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Impact of Local Public Education on Economic Development

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Urban and Regional Planning at Virginia Commonwealth University.

By

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Table of Contents

Section I: Introduction	1
Purpose of the study	2
Research Questions	3
Section II: Review of Literature	6
Tax Base and Property Values	10
Quality of Life in the Debate	15
Economic Development Indicators	19
New Jobs Created/Employment Growth/ Unemployment.....	20
New Business	21
Median Household Income/Per Capita Income	24
Poverty Rate	25
Workforce Quality.....	26
School and School District Quality	27
Section III: Methodology	33
Important Definitions	35
School District Quality	35
Economic Development Indicators	37
Collection/Analysis Tools	39
Limitations	39
Section IV: Analysis	41
School Quality Indicators	41
Economic Development Indicators	48
High School and College Graduates	48
Poverty Rate	51
Per Capita Income	53
Median Household Income	55
New Jobs/Businesses Created	57
Section V: Discussion and Conclusion	61
Discussion	61
Conclusion	63
Bibliography	67

Table of Figures

Table 1: Breakdown of Richmond and Henrico School Districts.....	7
Table 2: Forbes Magazine Vital Factors for Business	22
Table 3: OPR for Study Area School Districts	41
Table 4: OPR for Individual Schools	41
Figure 1: MarketWatch Business Climate Criteria	23
Figure 2: Three Types of Crime that Poverty can Bring About.....	26
Figure 3: Economic Development and School Quality Indicators	33
Figure 4: SOL Test Average and On-Time Graduation Rate.....	42
Figure 5: RPS v. 5 Lowest Non-PRS High Schools	46
Figure 6: Study Area High Schools (Spatially).....	47
Figure 7: High School Graduates and Adult Education Level.....	48
Figure 8: Population Below Poverty Line.....	51
Figure 9: Real Wages per Worker	53
Figure 10: Median Household Income	55
Figure 11: New Jobs/Businesses Created.....	57
Figure 12: Total Number and Percent Change of Establishments.....	58
Figure 13: Net Business Gains Between 2010 and 2011	58

Abstract

THE IMPACT OF LOCAL PUBLIC EDUCATION ON ECONOMIC DEVELOPMENT

By Curtis Rodney Cobert, M.U.R.P

A thesis submitted in partial fulfillment of the requirements for the degree Master of Urban and Regional Planning at Virginia Commonwealth University.

Virginia Commonwealth University

Director: Dr. Elsie Harper-Anderson, Associate Profession, Department of Urban and Regional Planning

The focus of this thesis is to seek and observe the patterns of economic development around local public schools of varying quality. The Greater Richmond Region (consisting of the City of Richmond and the counties of Chesterfield, Hanover and Henrico) were used as the basis of the study. The scores for the schools were derived from an equation that took into account some of the main quality aspects. The factors that went into the equation were graduation rates, dropout rates, standardized test scores and AP (Advance Placement) enrollment. The basis of the economic development evaluation is based on a set of indicators published by the King County (Washington) Department of Planning. These indicators include real wages per worker, poverty rate and high school graduation rate. Using GIS, these two data sets were observed for patterns and trends. The findings of this study show that not only do the economic development indicators change based on quality but also on geographic location. This study ends with recommendations for cities to improve both their education systems as well as their economic development opportunities.

The problem is a lot of children, in a lot of places in America, have not been getting a world-class education. But rather than recognize that, for far too long, our school systems lied to kids, to families, and to communities. They said the kids were all right—that they were on track to being successful—when in reality they were not even close.
-Department of Education Secretary Arne Duncan

Section I: Introduction

Economic Development allows the government, the private and public sectors, and local communities to be able to work alongside each other to improve the local economy through areas such as “enhancing [the areas] competitiveness and increasing sustainable growth”¹. Many different factors go into this equation, such as tax incentives, workforce development programs and location costs. Localities are constantly in competition with each other to gain an edge to entice firms and employees to locate in their locality and improve their tax base. However, of the many issues that affect economic development, where does public education systems fall on the spectrum? Public education systems are important resources to a locality because they provide a benefit to the workforce that contributes to the economy. It is no secret that some school systems are better than others. But how does school quality impact the economic development in an area. Numerous laws such as the No Child Left Behind Act (NCLB) have been created and aimed at helping improve under-performing schools to ensure that the highest qualified teachers teach all students at a high level. Yet, parents across the country continue to send their children to schools outside of their boundaries in order to escape certain failing schools.

¹ World Bank, Local Economic Development

² Fagerberg (2012)

At the same time, many cities are dealing with the issue of how to improve their position in the competition for economic development opportunities. With the race to land the best businesses and create the most jobs, many areas have to sell themselves on the amenities and services of the area. This competition often pits one region against another trying to win the rights to say their location is better than the next. With the movement of society towards more knowledge base industries, new communication systems are needed to disseminate information. These knowledge based communication systems, such as conferences and journals, are becoming the catalyst for the movement of people and ideas across the world². With the need for workers in these new fields, localities have to compete to attract workers and firms.

Quality public schools help improve the human capital of an area, which in turn helps draw businesses looking to locate in resource heavy environments. This raises the question about what impact does the quality of local public schools have on economic development of an area.

Purpose of the study

This study will investigate the connection between the quality of public schools and economic development. This study supposes that the economic development indicators in a given area change according to the level of performance displayed by public schools in the area. This paper will look to understand the patterns in these areas and their implications. The preliminary understanding of this topic is that areas containing schools with higher levels of performance will have higher levels of economic development such as new businesses and employment.

² Fagerberg (2012)

Research Questions

The main questions that will be addressed in this thesis are:

1. How different are the school systems in the central city of Richmond, VA compared to surrounding counties in terms of performance?
2. What patterns of economic development activity can be seen in the areas around higher and lower quality schools?

About the Study Area School Districts

	Richmond City	Henrico County	Hanover County	Chesterfield County
Enrollment:				
2011-2012	23,336	49,654	18,531	59,200
2010-2011	23,454	49,405	18,628	59,243
2009-2010	22,994	49,407	18,854	59,509
Number of Schools:				
Elementary	27	46	15	38
Middle	8	12	4	12
High	5	9	4	11
Demographics:				
White	9	44.2	82.5	55
Black	80	36.4	9.5	26
Student-teacher Ratio:				
Elementary	18-1 (K-3) 24-1 (4-5)	21-1	21-1	25-1
Middle/High	22-1	23-1 (Middle) 22-1 (High)		26-1 (Middle) 27-1 (High)

This study will focus on 4 school districts within the Greater Richmond area:

Richmond City Public Schools, Henrico County Public Schools, Hanover County Public School and Chesterfield County Public Schools. The largest of these districts by enrollment is Chesterfield. However, Henrico County has more actual schools than Chesterfield. When looking at the schools in these areas, only the “neighborhood”

schools (those schools that draw students from the areas around them) will be evaluated. This means that charter, governor³ and specialty schools are not displayed in the chart above. The reason specialty schools are excluded is because not every student has access to specialty schools. Also specialty schools are not indicative of the area where they are located because they draw students from many different areas of the region.

The major differences in the selected school systems are in the racial make-up of the students. At the extreme sides of this difference are Richmond and Hanover school districts. Hanover's student population is 82% white, while Richmond's student population is 80% black. In contrast, most racially mixed district is Henrico County with 44% being white students and 36% black students.⁴

In addition, among all the districts in the study, Henrico has the most schools, while Chesterfield has the highest total enrollment. It is also of note that both Richmond and Henrico have grown in enrollment in the past 3 school years while Chesterfield and Hanover have both decreased.

For purposes of this paper, a case study of the Greater Richmond Area (comprised of the City of Richmond and the counties of Hanover, Henrico and Chesterfield) will be done and their respective school systems accessed. This study will first assess the quality of schools around the region and rank them based on several qualities. After the schools are assessed, the areas around the schools will be analyzed to show the patterns of economic development activities in each areas.

³ Governors Schools are very closely related to charter schools. They offer more rigorous curriculum than the student's home/zone schools. More information available at http://www.doe.virginia.gov/instruction/governors_school_programs/.

⁴ Information for the chart are supplied by respective schools systems website

The manuscript for this study will be organized as follows: First the literature review for this study will be presented in 3 major parts; background information, economic development and education quality. Second, a section on the methodologies that guided this paper (also equations and process used to obtain analysis) will follow. Third, the analysis of schools and the economic development surrounding them will be discussed. And finally, conclusions drawn from the study will be presented.

Section II: Review of Literature

Education and the economy have become the two hot button issues in the United States over the last decade. The topic has constantly been brought to the forefront in various lectures and speeches; none more important than the President's State of the Union address given in February of 2013. The President spent the majority of this speech talking about how to repair two things, the nation's economy and the education systems. Throughout the president's speech, he drew correlations between high school graduation rates and the ability to obtain better jobs after high school graduation⁵.

One question that until recently has not been addressed in research articles is what affect public education systems have on the economic development of an area. Economic development can be understood in many different ways. The International Economic Development Council (IEDC) states that, "Typically economic development can be described in terms of objectives. These are most commonly described as the creation of jobs and wealth, and the improvement of quality of life⁶." The council goes on to say that "The main goal of economic development is improving the economic well being of a community through efforts that entail job creation, job retention, tax base enhancements and quality of life.⁷"

This raises the question: what is the role of the public education system in the greater conversation surrounding economic development and furthermore is there a difference between economic development levels between areas with "good school systems" and those that are less desirable. A brief history of the issues that have plagued

⁵ President Barack Obama, State of the Union Address, February 2013

⁶ IEDC (2013)

⁷ IEDC (2013)

not only Richmond City schools but also urban school systems across the nation will

explain policies and events that shaped school systems in the United States and can illuminate why we see certain trends in urban cities. In the book titled ‘Five Miles Apart, A World Apart’ author James E. Ryan details the drastic differences in

	Thomas Jefferson High School	Douglas Freeman High School
School District	Richmond City	Henrico County
Enrollment (2011-2012)	922	1739
On-Time Graduation Rate	85%	90.60%
Dropout Rate	7%	4.5%

Source: Virginia Department of Education; School Report Card

two schools that are 5 miles apart but reside in different districts. The book is a case study of a Richmond Virginia city school (Thomas Jefferson High School) and a Henrico County school (Douglas Freeman). The book outlines the major issues/differences that separate the two schools. Differences like race, achievement gap and teacher/education quality are all issues that affect school quality (both real and perceived) and all find their roots in the integration efforts of the past.

The integration movement was the effort to allow blacks the ability to attend the same schools as whites. Desegregation was important because of the many disparities that were present in the school systems. The issue of race was critical to the environments we see around the schools in both the counties and central cities today. The major turning point for integration efforts was the court decision in Brown v. the Board of Education⁸. This was the ruling that started the integration movement. Though the integration effort helped open opportunities for blacks to get “equal” educational opportunities alongside

⁸ Brown v. The Board of Education (1954)

their white counterparts, there were still major roadblocks that hindered the process. What eventually became known as “option-enrollment”, helped shape the school systems that we see today. Option enrollment gave students the option to go to other schools outside their designated zone. This made integration efforts difficult because parents could pull their children out of the newly integrated schools and move them to other schools that were more desirable⁹. In an article by Cooke written in 1955 (less than one year after the Brown ruling was handed down), this notion of option enrollment was seen as a failure to follow the model policies that were laid out in the Brown v. Education ruling. However over the course of many years, support for option enrollment grew based on the belief that competition for students would force underperforming schools to increase performance.

One important case that was very impactful to integration question that many school districts were facing at the time was that of Milliken v. Bradley (1974). This case was not just a question of whether schools should be integrated but also whether there should be a requirement for school systems/districts to also be integrated¹⁰. This question is one that many districts had to deal with after the Brown v. Board of Education ruling. Schools were being desegregated but students that usually attended them (upper class, white children) were leaving and going to schools further out from the city’s core. The main issue of the case dealt with whether the school systems should be required to provide transportation to these outlying schools and should a desegregation plan for those school districts that were not within the city core also be required to have a desegregation plan.

⁹ Cooke (1955)

¹⁰ Summary of Milliken v. Bradley *PBS: Beyond Brown*.

When the case went before the Court of Appeals in Michigan, the courts ruled that it was appropriate to come up with a desegregation plan to combat the issue of desegregation in the city of Detroit. Previously, desegregation of urban city schools was the focus of the ruling on Brown v. the Board of Education and took little to no effect on desegregation of schools across district lines¹¹. Milliken v. Bradley was one of the first cases that brought the issue of desegregation across school districts to the forefront. In short, the Court of Appeals decided that Detroit needed to come up with a desegregation plan for not just the urban schools but also the school in the counties surrounding the city¹².

Following the ruling by the Court of Appeals, the case went before of the US Supreme Court, which overturned the ruling of the lower court. The Supreme Court found that the decision of the lower court were based solely on discrimination found only in the Detroit schools and that no evidence of discrimination in the outlying schools was found¹³. To take this a step further, the Supreme Court also decided that there was no evidence that school districts were established with the intent to foster racial segregation. This decision by the court is the major reason why we see the great differences in school districts that is apparent today. The result is that there are major differences in race and class across school systems/districts. This ruling essentially stopped any integration efforts across district lines that may have put school systems on equal playing grounds. The ruling also has implications on economic development because it meant that urban

¹¹ Ryan, J. E. (2010).

¹² PBS: Beyond Brown

¹³ PBS, Beyond Brown

schools could potentially continue to be underfunded which would drive down the aspects of economics surrounding communities such as the housing values.

The importance of the integration question can be found in the demographic make-up of the school systems today. These issues not only impacted school demographics but also the demographics of the localities. The resulting demographics of the localities is what ties this point into economic development because the behaviors of residents had major implications on the tax base and future economic development opportunities. Evidence of this importance could be found in achievement category. It was concluded that Black children attending schools that were desegregated had higher standardized test scores¹⁴. In terms of economic development, this means that the better the quality of students, the higher the quality of workers you will eventually have. Another component of this is the other issue that people (black and white) do not want to send their kids to failing schools. This means neighborhood wellbeing is impacted (people moving out and businesses soon follow) when schools are subpar.

Tax Base and Property Values

Tax Base is defined as being “the wealth (as real estate or income) within a jurisdiction that is liable to taxation”¹⁵. This means that an areas tax base is only as large as the wealth of the people and property that reside in it. During the time known as white flight, urban cores saw their tax base dwindle rapidly as the mass exodus of wealthy, educated white people fled the urban areas for the suburbs. As Denton and Massey (1993) stated, many who fled the urban cores had the belief that having black neighbors

¹⁴ Lindquist (1975)

¹⁵ Merriam-Webster-Tax Base

would decrease their property values. This belief along with the thought that social status comes not only from where you live but also where your children go to school further fueled white migration. In the 1970s, many studies found that there was a correlation between black enrollment in desegregated urban schools and white flight. One of the major findings from these studies was that “segregation between districts was greater than segregation within districts, indicating that the response to desegregation was the out-migration of whites to the suburbs, leaving primarily black central-city school districts”¹⁶.

In Richmond’s case, the school systems like Henrico had to do very little in the arena of integration and was able to maintain the status quo because the school district enrollment was based on residence. Looking deeper at this point, a ruling made in 1971, set up a busing plan that would have seen black students from the city (Richmond) bused out to the counties and white students (from Henrico) bused into city schools was overturned one year later stopping any comprehensive busing program across county/city lines¹⁷. This is significant because it had two major impacts on the economics of the affected areas. The one major thing that it did was took away the tax base of these inner cities. When the new suburb-communities started to spring up on the outskirts of the cities, many states had laws in-place that prohibited cities from expanding and thereby were able to re-capture some of their moving residents¹⁸. Upper class residents who had the means in which to move away to other counties did so, which was the beginning to the racial and class lines that can be seen now in Richmond’s school districts and

¹⁶ Wilson (1987)

¹⁷ Virginia Historical Society

¹⁸ Holme, J. J., Diem, S., & Mansfield, K. C. (2010).

localities. An example of this is illustrated in a situation that happened in Omaha, Nebraska¹⁹. The Milliken/Bradley case was an example of segregation of schools through policy; however, it was not the only instance where a policy was the catalyst for a growing problem. The Milliken/Bradley case had an unintended side effect of causing racial disparities in the school systems. This was different in the case of Omaha where a policy was directly the reason for the reason school system problems.

In the Omaha public school system, the policy of “option enrollment” was instituted in the state of Nebraska in 1989. The basis for the idea was to help improve districts schools by fostering competition between the districts. However, included in this policy was a provision that school districts had the right to turn away students if it would start to harm the racial balance of the district. This provision was important because it limited the number of white, upper class students that were allowed to attend school in districts outside of the one they resided²⁰.

The huge change in this policy came in 1998-9 when the desegregation plan in the district was ended; thus putting an end to the afore mentioned provision. What this created was a loophole in which “white, high achieving” students within the boundaries of Omaha Public School district could leave without penalty²¹. As these students and their families moved away from the district, the tax base of the district began to shrink. Because of the shrinking tax base, the city of Omaha had fewer funds to put towards economic development deals. This type of situation happened in cities across the country including the Richmond. Thomas Jefferson was once a segregated school and home to the

¹⁹ Holme, J. J., Diem, S., & Mansfield, K. C. (2010).

²⁰ Using Regional Coalitions, pg. 3-5

²¹ Using Regional Coalitions, pg. 3-5

affluent, white students in the Richmond area²². However, after the snowball affect of “urban renewal” was done taking its course, many blacks in the city were forced to look for new places to live and when they began to settle in areas that were already housed the white population, the whites began to move further out²³. During this process, the cities’ population and tax base began to shrink, providing fewer options to make economic development deals with the limited funds cities were receiving. This ultimately gave the advantage to the areas that were receiving the influx of new taxpayers.

The second of these issues is that of property taxes and their relation to the school districts. Property taxes add to the tax base and the overall wealth of the locality. Many localities have used the levying (or not levying) of property taxes to entice business to come to their area²⁴. In an article titled “Which school attributes matter? The influence of school district performance and demographic composition on property values” by Clapp, Nanda and Ross, the question of what drives the property value of an area more, the demographics or test scores of a school district. The answer that they arrived at was a mixture of both qualities. Clapp (2008) found that people were more concerned with the demographic make up of the school rather than with the general test scores. However, on the other side of this conclusion they also stated that “...the ethnicity of the student body in a school district is easily observable, and in Connecticut, highly correlated with test scores... Therefore, school ethnic composition may provide homebuyers with a useful signal concerning school quality²⁵.” Looking at this study brings to the light the issue of

²² Ryan, 5 Miles Apart

²³ Ryan, 5 Miles Apart

²⁴ CBIZ, Property tax exemptions.

²⁵ Clapp, J. M., Nanda, A., & Ross, S. L. (2008).

lower property values around the lesser performing districts and the issue of choice of location base upon the school district.

To further this discussion, there was an article written by D.M. Brasington titled “The supply of public school quality”, in which it was concluded that, “...public school quality is positively related to constant-quality house prices”. This would mean that areas that have higher housing-property values would have better school systems surrounding them²⁶. Individuals are assumed to choose housing locations based on conditions like “expected wages and the amenities of the area²⁷”. This would mean that those areas receiving the higher wage/skilled businesses would become the first choices for like minded individuals. Also areas having great amenities that would improve the quality of life would see an increase in population. Marios Michaelides discusses in his work how “amenities” can affect the location decision of workers. The study found that that these amenities can have a positive or negative impact on the migration decision of the individual. It went on to say that these amenities should not be understated when trying to understand the migration patterns of these workers.

A Harris poll was conducted in 1976 that questioned the most important factors when looking at relocation. Of those with school age children, the quality of public schools ranked higher than many other key factors such as affordability and neighborhood safety²⁸. Overall quality of schools was the fourth most important factor facing homeowners. Thus having a good school system will entice those families looking to locate, choose one area over another. Jud and Bennett2005 bring forth the argument

²⁶ Brasington, D. M. (2003).

²⁷ Andrew J. Plantinga, Cécile Détang-Dessendre,

²⁸ Harris Vault Interactive

that public school quality and housing are based on the principle of supply and demand. The more important the quality of the surround school system is in the decision making, the higher the housing cost will become. This demand for housing inside of these better performing school systems are sought after but not always attainable. As previously stated when school systems gets better, the price of the housing will increase. Thus, it is hard for those families who cannot afford to move into these areas to take advantage of the better schools. Jud and Bennett's solution to this situation was to improve the school systems so that they are more desirable so that people to want to live near. This sounds like a very straightforward answer but what does it really take to improve school systems and what are the major problems with these urban schools?

Quality of Life's in the Debate

Another important question is how do you attract people back into the urban areas in order to replenish the tax base. In many cases the role of education gets added into the arena of "quality of life." The term Quality of Life can measure multiple things ranging from the crime rate of the area to the proximity of the nearest shopping center. Along that spectrum, the quality of education systems also has a place. This importance may change depending on the person in which the quality of life standards are being judged by. For example, public education systems would be more important for a person moving with there family than for a single person where access to entertainment opportunities might rank higher on their list.

Dowell Myers notes in his article *Internal Monitoring of Quality of Life*, "There is a broad professional agreement that quality of life is important for economic

development...²⁹” However, one piece of information that is absent from this literature is what aspects/ideas define QOL. This statement in itself could have several different answers depending on whom you ask and what that person’s value set may be.

When the IEDC describes Economic Development, they use the term “Quality of Life” and that economic development should improve the QOL in an area. In an article titled “The Role of Quality of Life in Business (Re)Location Decisions”, the authors use the term “ambiance” of an area saying “[ambiance]...which has been extended to include such elements as schools, culture, climate, and population density.” In this same article, a Quality of Life survey of businesses in the Colorado area was done. The authors contacted decision makers of businesses that had either “initiated, expanded, or relocated” in the last 5 years. In the survey they asked the decision makers to rank a list of 50 Quality of Life aspects from “Not Important” to “Extremely Important” in their location decisions. 39% of the respondents rated “Quality of primary/secondary education” as either “Very Important” or “Extremely Important”. This ranked it as one of the more important aspects that the survey looked into³⁰.

This study highlights the more human aspect of these location decisions. When businesses locate to areas, two human elements come into play. First, if management is moving with the company more than likely they will bring their families and will be looking for the best areas to settle in. If families have children, the quality of the school system becomes very important. This area of school choice will be expanded upon later in this paper. The second human elements are the desires of non management employees. To attract new talent, employees who may have families (especially the new young

²⁹ Myers, D. (1987)

³⁰ Myers (1987)

talent), companies need to locate in areas that have quality of life elements that will entice employees.

Richard Florida gives the younger group of professionals a name; the creative class. In his book “Rise of the Creative Class”, he lays out theories to explain the employee side of business location. Florida offers this point when talking about the types of places these people would like to be in:

“Creative people are not moving to these places for traditional reasons. The physical attractions that most cities focus on building—Sports stadiums, freeways, urban malls and tourism-and-entertainment districts that resemble theme parks—are irrelevant, insufficient or actually unattractive to many Creative class people. What they look for in communities are abundant high-quality amenities and experiences, an openness to diversity of all kinds and above all else the opportunity to validate their identities as creative people.”³¹

What Florida highlights is the need for this new class to be in places that are not just pretty on the outside but also have some substance as far as culture, diversity and even equal opportunities. This new class of person is going to be concerned with what also affects their family and the environment that surrounds them. For the creative class, strong community values include quality education systems (both primary and higher).

But to take this out of the context of this “creative class”, most employees would like to live in an area that gives their families the best chance to succeed. The reason that this notion of the creative class comes up is because, Florida believes this class of workers will change the way businesses operate and locate. However, it does not mean all workers do not want to be able to be near places that fundamentally are better for their families. While Florida is talking about a direct subset of workers, it does not mean that the rules do not apply to all. This discussion of quality of life deals directly with the

³¹ Florida, R. (2002).

decisions that people make in where they live.

Another key component of Quality of Life is the idea that it varies from industry to industry. Mark A. Glaser and John W. Bardo authored an article called “The Impact of Quality of Life on Recruitment and Retention of Key Personnel” that details impact of QOL and in specific industries. In this article, the authors note that the roles of local educational systems are not addressed directly in most literature, yet are a key component in personnel location decisions. The study was undertaken in Wichita, Kansas, with a sampling of 891 businesses. The author notes that “...key personnel recruitment problems tend to be more a function of business type³².” This means that the problems or hang ups that arise during the recruitment phase for businesses are not standard but more of a cases by case basis. . The quality of local public school systems ranked very highly on the list for businesses in the manufacturing sector. However, the authors warn that just because school system quality was not a top choice for companies in other industries does not mean that it was not important to them saying, “although investments in the educational system are important to the local economy, such investments should not be expected to have an extremely large omnibus effect.³³” The author further elaborated on this point saying:

“It is important that these findings be interpreted from the appropriate perspective. Generally, the findings indicated that the public school system was not the expected priority for key personnel recruitment and retention across all industrial classifications. On the other hand, results should not be interpreted to mean that state and local government should disinvest from the public school systems. The local school system is very important to the long- run labor and economic health of a locality, and it is defined as significant for specific groups of businesses. The findings reported here simply indicate that the local

³² Glaser

³³ Glaser

public school system is not as important a short-run drawing card compared to other quality-of-life ingredients with respect to recruitment and retention of key personnel across all business groups.”³⁴

Economic Development Indicators

Economic development indicators are used in order to gauge the competitiveness of regions for resources such as firms and residents. It can be

“The purpose of local economic development (LED) is to build up the economic capacity of a local area to improve its economic future and the quality of life for all. It is a process by which public, business and nongovernmental sector partners work collectively to create better conditions for economic growth and employment generation.”

-The World Bank

measured in many ways. The United States Department of Housing and Urban Development uses jobs numbers as the main judging component³⁵ where as other organizations use a more multifaceted approach of measuring economic development. The multifaceted approach includes elements such as job creation, new businesses, and poverty rates but also can include items such as per capita income, workforce quality and graduation rates³⁶.

One such multifaceted measure is the King County (Washington State) Economic Indicators. The indicators were developed for the Growth Management Council to evaluate the success of the planning policies in the county. The King County Economic Indicators look at everything from the poverty rate to the median household income. Because these indicators will be used later to frame the analysis in this study, the importance of each measure will be examined in the paragraphs that follow.

³⁴ Glaser

³⁵ HUD.gov; Economic Development

³⁶ Virginia Performs

New Jobs Created/Employment Growth/Unemployment

Employment numbers is one of the more recognizable indicators of economic growth. Each month, job creation numbers are released and used as a measure for how much the country's economy is growing or shrinking. Virginia Performs, a state run website dedicated to tracking the success of Virginia economic indicators, states that employment growth "represents an increase in the economic opportunities available to the citizens of a region or state." Therefore, for citizens all economic activities start with the ability to participate in economic opportunities present in their region. Thus, without a job citizens do not have the ability to participate in the economics of the region.

Similarly, the unemployment rate of an area is another important economic indicator. By simple definition unemployment is the percentage of the population that is without a job. However, it can also be perceived as the amount of opportunities that are open to help residents support themselves and their families.³⁷ Having a high unemployment rate can mean that there are not enough jobs for the residents in the area, and therefore they cannot support themselves. The Institute for Public Service and Policy also notes that the non-existent purchasing power of unemployed citizens can lead to more unemployment for other workers because there is no new investment in the economy. Added to this, Virginia Performs points out that unemployment, especially long term unemployment, has been associated with health problems, psychological stress and stress on family relationships. All of these factors can contribute to the appeal of an area and the desire that companies/workers have in locating there.

New Businesses

³⁷ Virginia Performs, Unemployment

When the King County Benchmarks talk about new job growth, they state that it is the responsibility of the jurisdiction to create “a business climate which is supportive of business formation, expansion, and retention and recognizes the importance of small

Table 1: Forbes Magazine Vital Factors For Business

Forbes Magazine's Vital Factors for Business	
Business Costs	Labor
	Energy
	Tax
Labor Supply	College and High School Attainment
	Net Migration
	Projected Population Growth
	Percentage of Workforce that is Unionized
Regulatory environment	Labor Regulation
	Health-Insurance Mandates
	Bond Rating (Moody's)
	Occupational Licensing
	Transportation Infrastructure
	Tax Incentives
	Right-to-Work Laws
Tort System	
Current Economic Climate	Unemployment Rate
	Job, Income and Gross State Product Growth Forecast
	Public/Private Companies Headquarter in the State
Growth Prospects	Businesses Opening/Closing
	Venture Capital Investments
Quality of Life	Poverty Rates
	Crime Rates
	Cost of Living
	School Test Performance
	Health of Residents
	Culture/Recreation Oportunities
	Top Ranked 4-year Colleges

*Source: Forbes Magazines, 2012

businesses in creating new jobs”. This means that before there can be new jobs in the economy, there has to be an emphasis on focusing on business formation, retention and expansion. Therefore, businesses are the backbone of economic development.

Business climate in most cases is an indication of two things: current economic status and the potential future growth of the area³⁸. Areas with a great business climate have better odds of attracting new businesses or expanding/retaining current ones. Forbes Magazine annually ranks the top states for doing business (Virginia has held the #2 spot from 2010-2012). Forbes base their rankings on 6 major business climate indicators, which are listed in Table 2. Each of the indicators is made up of many different components that you see in the right column of the table. This table illustrates the complexity of the term “business climate” and why it is so important to many companies when making location decisions.

MarketWatch (part of the Wall Street journal) also compiles a list of the top business areas MarketWatch ranks cities compared to Forbes that ranks states. MarketWatch uses a slightly different set of criteria to assess the business climate of an area. Although the criteria is not as detailed as the Forbes list, some of the same types of factors show up (shown in Figure 1). Nevertheless, both list highlight the criteria that businesses have to analyze and that impact heavily their decisions on whether to move or not. Those areas that rise to the tops of these lists and are considered to have great business climates area the areas that see more new businesses relocate and have higher business retention rates.

³⁸ Virginia Performs

Figure 1: Forbes Magazine Vital Factors For Business

MarketWatch Business Climate Criteria
Number of Companies on the NYSE; Number of businesses tallied in US Census*
Number of Jobs*
Freight Shipments
Number of Bachelor's/Graduate degrees*
Patents Issues*
Tax Score (KPMG and The Tax Foundation)
Real GDP and Personal Income Statistics
Unemployment Rate/Growth in Jobs
Number of new businesses

*Analyzed versus population

Median Household Income/Per Capita Income

Personal Income is another very important indicator of economic development. Having higher income levels allows individuals the opportunity to provide better lives for their families and improve their overall quality of life³⁹. There are two main indicators when looking at personal income: per capita income and median income. **Per Capita Income** is a measure of the average income of an area as a whole, whereas **median household** is a measure of individual income. Per capita income can be looked at as an indicator of the overall improvement in the economy. This indicator takes into account wages and salaries, transfer payments, dividends, interest and rental income⁴⁰. This total is then divided but the population number of the area to yield the per capita income level. On the other hand, household income on the other side takes into account the amount of money income all persons over the age of 15 residing in the same house receive during a

³⁹ Virginia Performs, Personal Income

⁴⁰ IPSPR, South Carolina Indicators Project, Economy

calendar year⁴¹.

Many different things influence personal income ranging from education levels to economic opportunities and unemployment. Income is very important because it can lay out a picture of how well the residents of a particular area, region or state are fairing. If the area is seeing very high unemployment and also low educational attainment rates, then the median income of the area will be low. Median Income is very important to developers who will look at these indicators in order to see how much disposable income is available in an area. Areas with high disposable income rates see developments like malls and high-end grocery stores locate nearby.

Poverty Rate

The Virginia Performs site says, “Poverty imposes far-reaching hardships, not only on the poor but on all who share their communities.” To further this point, the King County indicators say that the “the empowerment of economically disadvantaged citizens and neighborhoods” is very important to improving the economic development. Poverty also ties into many other different indicators and can help to explain why there may not be large amounts of growth in the economy. One of the most important indicators tied to involve poverty is that of educational attainment. The Bureau of Labor Statistics found that in 2011, adults with a bachelor’s degree earned around 60% more than those adults with just a high school diploma and were less likely to become unemployed. (Therefore, having more money to contribute to the economy and overall wealth of the area.)

The poverty rate is measured by taking the amount of income in a given household and comparing it to the poverty threshold line. For example, the Census

⁴¹ IPSPR, South Carolina Indicators Project, Median Household Income

Bureau reports that in 2012, the poverty line threshold for a household containing 2 persons was \$14,960. This would mean that any 2 person household containing earnings under this amount would be considered “living in poverty”. What the poverty rate represents is the “minimal income for subsistence and basic need...these minimal earnings impact many aspects of individual or family well-being⁴².” Those persons that fall below the poverty line cannot truly take care of themselves and family needs with any amount of comfort and/or security.

Not having financial security can cause a strain on other areas of a person life. Poverty has been known to have a negative impact on families, in children especially, impacting areas like physical health, academic achievement and educational attainment⁴³

Figure 2:

Three Types of Crimes that Poverty can Bring About	
Predatory Economic Crime	Crime that happens in the pursuit of monetary/materialistic goals by any means necessary
Drug Industry Crime	Includes violence related to gang activity. Has become increasingly more violent over the years with more persons becoming involved
Social Relationship Crime	Committed by those who feel powerless, angry, frustrated and alienated. Comes in the form of violence in the family, at school or in the community

*Source: Poverty, Inequality, and Youth Violence, Ronald C. Kramer

just to name a few. These issues can start to manifest themselves into economic development problems like underperforming schools and low educational attainment;

⁴² IPSPR, Indicators Project, Poverty Rate

⁴³ Yoshikawa, H., Aber, J. L., & Beardslee, W. R. (2012). The effects of poverty on the mental, emotional, and behavioral health of children and youth: Implications for prevention. *American Psychologist*, 67(4), 272-284.

both things that would detract business and employees from moving to an area. Poverty has also been linked in the past to violent behavior⁴⁴, which has a serious impact on the crime rate. This resulting crime can greatly hinder the economic growth of an area.⁴⁵

Workforce Quality

Workforce quality is one of the driving forces in economic development. Without a great workforce, companies would struggle to survive. The U.S. Department of Education National Center for Education Statistics (1997) indicates that both additional schooling and higher test scores increase employment stability and lead to higher wages within the U.S. work force. Other data from the Center (1995) show that high school dropouts are three times more likely to receive public assistance than high school graduates not attending college.⁴⁶, thus the importance of High School Graduation rates. Unemployment rates are lower and lifetime earnings are higher for those that graduate compared to those that dropout of high school. Many factors can influence dropout rates, including poverty and financial stability in the house household. The US Department of Education reports that students from low-income families are six times more likely to dropout of high school than those from high-income families.

The educational attainment of an area is the most integral component to the quality of the workforce. These knowledge-intensive businesses will locate to areas that have higher educated workers⁴⁷. Areas with low educational attainment numbers tend to get lower quality employment opportunities. According to the South Carolina Indicators

⁴⁴ Annals of the American Academy of Political and Social Science , Vol. 567, School Violence (Jan., 2000), pp. 123-139

⁴⁵ Neanidis (2013)

⁴⁶ Weiss, 2004

⁴⁷ Virginia Performs, Education

Project, nearly two thirds of the jobs in the current labor market require at least some form of postsecondary education. This makes educational opportunities more important to residents in an effort to obtain higher skilled/wage job opportunities. Community Colleges and workforce development programs are very important because they can provide training in specific fields that may benefit a company looking for workers.

School and School District Quality

There are many different factors that go into figuring out the performance of a schools and school districts. One of the ways to measure school quality is using the school's performance on the state's standardized test. However, this has been shown to be a deceptive measure because state test vary across state lines. Erik Hanushek stated in his article titled “ Alternative Assessments of the Performance of Schools: Measurement of Stat Variations in Achievement” that, “raw test score differences across states are very misleading indices of school quality...mathematics test, which enjoy a certain popularity because of their perceived objectivity, are particularly susceptible to bias from misspecifications and sample nonrandomness.⁴⁸” This, is important to note because many school ranking sites like SchoolDigger.com use this method of sorting schools by their standardized test score in an effort to relay the schools quality.

Hanushek's article also found issues with using SAT and ACT scores to gauge the performance of a school system. Since, having a smart, capable workforce is essential to being able to grow business. SAT and ACT scores can be used as a way to gauge the intelligence of the workforce members. Hanushek warns that looking at these scores are worst than the individual state standardized test (in Virginia's case the Standards of

⁴⁸ Hanushek, pg.198

Learning test; SOL) because of this issue of nonrandomness. Because scores for the SAT and ACT are only available for those students motivated to take the test and gain entry into college⁴⁹, they do not give you a view of what is actually happening with the larger portion of students in the school. For example, if there are 50 students who took these standardized tests in a school but the senior class is made up of 200 students, you are only getting a sample of ¼ of that class and only to those who students who are motivated to move on to the next level of education. The sample does not speak to the condition of the other ¾ of the class that did not take the test. This is what Hanushek meant when he talked about nonrandomness; the sample of students chosen was not random but rather a pre-designated portion of the schools population.

There are also some outside influences that can be an indicator of school district performance. In the Brasington (2003) article, the education level of the adult population is examined. The article states that, “the higher proportion of students whose parents have no high school diploma or only a high school diploma, the lower the district’s school performance.⁵⁰” This is consistent with indicators of economic development from the King County Countywide Planning Policies Benchmarks⁵¹. The adult education level is important to the area of economic development because it can show how educated the work force is in an area⁵². This is vitally important when businesses are looking to locate to an area. Knowing the level of education among the adult population could be enough to sway a business’s decision one way or another.

Another economic development indicator that cross shows up in both the

⁴⁹ Hanushek, pg.193

⁵⁰ Brasington, pg. 375

⁵¹ The King County Countywide Planning Policies Benchmark Program

⁵² Virginia Performs

economic development indicators and the quality of indicators system are graduation rates. Graduation rates have long been understood as a way to rate the performance of a school system. However, even these have to be looked at very carefully. This is because the graduation rate can change for an area depending on the type of graduation rate.

According to the Virginia Department of Education⁵³, there are two main graduation rates in the Virginia that are recorded. The first type of graduation rate is called the Federal Graduation Indicator. This rate only takes into account the percentage of student that graduate with a Standard or Advance Studies Diploma. Though these are the types of diplomas that are most common when persons think of high school diplomas, it puts school systems that have high rates of students with disabilities and special needs at a disadvantage because special needs diplomas are not recognized in this indicator.

The second, and more well-known graduation rate, is called the On-Time Graduation Rate. This rate takes into account all Board of Education-approved diplomas. The draw back for this rate is that it is only calculated for those students that take exactly 4 years to graduate high school.⁵⁴ An example of how these rates can be misleading is by looking at a school system like Henrico County. The state average for the Federal Graduation Indicator is 82% and Henrico using the same indicator is at 80%. This indicator would make you believe that Henrico was underperforming when it comes to graduation rates. However, by looking at the on time graduation rate, the state average is 88% and Henrico's is 88.3%, which is above the state average⁵⁵.

Teacher turnover is another highly contested area of school system

⁵³ Virginia Department of Education, School Report Cards

⁵⁴ VDOE School Report Card

⁵⁵ VDOE School Report Card, Henrico County School System

quality/performance. Kacey Guin examines this subject in her article “Chronic Teacher Turnover in Urban Elementary Schools.” Here she lays out 3 important factors that deal with school quality: teacher turnover rates, district policies regarding teacher professional development and incentive programs for high quality teachers. Guin’s research yielded the following conclusions

1. Teacher turnover rates are one indicator of school health, one which school districts should consider when focusing on school improvements.
2. Current district policies in implementing professional development for teachers in low-performing schools are inefficient when teachers do not remain in the schools in which they are trained.
3. In order for low-performing schools to improve, districts need to consider providing incentive programs so that high quality teachers apply for, and remain in, these schools.⁵⁶

In addition, Guin found that some of the main issues that accompany high teacher turnover are inconsistent instruction of programs, virtually no collaboration between, and lack of trust between teachers.⁵⁷ The author suggests programs/incentives to entice teachers to want to stay in the area. These types of programs have been shown to be affective. A case in point can be seen in Petersburg, Virginia with a program called “New Teacher Round-Up”. With the help of this program the teacher turnover rate dropped from 17% in 2008 to 9% in 2009⁵⁸.

One thing that should not be understated in the analysis of school quality is

⁵⁶ Guin, pg. 1-2

⁵⁷ Guin, pg. 19-20

⁵⁸ WWBT 12 (Richmond), Teacher Turnover rate drops in Petersburg

people's perception of school quality. David Brasington and Diane Hite discussed this in their article "School Choice and perceived school quality." Brasington and Hite (2012) gauged the perception of both private and public schools and their relation to one another. One important finding of their study was that, "Having an assigned public school district with strong proficiency test passage makes a respondent less enthusiastic about school choice." This is important because it shows that when a person lives in an area where the school system is perceived to be good, they care little about the issue of school choice because it does not pertain to them. The inverse is also true. When a person is living in a perceived bad school district, school choice is very important to them. This all goes back to this issue of worker location and how businesses will start to locate to areas where the residents are comfortable in their surroundings. Another key finding of Brasington and Hite study was that those polled who had a good perception of the nearest private school, were more likely to favor school choice. This shows that those who have the means to afford private school, enjoy having this choice over the local school system.⁵⁹

Another way to rank school systems can be ranked is by the amount of human-capital it provides to the local labor force. In an article entitled "The Economic Value in improving local schools", Eric A. Hanushek states; "The investments made to improve skills then return future economic benefits in much the same way that a firm's investment in a set of machines (physical capital) returns future production and income. In the case of public education, parents and public officials act as trustees for their children in setting many aspects of the investment paths.⁶⁰" The point of this statement is that the children that are coming through these school systems are being bred to become valuable pieces in

⁵⁹ Brasington-Hite, pg. 453

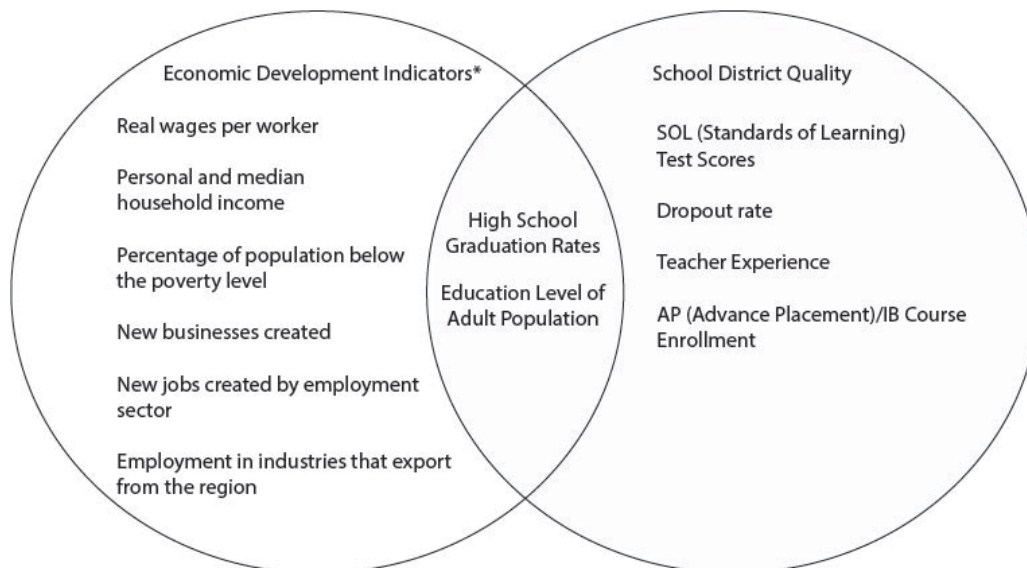
⁶⁰ Hanushek, pg. 60

the economy in the long run. To put this into context, try looking at the school systems as different brands of the same product. When businesses or consumers want a product they want to get the highest quality product. This means that consumers are going to want to go to the best schools and businesses are going to want to locate in places where this labor force comes from the best schools.

Section III: Methodology

The purpose of this study was to understand the relationships between economic development indicators and education quality in the Greater Richmond area (Richmond City and counties of Henrico, Chesterfield, and Hanover). The overall assumption was that the areas that fall around the lower quality schools systems will have lower levels of

Figure 3: Economic Development and School Quality Indicators



*Source: King County Economic Development Department

economic development and conversely areas the fall around better quality school will have higher levels of development. This was assessed by looking at the levels of economic development around the lower quality schools and comparing them to those of high quality.

The two sets of variables that were be considered are school quality and economic indicators. It is important to note, however, that the elements that define these two sets of

variables are not mutually exclusive. For example, in Figure 4, you will see that the set on the left has a list of elements that are considered economic development indicators, while the set on the right are elements that make up a good quality school system. The overlapping areas in the middle are two elements that help define both indicators: High School Graduation Rates and Education level of the Adult Population.

The diagram above served as a model to frame this study. The first indicators that had to be examined were those that sit in the middle portion of the Figure 3. This was then transitioned into looking at the other economic development indicator levels and then school quality indicators.

The basis in which the analysis was done was through using Economic Development Indicators. These indicators are the key to understanding the amount of progress/regression that an area is experiencing. One great source for understanding what these indicators look like comes from a list of indicators called the King County Benchmarks. Each of these indicators has can measure an important component of the health of the local economy. Many of these indicators are dependent on each other and are very much tied together. In addition to the King County Benchmarks, this study also uses Virginia Performs, which is a state-run website that measures and tracks the performance of several key indicators for the Commonwealth of Virginia. The third measure this study used to gauge economic development is the University of South Carolina's Institute for Public Service and Policy Research. The Institute conducted a project on the indicators of a healthy economy. From these 3 sources, a total analysis of the economic development of each area in the study was developed

In the King County indicators, there are five outcomes that are a result of the input of the indicators. The outcomes are explained later in this section. One of these outcomes is “Increase Educational Skill Levels” and its major inputs are both “Educational Background of Adult Population” and “High-School Cohort Graduation Rate.” In the King County document it states “An important component of achieving economic development is through...improved job training and educational opportunities.⁶¹” By improving the quality of the schools in the area, you start to slowly improve the adult population as the younger generation grows to become that older demographic.

Important Definitions

School District Quality

School district quality can be judged by many different factors that may vary from person to person depending on their perceptions, prior experiences and personal values. However, there are a few constant qualities that are most often considered when evaluating the performance of schools. The three major qualities are Graduation Rate, Dropout Rate, and (in the case in Virginia) Standards of Learning (SOL) scores. When doing a simple internet search of the of school system ranking, it is easy to see that there are plenty of sites that rank the school systems based on one of these three criteria. Websites like SchoolDigger.com even allows the user to choose which one of the three aspects is most important. However, the best way to evaluate school districts is to use a combined method of evaluation that takes into account all of the major indicators. A

⁶¹ The King County Countywide Planning Policies Benchmark Program

method using a combination of variables can give a better picture of the performance of the school on a multifaceted approach.

In order to assess how well a school system is doing, a few equations will be used. These equations will culminate in a weighted sum that will give a numerical value to the performance/quality of each school district. The first of these equations will calculate an average for the SOL or Standards of Learning test (the standardized test for the state of Virginia) for the school/system. The state test and records schools in five areas: Math, Science, English, Writing and History. These percentages will be used in the following equation to come up with an average SOL test score that will be used in the overall school performance equation. In the equation below T_{SOL} represents the average percentage of all students in the district that passed the SOL test.

$$T_M(.2)+T_S(.2)+T_E(.2)+T_W(.2)+T_H(.2)=T_{SOL}$$

The next equation uses dropout rates to calculate retention. In this research, the retention rate will be defined as the direct opposite of the dropout rate. Therefore, if a district's dropout rate is 25%, the districts retention rate would be 75%. A simple way to look at this would be:

$$100-(\text{Dropout Rate})=\text{Retention Rate}$$

Both of the above equations will be used in the weighted average used to compare the quality of school systems. This equation takes into account four of the most important factors when judging the performance of a Virginia school system: SOL test scores, Retention Rate, On Time Graduation Rate, and Advance placement

course enrollment. Since the first three values are the main areas of importance when looking at the quality of the school district (occurring most in the reviewed literature and discussed among primary education practitioners), they will be weighted more than the fourth value. The fourth value, advance placement course enrollment, will be used to give insight into the achievement levels of the school students towards the end of their primary education tract.

The following equation will be the basis of the evaluation on what is deemed a good school system and what is considered a struggling/bad school system.

$$GR(.30) + T_{SOL}(.30) + RR(.30) + AP(.10) = \text{Overall Performance Rate}$$

*GR= On Time Graduation Rate

*AP=Advance Placement course enrollment

Included in this analysis will be the state average using this same formula. Judgment for whether a school system is deemed either high performing or underperforming will be based upon its relation to the state average. Any score that meets or exceeds the state average will be considered a high performing school system and those falling below the state average will be considered an underperforming school system. Once the schools systems have been classified, the second portion of this research will address economic development indicators around these school systems.

Economic Development Indicators

Economic Development Indicators are used to assess levels of economic development activity in a region. These economic development indicators feed into the economic development “outcomes” which are really considered the overall goals to which the effectiveness of the planning policies are judged. The King County Economic

Development department developed a list of economic development indicators and corresponding outcomes. The data to assess these indicators in the Richmond case will come from the US Census Bureau at the census tract level. This data includes various economic and social characteristics such as household income and other demographic information. In this paper, indicators will be mapped using the census tracts in the 4 localities (In the Greater Richmond region, school district lines follow the same lines of the county boundaries.) An additional layer with quality of schools will be overlaid on the map in order to observe the quality of the economic development around the varying levels of school quality and school locations.

Two of the indicators, Educational background of Adult population and High School Graduation Rate, served as the starting points for analysis because they dealt directly with education issues. Since these two indicators apply the both Economic Development and Education indicators, they will be used as a starting point for the analysis. The other indicators for economic development will follow.

Once the areas of interest are identified, five other indicators will be tested in those areas. These five other indicators are Real Wages Per Worker, Personal and Median Household Income, Percent Below Poverty Line, New Jobs Created and New Businesses Created. These indicators are important because they not only show the importance of economic development but also provide a snap shot of the general health of the area/city. Each indicators tells you a different story about what is or is not going on in the researched area. Each of these indicators will be spatially shown on a map with the locations of the schools. When referring to the area around the schools, the unit of measure will be the census tracts.

Collection/Analysis Tools

All data that was used for the school quality analysis will come from the Virginia Department of Education (VDOE) School Report cards. These data sets contain information ranging from SOL test scores to graduation rates. These report cards can be found for singular schools in Virginia or for entire districts in the state. This data is provided on the VDOE⁶² website which is updated at the beginning of each school year. The economic development indicators will come from the US Census Fact Finder tool as well as the Virginia Employment Commission and the Bureau of Labor Statistics.

Once this data is obtained, it was then geocoded into ArcGIS and analyzed by looking at each of the indicators (spatially; using the census tracts) in relation to the education systems that is serviced by the area. The combination of both the school quality and the economic development indicators will help shed light on the amount of economic development occurring within the Greater Richmond region.

Limitations

A limitation of this study involves defining the variable of school quality. As stated above, the factors that make up the ideal school system/district may vary according to the person and purpose. Because of this fact, the weighted average score may change from person to person. However, the changing of this value would not drastically shift the weighted average because of its overall weight in the equation. Also, if the purpose of this paper was to discover and describe local stakeholder perceptions of school quality,

⁶² <http://www.doe.virginia.gov>

then that variable would purposefully be left undefined. Thus, the model of analysis is defined in advance, albeit imperfectly, in order to answer the research question at hand: What is the relationship between school district quality and levels of economic development indicators in greater Richmond, Virginia?

Another limitation is the way that the 2 of the economic development indicators will have to be analyzed. New business and new jobs created are not available at the census tract level and could not be mapped. Instead this data is shown gathered for the school district level and analyzed as a whole.

Section IV: Analysis

School Quality Indicators

The first step in this analysis was to gather all the information for each of the school systems so that this information could be put into the equation. Each of the school district report cards were pulled from the Virginia Department of Education website and the information was put into Excel to run the formula. The results are shown in Table 3 below.

Table 3: OPR for Study Area School Districts

School District Name	Test Scores					Retention Rate		Graduation Rate	AP Enrollment	OPR
	Writing	English	Math	History	Science	Dropout Rate	Retention Rate			
State Average	89	89	68	85	91	6.5	93.5	88	20.38	81.808
Richmond City	82	79	48	74	81	11.2	88.8	73.6	7.91	71.351
Henrico County	90	89	69	87	93	6.7	93.3	88.3	21.86	82.346
Hanover County	91	93	79	91	95	2.8	97.2	93.9	20.69	86.339
Chesterfield County	91	92	74	85	92	6.1	93.9	89.4	20.12	83.042

Generally Richmond performed significantly behind the other school districts. The Richmond schools ranked the lowest out of the four districts. Richmond fell more than 10 points lower than the state average and was the only one of the districts that fell below the state average. The state had an average rating of 81.8 and Richmond City had a rating of 71.1. Hanover had the highest ranking among the group with a rating of 86.3. Chesterfield had the second highest rating an 83.0 and Henrico followed with a 82.3 rating.

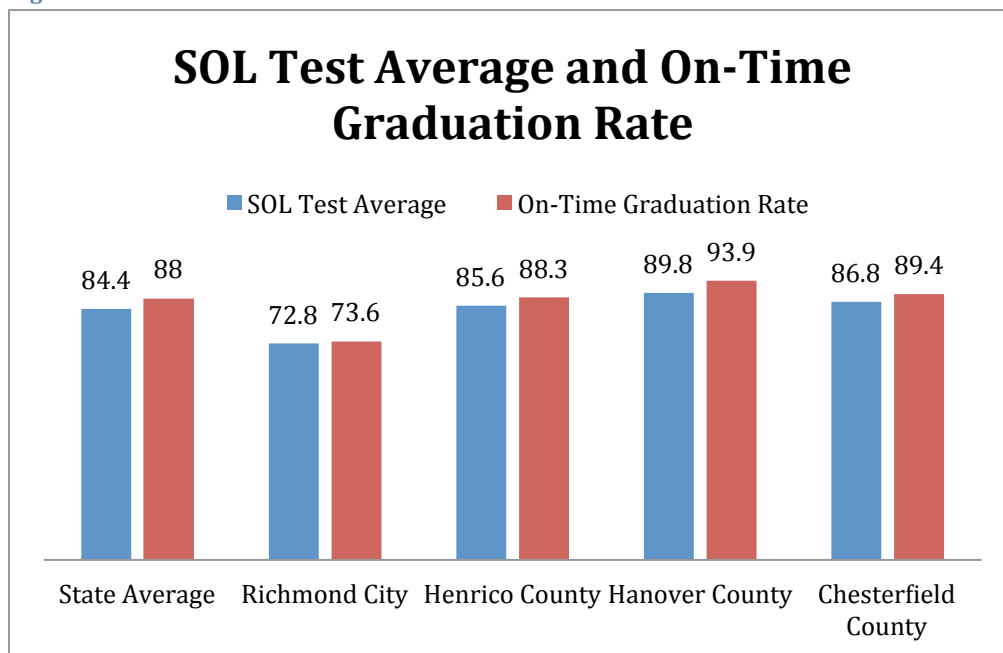
One of the big disparities among districts came in the area of the Math SOL score. The state average for passing the test was 68%. Hanover had the highest percentage of

passing students with a 79% followed by Chesterfield (74%) and Henrico (69%).

Richmond had the lowest with just 48% of the students passing. Another huge point of departure for Richmond comes in the area of AP Enrollment. Chesterfield, Hanover and Henrico all had averages higher than the state which was 20.38%. Richmond fell well below this with AP enrollment of just 7.91%.

Looking at the SOL score averages alone, the state average was an 84.4. Much like the overall rating showed, RPS was the only one of the group that fell below the state SOL average (Figure 5). This same statement can be made for each of the inputs of the Performance rating equation including the On-time graduation rate. The state average graduation rate is 88%. Hanover again boasted the highest graduation rate at 93.9%. Chesterfield and Henrico came in second and third with ratings of 89.4% and 88.3% respectively. Richmond had the lowest graduation rate at 73.6%.

Figure 4:



The same equation was used to rank individual high schools in the area (Table 4).

Analysis of the individual schools was done in order to look at performance patterns

geographically instead of by school district boundaries. Using the same state average, not one of the 5 high schools within Richmond Public Schools (RPS) gained a rating of an 80. This lagging behind is a common theme for RPS. The RPS school with the highest OPR was Thomas Jefferson, which had a rating of 78.0. RPS also hosted the lowest rating of all high schools in the 4 localities with a 61.4 at Armstrong High. The average rating of all the high schools in RPS was a 71.6. Henrico had 4 out of 9 that received a rating of 80. One school in the Henrico district, Glen Allen High School, did not have enough information to perform the equation. Overall the lowest rating of these schools was that of a 76 at Highland Springs High School. Henrico County also had the school with the highest total ranking out of all the localities. This school, Deep Run, scored a 92.48 in the rating. The average for all the high schools in Henrico was 82.9. Hanover had the highest average high school rating of the 4 localities with an 86.65 (Only 4 high schools). Each of the high schools in the Hanover district had a ratings ranging from 83.29 to 89. Nine out of 10 high schools in Chesterfield had a rating of at least 80 while, the county's average high school rating was at 84.1. No alternative high schools were used in this analysis for any of the school districts

Table 4: OPR for Individual School Systems

School Name	Test Scores					Retention Rate		Graduation Rate	AP Enrollment	OPR
	Writing	English	Math	History	Science	Dropout Rate	Retention Rate			
Richmond City Schools										
Armstrong High	64	74	34	65	74	18.8	81.2	60.3	3.04	61.414
George Wythe	85	93	47	83	82	14	86	71.2	6.1	71.17
Huguenot	87	88	37	74	77	7.7	92.3	80	2.95	73.765
John Marshall	76	86	44	83	89	7.8	92.2	75.2	8.06	73.706
Thomas Jefferson	78	92	56	79	86	7	93	85	12.04	78.064
Average High School Only Rating										71.6238
Henrico County Schools										
Deep Run	99	98	89	98	99	0.6	99.4	98.6	41	92.48
Douglas Freeman	94	96	86	94	95	4.5	95.5	90.6	21.79	85.909
Glen Allen										N/A
Henrico	88	92	67	82	91	10.2	89.8	82.6	8.45	77.765
Hermitage	91	94	59	87	91	9.5	90.5	84.4	20.78	79.868
Highland Springs	83	87	47	74	86	12	88	84.1	17.69	76.019
JR Tucker	89	93	69	86	92	6.2	93.8	84.7	24.1	81.7
Mills Godwin	97	99	90	95	99	1.7	98.3	96.1	26.38	89.758
Varina	90	93	42	76	87	5.7	94.3	89.2	14.11	79.741
Average High School Only Rating										82.905
Hanover County Schools										
Atlee	98	98	83	95	98	1.3	98.7	95.2	24.08	88.898
Hanover	97	98	84	95	97	1.4	98.6	96.9	21.64	89.074
Lee Davis	95	94	63	90	95	2	98	93.1	18	85.35
Patrick Henry	94	95	64	86	95	6.3	93.7	90.8	19.06	83.296
Average High School Only Rating										86.6545
Chesterfield County Schools										
Clover Hill	93	95	68	82	91	3.1	96.9	94.8	18.43	85.093
Cosby	98	99	89	96	98	0.8	99.2	96.8	27.46	90.346
James River	93	96	73	88	92	3.9	96.1	92.2	36.25	86.635
L.C. Byrd	86	90	65	86	93	7.2	92.8	87.6	15.97	80.917
Manchester	88	97	66	87	90	7.6	92.4	87.7	13.03	81.013
Motoaca	91	94	60	82	91	4.6	95.4	93.6	22.68	84.048
Meadowbrook	83	92	56	75	80	9.7	90.3	84.8	4.45	76.135
Midlothian	98	99	83	93	99	1.5	98.5	95.5	23.1	88.83
Monacan	95	95	63	86	89	5.1	94.9	91.2	29.29	84.439
Thomas Dale	92	94	69	83	94	4.2	95.8	92.4	13.14	83.694
Average High School Only Rating										84.115

The AP enrollment numbers trended in the same general pattern as the other indicators. Four out of the 5 Richmond schools fell below the 10% AP enrollment. To look at this in the larger picture, out of the 22 other schools outside of RPS, there were only 2 schools that had below 10% AP enrollment. The one school in Richmond that was higher than 10% was Thomas Jefferson, which is home to the city's International Baccalaureate Program. The school with the highest number of AP enrollments was Deep Run (Henrico County) with 41%; the lowest was Huguenot (Richmond City) with 2.95%.

The highest dropout rate of 18.8% belonged to Armstrong High in Richmond. Again, Deep Run in Henrico had the lowest dropout rate 6%. The highest dropout rate any of the school outside of Richmond was 12% that belonged to Highland Springs in Henrico. This high drop out rate contributed to Highland Springs receiving the lowest OPR rating of all the schools outside of Richmond with a 76.01. However, this score was still higher than the OPR for 4 out of the 5 high schools in Richmond City. The second lowest of all the high schools outside of Richmond was that of Meadowbrook which had a rating of 76.13. Meadowbrook (Chesterfield County) also had the lowest AP enrollment of all the school non-Richmond schools.

Figure 5

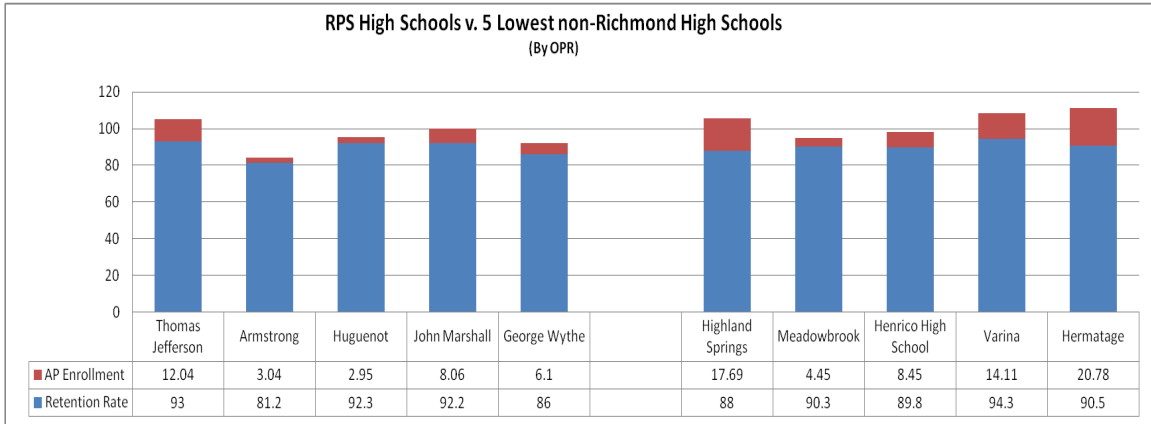
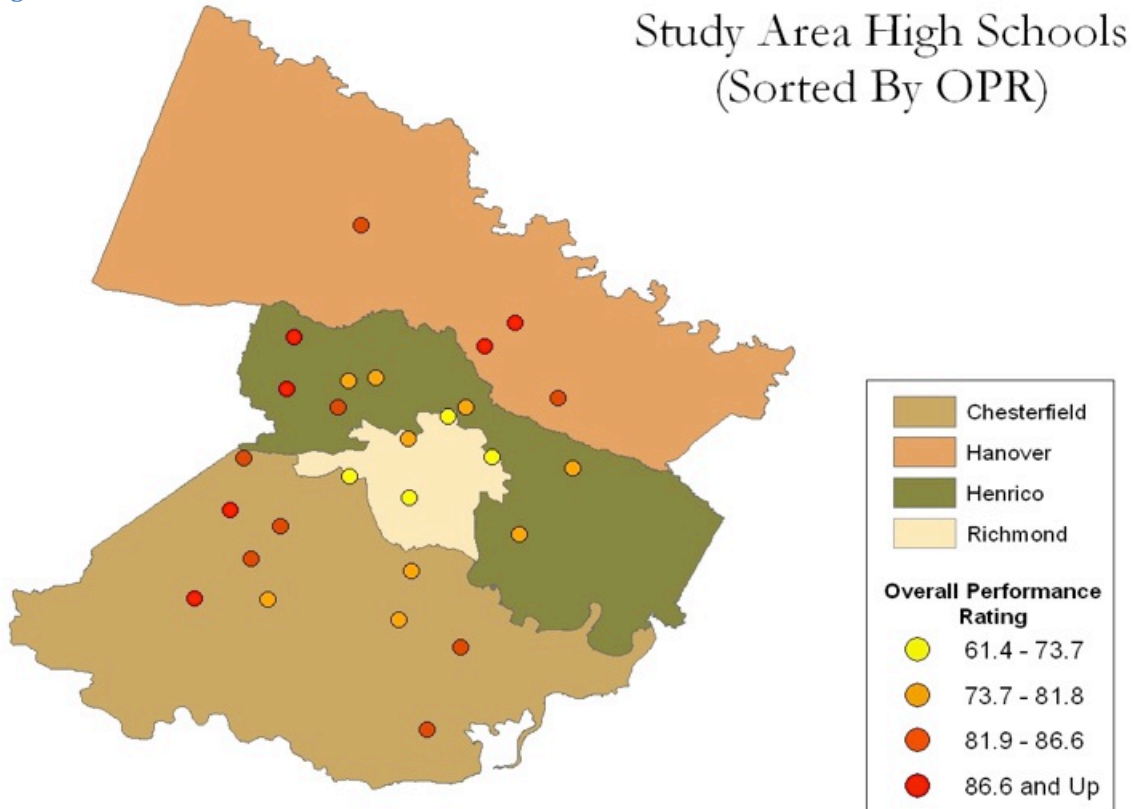


Figure 6 shows Richmond High Schools against the 5 lowest OPR scores from high school in the other three localities. This graphic illustrates that most of the RPS schools fall below the underperforming schools in the other counties. Note that this graph treats the retention rate and the AP enrollment as points on a scale. All but one of the 5 non-Richmond schools are located in Henrico County. The one exception is that of Meadowbrook which is in Chesterfield County. The graph gives a visual of how the RPS schools stack up against other districts schools. As shown in Figure 6, three of the non-Richmond schools rise above the threshold of 100 points where as only 1 passes this same threshold on the Richmond side and one other just barely reaches it.

Figure 6



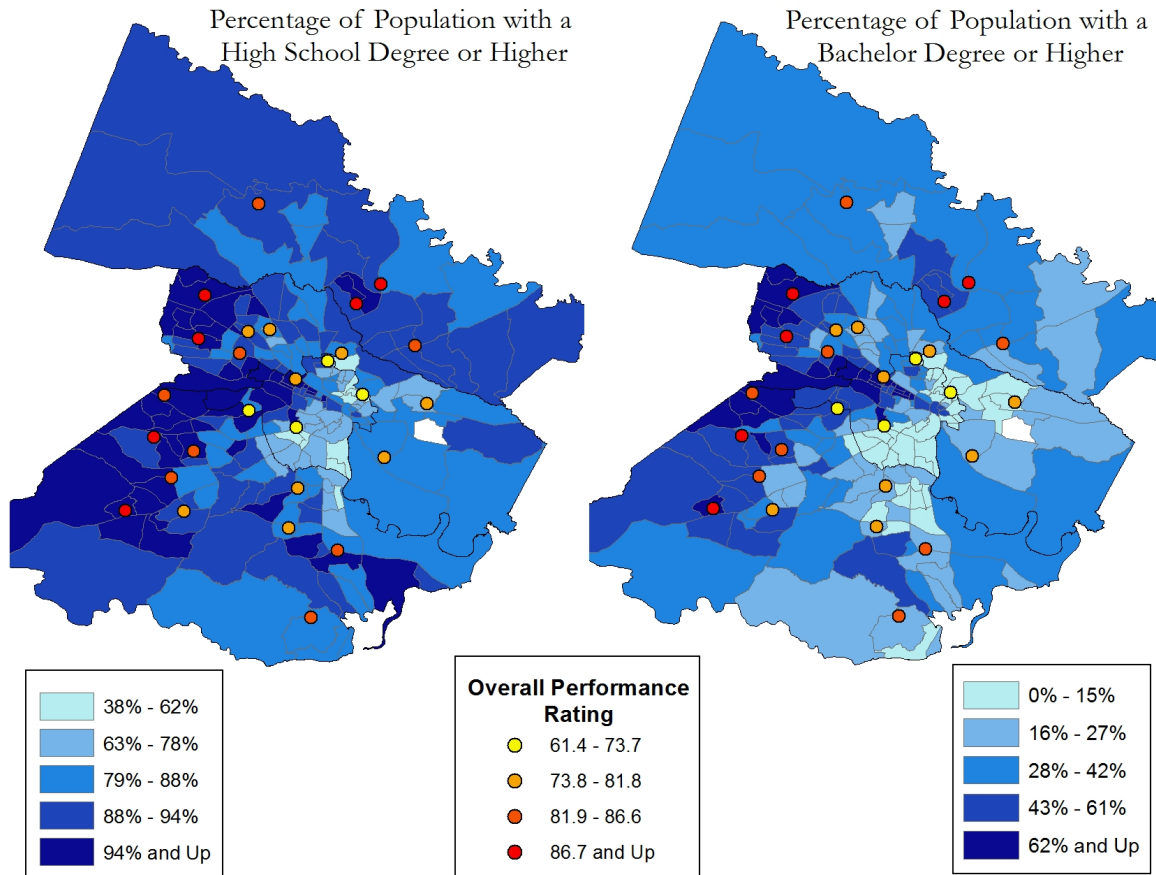
The next step in the analysis is to look at the schools OPR rating spatially using ArcGIS. The locations of the schools will be geocoded onto a map that will have the economic development indicators on it. At this point the spatial analysis can be done of the locations of the pattern of economic development and the locations of the schools.

The map above shows spatially the location of the high schools in the locality and their ranking on the OPR scale. When looking at the location of these schools, it is obvious that the majority of the under performing schools (noted with red and yellow dots) are located in the central portion of the region (including those in the Chesterfield and Henrico county school districts). The schools systems with the highest ratings are those that are in the further out suburbs to the west, north and south, indicated with dark blue and light blue dots.

Economic Development Indicators

High School and College Graduates

Figure 7: High School Graduation and Adult Education Level



The spatial pattern of school performance appears to be related to the pattern of education level of residences. The maps above show the different levels of education in the region in relation to the high schools and their OPR. The map on the left shows the percent of the population that have a high school diploma or higher, and the map on the right shows the percentage of the adult population that has a bachelors degree or higher. The two maps show a similar trend throughout the two sets of data. First looking at the map on the left, the yellow dots on the map indicate the schools that had the lowest rating

according to the OPR. The census tracts around the areas with these yellow dots have a much lower percentage of high school degrees than the areas around the higher-ranking schools. Just looking at the areas around the Richmond Public Schools (4 yellow dots at the center of the map), it can be seen that these are the areas with the lowest concentration of High School graduation. There are only 11 census tracts on the map that have High School Graduation Rates between 38% and 62%. Nine of those census tracts are in the City of Richmond, one in Chesterfield and the other in Henrico.

On other side of this equation, the areas around the other non-yellow, dots have much higher levels of high school graduates. The highest levels of high school graduates are on the western side of Henrico, Hanover, and Chesterfield. Of the 112 census tracts with 88% or higher high school graduation rates, 43 are in Chesterfield and another 31 are in Henrico (around 68% of the total 112 census tracts). Hanover has 18 census tracts with 88% or higher High School Graduation Rate. In Hanover there are 22 census tracts in the county and only 4 tracts that fall outside of this range. One issue to note is the sharp divide in Henrico between the western and eastern sides of the county. The high schools on the western side had a much higher rating on the OPR scale which corresponded with the higher percent of high school graduates as opposed to those in the eastern side which had lower rating and percentages all around.

The map on the right shows the same type of trend. The areas that have the highest percentages of persons with a bachelor's degree or higher are in the western half of the region around the higher ranked schools. In fact of the census tracts that represent 15% or lower of the population that has a bachelors degree or more, 21 are within the

City of Richmond. This is compared to the 10 in Chesterfield, 7 in Henrico and zero in Hanover.

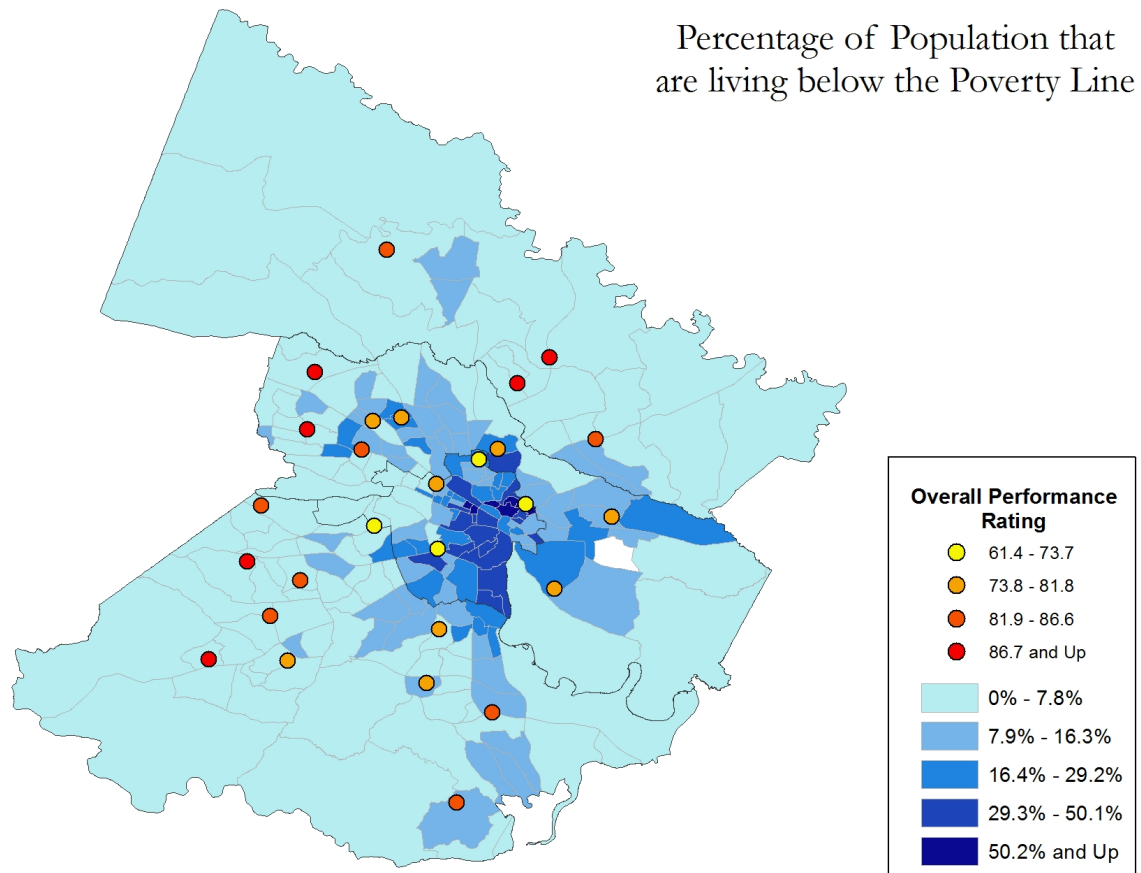
Again, the areas around schools on the eastern side of Henrico resemble those of schools located within the Richmond's boundaries rather than those in other parts of Henrico County. The areas around these yellow and bright orange dots (under-performing schools) are primarily serviced by these areas that have low adult education levels. For the most part fewer than 15% of the population in Richmond have a bachelor's degree. The eastern side of Henrico fairs slightly better with those areas having between 16%-27% of the population holding a bachelors degree or more.

Economic Development Indicators

Next, the analysis will consider how areas performed on key economic development indicators and their relationship to the locations of the schools. The analysis for the median household income, percent in poverty and real wages per worker were completed using spatial analysis (using ArcGIS) and the other indicators were analyzed by comparing regional statistics to school district level statistics.. Using these methods we will be able to see the different trends that are present around the schools with higher education qualities compared to those that have lower education quality.

Poverty Rate

Figure 8: Population below Poverty Line



As Figure 9 shows, the census tracts with higher poverty rates are all located in the center of the map (City of Richmond). In fact, these poverty stricken tracts characterize the majority of Richmond. In contrast, virtually all of the census tracts that surround the higher performing schools are located in western Henrico and Chesterfield counties where less than 7.8% of the population fall below the poverty line. Twenty-one of census tracts in Chesterfield have more than 7.8% of the population living in poverty. This is compared to the fact that the City of Richmond only has 8 census tracts that are below this mark. Meaning the vast majority of city's census tracts has a poverty rate of above 7.8%. The City has 22 census tracts that have poverty rates above 29%. This is

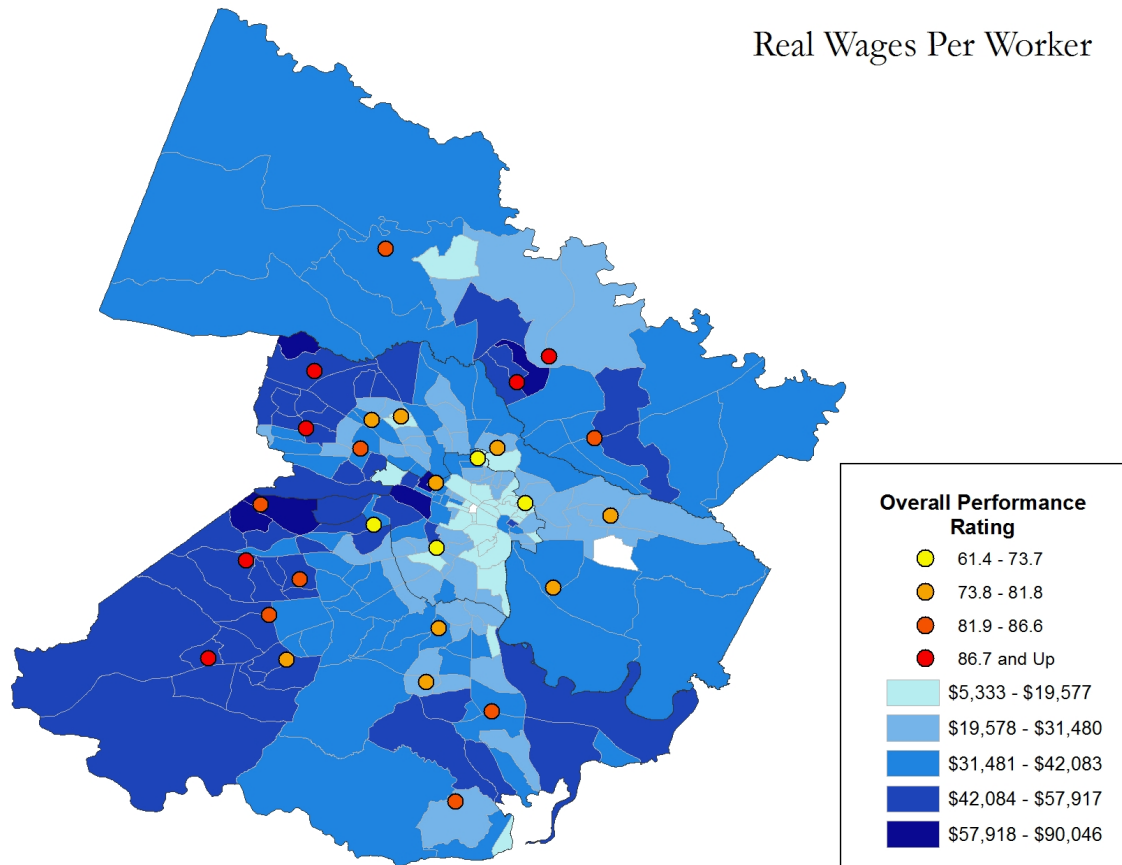
compared to the fact that there is only one other census tract outside of Richmond City that has a poverty rate of over 29%.

This is in a stark contrast to the areas around the lower performing schools in the city. In fact, 2 of the 4 lowest performing schools sit in census tracts where the percentage of poverty is between 29.3% and 50.1% and another one sits in a census tract where the percentage of poverty is 50.2% or higher. This is important because no other high school in the other 3 localities sits in a census tract with more than 29.2% of the population in poverty. In addition, no school that had a school rating of over 81.9 is in a census tract with more than 16.9% poverty rate. Not one of the highest-ranking schools were located in a census tract with more than 7.9% poverty rate.

In addition, the divide between the two sides of Henrico is evident when analyzing the poverty data. The schools on the eastern side of the county are positioned in areas that have a much higher poverty rate than on the west side of the county. Chesterfield and Hanover had little to no pockets of poverty in those counties and therefore, none of the schools in these two counties were located in census tracts with a poverty rate over 16.3%. One interesting fact is that all but 2 of the schools (11 in total) that were below the state average (81.8 OPR) are located in tracts with at least 7.9% poverty. The location of the poverty census tracts do not follow the boundaries as much as they follow geographic locations (in this case the schools.) The concentration of poverty tracts was not only within Richmond but rather was located near the under-performing schools.

Per Capita Income

Figure 9: Real Wages per Worker



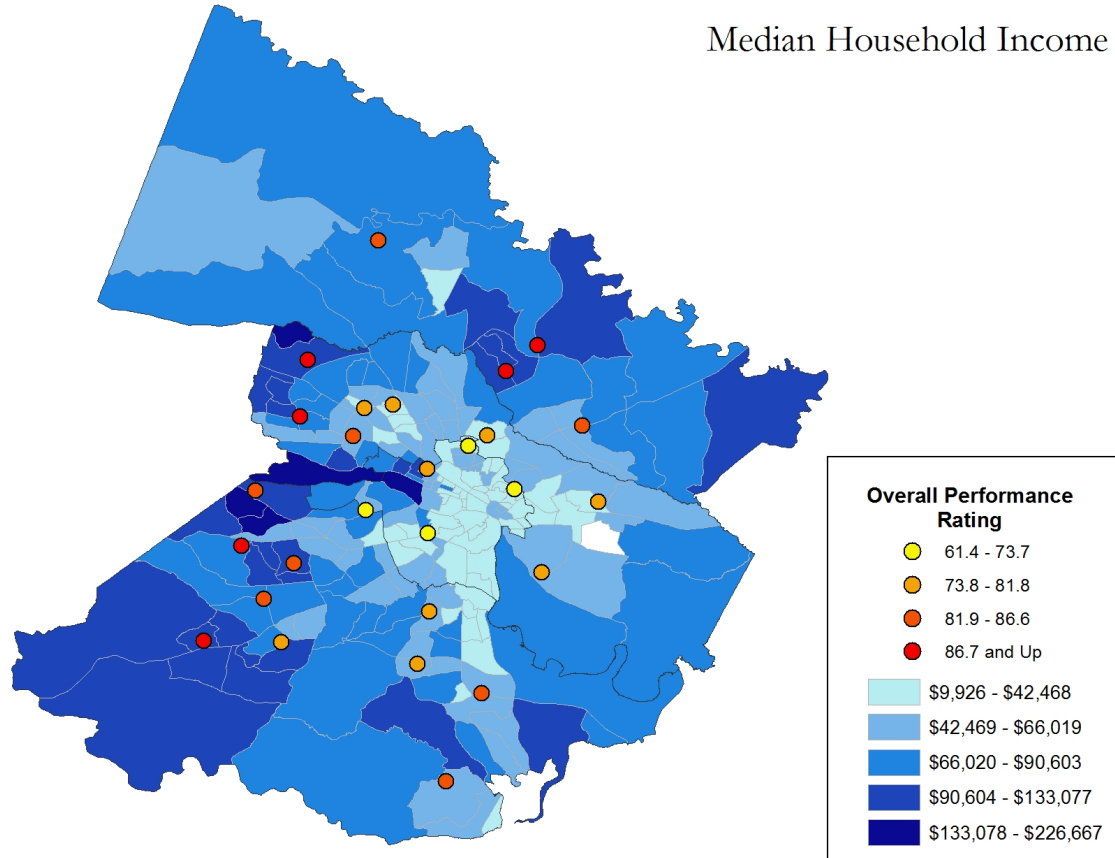
In contrast to the poverty map, it is no surprise that the real wages per workers map is almost the inverse of the poverty map, with the higher wages radiating from the center. The areas of western Henrico and Chesterfield have the highest concentration of census tracts with the higher wages per worker. These areas are also served by the higher quality schools (at least an 81.9 or higher OPR). One thing that can be seen is that virtually all of the higher performing schools are located in census tract that are at the higher end of the real wage scale (\$42,084 or higher). In fact only one school in the top performing group (red dots) was not located in a census tract represented wages over \$42K. Of schools that had a ranking of 81.9 or higher, each one either sat in or was adjacent to a census tract that was represented by a real wage over \$42,000. There are 24

total tracts in the 4 localities that fall in the lowest range of \$5,333 to \$19,577. Of those 24, 19 of them are within the City of Richmond.

The census tracts around the lower performing schools (yellow and light orange dots) represent the middle to lower points of the wage scale. One of the Richmond schools does sit in census tract that is on the highest end of the scale. Not surprising, this school is Thomas Jefferson, which was the Richmond school with the highest OPR. One reason for Thomas Jefferson's high OPR rate (compared to other RPS schools) is the fact that it houses the city's only International Baccalaureate program. Also of note is that the wages in the western parts of Chesterfield and Henrico are in the higher portion of the scale and the census tracts around these schools are also the 2 highest sectors on the real wage map's scale.

Household Median Income

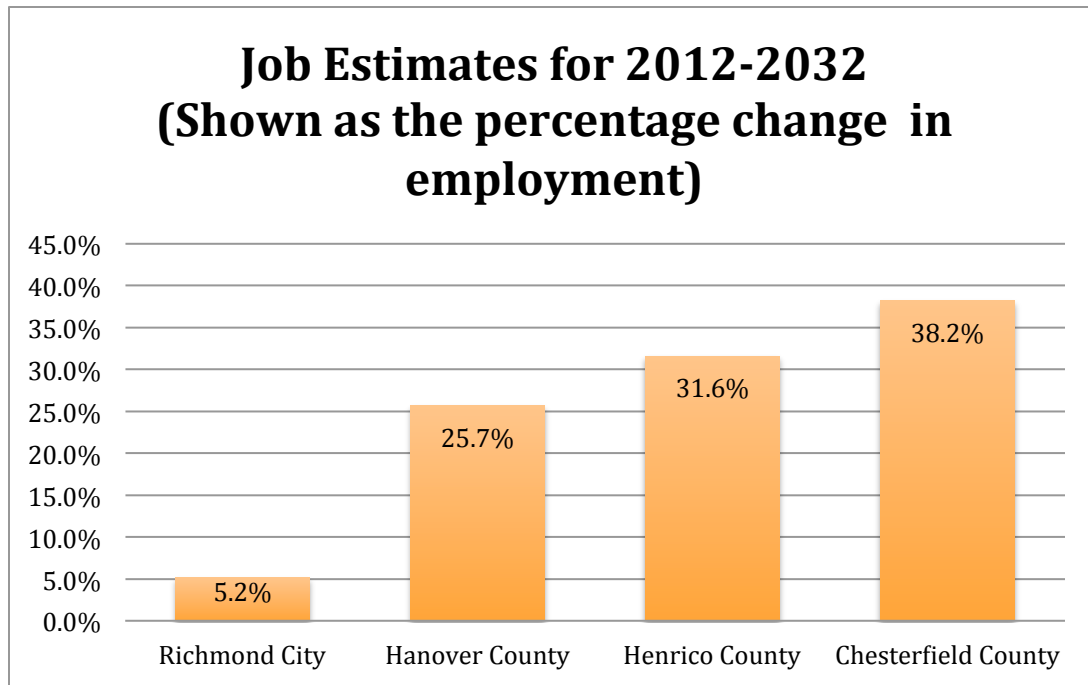
Figure 10: Median Household Income



In correlation with the real wage map, the median income map highlights the different in income levels between the city and the outlying counties. Thirty-eight out of the 60 census tracts in which the median house hold income was below \$42,468, were in of the city of Richmond. At the same time, only 9 tracts in Chesterfield, 11 in Henrico and just 1 in Hanover had median income below \$42K. By contrast there are 34 census tracts in which the median household income was above \$90,604, with only 3 of them being inside the city. Eighteen of these high income census tracts were in Chesterfield, 7 in Henrico and 6 in Hanover. Also of note is that of Henrico's 7 tracts that were over \$90,604 were all on the western side of the county. The median household income map

tells an interesting story. Unlike the wages per worker map, the higher end of the map's scale does not dominate the western side of Henrico and Chesterfield's census tracts. However, the western end does have more pockets of high-income median households than the city and the eastern side of the counties. Only 2 out of the 14 schools that have a OPR rating of 81.9 or higher are in tracts with median household incomes of \$66,019 or less. Three out of the 4 schools that are at the bottom of the rating scale (represented by the yellow dots) sit in tracts where the median income is below the \$42,468 level. Of the 6 schools that had the highest rankings (86.7 or higher), only one of them sits in a tract that is below \$90,604. When looking at the 13 schools that had OPR ratings of 81.8 or lower, only 2 of them were in tracts where the median household income was above \$66,019. Another key takeaway from the median income map is that median wage levels seems to radiate from the center (Richmond City), generally getting higher as you move from the city towards the counties.

Figure 11



In a report by Dr. Lisa A. Sturtevant and Ryan Price entitled “Housing the Richmond Region’s Future Workforce”, the authors looked at job growth and housing demands in the Richmond MSA as well as the individual counties. They found that “Workers are increasingly making decisions about where to live based on quality of life issues... Businesses are then following the workers⁶³.” This is shown in the net new jobs projected for 2012-2032. In that time period, it is estimated that there will be just over 124K new jobs created but only 8K of them in the City of Richmond. This is just a 5.2% change compared to Henrico that will have a 38.2% change. At the same time, Hanover will see a 25.7% change and Chesterfield will see a 31.6% change. This scenario reflects the findings in Richard Florida’s “Rise of the Creative Class”, where the employees will start to dictate where the businesses locate. This is important because if the surrounding

⁶³ Sturtevant (2013).

environment of the counties (open spaces, education systems, cultural centers, etc.) becomes more important to these workers, this trend of jobs going away from the Richmond city will continue.

Figure 12

Total Number and Percent Change of Establishment (2001-2011)				
	Chesterfield County, VA	Hanover County, VA	Henrico County, VA	Richmond City, VA
2011	113,833	44,741	172,959	149,540
2010	113,322	44,335	170,411	148,083
2009	114,814	44,848	170,871	150,793
2008	120,195	45,988	178,807	159,063
2007	121,310	45,061	180,710	158,597
2006	118,531	43,665	174,782	161,667
2005	114,844	42,835	171,845	160,483
2004	112,771	42,174	167,020	158,370
2003	110,276	40,883	166,865	158,415
2002	109,033	39,993	166,041	162,223
2001	107,721	39,052	169,827	164,906
10-Year Change	6,112	5,689	3,132	-15,366
10-Year Percent Change	5.70%	14.60%	1.80%	-9.30%

According to Bureau of Labor Statistics, over a 10-year period from 2001-11, Richmond City lost over 15K jobs. Out of the 4 localities, the city was the only one that had a net lost of jobs. Chesterfield gained just over 6K jobs with a percent change of 5.7%. Hanover had a percent change of 14.6% and gained over 5,500 jobs. Henrico was the lowest of the percent gains with just 1.8% and adding just over 3K jobs.

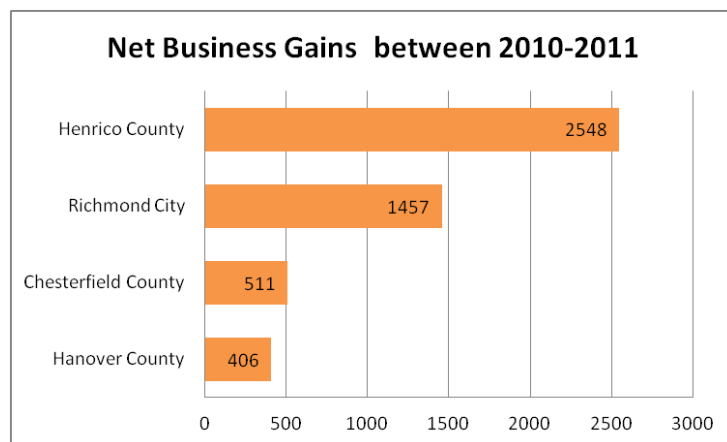
Another important point to make is that the University of Indiana's Business Research Center created a site called StatsAmerica that gives detail analysis about employment numbers and trends. In this data it shows that over 2/3 of the persons working in Richmond city live in other areas. The largest of the inflow of workers comes

from Henrico County. This is almost the exact opposite of Chesterfield County, where 60% county workers also live in the county. Fifty-five percent of Hanover workers live elsewhere and in Henrico is 50-50. This statistic ranks Richmond in the top 30 counties/cities in the country that have more workers living outside of the area than within.⁶⁴ This pattern shows that most of the people who work in Richmond City choose not to live in the city for one reason or another. This finding can go back to the previous discussion about tax base leaving the area. These worker outflow numbers go along with the story that the workforce has decided to live outside of the central city thus weakening the tax base. These numbers are in sync with the fact that the school systems in the counties are all rated higher than that of Richmond city.

As far as the number of new businesses in the area, over a 10-year basis (2001-2011), the City of Richmond lost around 15K establishments and yielded a 9.3% net loss when it came down to percent change. It was the only one of the 4 localities that had a net loss when it came to the total number of business establishments in the area. Chesterfield added the most total

establishments over the course of the 10-year period with just over 6K. Hanover yielded the largest percent gain with a 14.6% increase in the total number of establishments in

Figure 13



⁶⁴ Richmond tied for 29th out of all counties in the United States according to the Census. 24 of the top 30 counties/cities are all within Virginia

the county. Henrico had the smallest percent gain (1.8%) and lowest total number of establishment added (just over 3K) of the localities that had net gains over the time period. However, Henrico had the highest total number of establishments for each of the years in the time period.

From 2001 to the time of their peak in 2007-2008, Chesterfield gained over 13K businesses, Henrico gained more than 10K businesses, Hanover around 7K businesses, while Richmond lost over 3K businesses. Each of the localities was at their peak in overall number of establishments between 2007-2008 (with the exception of Richmond which peaked in 2006). The number of establishments in each locality began to drop significantly between 2008-10. This decrease in business correlates with the start of the “Great Recession” that began in September of 2008. However, areas inside of Richmond had been losing establishments starting in 2006. Between 2008 and 2010, Chesterfield lost around 7K businesses, Henrico lost about 10K businesses, Hanover lost only about 1K businesses and Richmond lost over 13K businesses. One bright spot is that between 2010 and 2011, Richmond was second to Henrico in the number of establishments gained with just under 1,500 gained.

Section V: Discussion and Conclusion

Discussion

Throughout this analysis there were very distinct patterns of higher gains in economic development across the districts with higher rated schools. In the spatial analysis the poverty and the percentage of high school graduates, you can see that many of the areas that have low poverty rates also having higher college graduation rates. This falls in line with the literature by the South Carolina Institute.

One interesting finding is that the differences are not just between inner city and county (which has been explained), but rather there was an overwhelming difference in the areas around higher performing schools and the lower performing schools. As shown multiple times in the analysis of the maps, the main case for this is Henrico County. Areas around the higher performing schools tell a much different story than those surrounding the lower rated schools. Even-though areas in the county fared better than those in the city, there is still enough evidence to show that there was a clear difference between areas within the same county. This means that the levels of economic development were not truly based on school district lines but rather in the central geography of the school location.

One of the key finding that comes across in the analysis of the data is the clear differences between census tracts that are located in the counties and those that are in the city. Thus, as shown on the maps, the areas around the schools located in the city are vastly different than those located in the surrounding counties. This spatial analysis was important because it shows the disparities in the economic development opportunities around areas that have less productive schools. Even with the new jobs and businesses information (which was analyzed at the school district level), the city school district still

lagged behind the other areas. One of the big numbers in this data set was the 2032 job estimate. Companies are, as stated in previous literature, moving to places where the employees prefer to live. These job numbers prove that there is a reason that people are moving more towards the counties and not so much towards the cities. The 2032 numbers show that Richmond will only gain around 8K new jobs whereas Henrico is estimated to gain close to 58K jobs. Thus, there is a clear difference in the levels of economic development between the two areas. This is further explained when looking at Richmond City had a net lost of over 15K establishments in the last 10 years whereas Hanover and Chesterfield had net gains of around 6K each and Henrico had gains just over 3K. These gains all happen in school districts have higher OPR scores.

Another key finding is that the percentage of college-educated adults in the population around schools with high OPRs was considerably higher than the percentage around lesser performing schools. This finding falls in line with the findings in the Brasington article. Virtually all of the areas that had very high percentages of the adult population with a bachelor degree or higher were represented by a high school that had a high OPR rating as well (within the top 2 scale ranges). This finding also correlates to the map analysis of those that at least had a high school diploma. In certain areas of the city, the percentage of college educated dropped as low as 38% whereas in Hanover's percentage never dropped below 79%. Coincidentally, Hanover did not have any high school that fell below an 83 on the OPR scale. The poverty map also shows that schools with the highest ratings were in areas that were largely free of large poverty pockets. In fact every census tract that had more than 50.2% of the population below the poverty line were contained with the City of Richmond and around the lower performing schools.

This means that the schools in the city of Richmond serve more poverty stricken areas than those of the other school districts. This also is consistent with previous literature that stated schools that had high poverty numbers were under performing.

Also there is a case to be made about the bunching up of these schools and this having an effect on the levels of the indicators there. If you look at the area in western Chesterfield and Henrico, a large portion of the higher performance schools are located in those areas (8 out of the 14 high schools that rated higher than the state average are in these two areas). It could be hypothesized that having these higher achieving school clustered together could impact other indicators and their levels. This is an area that needs further research to truly access this impact. In general the economic development indicators were much higher in the areas around the higher performing schools.

Conclusion

Leaders in the City of Richmond recently took a trip to Denver in hopes of figuring out new and inventive ways to attract and maintain young talent in the workforce⁶⁵. One of the key takeaways from this meeting was the struggling K-12 school system in the urban schools. The eventual goal for regional economic development officials is to get to a state where families will not have to avoid living in the urban cores of cities because of the low-quality school in the area. The overall notion is that new professionals want to be in areas with many great amenities, which includes school systems where they could eventually send their children.

⁶⁵ Moomaw (2013).

In this study a lot of the information about school quality was not new. Most literature would support the notion that school systems are lower quality in urban environments. However, this research has shown empirically the pattern of decreased economic development around the lower quality schools in comparison to the areas around the higher quality schools. This issue raises the classic question “what came first, the chicken or the egg”. Which approach is the best suited for the situation. Should leaders improve the schools and hope that improvements will trickle down to the areas around the schools. Or should they inject programs and other amenities into the community in hopes that eventually the school quality will improve.

One argument made with regards to school quality is the improvement of teacher quality. There are incentives, such as loan forgiveness programs, given to teachers who teach at inner-city schools. These incentives are aimed at getting fresh teaching talent into the areas that need it the most. However, these programs can lead to high turnover rates when these teachers gain experience and leave for other school systems.

Another example of a program that may be beneficial to both areas (school quality and economic development indicators) is P-Tech in New York⁶⁶. P-Tech (or the Pathways in Technology Early College High School) is a high school in New York City that takes students through a curriculum which culminates with students earning a High School Diploma and Associates Degree. The school and its model have become so popular that it made it into President Obama 2013 “State of the Union”

⁶⁶ *Pathways in Technology Early College High School*. (2013).

address saying, “We need to give every American student opportunities like this.” It was just announced that the program has gained so much support and recognition for its efforts and initial results that Governor Cuomo (New York) has announced plans to open 10 more schools statewide with the same model.

The benefits of this model would be that the workforce in areas around these schools would improve because they would not only obtain a high school diploma but also workforce skills that would help in their job search. Another benefit would be that it would make the city schools more competitive in the region among top quality teachers and companies looking to locate around a skilled workforce. Implementing similar measures in to Richmond Public Schools could potentially to change the business climate of the region.

Style Weekly recently published an article that talks about improving Richmond City schools, by first reaching the parents. Though that reasoning is one that could warrant some digging into, there is another way to look at the issue of improving the school system. If investment is put back into reviving neighborhoods and areas surrounding these schools, it may in time attract higher quality teachers and more importantly bring the right kind of attention back to the school system. This approach could also bring Richmond City back to an even playing field in the pursuit of these knowledge-based workers that are becoming the dominate force in the workforce today.

RPS currently has a program with local community colleges and technical centers in which high schools students can take courses. This program could be expanded to incorporate some elements of the P-Tech model. This could be very

beneficial because it could help in the two main areas; education and Economic Development. The education levels of the population would begin to rise because more of the high school students would be taking college courses and earning Associates degrees. Even if the student did not want to pursue higher education, they would be far more attractive to companies that may be looking for a specific skill set. Having a program like this could also bring more families back into the city because they want to benefit from the experience of the program. More families and more skilled workers would renew the cities tax base.

Companies would love this program because it would be another opportunity to set up alliances and partnerships with the school system in order to hire the students. This could really alleviate the unemployment problem and also give the students a reason to want to complete such a program. Also from the city's point of view, the program would be another asset to sell to prospective companies looking to move into the area. This program would make the city a more viable option because companies would not have to search very hard to find employees.

Bibliography

- Andrew J. Plantinga, Cécile Détang-Dessendre, Gary L. Hunt, Virginie Piguet, Housing prices and inter-urban migration, *Regional Science and Urban Economics*, Volume 43, Issue 2, 296-306.
- Bell, Nicole. "Teacher Turnover rate drops in Petersburg." *WWBT (NBC 12)* 2013.
- Brasington, D. M. (2003). The supply of public school quality. *Economics of Education Review*, 22, 367-377.
- Brasington, David M., and Diane Hite. "School choice and perceived school quality." *Economics Letters* 116 (2012): 451-53.
- Chesterfield County Public Schools*. CCPS, 2013. Web. <<http://mychesterfieldschools.com>>.
- Clapp, J. M., Nanda, A., & Ross, S. L. (2008). Which school attributes matter? The influence of school district performance and demographic composition on property values. *Journal of Urban Economics*, 63, 451-466.
- Cooke, Paul. "Racial Integration in Education in the District of Columbia." *The Journal of Negro Education* 25.3 (1955): 237-45.
- Fagerberg, Jan, Morten Fosaas, and Koson Sapprasert. "Innovation: Exploring the knowledge base." *Research Policy* 41.7 (2012): 1132-53.
- Florida, R. (2002). *The Rise of the Creative Class* (p. 174). Basic Books.
- Forbes (Best States to do business). 2012. <http://www.forbes.com/sites/kurtbadenhausen/2011/11/22/best-states-for-business-methodology/>
- Glaser, Mark, and John Bardo. "The impact of Quality of Life on Recruitment and Retention of Key Personnel." *The American Review of Public Administration* 21.57 (1991): 57-72.
- Guin, Kacey. "Chronic Teacher Turnover in Urban Elementary Schools." *Education Policy Analysis Archives* 12.42 (2004): 1-25.
- Hanover County Public Schools*. HCPS, 2013. Web. <<http://hanover.k12.va.us>>.
- Henrico County Public Schools*. HCPS, 2013. Web. <<http://www.henrico.k12.va.us>>.
- Hanushek, Eric A., and Lori L. Taylor. "Alternative Assessments of the Performance of

- Schools: Measurement of State Variations in Achievement." *The Journal of Human Resources* 25.2 (1990): 179-201. Print.
- Holme, J. J., Diem, S., & Mansfield, K. C. (2010). Using Regional Coalitions to Address Socioeconomic Isolation: A Case Study of the Omaha Metropolitan Agreement. Harvard Law School: Institute for Race and Justice
- Kramer, Ronald C. "Poverty, Inequality, and Youth Violence." *Annals of the American Academy of Political and Social Science* 567.139 (2004): 123-39.
- Kyriakos C. Neanidis, Vea Papadopoulou, Crime, fertility, and economic growth: Theory and evidence, *Journal of Economic Behavior & Organization*, Volume 91, July 2013, Pages 101-121
- The King County Planning Department. *King County Benchmarks: Economics*. Seattle: n.p., 2004. N. pag. The King County Countywide Planning Policies Benchmark Program.
- Lindquist, Robert. "Bradley v. Milliken: Was Busing Really the Question?" *EDUCATIONAL RESEARCHER* 4.16 (1975): 16-20.
- Love, Lisa L., and John L. Crompton. "The Role of Quality of Life in Business (Re)Location Decisions." *The journal of Business Research* 44 (1999): 211-22.
- MarketWatch (The Wall Street Journal). 2013.
<http://www.marketwatch.com/story/methodology-for-finding-top-growth-cities-2013-04-15?pagenumber=2>
- Moomaw, Graham. "In Denver, Richmond region gets tips on attracting young, active workforce." *Richmond Times-Dispatch* 5 May 2013.
- Myers, D. (1987, August). Internal Monitoring of Quality of Life for Economic Development. *Economic Development Quarterly*, 268-278.
- Pathways in Technology Early College High School*. New York Department of Education, 2013. Web. 22 Apr. 2013.
- Richmond Public Schools*. RPS, 2013. Web. <<http://web.richmond.k12.va.us>>.
- Renzulli, Linda A., and Lorraine Evans. "School Choice, Charter Schools, and White Flight." *Social Problems* 52.3 (2005): 398-418.
- Ryan, J. E. (2010). *5 Miles Apart, A World Apart* (pp. 64-65). N.p.: Oxford University Press.
- School Digger*. N.p., 2013. Web. 10 May 2013. <<http://www.schooldigger.com>>.

Sturtevant, Lisa A., and Ryan Price. *Richmond Region's Future Workforce*. Fairfax: George Mason University School of Public Policy, 2013.

Summary of Milliken v. Bradley (n.d.). In *PBS: Beyond Brown*.
<http://www.pbs.org/beyondbrown/brownpdfs/milliken74.pdf>

Virginia Department of Education. *School Report Cards*. N.p.: VDOE, 2012.

Virginia Performs. 2013. <http://vaperforms.virginia.gov/index.php>

Weiss, Jonathan D. "Public Schools and Economic Development."
KnowledgeWorks Foundation (2004).

What is economic development (n.d.). In *International Economic Development Council*. Retrieved April 4, 2013, from http://www.iedconline.org/web-pages/inside-iedc/about-iedc/#ED_Defined

World Bank. Local Economic Development. 2013.
<http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTURBANDEVELOPMENT/EXTLED/0,,menuPK:341145~pagePK:149018~piPK:149093~theSitePK:341139,00.html>

Vita

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