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The Effects of Access to Childcare on the Labor Force Participation of Women in the Huntington-Ashland Metropolitan Statistical Area and West Virginia

Kristi Stephens

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The Effects of Access to Childcare on the Labor Force Participation of Women in the Huntington-Ashland Metropolitan Statistical Area and West Virginia

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the Graduate College of
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In partial fulfillment of
the requirements for the degree of
Master of Arts
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by

Kristi Stephens

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ABSTRACT

The Effects of Access to Childcare on the Labor Force Participation of Women in the Huntington-Ashland Metropolitan Statistical Area and West Virginia

by Kristi Stephens

This paper examines the connection between access to childcare and labor force participation of women in the Huntington-Ashland MSA and in West Virginia by evaluating the connection between the number of daycare slots available and several socio-economic factors. Based on data gathered from daycare resource groups and the U.S. Census Bureau, access to childcare is connected with the ability of women with children to participate in the labor force. This effect is seen more strongly in rural West Virginia than the more urbanized Huntington-Ashland MSA and the number of childcare slots available may be influenced by, or is influencing, a looser attachment to the labor force that is seen for West Virginia when compared to the MSA. Policy suggestions include government intervention to determine childcare needs and providing accessible and affordable childcare so communities can meet these needs.
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CHAPTER ONE: INTRODUCTION

Over the last 200 years, the feminist movement has sought to improve the living conditions of women crippled by the written and unspoken rules patriarchal society had imposed. In Europe, pivotal works such as, “A Vindication of the Right of Women,” by Mary Wollstonecraft in 1792 and “Declaration of the Rights of Women,” by Olympe de Gouge 1791 demanded equal legal, political, and academic rights for women. In the U.S., the women’s rights movement grew out of the anti-slavery movement, which caused black and white women both to mobilize against oppression. The Seneca Falls convention in 1848 produced the, “Declaration of Sentiments,” that called for women to overthrow the male patriarchy (Freedman 17). It would still be 1918, after many struggles and riots, before the British government would grant women over 30 the right to vote. In the U.S. the right to vote was granted in 1920 (Freedman 55). After being granted the right the vote, women then encountered a new struggle in gaining better rights in the labor market. Although conditions have improved drastically, women are still experiencing inequality in the workplace in the form of less wages, sex-segregation in the labor force, unpaid domestic labor, and the glass ceiling. (Rodriguez, Rueda, Watkins 134-163).

Many women participating in the labor force struggle with these conditions everyday. The negotiation of domestic and workplace responsibilities take a huge toll on women of all types of life, especially those with children to care for. Women participating in the labor force have several options for the care of children during work hours; these include, but are not limited to: care by family members, in home care givers such as nannies, private child care providers that provide care from within their homes,
Headstart and after school programs, and child care centers. Any of these childcare options are limited by availability and accessibility. For some women, many of these options are simply unavailable; for example, there may be no in-home providers or child care centers in the region that they reside. This is especially true for rural areas. The number of daycare slots available may not always reflect the need for childcare in an area because some women rely on family, friends, and the fathers of their children to provide childcare (Bloom and Stein, 1996).

For others, childcare may be available for working mothers but financially or geographically inaccessible. Subsidies for childcare do exist in some areas, but many women that do not meet the requirements or do not have adequate knowledge of such programs find that often a large portion of their income becomes allocated to care for their child. Transportation is also a concern in finding adequate childcare, especially for those in poverty who often must rely on unreliable vehicles or public transportation. The geographic placement of childcare centers may interfere with a woman’s ability to work full time, as well as the hours that a childcare center operates, what ages of children a center will accept, whether or not a center is able to accept children with special needs, etc.

One can see how this complex situation can create barriers for women who wish, or need, to work while their children are small. The purpose of this study is to evaluate the effect of the number of child-care slots available on the labor force participation of women in the Huntington-Ashland MSA and the state of West Virginia. I will also be evaluating how access to childcare affects certain socio-economic conditions for women.
in the MSA and the outlying rural areas, as well as predicting areas of need for childcare within these rural areas.
CHAPTER TWO: LITERATURE REVIEW

The Wage Gap:

Conditions for women in the workplace have improved, but inequalities still persist. This is partially reflected in the wage gap between men and women. Median weekly earnings for women in 2004 were 80% of the income of male employees, although this differs across age groups, employment status, occupation, race, and marital status. (U.S. Bureau of Labor Statistics, 2005) The purpose of discussing the wage gap here is to show that there are many factors that go into an individual woman’s ability to access childcare so that she is able to participate in the labor force.

Out of the many aspects of the wage gap, marital status, occupation, and employment status are perhaps the most relevant to discussing the influence of women’s position in the labor market and how access to childcare affects a woman’s socio-economic situation. Statistics provided by the BLS show that women remain marginalized in many ways in regards to labor force participation. For example, median weekly earnings were 21% higher for married mothers than unmarried mothers, within an occupation group, women were more likely to be employed in lower wage occupations than men and 25% of women workers were employed part time, compared to 11% for male workers. Also, women who were paid by the hour reported median hourly earnings of $10.17 which was 85% of their male counterparts, who were reporting median hourly earnings of $12.02. Four percent of women reported wages at or below minimum wage compared to 2% for males. (U.S. Bureau of Labor Statistics, 2005) Some positive changes over the last 40 years include an overall increase of labor force participation for women, especially those that are married or those with small children, an increase of
mobility for white females with college degrees, and decreases in occupational segregation for some occupation groups (Luce and Brenner, 2006).

Many researchers have attempted to explain the wage gap. O’Neill concludes in her study on the wage gap in the year 2000 that the gap in earnings between men and women is caused by differences in actual work experience, occupational and workplace characteristics, and child related factors (O’Neill, 2003). The ability to bargain collectively, through unions or otherwise, has also been looked at to explain the wage gap (Rosenfeld and Kalleberg, 1991). Although O’Neill does not believe that differences in education affect the wage gap, many other researchers believe that educational attainment has effect on women’s earnings. Hamil-Luker finds that education and occupational training, especially on-the-job, yields positive economic returns. Over time, women that did not update their skills had stagnating or declining wages which in turn contributes to the wage gap across different types of education (Hamil-Luker, 2005). Others, such as Rubb, state that the degree to which a woman is overeducated negatively affects her earnings and contributes to the wage gap (Rubb, 2003). Although the wage gap between men and women narrows every year it remains a pervasive aspect of the struggle that working women endure in the labor market.

Occupational Segregation, Spatial Constraints and Migration

The degree to which occupations are gendered poses special challenges to women in the workplace. Female dominated occupations tend to generate lower wages and women are more likely to be employed part time. Hanson and Pratt discuss the tendency of women to rely on informal networks, especially other women, to obtain employment and to look locally for employment. Women also tend to value attributes such as flexible
work hours over higher wages. All these factors serve to perpetuate the gendered nature of certain occupations (Hanson and Pratt, 1991).

Occupational segregation has also been shown to force women into joblessness, because they are more likely to be pressured out of their job rather than advancing their career. David Maume, the author of this study, found that these pressures stem from resentment from men towards female coworkers that increases the percentages of men to be promoted to higher positions in the workplace over women and an increase of women leaving their jobs as the percentage of men in that occupation increased. The findings of this study suggest that entry of women into male dominated occupations increased wages while simultaneously increasing the risk that a woman would leave that job. (Maume, 1999). In part-time employment, occupational segregation often causes to take on low-skilled gendered work when they choose to work part-time because of having to care for a child. Part-time employment tends to be gendered to a much higher degree than full time employment (Blackwell, 2001).

The mobility of working women is also an important element of the discussion of labor conditions for women. Mobility for women, however, seems to be highly affected by the presence of children in a household. Within their career path, men and women are both able to increase their occupational status over time under certain conditions. Under this assumption, women with children and women who work part-time are generally less mobile in their career path (Jacobs, 1999). Families that lose a husband through divorce or death also experience negative effects to mobility, income, and educational attainment, especially in the presence of children (Bradbury and Katz, 2002).
There is evidence that shows that women suffer negative effects of being spatially constrained or a “tied-mover”, which is where a woman moves to further the advancement of her husband’s career. Many studies on migration have shown that women are affected negatively by a family migration (Boyle et al, 2003; Bailey et al, 2004; Boyle et al, 2001; Cooke, 2001; Jacobson and Levin, 1997; Jacobson and Levin, 2000; Lichter, 1983; Nilsson, 2001; Smits, 1999). This effect is especially pronounced for women in a household where there is a child present (Bailey et al, 2004; Boyle et al 2003; Cooke, 2001; Nilsson, 2001; Smits, 1999). This could be due to the lack of a support network for childcare in the city to which the family migrated, as well as inadequate knowledge or access to child care institutions.

Mobility also includes the trip to and from work, which becomes an increasingly complicated endeavor when the trip that woman, more so then men, must combine with transporting children to their childcare provider. This journey must take into account geographic locations of employment, childcare, and residence. If childcare is located far from employment but close to home, then emergency trips from the workplace and parental involvement with the childcare suffers, while being located near the mother’s place of employment may cause its own set of challenges as a result of the stress that a longer car trip everyday to childcare would put on the child. The location of employment may be constrained, then, by the location of childcare and/or school (Hochschild and Machung, 1989; Myers-Jones and Brooker-Gross, 1996; Hanson and Pratt, 1998;)

The Effects of Access to Childcare on Working Women

The presence of children in a household has a large effect on the labor force participation of working women. Many women with children engage in part-time work or
work in occupations which create a difficult situation for women who work which may continue in the years until a child enters school, and for some even after that point. The increase of women in the workplace has created an increased demand for childcare while women suffer disproportionately from the need to negotiate these workplace responsibilities with the care of their child (England, 1996). In this section I will discuss the unique conditions that women face when negotiating work with the care of children.

Access to childcare involves two dimensions, geographic access and affordability. Domestic responsibility creates spatial and time constraints that negatively affect a woman’s labor force participation (Van Ham and Mulder, 2005; Hanson and Pratt, 1990; Hanson and Pratt, 1991; Sayer, 2005). Employing childcare usually has the effect of reducing women’s actual wages, especially since at a household level many women are required to take on the expense of childcare and other domestic activities that they can no longer perform themselves as a result of the time engaged in waged work (Pratt, 2003). One study found that women’s paid employment increased with the number of daycare slots for young children and that the number of hours that childcare is available can also affect a woman’s labor force participation (Van Ham and Mulder, 2005).

The location of employment is often affected by motherhood; mothers will work closer to home and the location of childcare also had an influence on place of employment (Van Ham and Mulder, 2005). It has also been shown that women benefit from flexible work schedules and family friendly policies within the workplace. Single mothers are more likely to use these policies, but pattern of use for married mothers and single mothers is very similar (Hughes and Gray, 2005). Few employers provide childcare or childcare subsidies; only 8% in 1991 were eligible for employer provided
benefits. Several options, such as allowing women to work from home, flexible work schedules, and job sharing are becoming more prominent but these options can have their drawbacks. For example, on-site childcare in the workplace can subject a child to a long and stressful car trip and the ability to work from home may cause difficulty for women by creating a situation where women may have to negotiate domestic tasks and work responsibilities in the same space (Bloom and Steen, 1996).

In many areas, the scarcity of childcare services and its considerable costs limit the choices women have when choosing what type of childcare to use for their child. These choices have also changed over time. One study showed that 23% of mothers with children under five chose a daycare center or preschool to care for their children in 1991 which was up from the 13% of mothers that used this type of childcare in 1977. Use of support networks such as friends or relatives increased during this time from 34% to 36% while the number of women caring for their child while they were working decreased 11% to 9% from 1977 to 1991. Child care choices were also seen to vary by marital status and employment status. In 1991, 22.9% of households relied on husbands to provide childcare in situations where both parents were present in the household and the mother was working whereas 7% of divorced mothers relied on fathers for childcare. Single mothers relied on grandparents for childcare more often (24.8%) compared to married working mothers (13.7%). Eleven point six percent of single mother households used other relatives for childcare compared to 6.7% of married mothers. In 1991, full time working mothers used daycare centers for childcare more often (28%) than mothers working part time, 15% of which relied on daycare centers. The children of part time
working mothers are cared for in the home at a rate of 46% compared to 30% of children of full time workers (Bloom and Stein, 1996).

Several studies showed that childcare costs are very high. Bloom and Steen found that in 1991 the yearly average cost for full time childcare was $3,432, $1.88 per hour if a child was cared for by a relative and $2.15 per hour at a child care center and that childcare is the fourth largest expense for some families after housing, food, and taxes. (Bloom and Stein, 1996). More recent studies show that full day childcare for one child can cost between $4000 and $10,000 a year (Children’s Defense Fund, 2005). Government assistance, thus, becomes part of the affordability dimension of childcare. Unfortunately, the United States lags behind many industrialized nations in the amount and effectiveness of public policies dealing with childcare concerns (Bloom and Stein, 1996; Skelton, 1996; Myers-Jones and Brooker-Gross, 1996). More that 15 million children qualify for childcare assistance but do not receive it. Many women rely on the public school system, through programs like pre-schools and Headstart, as their main source of childcare.

A study by Alesha Durfee and Marcia Meyers, “Who Gets What From Government? Distributional Consequences of Child-Care Assistance Policies.” states that 40% of women with young children receive some kind of assistance with childcare. In geographic areas where more than one type of assistance is available (preschool, tax credits, subsidy programs) women often receive more than one type of assistance. Single women, families with disabled or unhealthy children, and families where the woman is employed are all more likely to receive assistance. However, families with low and high levels of income are about equally likely to receive some kind of childcare assistance.
Government provisions have been found to have a positive influence on the chance that married women and women with young children in many countries, including the U.S., will be able to participate in the workforce (Pettit and Hook, 2005).

Special Conditions for Women in Rural Areas

Working women in both rural and urban areas often struggle to balance having a child with work responsibilities. But, women in rural communities face a different, and often disabling, set of challenges to work and childcare. The conflict that rural women encounter when involved in paid labor is caused by many factors such as low wages, lack of employment, traditional ideas about gender roles, low educational attainment, lack of job skills, less public transportation, domestic abuse, mental and physical illness, lack of geographical access to child care centers, and flexibility of childcare (Walker and Rechke, 2004; Ames et al, 2006; Oberhauser, Spring 1995; Oberhauser, March 1995; Oberhauser, 2002). Transportation to and from home, to childcare, to work and back also creates problems for women living in rural communities where childcare choices are limited (Myers-Jones and Brooker-Gross, 1996).

It has been shown that high-income urban areas generally provide a larger range of childcare options than rural, low income communities (Cromley, 1996). Thus, women in rural areas are more likely to use informal child care arrangements. One study showed that the number of child care slots in regulated daycare centers is inadequate, and many women did not have the proper information to find and access child care. A large portion of rural women with children were found to work part-time; single mothers tended to work full time more often than women with partners and were more likely to use
regulated childcare. Rural women with partners were found to rely more on informal networks of care or provided the care themselves and some of the women in this situation were found to be able to care for their own child and work by working within the home or providing childcare for others as a source of income. A minority of rural women used subsidies and those women were also more likely to use regulated childcare, but most women in rural areas relied on informal networks of care. In some states, no rural women used cash subsidies but instead relied on state programs, such as Headstart, to provide care (Walker and Rechke, 2004; Ames et al, 2006).

In the U.S., the status of women in rural central Appalachian region has been a subject of study for a number of years by Ann M Oberhauser and others. Economic restructuring has impacted the region in a negative way; this is seen more prominently in areas where women are detached from formal labor markets. Surely, lack of adequate childcare resources is partially to blame for creating barriers to entry in the workplace for these women. Women in rural Appalachia face incredible challenges as they are often forced to rear their children in frequently miserable and constraining conditions with little financial resources to draw on. Women also frequently do not have enough past occupational experience to support themselves, and end up having to rely on financial assistance from their husbands or from the state (Oberhauser, 1995).

Workplace and domestic responsibilities in this region have been found to be tied to ideas on gender roles. Women in this region are often faced with little to no economic resources of their own and as a result often engage in home-based labor to offset the lack of high income, full time jobs and to decrease economic reliance they have on their husbands and/or the state. Rural women in other states that are leaving welfare often
provide home based childcare as a source of income that does not take them away from their own children. (Oberhauser, 1995; Oberhauser, 1995; Oberhauser, 2002).

Leaving Welfare and Child Care Concerns

In this last section, I will discuss the effects of welfare reform and its effects on labor force participation of women in connection with childcare. Welfare reform enacted by the Clinton administration from 1992-1996 had far reaching effects. States were given special permission to create their own strategies when administering AFDC (Aid to Families with Dependent Children) benefits. In 1996, AFDC was dissolved and replaced with TANF (Temporary Aid for Needy Families) which required several sweeping changes. These changes included laws that states could not use federal funding to provide families with more than 60 cumulative months of benefits, single mothers were now required to work, go to school, or other work activities, and non-compliance was required by federal law to be punished. These reforms were designed to create incentives for participants to begin work, and had the greatest effect on black single mothers. However, the Earned Income Tax credit and labor market conditions also attributed to this rise in employment (Noonan et al, 2007).

In response to the overall increase in women’s employment during the 1990’s, policies and funding for childcare also increased. Some of these initiatives included state tax credits, the implementation of the Child Care and Development Fund, and flexible spending plans for employers. These initiatives helped to expand the quantity of childcare facilities available in the 1990-2000 study period. This increase in child care facilities was found, however, to vary from region to region and seemed to respond more to market
forces. Rural communities seemed to benefit more from increases in wages and benefits than urban regions (Ficano, 2006).

It is the consensus of many studies that welfare reform in the 1990’s increased demand for child care as many women, especially single mothers, were forced into the labor force, and that the success of these women is at least partially dependent on access to affordable childcare (Noonan et al, 2007, Ficano, 2006; Anderson and Gryzlak, 2002;). Some women eventually went back to TANF over concerns with childcare (Anderson et al, 2004).
CHAPTER 3: RESEARCH DESIGN

The research design that I used to explore my thesis topic is a quantitative design, utilizing correlation analysis to analyze the data used for this study. Quantitative research employs methods that use measurable variables to test a theory. While the nature of the connection between access to childcare and labor force participation is quite complex, there are many variables present that can be tested using statistical methods. The results from this analysis can be used to make generalizations about the population that can then be used, hopefully, by society to create a positive change.

There are several different approaches to quantitative research a person can use. The first of these is an observation study, where a facet of behavior is quantified by either counting the frequency of a behavior or rating the behavior based on various factors. A developmental design, which looks at characteristics that change as a person ages, can be approached in two different ways; as a cross-sectional study or a longitudinal study. The cross-sectional study takes data from several different age groups, whereas the longitudinal study follows the same group of people over a long period of time and data is taken at different stages of observation.

Survey research designs involve asking people questions and then compiling and analyzing the responses to create a sample to represent a larger population. An experimental design involves manipulating an independent variable while controlling for others and an ex post facto research design, while still having clearly defined independent and dependent variables, investigates an event or condition that has happened in the past. Ex post facto design is similar to correlation analysis, which I use for this project, because it looks at existing conditions. These types of studies, while useful, were not
found to be appropriate for the type of data used in this project. Sampling, choosing a subset of the population to represent the whole, is a common way to analyze large sets of data. The data that I used from the U.S. Census Bureau was sampled with a 6 to 1 ratio that was weighted for the population. I chose to use a quantitative correlation study research design, which I discuss in detail below.

Correlation analysis involves measuring the association between a two variables. This is done, firstly, by creating a scatterplot which graphically represents the data you are correlating. By plotting each variable on a different axis, patterns may emerge. When using this type of analysis, the direction and strength of association can be measured. The direction of a correlation refers to how the variables are related to each other. In a positive correlation, both variables are either increasing or decreasing together whereas in a negative correlation, the variables are inversely related. It is also quite possible that the association is neutral, which is displayed by the plots occurring in no pattern at all.

The strength of the association refers to what concentration the plotted points occur. If many of the plots are clustered together, the association is strong or the opposite where the plots are spread out, the relationship between the variables is weak. A perfect association refers to when the plotted points occur in a straight line or linear pattern. The strength and direction of a relationship between variables is also expressed numerically; this numeric representation falls between -1.0 and 1.0.

There are many types of correlation analyses, but two are used most frequently. The first of these is the Pearson’s product-moment correlation, which is used for interval or ratio data that have a linear relationship and occur in a normally distributed population. Pearson’s correlation relies on covariation, or the extent to which two variables occur
together. It is also used as a one-tailed, directional, or a two-tailed, non-directional, test. The other type of correlation analysis is the Spearman’s rank correlation coefficient, which is utilized with data that is ranked or data that does not meet one or more of the criteria for Pearson’s correlation.

Other types of correlation include coefficient of determination, point biserial correlation, biserial correlation, phi coefficient, triserial correlation, partial correlation, multiple correlation, Kendall coefficient of concordance, contingency coefficient, and Kendall’s tau correlation. Coefficient of determination is especially noteworthy because it explains the amount of variance in a Pearson’s correlation. Variance is a numeric representation of the validity of a set of data, and thus is very important to the statistical process of quantitative research.

Several points must be considered when using correlation analysis in geographic research. The first of these is problems with aggregation wherein a significant correlation made at a lower level of aggregation may not apply at other, higher, levels of aggregation. The reverse of this, ecological fallacy, describes another problem with correlation where highly aggregated data does not represent lower levels of aggregation. High levels of validity and reliability must exist in the data for correlation analysis to be successful. Lastly, a statistically significant correlation may indicate a relationship between variables, but other statistical methods must be used to determine a cause-and-effect relationship. Despite these drawbacks to correlation analysis, the benefits of this type of statistical analysis make it an appropriate method for analyzing my data.

The variables used for this project are discrete variables, because there is no possibility for decimal or fractions. The number of daycare slots available or the number
of women participating in the labor force, two variables used in this study, are good examples of discrete variables because you cannot have half a person or a fraction of a daycare slot. Some data was converted to percentages of the general population and these numbers are considered to be continuous variables. The data collected is considered to be ratio data because it uses standard and equal units of measurement, but also includes a true zero point. If it did not include this true zero point, then the data would be considered to be interval. Correlation analysis creates a correlation coefficient, which is classified as a descriptive statistic. An inferential statistic allows you to infer conditions of a large population based on a small sample, whereas a descriptive statistic describes a data set.

The core of this paper lies within the quantitative analysis and its related data. The geographic area of study for this paper are West Virginia and the Huntington-Ashland, WV-KY-OH MSA, which includes Boyd County, KY, Cabell County, WV, Carter County, KY, Greenup County, KY, Lawrence County, OH, and Wayne County, WV and a total of 73 census tracts. This area was chosen because it is surrounded by rural Appalachian areas which will facilitate identifying areas of need. For the MSA, census tract level data was used and for West Virginia county level data was used. The West Virginia data was used to compare conditions in rural and urban areas.

The first source of data used was taken from the U.S. Census Bureau Summary file 3. This file consists of sample data from the 2000 U.S. census and includes information and social, economic, and household characteristics. The variables investigated in this study to explore the myriad of ways that the number of daycare slots available correlates with factors of population, number of children, labor force participation, family types, and poverty. The following chart lists the variables were
investigated for the Huntington-Ashland MSA and for the whole of West Virginia; however, not all were used for correlation analysis. The U.S. Census Bureau Summary file 3 contains a large amount of data, which made isolating the most essential variables to this study especially vital to evaluating the problem statement set forth in this study.

Total population was chosen to evaluate the connection between the number of people living in an area and number of daycare slots available, which could be an indicator for the way in which the supply of daycare corresponds with the demand that may be placed on an area from a larger number of people. This study looks at percent of population living in rural areas as way to study the difference between level of urbanization between West Virginia and the Huntington-Ashland MSA, and to look at how level of urbanization and daycare slots available are connected.

The third variable used for correlation analysis is females 16 years and older in labor force with children under 6; this variable was chosen because the women in this situation have a need for childcare that does not exist for individuals without children or those that are not in the labor force. Percent of females 16 years and older in labor force with children under 6 that are employed is used because employment creates a higher demand for childcare. I chose total number of children under 6 in families and subfamilies because this is another variable that may indicate need and/or demand for daycare slots. Total number of children under 6 in families and subfamilies living with two parents: both parents in labor force and just mother in the labor force, as well as total number of children under 6 in families and subfamilies living with one parent: living with mother in labor force are all variables that sample the number of children where the mother is working, a situation that creates need for childcare which is why they were
chosen for correlation analysis. Total number of children under 6 in families and subfamilies living with one parent: living with mother measures the number of children living in single mother homes, a type of family that is often vulnerable to poverty and the effects of welfare reform; welfare reform was found, as stated previously in the literature review of this study, to create demand for childcare and affect a woman’s ability to work.

Total number of females 16 years and older that usually worked 35 or more hours a week in 1999, total number of females 16 years and older that usually worked 15 to 34 a week in 1999, and total number of females 16 years and older that usually worked 1 to 14 a week in 1999 are variables that look at the number of hours worked and were chosen for correlation analysis to investigate whether or not a connection exists between daycare slots available, part-time, and full-time employment for women and how this differs between the MSA, a small urban area, and West Virginia, a rural area. Three variable were chosen for correlation analysis that look at poverty data: percent of families: Income in 1999 below poverty level, Percent of families that had income in 1999 below poverty level; Female householder; no husband present; with children under 18, and total number of households: with public assistance income. These variables were used to look at the possible connections between poverty and daycare slots available by first looking at the percent of families in poverty then the percent of families in poverty that are single mother household and evaluating the strength of the correlation and the differences between a rural and urban area. Lastly, the total number of households with public assistance income is a good measure of extreme poverty and joblessness which is why it was used.
I note now that some of the variables listed in the table below were not used for correlation analysis; these particular variables were chosen for study because they assisted in the creation of charts (see figures 1-12, tables 2-3) in Excel. These charts serve the purpose of establishing the average percent of people living in rural and urban areas for the Huntington-Ashland MSA and West Virginia, and comparing different socio-economic situations between the two areas. This portion of my results does not provide the same insight and answers to the problem statement as correlation analysis, but does provide a framework that illustrates and compares preexisting conditions in the MSA and West Virginia.

Table 1:

<table>
<thead>
<tr>
<th>Variables Investigated in this Study</th>
<th>Variables Used For Correlation Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of population living in urban and rural areas</td>
<td>Total population</td>
</tr>
<tr>
<td>Percent of males that are participating in the labor force</td>
<td>Percent of population living in rural area</td>
</tr>
<tr>
<td>Percent of females that are participating in the labor force</td>
<td>Females 16 years and older in labor force with children under 6</td>
</tr>
<tr>
<td>Percent of males in the labor force that are employed</td>
<td>Percent of females 16 years and older in labor force with children under 6 that are employed</td>
</tr>
<tr>
<td>Percent of females in the labor force that are employed</td>
<td>Total number of children under 6 in families and subfamilies</td>
</tr>
<tr>
<td>Percent of males in the labor force that are unemployed</td>
<td>Total number of children under 6 in families and subfamilies living with two parents: both parents in labor force</td>
</tr>
<tr>
<td>Percent of females in the labor force that are unemployed</td>
<td>Total number of children under 6 in families and subfamilies living with two parents: mother only in labor force</td>
</tr>
<tr>
<td>Percent of males that are not participating in the labor force</td>
<td>Total number of children under 6 in families and subfamilies living with one parent: living with mother</td>
</tr>
<tr>
<td>Percent of females that are not participating in the labor force</td>
<td>Total number of children under 6 in families and subfamilies living with one parent: living with mother in labor force</td>
</tr>
<tr>
<td>Total number of females 16 years and older that usually worked 35 or more hours a week in 1999</td>
<td>Total number of females 16 years and older that usually worked 35 or more hours a week in 1999</td>
</tr>
<tr>
<td>Total number of females 16 years and older that usually worked 15 to 34 a week in 1999</td>
<td>Total number of females 16 years and older that usually worked 15 to 34 a week in 1999</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Total number of females 16 years and older that usually worked 1 to 14 a week in 1999</td>
<td>Total number of females 16 years and older that usually worked 1 to 14 a week in 1999</td>
</tr>
<tr>
<td>Percent of families: Income in 1999 below poverty level</td>
<td>Percent of families: Income in 1999 below poverty level</td>
</tr>
<tr>
<td>Population 16 years and over: Female; In labor force, Population 16 years and over: Female; In labor force; Civilian; Employed,</td>
<td>Percent of families that had income in 1999 below poverty level; Female householder; no husband present; With children under 18</td>
</tr>
<tr>
<td>Population 16 years and over: Female; In labor force; Civilian; Unemployed</td>
<td>Total number of households: With public assistance income</td>
</tr>
<tr>
<td>Own children under 18 years in families and subfamilies: Under 6 years; Living with two parents; Both parents in labor force</td>
<td></td>
</tr>
<tr>
<td>Own children under 18 years in families and subfamilies: Under 6 years; Living with two parents; Father only in labor force</td>
<td></td>
</tr>
<tr>
<td>Own children under 18 years in families and subfamilies: Under 6 years; Living with two parents; Mother only in labor force</td>
<td></td>
</tr>
<tr>
<td>Own children under 18 years in families and subfamilies: Under 6 years; Living with two parents; Neither parent in labor force</td>
<td></td>
</tr>
<tr>
<td>Own children under 18 years in families and subfamilies: Under 6 years; Living with one parent; Living with father; In labor force,</td>
<td></td>
</tr>
<tr>
<td>Own children under 18 years in families and subfamilies: Under 6 years; Living with one parent; Living with father; Not In labor force,</td>
<td></td>
</tr>
<tr>
<td>Own children under 18 years in families and subfamilies: Under 6 years; Living with one parent; Living with mother; In labor force,</td>
<td></td>
</tr>
<tr>
<td>Own children under 18 years in families and subfamilies: Under 6 years; Living with one parent; Living with mother; Not in labor force,</td>
<td></td>
</tr>
<tr>
<td>Population for whom poverty status is determined: Income in 1999 below poverty level</td>
<td></td>
</tr>
<tr>
<td>Population for whom poverty status is determined: Income in 1999 at or above poverty level</td>
<td></td>
</tr>
<tr>
<td>Percent of families that had income in 1999 below poverty level; Female householder; no husband present</td>
<td></td>
</tr>
<tr>
<td>Percent of families that had income in 1999</td>
<td></td>
</tr>
</tbody>
</table>
below poverty level and a female householder with no husband present that have children under 18
Percent of households that receive public assistance income

The second source of data was addresses for the locations of daycare centers and how many available slots for children in each center. This information was derived from information provided from Link Childcare Reference and Referral in Huntington WV, The West Virginia Child Care Center database at http://www.wvdhhr.org/cccenters/, the Ohio Early Childhood Learning and Knowledge Center database of Headstart programs at http://eclkc.ohs.acf.hhs.gov/hslc/HeadStartOffices, and the Kentucky Division of Childcare at http://chfs.ky.gov/oig/directories.htm.

The data collected from these sources was entered into a spreadsheet to display the number of slots available and census data by county and census tract for the MSA and the state of WV. I used this information to find percentages and the statistical means for most variables. This treatment of the data was performed to create charts and tables in Excel that is used to graphically represent my data in the first part of the results part of this paper, the purpose of which is described in the paragraphs preceding Table 1. I then used SPSS to perform a correlation analysis to look at how the number of childcare slots available was correlated with labor force participation for women and other socio-economic indicators at the census tract level. The correlation method I used was a two-tailed Pearson’s product-moment correlation. The significance levels I used were .01 and .05. This correlation analysis contains the bulk of my results that I discuss in my conclusion when addressing my problem statement, by strength of correlation and whether or not the correlation coefficient is positive or negative.
The last part of my data analysis involved the use of GIS to create maps to display this data. The projected coordinate system I used to create my maps was NAD_1983_UTM_Zone_17N with a Transverse Mercator projection. The geographic coordinate system used for my maps was GCS_North_American_1983, Datum: D_North_American_1983, Prime Meridian: Greenwich, and Angular Unit: Degree. To do this, I took the excel spreadsheets I created and converted them to .csv format, then to .dbf files. From there I was able to import these tables into ArcGIS. I downloaded data from ESRI’s website from the 2000 Census Tiger/Line dataset at http://arcdata.esri.com/data/tiger2000/tiger_download.cfm which allowed me to access files that included county and census tract boundaries for the MSA. I used the Merge function to create a single file from the 6 county files with the county and census tracts. I also downloaded a county map for West Virginia from the West Virginia State GIS Technical Center Website http://wvgis.wvu.edu/. I created a map using an excel spreadsheet of daycare addresses and slots available for the MSA and used geocoding to make a layer file containing point data for these daycare locations. To create this layer, I used a U.S. Streets address locater which was able to match most of my daycare locations automatically; 18 locations were matched interactively. The reference data I used for my geocoding came from the 2000 Census Tiger/Line dataset for streets.

From here I created a join between my WV Counties shapefile table and the WV counties .dbf file as well as my MSA census tract shapefile and my MSA census tract .dbf table. Once the data was joined I was able to create the maps I use to display my data by altering the field value of the quantities symbology of the properties window. I used natural breaks for most of my maps, except the two that display only daycare slots.
available where I set the breaks manually and used proportional symbols instead of graduated colors.

I chose three different types of treatment for the data to provide a holistic, yet quantitative, view of whether or not access to childcare affects labor force participation of women in an urban and rural area, and what differences exist amongst the two study areas. The descriptive portion of my results, obtained from charts and tables of average percents in Excel, provide a backdrop and comparison of socioeconomic conditions that are vital to the completion of the correlation analysis and analysis in GIS. The maps I created in GIS provide a geographic view of selected descriptive averages which are overlaid with the location of childcare facilities and quantity of daycare slots per facility. The ability to provide these maps is vital to this study as well because it highlights spatial effects that correlation analysis and descriptive statistics are not able to uncover. GIS analysis also provides county and census tract data on areas of daycare need, which is something that I wished to explore in answering my problem statement.
CHAPTER 4: RESULTS AND DISCUSSION

The results of this study are separated into three parts where I examine the outcome of my descriptive statistics in Excel, correlation analysis in SPSS, and the graphical analysis through Arc GIS. I will be describing the results of my comparative descriptive statistics first to provide an understanding of socioeconomic conditions between the Huntington-Ashland MSA and West Virginia that will assist in the further understanding of the results from the correlation analysis and geographical analysis using GIS. The first set of variables I wish to discuss is the percent of the total population living in rural and urban areas.

Figure 1:
The information from this variable sets the stage for this study; there is a 35% difference between the percentage of people living in urban areas for the MSA and West Virginia. This shows that the basis for this study is sound because there is large percentage of people living in rural areas in West Virginia and a higher percentage of people living in urban areas in the MSA. This has several implications because rural areas are much more susceptible to economic and social problems as a result of poverty in the State of West Virginia.

Next, I look at percentages of labor force participation in the MSA and West Virginia while comparing these numbers between males and females. This was done to evaluate whether or not labor force participation is lower for women than men, and whether or not it is lower for West Virginia than the MSA.
### Table 2:

<table>
<thead>
<tr>
<th></th>
<th>MSA</th>
<th>West Virginia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of males that are participating in the labor force</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Percent of females that are participating in the labor force</td>
<td>47%</td>
<td>45%</td>
</tr>
<tr>
<td>Percent of males in the labor force that are employed</td>
<td>90%</td>
<td>91%</td>
</tr>
<tr>
<td>Percent of females in the labor force that are employed</td>
<td>92%</td>
<td>92%</td>
</tr>
<tr>
<td>Percent of males in the labor force that are unemployed</td>
<td>10%</td>
<td>9%</td>
</tr>
<tr>
<td>Percent of females in the labor force that are unemployed</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>Percent of males that are not participating in the labor force</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Percent of females that are not participating in the labor force</td>
<td>53%</td>
<td>55%</td>
</tr>
</tbody>
</table>

This table reveals that percent of females participating in the labor force is lower than the percentage of males in the labor force for both West Virginia and the MSA. This seems to indicate a somewhat looser attachment to the labor force for women in rural communities when compared to men. However, the percentage of males in the labor force that are unemployed is higher than the percentage of females in the labor force that are unemployed. The percentage of females not participating in the labor force is higher than males, and higher for West Virginia, whereas the percentage of males not participating in the labor force is equal for West Virginia and the MSA. The results for the percent of woman participating in the labor force and not participating in the labor force correspond with the idea that labor force participation is lower for women than men, and lower for rural areas, especially for females. In the labor force, the percentage of females in the labor force that were unemployed was lower than the percentage of men.
that are in the labor force and unemployed, and also lower for West Virginia than the MSA--to the extent that the state represents a rural population and the MSA an urban population. This is an effect that would benefit from further study.

The next variable I wish to discuss regards the number of hours worked by females in the MSA and West Virginia. I chose this variable because women with children under six often have difficulty working full time in the absence of adequate child care. These statistics, however, show that the hours worked by employed women is similar between the MSA and the state, with women working full time at a slightly higher rate in West Virginia than in the MSA.

Figure 3:
The third set of variables I would like to discuss regard the employment status and labor force participation of women with children under 6. These charts show that the percent of females with children under 6 in the labor force that are unemployed is 3% higher for West Virginia than the MSA.

Figure 4:

![Percentage of females who worked in 1999: WV](chart)

Figure 5:

![Percent of females with children under 6 that are participating in the labor force: WV](chart)
So, while women in West Virginia as a whole were somewhat more likely to work more hours than women in the MSA, there is also a slightly looser attachment to the labor force for women in rural communities (as discussed previously) and that those in the labor force with children under 6 are more likely to be unemployed. The correlation analysis that is discussed in the second section of this results section of my paper explores whether or not this effect is correlated to the number of daycare slots available. Next, I look at the structure of families in relation to labor force participation within West Virginia and the MSA.
This shows that a larger percent of children live with their mother than father in single parent households for both the MSA and West Virginia, regardless of labor force participation. It is also shown that the percent of children under 6 in families and subfamilies that live with one parent that are living with their mother who is in the labor force is 4% higher in the MSA than for WV. In this situation, the percent of children
living in their mother who is not in the labor force is 3% higher for the MSA than West Virginia, percent of children living in their father who is not in the labor force is 5% lower for the MSA than West Virginia, and percent of children living in their father who is not in the labor force is 2% lower for the MSA than West Virginia. These results, again, will be interesting to exam when correlated with the number of daycare slots available. I then look at the percent of children under 6 in families and subfamilies that live with two parents for the MSA and West Virginia and the labor force participation and employment of these families.

Figure 9:
Figure 10:

This chart shows the percentage of children under 6 in families and subfamilies that live with two parents where both parents are in the labor force is 1% higher for the MSA and the percentage of children in this situation where just the mother is in the labor force is 1% lower for the MSA. This is marginal. The percentage of children under 6 in families and subfamilies that live with two parents where just the father are in the labor force, and with neither parent in the labor force, is equal for the MSA and West Virginia. The next variable looks at poverty status.
The percentage of people below the poverty level is actually 3% lower for West Virginia than the MSA, which is surprising. An explanation for this may be that the MSA is located in central, southern Appalachia, which is notoriously impoverished, and also
includes four counties in Kentucky. Lastly, I would like to investigate single mother families in poverty and households with public assistance.

Table 3:

<table>
<thead>
<tr>
<th></th>
<th>MSA</th>
<th>West Virginia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of families that had income in 1999 below poverty level; Female householder; no husband present</td>
<td>41%</td>
<td>36%</td>
</tr>
<tr>
<td>Percent of families that had income in 1999 below poverty level and a female householder with no husband present that have children under 18</td>
<td>82%</td>
<td>83%</td>
</tr>
<tr>
<td>Percent of households that receive public assistance income</td>
<td>5%</td>
<td>4%</td>
</tr>
</tbody>
</table>

The percent of families that had income in 1999 below poverty level and a female householder with no husband present was 5% higher for the MSA than West Virginia whereas the percentage of these families that have children under 18 is 1% lower for the MSA. Lastly, the percent of households that receive public assistance income is 1% higher for the MSA. These statistics seem to indicate that while the Huntington- Ashland MSA is much more urbanized, that poverty is still a major concern.

In this section I talk about the results of my correlation analysis. I selected variables to use for this analysis that would assist in investigating the intricacies of the effects of daycare slots available on a range of socio-economic data.
These correlations were found to be significant for West Virginia and the MSA

Table 4:

<table>
<thead>
<tr>
<th>Daycare slots available and…</th>
<th>West Virginia At .01 level</th>
<th>West Virginia At .05 level</th>
<th>MSA At .01 level</th>
<th>MSA At .05 level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>.931</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of population living in rural area</td>
<td>-.627</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females 16 years and older in labor force with children under 6</td>
<td>.933</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of females 16 years and older in labor force with children under 6 that are employed</td>
<td>.936</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of children under 6 in families and subfamilies</td>
<td>.918</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of children under 6 in families and subfamilies living with two parents: both parents in labor force</td>
<td>.916</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of children under 6 in families and subfamilies living with two parents: mother only in labor force</td>
<td>.740</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of children under 6 in families and subfamilies living with one parent: living with</td>
<td>.909</td>
<td></td>
<td></td>
<td>.243</td>
</tr>
<tr>
<td>Description</td>
<td>Value 1</td>
<td>Value 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------------</td>
<td>----------</td>
<td>---------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of children under 6 in families and subfamilies living with one parent: living with mother in labor force</td>
<td>.919</td>
<td>.284</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of females 16 years and older that usually worked 35 or more hours a week in 1999</td>
<td>.939</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of females 16 years and older that usually worked 15 to 34 a week in 1999</td>
<td>.926</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of females 16 years and older that usually worked 1 to 14 a week in 1999</td>
<td>.914</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of families: Income in 1999 below poverty level</td>
<td></td>
<td>-.276</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent of families that had income in 1999 below poverty level; Female householder; no husband present; With children under 18</td>
<td>.451</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of households: With public assistance income</td>
<td>.791</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The variable displaying the strongest correlation with the number of daycare slots available is the total number of females 16 years and older that usually worked 35 or more hours a week in 1999 which displayed a positive correlation at .939. The strength of correlation in relation to the number of hours worked decreased by amount of hours; total number of females 16 years and older that usually worked 15 to 34 a week in 1999 showed a positive correlation of .926 followed by total number of females 16 years and older that usually worked 1 to 14 a week in 1999 which displays a positive correlation of .914. These correlations existed only for West Virginia. Total population for West Virginia also showed a strong positive correlation of .931 with the number of daycare slots available, as well as the total number of children under 6 in families and subfamilies in West Virginia which showed slightly weaker correlation of .918.

The variables used in correlation analysis in this study that examined labor force participation for women with children under 6 also showed strong positive correlation. The percent of females 16 years and older in labor force with children under 6 that are employed displayed a positive correlation of .936, whereas a slightly weaker correlation of .933 was shown for females 16 years and older in labor force with children under 6. The structure of families where mothers participated in the labor force in West Virginia exhibited correlation with the number of daycare slots available to varying degrees. The total number of children under 6 in families and subfamilies living with two parents where both parents in labor force displayed a strong positive correlation of .916 while the total number of children under 6 in families and subfamilies living with two parents where the mother only was in the labor force showed a weaker correlation of .740.
Two variables chosen for this study that evaluated the structure of families where mothers participated in the labor force showed positive correlations for both West Virginia and the MSA. The stronger positive correlation was the total number of children under 6 in families and subfamilies in West Virginia living with one parent (mother) participating in the labor force at .919; the positive correlation for this variable at the MSA level was much weaker with a correlation coefficient of .243. The correlation coefficient for the total number of children under 6 in families and subfamilies living with one parent (mother) with labor force participation unspecified was .919 for West Virginia and .243 for the MSA.

My correlation analysis additionally discusses variables of rural conditions and poverty. These variables displayed weaker correlations to the variables discussed previously, and were found to be correlated at the West Virginia county level. The strongest correlation displayed in this group of variables is the total number of households with public assistance income with a positive correlation of .791, followed by the percent of population living in rural areas which shows a negative correlation of -.627. The percent of families that had income in 1999 below poverty level with a female householder; no husband present; with children under 18 was found to have a small positive correlation of .451 with the number of daycare slots available. The weakest correlation found not only in this set of variables, but all variables, was the percent of families with income in 1999 below the poverty level.

Lastly, this study examines the results of the GIS analysis of the data that was performed. The first two maps I created, (Figure 13 and Figure 14), looks at the daycare slots available in the MSA and West Virginia. The colors on the MSA map in Figure 13
are not represented by any variables but simply represent each county while the purple circles represent daycare facilities with size of circle representing number of childcare slots available. In the MSA, daycare is centered mainly in Cabell County, Boyd County, and the eastern part of Greenup County; in West Virginia daycare is slightly more concentrated in northern and eastern part of the state, with Kanawha County hosting the largest number of childcare slots. The following counties have little to no daycare slots: Wetzel, Tyler, Doddridge, Wirt, Clay, and Pendleton counties. This geographical arrangement appears to correspond somewhat with Figure 16, the West Virginia map that displays percent of population living in rural areas by county.

The next two maps (Figure 15 and Figure 16) display the percent of population living in rural areas for West Virginia and the Huntington-Ashland MSA. The map of the MSA, Figure 15, displays that the concentration of daycare slots is mainly in areas where the percent of population living in rural areas is low. An exception to this is Carter County, KY, where at least four daycare facilities reside within the county, with the county itself being mostly rural. These maps (Figure 15 and Figure 16) also seem to show that large sections of the southern part of the MSA are fairly rural, as well as central, southern, and the eastern panhandle of West Virginia. While the Huntington-Ashland MSA contains a large portion of rural areas, the percent of population living in rural areas is much lower when compared to West Virginia which is also shown in Figures 1 and 2 of the descriptive analysis. Correlation analysis shows that this variable has a correlation coefficient of -.627 at the West Virginia, and no correlation for the MSA, meaning that a higher number of daycare slots may be connected with a higher level of urbanization for
West Virginia, whereas the treatment of the data in GIS shows that urbanization and the number of daycare slots available spatially coincide for the MSA.

The next two maps display the MSA exclusively (Figure 17 and Figure 18). The first of these maps, Figure 17, show the percent of females with children under 6 that are participating in the labor force; the map indicates that daycare slots are more prevalent in the northern part of the MSA where the percent of percent of females with children under 6 that are participating in the labor force is high. This variable, however, did not show a significant correlation for the MSA. Using GIS to spatially represent my data was able to uncover a geographical tendency for these daycare slots to be located in areas in the MSA the percent of percent of females with children under 6 that are participating in the labor force is high. The second of these maps, Figure 18, looks at the number of children living in single mother households where the mother is participating in the labor force and shows that there are areas where the number of children in this situation is high but daycare is scarce, especially in Greenup County. This variable showed a weak positive correlation during the treatment of the data with SPSS, which is to say a small connect may exist between higher numbers of children living in single mother households where the mother is participating in the labor force and daycare slots available. These results are significant because this is another way that we can show areas of need that might benefit from an increase in available childcare.
Figure 13: Locations of Daycare Centers and Daycare Slots Available in Huntington-Ashland MSA.
Figure 14: Daycare Slots Available - West Virginia
Figure 15:
Figure 16: Percent of Population in Rural Areas West Virginia

Percent of Population

- 20.42 - 33.64
- 33.86 - 43.89
- 43.76 - 55.63
- 55.64 - 63.86
- 63.37 - 100.63
Percent of Females with Children Under 6 That are Participating in the Labor Force: MSA
Figure 18:
CHAPTER 5: CONCLUSION

The purpose of this study was to examine the connection between access to childcare and the labor force participation for women in the Huntington-Ashland MSA and for the state of West Virginia. The MSA was chosen as a representation of an urban area, and West Virginia as a rural area, based on statistical analysis performed in Excel, to provide a comparison between the two situations. Access to childcare was evaluated by collecting the number of daycare slots available for West Virginia and the MSA. Based on correlation analysis performed on the data that was collected, I found evidence that supports the idea that the number of daycare slots available is connected with labor force participation of women with children under 6, and that this effect is slightly stronger for women who are employed. A positive correlation between the number of children living in families where both parents are employed, and a weaker correlation between the number of children living with two parents where only the mother is working, also support the idea that access to childcare is connected with labor force participation of women. These conclusions were only applicable for the state of West Virginia, not for the Huntington-Ashland MSA. However, a strong positive correlation for the state of West Virginia and a weaker correlation for the MSA were found for the number of children living with single mothers in the labor force, which also supports the problem statement put forth in this study.

I was also able to conclude that the number of hours of worked by women was also connected with access to childcare in West Virginia, and this effect decreased as the number of hours worked also decreased. This was displayed through positive correlation where the strength of the correlation coefficients decreased with number of hours
worked. I also came to the conclusion through the course of this study that poverty and urbanization may also be connected with the number of childcare slots available. The number of daycare slots may be connected with a lower number of families in poverty and the percent of the population in rural areas. The total population may also be connected with the number of daycare slots available for West Virginia. I found, based on my comparison of West Virginia and the Huntington-Ashland MSA, that labor force participation of women in rural areas, are more sensitive to changes in daycare accessibility. This conclusion is based on the number and strength of correlations between the number of daycare slots available and labor force participation of women in West Virginia, and that there seems to be a looser attachment to the labor force for women in West Virginia than the MSA that was found through my statistical analysis in Excel.

Based on GIS analysis, this study was able to display the data that was gathered and found that the number of daycare slots in the MSA seemed to be concentrated in urban areas, and areas where labor force participation of women with children was high. West Virginia counties where no daycare centers were found were Wetzel, Tyler, Doddridge, Wirt, Clay, and Pendleton counties and Greenup County in the Huntington-Ashland MSA. These areas of need may benefit from government or community intervention to provide more institutionalized daycare.

Previous research by Maarten Van Ham, and Clara Mulder found that women’s paid employment increased with the number of daycare slots for young children, while Ann M. Oberhauser and others have found that women in rural areas rely on informal networks of care while navigating economic and social challenges as a result of their
rural living conditions. I feel confident to add my research to these ideas because I was able to show through correlation analysis that variables indicating women’s labor force participation was connected with access to childcare, especially in rural areas. However, I do believe now that the level of aggregation for the Huntington-Ashland MSA may have caused so few variables regarding labor force participation to be correlated with the number of daycare slots available. Some of the census tracts within urban areas are small, so difficulty in reaching childcare outside of the census tract may in fact be relatively low. Further studies would benefit from correlation analysis that would take this effect into account.

Knowing that access to childcare is connected with the labor force participation of women, especially in rural areas, brings forth many questions on how to improve the situations of women and children who live in areas of need. Solving these problems, however, goes beyond simply offering more childcare; initiatives must be taken to increase the number of hours daycare is available, address concerns having to do with adequate transportation to childcare, increase the availability of childcare available to special needs children as well as finding ways to help women with the crushingly expensive tuition that most childcare centers require. Also, accurate statistics need to be compiled for childcare where women rely on family, older children, friends, neighbors, and in-home childcare providers. Without this information, a study such as this one is only able to evaluate potential need for daycare centers, based on the number of childcare slots these centers provide. This may not accurately portray actual need for childcare by women in rural areas that are already relying on other means. Areas that have inadequate childcare resources, which exist in many other states in the U.S. as well, would benefit
from government intervention to determine childcare needs and help the communities to meet these needs, which would in turn help to empower women to become full participants in the labor force.
BIBLIOGRAPHY


