,364 block groups had no Quality Rated programs, accounting for about 80 percent of all block groups in the five-county region. Given the small number of rated programs and the lack of spatial variation, the absence of *Quality Rated* supply represented the norm (i.e., Expected Gap) in the five-county region (See Figure 15). As more programs opt in to Quality Rated and receive ratings, the landscape will evolve and the ability to model gaps for *Quality Rated* supply will improve. However, the challenges detailed here limited the accuracy of gap estimates for *Quality Rated* supply in the five-county region.

Figure 14: Quality Rated Supply (March 2017) [17]

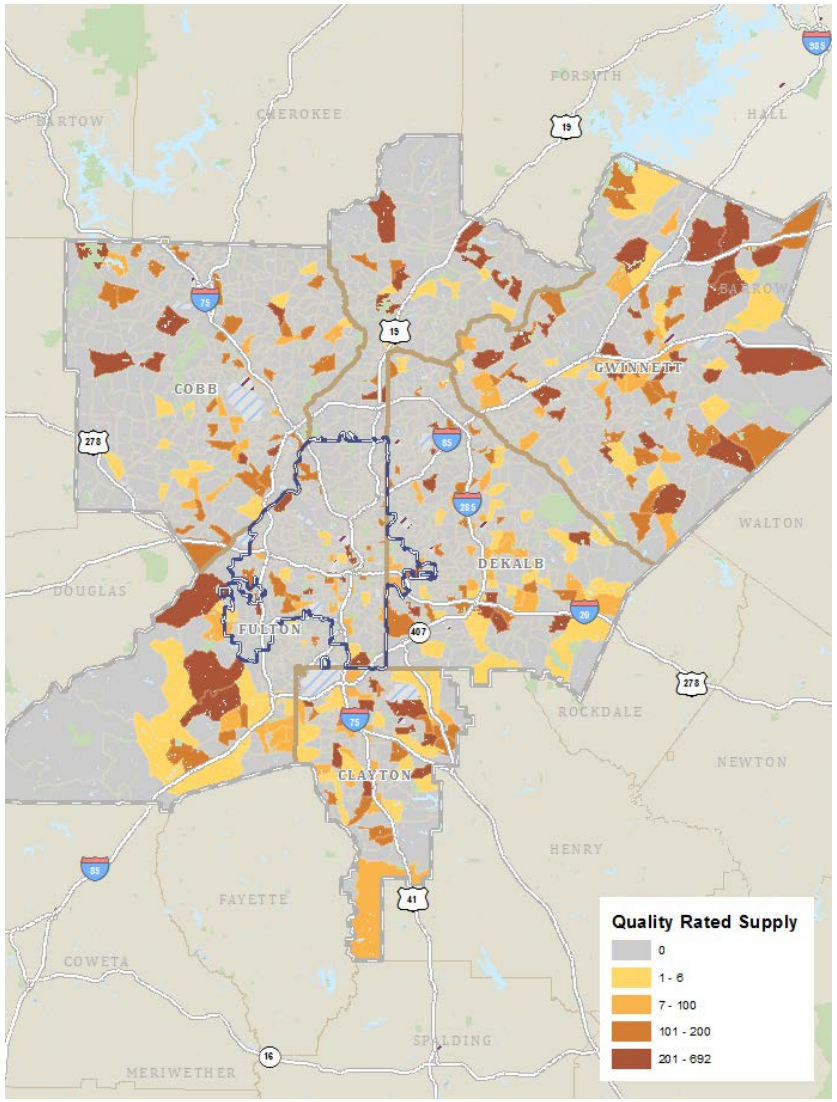
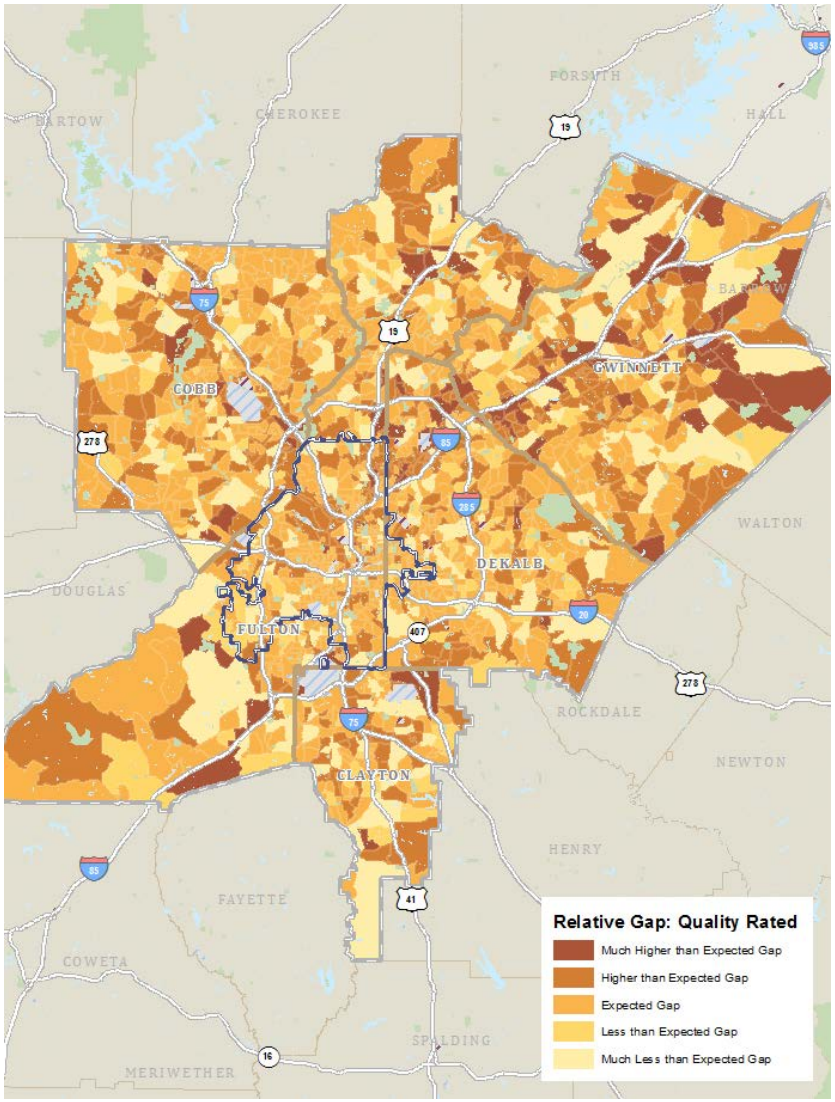


Figure 15: Relative Gap in Quality Rated



[17] See Appendix IV for maps of *Total* and *Regulated plus Full-time License-Exempt* supply.

Conclusions

The childcare analysis and the interactive mapping tool (www.atlaccessmap.org) provide an in-depth look at the availability of and demand for high-quality child care throughout the five-county region. The results highlight widespread gaps in access to child care, especially Quality Rated child care, in the five-county region. Furthermore, these results suggest that many high-gap areas are also areas with substantial populations of vulnerable residents. The results from this study provide a strong, evidence-based foundation for ongoing efforts to create and expand high-quality child care throughout the region. Updates to the analysis are planned for late 2018 to reflect changes in the current landscape and ensure the utility of the tool.

Appendix I: Advisory Group

Atlanta Public Schools Office of Early Learning
Atlanta Regional Commission
Childcare Network
Easter Seals North Georgia
Federal Reserve Bank of Atlanta
Fulton County Schools
GEEARS: Georgia Early Education Alliance for Ready Students
Georgia Child Care Association
Georgia Department of Early Care and Learning (DECAL)
Georgia Family Connection Partnership
Georgia Head Start State Collaboration Office
Georgia State University Urban Child Study Center
Gwinnett County Public Schools Office of Early Learning and School Readiness
Joseph P. Whitehead Foundation
Learn4Life Metro Atlanta Regional Educational Partnership
Metro Atlanta Chamber
The Pattillo Family Foundation
Quality Care for Children
Robert W. Woodruff Foundation
Sheltering Arms Early Education and Family Centers
The Arthur M. Blank Family Foundation
United Way of Greater Atlanta
YMCA of Metro Atlanta
YWCA of Greater Atlanta

Appendix II: Additional Absolute Gap Maps

Figure II.1: Absolute Gap in Regulated plus Full-time License-Exempt

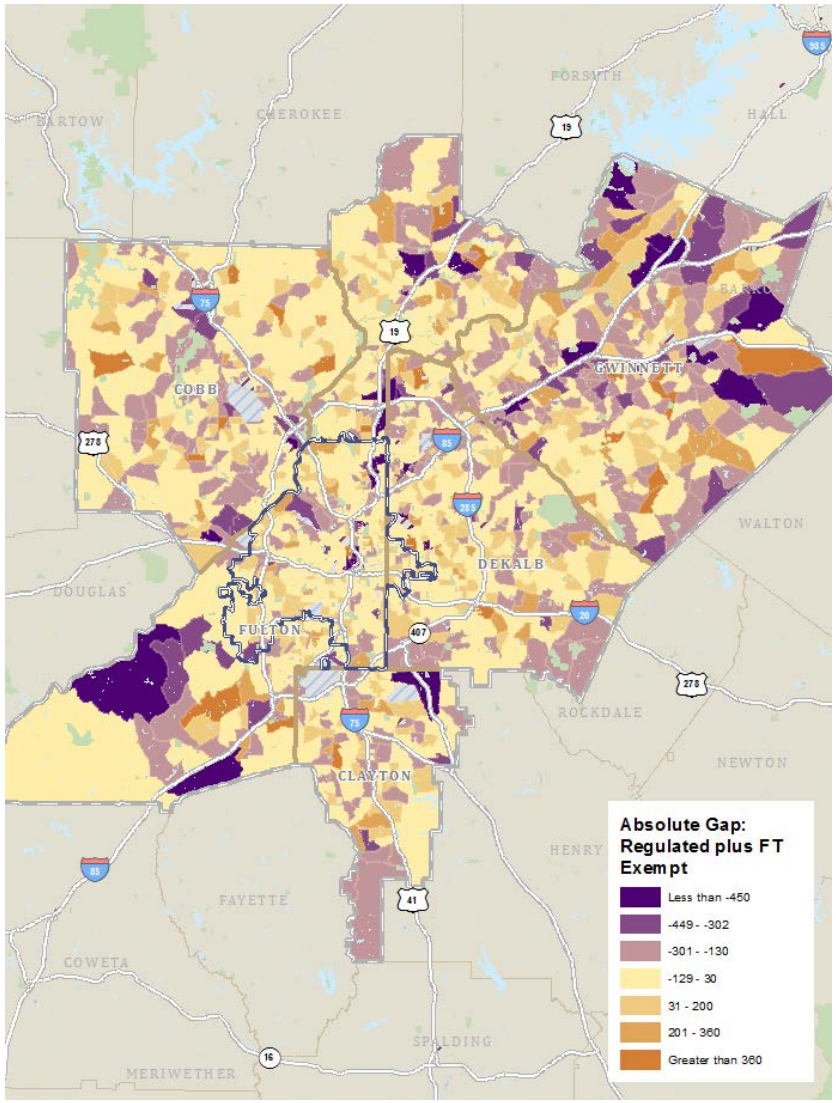
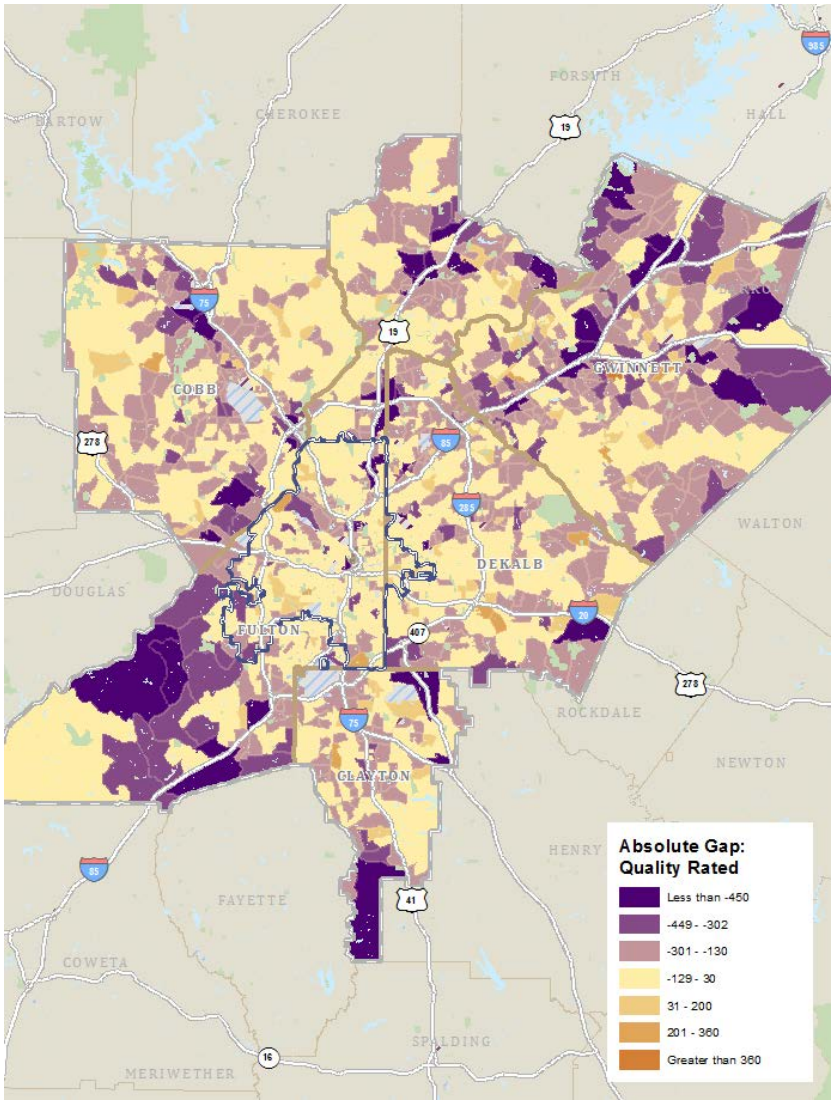


Figure II.2: Absolute Gap in Quality Rated



Appendix III: Difference between Relative Gap in Total Supply and Relative Gap in Regulated plus Full-time Exempt

In certain cases, the severity of the gaps differed between *Total* and *Regulated plus Full-time License-Exempt* supply. These differences can primarily be explained by the type of supply located in the block group and its proximate areas. The figures below walk through one example. Figure III.1 shows that the *relative gap* in *Total* supply for the study area (i.e., three block groups) was Much Higher than Expected Gap, but Figure III.2 indicates that the severity reduced to Higher than Expected Gap when looking at *relative gap* in *Regulated plus Full-time License-Exempt*. The explanation for this difference is highlighted by Figure III.3. There were no providers located in the specific block groups, but there were providers located in the neighboring block groups. The *relative gap* model accounted for the supply in each block group and neighboring block groups that were *Regulated plus Full-time License-Exempt*, which resulted in a reduction in severity between Figure III.1 and Figure III.2.

Figure III.1: Relative Gap in Total Supply for Study Area

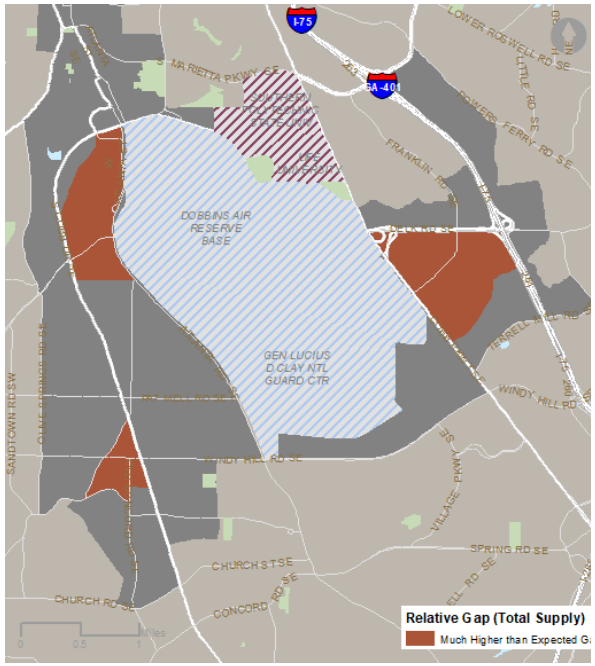


Figure III.2: Relative Gap in Regulated plus Full-time License-Exempt for Study Area

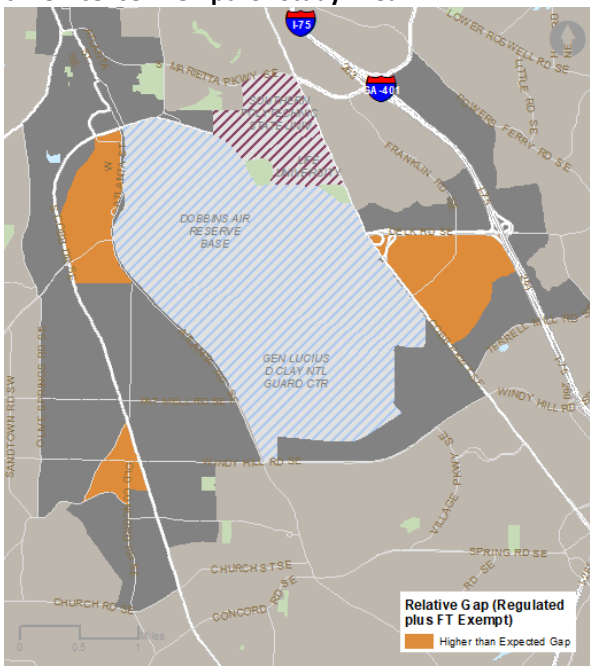
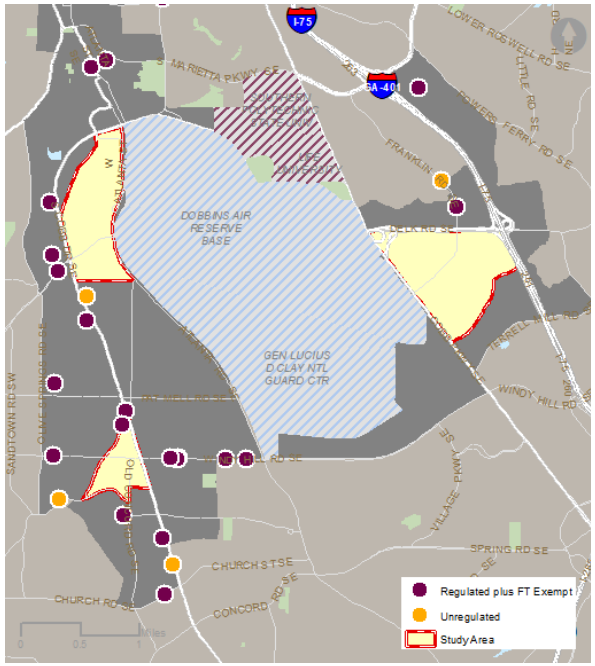


Figure III.3: Providers by Supply Type in Study Area



Appendix IV: Additional Supply Maps

Figure IV.1: Total Supply

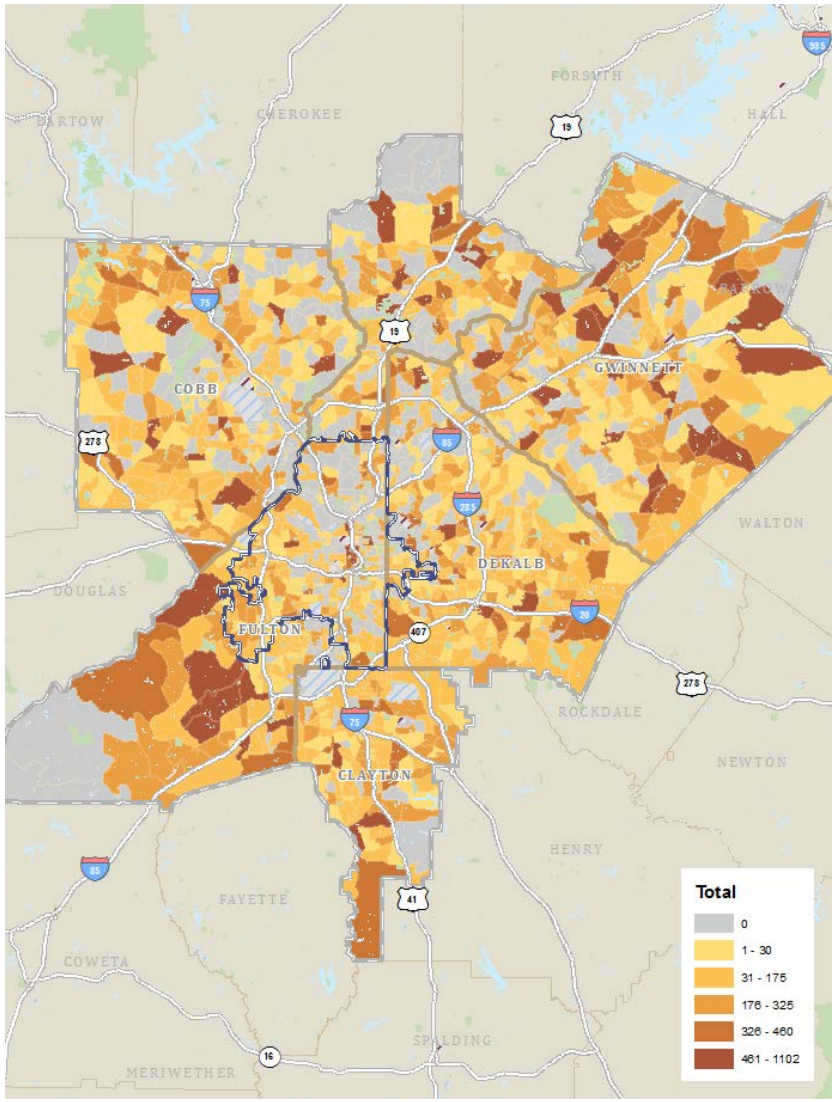
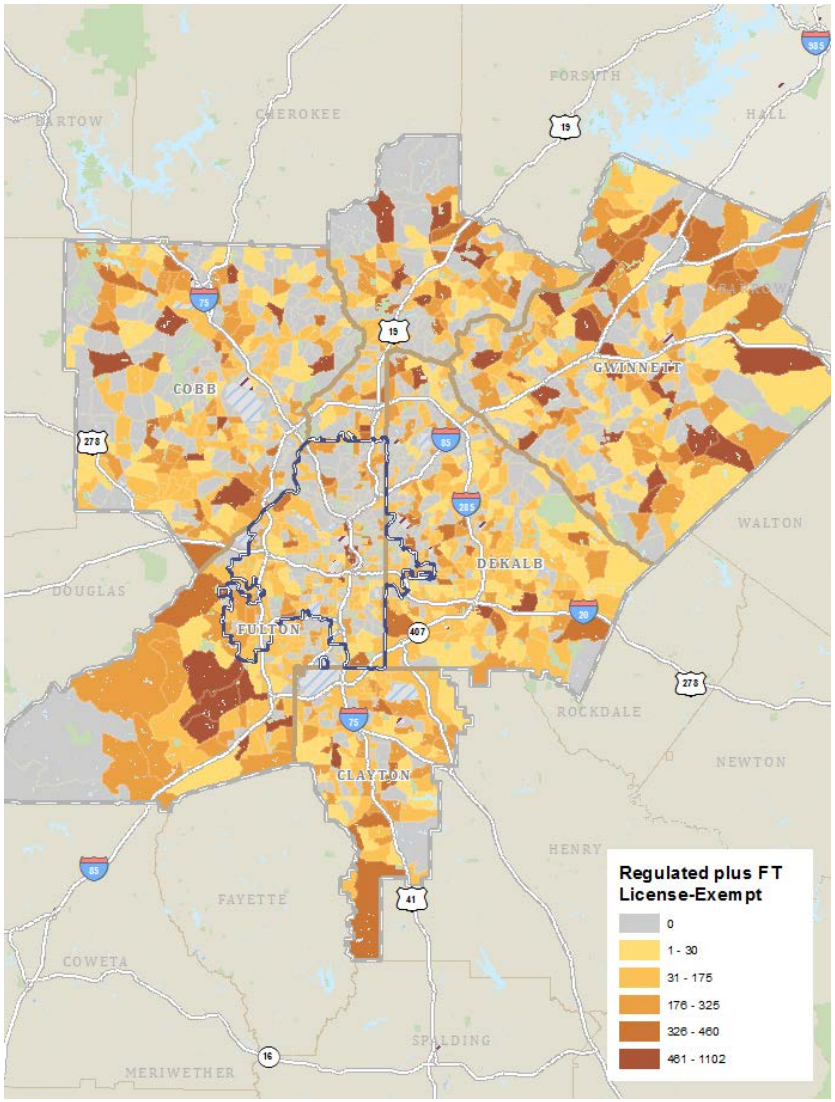


Figure IV.2: Regulated plus Full-time License-Exempt Supply (March 2017)



Appendix V: Relative Gap in Regulated plus Full-time License-Exempt Supply and Demographic Patterns

Figures V.1, V.2, and V.3 highlight the intersection between high *relative gap* areas (i.e., Much Higher than Expected, Higher than Expected) in *Regulated plus Full-time License-Exempt* supply and block groups with high poverty levels as well as high concentrations of Hispanic and African American residents.

Figure V.1: High Relative Gap in Regulated plus Full-time License-Exempt Supply and Family Poverty (i.e., at least 20 percent)

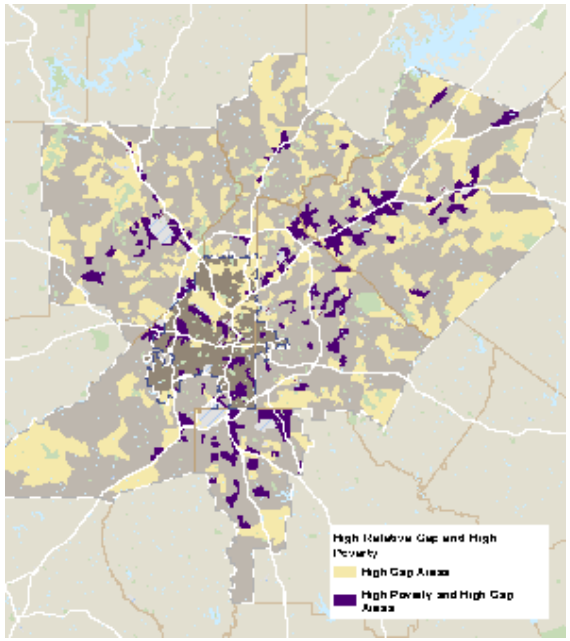


Figure V.2: High Relative Gap in Regulated plus Full-time License-Exempt Supply and Hispanic (i.e., at least 25 percent)

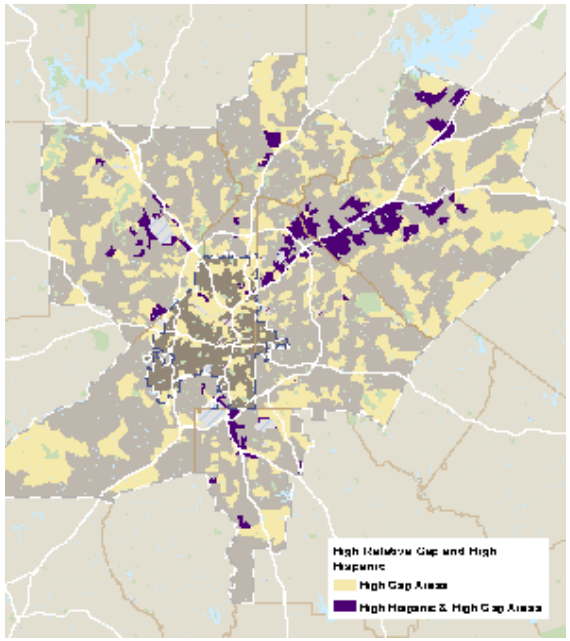
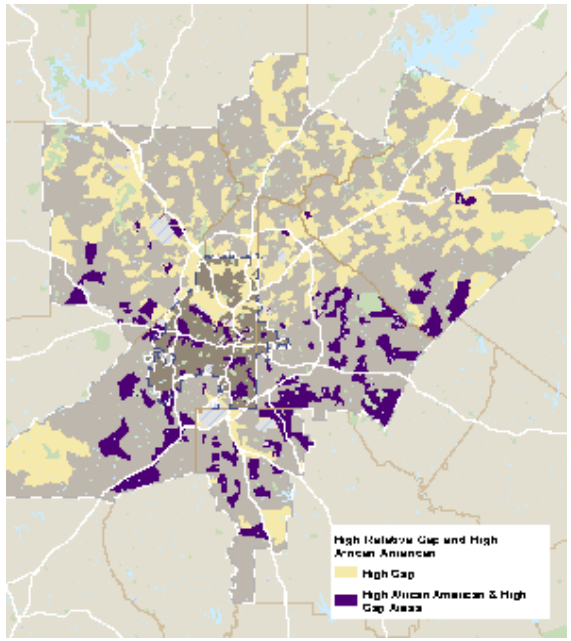


Figure V.3: High Relative Gap in Regulated plus Full-time License-Exempt Supply and African American (i.e., at least 50 percent)



Appendix VI: Methodology

This Appendix outlines the methodology used for the childcare analysis. The block group level analysis was comprised of three primary steps: (1) Measuring Supply; (2) Measuring Demand; and (3) Measuring Gaps between supply and demand. An advisory group of local early childhood stakeholders provided guidance and feedback throughout the process.

I. Measuring Supply

Broadly speaking, a childcare provider represents any business establishment or individual (e.g., center-based, home-based) that offers some combination of supervision and/or educational program for a group of children under age five. In the five-county region, childcare providers fell into two major groups: *Regulated plus Full-time License Exempt* and *Unregulated*. The *Regulated plus Full-time License Exempt* programs include licensed childcare providers (i.e., child care learning centers, family child care learning homes), local school systems, or providers with a license exemption (e.g., full-time accredited private or religious schools).[18] *Unregulated* childcare providers are business establishments that likely provide childcare services, but are not overseen by or known to regulatory entities.[19]

Data Sources & Cleaning

Estimating supply requires the identification of all known childcare providers in the five-county region. There is no single source of all active childcare providers; therefore, developing as complete a list as possible required combining multiple datasets. Table VI.1 (see page 22) identifies the sources and datasets that informed the supply estimate in the five-county region. Please note that not all identified programs were included in the final supply estimate as discussed in the subsequent section.

The primary data cleaning activities involved the proper identification of unique, full-time childcare facilities. First, all observations that did not align with the study's definition of child care were removed.[20] Second, facility addresses from each dataset were geocoded and locations that were in multiple datasets were merged into one observation.[21] In cases where providers from different data sources shared similar names or locations, manual checks (i.e., internet searches and phone calls) were performed to resolve potential duplications.

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[18] Based on stakeholder feedback, the analysis included providers with the following exemption categories: 3-Accredited private schools, before and after school care for the full day private school students, 4-Accredited private schools for ages 4, before/after care for enrolled full day students, and 14-Accredited religious schools. For more information about exemption rules and categories, please see http://www.decal.ga.gov/CCS/Exemptions.aspx.

[19] An estimate of *unregulated* providers, obtained using NETS and InfoUSA databases (see Table V.1), was produced to provide additional information on potential providers that are available to parents but are not operating within official early learning licensing or other regulatory guidelines. By including these providers, we get closer to the universe of childcare supply and can represent a more comprehensive estimate of supply. But these databases present certain limitations and challenges which require more validation than, for example, DECAL data. For example, studies using NETS data typically assess larger geographies, and point level analysis using this dataset can be challenging due to a time lag in capturing facility openings and closings and industry misclassification (e.g., tutoring services being classified as childcare services).

[20] It was not possible to differentiate between full-time and part-time programs for the *Unregulated* supply due to data limitations with the business listings databases. For a list of variables provided by NETS, please see http://exceptionalgrowth.org/downloads/NETSDatabaseDescription2013.pdf

[21] It is possible for one location to operate multiple childcare programs. For example, a facility can have both Head Start and Georgia Pre-K classrooms or a licensed childcare center can also offer Georgia Pre-K. In these cases, the facility counted as one location and additional filtering was employed to avoid double counting of supply.

Table VI.1: Supply Sources for the Child Care Analysis (Downloaded on March, 2017)

Source	Source Description	Data
Georgia Department of Early Care and Learning (DECAL)	State agency responsible for licensing childcare programs	Licensed providers, Georgia Pre-K providers; License-Exempt programs
Quality Care for Children (QCC)[a]	Local childcare resource and referral agency that collects information to assist families	Licensed childcare centers, registered family childcare providers, before and after school programs, Head Start and Early Head Start, Georgia Pre-K programs, and summer camp programs
Office of Head Start[b]	Federal agency that administers Head Start grants and provides technical assistance and support	Head Start and Early Head Start programs
National Associated for the Education of Young Children (NAEYC)[c]	National accreditation system for early learning programs	NAEYC accredited programs
National Establishment Time Series (NETS)	Time-series database of business establishment information based on Duns & Bradstreet data	Business establishments classified under the industry classification, *Child Care Day Services*[22]
InfoUSA	Business database used primarily for marketing purposes	Business establishments classified under the industry classification, *Child Care Day Services*[4]

[a] There was a 99 percent match between QCC and DECAL in the five-county region.
[b] Head Start programs were included in *Regulated plus Full-time License-Exempt* supply.
[c] NAEYC programs were included in *Regulated plus Full-time License-Exempt* supply as NAEYC locations in the five-county region were licensed childcare, Georgia Pre-K providers, or license-exempt.

[22] The business listings provided Standard Industry Classification codes to identify the primary industry of business establishments. For more information on the National Establishment Time-Series, see: http://maryannfeldman.web.unc.edu/data-sources/longitudinal-databases/national-establishment-time-series-nets/. For more information on InfoUSA, see: https://www.infousa.com/product/business-lists/

Estimating Supply

The following three measures were used to estimate the supply of child care at individual facilities:

1. DECAL provided licensed capacity for licensed childcare centers and homes and slots for Georgia Pre-K providers.[23]
2. Supply of *unregulated* providers identified by NETS or InfoUSA were model-based estimates using employment information.[24]
3. A phone/email survey of license-exempt providers yielded estimated enrollment measures for 23 providers, roughly 40% of all license-exempt providers. Supply estimates for license-exempt providers (37 providers) who did not respond to the survey were either provided by QCC or assigned the median enrollment of those who did respond.

Using different data collection methods was necessary to calculate supply estimates; however, it may have led to an upward bias in the estimates. For example, using licensed capacity may have led to overestimation of supply since it refers to the maximum capacity of the location; stakeholders have indicated that only a few providers operate near their licensed capacity.

Quality Supply

The next step in estimating supply was to identify facilities that were considered "high-quality". A comprehensive conversation among the advisory group underscored the challenge of defining "high-quality". For the purposes of this analysis, the advisory group reached a consensus to use Georgia's Quality Rating and Improvement System (QRIS), Quality Rated. It was acknowledged that this is an imperfect measure since Quality Rated is a voluntary program and certain programs are not eligible to participate (e.g., local school systems); however, a high-quality definition aligned with the state's emphasis on Quality Rated would be beneficial for current and future work in the state.

Georgia launched Quality Rated in 2012 to evaluate and advance high-quality early care and learning. As part of Quality Rated, participating childcare providers undergo an evaluation to be assigned a rating of 1, 2, or 3 stars. For the purpose of this analysis, only programs with a star rating were used to define *Quality Rated* supply. As of March 2017, 60 percent of eligible programs in the five-county region were participating in Quality Rated and 25 percent of eligible programs had received a star rating.

Based on the definitions and data cleaning process outlined, childcare providers were classified into three supply types: *Total*, *Regulated plus Full-time License-Exempt*, and *Quality Rated*.

[23] Licensed capacity refers to the maximum number of children that can be served at the location. Slots refer to a specific space for one child.

[24] For those providers only in NETS or InfoUSA, capacity was estimated using a multiple regression analysis predicting capacity with the number of employees reported in the business directory. The result was an approximate 5:1 ratio of children to full time staff listed in the business listings. This student to staff ratio generally aligns with the experience of Reinvestment Fund childcare lending staff and with findings from the National Survey of Early Care and Education, see http://www.researchconnections.org/childcare/studies/35519/version/4

II. Measuring Demand

Similar to estimating childcare supply, there is no direct measure of demand for out-of-home child care services. A range of factors can affect the demand in a region beyond a simple count of the zero to four population:

- **Many parents do not use external providers for their childcare needs.** A U.S. Census Bureau report using the Survey of Income and Program Participation (SIPP) showed that 42% of households with a working mother use child care within their own home and 58% seek care outside of their home.[25]

- **Multiple factors inform parents' selection of childcare providers.** Many parents select childcare providers close to home, but a sizable number of children travel with parents to attend facilities near a parent's place of work. A report on the child care arrangements of working parents in Cook County, Illinois found that 31% of parents with children in care have arrangements located on their way to work and 25% have arrangements that take them farther away from work.[26]

- **Not every work environment is suitable for child care.** In the five-county region, parents working in service-oriented industries may be more likely to have, and willing to use, childcare options near their workplace. On the other hand, manufacturing/production and transportation centers may present certain hazards that make such locations less suitable for parents to bring their children, or for childcare facilities to locate.

Three demand measures were estimated for the analysis: *baseline demand, commuter adjusted demand,* and *maximum potential demand*. *Baseline demand* represents the number of children, ages zero to four, in each census block group. Within each block group, adjustments were made to the *baseline demand* to account for commuting patterns and workforce characteristics; these adjustments yielded the *commuter adjusted demand*. Employment and mobility information were aggregated for each block group in the five-county region to estimate the number of adults who travel into a block group for work (thereby increasing demand in the target block group) and the number of adults who travel outside of the block group for work (thereby decreasing demand in the target block group).[27]

Figure VI.1 (see page 25) presents a simplified example of calculating *commuter adjusted demand*. The demand estimation for a single block group is calculated by starting with the number of children under five years old living in the block group, adding in the estimated number of children who live elsewhere but travel with their parents into the block group, and then subtracting the estimated number of children who live in the block group but travel with their parents to another area.

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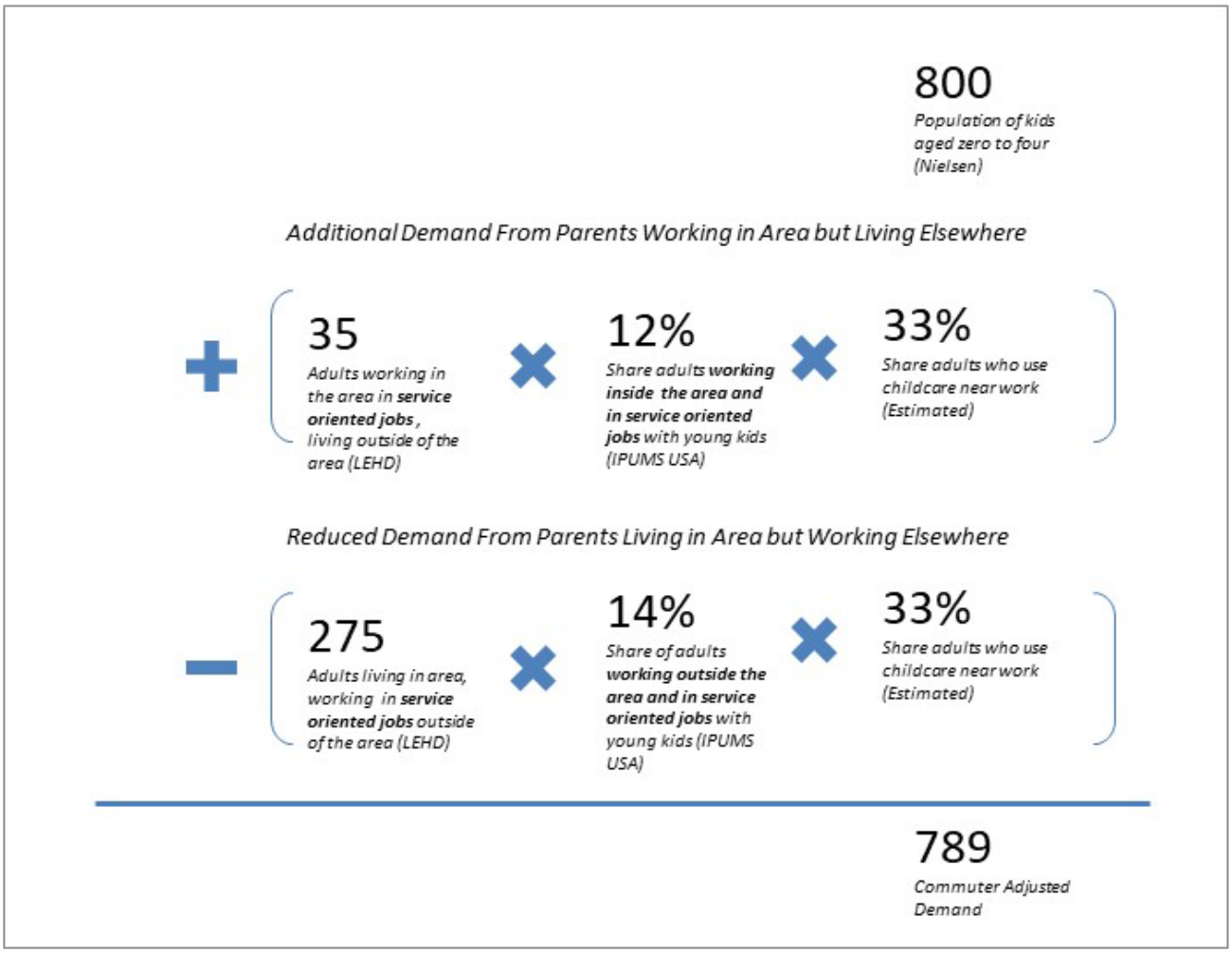
[25] Laughlin, Lynda. 2013. *Who's Minding the Kids? Child Care Arrangements: Spring 2011*. Current Population Reports, P70-135. U.S. Census Bureau, Washington, DC.

[26] Illinois Action for Children, *Getting There: Cook County Parents' Commute to Child Care and Work,* June 2012.

[27] Three data sources were used to estimate demand: 1) Nielsen provided 2017 estimates of the zero to four population (*baseline demand*) in all census block groups; 2) the Census' Longitudinal Employer-Household Dynamic (LEHD) Program database provided the number of adults who live and work in all census blocks; and 3) 2011 American Community Survey data downloaded from IPUMS USA provided characteristics of working parents in the five-county region. Information from LEHD and IPUMS USA were strictly used to estimate the share of children who may receive child care services near their parent's workplace rather than home and were only relevant to the *commuter adjusted* and *maximum potential demand*.

The *maximum potential demand* builds on the *commuter adjusted demand* and accounts for the influence of demand in neighboring block groups.[28] Neighboring block groups are those that share a boundary with the target block group. A spatial lag term is then added to the *commuter adjusted demand* to account for the fact that people likely choose nearby childcare options that may not be in their residential block group.[29]

Figure VI.1: Simplified Illustration of Commuter Adjusted Demand



[28] Aggregating *maximum potential demand* will suffer from double counting since it takes into account neighboring demand.

[29] The spatial lag is the average amount of demand observed in all block groups that are adjacent to any given block group. This lagged value is then added to the block group demand, inflating the demand in every block group based on the demand in neighboring block groups.

III. Estimating Gaps between Supply and Demand

After estimating the supply of and demand for child care, the final step in the analysis identifies areas where the gaps between supply and demand are most severe. Gaps were measured in two ways across each supply measure (i.e., *Total*; *Regulated plus Full-time License-Exempt*; *Quality Rated*): *absolute* and *relative gaps*.

The *absolute gap* is the raw difference between supply and *commuter adjusted demand* in each block group. For example, if block group A has a supply of 100, but a demand of 300, the *absolute gap* would be 200.

The *relative gap* is an adjusted figure that identifies block groups where observed gaps between supply and demand are a) greater than expected; b) less than expected; or c) meet expectations. In reality, the supply of child care will almost always be less than the maximum possible demand for a couple reasons. First, many parents simply do not use out-of-home care. Second, the costs associated with providing child care are high for providers, and vacancy can represent a substantial financial burden; thus, providers tend not to over-produce supply.

Calculating the *relative gap* involves using a spatial regression model to re-estimate supply for each block group as a function of the *maximum possible demand* in that block group, while also accounting for supply in adjacent block groups. The *relative gap* is then calculated by subtracting each block group's *maximum possible demand* from the newly estimated supply count. The resulting gaps across the study area are then sorted into five groups based on their distance from the average (i.e., expected gap): Much Higher than Expected Gap, Higher than Expected Gap, Expected Gap, Less than Expected Gap, Much Less than Expected Gap. The Expected Gap represents the average level of mismatch between supply and demand based on the dynamics of the local market.

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