# Preschools Effect on School Readiness for Kindergartners in Ohio School Districts

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## Abstract

This study examined factors influencing the school readiness of incoming kindergarteners. Exposure to a preschool education has been theorized to help children attain the abilities necessary for success in the early learning years. This analysis attempts to measure which variables associated with the 608 school districts in Ohio contribute to school readiness. This includes how the number and types of preschools available in Ohio school districts are affected by three main factors: land use/tax revenue sources, economic conditions, and family characteristics such as education level and mobility. In Ohio, all incoming kindergartners must complete a literacy readiness assessment abbreviated KRAL (Kindergartner Readiness Assessment for Literacy Skills). This measures mastery of elements identified to be essential to reading. The study found a higher count of preschools seemed to correspond with districts with lower literacy readiness scores and where people have less education. Preschool enrollment data by school district is only available for approximately 25% of the school districts, but when analyzed, it became apparent enrollment in preschool does have a positive effect on kindergarten readiness. Predominantly, key factors influencing kindergarten readiness are the student population within a district is not highly mobile and where higher education is prevalent amongst the adult (parent) population. Median income, percentage of funding from local sources (associated with wealthier areas) and the overall quality of the school are not as statistically significant. There was a correlation between parents with education beyond high school and school readiness.

## Introduction

This study examined factors contributing to school readiness of incoming kindergarteners in Ohio. School readiness refers to the attainment of a broad set of skills in multiple areas of emotional, behavioral and cognitive aptitudes. These skills build the ability to learn, work, and function properly in a school environment. Exposure to a preschool education has been thought to help children attain the abilities necessary to learn, progress, and enter school mastering a skill set helping them navigate the early learning years successfully. This could lead to a path of education and career success. Some children find greater challenges in attaining school readiness and are negatively impacted in the early years of learning. School readiness is impacted by many outside factors, including families, early environments, schools, and communities.

An increased emphasis has been placed on school readiness by policy demands that place higher standards on education. Young children enter kindergarten with an expectation of a more rigorous curriculum that demands a more

developed core set of school aware abilities as new common core standards are accepted by nearly all states. Cognitive, social, emotional, and motor development can be influenced by many diverse experiences in early childhood. These include the home environment, parental and preschool experiences. Placing a child in playgroups, a story hour, or structured involvement in music, dance or social activity can lead to an increase in school readiness. Additionally, placing a child in a structured preschool can provide additional attainment for the rigors needed in a school setting (Rafoth, Crissman, Halko, and Buchenauer, 2004).

This analysis investigates what factors contribute to preschool availability in a school district. These factors include: land use/tax revenue sources, economic conditions, and family characteristics of education and mobility. Also assessed are factors related to school readiness of incoming kindergartners.

### Land Use and Funding Factors

Factors such as urban development, land use profile, and property tax base can affect school funding. When there is more development there is a larger secure tax base, and this will greatly affect the ready funding available to a school district.

In cities where the tax bases are limited, some families who have the ability may move to another district or seek alternatives such as a charter or private schools. Families seeking educational advantages make the best decisions that they can based on their school choices. The biggest desire is to move one's children into a setting that offers some educational advantages, and to escape sluggish schools which can be mired by bureaucracy and history of non-performance.

This importance of funding has not gone unnoticed by parents, teachers, and elected officials. Consider what the Ohio Board of Education (2008) and School Funding Subcommittee recommended:

*"Education reform is the most important issue facing Ohio as it moves into the 21st century. This reform can only be achieved if the primary and secondary funding systems (property taxes) provide sufficient resources that are effectively managed. ... (We need) an integrated approach to school funding in Ohio within the context of meeting three primary goals: funding that is sufficient, funding that is stable, and funding that is efficient and accountable."*

District fiscal support is one of the biggest factors in determining a stable funding plan for education. These tax base dollars support the health and viability of the public school. Ohio's public education funding system depends largely on property taxes. Schools in less affluent areas receive less money to spend per child than other more wealthy districts that collect more funds in property taxes. Less money spent impacts the quality of education. This can create a wealth disparity in the education system (Ohio Board of Education, 2008).

### Economic Conditions

Economic factors of income, childhood poverty and job placement in a traditional white collar environment contribute to the composition of a school district. Children living in poverty face difficulties which can contribute to poor school performance such as poor health care, food insecurity, and an environment in which basic needs such as clothing and shelter are not consistently met. Median income,

education level, job security, and childhood poverty can be factors in understanding where conditions exist which challenge the learning environment of children.

## *Family Characteristics*

The attitude and expectation of the parents can provide a road map for their children's educational choices. Finishing high school with no plans for further training or education does not allow one to have a strong ability to negotiate the world ahead successfully. One has to expand their opportunities and seek further education in the 21st century economy. Children of educated parents have an easily attainable parental model of the virtues of education and may have advantage over children of parents with limited education. Students who have access to a population where higher education is prevalent are reasoned to have more exposure to the non-cognitive skills associated with a parent's higher education. This can impact the school readiness of incoming kindergartners by providing key learning experiences.

## Methods

## *Study Area*

The state of focus in the study was Ohio. Ohio was chosen because of easy access to information and because Ohio is often seen as a microcosm of the United States. It contains many of the same geographies that are apparent in the country. Ohio contains urban and rural communities and also a reasonable depth of education and socioeconomic distribution.

## *Measure of Kindergarten Readiness*

In Ohio, all incoming kindergartners must complete a literacy readiness test abbreviated KRAL. This is a screening instrument that assesses oral language, rhyming, letters and elements identified to be essential to reading. It is not a comprehensive measure of school readiness or a predictor of academic future success. It is simply a tool to guide targeted instruction to a student (Ohio Department of Education Office of Early Learning and School Readiness, 2012). Assessment results are summarized using three bands, which indicate the type of targeted instruction a student is prepared for:

- Band 1 – Assess broadly for intense instruction (Basic to Below Basic Skill Set)
- Band 2 – Assess for targeted instruction (Basic to Accelerated Skill Set)
- Band 3 – Assess for enriched instruction (Evolved Skill Set requiring Enriched Curriculum)

In this study, the percentage of kindergarteners classified into each band was used as a measure of kindergarten readiness. For example, a school district with a higher percentage of kindergarteners in Band 3 than Band 1 would be considered to have better school readiness than a school district with a higher percentage of kindergartners in Band 1 than Band 3.

## *Data*

Data used in this study was a combination of 2011-2012 state level data from the Ohio Department of Education (ODE) and 2009-2011 census data summarized by school district. Data assembled for this analysis did not require any geographic

manipulation. It was prepared at a school district resolution by either the ODE or the U.S. Census Bureau. The preschool location data was collected from the ODE list of licensed preschools and geocoded.

### *Kindergarten Readiness by District Category*

The Ohio Department of Education (2012) developed a system of classifying school districts into seven categories based on several criteria. These criteria included size, poverty, socioeconomic status, rural/urban continuum, tax base, and ethnicity (Ohio Department of Education, 2012). Descriptions of each category are provided in Table 1. The distribution of school district types in Ohio is displayed in Figure 1.

Table 1. Description of district typology categories one through seven.

| Category | Description |
|---|---|
| 1 | Rural/agricultural-high poverty, low median income |
| 2 | Rural/agricultural-small student pop., low poverty, low to moderate median income |
| 3 | Rural/Small Town- moderate to high median income |
| 4 | Urban - low median income, high poverty |
| 5 | Major Urban - very high poverty |
| 6 | Urban/Suburban -high median income |
| 7 | Urban/Suburban -very high median income, very low poverty |

The first objective of the study was to explore if kindergarteners from different school district types performed differently on the KRAL. For each school district type (one through seven), the average value for KRAL Band 1 (basic to below basic skill set) was calculated, and the average value for KRAL Band 3 (evolved skill set) was calculated. The results were displayed graphically for visual interpretation.
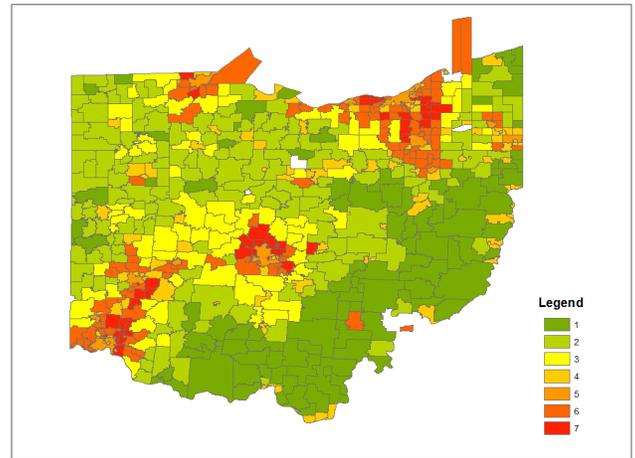


Figure 1. State of Ohio as represented by geography of district typology as referenced in Table 1.

### *Preschool Type by District Category*

A separate classification can be made for preschool type. For this study, preschools were divided into seven categories. (1) Head Start is a federally funded program which is aimed at low income children with a limited reach to children from households where English is spoken as a second language and to special needs children. (2) Chain daycares include KinderCare, The Goddard Schools and other nationally franchised for-profit businesses. (3) Faith or community based daycares can include the YMCA or church/synagogue based and social services based organizations such as the Salvation Army. These are non-profit and their location is often tied to the location of the church, YMCA, or outreach location. Some preschools fall into a non-identified category or general (4) "other" category. These preschools are often private enterprises but do not really have a standard description. They are similar to (5) independent preschools (small business run by a sole proprietor). Next is (6) employment based, which can be corporately sponsored by a unifying work

place (such as university, military base, private business, hospital, etc.). Last is (7) Montessori, which is a preschool following a select educational vision.

The second component of the analysis investigated which types of preschools are present in each school district type. The total number of preschools present of each type was calculated for each school district type. The results were displayed graphically for visual interpretation.

### *Factors Determining Number of Preschools*

Preschool can assist in the development of school readiness skills (Rafoth *et al*., 2004). Assuming that more preschools in a school district will improve school readiness, this component of the analysis attempts to assess which factors determine how many preschools are in a school district. Two multiple regression models were developed to explore how well two sets of variables predicted the number of preschools in a school district. In each model, the 'Count of Preschools' was used as the dependent variable.

The first multiple regression analysis focused on land use and funding factors. Land use and tax base variables examined the quantity of a school district's tax base coming from the agricultural portion of the agriculture/residential tax base. Additionally, the non-residential/ agriculture valuation per pupil examined the ability of a school district to generate tax revenue apart from its agriculture/residential tax base. The component factors included in this were the commercial, industrial, mining, tangible, and public utility property tax base. Other tax information included the percentage of district revenue coming

from local or federal sources (Ohio Department of Education, 2012). State level resources were not included in this study. The importance of these variables can be understood in their ability to help define the characteristics of a community. Such questions as how much do local property tax dollars support a school district or does it rely more heavily on federal Title 1 dollars can be answered by these variables. Additionally, how much of the tax base is from agriculture or non-agriculture property helps to define a districts' urban or rural characteristics. Land use and tax base address many critical factors as to a district's wealth, how it operates and its ability to generate revenue. Specifically, the land use and funding independent variables included were:

- Agriculture Value as a Percent of the combined Residential and Agriculture Tax Revenue for Tax Year 2013
- Non-Residential or Agricultural Valuation Per Pupil – Tax Year 2013
- Percent Total Revenue from Federal Sources
- Percent Total Revenue from Local Sources

In addition to the land use and funding variables, three other independent variables were included as measures of school readiness and school district performance:

- KRAL Band 1
- KRAL Band 3
- Performance Index

The performance index is based on standard testing of students at various points during their kindergarten through

grade 12 education. Values for the index range from 1-120. The value is determined by the percentage of students scoring at each performance level (advanced, accelerated, proficient, basic and limited).

The second multiple regression analysis focused on parent education and occupation factors. Family dynamics such as the parents' education level (less than high school or college education or greater) can contribute to an understanding of job security, earning potential, and ability to relate to a child's educational needs (Children's Defend Fund, 2000). Specific independent variables included were:

- Percent of Population with Less than a High School Diploma
- Percent of Population College Graduates (or higher education)
- Percent of Management and Professional Related Occupations

In addition to the land use and funding variables, KRAL Band 1 and KRAL Band 3 results were included as independent variables.

### *Determination of For-Profit Preschools*

Further investigation into factors determining the number of for-profit preschools in a school district was conducted. A third multiple regression model was developed using the counts of KinderCare (a for-profit preschool franchise) as the dependent variable.

Independent variables analyzed were the highest achievement band of the kindergarten readiness literacy test (KRAL Band 3) and the school district's performance index. Three measures of economic condition were also included as independent variables. The economic

factors included the percent of school age children (ages 5-17) and the percent of children under five living in poverty. Additionally, the percentage of the population with at least a college degree was included.

### *Determination of Band 3 Readiness*

The final component of the analysis investigated factors predicted to determine the percentage of kindergarteners categorized in Band 3 of the KRAL (Evolved Skill Set requiring Enriched Curriculum). The following factors were considered:

- Student Mobility – the percentage of the school age (5-17) population in the school district less than one school year
- Percent of Population with Less than a High School Diploma
- Percent of Population College Graduates (or higher education)
- Percent of Economically Disadvantaged School Age (5-17) Students

Student mobility can impact school performance. Student mobility refers to if a child is enrolled in a district for less than one school year. High student mobility may be present in low income families, which move frequently to find work, or in families that are at risk for homelessness. High mobility children are at risk for several factors including lower test scores, behavior problems, discontinuity of curriculum between schools, and a greater disposition for failing to graduate (Hartman, 2002). There has not been significant research on student mobility, but it does seem to impact the non-mobile population. Highly mobile districts have a high percentage of students who move in and out of the district causing disruption.

These disruptions affect the non-mobile student population by lowering the overall district performance on standardized tests and allocating resources needed to acclimatize mobile students to a new school environment (Hartman, 2002).

A second multiple regression analysis was conducted using a subset of school districts with available preschool enrollment data (approximately 25%). This regression analysis, using KRAL Band 3 as the dependent variable, included the following independent variables:

- Percent of Population Under Age 5 Enrolled in Preschool (Public & Private)
- Median Income of School District
- Student Mobility – Percent of Population in School District More than One School Year
- Percent of Total Revenue from Local Sources
- Performance Index
- Percent of Population College Graduates (or higher education)
- Percent of Economically Disadvantaged School Age (5-17) Students

## Results

### District Category Results

Kindergarten Readiness by District Category

Band 3 (assess for enriched instruction) performed best in school district types three, six, and seven; these districts had the lowest prevalence of Band 1 (Figure 2). Category 5 had the highest incidence of Band 1. All of the high performing district typology had a low prevalence of poverty.

Preschool Type by District Category

Preschool type by school district category results are shown in Figure 3. School district category 5 is well represented in almost all daycare types with an exception being the chain and Montessori preschools.
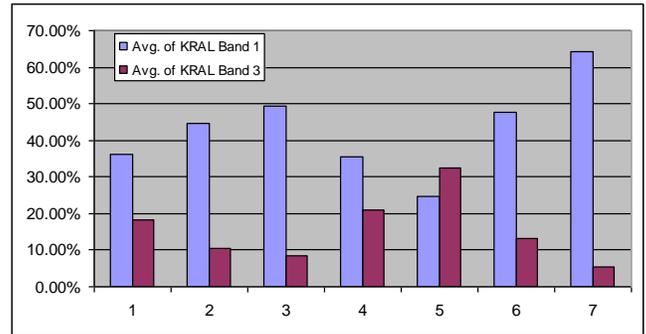


Figure 2. The average of KRAL Bands 1 and 3 by district typology.

Chain and Montessori preschools are relatively more common in district types six and seven. These districts represent areas where for profit enterprises can flourish due to the ability of working families to pay for needed daycare.
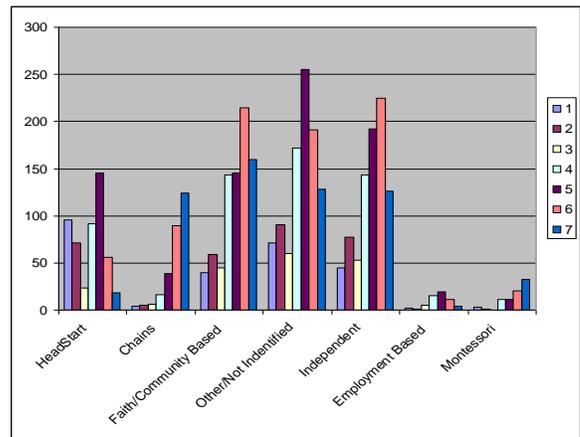


Figure 3.Count of preschools types present by district typology.

There seems to be a variety of preschool types in each school district type. While the rural areas have a lower overall number of preschools, a variety of options still remain. Federal dollars will flow into high poverty areas where there is a

prevalence of head start preschools in the low income categories.

## *Multiple Linear Regression Analysis*

### Summary of Models

Table 2 summarizes the results of all multiple linear regression models conducted. The models that used 'Count of Preschools' were minimally effective at predicting the number of preschools in a school district. The $R^2$ value is a statistical measure of how accurately the regression line approximates the data points.

Table 2. Summary of multiple regression model results.

| Dependent Variable | Independent Variables | Count (n) | $R^2$ |
|---|---|---|---|
| Count of Preschools | Land use and funding | 608 | 0.1874 |
| Count of Preschools | Parent education and occupation | 608 | 0. 1442 |
| Count of KinderCare | Economic and others | 608 | 0. 4854 |
| KRAL Band 3 | Economic and others | 608 | 0. 5891 |
| KRAL Band 3 | Economic and preschool enrollment | 153 | 0. 8824 |

### Individual Model Results

Each multiple regression model is discussed in more detail below. Due to the low $R^2$ value in the first three models, each significant variable was analyzed alone with the dependent variable (Count of Preschools or Count of KinderCare) through simple linear regression. The $R^2$ is included to inform the reader of the impact each variable alone has with the dependent variable. Additionally, the data within these models were whole numbers (enrollment), percentages (% KRAL Band) or a standardized index (Performance Index). To better understand the coefficients of the variables and their

predictive power the mean and standard deviation of each significant variable are also reported. Additionally, when examining the impact of coefficients utilizing multiple linear regression, it is assumed all other variables are held constant.

### Land Use and Funding

The regression analysis results with the count of preschools as the dependent variable and the indicated measures as the independent variables are seen in Table 3. The overall $R^2$ value for the model was 0.1874.

Table 3. Coefficients and significance levels of independent variables analyzed using multiple linear regression with 'Count of Preschools' as the dependent variable. Overall $R^2 = 0.1874$.

| Independent Variables | Coefficient | Significance |
|---|---|---|
| Agriculture Value as % of Res/Ag TY2013 | -0.1539 | 0.001 |
| KRAL Band 1 | 18.49 | 0.01 |
| KRAL Band 3 | 15.65 | 0.01 |
| Non-Res/Ag Valuation Per Pupil - TY2013 | 2.893e-05 | |
| Percent Total Revenue from Federal Sources | .3247 | |
| Percent Total Revenue from Local Sources | .1374 | 0.01 |
| Performance Index | -.6494 | 0.001 |

To better understand the coefficients of the variables and their predictive power, the mean and standard deviation of each significant variable are included in Table 4. Due to the low $R^2$ value each significant variable was analyzed alone with the dependent variable (Count of Preschools) through simple linear regression.

KRAL Band 1 and Band 3 both had a positive relationship with the count of preschools. Band 1 and Band 3 were included because they represent the lowest and highest categories of kindergarten readiness. While both have a statistically positive relationship with count of

preschools, it was theorized that a particular type of community, as defined by tax resources, may be able to support school readiness more effectively and a different relationship would be seen between the bands.

Table 4. Mean and standard deviation (SD) of each dependent variable and significant independent variable from the Count of Preschools multiple regression analysis using land use and funding factors. Also included is the $R^2$ value for each independent variable analyzed using simple linear regression with Count of Preschools as the dependent variable.

| Dependent /*Independent Variable* | Mean | SD | $R^2$ |
|---|---|---|---|
| **Count of Preschools** | 5.86 | 12.68 | |
| *Agriculture Value as % of Res/Ag TY2013* | 15.67% | 15.0% | 0.0922 |
| *KRAL Band 1* | 14% | 11% | 0.0495 |
| *KRAL Band 3* | 44% | 14% | 0.0078 |
| *Percent Total Revenue from Local Sources* | 46.15% | 15.33% | 0.0046 |
| *Performance Index* | 98.70 (Index) | 5.99 | 0.0581 |

Those communities with more support coming from local taxes, less federal subsidies and having a more rural nature were theorized to be impacted by a high percentage of KRAL Level 1 (Basic). This was not supported by the data, as both had a slight positive relationship. Percent of agriculture value of the whole property tax base had a negative relationship, meaning there are less preschools in rural communities and percent of revenue from local taxation had a positive relationship. This means where a school district relies on local tax dollars there are more preschools available.

Parent Education and Occupation

The count of preschools increased as the percentage of kindergarteners scoring in KRAL Band 1 (Basic) increased (Table 5).

The passion to build preschools in areas that need early intervention services might explain this phenomenon. A one unit percentage point change in KRAL Band 1 (Basic) meant an increase of 28 in the count of preschools, and a one unit increase in the percentage of the population with less than a high school education meant an increase of 26 in the count of preschools, assuming all other variables remained the same. A small positive effect also existed when there was a higher percent of the population with college degrees.

Table 5. Coefficients and significance levels of independent variables analyzed using multiple linear regression with 'Count of Preschools' as the dependent variable. Overall $R^2 = 0.1442$.

| Independent Variables | Coefficient | Significance |
|---|---|---|
| KRAL Band 1 | 27.8422 | 0.001 |
| KRAL Band 3 | -8.43344 | |
| Percent Pop. less than H.S. Diploma | 26.0864 | 0.05 |
| Percent Pop College Grad or more | 0.46197 | 0.001 |
| Management and Prof. Related Occupations | -0.03686 | |

To better understand the coefficients of the variables and their predictive power, the mean and standard deviation of each significant variable are included in Table 6. Due to the low $R^2$ value each significant variable was analyzed alone with the dependent variable (Count of Preschools) through simple linear regression.

A one unit change in the enriched instruction category (Band 3) was shown to decrease the count of preschools by 8.4, assuming all other variables remained the same. The more preschools there were in a district the lower the KRAL scores appeared to be. While this may be counterintuitive, it could be explained that a high number of head start preschools are in high poverty areas which tend to have lower KRAL scores.

Table 6. Mean and standard deviation (SD) of each dependent variable and significant independent variable from the Count of Preschools multiple regression analysis using parent education and occupation factors. Also included is the $R^2$ value for each independent variable analyzed using simple linear regression with Count of Preschools as the dependent variable.

| Dependent /Independent Variable | Mean | SD | $R^2$ |
|---|---|---|---|
| **Count of Preschools** | 5.86 | 12.68 | |
| *KRAL Band 1* | 14% | 11% | 0.0495 |
| *Percent Pop. less than H.S. Diploma* | 12% | 0.6% | -0.0015 |
| *Percent Pop College Grad or more* | 25% | 12% | 0.0374 |

This inadvertently makes it seem as though more preschools means lower school readiness. Instead of focusing on the total count of preschools, it was thought an examination of a for-profit preschool franchise may yield different explanatory results.

### *Count of KinderCare Preschools*

KinderCare, which is the largest private preschool chain in the United States, has 94 locations in Ohio. KinderCare has a foot hold more in the suburbs and is more prevalent among paying customers. KinderCare had higher predictors with larger districts (by enrollment) but not with extremely populated dense districts (like center city) (Table 7). Also, they were not in areas where the under 5 population had a high degree of poverty. They were more present in areas where there was a college educated population. This could be shifting as KinderCare drives to diversify in a changing market (Baker, 2011).

To better understand the coefficients of the variables and their predictive power, the mean and standard deviation of each significant variable are included in Table 8. Due to the low $R^2$ value each significant variable was analyzed alone with the dependent variable (Count of Preschools) through simple linear regression.

Table 7. Coefficients and significance levels of independent variables analyzed using multiple linear regression with 'Count of KinderCare' as the dependent variable. Overall $R^2 = 0.4854$.

| Independent Variables | Coefficient | Significance |
|---|---|---|
| K-12 Enrollment | 2.278E-04 | 0.001 |
| Population Density | -5.573E-05 | 0.05 |
| KR Band 3 | -1.926E-01 | |
| Performance Index | -5.491E-03 | |
| Pop. < 5 in Poverty (count) | -1.069E-03 | 0.001 |
| % Pop. with College Degree or More | 9.803E-03 | 0.001 |
| % of Economically Disadvantaged School Age (5-17) Students | 2.994E-03 | |

Table 8. Mean and standard deviation (SD) of each dependent variable and significant independent variable from the Count of KinderCare multiple regression analysis. Also included is the $R^2$ value for each independent variable analyzed using simple linear regression with Count of KinderCare as the dependent variable.

| Dependent /Independent Variable | Mean | SD | $R^2$ |
|---|---|---|---|
| **Count of Kinder Care** | 0.18 | 0.66 | |
| *K-12 Enrollment* | 2,692 | 3,807 | 0.2493 |
| *Population Density* | 751 | 1,159 | 0.5140 |
| *Pop. < 5 in Poverty* | 225 | 592 | 0.0419 |
| *% Pop. With College Degree or More* | 25% | 12% | 0.1572 |

Determination of Band 3 Readiness

The higher count of preschools appeared to correspond with districts with lower KRAL scores and where people had less education. But count of preschools alone cannot be the only factor explaining kindergarten readiness. When evaluating predictors of KRAL Band 3 (Advanced), count of preschools was not statistically significant (Table 9). When compared to mobility (% of students changing school

districts) and economic disadvantage, which both had a negative effect, the count of preschools importance was outweighed. The percentage of the population with a college degree or more had a positive effect.

Table 9. Coefficients and significance levels of independent variables analyzed using multiple linear regression with 'KRAL Band 3' as the dependent variable. Overall $R^2 = 0.5891$.

| Independent Variables | Coefficient | Significance |
|---|---|---|
| Count of Preschools | -0.0002101 | |
| Student Mobility-% Pop in School District less than 1 School Year | -1.3424479 | 0.001 |
| Percent Pop. Having < H.S. Diploma | -0.0357234 | |
| Percent Pop. with College Degree or More | 0.0029763 | 0.001 |
| Percent of Economically Disadvantaged School Age (5-17) Students | -0.0018047 | 0.001 |

Enrollment in preschool by school district data were only available for approximately 25% of districts, but when analyzed, it became apparent that enrollment in preschool did have a positive effect on kindergarten readiness scores (Table 10). While the overall count of preschools by district may not be statistically significant, enrollment in preschool did have a positive effect. Additional significant factors included closed mobility (staying in the district for an entire school year or more) and the presence of a college educated or higher population. Other factors such as median income, percentage of the school budget coming from local sources, and economic disadvantage were not as critical. What seemed to matter most is that students had preschool exposure, a stable year without moving in and out of a district and access to the non-cognitive skills associated with higher education. Income, percentage of funding from local sources (associated with wealthier areas) and the overall

quality of the school were not as statistically significant.

Table 10. Coefficients and significance levels of independent variables analyzed using multiple linear regression with 'KRAL Band 3' as the dependent variable. Overall $R^2 = 0.8824$.

| Independent Variables | Coefficient | Significance |
|---|---|---|
| Median Income | 1.156E-07 | |
| Student Mobility-% Pop in School District **more than** 1 School Year | 1.174E+00 | 0.001 |
| % Pop. < 5 Enrolled in Preschool (public & private) | 1.149E-01 | 0.05 |
| Percent Total Revenue from Local Sources | 1.416E-04 | |
| Performance Index | 1.317E-03 | |
| % Pop. with College Degree or More | 3.590E-03 | 0.001 |
| % Economically Disadvantaged School Age (5-17) Students | -9.251E-04 | |

**Discussion**

*Type of Preschools*

Higher counts of preschools are more prevalent in large school districts which have more services such as head start and community outreach or faith based preschools. Chain, independent, and the "other" categories, which have a profit motive, are often placed in more affluent suburban school districts which lend themselves to a more educated population.

But the more preschools there are, the poorer the school readiness scores seem to be. KRAL Band 1 (Basic) and KRAL Band 3 (Enriched) have a similar effect on count of preschools. Both have a slight positive statistical relationship. Do the head start and faith based preschools not perform at as high a quality as private preschools do? Private or for-profit preschools operate where parental education is higher and where there are less economic issues, so they already have an advantage to preschools focused on low income children such as head start.

Some limitations do exist within the data. Only twenty-five percent of school districts had data for preschool enrollment percentages. Due to this limitation, the count of preschools was used has a variable to approximate an enrollment percentage. Not all students who attend a preschool may live in that district. An enrollment percentage is clearly a more precise variable, but given the goal of examining all districts, the variable count of preschools was chosen in addition to enrollment percentages.

### Parent Education and Occupation

Higher kindergarten readiness scores (KRAL Band 3) are more prevalent in districts with higher educated adult (parent) populations. These parents may work to make sure their child is school-ready by providing a preschool experience or other comparable learning engagements which help prepare a child to gain literacy, math and the non-cognitive skill sets necessary for school success.

### Role of Land Use and Funding

Rural areas relying on taxation from agricultural land did not coincide with a high number of preschools. Preschools are more common where the percentage of revenue coming from local taxation sources is greater.

### Other Factors

The count of preschools declines as the performance index (the measure of how effective a district is with a scale from 1-120) increases. Urban districts and larger suburban districts often have lower performance indices. This may be explained by urban districts and some larger suburban districts having an overall larger student population and a larger population contained in at-risk and underserved areas. But larger districts also have more commercial property where a preschool may start as a business thus adding to the overall count but pulling students from adjoining more affluent districts. A preschool student may attend a preschool nearby but not in their own district having the readiness effect transfer back to their home district. Additionally, larger suburbs and more urban areas will have greater amounts of renters. Renters are a more mobile group and children will have a higher mobility between schools which tends to lower the performance index of an overall district.

### Implications

As government budgets tighten, what impact does this have on preschool education? Can there arise a public-private cooperative where high quality preschools can be managed by for profit companies to fill a void that may exist as government funding lessens? Further research in this topic could lead to the best elements of each type of preschool being incorporated to serve children in need.

While not all children are living in families where there are no life stressors to impede their learning cycle in preparation for school, a public-private cooperative could help to not isolate children of poverty by only putting them in a head start program where they are surrounded by other low-income children. Including children in a mixed economic level preschool, such as private enterprise of KinderCare, could be advantageous. Currently, 25% of the 200,000 children served nationally by KinderCare receive a government subsidy (Baker, 2011). This means that 75% of students are coming from families whose incomes would not qualify for a government subsidy and this

represents a mixed income base of preschoolers.

## Conclusions

When parents value education and have tried to expand their opportunities for training beyond high school, the path forward for their children emphasizes the role of education to fulfill their child's innate potential. Preschools do not completely eclipse the kindergarten readiness problems that poverty can cause, but they can provide a boost needed for kindergarten and lifelong learning.

This study initially attempted to measure the effectiveness of preschool education on school readiness scores by looking at the total count of the number of preschools in a school district. The factors examined had low predictive power in determining the number of preschools. It was shown, when factors relating to education and profession are examined (Table 5), as preschool count increased, the higher level kindergarten readiness scores (KRAL Band 3) tended to decrease.

The total number of preschools was not increased by traditional funding that is thought to be biased to more elite suburban areas (Table 3). These biases included more local tax support and less federal government intervention. Both the highest (Band 3) and lowest (Band 1) kindergarten readiness scores had similar positive relationships. A possible explanation of this could be that mixed income preschools are relatively rare in the United States. Low income children primarily attend federally based programs and middle and upper class children attend preschools which rely on tuition (Children's Defense Fund, 2000). While greater numbers of preschools come from the Head Start program, these children face more obstacles to learn, and hence a simple count of preschools is only a start to understanding the role that preschools play in preparation for schooling.

When factors such as land use and funding are examined, the statistical relationship between KRAL Bands 1 and 3 are similar. Both have a positive statistical effect. One set of variables is clearly more aligned to how well kindergartners will perform than other. The impact of a parent's education will outweigh types of funding resources demonstrating very little statistical difference exits between KRAL bands.

The greatest benefit to increase school readiness may be to diversify the socioeconomic preschool population and not isolate low income preschool populations.

## Acknowledgements

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