THE URBAN CHILD INSTITUTE

Championing optimal brain development from conception to three.

Our Mission

The Urban Child Institute (TUCI) is a coalition of community researchers, strategists and interventionists dedicated to the improvement of the well-being of children, especially from conception to age three.

We will improve the lives of children and increase the social capital of Memphis by accelerating the infusion of meaningful knowledge and intervention that will change existing policies. We will work to connect research and knowledge with action.

Other individuals and organizations who also want to improve the lives of children will find the institute to be a trustworthy partner and resource for expertise, advice, and collaboration.

The State of Children in Memphis & Shelby County was initiated and funded by TUCI and first published in 2006. The initial purpose was to collect in one document the existing important research data on children in Memphis and Shelby County. Since 2006, the Data Book and its professional analysis have evolved and many individuals and organizations have found it beneficial.

This 2009 volume has continued to track and update the data. It also includes "Shelby County at a Glance," which provides an indication of whether the state of children is improving or worsening on specific measurable variables.

TUCI's objective and hope continue to be that the Data Book will encourage and rally others into action for positive change. The data contained herein are targeted at government leaders, education and healthcare professionals, religious organizations, and community stakeholders of all types. The Data Book should provide clear direction for identifying new objectives and strategies to improve the state of our children.

The data have been organized in seven segments.

1. *Building the Brain* is an overview of brain development and explains how conception to age three is a critical period of development.

2. *Demographics* provides a baseline to measure how well children are doing in Shelby County.

3. *Health* is an overall physical exam of the city's children.

4. *Family and Home Environment* reports the impact of family structure, income, residential stability, and education.

5. *Education* is a profile of accessibility, quality, and affordability of early childhood education and later assessment test outcomes of Memphis City School students.

6. *Community* examines the ways in which children are affected by neighborhood influences and the distribution of community assets.

7. *Best Practices for Solutions* quantifies the benefits of applying, in Memphis and Shelby County, proven strategies that have been successful elsewhere.

It is not TUCI's intention to imply that these are the only areas of interest on the topic of children in Shelby County. Opportunities exist for professionals in all fields to identify other areas of importance. The potential for such extensions of this work are highlighted throughout.

Acknowledgments

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The Urban Child Institute's (TUCI) The State of Children in Memphis and Shelby County: Data Book could not be produced and distributed without the help of numerous people.
The publication was assembled and produced under the general direction of Scott Wilson, with help from TUCI research associates Marc Goodman-Bryan, M.A. and Catherine Joyce, M.A. Other TUCI affiliates who contributed to this report include Marion E. Hare, M.D., M.S., Henry G. Herrod, M.D., and Jason Ziegler as well as TUCI's director of the Center for Urban Child Policy (CUCP), Doug Imig, Ph.D. and CUCP research associates Frances Breland, M.A., and Katie Devlin, M.S.

Most of the data presented in this publication were collected and organized by the research associates of TUCI. We are especially grateful to Frances Breland, M.A., Katie Devlin, M.S., Marc Goodman-Bryan, M.A., and Catherine Joyce, M.A., who assembled, organized, checked, and re-checked the figures herein. Research Associates Adam Foster, M.A. and Robert Brimhall, M.A. of the Center for Community Building and Neighborhood Action (CBANA) and George Dudley, M.A.L.S. of the Center for Community Criminology & Research (CCCR) of the University of Memphis, also deserve thanks for their work creating and designing GIS maps presented in the 2009 Data Book.

Special thanks are also due to Jason Ziegler for design and layout services.

The 2009 Data Book can be downloaded at http://www.theurbanchildinstitute.org

Introduction

In previous editions of The State of Children in Memphis and Shelby County, The Urban Child Institute (TUCI) identified challenges faced by many children in our community—challenges which make it difficult for them to reach the same level of achievement as other children. Unfortunately, conditions have not improved in the past year.

As in recent years, many of our children are born into families that have too little income and not enough education, and live in neighborhoods which do not support healthy child development. Because 80 percent of brain development occurs between conception and age three, these early influences can have lasting consequences for a child's life outcomes.

For this reason, TUCI focuses on the well-being of children in these early years. On this front, there is reason to worry: The infant mortality rate for black children in Shelby County is more than triple the rate for white children, for example, and black infants are more than twice as likely as white infants to be born prematurely. The percentage of births to single mothers is increasing, which means that a growing proportion of children are being raised by mothers with less education and lower earnings.

Further, many of the disadvantages faced by children affect all types of families. Poverty has risen for both married and unmarried families with children. At the same time, affordable high-quality child care is rare even in many wealthy neighborhoods, and many working families earn too much to qualify for public assistance and too little to afford quality care. As a result, their children may have more problems when they begin school.

Fortunately, we can point to many programs from across the country which have proven effective in helping to break the cycle of poverty and improving child well-being. Some of these are discussed in the Best Practice section of this year's Data Book. Research shows that interventions aimed at children aged three and younger provide the highest return on investment. Making the well-being of our youngest children a priority for our community is therefore both morally and practically desirable. We believe that improving the circumstances of children during this crucial period is the best investment that our community can make.

Shelby County At a Glance

Indicator (Year of Latest Date in Parentheses)	Raw number of latest year	Raw number of previous year	Increased (+) Decreased (–) Same (=)	Change Better (B) Worse (W)
Population				
Total Population (2007)	910,100	911,438	–	W
Child Population (2007)	249,093	253,729	–	W
Child Population Under six (2007)	84,744	85,789	–	W
Child Population Under three (2007)	40,451	44,693	–	W
Live Births (2007)*	15,234	15,167	+	B
Family				
Families (2007)	220,560	220,953	–	W
Families with Children (2007)	117,509	121,459	–	W
Married Parent Families with Children (2007)	59,856	60,537	–	W
Single Parent Families with Children (2007)	57,653	60,922	–	B
Live Births to Unmarried Mothers (2007)*	8,954	8,617	+	W
Live Births to Teen Mothers (2007)*	2,352	2,236	+	W
Economic Security				
Median Family Income (2007)	$56,803	$51,006	+	B
Median Income of Families with Children (2007)	$48,558	$44,040	+	B
Total Population Below Poverty (2007)	178,796	162,925	+	W
Children Below Poverty (2007)	74,895	68,418	+	W
People who Moved within the County (2007)	129,876	131,839	–	B
Education				
Pre-K or Child Care Enrollment (2007)	17,196	12,733	+	B
Undergraduate College Enrollment (2007)	45,394	44,349	+	B
Memphis City Schools Graduation Rate (2008)**	66.9	69.6	–	W
Memphis City Schools Cohort Dropout Rate (2008)**	19.3	14.7	+	W
Memphis City Schools Composite ACT Achievement(2008)**	17.7	17.7	=	
Child Health				
Low Birth Weight Live Births (2007)*	1,698	1,713	–	B
Infant Death (2007)*	193	209	–	B
Child Deaths (2007)*	231	250	–	B

Notes: Unless otherwise specified, all data is from U.S. Census Bureau, American Community Survey.

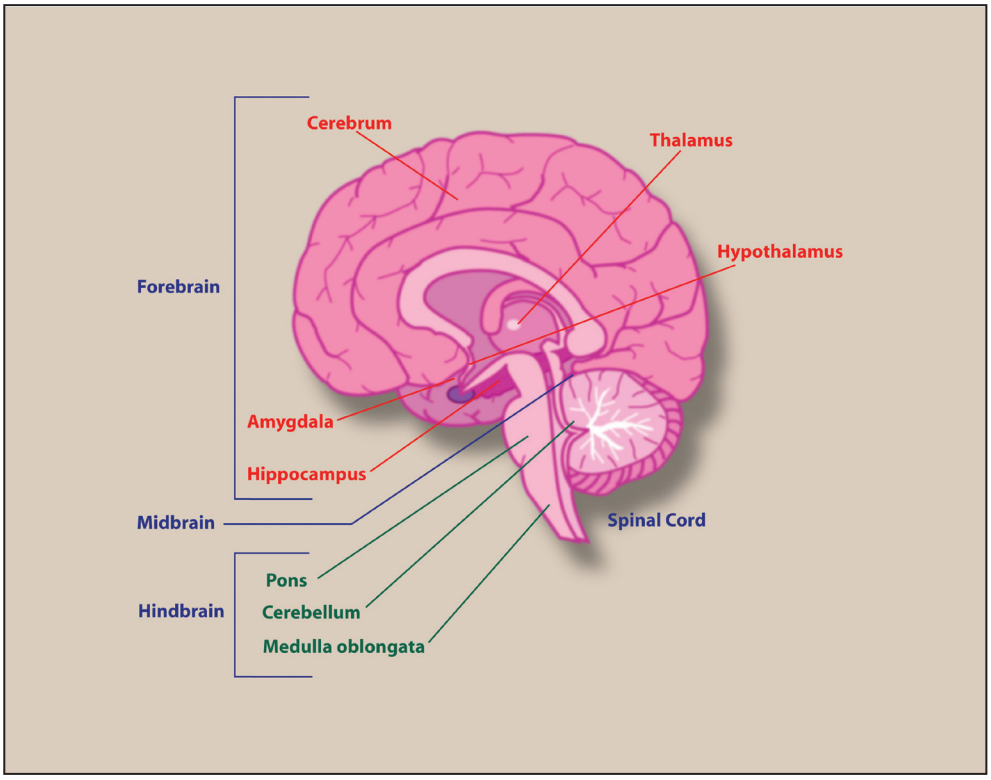
* Tennessee Department of Health, Vital Statistics.

** Tennessee Department of Education, Report Card.

From Conception to Age Three: Building the Brain

The Urban Child Institute (TUCI) focuses on children from conception to age three because it is during this period that 80 percent of human brain development occurs. Many people assume that development of the brain does not begin until birth. *It begins at conception*, and the nine months in utero is a critical period for brain development. The following is a brief description of what is known about human brain development and why this earliest period is the foundation that influences the rest of an individual's life.

Figure 1: Brain



Source: http://www.educarer.com

Development of the central nervous system begins in the first trimester.

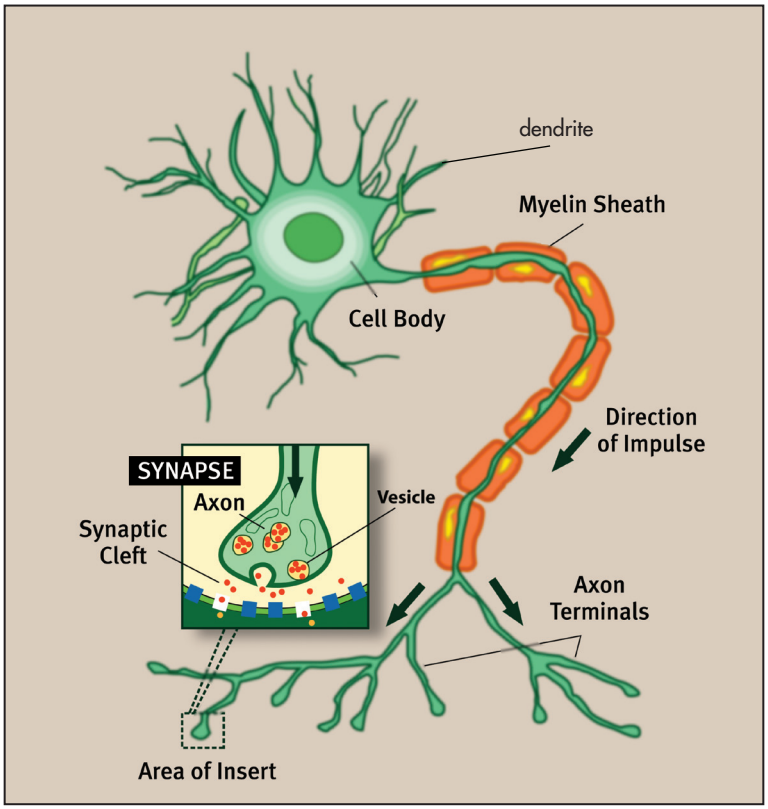
The central nervous system consists of the brain and the spinal cord. The spinal cord matures first, then the lower brain, or brainstem. Finally, the thinking part of the brain, known as the cerebral cortex, develops.

The nervous system begins to develop immediately following conception. The *neural tube* forms from the neural plate which appears by 16 days after conception. By 27 days the neural tube has closed and begun to transform into the brain and spinal cord of the embryo.

If the neural tube fails to close at the upper end of the embryo, the baby may be born without its cerebral cortex and with only a very rudimentary brainstem. This condition is known as *anencephaly*, and it is not compatible with life. If the neural tube fails to close at its lower end, a condition known as *spina bifida* occurs. In this situation part of the spinal cord may develop outside the spine and can be easily damaged.

Fortunately, if a mother takes folic acid in the first few weeks of pregnancy the possibility of neural tube defects is greatly reduced.

Figure 2: Nerve Axon



Source: http://www.educarer.com

About five weeks after conception nerve cells known as *neurons* begin to develop connections in the fetal spinal cord. The connections between these neurons are called *synapses*. By the sixth week these early neural connections allow the fetus to make its first movements, which can be detected by ultrasound. More coordinated movements develop over the next several weeks even though most women can not detect fetal movements until about 18 weeks.

Critical reflexes develop during the second trimester.

The brainstem connects the spinal cord with the upper brain. During the second trimester of pregnancy the brainstem begins to control many of the most critical reflexes. These include sucking and swallowing reflexes, control over heart rate and blood pressure, and development of the rhythmic contractions of the diaphragm and chest muscles necessary for breathing.

Most of these functions are operating by the end of the second trimester, and it is at this time that babies first become viable.

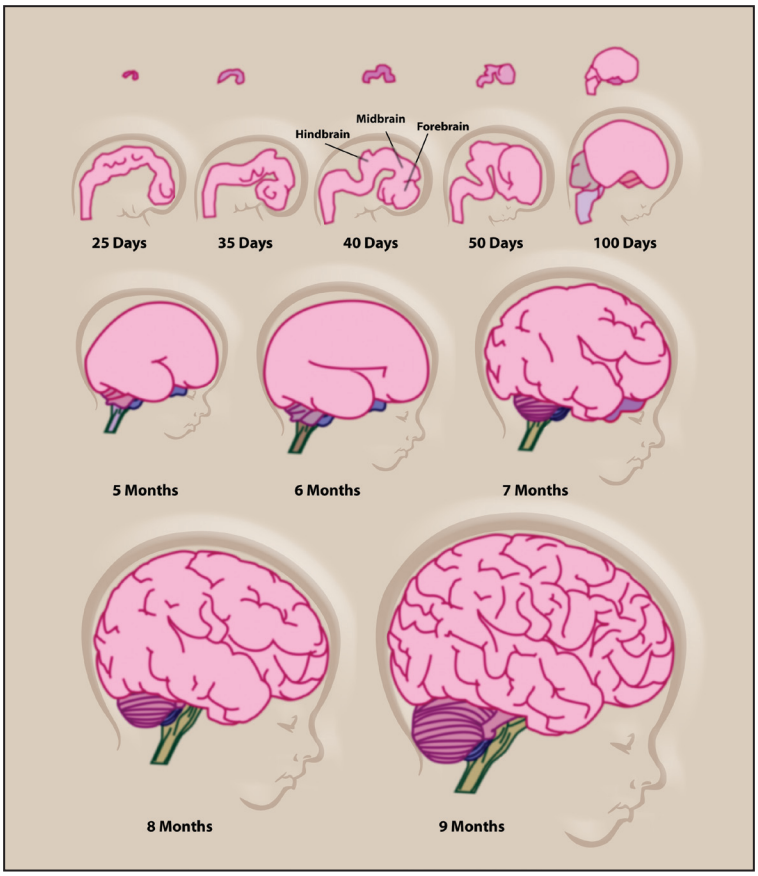
Feelings, memory, and thought are already at work in the third trimester.

The cerebral cortex is the portion of the brain that is responsible for higher brain functions such as feelings, memory and thought. It is the final part of the central nervous system to develop. Fetuses in the third trimester can demonstrate primitive learning. They can also respond to sounds such as a mother's voice.

Fetuses can be affected even by what occurs outside the womb. They can be affected positively or negatively by the levels and tones of voices, music and other sounds.

A newborn has most of its neurons at birth. Yet it is only after birth that the cerebral cortex begins to show its remarkable ability to assimilate and integrate the complex set of stimuli that the newborn and young child faces in the first years of life.

Figure 3: Development of the Human Brain



Source: Goldowitz, D., "How do you make a brain and keep it working?" University of Tennessee Health Science Center

During the first year of life an infant's brain has up to one trillion synapses.

The brainstem controls most of the earliest activities of a newborn such as crying, sleeping, grasping, sucking, rooting and primitive reflexes. Thus most of the basic instincts and reflexes necessary for survival are already operating at birth. The cerebral cortex is somewhat "loosely wired" but is prepared to become "hard-wired" in the next few years.

A few facts about what goes on in the cerebral cortex in utero and the first few years of life demonstrate the incredible potential of a newborn. Among these are:

- By four to five months of gestation the fetus has 100 billion neurons.
- Neurons are being created at the rate of 250,000 per minute.
- The brain is being "wired" as the neurons develop connecting synapses.
- Within eight months after birth the infant brain may have as many as 1 trillion synapses.

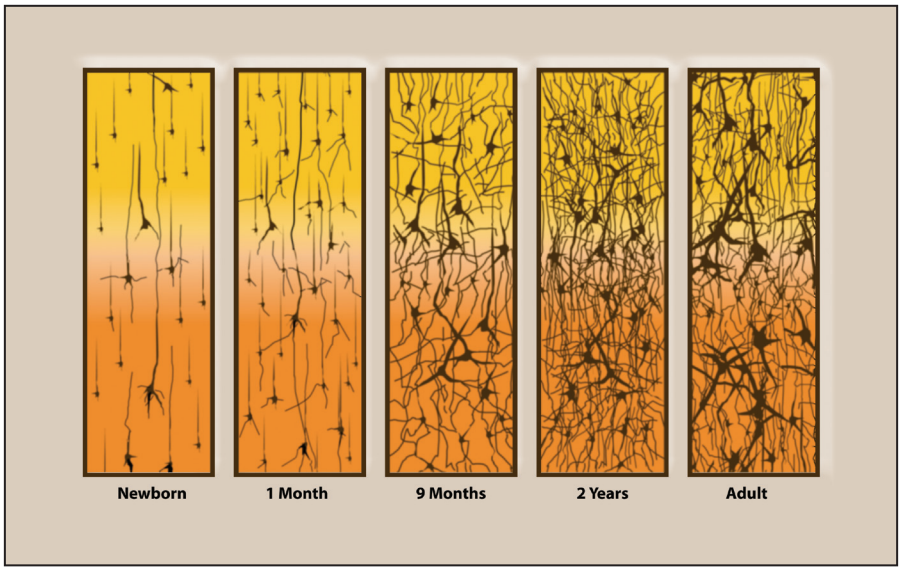
By age ten, a natural pruning process has reduced the number of synapses to about 500 billion, which is approximately the number of synapses found in the adult brain.

All senses enhance the development of synaptic connections within the young brain. These include:

- Touch/feeling
- Sound
- Vision
- Taste
- Emotional expressions
- Smell

The pruning process is determined, in part, by a "use-it-or-lose-it" phenomenon. Synapses that are being used persist. Those that are not stimulated disappear.

Figure 4: Development of Neurons and Synapses



Source: Corel, J.L.(1975) The postnatal development of the human cerebral cortex. Cambridge, MA: Harvard University Press

Early brain messages are critical.

A stimulated neuron sends a message electrochemically down its long tail (known as an *axon*). *Dendrites* branch off of the neurons and allow communication among neurons. Signals are sent across synapses through chemical neuro-transmitters. When a dendrite receives these signals it translates them into electrochemical messages, and the entire process is repeated through multiple neurons.

The earliest messages that the infant brain receives have an enormous impact. Parents and other care-givers play critical roles in helping to stimulate these infant brains with the right messages. Loving, looking into a baby's eyes, touching, talking, singing and repeating the sounds and facial expressions of the infant all provide an ideal stimulus for an infant's growing brain.

The level of exposure to language is crucial in the overall cognitive development of a young brain.

Language content also plays an important role. Research studies demonstrate that impoverished children hear two negative statements for each positive statement. Children from families in which both parents are professionals hear six positive statements for each negative. Scientists believe that differences in the number and types of words to which young children are exposed have a major impact on school readiness.

By age four a child of professional parents typically has heard 45 million words. A four year old in an impoverished family will have heard, on average, 12 million words.

Myelination allows hard-wiring of the brain.

Besides synapse formation and pruning, the other important post-natal event in the developing brain is known as *myelination*. Myelination represents a biological insulation that covers the brain cells and enhances the efficiency of the electrical transmission of signals along and among the neurons. It allows for much faster processing of information and accomplishment of more complex mental tasks.

Most myelination occurs in the first two or three years of life, but some may continue into early adult life. Myelination promotes the hard-wiring of the brain.

The brain can generate new neurons and synapses well into adulthood, but only at a fraction of the rate of the youngest years. It is in these earliest years that the brain demonstrates its greatest plasticity.

Stress can hinder brain development.

Most of an individual's neurons develop in utero. The post-natal growth of the brain is largely due to the development of synapses, the myelination process and the post-natal proliferation of the other principal brain cell known as the *glial cells*. These cells provide the scaffolding for the neuronal network. They also produce myelin and are involved in host defense and inflammatory responses in the central nervous system.

Severe emotional and psychological deprivation may cause a child's brain to develop to only 70 to 80 percent the size of a normal child's brain.

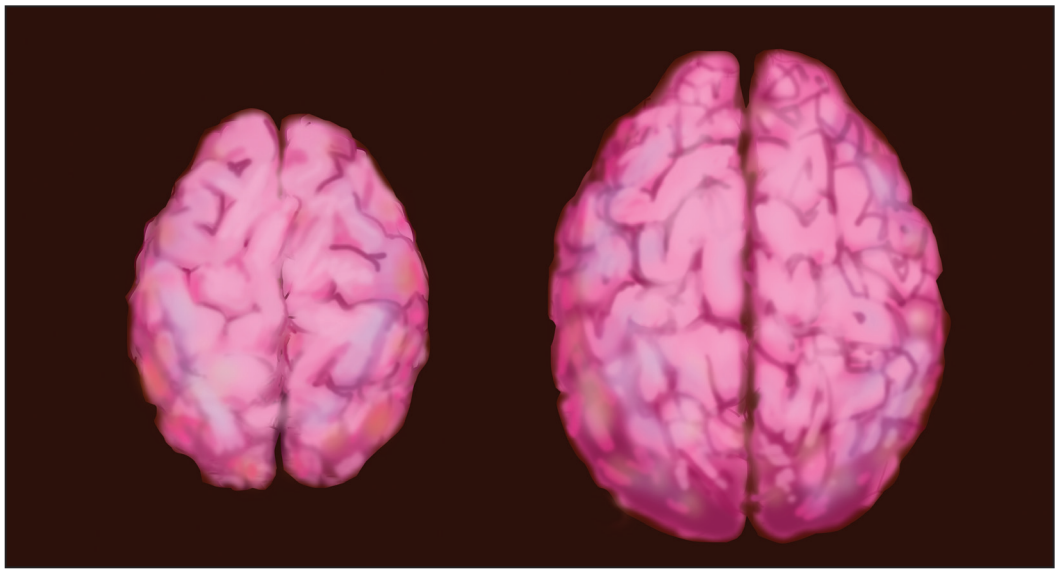
Chronic negative stress can produce elevated levels of the hormone cortisol that can have an adverse effect on brain development. Among factors thought to produce negative stress in young children are:

- Extreme poverty
- Emotional or physical abuse
- Serious threats
- Repeated exposure to violence

Excessive alcohol use during pregnancy can have severe effects on fetal brain development.

Fetal Alcohol Syndrome is the most common, preventable cause of mental retardation in America. Figure 5 shows severe damage to the brain of a five-day-old infant whose mother consumed large amounts of alcohol during pregnancy. The brain on the right in Figure 5 is normal.

Figure 5: Brain Damaged Pre-natally by Alcohol and Normal Brain



Source: http://www.isoa.org

Both nature and nurture contribute to brain development.

Genes (nature) determine when, where and how many brain circuits are formed, and the infant's environment (nurture) then shapes how those circuits are stimulated and used.

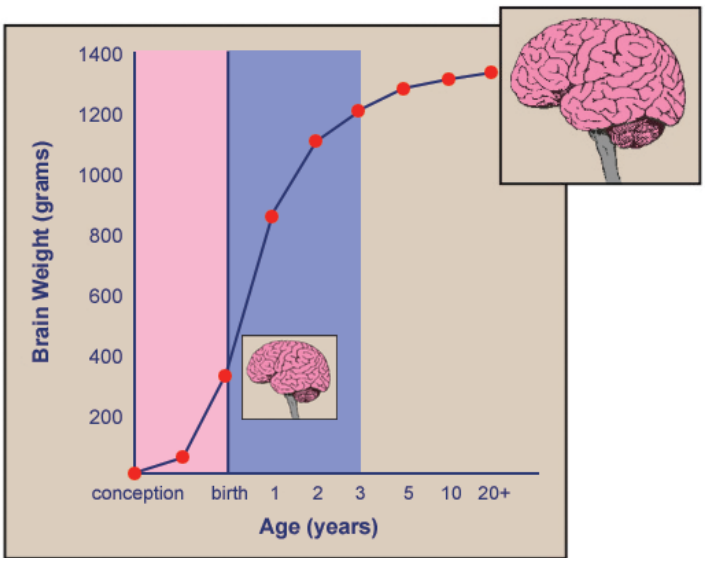
Research demonstrates the impact that early positive interventions have on the outcome of children. Studies show a positive return in education and employment achievement, as well as decreased cost to society in terms of lower rates of incarceration and reduced need for special education and welfare.

Furthermore, these same studies have demonstrated that the most impressive effects of such interventions are on those children who are at highest risk.

Nutrition is critical during the first months of life.

Good nutrition supports the growth of the brain's network of neurons throughout childhood. While formula offers an adequate alternative, there is ample evidence that breast milk provides the optimal nutrition for newborns. In addition to the well established psycho-social, economic, environmental and health benefits associated with breast-feeding, there appears to be a link between breast-feeding and enhanced brain development. The reasons remain controversial, but many researchers believe that chemicals in breast milk encourage brain development.

Figure 6: Brain Weight over Time



Source: Falk, D. (2007). Evolution of the Primate Brain. In W. Henke & I. Tattersall (Eds.), Handbook of Palaeoanthropology, 2 (pp. 1133-1162). Springer-Verlag

Brain Glossary

Neuron - A nerve cell.

Axon - The tail of a neuron.

Synapse - The region where communication between nerve cells occurs.

Anencephaly - A condition where a fetus fails to develop the cerebral cortex.

Spina bifida - A condition where a portion of the spinal cord develops outside the spinal canal.

Neural tube - Embryologically the earliest form of the nervous system.

Dendrites - Branches from a neuron that are involved in the transmission of electrochemical signals.

Myelination - The process in which nerve cells are insulated with a substance known as myelin. The result is improved efficiency of nerve signal transmissions

Glial Cells - Brain cells that serve as scaffolding for and support the growth of neurons

Fetal Alcohol Syndrome - A condition that may result in mental retardation of infants born to mothers who consume excessive alcohol during pregnancy

Demographics

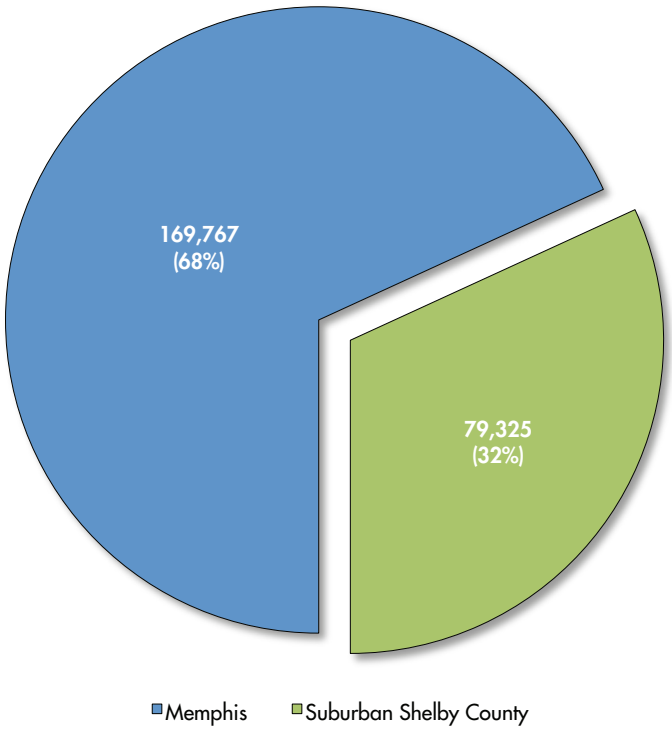
Shelby County and Memphis maintain a steady population.

Between 2000 and 2007 there remained a stable population in Shelby County with no significant increase or decrease from year to year. With more than 900,000 residents in Shelby County, 70 percent of whom lived in the City of Memphis, the county is the largest in Tennessee.

Shelby County and Memphis consistently report that approximately one in four residents is a child under 18.

There were a quarter of a million children living in Shelby County in 2007, two in three of whom lived in Memphis (Figure 1).

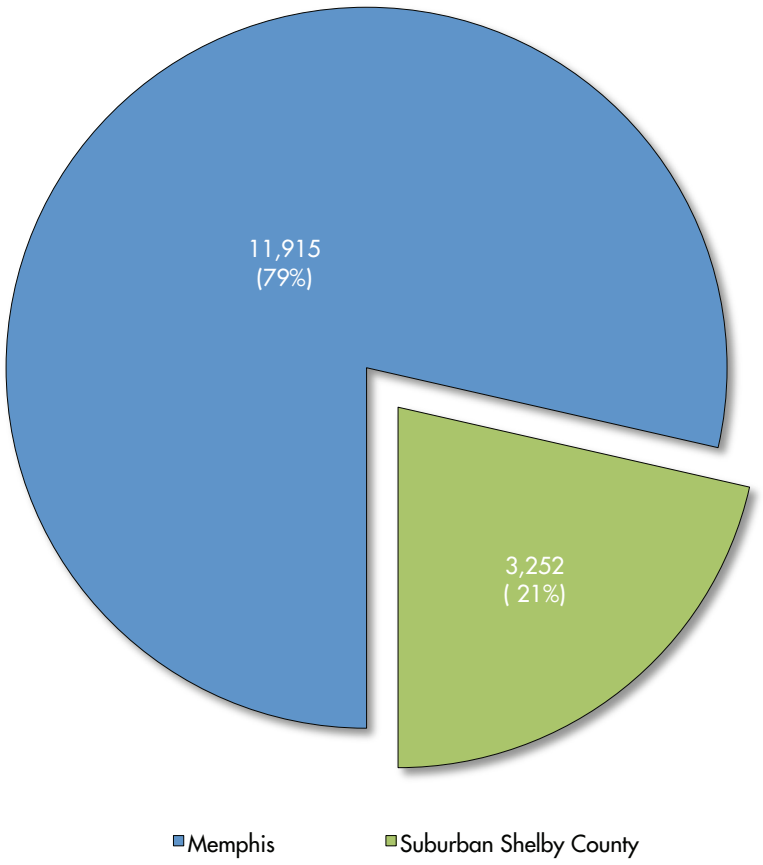
Figure 1: Number and Percentage of Children in Memphis and Suburban Shelby County, 2007



Source: American Community Survey, 2007, B01001

Each year the number of babies born in Shelby County is nearly equal to the number of enrolled undergraduates at The University of Memphis.

Figure 2: Number and Percentage of Births in Memphis and Suburban Shelby County, 2006



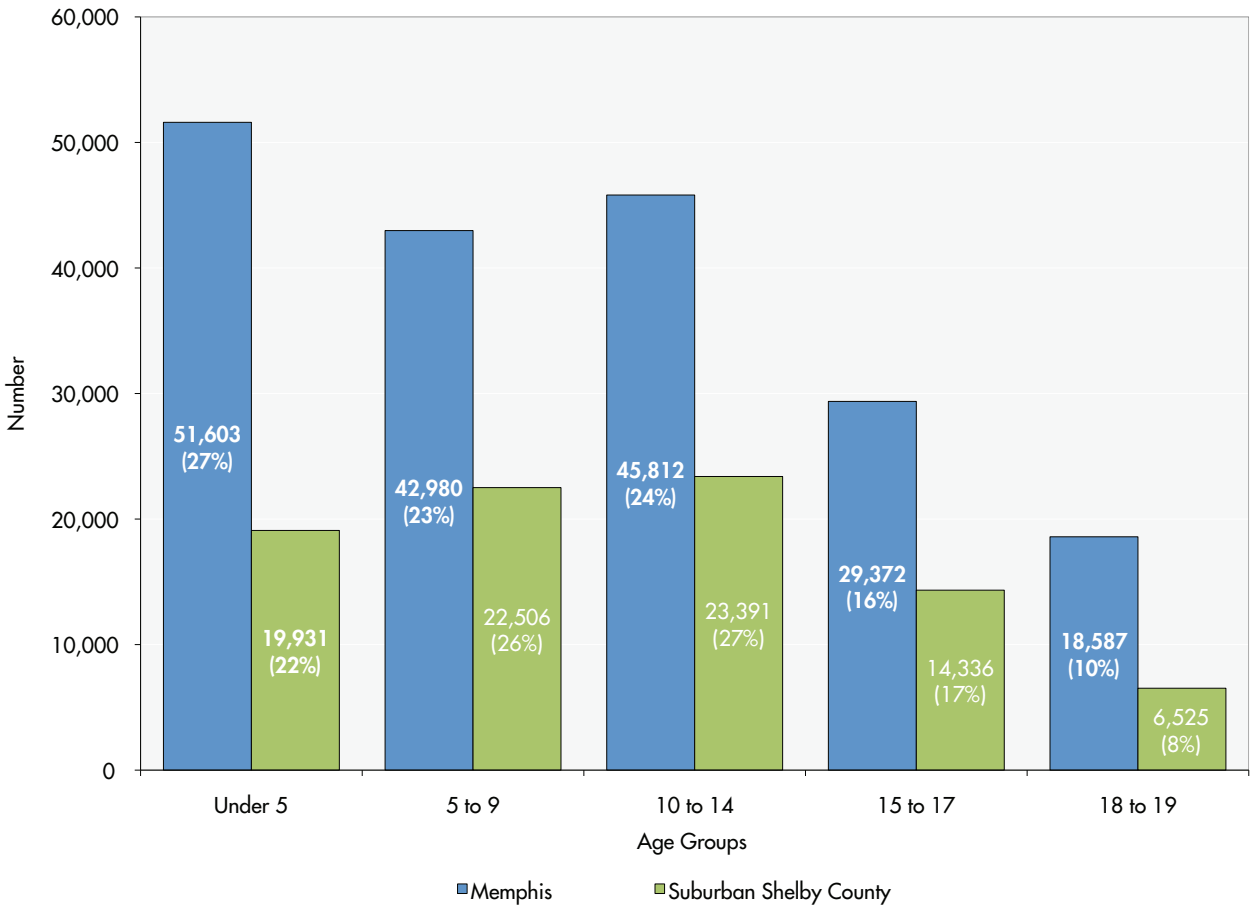
Source: Tennessee Department of Health, Office of Policy, Planning and Assessment, Division of Health Statistics, Birth Certificate Data, 2006

Since 1999 there have been approximately 15,000 births per year in Shelby County. Four of every five babies born in Shelby County reside within Memphis city limits (Figure 2).

One third of children in Shelby County are very young.

In 2007, almost one in three children under 18 in Shelby County was less than five years old. In Memphis and Suburban Shelby County approximately 50 percent of children had not yet celebrated their ninth birthday (Figure 3).

Figure 3: Number and Percentage of Children by Age, Memphis and Suburban Shelby County, 2007



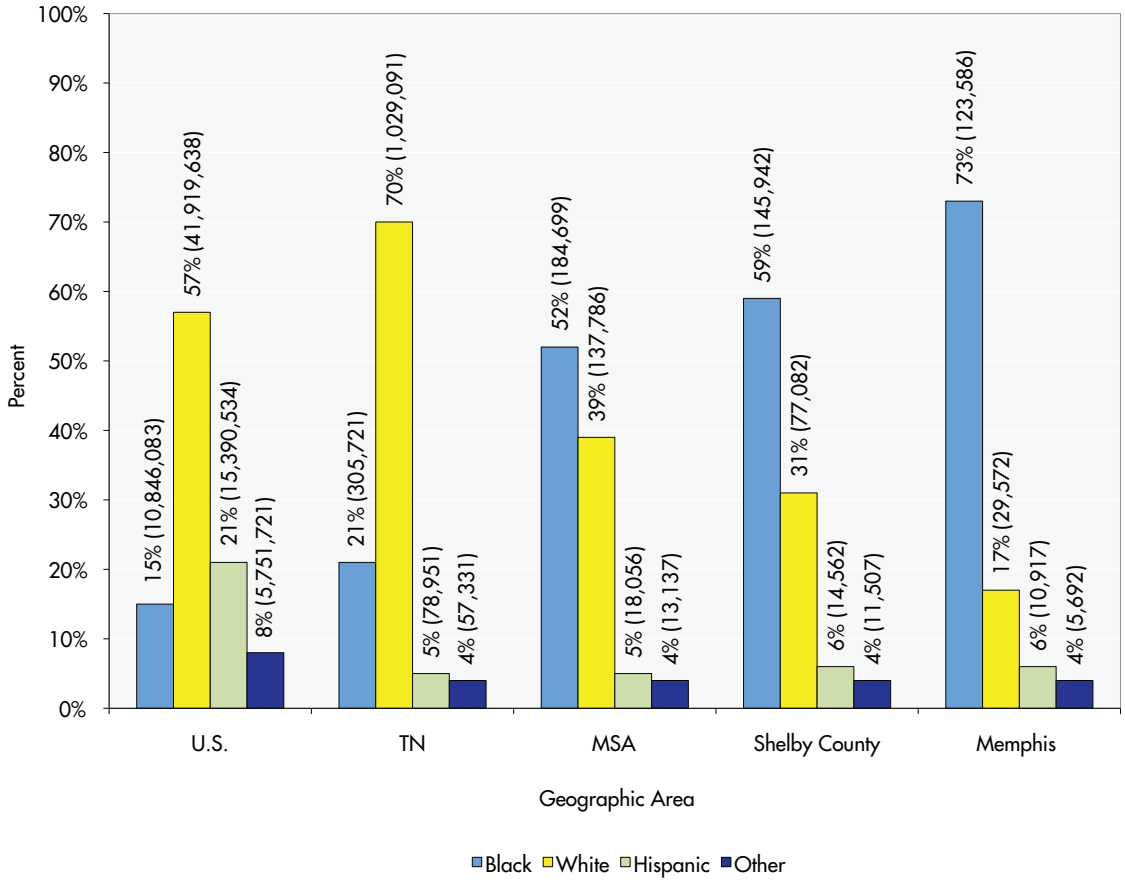
Source: American Community Survey, 2007, B01001

The population of Memphis is different than Shelby County and Tennessee.

The racial composition of Shelby County and the Memphis Metropolitan Statistical Area (MSA) is largely influenced by that of Memphis. In 2007 Memphis reported that 73 percent of children were black, 17 percent were white, six percent were Hispanic, and four percent were other.

The demographics of Shelby County and the Memphis MSA are more similar to Memphis than to Tennessee and the U.S. However, if Memphis is excluded, the county and the MSA are more similar to the state than to the city (Figure 4).

Figure 4: Number and Percentage of Children by Race and Ethnicity, United States, Tennessee, MSA, Shelby County & Memphis, 2007



Source: American Community Survey, 2007, B01001

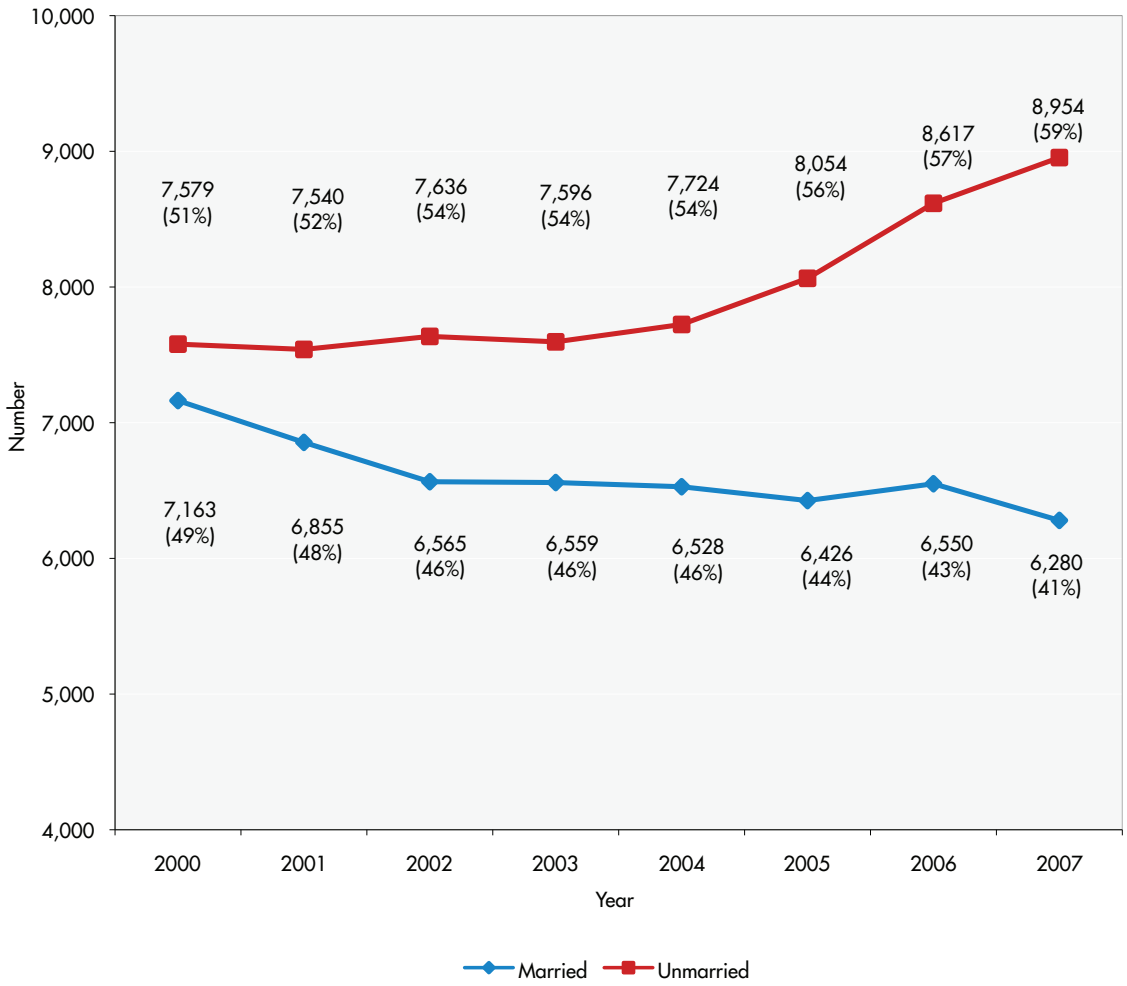
Births to unmarried parents are on the rise in Shelby County.

In 2007, the U.S. Census Bureau reported 319,226 married Shelby County residents in the 15 and over age bracket. In 2007, there were 5,788 new marriages and 2,478 divorces. For every ten marriage certificates issued in 2007, there were four new divorces (Tennessee Department of Health, Vital Statistics, 2007).

The total number of births increased in Shelby County between 2000 and 2007.

Meanwhile, the percentages of births to unmarried mothers also increased from 51 percent to 59 percent during the same period (Figure 5).

Figure 5: Number and Percentage of Births by Marital Status, Shelby County, 2000-2007



Source: Tennessee Department of Health, Office of Policy, Planning and Assessment, Division of Health Statistics, Birth Certificate Data, 2000-2006, and Tennessee Department of Health Vital Statistics, 2007

Children born to unwed mothers confront more problems than children who are born to married parents.

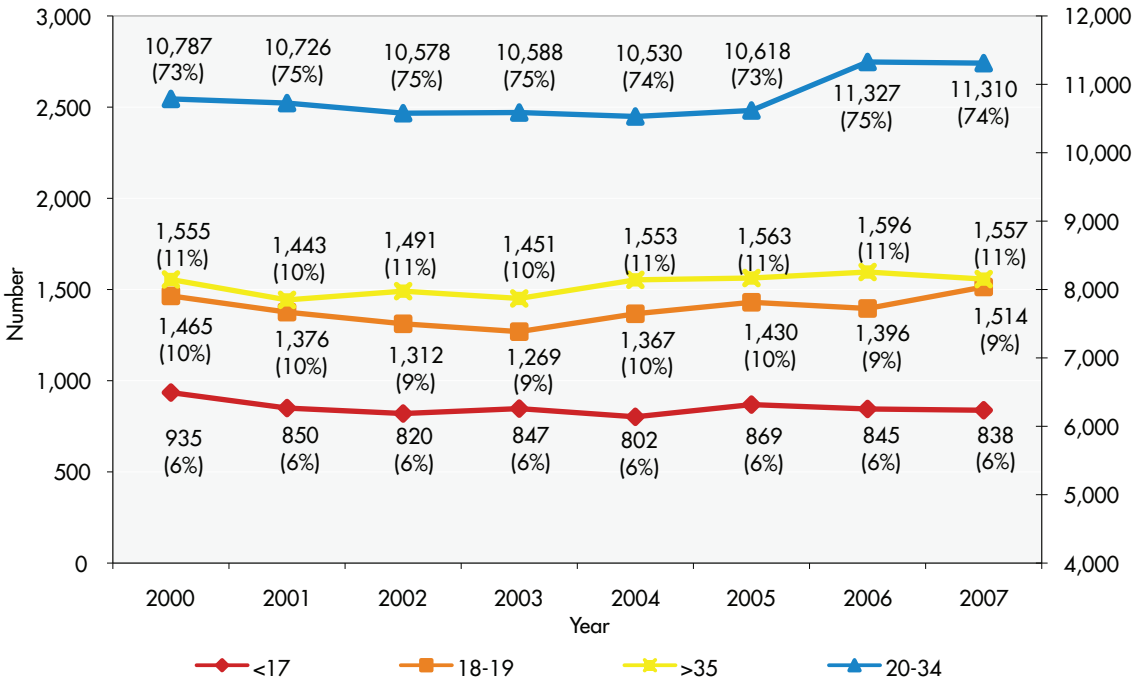
Children born to unwed parents confront more problems, such as lower educational success and increased behavioral risks, than their counterparts who are born to wed parents (Raley *et al.*, 2005; Osborn, 2007). Single parent families are much more likely than married parent families to face obstacles associated with socioeconomic distress (McLanahan & Sandefur, 1994). Poverty and reduced amounts of free time can translate into less supervision and quality time shared between parent and child (McLanahan & Booth, 1989; Thomson *et al.*, 1994).

Risks associated with unwed childbearing are heightened when the mother is young; teen and adolescent parents traditionally live in the most fragile conditions. Younger mothers are likely to earn less due to lower educational attainment and to be psychologically and emotionally immature compared to older mothers (ChildTrends, 2008).

In Shelby County fewer than 1,000 children were born to mothers younger than 17 (Figure 6). While that number accounted for only six percent of total county births, it is twice the national average (CDC, 2008).

High-risk pregnancies are not isolated to young mothers. Women who give birth at 35 and older are more likely to deliver pre-term than mothers between the ages of 20 and 34 (Behram & Butler, 2006). Additionally, diabetes and hypertension are more prevalent among older women, and infants born to mothers with these conditions are more likely to exhibit "growth restriction, pre-eclampsia and abruption" (*Ibid.*, p. 44). Fortunately, a relatively small cohort, approximately 1,500 infants (11%), was born to women 35 and older (Figure 6).

Figure 6: Number and Percentage of Births by Age of Mother, Shelby County, 2000-2007



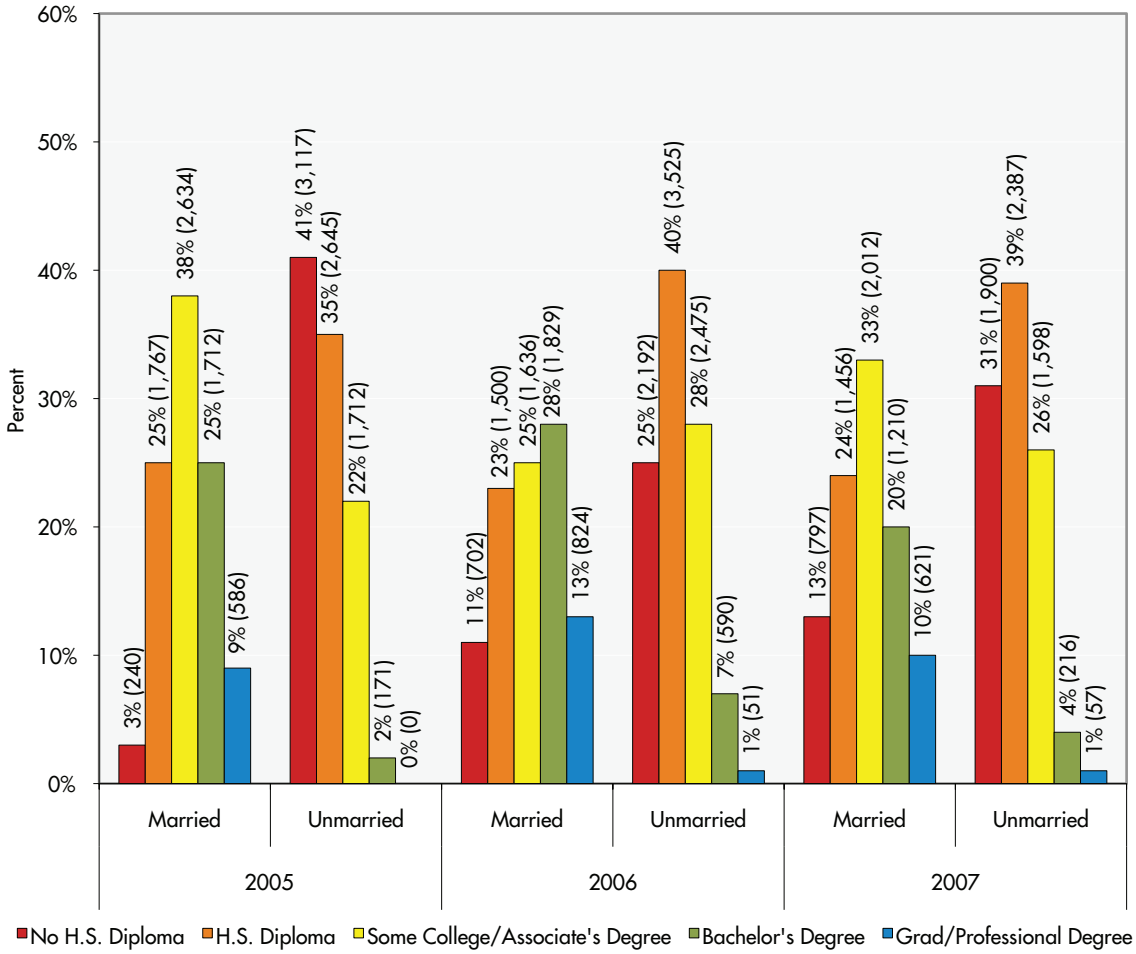
Source: Tennessee Department of Health, Office of Policy, Planning and Assessment, Division of Health Statistics, Birth Certificate Data, 2000-2006, and Tennessee Department of Health Vital Statistics, 2007

Married mothers obtain more education than unmarried mothers.

Unmarried mothers are much less likely than married mothers to have a Bachelor's degree or higher. In 2007, 30 percent of married mothers had a Bachelor's degree or greater, compared to only five percent of unmarried mothers. This pattern is consistent between 2005 and 2007 (Figure 7).

Furthermore, 70 percent of single mothers who gave birth in Shelby County in 2007 had a high school diploma or less compared with only 37 percent of married mothers (Figure 7).

Figure 7: Number and Percentage of Women 15 to 50 Giving Birth in the Past 12 Months by Marital Status and Educational Attainment, Shelby County, 2005-2007



Source: American Community Survey, 2005-2007, B13014

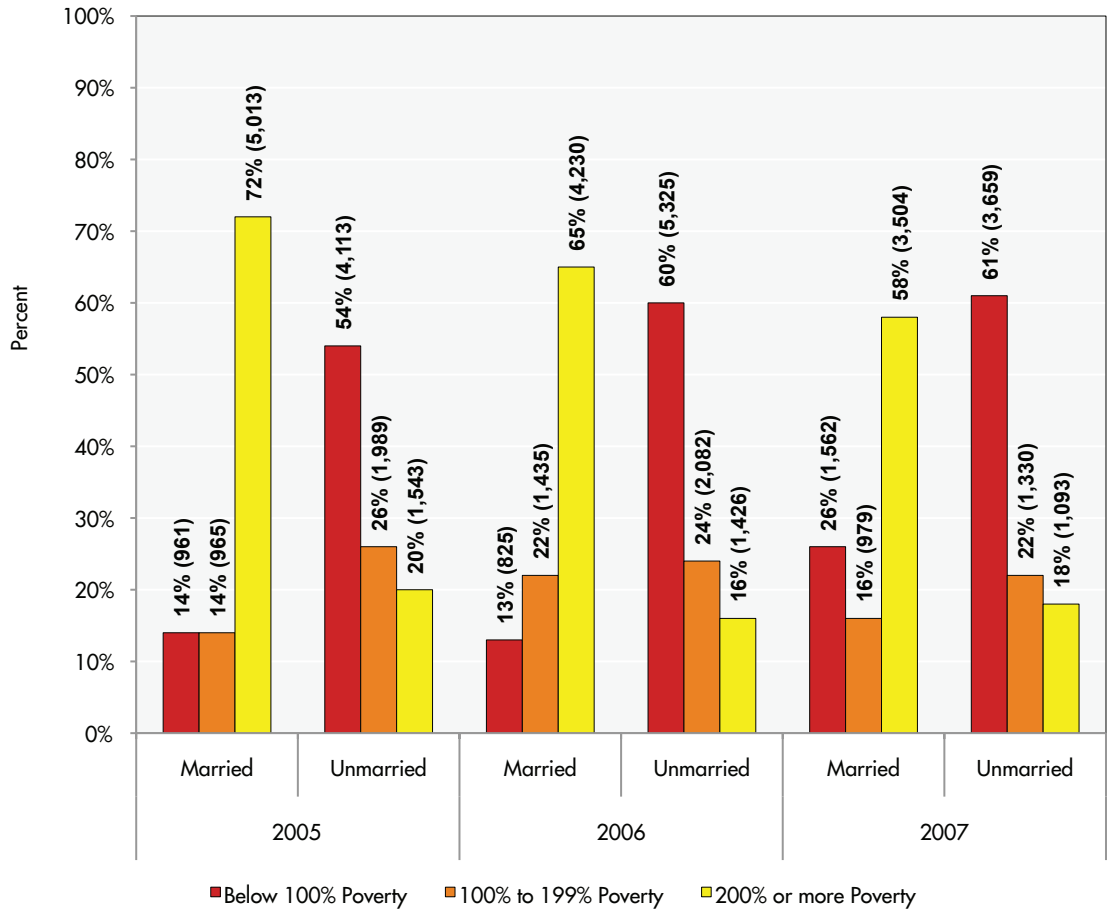
Economic hardship increased for both married and unmarried families with children each year between 2005 and 2007.

Low income families are those with incomes between 100 and 200 percent of the Federal Poverty Level (FPL). The percentage of married families who were above the low income threshold decreased each year from 2005 to 2007. Meanwhile the percentage of unmarried families above low income decreased from 20 percent in 2005 to 16 percent in 2006, then increased slightly to 18 percent in 2007.

Poor families are those with incomes less than 100 percent of FPL. A larger share of unmarried families with children were living in poverty in 2007 than in 2005 and 2006 (Figure 8). Poverty also increased for married families; the percentage of married families in poverty doubled between 2006 and 2007.

Unmarried parents are more likely than their married counterparts to be poor or low income. In fact, the 2007 percentage of married families living above 200 percent of FPL was nearly the same as the percentage of unmarried families living in poverty.

Figure 8: Number and Percentage of Women 15 to 50 Years Old Giving Birth in the Past 12 Months by Marital Status and Poverty, Shelby County, 2005-2007



Source: American Community Survey, 2005-2007, B13010

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Data

Chart data can be downloaded at http://theurbanchildinstitute.org/databook

Health

Child health says a lot about the values of a community.

Child health can be measured in various ways. For some it is a measure of a few commonly accepted markers; these typically include infant mortality rates, other birth outcomes, and child death rates. Others take a broader view and see child health as a reflection of those items plus many other factors that influence a child's overall well-being.

This section of the Data Book attempts to incorporate both approaches. First, we examine infant mortality, low birth weight, and prematurity in Memphis and Shelby County, including comparisons with state and national trends; next, we examine a variety of child and adolescent high-risk behaviors which can negatively affect child health.

Shelby County ranks near bottom on most child health measures.

The Annie E. Casey Foundation's *Kids Count* project collects national and state-level information on children's educational, social, economic, and physical well-being. In the *Kids Count 2008* report, Tennessee ranked 42nd of the 50 states, and in most areas Shelby County lagged behind the rest of the state (Annie E. Casey, 2008). Data on child health in Shelby County are grim for almost all reported categories, but particularly for black infants.

The infant mortality rate reflects a community's overall health.

The infant mortality rate (IMR) reflects the number of deaths that occur in the first 12 months of life per 1,000 live births. It reflects the commitment of a community to infants and young mothers, and is an indicator of access to care, quality of care, socioeconomic conditions and public health intervention. Despite the fact that one out of every six dollars is spent on healthcare nationwide, the U.S. has a higher IMR than many other nations.

In Shelby County, over 80 percent of deaths in the first 14 years occur in infancy.

In 2006, there were 158 infant deaths in Shelby County that occurred within the first month of life. These deaths accounted for 76 percent of all deaths within the first year of life[1].

Infants who die in their first month are usually those who are born very prematurely or with serious congenital anomalies, particularly of the cardiovascular system or respiratory tract.

Infant deaths after one month and before 12 months are most frequently a result of Sudden Infant Death Syndrome (SIDS), congenital malformations or accidents.

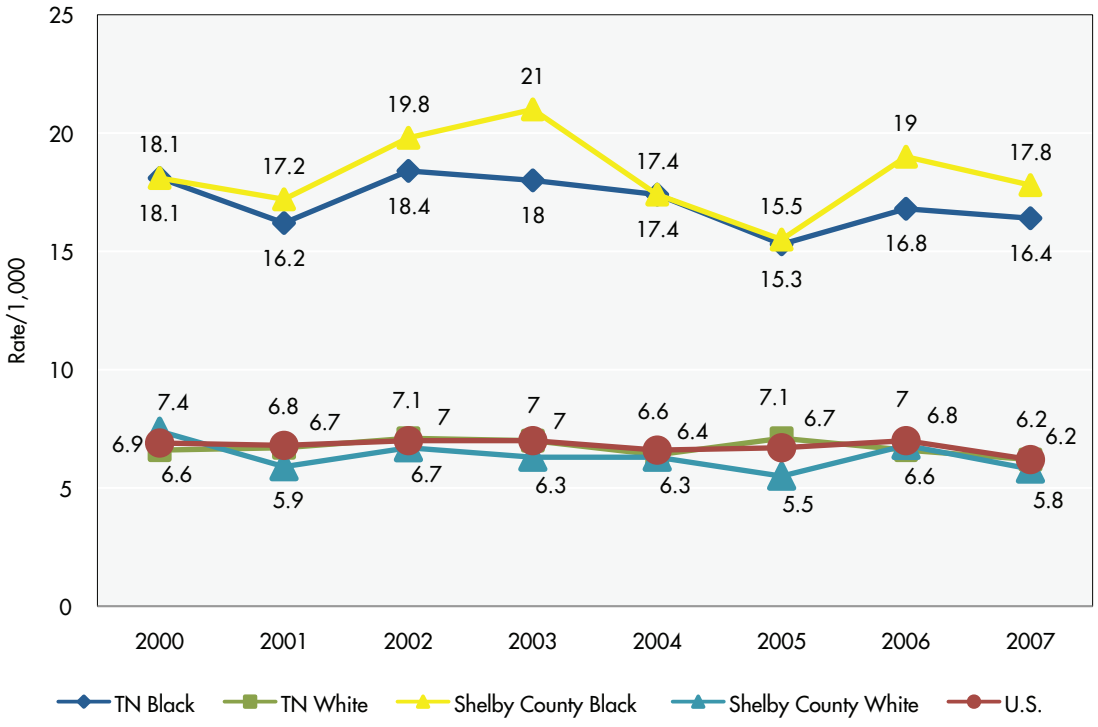
1 Numbers derived from Tennessee Department of Health, Vital Statistics, 2006.

The black IMR in Shelby County is more than triple the IMR of whites in Shelby County.

Because there is no universally used method of reporting IMR, there has been debate concerning the usefulness of comparing infant mortality rates in Memphis to other cities and especially other countries. While such comparisons may be misleading, tracking changes in IMR over time within our community does provide a valuable measure of how Memphis is progressing in this crucial area of child health.

The black IMR in Shelby County remains triple the rate among white infants in Shelby County and the overall U.S. rate. Since 2000 the IMR for blacks has remained static while the IMR for white infants in Shelby County has declined by 22 percent (Figure 1). This pattern is also evident statewide, where the IMR of black babies is double the IMR of white babies (Figure 1).

Figure 1: Infant Death Rate per Thousand Births by Race, Shelby County, Tennessee & United States, 2000-2006



Source: Tennessee Department of Health, Vital Statistics, 2000-2006 and CDC, Vital Statistics 2000-2006, and provisional data for 2007

The reasons for differences in mortality between black and white infants are unclear.

While blacks as a group have less income than whites, the correlation between poverty and infant mortality is inconsistent.

Among both black and white mothers higher educational levels are correlated with lower infant mortality rates. Nevertheless, college-educated, non-smoking black women have a slightly higher IMR than do smoking white women who have not graduated from high school.

A black infant born after 37 weeks of gestation (considered full term) has a higher infant mortality rate (1.74 times) than a full term white infant.

The high IMR in Memphis has led to a commitment from state and local health and political leaders to specifically address this issue in Shelby County. Hopefully, improved interventions will have an effect, and there will be a future decline in IMR.

Low birth-weight babies have a greater risk of infant death.

The more premature an infant is the greater the risk of death. Two out of three infants who die in the first year of life are born at less than 37 weeks gestation and are considered premature. While low birth-weight does not correlate exactly with gestational age, it is frequently used as a measurement of premature birth because determining exact gestational age is often difficult.

- Babies with normal birth-weight (at least 2,500 grams, or 5 pounds 8 ounces) have a mortality rate of 3.3-per-1,000 live births.
- Low birth-weight infants (1,500-2,499 grams) die at a rate 18 times higher.
- Very low birth-weight infants (less than 1,500 grams, or 3 pounds 5 ounces) have an IMR of 256 per 1,000. This is 77 times higher than that of normal birth-weight infants.
- Black infants are more likely than whites to be born prematurely and at a low birth-weight.

The rate of low birth-weight/premature births has increased nationwide, although there was a slight decline in premature births nationally in 2007 (Stobbe, 2009). In both Tennessee and Shelby County, the rate of low birth-weight newborns has remained constant over the past six years (Figure 2).

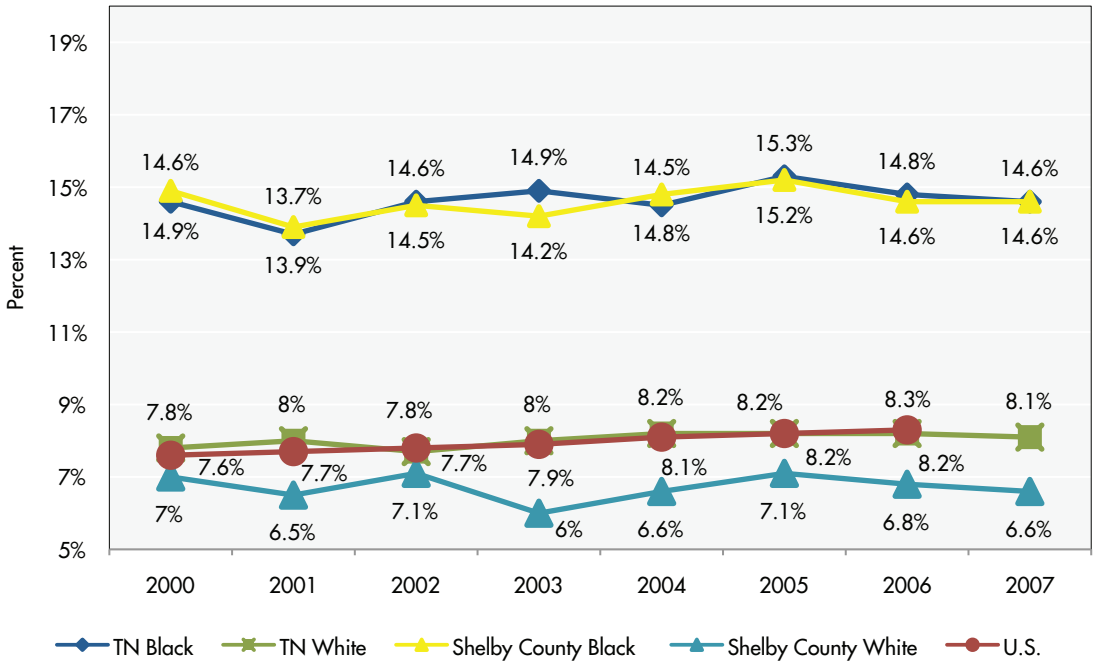
The good news in this area is that an increasing percentage of premature infants are born between 32 and 37 weeks of gestation and that there has been a slight decrease in those born before 32 weeks gestation, which is the group at highest risk for death. This trend, along with the improved care provided for premature babies, should ultimately contribute to an improvement in the IMR.

Black mothers are more than twice as likely as white mothers to give birth prematurely.

Prematurity and low birth-weight are influenced by social, economic, biological and genetic factors. There have been many efforts to reduce prematurity; one example is the effort to extend early prenatal care to more women. Earlier prenatal care improves the health of both the mother and the fetus, and contributes to a reduction in infant mortality. However, it has not been shown to consistently reduce premature births. A disturbing trend in Shelby County is the 21 percent decline in mothers who received adequate prenatal care from 2000 to 2006 (Annie E. Casey, 2008).

Although we know more about factors that influence a mother going into labor, we still have an incomplete understanding of premature labor (Behrman & Butler, 2006).

Figure 2: Percent Low Birth Weight Births, Shelby County, Tennessee & United States, 2000-2007



Source: Tennessee Department of Health, Vital Statistics 2000-2007 and CDC, Vital Statistics, 2000-2006

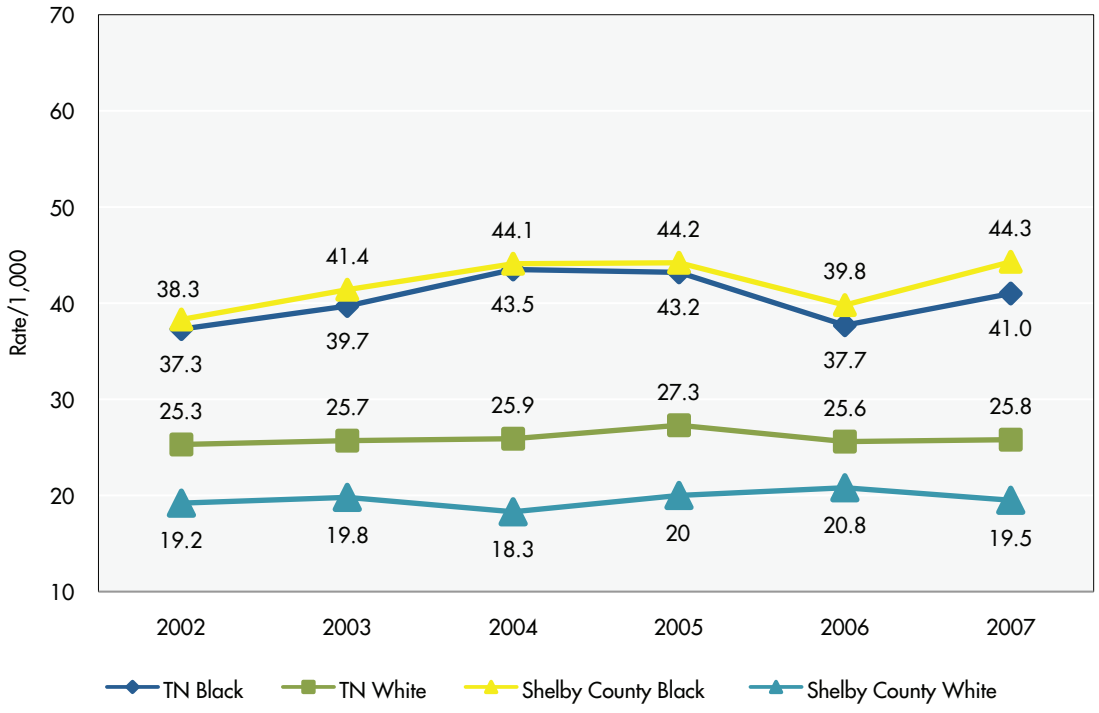
Birth rates among black teens are twice as high as among white teens in both Shelby County and Tennessee.

Pregnant women at greatest risk for delivering prematurely are those who are less than 20 years old at the time of delivery and those in their late 30s and older. Of the 15,000 births in Shelby County about 15 percent are to teenage mothers. In addition to having a higher IMR, children of teenage mothers are also likely to grow up in poverty and have poor health (Furstenberg, 2007; Wolfe & Perozek, 1997). Thus the risks for children of teenage mothers continue throughout life.

Nationally, birth rates among teenagers have been declining steadily since 1960. In Tennessee and Shelby County the rates of teenage births among whites remained unchanged from 2002 through 2007, while the rate among blacks increased slightly (Figure 3). In Shelby County, the birth rate among black females ten to 19 years old is more than twice that of white girls ten to 19.

Programs focused on reducing teen pregnancy vary widely. Some focus on abstinence, others on the use of contraception, while others emphasize the importance of parents, peers or adult mentors discussing sexuality with teens. It is unclear, however, which factors have contributed the most to the decline in births to teenage mothers.

Figure 3: Birth Rate per Thousand Females
Ages ten through 19 by Race, Shelby County & Tennessee, 2002-2007



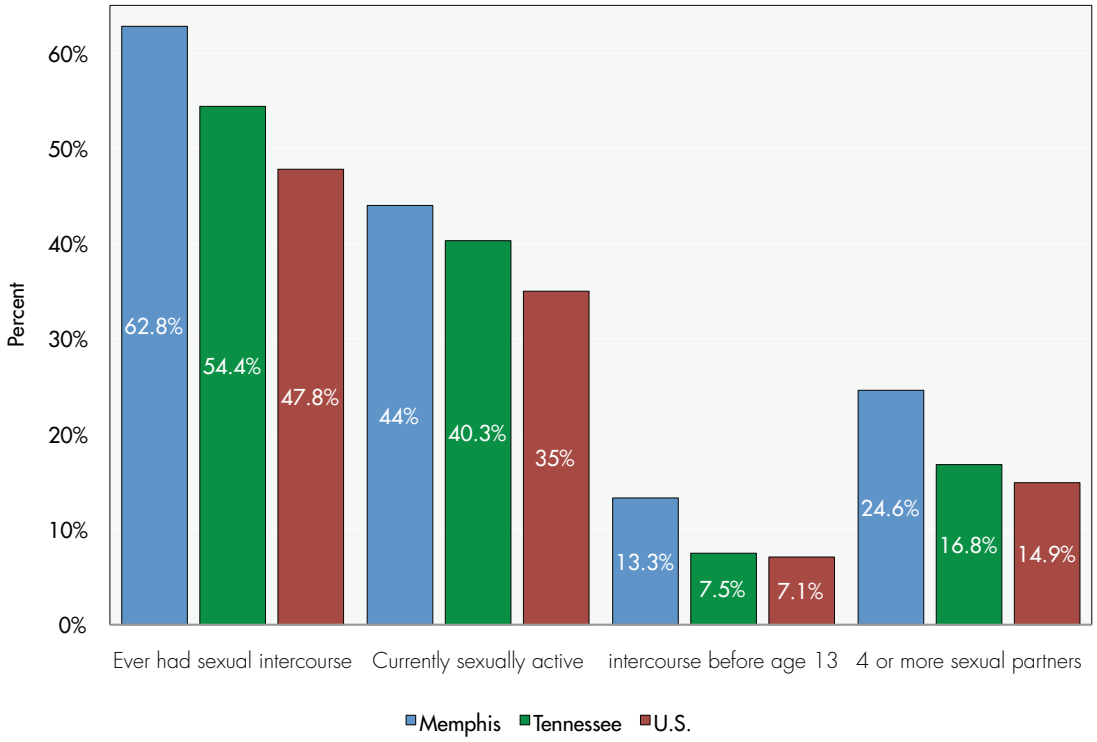
Source: Tennessee Department of Health, Vital Statistics, 2002-2007
and American Community Survey, 2002-2007, B101001A and B101001B.

Shelby County students' sexual activity leads to a variety of problems.

High school students in Memphis and Shelby County report more sexual activity than do their counterparts across the state. Also, a higher percentage report first intercourse before age 13 and having sex with multiple partners. The negative consequences of teen sexual activity can be seen in the high rate of sexually transmitted diseases, pregnancy, and early parenting among adolescents in the Memphis area.

Multiple factors place teens at higher risk of engaging in sexual activity. Studies suggest that parental, developmental and peer influences contribute to the early initiation of sexual activity. These include living in a single parent home, the influence of an older sibling, the perception that peers are sexually active, early pubertal development, deviant peer groups, sexual abuse and alcohol and drug use. Many adolescents in Memphis and Shelby County are exposed to one or more of these risk factors (Kotchik *et al.*, 2001; Little & Rankin, 2001).

Figure 4: Percentage of High School Students by Sexual Activity, Memphis, Tennessee & United States, 2007



Source: Youth Risk Behavioral Surveillance Survey, 2007, http://apps.nccd.cdc.gov/yrbss/SelQuestYear.asp?Loc=XX

High teenage sexual activity rates equal high disease rates.

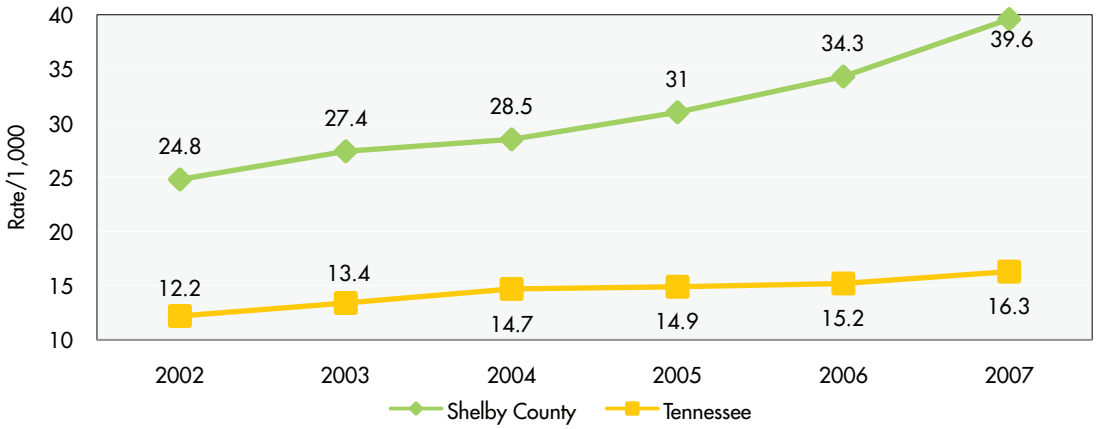
High rates of adolescent sexual activity translate into high rates of sexually transmitted diseases. Approximately 40 percent of ten to 19 year olds in Shelby County have reported being infected with chlamydia, syphilis or gonorrhea (Figure 5). Consequences of these infections often go beyond the short-term difficulties that they may cause. In females, these infections can lead to infertility, scarring of the fallopian tubes or complications with future pregnancy. Other risks include premature or low birth-weight babies, stillbirth, congenital malformations, and infections of multiple organ systems. Hopefully the relatively high use of condoms by Memphis high school students may be an indicator that the high rates of STDs may begin to decline over the next several years (Figure 6).

High-risk adolescent behavior can have long-term consequences.

In addition to sexual activity, there are many other high-risk behaviors which place children and teens at risk. These behaviors are often established during childhood or adolescence, and many can have a negative impact on infants and children. This may happen through their effects on pregnancy and birth outcomes, as in the case of alcohol use during pregnancy; it may also occur through environmental exposure, as in the case of second-hand cigarette smoke.

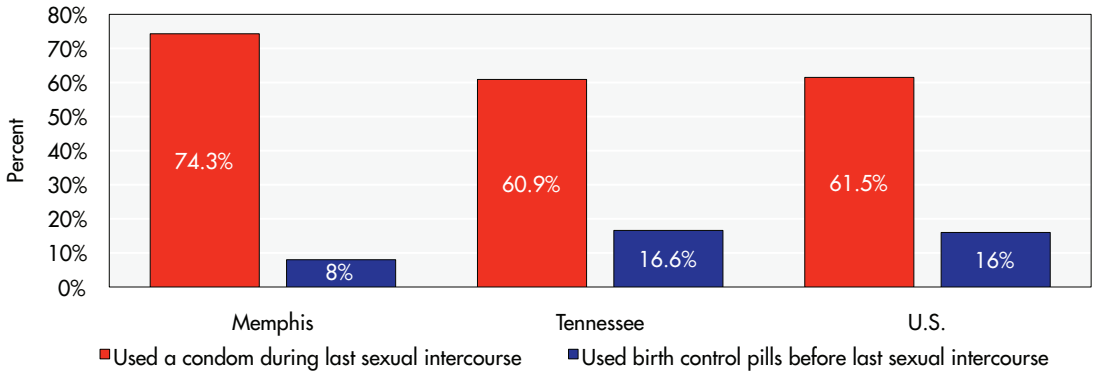
Tobacco use, alcohol use, unhealthy diet, lack of exercise, and obesity are prevalent among youth. In addition to affecting this generation, these high risk behaviors also have the potential to have negative effects on future generations.

Figure 5: Rate of Chlamydia, Gonorrhea or Syphilis in Ages ten to 19, Shelby County & Tennessee, 2002-2007



Source: Tennessee Department of Health, Communicable and Environmental Disease Services, STD/HIV/AIDS Branch, 2002-2007 and American Community Survey, 2002-2007, B01001

Figure 6: Percentage of High School Students Currently Sexually Active by Contraceptive Use, Memphis, Tennessee & United States, 2007



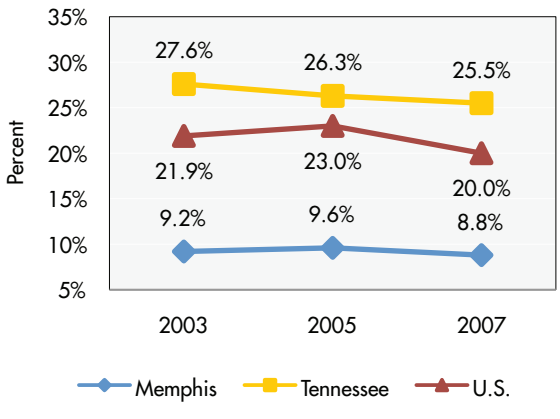
Source: Source: Youth Risk Behavioral Surveillance Survey, 2007, http://apps.nccd.cdc.gov/yrbss/SelQuestYear.asp?Loc=XX

Memphis adolescents continue to be less likely to smoke cigarettes and consume alcohol than adolescents in other parts of the state and nation.

Tobacco use is the most common cause of preventable disease and death in the U.S. (CDC, 2002), and it begins most commonly in adolescence or early adulthood. Nine out of ten adult smokers began smoking before age 21 (Mowery, Brick & Farrelly, 2000). Of people who start smoking as teens approximately one out of three will die prematurely of a smoking-related disease (CDC, 2006). Furthermore, tobacco is considered to be a gateway drug that may lead to alcohol, marijuana and other illegal drug use (U.S. Department of Health and Human Services, 1994).

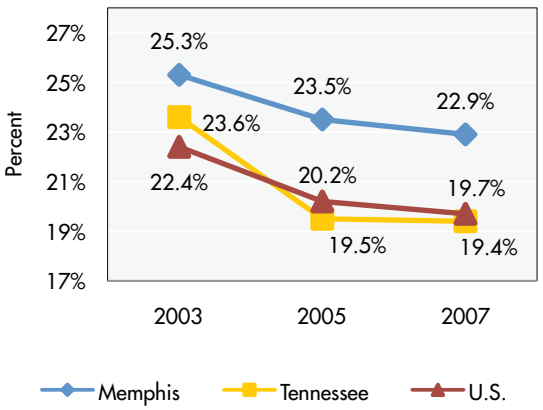
In 2007, 43 percent of Memphis City Schools (MCS) high school students reported having tried cigarettes[2]. While reported cigarette use is lower than reported by students throughout Tennessee and the rate appears to be trending downward, almost one in four MCS students reported current use of marijuana.

Figure 8: Percentage of High School Students Who Smoked in the Past 30 Days, Memphis, Tennessee & United States, 2003-2007



Source: Youth Risk Behavioral Surveillance Survey, 2003-2007, http://apps.nccd.cdc.gov/yrbss

Figure 9: Percentage of High School Students Who Have Used Marijuana in the Past 30 Days, Memphis, Tennessee & United States, 2003-2007



Source: Youth Risk Behavioral Surveillance Survey, 2003-2007, http://apps.nccd.cdc.gov/yrbss

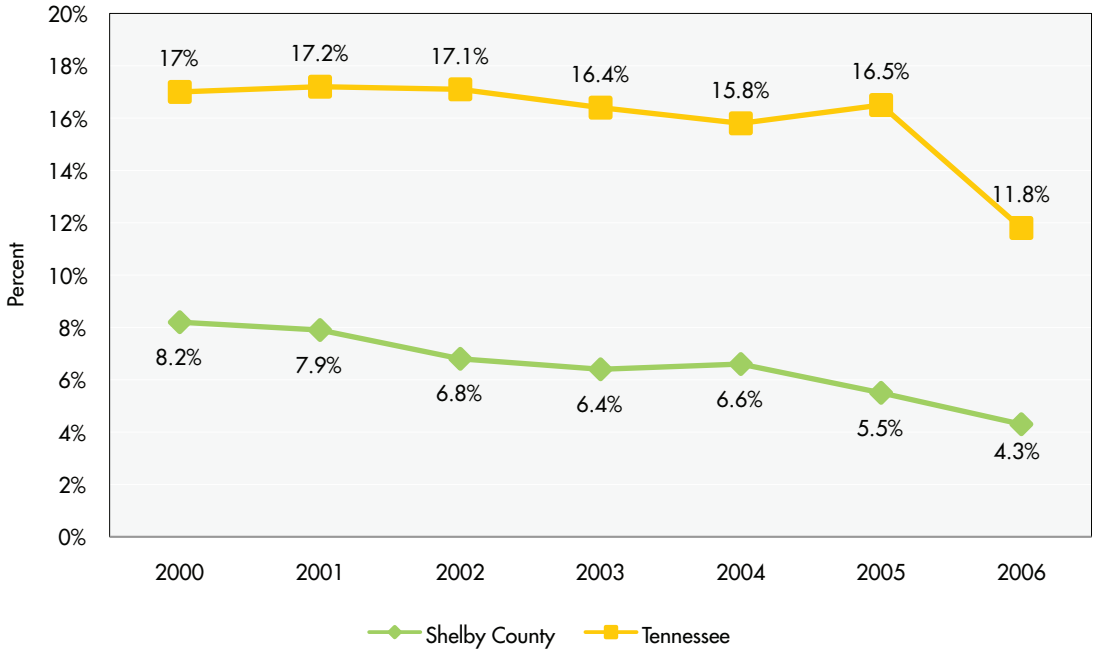
2 Unless otherwise noted, all information on risk behaviors of Memphis students is taken from the Youth Risk Behavior Surveillance System (CDC 2008b).

Smoking can lead to stillbirth or infant death.

A smoking mother has an 11 percent greater chance of stillbirth plus a five percent greater chance of newborn death. Smoking also has a negative impact on younger children. Environmental tobacco smoke, also known as second-hand smoke, has almost 4,000 chemicals in it that infants and children breathe whenever someone smokes around them. Children who breathe second-hand smoke are at risk for many serious health problems, such as ear infections, hearing problems, respiratory infections and asthma (Committee on Environmental Health, 1997).

Additionally, smoking during pregnancy can lead to pregnancy complications and serious health problems in newborns. Babies born to mothers who smoke are twice as likely to be born of low birth-weight and are three times as likely to die from Sudden Infant Death Syndrome (SIDS). The U.S. Public Health Service estimates that if all pregnant women in the U.S. stopped smoking there would be an 11 percent reduction in stillbirths and a five percent reduction in newborn deaths (March of Dimes, 2009b). Although the rates of women who reported smoking during pregnancy declined significantly between 2000 and 2006, almost one in 20 women in the Memphis community continued to report that she smoked during pregnancy.

Figure 10: Percentage of Women Who Reported Smoking During Pregnancy, Shelby County & Tennessee, 2000-2006



Source: Tennessee Department of Health, Office of Policy, Planning and Assessment, Division of Health Statistics, Birth Certificate Data, 2000-2006

Adolescent alcohol use quadruples the risk of alcohol dependence.

According to recent research, adolescents who begin drinking before age 15 are four times more likely to develop alcohol dependence than those who do not begin drinking until age 21 (National Institute on Alcohol Abuse and Alcoholism, 2004/2005).

Alcohol use was reported by two-thirds of MCS high school students and 44 percent of middle school students. One-third of high school students reported use "within the last 30 days."

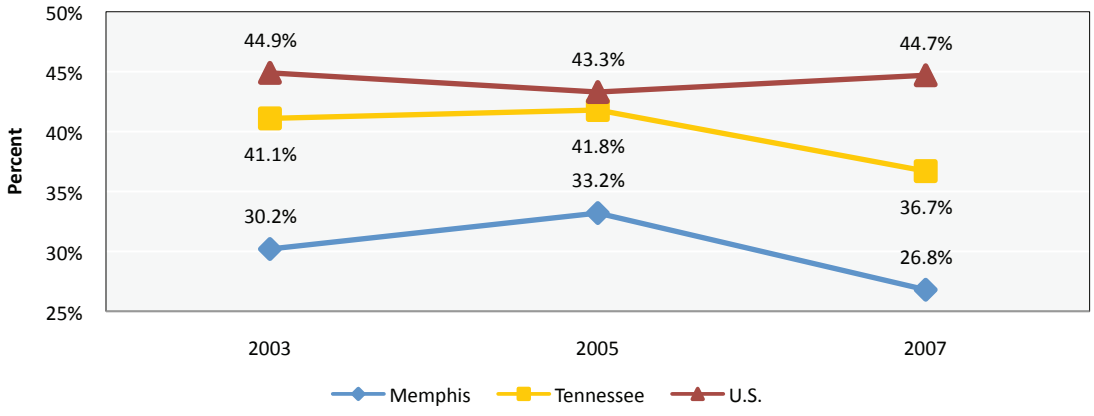
There is mounting evidence that repeated exposure to alcohol during adolescence leads to long-lasting deficits in cognitive abilities, including learning and memory.

Alcohol use negatively affects school performance and is related to high risk sexual behaviors, depression, suicide and other drug use.

Adolescent alcohol use is also associated with an increased risk of physical or sexual abuse—often by persons of the same age. Researchers estimate that alcohol use is implicated in at least one-third of cases of sexual assault and acquaintance- or date-rape cases among adolescent and college students nationally.

Females who use alcohol while pregnant increase their risk of having complications during pregnancy as well as giving birth to an infant with fetal alcohol syndrome, the most common preventable cause of mental retardation. In 2006 the estimated use of alcohol (had a drink in the last 30 days) in women of childbearing years living in Tennessee was 31 percent, and estimated binge drinking (had four or more drinks on any one occasion in past 30 days) was nine percent (CDC, 2008a).

Figure 11: Percentage of High School Students Who Drank in the Past 30 Days, Memphis, Tennessee & United States, 2003-2007



Source: Youth Risk Behavioral Surveillance Survey, 2003-2007, http://apps.nccd.cdc.gov/yrbss

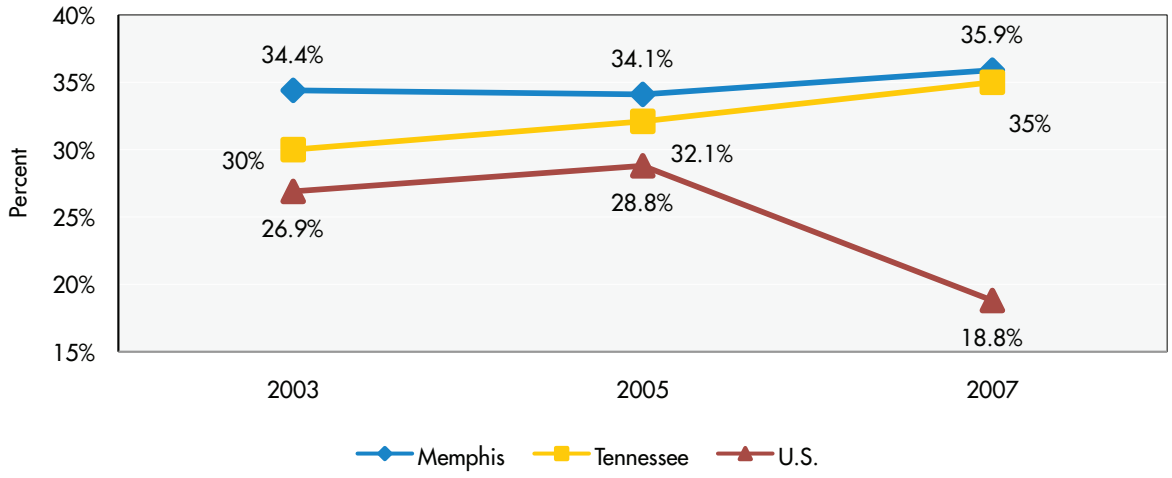
Obesity is an epidemic locally and statewide.

A Tennessee Comptroller's Report states that Tennessee has "epidemic proportions of childhood obesity, one of the highest rates of pediatric obesity and childhood type II diabetes, and one of the highest rates of heart disease in the United States" (TN, 2006, p. i).

Direct medical costs associated with obesity in Tennessee were $1.84 billion in 2003. Numerous studies have shown that overweight children are more likely to be overweight adults and suffer from complications such as diabetes, cardiovascular disease, hypertension, stroke, osteoarthritis, gall bladder disease, breast cancer, colon cancer, and depression (Freedman *et al.*, 2001; Power *et al.*, 1997).

Almost 20 percent of MCS high school students have a body mass index (BMI) in the "at risk for overweight" category and 16 percent are "overweight." These percentages are consistent with the State of Tennessee (18 percent and 17 percent, respectively) but significantly higher than the national percentages (16 percent and 13 percent, respectively.)

Figure 12: Percentage of High School Students Who Were Overweight or Obese, Memphis, Tennessee & United States, 2003 - 2007



Source: Youth Risk Behavioral Surveillance Survey, 2003-2007, http://apps.nccd.cdc.gov/yrbss

Obesity has negative effects on pregnancy and birth outcomes.

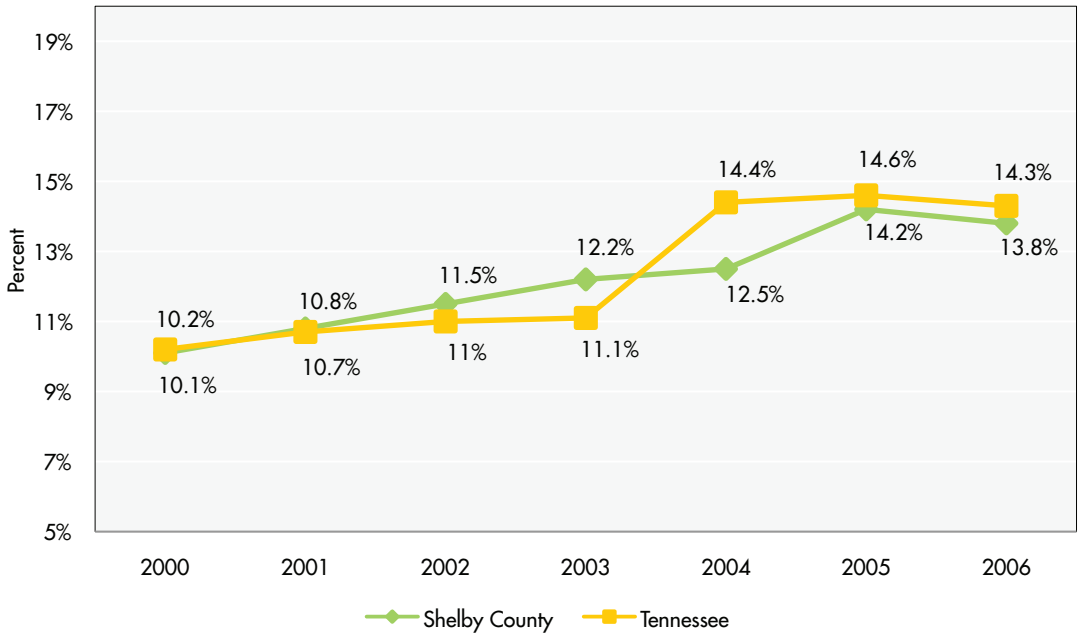
Research has shown that obesity increases the risk of adverse outcomes for both mother and baby, such as birth defects (especially neural tube defects), infertility, labor and delivery complications, fetal and neonatal death, hypertension, gestational diabetes and pre-eclampsia, and large-for-gestational-age (LGA) infants.

The dramatically increasing rates of obesity and pre-term births have led to recent attempts to find a link between the two. Findings suggest that while obesity may not be a direct cause of pre-term birth, it does increase rates of medical complications, such as hypertension and diabetes, that have been shown to contribute to pre-term birth (March of Dimes, 2005).

All women should gain weight during pregnancy (the amount depends on pre-pregnancy weight), but excessive weight gain can be harmful to both mother and infant, and may be difficult to lose after delivery. Too much weight gain can cause backache, orthopedic problems, increased varicose veins and fatigue. It may result in a LGA baby, increasing the risk of a cesarean birth and problems in the infant, such as birth trauma or low blood sugar.

The percentage of women in Memphis and statewide reporting pregnancy weight gain of more than 50 pounds (excessive at any pre-pregnancy weight) has risen significantly since the year 2000.

Figure 13: Percentage of Women Gaining 50 lbs. or More During Pregnancy, Shelby County & Tennessee, 2000-2006

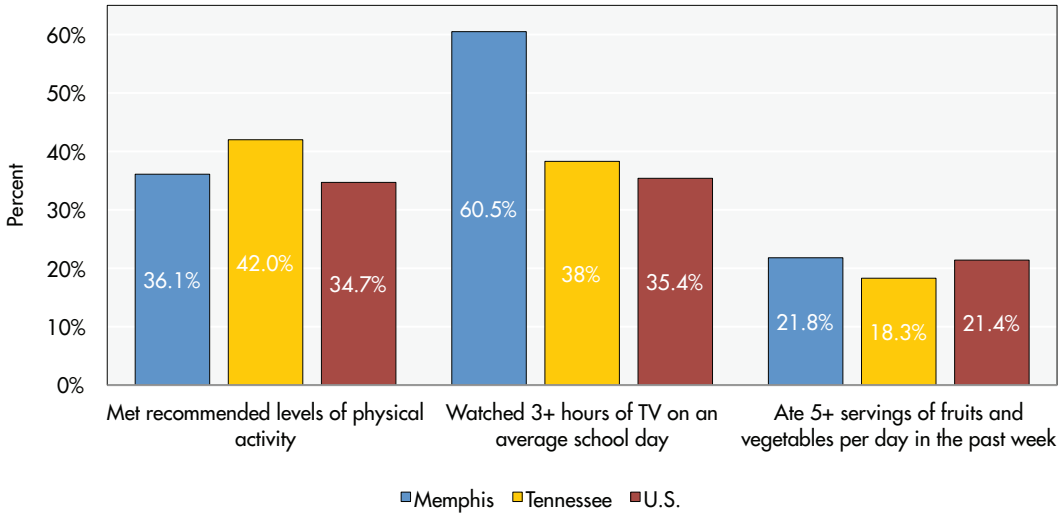


Source: Tennessee Department of Health, Office of Policy, Planning and Assessment, Division of Health Statistics, Birth Certificate Data, 2000-2006

Poor nutrition, sedentary behaviors, and lack of physical activity among Memphis youth contribute to the obesity epidemic.

In 2007, only 36 percent of MCS high school students and 42 percent of students across the state reported adequate levels of physical activity. Although both Memphis and Tennessee saw an increase of almost ten percentage points from 2005 to 2007, the numbers remain far too low.

Figure 14: Percentage of High School Students by Diet and Exercise, Memphis, Tennessee & United States, 2007



Source: Source: Youth Risk Behavioral Surveillance Survey, 2007, http://apps.nccd.cdc.gov/yrbss/SelHealthTopic.asp

Physical activity can help prevent or manage childhood obesity and its effects.

Exercise has been shown to promote fat loss and improve psychological well being. Physical activity is also associated with other health benefits, including a reduced risk of premature death, coronary heart disease, hypertension, colon cancer, diabetes mellitus, depression and anxiety (Parizkova, Maffeis & Poskitt, 2002; U.S. Department of Health and Human Services, 1996).

Sedentary behaviors, particularly television viewing, have also been blamed for our childhood obesity epidemic. More than 60 percent of MCS high school students reported viewing three or more hours of TV on an average school day. Research has shown that black and Hispanic children and adolescents tend to participate in fewer vigorous activities and more sedentary activities than whites, with differences noted as early as elementary school (Koplan, Liverman & Kraak, 2005). These behaviors may cause the differences reported by Memphis students as compared to students across the state (see Figure 14).

About one in five students locally and statewide reported eating more than five servings of fruits and vegetables per day. Although this may seem like a minor health related behavior it likely has significant public health implications. Fruits and vegetables contain essential vitamins, minerals and fiber that may provide protection from chronic diseases such as heart disease, stroke and cancer by up to 20 percent. In addition, eating fruit and vegetables can increase fiber intake, reduce fat intake and help to maintain a healthy weight (U.S. Department of Health and Human Services and U.S. Department of Agriculture, 2005).

Nutrition is especially important for young women. Some fruits and vegetables are also good sources of folate (*e.g.*, green leafy vegetables and oranges), and all women of child-bearing age are recommended to increase their consumption of foods naturally rich in folate and foods fortified with folic acid to prevent the development of spinal tube defects (March of Dimes, 2009a).

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Data

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Family and Home Environment

Where children are concerned all households are not created equal.

There are two realities for children born in Shelby County. Some children grow up in families with both parents present. One or both parents work, the family has enough income to thrive, and the community is supportive and safe. Other children grow up in families with only one parent present. Changing residences and schools frequently is the norm. The family is likely to be in poverty, and the parent is likely to face high barriers to earning an adequate income. Crime is ever-present, and neighborhoods are unsafe.

We know that not all children have access to the same early environments and experiences. Many children in our community grow up in fractured families that are made vulnerable by poverty. Parents with low levels of education, especially those who have not completed high school, have higher barriers to steady employment than do better-educated parents. As a result, they are more likely to confront poverty and to rely on public assistance to supplement their family incomes. Parents' education levels also correlate closely with children's academic success and overall well-being.

Research shows consistently that the well-being of children is affected primarily by family income, family structure and parents' education level. Children fare best when:

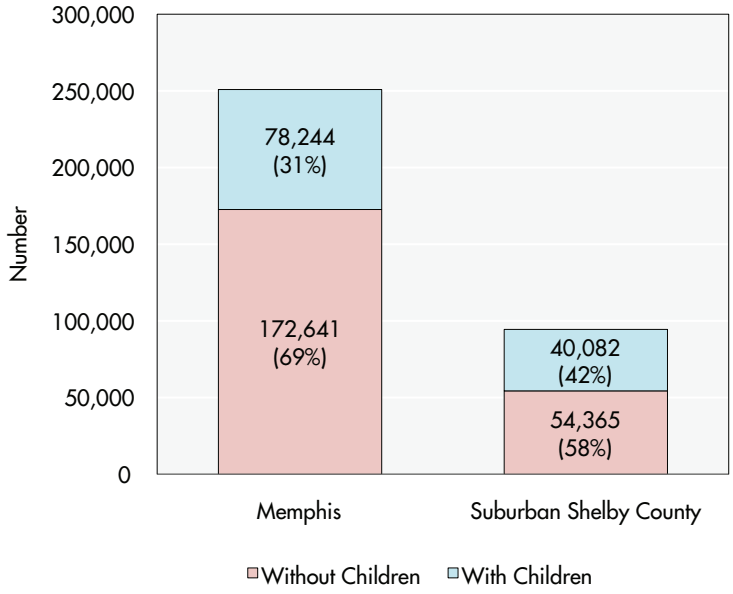
- They are raised in stable families with both parents present (McLanahan & Sandefur, 1994; Parcel & Dufur, 2001).
- Parents are educated (Child Trends, 2004) and have a steady income that adequately meets the needs of the entire family (Menaghan & Parcel, 1991; Taylor, Dearing, & McCartney, 2004).
- Their families have access to health care (Dubay & Kenney, 2001).
- They live in communities that are safe, and where neighbors value and respect each other (Coulton & Korbin, 2007; Vandivere *et al.*, 2006).

Families with children are a shrinking minority.

In 1956 a majority of U.S. households included children under 18. Parental involvement with school and community programs, such as parent-teacher organizations, was at an all-time high (Putnam, 2000). In 2007 only one in three of the more than 100 million households in the U.S. included a child under 18. In too many households without children, out-of-sight means out-of-mind. Adults who have infrequent contact with children are less likely to place a priority on the well-being of children (Imig, 2006). As the numbers of households with children in our community decline it is difficult to maintain an effective public voice for children.

Consistent with national trends, only one in three households in Memphis and Shelby County has children under 18 present. The proportion is slightly higher (two in five) in suburban Shelby County (Figure 1).

Figure 1: Number and Percentage of Households by Presence of Children, Memphis & Suburban Shelby County, 2007

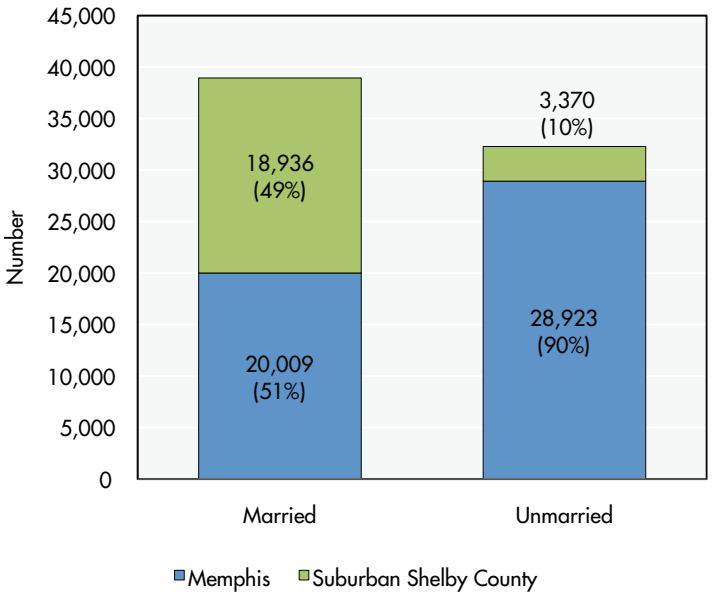


Source: American Community Survey, 2007, C11005

In Shelby County, 90 percent of very young children in single parent homes live in Memphis.

Children in suburban Shelby County are much more likely than children in Memphis to live with two parents. 55 percent of very young children (under six years) in Shelby County live with two married parents. Roughly half of these children live in the City of Memphis, and half live in suburban Shelby County. However, among children being raised by single parent families in Shelby County, nine out of ten live in Memphis (Figure 2).

Figure 2: Number and Percentage of Children Under 6 Years by Family Type, Memphis & Suburban Shelby County, 2007



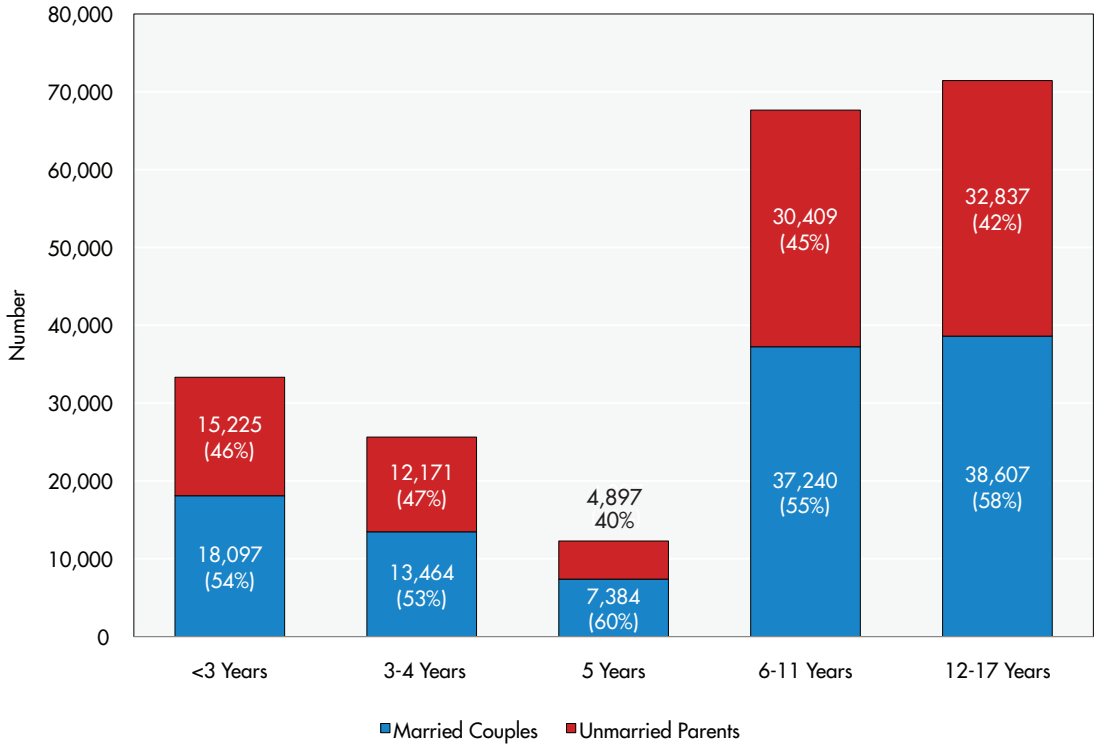
Source: American Community Survey, 2007, B0900

In 2007, one-third of children in Shelby County were younger than six, one-third were between six and 11, and one-third were between 12 and 17 (Figure 3). Across Shelby County children were more likely to live with married parents (55%) than with a single parent (45%). However, there are important differences between Memphis and suburban Shelby County. Only 40 percent of Memphis children live with married parents, compared to 82 percent of children in suburban Shelby County.

What happens in early childhood sets the stage for a child's life.

Living arrangements affect the cognitive, social, emotional, physical and intellectual development of very young children. As children grow and develop, they benefit from the continued support and presence of two or more caring, stable adults in their lives. "[G]rowing up with only one biological parent frequently deprives children of important economic, parental, and community resources, and…these deprivations ultimately undermine their chances of future success" (McLanahan & Sandefur, 1994, p. 3).

Figure 3: Number and Percentage of Children by Living Arrangement and Age, Shelby County, 2007



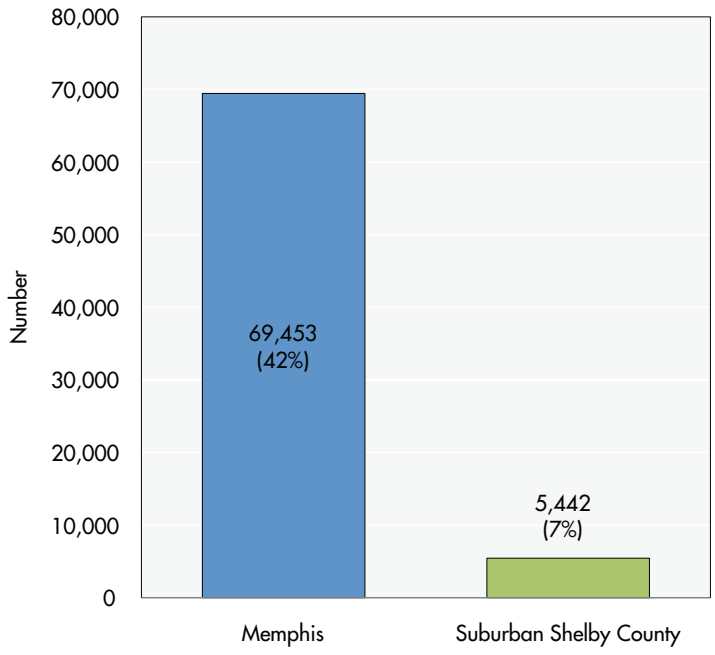
Source: American Community Survey, 2007, B09002

Across Shelby County one in four children lived in poverty in 2007.

For children, being poor means more than economic deprivation. Careful research demonstrates that poverty negatively affects intellectual and behavioral development. Poor children receive less cognitive stimulation at home than middle income children, and the stressors associated with poverty hinder parents' ability to engage in effective parenting (Guo & Harris, 2000).

In the City of Memphis more than one out of three (69,453) children lived in poverty, as defined by the Federal Poverty Level (FPL). In Shelby County outside of Memphis fewer than one ten (7,174) children lived in poverty (Figure 4). FPL for a family of four is $20,650 per year.

Figure 4: Number and Percentage of Children in Poverty, Memphis & Suburban Shelby County, 2007

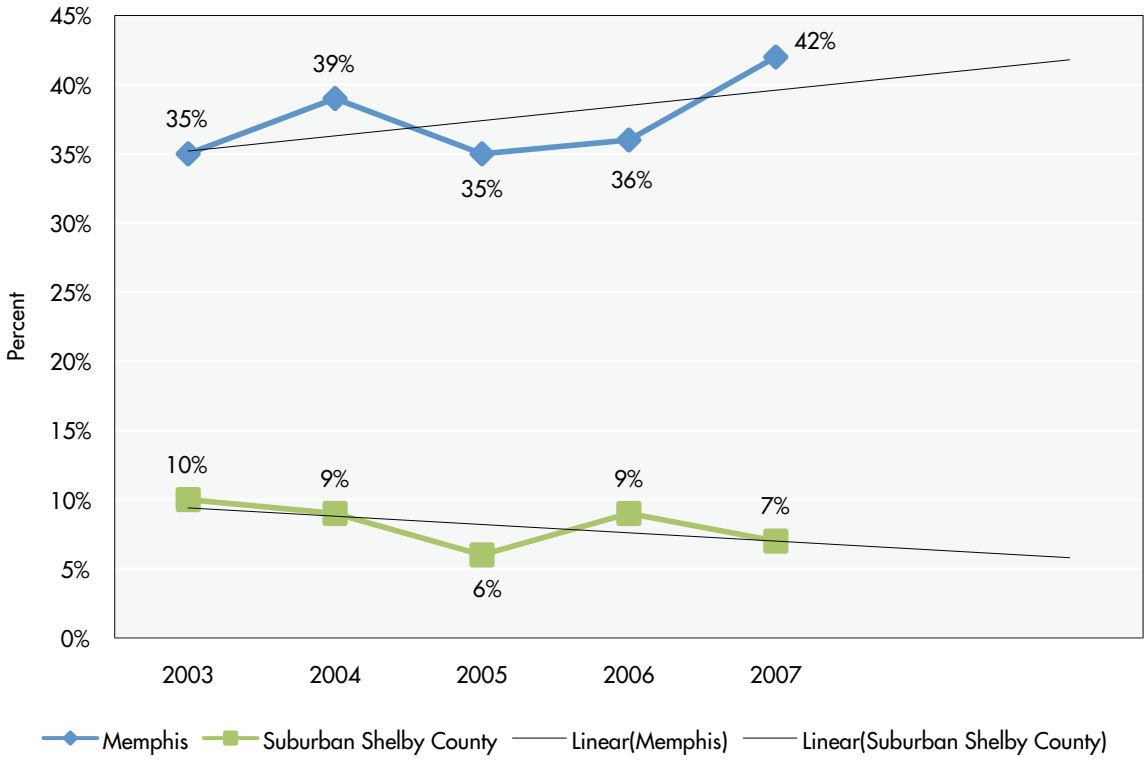


Source: American Community Survey, 2007, C17001

Poverty is on the rise in Memphis.

While poverty appears to be declining in suburban Shelby County, it is on the rise in Memphis. Between 2003 and 2007, the percentage of children in poverty dropped from ten percent to seven percent beyond the city limits while in Memphis it rose from 35 to 42 percent (Figure 5).

Figure 5: Percentage of Children in Poverty, Memphis & Suburban Shelby County, 2003-2007



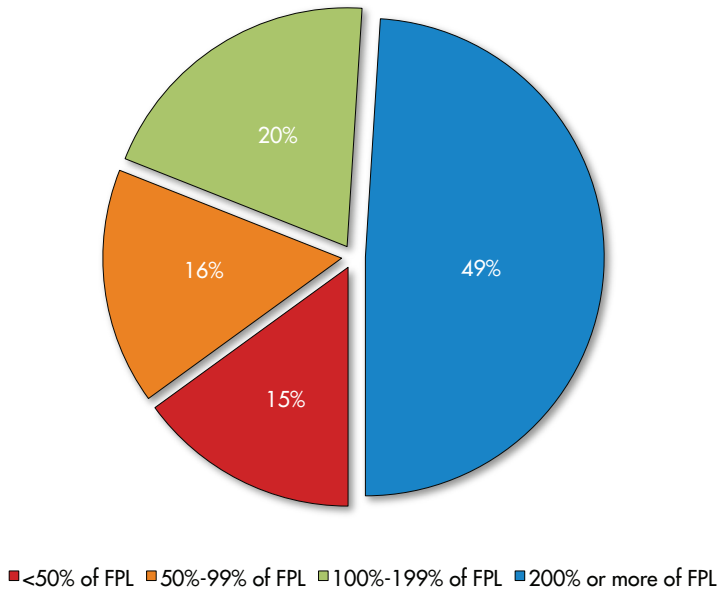
Source: American Community Survey, 2003-2007, C17001

The Federal Poverty Level paints an incomplete picture of children living in poor families.

Critics of the FPL claim that it does not accurately reflect the impact of household expenses such as child care and out-of-pocket medical payments. Research undertaken by the U.S. Census Bureau shows that an improved measure of poverty would show a larger proportion of working parents and married families living in poverty. "Overall, full-time working families fare less well according to the experimental measures than the official poverty rate suggests" (Iceland, 2000, p. 6). Because of these limitations, researchers often find it helpful to consider two additional groups: those living in extreme poverty (below 50% of FPL) and those who are considered low income (between 100 and 200% of FPL).

In 2007, one in five Shelby County children lived in low income families. About 30 percent lived in poverty, with half of these living in extreme poverty (roughly $10,000 in annual income for a family of four). Only half of Shelby County children lived in families above the low income threshold (Figure 6). These families are generally regarded as economically secure.

Figure 6: Percentage of Children by Living Standard, Shelby County, 2007



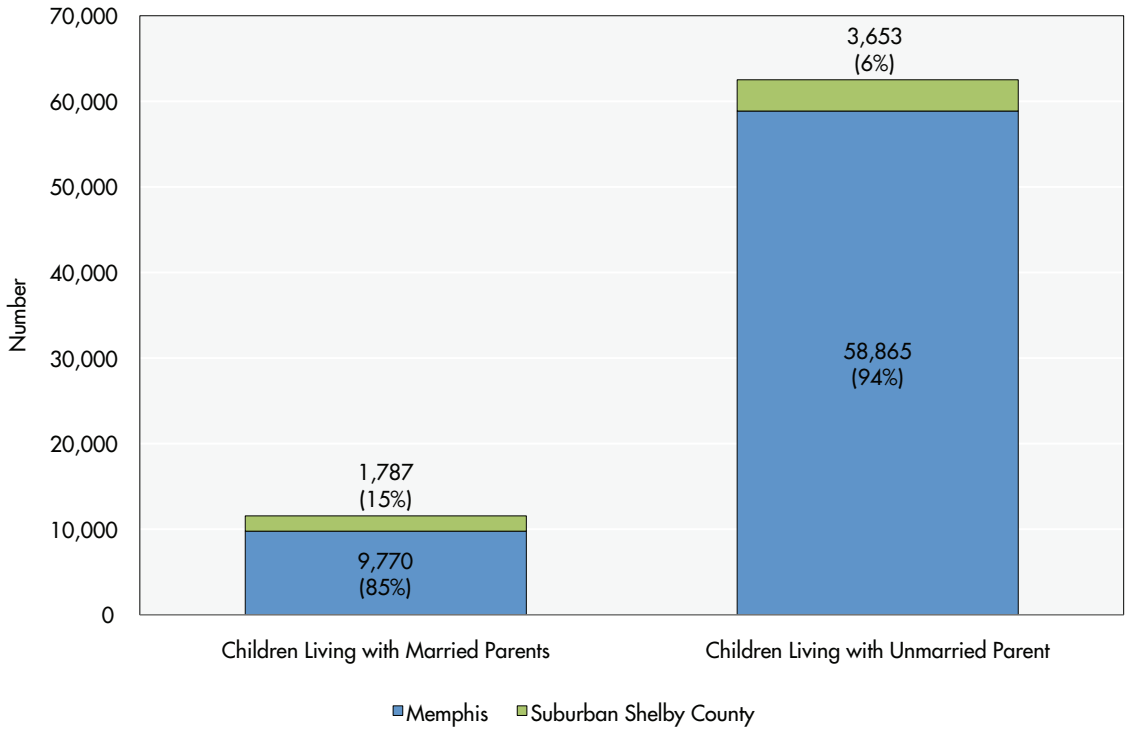
Source: American Community Survey, 2007, B17024

Children in two-parent families are much less likely to live in poverty.

Economically, single parent and two-parent families are very different. Of the nearly 75,000 children in Memphis and Shelby County living in poverty, only 16 percent lived with married parents (Figure 7). Children of single parents not only face economic disadvantage, but also perform less well than children of married parents on cognitive and behavioral measures (Carlson & Corcoran, 2001) and have lower chances of educational success (Raley, Frisco, & Wildsmith, 2005).

Research suggests that 40-50 percent of single mothers are cohabiting at the time of their child's birth (Bumpass & Lu, 2000; Sigle-Rushton & McLanahan, 2002). While these households may have the advantage of two potential incomes, outcomes for children in cohabiting families are more similar to those of children of single parents than to those of children in married families (Brown, 2002; Osborne, 2007).

Figure 7: Number and Percentage of Children in Poverty by Living Arrangement, Memphis & Suburban Shelby County, 2007



Source: American Community Survey, 2007, C17006

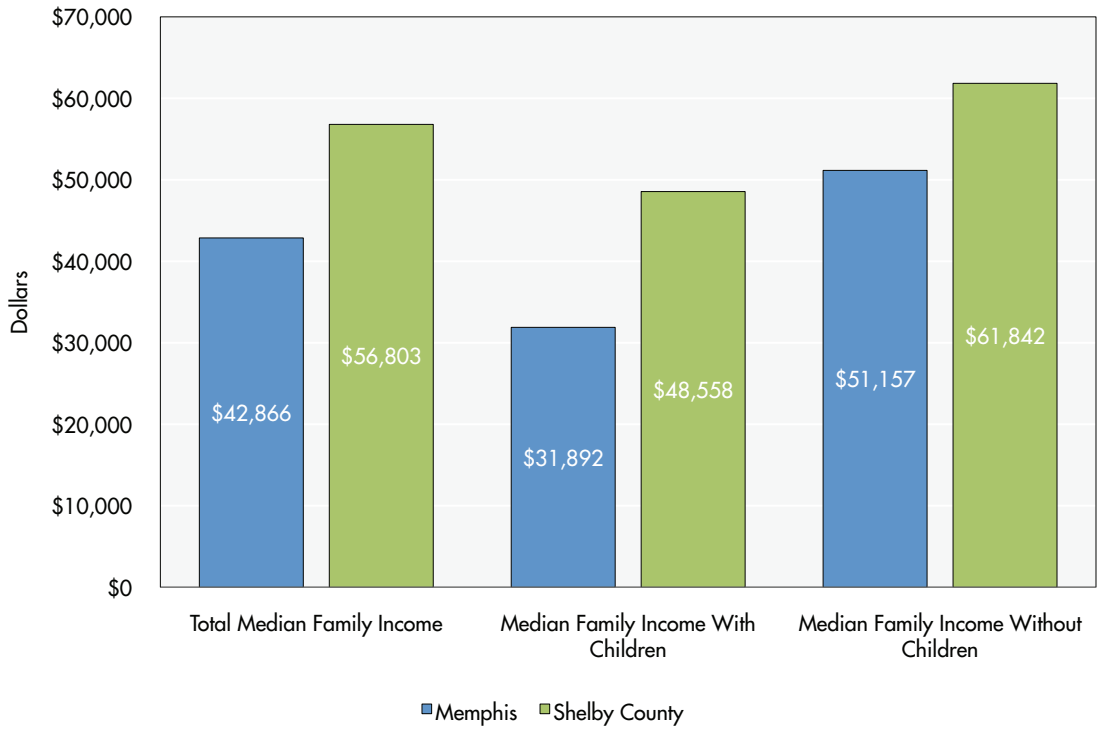
Family income is a good measure of child well-being.

Families with sufficient incomes have more resources available for child care, transportation, health care, and other components of a stable environment for children. Too often, children raised in low-income and poor families lack access to these resources. In addition, poor children are exposed to a smaller vocabulary at home and are less likely to spend time reading with their parents and caregivers. By the time they reach school, they are at a disadvantage, which translates into greater numbers of academic and behavioral problems (Ginther & Pollack, 2004; Lee & Burkham, 2002; Thomson, *et al.*, 1994).

In 2007, median income for families with children in the City of Memphis was $31,892 per year. A family of four including two children needed to earn about $42,000 to be considered above low income (200% of FPL) (Figure 8).

Across Shelby County, median income for families with children was $48,558 per year (Figure 8).

Figure 8: Median Family Income by Presence of Children, Memphis & Shelby County, 2007



Source: American Commmunity Survey, 2007, B19125

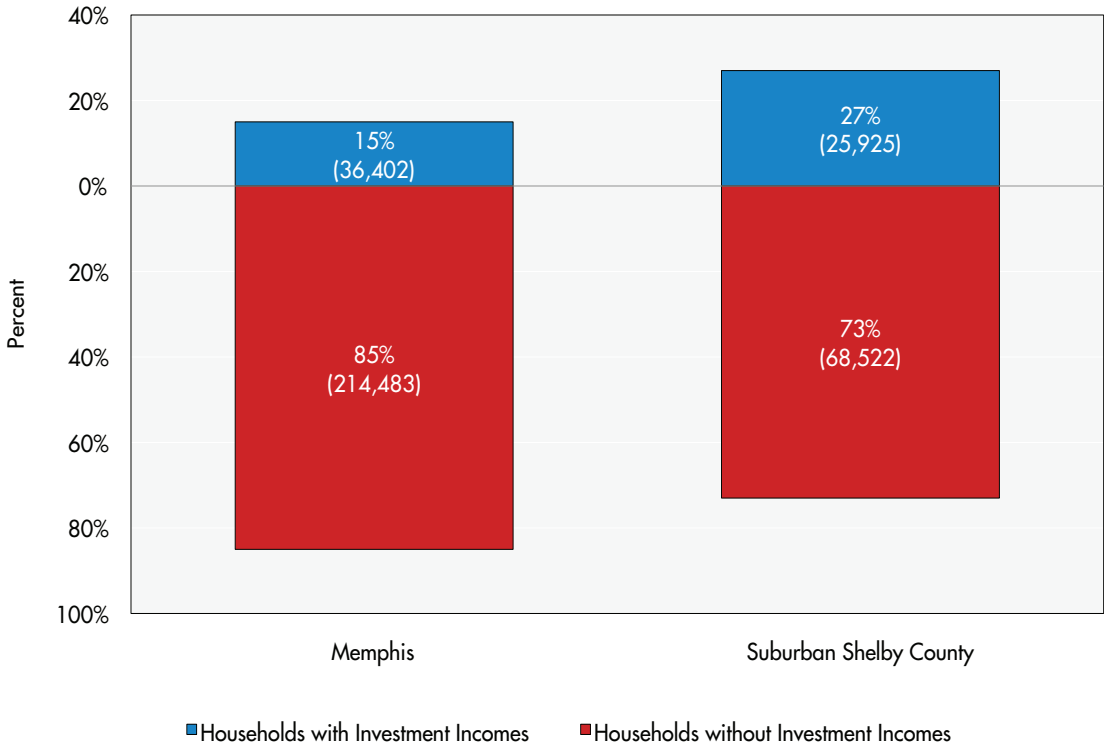
Most Shelby County families do not have a financial "safety net."

Less than 20 percent of Shelby County families have income other than earnings—for example, interest from savings or bonds, dividends from stocks, or income from rental property. This type of income is a good measure of a family's financial safety net—assets that allow a family to withstand fluctuations in the economy, temporary unemployment, unforeseen medical expenses, and other setbacks.

In Memphis, only 15 percent of families report some investment income; in suburban Shelby County, 27 percent had some investment income. 75 percent of Shelby County families without a safety net lived in Memphis (Figure 9).

Low rates of savings in Memphis and Shelby County also highlight other community problems, such as the reliance on check-cashing agencies instead of banks. Using a bank to manage family income helps to establish a credit record which, in turn, makes it easier to secure credit and purchase a home. In the wake of the sub-prime mortgage lending crisis, a strong credit history is more critical than ever for working families.

Figure 9: Number and Percentage of Households by Presence of Investment Income, Memphis & Suburban Shelby County, 2007



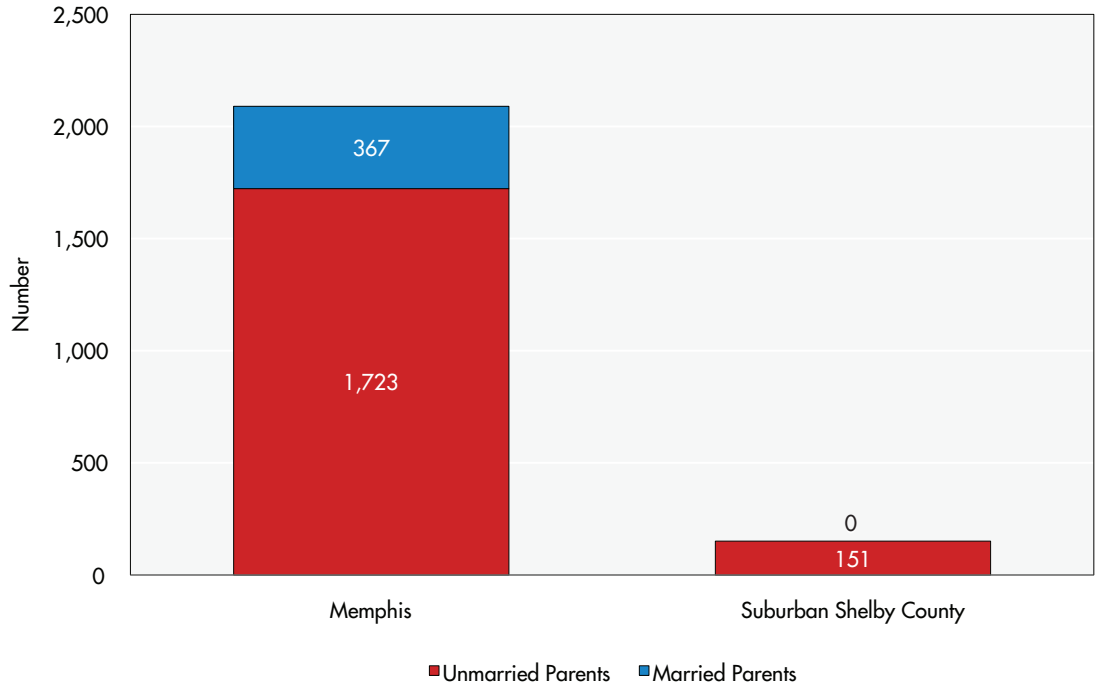
Source: American Community Survey, 2007, B19054

Public assistance is vital for poor children and their families.

Economically vulnerable families in Shelby County rely on government subsidies to make ends meet, and single parents raising children comprise the bulk of public assistance recipients in our community. However, public assistance is at best only a temporary solution for poor families; Families First, Tennessee's version of the Federal Temporary Assistance for Needy Families program, allows a lifetime total of 60 months of benefits for those who are eligible (TN DHS, 2008).

Corresponding to the distribution of poor families, the majority of public assistance recipients in Shelby County live in Memphis (Figure 10).

Figure 10: Number of Families in Poverty with Supplemental Security Income and/or Cash Assistance by Family Type, Memphis & Suburban Shelby County, 2007



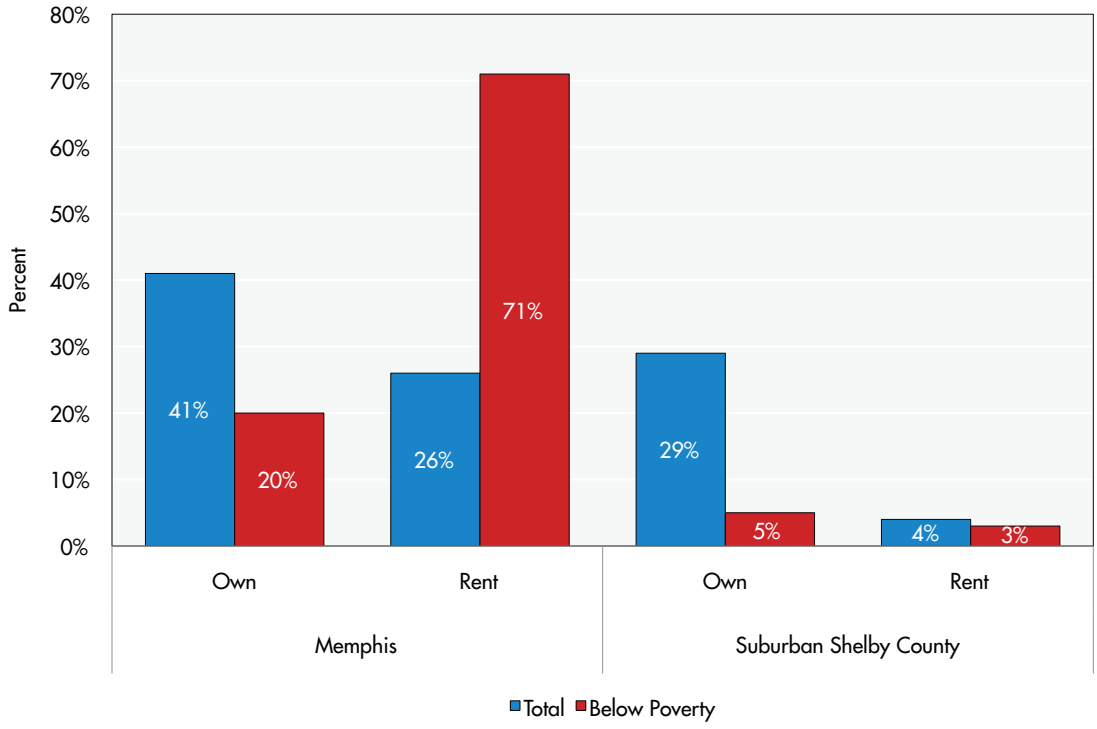
Source: American Community Survey, 2007, B17015

Family and child well-being are affected by housing instability.

Across Shelby County, over two-thirds of families own their homes. Among families in poverty, only one in four owns its home (Figure 11). In Memphis and Shelby County, housing status is an indicator of residential stability, which in turn affects child outcomes. Children being raised by single parents may be affected more negatively by family mobility than those who live with both parents (Tucker, Marx, & Long, 1998).

High rates of mobility make it difficult for families and neighborhoods to build social capital (McLanahan & Sandefur, 1994). When children change schools often, their chances of academic success are lowered (Hofferth, Boisjoly, & Duncan, 1998), and residential mobility may account for a large part (roughly 20-30%) of the difference in educational outcomes between children in traditional families and those in single parent families or step-families (Astone & McLanahan, 1994).

Figure 11: Percentage of Households in Poverty by Tenure, Memphis & Suburban Shelby County, 2007



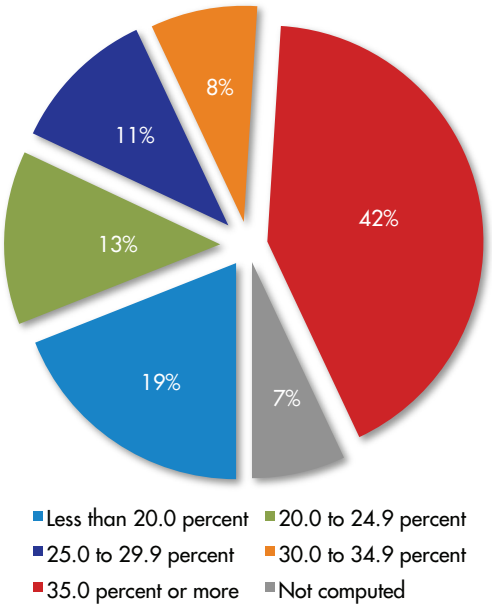
Source: American Commmunity Survey, 2007, B17019

Memphis families are more likely than Shelby County families to rent their homes.

In Memphis, almost 40 percent of families rent, compared to 12 percent in suburban Shelby County, and this pattern is reflected in Memphis schools. In Memphis City Schools the average stability rate is about 70, meaning that 30 percent of students do not finish the school year in the same school in which they started. In 58 schools, one-third of all students changed schools at least once during the 2007-2008 school year (MCS, 2008). Changing schools has been linked to lower academic performance and increased risk of dropping out (Pribesh & Downey, 1999; Rumberger & Larson, 1998).

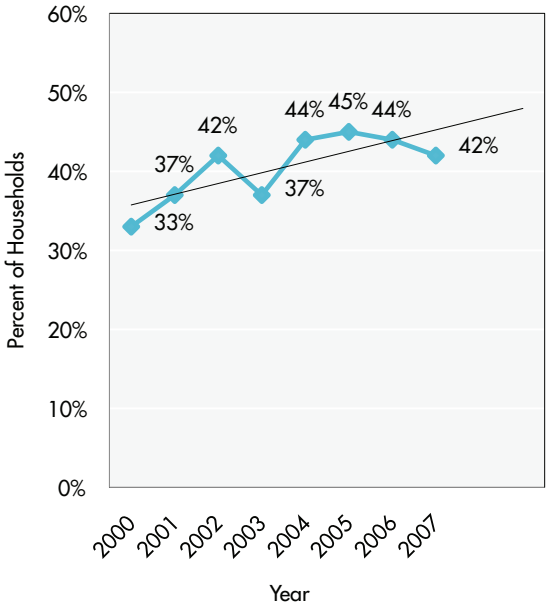
According to federal guidelines, a typical family will spend no more than 30 percent of its income on rent (Citro & Michael, 1995). In spite of the fact that Shelby County is one of the least expensive housing markets in the U.S., half of families in Shelby County who rent their homes spend 30 percent or more of their income on rent (Figure 12). Median rent in Shelby County in 2007 was $743 per month. Moreover, the percentage of families that spend more than 35 percent of their income on rent has risen since 2000 (Figure 13).

Figure 12: Percentage of Household Income Spent on Rent, Shelby County, 2007



Source: American Community Survey, 2007, B25070

Figure 13: Percentage of Households who Spent 35 Percent or More of Their Gross Income on Rent, Shelby County, 2007



Source: American Community Survey, 2000-2007, B25070

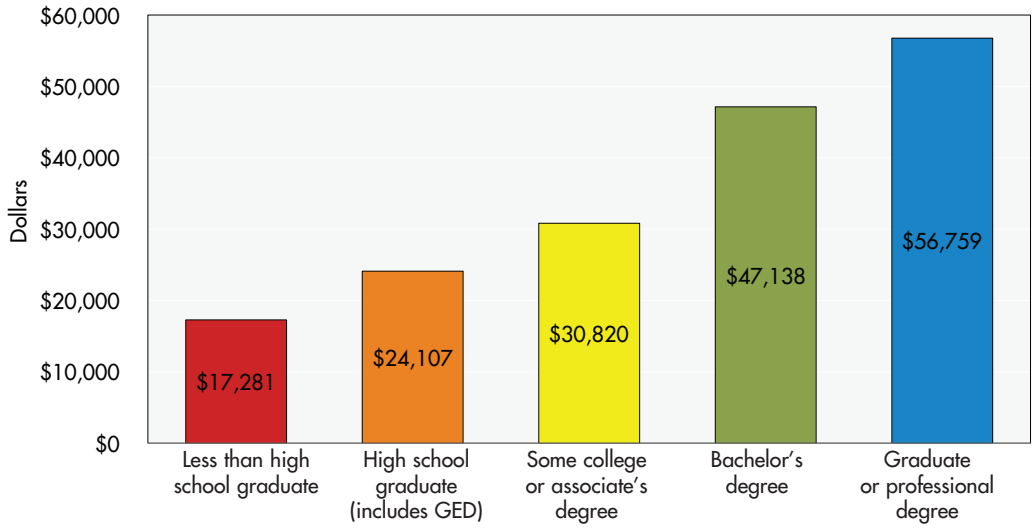
Education can mean the difference between poverty and success.

More education means more income. Nationally, high school graduates earn 40 percent more than non-graduates. Attending college raises income further, even for those who do not graduate, and the income gap between Americans with a college degree and those with only a high school diploma has been growing in recent decades (Day & Newburger, 2002). Shelby County parents without a high school education earn near-poverty wages, while workers with high school diplomas earn above the poverty level. Median income for workers without a diploma was just over $17,000 (Figure 14); the poverty level for a family of four is $21,027.

In Memphis, earnings are slightly lower; median income for those without diplomas is $16,987. A single parent without a diploma raising two children will earn just over the poverty level for a family of three ($16,705).

In Shelby County, the return on education is higher than the national average. High school graduates who attend some college increase their earnings by 28 percent; for those who earn a bachelor's degree the increase is 96 percent (Figure 14). The national averages are 22 percent and 74 percent, respectively.

Figure 14: Median Annual Income by Educational Attainment, Shelby County, 2007



Source: American Community Survey, 2007, B20004

Aside from raising annual income, education can have far-reaching advantages.

Education has multiple benefits. Women's risk of a nonmarital birth decreases as educational attainment and income increase (Driscoll *et al.*, 1999; Upchurch, Lillard, & Panis, 2002). Furthermore, a mother's educational attainment is a good predictor of a child's overall life outcomes and success (Baydar, Brooks-Gunn, & Furstenberg, 1993; Duncan & Magnuson, 2005).

Research has shown that mothers with more education and more complex and rewarding work are able to provide a more stimulating home environment than other working mothers (Menaghan & Parcel, 1991). For example, better-educated mothers are more likely to read to their children every day (Child Trends, 2008).

Early childhood interventions benefit multiple generations.

What happens in the first years of life is critically important to subsequent outcomes for children. Our community can have a powerful positive influence by investing in early childhood interventions that have demonstrated success in improving the well-being of young children and their families. Best practices and proven interventions that reduce the effects of family and community poverty show tremendous results when implemented and fully funded. These programs raise test scores (Gormley, Gayer, Phillips, & Duncan, 2005), help deter crime (Olds *et al.*, 1998), and encourage at-risk children to stay in school (Barnett, 1985) and delay parenthood (Allen, Philliber, Herrling, & Kuperminc, 1997).

- Children benefit directly from quality learning experiences.
- Parents benefit by being able to work with the peace of mind that their children are receiving quality child care in a healthy learning environment.
- Future generations benefit when we intervene early to break the cycle of poverty, setting young children on a pathway to success in school and in life.

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Children's Educational Well-Being

80 percent of an individual's brain development occurs between birth and age three, and early environments can either stimulate or hinder effective brain development. Nearly 85 percent of mothers in the U.S. work, as do 65 percent of mothers with children under the age of three. As is true across the country, many children in Shelby County spend a significant part of each day in the care of adults other than their parents.

The growing reliance on child care is a product of shifts in family structures and changing patterns of workforce participation (Heymann, Penrose & Earle, 2006). More than half of the children born in Shelby County each year are born to single mothers who rely on a network of formal and informal child care providers so that they are able to work. Large numbers of married parents also depend on child care because both parents are working. Additionally, even when parents are not in the workforce they may place their children in pre-school in order to provide them with high-quality early learning experiences.

Because these early environments play a large role in children's future academic outcomes, assessing the educational well-being of our children means considering both school and pre-school experiences. Accordingly, this chapter is divided into two parts. The first examines the availability, affordability, and quality of child care in Shelby County; the second evaluates the performance of Memphis City Schools in the context of state and national standards.

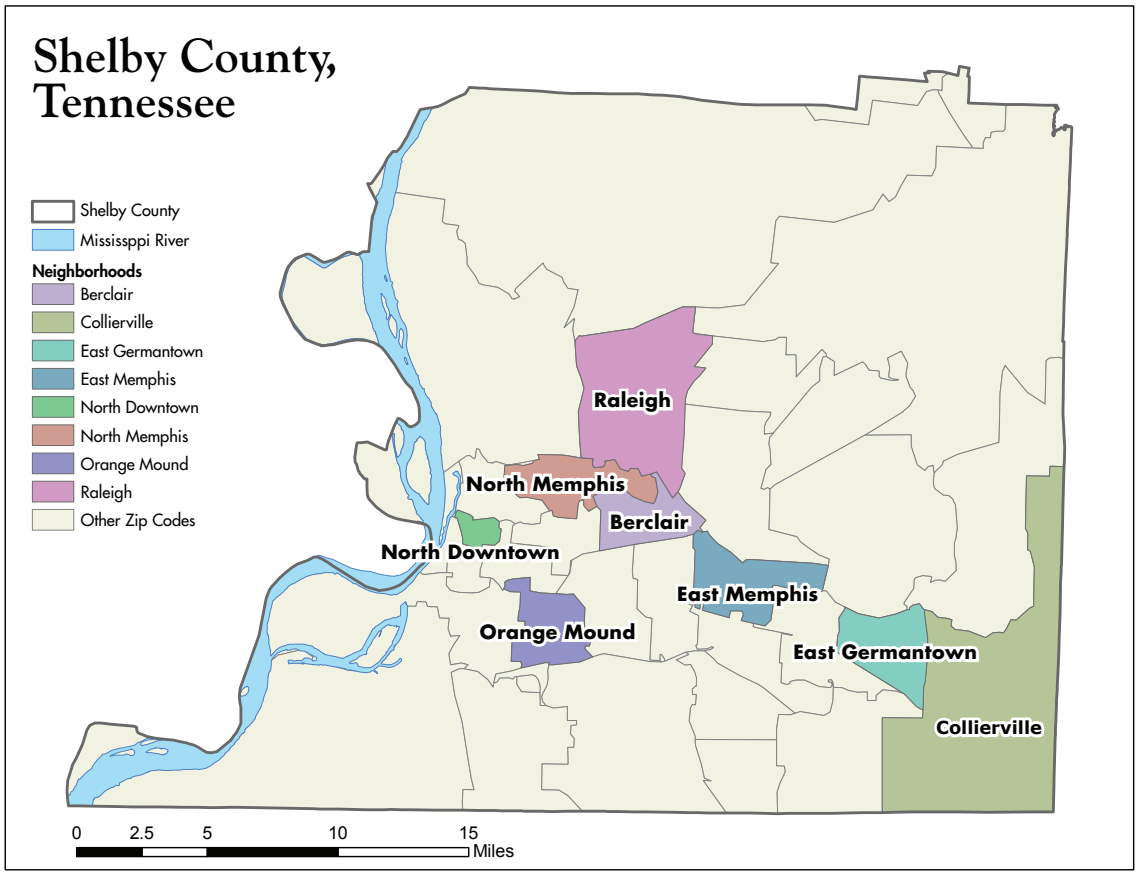
Quality child care benefits children and their families.

Child care plays a dual role for families. First, parents are better able to maintain steady employment and provide for their families when affordable, high quality child care is available (Kimmel, 1998). This is especially important for low income parents, whose jobs tend to permit less flexibility (Heymann, Penrose & Earle, 2006). Second, quality child care can improve children's cognitive and social skills, ensuring that they are prepared to enter kindergarten, and is associated with increased academic performance and fewer behavioral problems in the elementary school years (Peisner-Feinberg *et al.*, 2001). Research also suggests that poor children may have the most to gain from access to quality care (Fuller, Kagan, Caspary, & Gauthier, 2002; Wolfe & Scrivener, 2003).

Given the relationship between children's early experiences and their subsequent outcomes, attempts to measure the well-being of young children and their families in our community should include an understanding of the network of care provided to our children beyond time spent with parents.

Research on child care typically focuses on three domains: accessibility, affordability, and quality (*e.g.*, Kisker & Ross, 1997). Lack of accessibility can be a barrier to obtaining care if providers are not conveniently located or do not accommodate parents' scheduling needs. Similarly, child care is not an option if its cost exceeds the family's ability to pay or represents too high a percentage of the family's income. Finally, parents need to know that their child care arrangements are providing a safe and nurturing environment for their children. If care is of low quality, potential cognitive and social benefits for children will be lost.

Figure 1: Eight Neighborhoods Surveyed for Child Care Options



We begin our assessment of child care in Shelby County by examining the demographic variations among neighborhoods, then asking whether there are significant differences in the availability, quality and cost of early childhood care that correspond with these variations. To address this question, we surveyed the range of child care options available in eight neighborhoods in Shelby County (Figure 1)[1]. These neighborhoods were chosen because their median family incomes (for families with children living at home) were markedly different, ranging from a low of $13,000 to a high of $161,000.

For the purposes of this report, we group child care providers into four types[2]:

- Private centers which provide care for 13 or more children
- Family child care homes that care for five to seven children
- Private pre-schools located in private schools that also serve older students
- Public pre-schools located in public schools also serving older students

1 For the purposes of this report, we defined neighborhoods by zip codes, although we realize that there may be important variations within zip codes.

2 With the exception of before and after care slots, the majority of the child care options in the county are for children from birth through age four. In keeping with our focus on young children, we have excluded before and after care slots from our assessment because they are primarily for school age children. The majority of brain development has occurred by the time children reach school age.

The need for child care varies among neighborhoods.

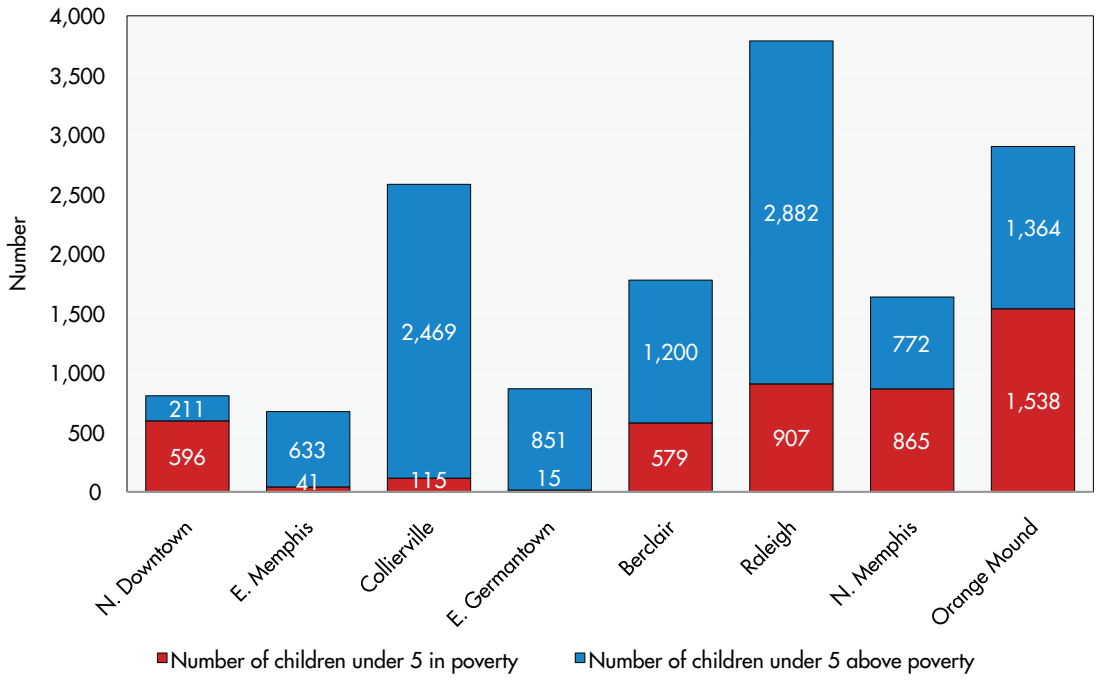
There are significant demographic variations among neighborhoods in Shelby County.

In 2000, 15,278 young children (under age five) lived in the eight neighborhoods included in our study (Figure 2).

- Over half of these children lived in Orange Mound, Berclair, or Raleigh, where 24-53 percent of children were living in poverty (Figure 2).

- Families with young children were more likely to live in lower-income neighborhoods (Figures 2 and 3).

Figure 2: Number of Children Under Five, by Poverty and Neighborhood, 2000



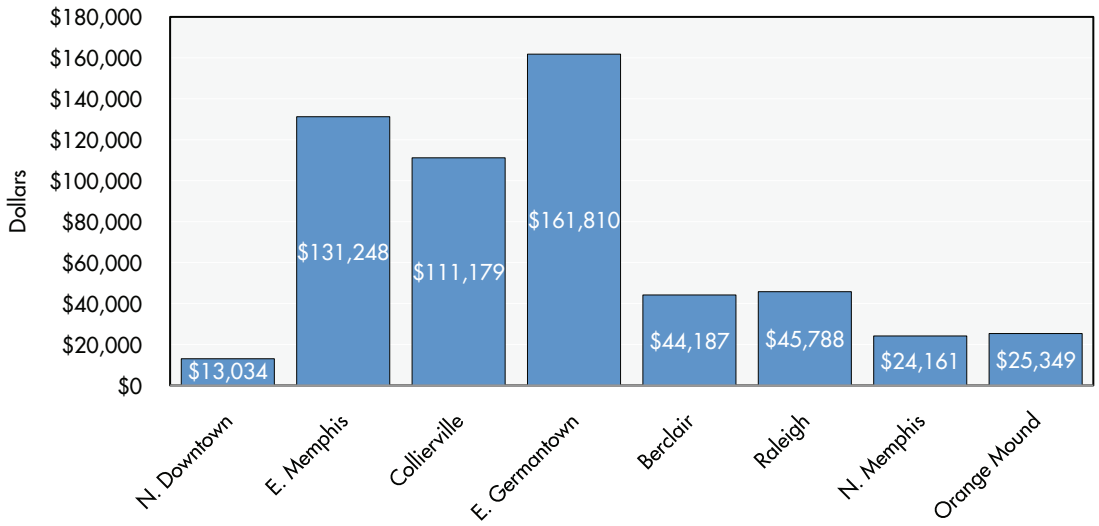
Source: US Census 2000, SF1 P12; SF3, P87.
http://factfinder.census.gov/home/saff/main.html?_lang=en

- There were also neighborhood-level variations in family structure that implied differing levels of child care needs and differing capacities to afford high quality care.

- The three neighborhoods with heavy concentrations of families headed by single parents were also the three poorest neighborhoods in the survey (North Downtown, North Memphis, and Orange Mound).

- East Memphis, Collierville, and East Germantown, the wealthiest neighborhoods, were characterized by the smallest concentrations of families headed by single parents (not shown) and the smallest concentrations of young children (Figure 2).

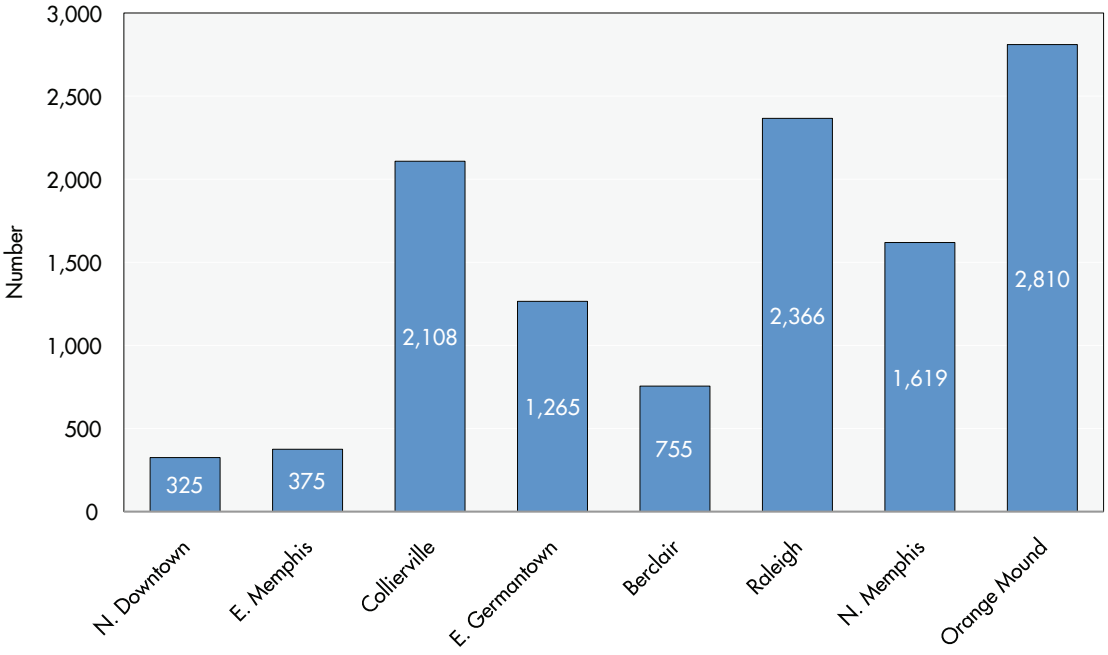
Figure 3: Median Income for Families with Children by Neighborhood, 2008



Source: US Census 2000, SF3, PCT39 (adjusted to 2008 dollars).
http://factfinder.census.gov/home/saff/main.html?_lang=en

Neighborhoods with more children have more child care slots.

Figure 4: Number of Child Care Slots by Neighborhood, 2008



Source: Tennessee Department of Human Services Child Care Providers Map.
http://www.state.tn.us/humanserv/childcare/79/prov.htm

At first glance, it is encouraging to note that the distribution of child care slots generally matches the distribution of young children (Figure 4); it appears that care is accessible in the areas where we would expect the highest need for it. Additionally, North Memphis and Orange Mound, high poverty neighborhoods where over half of families with young children were headed by single parents, had the greatest number of child care slots. (While North Downtown had the highest percentage of single parent families, it had comparatively few children.)

However, the mere availability of care is not a complete measure of how well an area is being served. The quality and affordability of care available vary widely between neighborhoods. For instance, child care which includes an educational focus was much more widely available in the two most affluent neighborhoods in our study (East Germantown and East Memphis) than in other areas. In the following sections we examine differences in quality and affordability across neighborhoods.

Even in wealthy neighborhoods, quality child care is scarce.

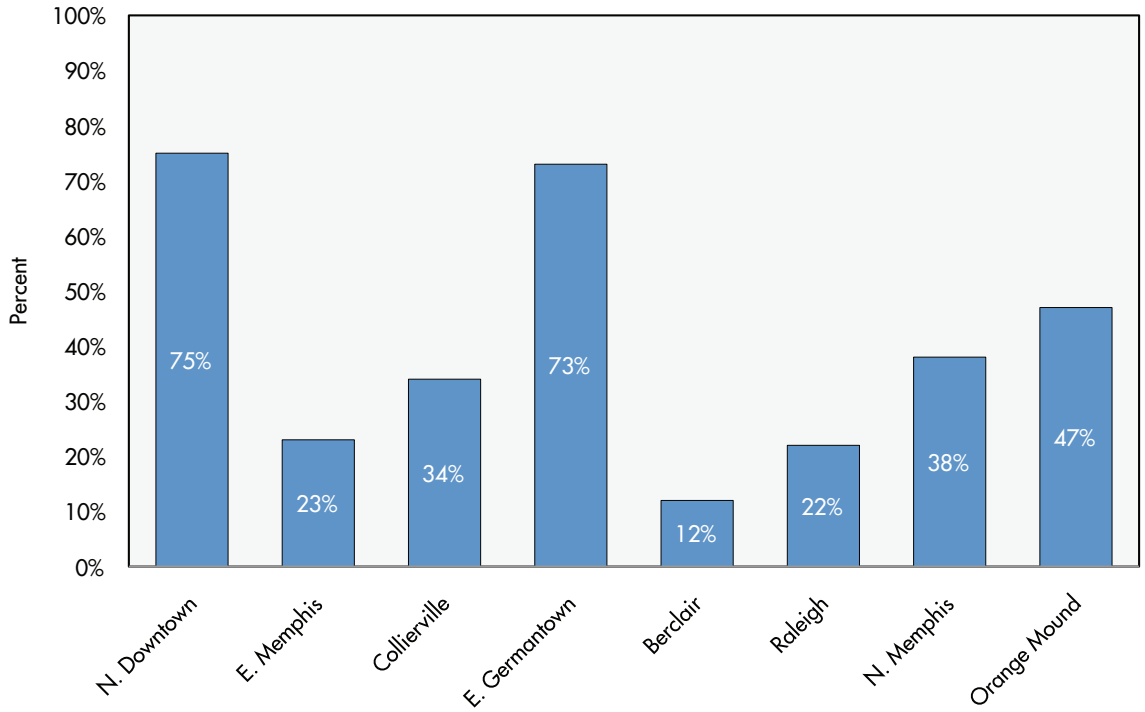
There are two available measures to evaluate the quality of child care in Shelby County:

- Tennessee's Star Quality Program is a voluntary program for child care providers that exceed the minimum state licensing requirements. Providers receive one to three stars, with three stars representing the highest quality rating.

- The National Association for the Education of Young Children (NAEYC) offers a voluntary accreditation program—available to most providers serving ten or more children—which evaluates centers according to several criteria, including curriculum quality, child health and safety, and teacher qualification.

Figure 5 indicates the availability of three-star care in each of the eight neighborhoods in our study. The number of available spaces in high quality centers differs widely across neighborhoods in Shelby County.

Figure 5: Percentage of 3-Star Child Care Slots by Neighborhood, 2008



Source: Tennessee Department of Human Services Child Care Providers Map. http://www.state.tn.us/humanserv/childcare/79/prov.htm
National Association for the Education of Young Children, http://www.naeyc.org/academy

In East Germantown, the wealthiest neighborhood in the study, 73 percent of the child care slots available for young children have the highest quality ratings of the state's star system. There also appears to be good news for low income children in this picture: in the poorest neighborhood, North Downtown, 75 percent of the available child care slots are in three-star centers.

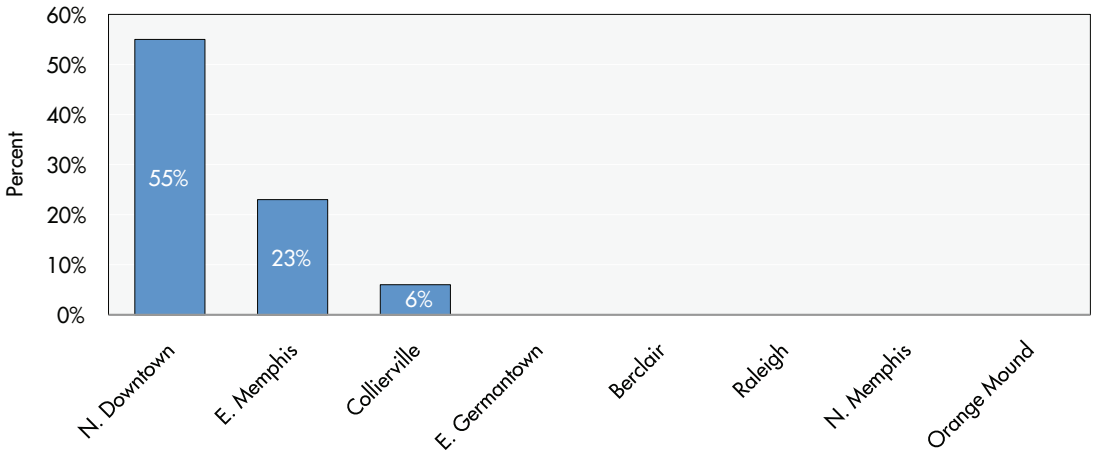
However, on closer inspection, these high quality child care slots in North Downtown may not be going to neighborhood residents. Many of the children attending pre-school in North Downtown are not the children of families in the area. Instead, they are the children of white-collar workers commuting into the city from outlying neighborhoods. For instance, the child care center at the University of Tennessee accounts for over half of the three-star slots in this neighborhood, but the center does not accept state child care subsidies. In order to enroll one child, a neighborhood family would have to pay 71 percent of the neighborhood's median annual income for families with children.

Moreover, Tennessee's Star Quality system is an imperfect measure of child care quality. An independent report has found that while the program has generally improved the overall quality of child care, there are numerous problems. For example, star ratings often do not match actual quality of care, parents are not well-informed about the program, and there are issues of fairness and consistency in the administration of the program (Pope, Denny, Homer, & Ricci, 2006).

NAEYC accreditation, based on nationwide standards, is a more reliable indicator of high quality. Independent studies find that accredited providers are superior to non-accredited ones, and that NAEYC standards are an advance over most state standards (Helburn, 2003; Whitebook & Sakai, 2004). Unfortunately, NAEYC-accredited providers are rare in Shelby County, representing only four percent of eligible child care centers.

As Figure 6 shows, NAEYC-accredited care is available in only three of the eight neighborhoods included in our study. With one exception—North Downtown—the lower-income neighborhoods had no NAEYC-accredited care. However, in North Downtown the only two providers which are certified by NAEYC are the University of Tennessee Child Care Program, which is beyond the means of most neighborhood residents, and Hope House, which specializes in the care of children with HIV or AIDS.

Figure 6: Percentage of NAEYC-accredited Child Care Slots by Neighborhood, 2008



Source: Center for Urban Child Policy, The Urban Child Institute

Working class parents pay the highest share of their income for quality child care.

Figure 7: Characteristics of the Neighborhoods Where Children Live

	North Downtown	East Memphis	Collierville	East Germantown	Berclair	Raleigh	North Memphis	Orange Mound
Average Weekly Cost of 2 Star Care	n/a	n/a	$175	n/a	$115	$133	$109	$109
% of Median Family Income	n/a	n/a	8%	n/a	13%	15%	23%	21%
Average Weekly Cost of 3 Star Care	$147	$176	$179	$214	$119	$147	$114	$114
% of Median Family Income	57%	7%	8%	7%	13%	16%	24%	22%
Average Weekly Cost of NAEYC Accredited Care	$185	$176	$198	n/a	n/a	n/a	n/a	n/a
% of Median Family Income	71%	7%	9%	n/a	n/a	n/a	n/a	n/a

Table 1 presents information on the cost of early childhood care by level of quality. The results underscore an important aspect of affordability in our current child care system: the most economically advantaged parents pay a smaller percentage of their income for high quality care than do other parents. In the three most affluent neighborhoods we surveyed, high quality child care was provided at the highest cost per child, but at the lowest percentage of median family income for families with children. Three-star care in these three neighborhoods costs seven to eight percent of annual income. In comparison, families in the working class neighborhoods of Raleigh and Berclair pay 16 and 13 percent of median family income, respectively, for three-star child care.

In the poorest neighborhoods included in this study, 20-40 percent of available child care slots are in three-star facilities. While the availability of high quality care in low income neighborhoods is encouraging, it raises the question of how residents are able to afford it. The answer is that many residents who place their children in these centers are likely able to do so because they receive public assistance, including vouchers for child care, through the Families First program, Tennessee's version of the Federal Temporary Assistance for Needy Families program. However, Families First benefits are available only for a lifetime total of 60 months (TN DHS, 2008).

Many families earn too much to qualify for the full range of Families First benefits, but still struggle to pay for quality child care. Through the Low Income Child Care Program, many of these families are eligible to receive child care assistance from Families First as funding permits. However, demand for these benefits far outweighs their availability. Due to funding shortages Tennessee has not added new families to this program since 2002, and additions to the waiting list were discontinued in 2004 (TN DHS, 2008).

Public assistance child care payments not only improve the availability of high quality child care options, but also make it possible for many families in poor neighborhoods to afford them. Most of the three-star facilities in the poorest neighborhoods charge the state's Child Care Assistance weekly rate, which places care within the means of residents who receive subsidies. The State's child care subsidy rate for three-star care for a child under age five is $138 a week; if families living in poverty had to pay for the same care out of pocket, it would cost them 43 percent of their annual income. Conversely, in lower middle class neighborhoods where a larger share of families may earn too much to receive child care assistance, there is a notably less favorable ratio of young children to high quality child care slots.

The quality of children's early experiences contributes to their well-being both now and in the future.

Healthy and nurturing child care contributes to early brain development, which in turn provides the foundation for subsequent social, emotional and cognitive development. If the well-being of our youngest children serves as a barometer of the health of our community, then we would do well to ensure that our youngest children experience high quality early learning experiences and healthy environments.

The shortage in affordable high quality child care in Shelby County affects all families with children. Poor families are priced out of high quality early care opportunities unless they have access to temporary child care subsidies provided through the state. Due to budget shortfalls, families who are eligible for Low Income Child Care Assistance are unable to receive it, although they pay a higher percentage of their income for care than more affluent families. And even affluent families are affected by the shortage of child care providers who are accredited in accordance with nationally accepted standards.

The current economic downturn will likely increase state budget restraints and place further financial hardship on poor and middle income families. However, it may also provide an opportunity for policymakers to increase awareness of the child care problem in Memphis and Shelby County by demonstrating that the issue is relevant to all working families with children.

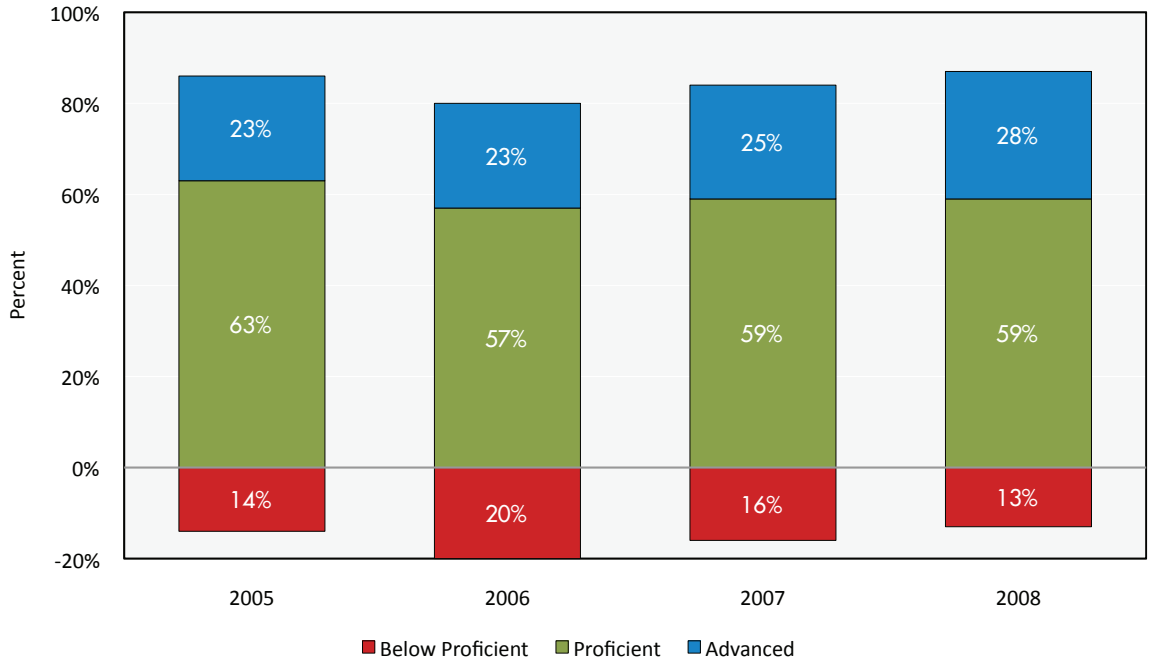
Memphis City Schools' performance on state achievement tests has been stagnant.

How do Memphis children fare once they reach school age? At first glance, it may seem that students in Memphis City Schools (MCS) are performing reasonably well. According to state achievement tests, 87 percent of all students are proficient or advanced in reading and language skills, and 82 percent are proficient or advanced in math. While these numbers are not stellar, they seem encouraging given that Memphis schools include a large proportion of minority and low-income students, groups that typically perform less well than others on standardized measures (Rothstein, 2004).

However, a closer look reveals that the news might not be so encouraging. The principal tool used for measuring the performance of public schools in Tennessee is the Tennessee Comprehensive Assessment Program (TCAP)[3]. The TCAP is mandated for grades three through eight, although schools may test earlier grades as well; the high school equivalent of the TCAP is the Gateway End-of-Course Test. TCAP scores are categorized as Advanced, Proficient and Below Proficient. The results of these tests are used to gauge the compliance of schools with the federal standards of the No Child Left Behind Act (NCLB), which requires states to reach 100 percent proficiency by 2014.

TCAP scores for Memphis City Schools have been stagnant for the past four years. About the same percentage of students were below proficient in reading in 2008 as in 2005 (Figure 8). In math, slightly fewer were below proficient in 2008 than in 2005 (Figure 9).

Figure 8: Percentage of Students in Memphis City Schools by TCAP Reading Scores, 2005-2008



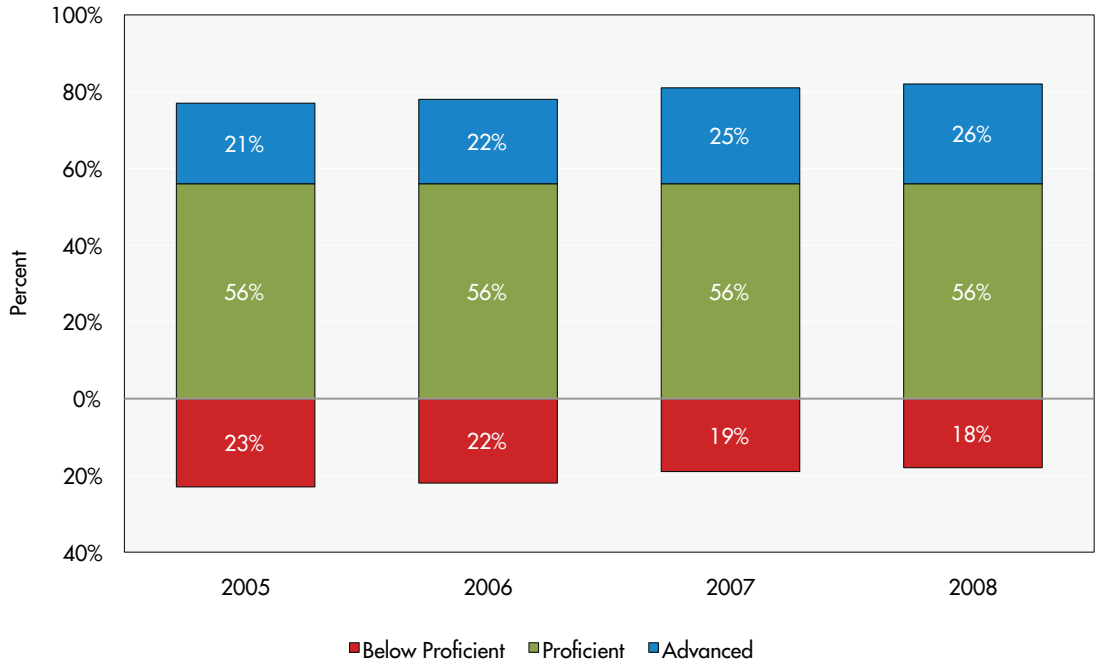
Source: Tennessee Department of Education, 2005-2008, http://www.tennessee.gov/education/reportcard/index.shtml

3 Data on TCAP results are drawn from the "report card" on Memphis City Schools available at the Tennessee Department of Education website. Current and archived report cards for all TN public schools are available at: http://www.tennessee.gov/education/reportcard/index.shtml

Unreliable standards make it difficult to measure the academic success of our children.

The fact that MCS are making little if any progress toward the NCLB goal of 100 percent proficiency is only part of the bad news. Under NCLB, each state is allowed to choose its own test and create its own definition of proficiency (NCES, 2007), and the result has been that many states set low standards in order to meet NCLB's stringent requirements. Each year from 2002 to 2006, Tennessee lowered the percentage of questions which students must answer correctly in order to be judged proficient, and standards remain at roughly the 2006 levels. In some content areas, the required percentage is as low as 25 percent. Given these low standards, the TCAP results shown in Figures 8 and 9 are less than impressive.

Figure 9: Percentage of Students in Memphis City Schools by Math TCAP Scores, 2005-2008



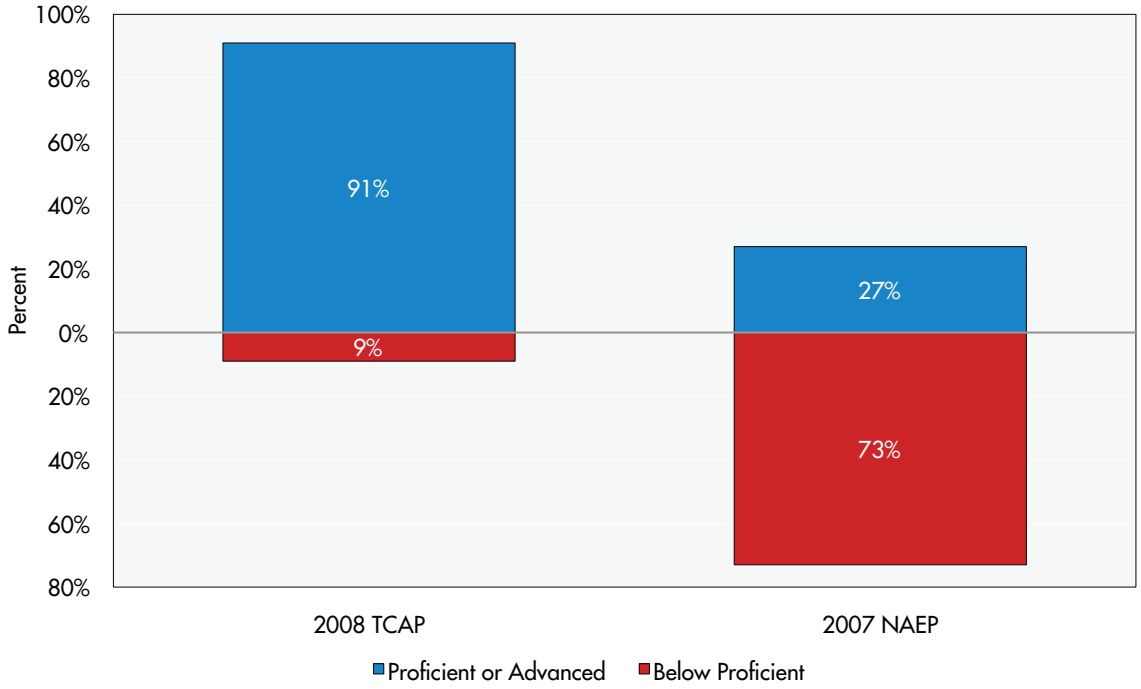
Source: Tennessee Department of Education, 2005-2008, http://www.tennessee.gov/education/reportcard/index.shtml

Evidence from national tests suggests that Tennessee's standards are inadequate.

One way to assess the strength of a state's standards is to compare the performance of its students on state achievement tests to their performance on national tests. The test administered by the National Assessment of Educational Progress (NAEP) is widely considered the gold standard of standardized assessments "because of its high technical quality and because it represents the best thinking of assessment specialists, education experts, teachers, and content specialists from around the nation" (NCES, 2008, p.2). The NAEP is given every two years to 4th and 8th grade students. Public school systems receiving federal funds are required to participate, but NAEP results are not used to measure compliance with NCLB standards. Because the NAEP is given to a random sample of students across the state, it is not possible to obtain results for Memphis City Schools; however, comparing Tennessee NAEP results with statewide TCAP results demonstrates the inadequacy of Tennessee's academic standards.

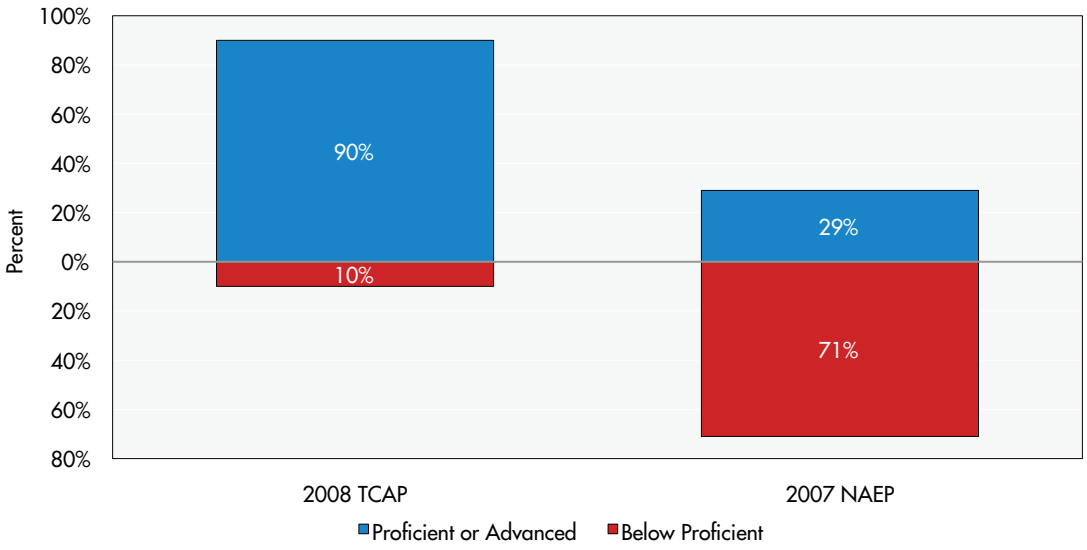
While 91 percent of Tennessee's fourth graders scored proficient or above in reading on the TCAP, only 27 percent scored proficient or above on the NAEP (Figure 10). Similarly, while 90 percent scored proficient or above in math, only 29 percent scored proficient or above on the NAEP (Figure 11).

Figure 10: Percentage of Tennessee 4th Grade Students by Reading Achievement: Gaps Between 2008 TCAP and 2007 NAEP



Source: Tennessee Department of Education, 2005-2008, http://www.tennessee.gov/education/reportcard/index.shtml and U.S. Department of Education, 2007, http://nces.ed.gov/nationsreportcard/states/profile.asp

Figure 11: Percentage of Tennessee 4th Grade Students
by Math Achievement: Gaps Between 2008 TCAP and 2007 NAEP



Source: Tennessee Department of Education, 2005-2008, http://www.tennessee.gov/education/reportcard/index.shtml and U.S. Department of Education, 2007, http://nces.ed.gov/nationsreportcard/states/profile.asp

In 2003, 2005, and 2007—the last three years in which the NAEP was administered—*Education Next* produced "report cards" which ranked states based upon the alignment of state standards with the national standards of the NAEP. States were assigned a grade of A through F according to the gap between the two sets of standards. "Those that receive an A have the toughest definition of student proficiency, while those with an F have the least rigorous" (Peterson & Hess, 2008, p.70). On each of these three report cards Tennessee earned a grade of F and was ranked last of all the states.

Tennessee is not the only offender. *Education Next* reports that most states have set their standards well below those of the NAEP. This seems to verify what some critics of NCLB predicted: that unrealistic goals and the lack of national standards would result in a disincentive for states to enforce high academic standards. The NCLB goal of 100 percent proficiency is widely criticized as unattainable (Sunderman, 2008). However, schools and school systems which repeatedly fail to meet NCLB benchmarks can eventually face serious consequences, including staff replacement and state takeover. As a result, "a state's proficiency definitions can be—and given the penalties in federal law, increasingly will be—watered down to the point that all children can achieve them with little improvement in instruction" (Rothstein, 2004, p. 89).

Other observers have claimed that the problem is with the NAEP itself. First, it is a "low stakes" test. Students are not informed of their scores on the test and there are no consequences for poor performance; consequently, it is claimed, they have little incentive to do their best. Additionally, NAEP standards may be too high (Hombo, 2003; Reckase, 2001). For example, in South Carolina, whose standards received the highest grades from *Education Next*'s report, only 25 percent of 4th graders scored proficient or above in reading on the NAEP.

The success of our schools should be everyone's concern.

Despite these criticisms, the NAEP is the most reliable measure available for evaluating our community's academic standards. Tennessee's poor performance relative to other states and Memphis City Schools' stagnant scores on the TCAP indicate that the educational well-being of our children is being threatened by low achievement and low expectations. Our children need quality education if they are to succeed in life, and our community needs educated citizens if it is to compete successfully in the knowledge economy. As the proportion of jobs requiring a college degree or other postsecondary training increases (Green, Costello, & Lippard, 2001), the effectiveness of our educational system becomes a crucial issue. In order to identify and implement successful policies and interventions, we must first be able to assess the performance of our schools. Meaningful standards that accurately reflect student achievement are a first step toward this goal.

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Data

Chart data can be downloaded at http://theurbanchildinstitute.org/databook

The Importance of Communities

Children are affected by their community as early as the first three years of life – when crucial brain development occurs.

Previous sections of the Data Book have examined how children's lives are shaped by their family structures, home environments, and schools. While these may be the most direct influences on children, they are not the only ones. Children are also affected by their community environment, and this environment can reinforce or undermine the influence of schools and parents as early as the first three years of life- when crucial brain development occurs.

Research has linked neighborhood quality to several important outcomes for children and adolescents, including low birth weight, infant mortality, behavioral problems, crime, IQ scores, school dropout and teenage childbearing (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993; Browning, Leventhal, & Brooks-Gunn, 2004; Crane, 1991; Duncan, Brooks-Gunn ,& Klebanov, 1994; Sampson, Morenoff, & Gannon-Rowley, 2002).

Neighborhoods with few assets such as parks and playgrounds may offer young children too few opportunities for safe recreation; those characterized by crime and drug use provide negative role models and increase the risks faced by children in their daily lives.

Safe neighborhoods provide children with opportunities for healthy development.

Research shows that problem neighborhoods can also affect the type of parenting children receive. An environment which parents perceive as dangerous can lead to decreased warmth toward children, inconsistent and inappropriate discipline, and harsh parenting (Klebanov, Brooks-Gunn, & Duncan, 1994; Pinderhughes, Nix, Foster, & Jones, 2001). Structural disadvantages such as economic inequality, racial segregation, residential instability, and limited home ownership can lead to a lack of social cohesion and trust in poor neighborhoods. Scholars often refer to this as a loss of "collective efficacy", which has been defined as "the extent of social connections in the neighborhood and the degree to which residents monitor the behavior of others in accordance with socially accepted practices and with the goal of supervising children and maintaining public order" (Leventhal & Brooks-Gunn, 2000, p. 326).

Neighborhoods with high levels of collective efficacy have lower crime and lower domestic violence (Browning, 2002; Sampson, Raudenbush, & Earls, 1997), and neighbors know and look out for one another. In neighborhoods with low collective efficacy, where there are few connections among neighbors, parents with already-strained resources need to invest increased time and effort to combat negative neighborhood effects. When parents have little social support, their parental effectiveness can be weakened (Ceballo & McLoyd, 2002). Community assets can help to offset these disadvantages.

Where are children in Memphis and Shelby County being born? What kind of community environments do they face, and what assets are in place that may provide support for their families? As a first step toward answering these questions, this chapter presents a brief overview of geographical variations in births, risk factors, and community assets in Memphis and Shelby County[1].

1 For the purposes of this brief examination of the differences between communities, we use zip codes as our unit of analysis, although we realize that there can be important neighborhood variations within zip codes. For a more detailed discussion, including variations among census tracts see Betts et al. (2008).

Poverty is moving from central Memphis into outlying neighborhoods.

Where are children in Shelby County being born? Figure 1 shows the distribution of all births in Shelby County in 2006. The zip codes with the greatest number of births, indicated by red shading, lie mostly to the north and south of downtown and midtown.

One way to measure neighborhood quality is to determine the extent of poverty in the area. In Memphis, the geographical distribution of poverty is undergoing a pattern of change which began in the 1990s. Poverty was once concentrated largely in public housing in the downtown area, but market forces and relocation efforts are now moving poor residents into Frayser and Raleigh to the north and northeast, and Whitehaven, Fox Meadows and Hickory Hill to the south and southeast, forming a horseshoe-like pattern around the more affluent Poplar corridor which links downtown to the suburbs in east Memphis (Betts, 2006; Covington, 2003).

This pattern can be seen in Figure 2, which shows the distribution of births to mothers living in poverty.[2] Areas with the highest number of such births are indicated by heavy dots. Since 50 percent of mothers who gave birth in Shelby County in 2006 were in poverty, it is not surprising that the distribution of births to poor mothers is similar to the overall distribution of births.

Children born in areas of high poverty also face other risks.

In order to describe in more detail the conditions faced by disadvantaged families in Shelby County, it is helpful to consider not only poverty, but also additional factors which can affect children. Figure 3 shows the distributions of all Shelby County births in 2006 involving three or more risk factors. Four possible risk factors were considered: unmarried mothers, teen mothers, mothers with less than a high school diploma, and mothers in poverty. Each of these has been shown to be negatively correlated with child outcomes including health, educational attainment, and behavioral problems (Carlson & Corcoran, 2001; Cooksey, Menaghan, & Jekielek, 1997; McLanahan & Sandefur, 1994; Osborne, 2007). Newborn children exposed to these risks are concentrated in the communities to the north and south of central Memphis. This is especially troubling because these are also the areas where most Shelby County births take place, as shown by Figure 3. Communities with the greatest number of high-risk births are indicated by heavy dots.

2 Based upon analysis by The Urban Child Institute of 2006 birth certificate record data provided by Tennessee Department of Health. Poverty is determined by self-reported income.

Many community assets in Shelby County are not located where they are most needed.

Community resources are especially important to families facing hardships like those discussed above; unfortunately, the locations of many key assets in Memphis do not appear to match the changing demographics of need in Memphis. For example, the Health Loop is a system of ten outpatient clinics administered by the Regional Medical Center (The Med), and is a part of the Med's mission to provide a "safety net for those who are unable to get quality health care elsewhere" (RMCM, 2008, para. 1). With walk-in services and extended hours, these clinics are an invaluable asset to working families with children. However, as Figure 4 shows, many of the clinics are clustered in central Memphis, although the highest-need areas are to the north and south. Only six of the ten are located in high-risk areas.

Affordable high-quality daycare is another necessity for working parents, especially single mothers. While there are over 1,000 child care providers in Shelby County, high quality centers are the exception. Only four percent of providers in the county have been accredited by the National Association for the Education of Young Children (NAEYC), whose voluntary program evaluates centers on criteria such as child-to-staff ratios, employee experience, and communication with parents. As Figure 4 shows, NAEYC-accredited centers are disproportionately located in low-risk areas. Low quality child care has been linked with academic and behavioral problems in children (NICHD, 2002; Peisner-Feinberg et al., 2001), which when combined with other risks faced by poor children can contribute to the cycle of poverty.

High-risk areas have fewer quality schools and after-school activities.

The quality of the public school a child attends can vary depending on where the child lives. 31 Memphis schools are on Tennessee's 2009 High Priority List of schools failing to meet the standards of the federally mandated No Child Left Behind Act for two or more consecutive years. All elementary schools on the list are located in or near very-high-risk areas (Figure 4). This pattern is consistent with research showing that regardless of how school quality is defined, poor children attend consistently lower-quality schools, reinforcing the inequalities that exist before they enter kindergarten (Lee & Burkham, 2002).

Furthermore, opportunities for safe after-school recreation are more limited in high-risk areas. Only about half of Memphis' community centers are located in the areas of the highest need (Figure 4). Research shows that participation in community-based extracurricular activities can improve developmental outcomes, including school engagement and academic achievement. Such activities also promote positive social norms and community bonds (Eccles & Templeton, 2002). Research on this topic has tended to focus primarily on adolescents, but some research shows that even children in kindergarten and first grade benefit from community-based activities (Mahoney, Larson, Eccles, & Lord, 2005).

If we are to fashion effective policies and interventions for children, we need to improve our understanding of community dynamics in Memphis and Shelby County and of how communities affect our children. Because patterns of neighborhood risk are changing, we need to explore new forms of outreach and recognize new challenges to community support efforts. Without strong communities which can provide positive environments, even the most effective parenting and educational practices may be undermined. Where neighborhood support systems and collective efficacy are strong, children and their families are more likely to overcome the challenges associated with a high risk environment.

Figure 1: Distribution by Zip Code of All Births, Shelby County, 2006

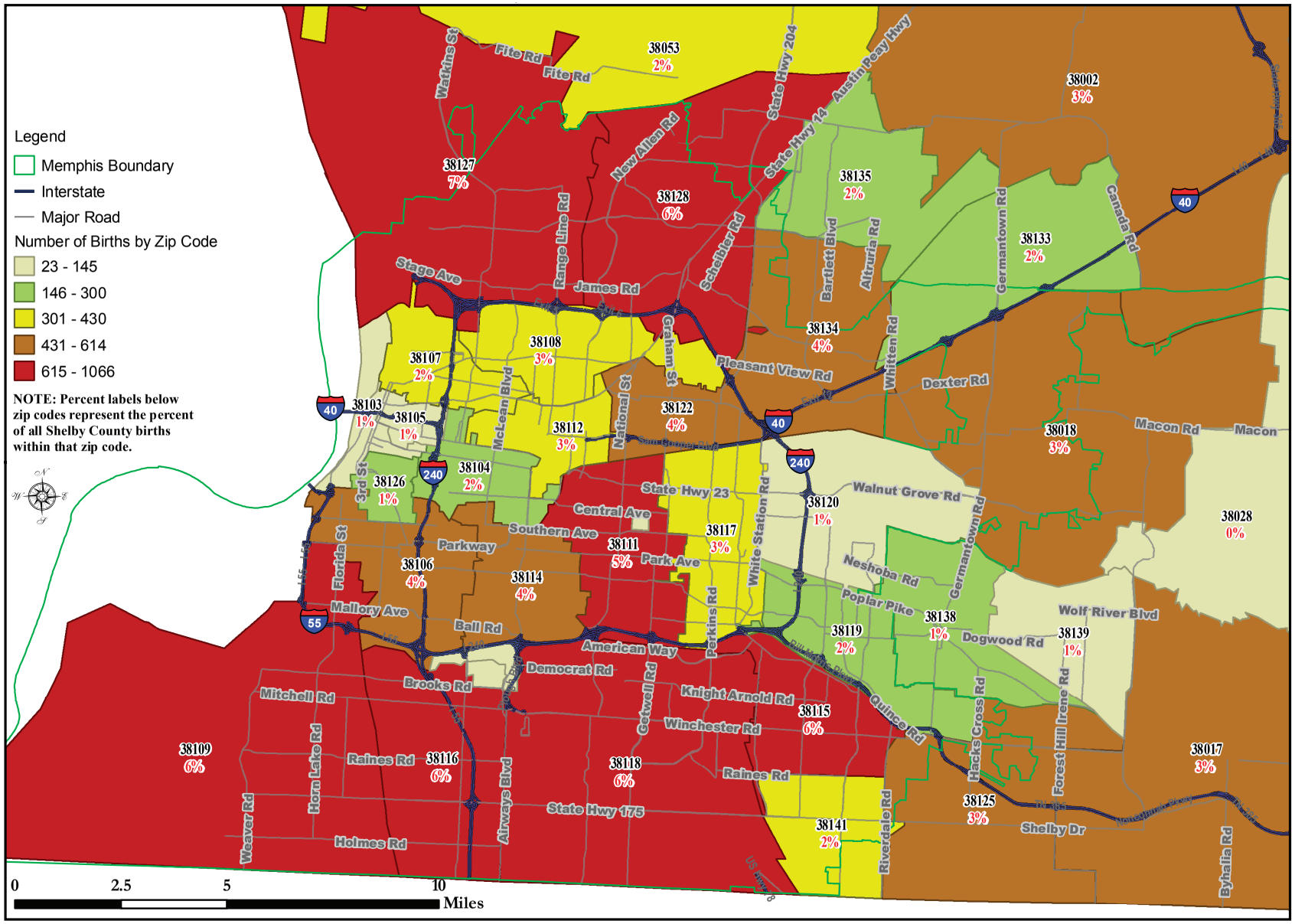

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Figure 2: Distribution by Zip Code of All Births to Mothers in Poverty, Shelby County, 2006

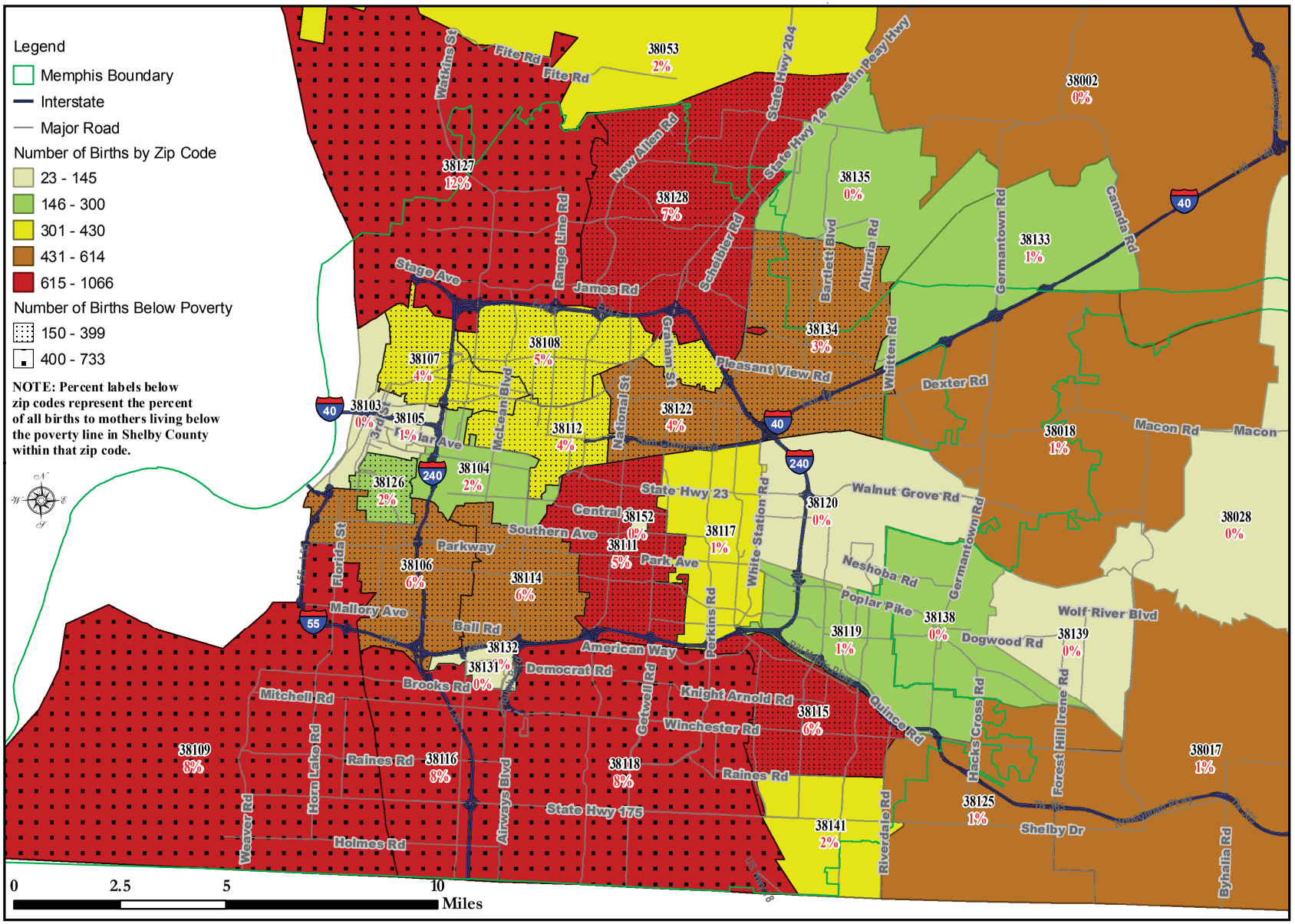


Figure 3: All Births by Zip Code with Three or More Risk Factors, Shelby County, 2006

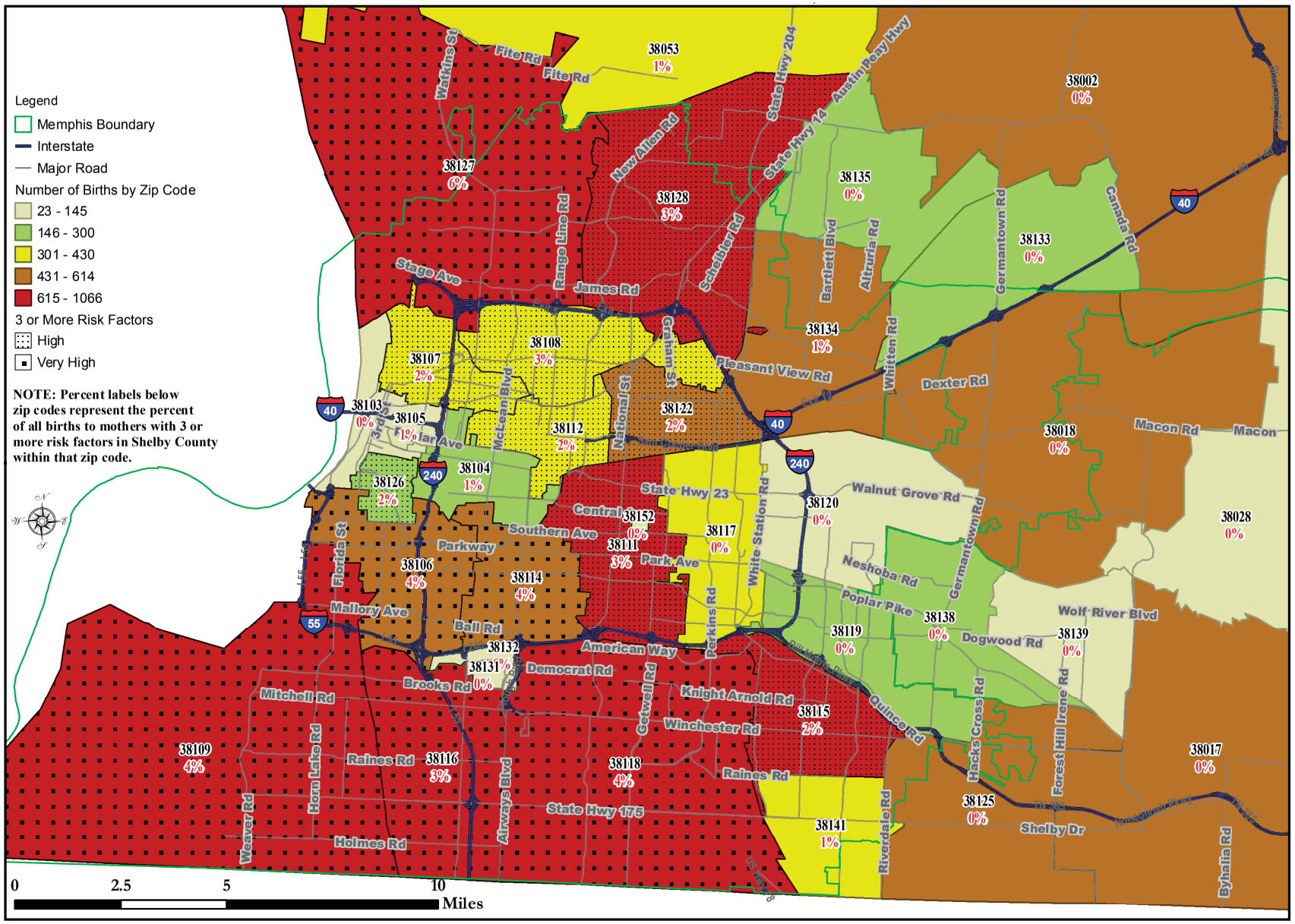
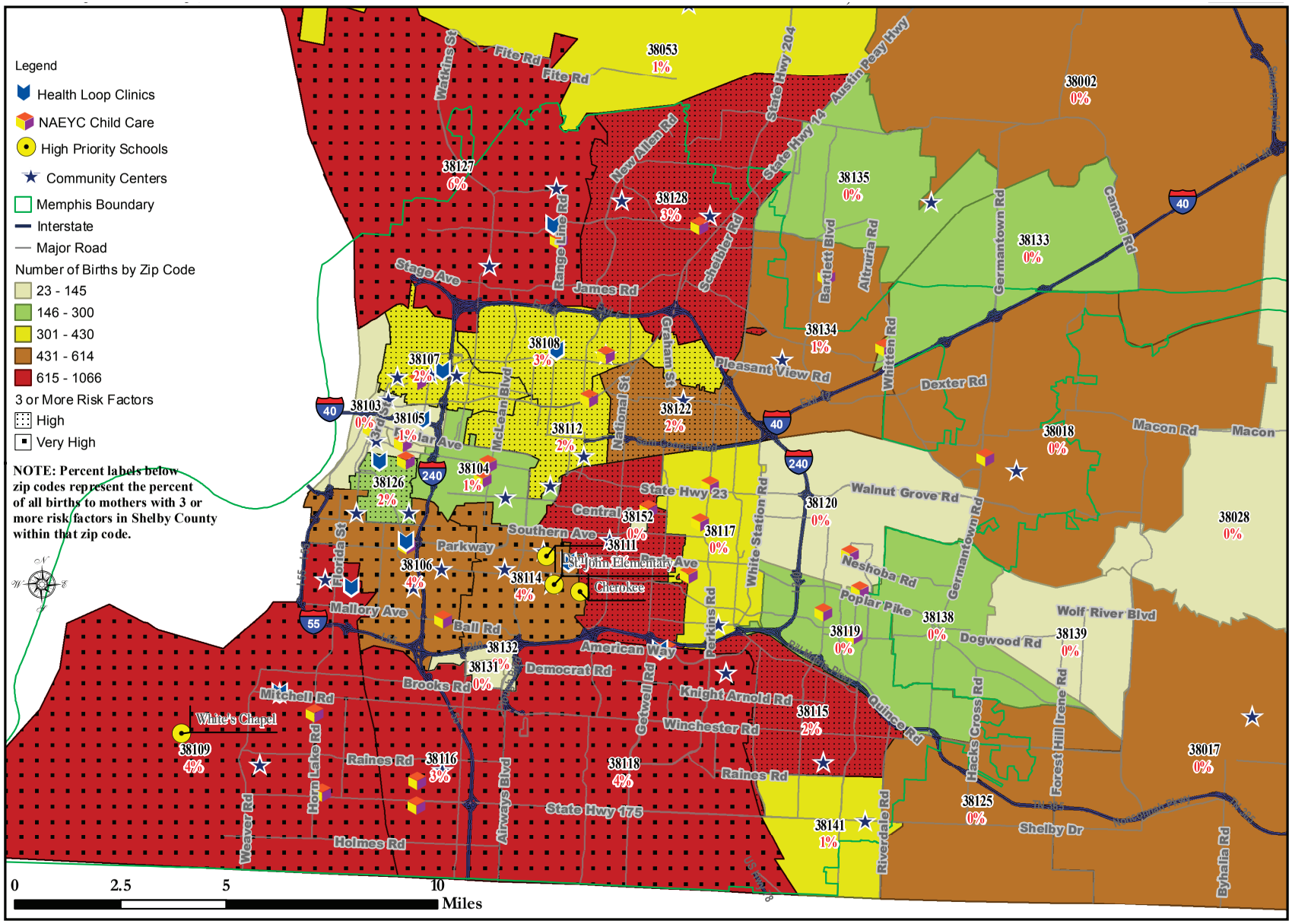


Figure 4: All Births by Zip Code with Three or More Risk Factors, with Selected Community Assets Shown, Shelby County, 2006



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Best Practices for Solutions

Early childhood interventions can improve the well-being of Memphis and Shelby County.

Children's early brain development occurs through a process of interaction between children and their environments. The quality of those environments and relationships shape the degree to which children's brains will develop effectively. Children's early developmental experiences build the foundations for their subsequent success in school and life.

Memphis is currently rated as one of America's most dangerous, least healthy, and least educated cities. What steps could we take today, as a community, to respond to these problems and their implications for the future of our city and county? Decades of research have demonstrated a strong relationship between a lack of fundamental resources in early childhood and long-term consequences such as teen pregnancy, school failure, unemployment, and crime (Gormley, Gayer, Phillips, & Dawson, 2005; Sampson, Sharkey, & Raudenbush, 2008; Olds et al., 1998.) Too often, children born to undereducated, unemployed, or incarcerated parents will themselves become parents at an early age, run afoul of the law, or fail to complete school.

More than half of the children born in Shelby County every year are raised in families lacking access to resources that children need for healthy development. If as a community we understand that many of our problems stem directly from the earliest experiences of our children, then perhaps we will be better positioned to make crucial decisions that can re-direct our city's future.

Now is the time to invest wisely in the well-being of young children and families in order to reach the future we prefer for our community.

As a community, we must choose to do the right thing.

First steps are critical. We must make economic and social decisions now to improve the well-being of the next generation.

Building an effective early childhood investment plan is a key part of reaching our goals for Memphis and Shelby County. Economists identify a number of "currencies" that we need to consider in deciding on a plan of action:

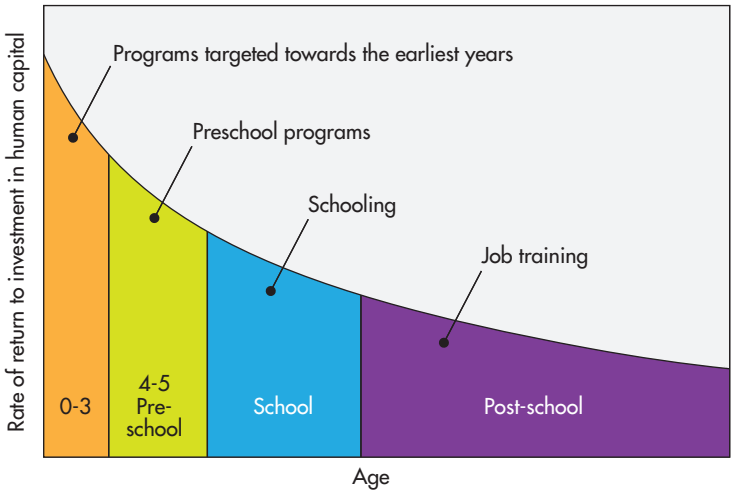
- How much are we willing to invest to provide our children with the access they need to resources and environments that will lead to the best outcomes for our community?
- How long are we willing to wait to realize the full return on our investment? (Many of the gains realized by investments in early childhood grow over time).
- We must make decisions about our goals, and in turn about the specific and measurable objectives that we expect to achieve.

Through this process, we will be able to translate our vision into policy initiatives and strategies.

Figure 1 shows a model created by the University of Chicago economist and Nobel laureate James Heckman for the projected return on investments made at selected periods during childhood.

Studies show that investments in early childhood interventions are among the best that a society can make.

Figure 1: Returns to a Unit Dollar Invested at Different Ages, Assuming One Dollar Initially Invested at Each Age



Source: Heckman, J.J. (2008). The Cases for Investing in Disadvantaged Young Children. In First Focus: Making Children & Families the Priority (Eds.), Big Ideas for Children: Investing in our Nation's Future. (49-58). Washington, Dc: First Focus.

Decades of careful evaluations of early childhood interventions support the model created in Figure 1 which suggests that the greatest return on investment occurs for those investments made early in life. Studies of the highest-quality pre-kindergarten programs, for example, have shown a $17 return for every $1 invested in the program (Isaacs, 2007).

Armed with reliable data about best practices and interventions that benefit children and families, we have the capacity to assess:

- The scope of effective investments in early childhood, and their potential effects in Memphis and Shelby County.
- The expected returns to society that should be realized from such an investment. These include reduced crime rates, higher educational levels, increased human capital, and, in consequence, lower rates of unemployment and reliance on public assistance.
- The likely time frame for realizing these social and financial gains.
- The degree to which different strategic choices align with our priorities.

We can determine where we will achieve the greatest return on investment, both socially and economically, by focusing on the children and families most in need and implementing interventions that we know to be successful.

Being born into poverty can affect a child's entire life.

Before entering kindergarten, the experiences of young children vary widely according to their family's resources. These differences matter for the adults they will become, and for the community we will become.

Children born into poverty are:

- five times more likely to grow up with a single parent (McLanahan & Sandefur, 2004).
- half as likely to attend a high quality pre-kindergarten program (American Community Survey, 2007).
- a third less likely to be read to regularly (Memphis Literacy Council, 2006).

By the time they reach school, children born into poverty:

- will have moved much more often (Jackson & Mare, 2006).
- are much more likely to have had turbulent home lives (Schnitzer & Ewigman, 2005).
- are more likely to have lived in a high crime neighborhood (Popkin, Gwiasda, Olson, Rosenbaum, & Buron, 2000).

When they enter school, poor children are much more likely to attend high-poverty schools, where children are more likely to be suspended, to be held back, to become a parent before graduation, and to drop out. These children will have a much more difficult time making a living wage, securing health insurance, and avoiding crime (Gormley, Gayer, Phillips, & Dawson, 2005; Sampson, Sharkey, & Raudenbush, 2008; Olds et al., 1998).

As a result of different early childhood experiences, affluent children reach kindergarten with cognitive scores 60 percent above those of poor children (Hart & Risley, 1995). Families with more resources have an easier time providing for their children's safety, security, and other needs.

Young children's needs include communication: hearing rich vocabularies and receiving positive affirmations in daily conversation (Hart & Risley, 1995). Children do best when they have a stable home life in a safe and trusting neighborhood (Sampson, Sharkey, & Raudenbush, 2008) and when they receive high-quality child care (Rolnick & Grunewald, 2003). A stable and living wage also affords parents more time to focus on their children. Affluent parents find it easier to build healthy relationships with their children and guide them into positive and healthy relationships and activities outside the home.

Unfortunately, too many children in Shelby County can't count on a healthy start in life.

In 2007, there were 15,234 children born in Shelby County (Tennessee Department of Health, 2007a).

- Typically, more than half (nearly 7,800) of children in Shelby County are born into poverty[1], distanced from the basic resources that would give them the best chance to thrive in school and life (Tennessee Department of Health, 2006).
- In 2007, 58.8% (8,954) were born to single mothers (Tennessee Department of Health, 2007b).
- 15 percent (2,352) were born to teen mothers (Tennessee Department of Health, 2007c,d,e).
- More than one in three (5,716) will be raised by single mothers whose education stopped in high school (Tennessee Department of Health, 2006). In 2007, these families tried to make ends meet on less than $19,000 a year (U.S. Census Bureau, 2007).
- Children in poverty will hear fewer words spoken at home and will have smaller vocabularies when they begin school (Hart & Risley, 1995).
- Their families are likely to move much more frequently than their middle-income peers (Pribesh & Downey, 1999). Many poor children will move more than five times before they enter kindergarten (Do & Lewis, 2006).

1 The number of children born into poverty in 2006 is based on the self-reported income of the parent(s) at time of birth.

By the time low income and poor children in Shelby County enter school, their performance and well-being will reflect the experiences they had early in life[2]:

- Countywide, 62 percent of low income kids (about 9,500) will attend schools where most kids are poor or low-income. In the City of Memphis the number is much higher, with three out of four children attending high-minority, high-poverty schools.
- One in ten (1,696) will be placed in special education classes.
- Nearly one in five (2,620) will fail a grade.
- By fourth grade 13 percent will not be able to read at grade level.
- Girls from poor families are five times more likely to become mothers before they turn 18 than girls from families above the poverty line.
- Children from poor families are ten times more likely to drop out of school.

2 The following figures are the independent estimates created by the Center for Urban Child Policy utilizing 2006 State Health Department birth certificate data, the Annie E. Casey Foundation's Kids Count and Right Start Census Data Online, 2007 American Community Survey data, and information from the Tennessee Department of Education. The Annie E. Casey Foundation's Kids Count Data Book can be found at http://www.kidscount.org/datacenter or http://www.kidscount.org/cgi-bin/cliks.cgi. American Community Survey data can be found at factfinder.census.gov and the Tennessee Department of Education Report Card can be accessed at www.k-12.state.tn.us.

Intervention 1: Nurse Family Partnership
Statistics are not destiny.

Thankfully, we all know of children and families who beat these odds. However, the fact remains that a child growing up in poverty lacks access to fundamental resources that can be taken for granted by middle-class and affluent families. The result is that too many children are set on a path to an outcome far different from the future we would choose for our community.

Making the right policy choices as a community can improve not only the well-being of children and families who are distanced from opportunities to thrive, but also our own shared future. On this front, there is good news: 50 years of study give us a broad range of research-based insights into the difference that informed early childhood interventions would make in Shelby County.

In last year's Data Book, we presented an analysis of the implications of a full-scale nurse-based home visiting program in Shelby County. In other words, what would be the most likely outcomes – for both children and families – if every first-time single mother living in poverty in Shelby County received regular home visits from a trained nurse? Based on an analysis of the evaluation results of the Nurse Family Partnership (NFP) program, we projected that making the program available to just one year's cohort of eligible mothers in Shelby County would result in significant benefits to the community. The projected return on each dollar invested is $2.88 (Karoly, Kilburn, & Cannon, 2005), meaning that a $20 million dollar investment, which would serve the 1,970 eligible women in Memphis, would result in a $57.6 million total savings to the public in the following areas:

- Smaller families and longer intervals between pregnancies, leading to stronger developmental experiences for children and greater incomes for families.
- Reduced reliance on welfare assistance and increase in maternal employment.
- A reduction in crime (based on program outcomes, we would anticipate 394 arrests would occur with the program vs. 887 arrests without the program).
- Fewer health care encounters for injuries or toxic ingestions among children under two.
- Lower incidence of severe behavioral problems (including anxiety, aggression, and depression) among children six and under.

Intervention 2: Chicago Child Parent Center Model
School-based interventions can make all the difference.

A second proven early childhood intervention that is worth considering is the Chicago Child Parent Center (CCP) model. The CCP is a school-based program that is centered on high-quality early childhood care and education. Centers are located in public schools in high poverty neighborhoods in Chicago. Low-income children as young as three years of age enter the program's pre-schools, and stay with the program an average of one and a half years until they enter kindergarten. Ideally, children continue with the after-care component of the program through age nine.

The Chicago Centers also have high expectations for parents, including regular participation in class-room activities, along with attendance in parenting classes that provide skills training and mentoring. Like the Nurse Family Partnership program, the CCP has been the subject of scientific evaluation for several decades. This research has linked the CCP intervention to a number of significant improvements in the well-being of children and families served by the program. These include reductions in spending on school remedial services, reductions in criminal justice system expenditures for both juvenile and adult arrest and treatment, reductions in child welfare system expenditures associated with child abuse and neglect, averted tangible costs to crime victims, and increases in adult earnings and tax revenues as a product of increased educational attainment (Reynolds, Temple, Robertson, & Mann, 2001).

Yale University Professor Edward Zigler, one of the founders of the Head Start Program, recently praised the Chicago Child Parent program for understanding that when it comes to effective programming for children, our guiding philosophy should be "the younger the better" (Zigler, 2009). At the same time, Zigler argues, the Chicago program has demonstrated an ability to make powerful gains because it understands that children move through stages in life, and that "each stage requires appropriate environmental nutrients" (Zigler, 2009, p. 2). The CCP program is also a worthy candidate for consideration in Shelby County because it is funded through Title 1 funds, which received a significant boost in the recently passed federal Stimulus Bill.

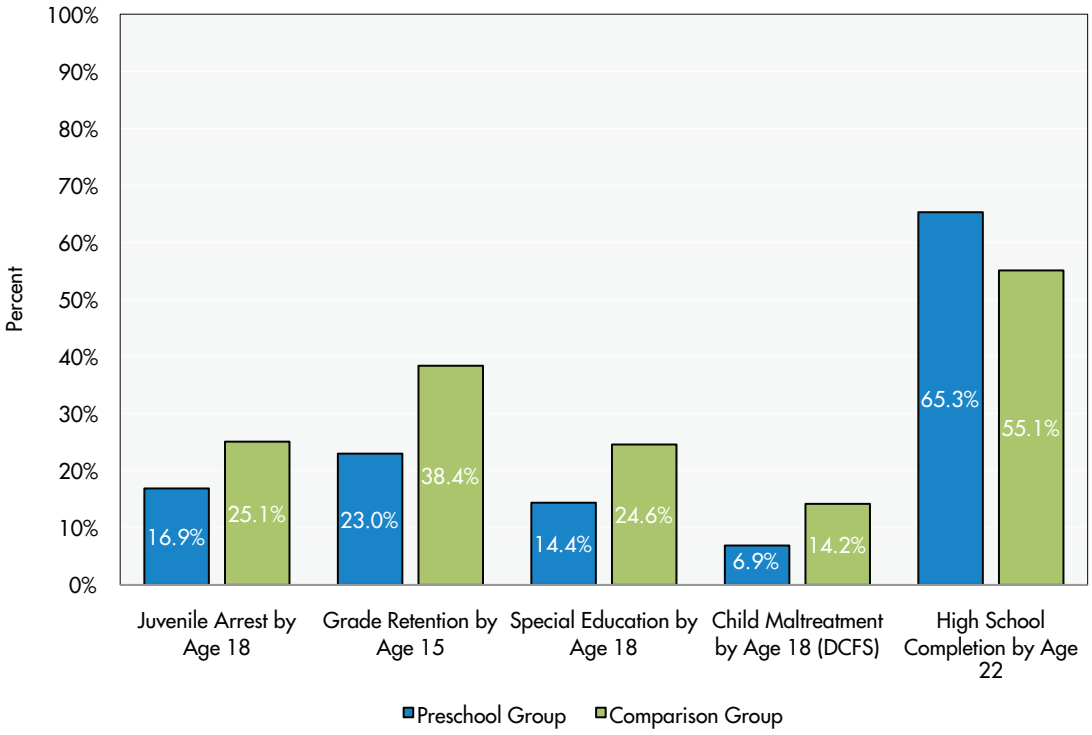
If we envision growing a program comparable to the Chicago Child Parent Centers in Shelby County, it would make sense to begin by enrolling the cohort of approximately 7,500 three year olds in the County whose families are living in poverty[3]. Subsequently, we could expand the program by adding a new cohort of three year olds each year, while also adding the subsequent stages of the program for the initial cohort of children admitted into the program until they reach age nine.

The cost of the CCP program is $5,219 per child for the preschool years and $1,874 per child for the after school program (in 2005 dollars) (Promising Practices Network, 2009). The pre-school component of the program alone has shown a rate of return on investment of $7.14 for each dollar invested in the program. For each three and four year old enrolled (at a cost for 1.5 years of $7,829), we would anticipate gains to individual families and to society approaching $55,896. We would expect a similar gain for each of the 7,500 children enrolled in the program in a given year.

3 The number of children born into poverty in 2006 is based on the self-reported income of the parent(s) at time of birth.

Chicago Child Parent Center shows a dramatic return on investment.

Figure 2: Gains Realized by Sample in Chicago Child Parent Assessment



Source: Reynolds, A.J. Ou, S. (2004). Children and Youth Services Review 26: 1-14.

The aggregate return on investment would be realized through savings in the following areas:

- Fewer crimes (based on program outcomes, we would anticipate 8,909 arrests would occur with the program vs. 13,231 without the program).
- Reduced grade retention rates.
- Reduced need for special education classes.
- Reduced rates of child maltreatment.
- Over 1,600 fewer high school dropouts.
- Increased lifetime earnings resulting higher tax revenue.

As these figures suggest, the gains offered by a high-quality early intervention effort are both tangible and significant. Rather than continuing with business as usual, we need to ask what decisions we could make today in order to arrive at the future we would prefer for our community. The practices outlined in this chapter provide a promising blueprint for our preferred future.

Investment in early childhood interventions work.

Interventions like the Nurse Family Partnership and the Chicago Child Parent Centers are key components of a comprehensive early childhood development initiative. Following the example of efforts underway in New York City (e.g. the Harlem Children's Zone), as well as in other cities around the country (including St. Paul and Denver), Memphis and Shelby County should create an investment fund to finance early childhood interventions. The Investment Fund would be designed to:

- build a shared understanding of the current scope of public, private and nonprofit programs devoted to early childhood well-being.
- work to ensure that these initiatives are aligned with our understanding of best practices when it comes to early childhood development.
- prioritize investments on early childhood so that they best meet the needs of our children.
- be constantly reviewed and held to the highest standards of accountability to ensure that it is meeting predetermined benchmarks for both social and financial returns.

Building an Early Childhood Investment Fund represents a comprehensive strategy of prevention and resource-building designed to improve the quality of life for children in Memphis and Shelby County with the capacity to improve the future of the city and county.

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Data

Chart data can be downloaded at http://theurbanchildinstitute.org/databook