

# The Economic Impact OF THE Child Care Industry *in North Carolina*

PREPARED BY THE

NATIONAL ECONOMIC DEVELOPMENT AND LAW CENTER



# BACKGROUND

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## THE ECONOMIC IMPACT OF THE CHILD CARE INDUSTRY IN NORTH CAROLINA

The National Economic Development and Law Center (NEDLC), with a grant from the W.K. Kellogg Foundation, is working with states across the nation to produce reports and recommendations on the economic impact of the child care industry. The economic impact reports articulate child care and early education in economic development terms and quantify the ways in which the child care industry is critical to the state's economy. In addition, the reports help to build local partnerships aimed at increasing the industry's capacity to respond to the shifting child care needs of America's families. For the North Carolina report, NEDLC partnered with the North Carolina Partnership for Children ([www.ncsmartstart.org](http://www.ncsmartstart.org)) to form an Advisory Board of North Carolina statewide leaders in the fields of business, government, child care and early education, and economic development.

## NATIONAL ECONOMIC DEVELOPMENT AND LAW CENTER

The National Economic Development and Law Center, established in 1969, is a non-profit public interest law and planning organization that specializes in community economic development. It works in collaboration with community organizations, private foundations, corporations and government agencies to build the human, social, and economic capacities of low-income communities and their residents. NEDLC helps to create strong, sustainable community institutions that can act as "change agents" and an effective local infrastructure for their support.

## ACKNOWLEDGEMENTS

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# SECTION ONE

## INTRODUCTION

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The child care industry in North Carolina encompasses a range of programs designed to nurture, support, enrich, and educate children from birth through age 12 outside of traditional K – 12 education. Licensed center-based care, family child care homes, before- and after-school, public pre-schools, and Head Start child development centers are all considered part of the child care industry. The industry has two main functions, both of which have changed significantly over time, and both of which link the industry to the economy.

Child care's first major function is to enable parents to work outside the home and take advantage of educational opportunities which further their careers. Historically, parents were solely responsible for daytime care and education for their own young children. Families with two working parents were rare. In those families in which there were two working parents or a single working parent, care and education was generally entrusted to relatives, neighbors, and friends. Today, nearly one in three labor participants in North Carolina has a child under the age of 18, and the majority of children live in families in which all parents work outside the home.<sup>1</sup> The need for mid-career education has also increased over time and as North Carolina focuses its energy on new technology-driven industries, parents' ability to attain additional training is critical to their success in the future workforce.

The other major function of the child care industry is to provide developmentally appropriate learning opportunities for children. For children under age six, quality child care programs develop core skills and competencies that prepare children to succeed in K - 12 education and to become life-long learners. For children ages five through 12, before- and after-school programs provide enriching educational activities outside of the traditional school curriculum. These programs address individual children's needs to bolster their success in school and in their future endeavors. The research and public will surrounding the education and developmental needs of young children have increased dramatically over the last two decades. Many more parents, government officials, and business leaders in North Carolina now demand quality early education and educational enrichment programs outside of school time as part of children's overall education.

As a result of the shifts in these two main functions, the role of the child care industry in the economy has also been transformed. The industry in North Carolina now has the capacity to serve 337,000 children at any one time, nearly one-quarter of the total population of children from birth through age 12. The annual average consumer price for center-based care for a three-year-old is nearly \$5,000 in rural counties and \$7,000 in urban counties.<sup>2</sup> These trends establish the child care industry as a significant component of the economic infrastructure of the state. The industry is a driver of the economy, providing financial benefits in three main ways.

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<sup>1</sup> U.S. Census Bureau. Census 2000.

<sup>2</sup> Based on statewide survey, 2003, Division of Child Development. Urban and rural counties are defined in accordance with the North Carolina Rural Economic Development Center.

**The child care industry is an economic driver. It:**

- Is a significant industry in its own right, providing thousands of jobs and generating considerable revenue;
- Facilitates success of other industries in the state by enabling parents to be part of an educated workforce, working productively outside the home and attending higher education programs to update their skills;
- Enables future economic success in North Carolina by assisting in the preparation of young children for opportunities in the new economy and attracting business to North Carolina's skilled workforce.

First, the child care industry is a significant industry in North Carolina in its own right. Research presented in this report demonstrates that child care is a significant income-generating, job-creating industry sector, contributing \$1.5 billion in annual gross receipts and accounting for more than 46,000 jobs. The gross receipts findings show that the child care industry is similar to many other significant and recognized industries in the state, including scientific research and development, which includes biotechnology research, and wireless telecommunications. Employment findings indicate that child care employment is on par with wireless telecommunications, all accommodations (including tourism), and K-8 public school teachers in the state.<sup>3</sup>

Second, the child care industry facilitates success in other state industries by enabling parents to work productively outside the home and, if appropriate, to attend higher education programs that update their skills. Nearly one in three North Carolina workers has a child under age 18 and one in ten has a child under age six. Affordable, accessible child care options encourage young professionals with children to remain in the workforce and enables incumbent workers to seek additional educational training. Dislocated workers who are re-employed at lower wages and low-wage incumbent workers need child care assistance to keep them in the labor force. Individual employers benefit because child care attracts and retains new employees and increases productivity by reducing employee turnover and absenteeism. In many ways, accessible, affordable child care is like transportation and housing. Without it, employees may experience barriers to working, and their employers and the economy as a whole suffer.

Third, quality child care programs help to make future economic success in North Carolina possible. They prepare young children for opportunities in the new economy and attract business to North Carolina because of the state's skilled workforce. Recent research on early brain development demonstrates that, far from being a luxury, quality child care is a vital service, improving children's health, school readiness, and contribution to society.<sup>4</sup> The quality of early education opportunities is linked to positive outcomes in school for children in all income brackets, though studies have shown particularly striking findings in children from low-income families. Three separate longitudinal studies of targeted, intensive intervention programs for low-income children have indicated significant long-term outcomes in areas such as reduced grade repetition and special education needs, and higher educational attainment and home ownership in adulthood. Many of the outcomes reduce future public spending, especially in areas such as K-12 education, criminal justice and welfare assistance, resulting in a 12 percent rate of public return on investment. Compared to other areas of public investment, this return makes targeted investments in quality early childhood education one of the strongest candidates for public funding.<sup>5</sup> As part of a seamless education system, quality early childhood programs also play a role in enabling the state to attract and retain new businesses and succeed in the future economy.

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<sup>3</sup> See Section Three for further discussion of results and methodology.

<sup>4</sup> J.P. Shonkoff and D.A. Phillips, Editors. *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington, D.C.: National Academies Press, 2000.

<sup>5</sup> Art Rolnick and Rob Grunewald. *Early Childhood Development: Economic Development with a High Public Return*. Fedgazette. Minneapolis, MN: Federal Reserve Bank of Minneapolis, January, 2003.

This report analyzes the significance of the child care industry to the economy in North Carolina. Specifically, this report:

- Describes demographic and economic trends and their implications for the child care industry
- Quantifies the direct economic impact that child care currently has on the economy of North Carolina through gross receipts and direct employment
- Discusses economic development and business benefits of child care, including bottom-line returns for individual businesses and substantial returns on targeted public investment
- Provides recommendations to build the capacity and sustainability of quality, affordable child care

Understanding the interaction between the supply of affordable, accessible, quality child care and economic growth will improve the efficiency of investments in the industry and increase North Carolina's economic competitiveness.

Understanding the interaction between the supply of affordable, accessible, quality child care and economic growth will improve the efficiency of investments in the industry and increase North Carolina's economic competitiveness.

## DEFINING THE CHILD CARE INDUSTRY

Child care includes a range of services that educate and nurture young children while enabling parents to work outside the home or attend school. For the purposes of this report, child care includes licensed, formal full-day and part-day child care and early education programs, regulated pre-schools, Head Start, More at Four Pre-kindergarten Programs, family child care homes, after-school programs, and child care centers.

For the purposes of this report, child care includes all formal full-day and part-day early care and education programs, Head Start, More at Four pre-kindergarten program, public pre-schools, family child care homes, after-school programs, and child care centers.

Child care may be regulated or unregulated. Regulated child care meets minimum health and safety standards set by the North Carolina Child Care Commission and regulated by the Division of Child Development in the Department of Health and Human Services.<sup>6</sup> Most regulated establishments are required to be licensed, including most child care centers and many home-based providers, or family child care homes. Some programs run by religious groups are regulated by the Division of Child Development, but are not licensed by them.<sup>7</sup> Some other formal programs are exempt from licensing by the Division of Child Development because they are regulated by another agency. For example, currently, some pre-kindergarten special education programs are exempt from licensing under the Division of Child Development because they are regulated by the Department of Public Instruction.

There are other care arrangements that are not regulated by the state or governed by any specific standards. These are generally known as kith and kin care; friend, family, and neighbor care; or legally

<sup>6</sup>Division of Child Development, [www.ncchildcare.dhhs.state.nc.us](http://www.ncchildcare.dhhs.state.nc.us).

<sup>7</sup> Division of Child Development, 2004. These establishments operate under most licensing guidelines, but some related children's activities and staff qualification and training do not. They account for about 400 centers in North Carolina, which is approximately 9 percent of all centers.

unlicensed child care. These arrangements include care outside the child’s home – in the home of a relative, a neighbor, or a babysitter – as well as care that is provided in the child’s home by nannies, babysitters, relatives and others. Providers of this kind of care are not legally required to have a license. For example, under state law, a license is not required for cooperative arrangements among parents for their convenience and not for any parent’s employment.<sup>8</sup> Similarly, establishments that run programs in which children participate less than four hours per day are not required to be licensed by the Division of Child Development. As child care moves into the formal economy (i.e., the sector is subject to taxes, state regulations, etc), its economic impact is more easily quantified than informal care arrangements or the work of caregivers in the home. Although unregulated child care arrangements are still often used and thus add to the economy, it is more difficult to ascertain their impact. Therefore this report focuses primarily on regulated child care programs.

Analyses in this report focus on regulated child care programs.

By excluding unregulated child care this report’s findings are likely to be underestimates of the total gross receipts and direct employment of the child care industry. As detailed in Section Two, the regulated industry can care for 337,000 children at any one time, but there are 1.4 million children in North Carolina, and the majority of their parents work outside the home. While some arrangements to care for these children may not involve non-parental care or an exchange of money, certainly some do. Statewide surveys collect information based on tax records and include the industry classification “child day care services.” Although these surveys do not provide an accurate picture of the child care industry (see Section Three for more details), comparing survey findings to information on issued child care licenses in the state provides some idea of the size of the unlicensed child care industry. More than 13,000 businesses and self-employed individuals are categorized as “child day care services” in statewide surveys.<sup>9</sup> In comparison, there are 9,200 regulated child care centers and family child care homes in the comprehensive licensing database, suggesting that unlicensed establishments account for a minimum of 30 percent of all establishments.<sup>10</sup> In-kind exchanges or casual payments may not be recorded at all, although they affect the local and state economy. Again, this report excludes unregulated, informal care to ensure that analyses are consistent with a conservative research approach.

## OUTLINE OF THE REPORT

Following this introduction, Section Two describes the demographic and economic profile of the state and the implications for the child care industry. Section Three analyzes the overall economic impacts of the child care industry as measured by both industry earnings and employment and current levels of government investment. Section Four explores the links between child care, business, and economic development, and Section Five considers future implications for the state’s economy and makes conclusions and recommendations.

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<sup>8</sup> North Carolina General Statutes. Article 7, Chapter 110: Child Care Facilities. Retrieved from [http://nrc.uchsc.edu/STATES/NC/nc\\_110.htm#pgfld-538226](http://nrc.uchsc.edu/STATES/NC/nc_110.htm#pgfld-538226), 2004.

<sup>9</sup> U.S. Census Bureau. Non-employer Statistics and County Business Patterns, 2001 (the latest year available). The non-employer survey reports 10,700 self-employed individuals in NAICS code 62-4410 “Child Day Care Services” and the County Business Patterns survey reports 2,534 establishments with employees, for a total of 13,266 separate financial entities (see Section Three of this report for more discussion of NAICS and industry classifications).

<sup>10</sup> The Division of Child Development reports 9,186 establishments in the state, leaving 4,080 additional financial entities unaccounted for by licensed establishments.

# SECTION TWO

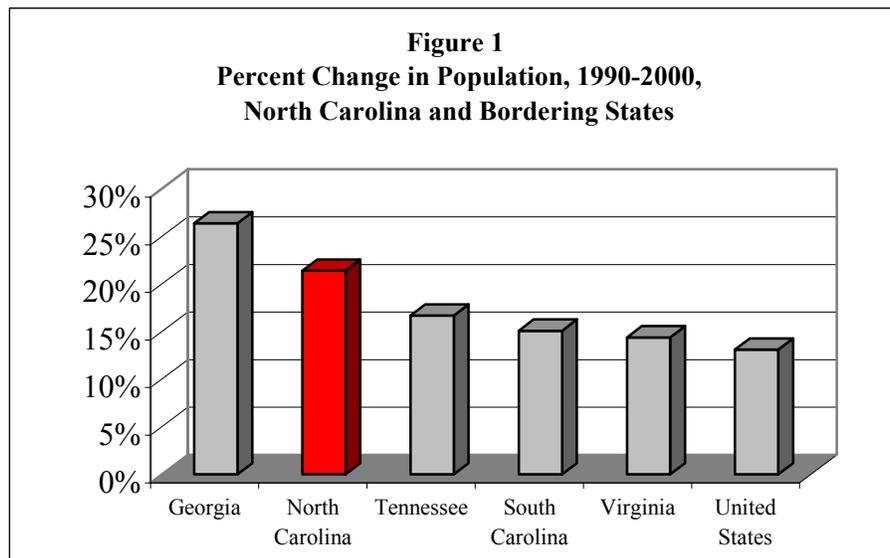
## DEMOGRAPHIC AND ECONOMIC PROFILE OF NORTH CAROLINA

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North Carolina's demographic and economic trends have significant implications for child care programs and children in the state. This section gives a brief overview of those trends, including population shifts, labor force characteristics, employment demands, and cost of living, and discusses their implications for the child care industry.

### POPULATION SIZE AND CHARACTERISTICS

North Carolina saw remarkable population growth from 1990 to 2000.<sup>11</sup> Compared to a population increase of 12.8 percent from 1980 to 1990, the state's growth rate jumped dramatically to 21.4 percent from 1990 to 2000, outpacing the country and almost every border state (see Figure 1). As a result, it is now the eleventh most populous state in the nation with an estimated 8.4 million residents.<sup>12</sup>



Recent population growth has been driven mainly by people moving into the state.<sup>13</sup> In fact, migration into the state accounted for 71 percent of North Carolina's total population growth from 1990 to 2000.<sup>14</sup> Retirees migrated to the state, but so did young professionals. According to the Employment Security Commission, "attracted primarily by the development and growth of high-tech industry, people moved in from all parts of the country in search of better jobs. Expanding job opportunities in services,

<sup>11</sup> U.S. Census Bureau. *Census 1990 and Census 2000*.

<sup>12</sup> U.S. Census Bureau. *Annual Population Estimates by State, 2003*.

<sup>13</sup> North Carolina State Demographic Center. *Past and Expected Trends*. Last Update: June 5, 2002. [www.demog.state.nc.us/demog/extrends.html](http://www.demog.state.nc.us/demog/extrends.html). Retrieved January 21, 2004.

<sup>14</sup> Alfred W. Stuart, PhD. & Douglas M. Orr Jr., PhD. *The North Carolina Atlas Revisited, 2004*.

retail trade, health related profession, and other sectors of the economy also contributed in positive migrations.<sup>15</sup> A high percentage of net migration is projected to continue in North Carolina, with projections ranking the state third among the 50 states in the number of persons gained through migration by 2025.<sup>16</sup>

Young workers will continue to migrate to North Carolina over the next decade.

North Carolina's recent growth in its child population has also outpaced national averages. The state ranks fifth in its growth of children between birth and age 13 from 2000 to 2003. It is one of only 14 states to see increases in the five to 12 year-old age group.

North Carolina ranks fifth among states in recent population growth of children ages birth through 13.

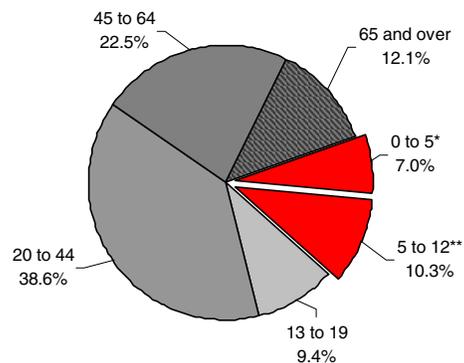
North Carolina's population overall is expected to continue to grow between 2000 and 2010 at a pace of about 17.9 percent.<sup>17</sup> This projection suggests that by the year 2010, the state population will be 9.8 million.<sup>18</sup> By 2030, the

population is expected to increase 54.6 percent, over one-third of which will be attributable to natural population increase (births minus deaths).<sup>19</sup>

A significant number of North Carolina's residents are children. There are currently 1.4 million residents between birth and age twelve, including 583,790 too young for school (birth through those who turn five after October 16) and 863,320 between five and 12. Together, these children make up 17.3 percent of the population. In comparison, seniors 65 and older in the state make up 12.1 percent of the total population (see Figure 2).<sup>20</sup>

While population trends predict an overall increase in the state's median age as those in the baby boomer generation get older, the percentage of children in the state will decrease only slightly overall from 17.8 percent in 2000 to 16.6 percent in 2020.<sup>21</sup>

**Figure 2**  
**Population by Age in North Carolina, 2003**



\* Includes infants through five year olds born after October 16th  
\*\* Includes five year olds born before October 16th

### Implications for Child Care

Children from birth through age 12 make up a significant part of North Carolina's total population, numbering 1.4 million and accounting for over 17 percent of the total population. This highlights the current need for child care programs, while population projections indicate that this need will continue into the future so that young families can enter the labor force.

<sup>15</sup> North Carolina State Demographic Center. *Past and Expected Trends*. Last Update: June 5, 2002.

<sup>16</sup> U.S. Census Bureau. *North Carolina's Population Projections: 1995 to 2025*.

<sup>17</sup> North Carolina State Demographic Center. *County Population Growth 2000 - 2010*. Last Update: May 30, 2002. [www.demog.state.nc.us/demog/grow0010.html](http://www.demog.state.nc.us/demog/grow0010.html). Retrieved January 21, 2004.

<sup>18</sup> Statistical Abstract of the United States 2000, U. S. Department of Commerce, Economic and Statistics Administration, U.S. Government Printing Office, Washington D.C. 2000.

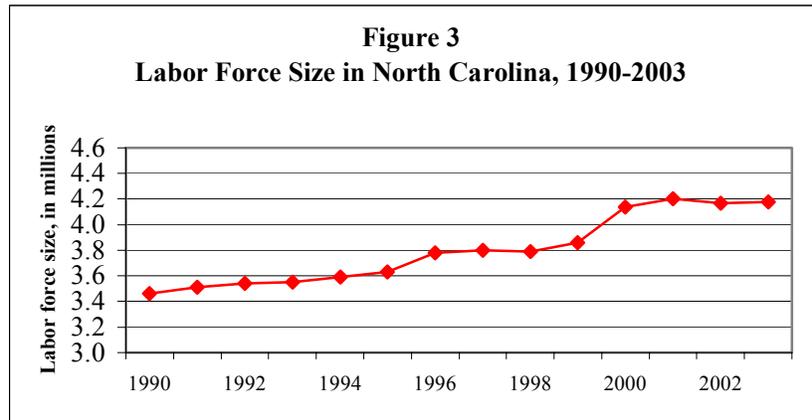
<sup>19</sup> North Carolina State Demographic Center. *Past and Expected Trends*.

<sup>20</sup> U.S. Census Bureau. *Census 2000*.

<sup>21</sup> U.S. Census Bureau. *North Carolina's Population Projections: 1995 to 2025*.

## LABOR FORCE CHARACTERISTICS AND TRENDS

The labor force in North Carolina currently numbers 4.2 million and accounts for 65.7 percent of the total population.<sup>22</sup> With the dramatic population growth of the 1990's, the labor force also experienced significant growth in North Carolina (see Figure 3). From 1990 to 2000, the pool of those just entering the labor pool (people ages 16 to 34) grew only 5.3 percent, indicating that older workers made up the majority of the growth in the labor force over that time period. This trend is not expected to continue



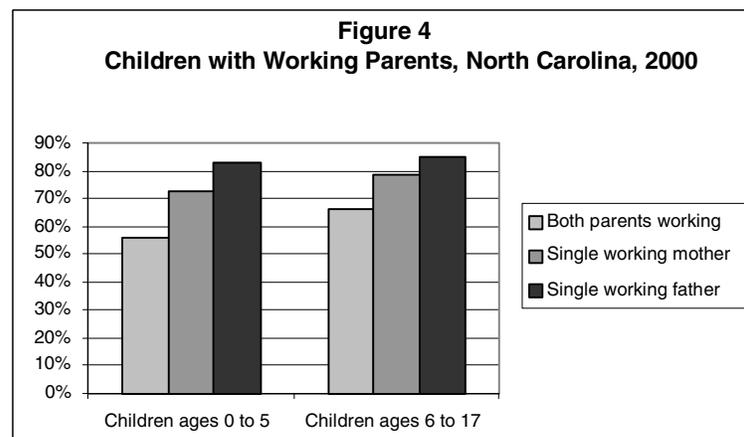
from 2000 to 2030. The pool of those just entering the workforce (ages 16 to 34) is expected to grow by 40.8 percent -- nearly as fast as the pool of older workers (ages 35 to 64), which are expected to grow 48.0 percent.<sup>23</sup> This highlights an increasing need for affordable and accessible child care programs which allow for greater workforce participation of parents of young children.

Young workers will make up a significant portion of labor force growth through 2030.

Currently, approximately 29 percent of labor force participants are parents with children under 18, and 12 percent are parents with children under age six. The majority of children in

North Carolina live in households where all parents are in the labor force (see Figure 4).<sup>24</sup> The 2000 Census indicates that in dual-parent households, 56 percent of young children and 66 percent of school-age children have both parents in the workforce. The vast majority of children living with single parents have their parent in the workforce—73 percent of young children (ages zero to five) living with single mothers, 83 percent of young children living with single fathers, 78 percent of school-age children (ages six to 18) living with mothers, and 85 percent of school-age children living with fathers.<sup>25</sup> Addressing parents' needs for their children's care and education is a vital part of enabling the state's labor force participation.

Most children have working parents.



<sup>22</sup> U.S. Census Bureau. *Census 1990 and Census 2000*.

<sup>23</sup> North Carolina State Demographic Center. *Past and Expected Trends*.

<sup>24</sup> U.S. Census Bureau. *Census 2000*.

<sup>25</sup> Ibid.

As will be discussed in Section Four, the North Carolina labor force, including parents must increase its overall educational level to meet future economic demands. This entails encouraging and enabling current labor force participation to attend higher education and skills training programs and attracting and maintaining a skilled workforce.

#### Implications for Child Care

Parents make up a significant part of the labor force, and their proportion is likely to increase in the future. Child care needs must be addressed to support the labor force.

## INDUSTRY EMPLOYMENT OUTLOOK

Total employment in North Carolina is currently 3.91 million.<sup>26</sup> Employment is estimated to increase by more than 807,000 through 2008, representing a 20 percent increase.<sup>27</sup> A comparison between the projected annualized rate of growth in jobs from 2000 to 2030, 1.8 percent, and the projected annualized rate of growth in the labor force-age population (people ages 16 to 64) over the same time period, 1.5 percent, suggests that there will be a labor force shortfall in the state towards the end of this decade.<sup>28</sup> Affordable, quality, accessible child care programs will be necessary to ensure that all parents who want to work outside the home are able to do so.

Historically, manufacturing has been North Carolina's leading employer but since the early 1990s, the services and trade sectors have exceeded manufacturing. Together, services and retail trade will create 647,000 new jobs between 1998 and 2008, and account for 80 percent of the increase in total employment.<sup>29</sup> The service sector alone is expected to add 511,000 new jobs by 2008, representing a 3.1 percent annual increase through 2008. It is estimated that over the 10-year period of 1998 to 2008, the services sector's share of total employment is expected to expand from 35 to 40 percent. The majority of jobs are in the following areas:

- Business services (employment and temporary help agencies and computer programming)
- Health services (inpatient nursing, health-related personal care services, and home health care)
- Educational institutions (schools, colleges, and higher institutions of learning)
- Eating and drinking establishments<sup>30</sup>

The retail and wholesale trade sector is projected to add over 170,000 new jobs between 1998 and 2008 in a variety of establishments, and will keep its place as the second largest employer in the state. Manufacturing will remain the third largest employer of people in North Carolina, but its share of the labor force is expected to decline by 2008 from its 20 percent share in 1998, and will continue to decline in the future. Current employment information indicates that while annual levels of overall job growth have been lower than projected, the proportion of jobs is shifting according to projections.

A strong economic infrastructure for workers in growing industries must be in place to secure the projected economic growth. Those industries must collaborate with economic development agencies in the state to ensure their employees' needs are met. Industries that require highly skilled workforces and

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<sup>26</sup> U.S. Department of Labor Bureau of Labor Statistics. *Statistics at a Glance: North Carolina*. <http://data.bls.gov>. Retrieved December 15, 2003.

<sup>27</sup> U.S. Census Bureau. *Industry Employment Projections: 2008*.

<sup>28</sup> Ibid and North Carolina State Demographic Center. *Past and Expected Trends*.

<sup>29</sup> U.S. Census Bureau. *Industry Employment Projections: 2008*.

<sup>30</sup> Ibid.

have relatively high wages must ensure that educational opportunities, including high-quality child care, are available and affordable to develop a skilled future workforce in the short and long term. For those in service and trade industry jobs which pay low wages, government supports for families to meet basic needs will be necessary. Industries need to work with government agencies to ensure that their workers have their basic needs met.

The current workforce is already experiencing the effects of these trends. Manufacturing plants have closed, but new job opportunities in the growth industries that require specialized skills are not an option for dislocated workers, most of whom do not have training in the skills required for these growth industries. As a result, many workers are taking new employment at wages far below their original incomes. In 1999 and 2000, new jobs for dislocated manufacturing workers paid 72 percent of original wages, but in 2001, workers were making only 54 percent of their original wages.<sup>31</sup> Families that once relied on one salary may find ends meet with two lower wage jobs, work more hours, and/or need assistance with basic family expenses, such as the cost of child care.

#### Implications for Child Care

Growth industries, including services, retail trade and wholesale trade must work with state and local entities to ensure their employees' needs are met. For working parents joining the growing workforce in these industries, affordable, quality child care must be available for them to further their education and participate in the workforce.

## OCCUPATIONAL EMPLOYMENT PROJECTIONS

Another method for projecting economic growth is through occupations rather than industries. The range of occupations that are a part of the service industry make this analysis useful. Jobs for skilled professionals and those paying low wages will make up the bulk of job growth in the future.

Jobs for skilled professionals and those paying low wages will make up the bulk of job growth in the future.

Skilled professionals are expected to have the highest percentage growth of job openings, while jobs within manufacturing (referred to as 'blue-collar jobs' by the Census) and agricultural employment will experience further decline.<sup>32</sup> Within the skilled professional category, the fastest growing jobs include registered nurses, systems analysts, and elementary and secondary school teachers. Service occupations will be the second fastest job growth area, providing a total of 752,000 jobs by 2008. Within this sector, openings are anticipated for nursing aides, orderlies, home health aides, maids and housekeepers, janitorial staff, flight attendants, waiters, and food industry workers.

Lower-wage service and retail jobs often require employees to work outside of traditional workday hours, so extended quality child care is necessary for them. Similarly, workers in many skilled professional occupations have dynamic work schedules and may require child care that is offered during nontraditional hours to accommodate parents' changing work schedules. For evening, overnight, and weekend care, parents are more likely to prefer child care options that are close to home or work.<sup>33</sup>

Child care is listed as one of the top ten fastest growing occupations in the state.<sup>34</sup> This is based on the industry's rapid growth over the last few years, and highlights its growing importance in the

<sup>31</sup> C. Estes, W. Schweke, and S. Lawrence. *Dislocated Workers in North Carolina: Aiding their Transition to Good Jobs*. Raleigh: North Carolina Justice and Community Development Center, 2002. Data reported is based on Labor Market Information from the North Carolina Employment Securities Commission.

<sup>32</sup> U.S. Census Bureau. *Occupation Employment Projections: 2008*.

<sup>33</sup> North Carolina Division of Child Development, 2004.

<sup>34</sup> U.S. Census Bureau. *Occupation Employment Projections: 2008*.

economy. So it is only fitting that Early Childhood Associate is one of the top ten degree programs in North Carolina Community Colleges by enrollment, and combined with those enrolled in a Special Education Concentration or a Teacher Associate Concentration, early childhood development is one of the top areas of study in community colleges.<sup>35</sup> Keeping these educated individuals in North Carolina's child care industry will improve the capacity of the industry to meet the needs of other North Carolina industries and their employees.

#### Implications for Child Care

Growth in skilled professional occupations indicates that high quality educational opportunities for young children and their parents must be available to ensure that the North Carolina workforce can meet the demands of a knowledge-based economy.

State efforts to attract and retain a skilled workforce rely on North Carolina's ability to strengthen its economic infrastructures, such as child care, in order to maintain high levels of labor force participation and increase the productivity of its workforce. Without accessible and affordable child care, parents will be unable to meet North Carolina's labor demands.

Growth in low-wage occupations indicates the need for support that sustains families who are not economically self-sufficient and an infrastructure that enables employees to get to work during non-traditional hours. For families with children, these supports must include access to child care.

## CHILD CARE PROGRAMS AND THE FAMILY BUDGET

The average annual cost of child care for a three-year-old in a center in North Carolina is nearly \$5,000 in rural counties and nearly \$7,000 in urban counties.<sup>36</sup> Compare this to in-state tuition and fees at North Carolina's public universities which are less than half this average cost of child care in rural parts of the state, and less than one-third the cost of care in urban areas (the median cost tuition and fees was \$2,795 for the 2002-03 school year).<sup>37</sup>

In-state tuition at North Carolina state universities is less than half the average cost of child care for a three-year-old in rural parts of the state, and less than one-third the cost in urban areas.

For families in most income brackets, child care is a significant expense and takes up a sizeable portion of the family budget. Center-based care for an infant and a four-year-old costs almost \$13,000 in urban counties and over \$9,000 in rural counties. The median family income is just over \$46,000, which indicates that costs for child care for two children take up over 27 percent of the total family budget in urban counties and 20 percent in rural counties.<sup>38</sup> The burden is higher for young families who have lower incomes (see Figure 5), and average child care costs for these families make up an even larger portion of their total income. The burden is higher still for single-parent families, who have a lower

<sup>35</sup> Data provided by the North Carolina Community College System for school years 2001-02 and 2002-03, 2004.

<sup>36</sup> North Carolina Division of Child Development, January, 2004.

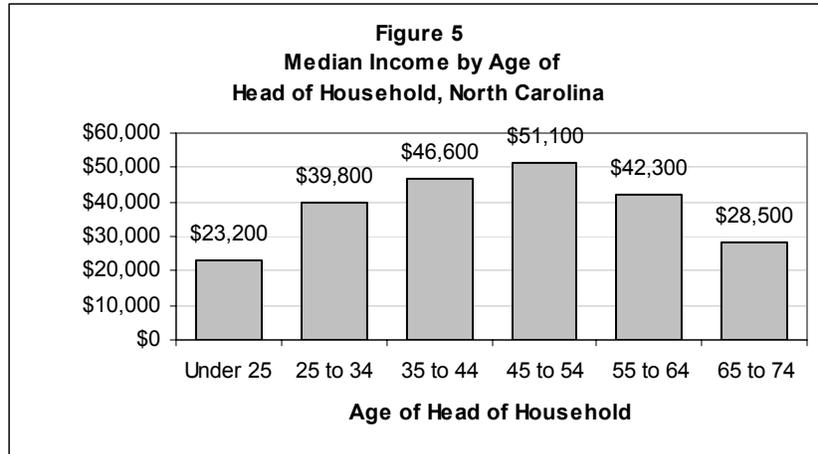
<sup>37</sup> Southern Regional Education Board. Education Data Table 53: Median Annual Tuition and Required Fees for Full-Time Undergraduate Students. Data Library [www.sreb.org](http://www.sreb.org). Retrieved April 20, 2004.

<sup>38</sup> U.S. Census Bureau. Census 2000. Median Incomes are for 1999 and are unadjusted.

median income than other family types. The median income for single mothers with children is only slightly more than one third that of two-parent families with children.<sup>39</sup>

While many families are eligible for assistance, limited program funds leave a large number of them on waiting lists for these programs. State agencies currently estimate that 24,000 families are waiting for government assistance.<sup>40</sup>

Others are just over the state-mandated threshold and have a financial barrier to purchasing quality programs. When parents can't afford these high expenses, children's preparation for school is affected, as is the families' abilities to participate in the labor force.



#### Implications for Child Care

The affordability of child care affects all families, both urban and rural. Child care permits parents to pursue employment opportunities they might not otherwise consider or to maintain their existing employment.

## OVERALL IMPLICATIONS OF DEMOGRAPHIC AND ECONOMIC TRENDS ON THE CHILD CARE INDUSTRY

The changing economy and demographics of North Carolina create challenges for the state's child care industry. Developing economic and social conditions – population shifts, industry trends, and employment shifts – necessitate continued focus on child care programs.

### POPULATION

- Population trends indicate a sustained demand for child care for children from birth to age five and for school-age children ages six to 12.

### LABOR MARKET

- From 2000 to 2030, the pool of those just entering the workforce (North Carolinians ages 16 to 34) will begin to make up a larger percentage of the workforce as baby boomers start retiring. Quality, affordable and accessible child care programs will be necessary to enable their labor force participation.
- Growth in skilled professional jobs necessitates a high quality education system that begins with early education for young children and includes educational opportunities for working parents. Quality child care programs should be available to North Carolina's families to enable them to meet the state's future economic demands.

<sup>39</sup> Ibid.

<sup>40</sup> North Carolina Division of Child Development, 2004.

- Growth in low-wage occupations indicates a sustained need for quality child care programs that are affordable and offered during non-traditional hours.
- The projected demand for a skilled labor force will only be met in North Carolina by providing accessible, affordable quality child care to maintain and increase the attractiveness of the state as a place to live, work, and raise families.

## CHILD CARE AND THE FAMILY BUDGET

- The high cost of child care is a barrier for parents attending school and/or participating in the labor force.
- Over 24,000 eligible families are on wait lists for child care assistance in North Carolina, hurting local and state economies by making vulnerable a family's chance for financial independence and contribution through employment.<sup>41</sup>

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<sup>41</sup> North Carolina Division of Child Development, 2004.

# SECTION THREE

## ECONOMIC PROFILE OF THE CHILD CARE INDUSTRY

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This section assesses the economic characteristics of the state’s child care industry, including:

- The size of the industry, as reflected in output or gross receipts
- The total direct employment of the industry
- The capture of federal and state monies designated for child care
- The child care market

It should be re-emphasized that the economic analysis covers regulated child care programs and excludes unregulated and informal child care. In addition, as part of a conservative approach, the analyses in this section do not include revenue and employment in indirect support services through the child care infrastructure, including oversight, administration, research, and training activities at government, non-profit, and for-profit establishments that do not also provide direct services to children. Thus, the findings in this report are underestimates of the full impact of child care in North Carolina.

### MEASURING INDUSTRY OUTPUT OR GROSS RECEIPTS

Output, also known as gross receipts, measures the size of an industry in terms of the overall value of the goods and services produced by that industry over the course of a given year. For the child care industry, gross receipts are equal to the total amount of dollars flowing into the sector in the form of payments for care, including both parent fees and private and public subsidies, and other revenues paid to the industry outside of children’s tuition.

State and national surveys do include “child day care services” as an industry classification, but the diversity of establishments, which includes self-employed individuals, programs run by religious or social organizations, and not-for-profit and for-profit small businesses and chains, causes an underestimate with most economic and business survey methodologies. This study uses a more accurate method of measuring the size of the child care industry, relying primarily on data from state agencies charged with administering the complex system that makes up the child care industry (please see Appendix A for a detailed methodology).<sup>42</sup>

Using the more comprehensive methodology, the total gross receipts of the child care industry in North Carolina is \$1.5 billion.

The child care industry in North Carolina has annual gross receipts of \$1.5 billion.

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<sup>42</sup> Private pay dollars were calculated by multiplying enrollment numbers of children whose families do not receive any government child care assistance by average yearly market rates for 2003, according to the North Carolina Division of Child Development (DCD). To ensure that this revenue was accurately captured, market rate and enrollment were broken down by type of establishment (family child care homes and center-based programs) and by county. For center-based programs, market rate and enrollment were further broken down by age of child. In addition to direct dollars from private pay, money comes into the industry in other ways as well. Subsidies for low-income families, and payments for low-income children’s meals come from various state agencies into the child care industry. DCD, the North Carolina Partnership for Children, More at Four Pre-kindergarten Program, and Child Care Services Association each provided detailed expenditure information for government programs for state fiscal year (SFY) 2003.

To ensure that the gross receipts estimate is conservative, all administrative monies to oversee these programs by infrastructure leaders, such as the North Carolina Division of Child Development (DCD), the North Carolina Child Care Resource and Referral Network, More at Four Pre-kindergarten Program, or the North Carolina Partnership for Children are excluded from the gross receipts value. Administration within a child care establishment is included. In North Carolina, monies are paid directly to establishments for a number of programs designed to enhance the quality of care. Those are a part of the overall revenues for the industry, and are included in the gross receipts analysis. They include salary supplements, health insurance benefits, and some professional development opportunities available to participants in the child care workforce.

This analysis also does not include investments in a particular program outside of consumer price. For example, if an individual company made a grant to an on-site or nearby establishment which enabled the establishment to offer services at a lower cost to parents, only the final cost to parents would be captured. This discrepancy would result in an underestimate of the total dollars going into the industry.

Non-parent expenditures for direct services to children are captured by this analysis, however. For example, employer contributions made directly to parent-employees that make up a portion of the consumer price paid towards child care programs would be included. Similarly, county-level public assistance for child care slots in addition to the subsidies administered by DCD would be included in the gross receipts estimate.

The U.S. Census Bureau's Economic Census reports gross receipts for "child day care services" totaling \$558 million in North Carolina.<sup>43</sup> This value is slightly more than one-third of the more comprehensive value calculated in this report. Some of the discrepancy is likely due to the time difference between data collection (1997 to 2003) while some is due to the Census Bureau's less comprehensive industry classification.

## GROSS RECEIPTS COMPARED WITH OTHER INDUSTRIES

Comparing the child care industry's gross receipts with other industries in the state puts the gross receipts calculation into context. North Carolina industries range widely in size, from \$283,000 for the welcoming services industry to more than \$19 billion for retail sales of new automobiles.<sup>44</sup> Comparing the child care industry with North Carolina's other industry sectors indicates that child care is on par with other major industries in the state (see Figure 1).<sup>45</sup>

Child care is considerably larger than telecommunications and is 1.5 times the size of the scientific research and development industry, which includes bio-technology and high-tech research and development in the state. Child care is similar in size to other industries in the state recognized as being significant, such as tobacco farming and hotels and motels. The child care industry is three-quarters the size of the furniture store sales in the state, for which North Carolina is nationally known.<sup>46</sup> The child care industry is more than five times larger than wholesale poultry and poultry products.

The gross receipts of child care are larger than scientific research and development and wireless telecommunications in the state combined.

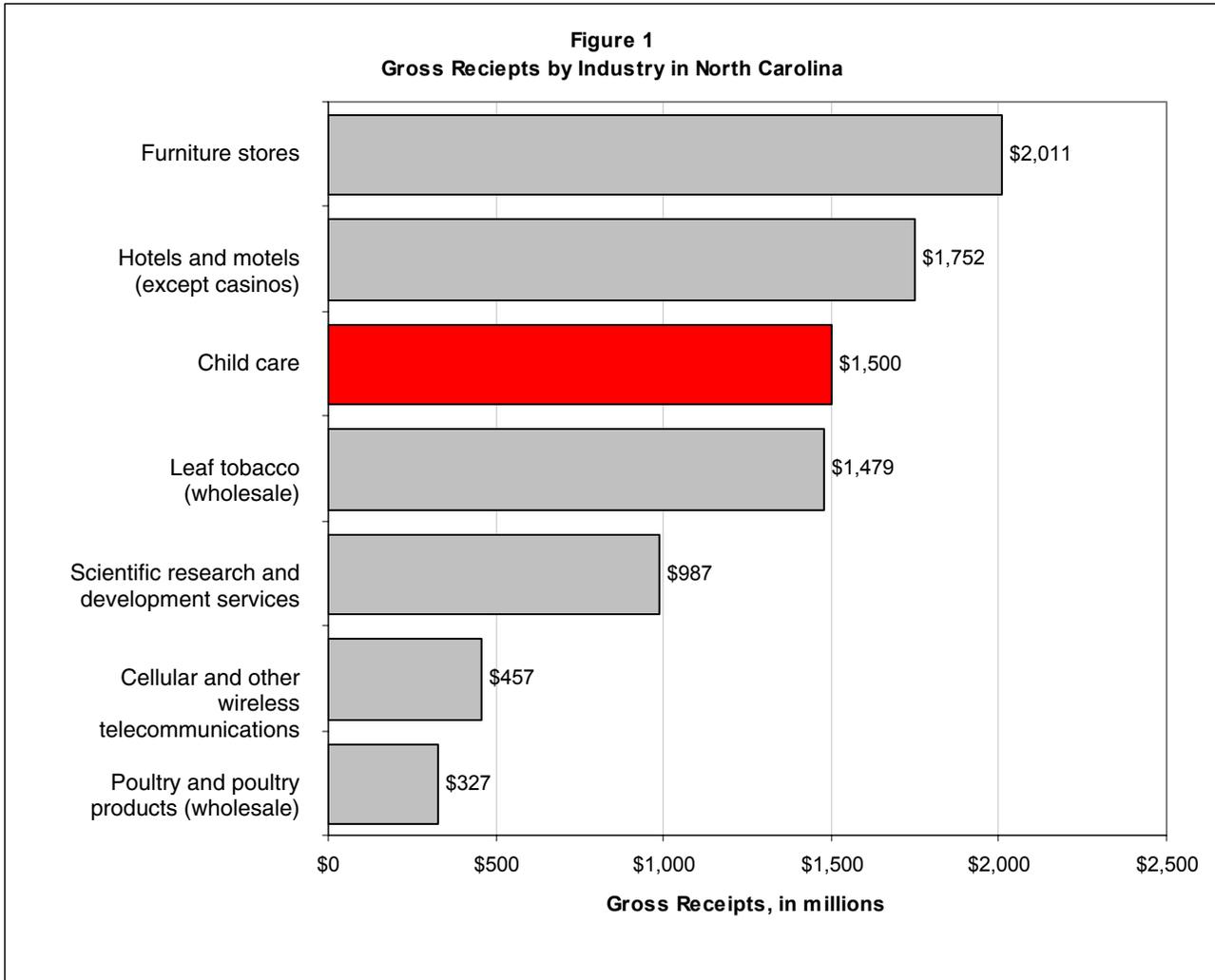
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<sup>43</sup> U.S. Census Bureau. 1997 Economic Census. The Census is mailed to a list based on U.S. businesses with employer identification numbers (EIN), and excludes private households and governments. The 1997 Economic Census is the most recent for which data is available, and although the value has been adjusted to 2003, it may not reflect industry changes over the past five years.

<sup>44</sup> Based on the U. S. Census Bureau's 1997 Economic Census, and adjusted to 2003 values using the CPI. Welcoming Services, NAICS code 5418901 is defined as "establishments primarily engaged in providing promotional business services to tourists and new residents of a community", [www.census.gov](http://www.census.gov).

<sup>45</sup> Based on the U. S. Census Bureau's 1997 Economic Census and adjusted to 2003 values using the CPI.

<sup>46</sup> Ibid.



## DIRECT EMPLOYMENT

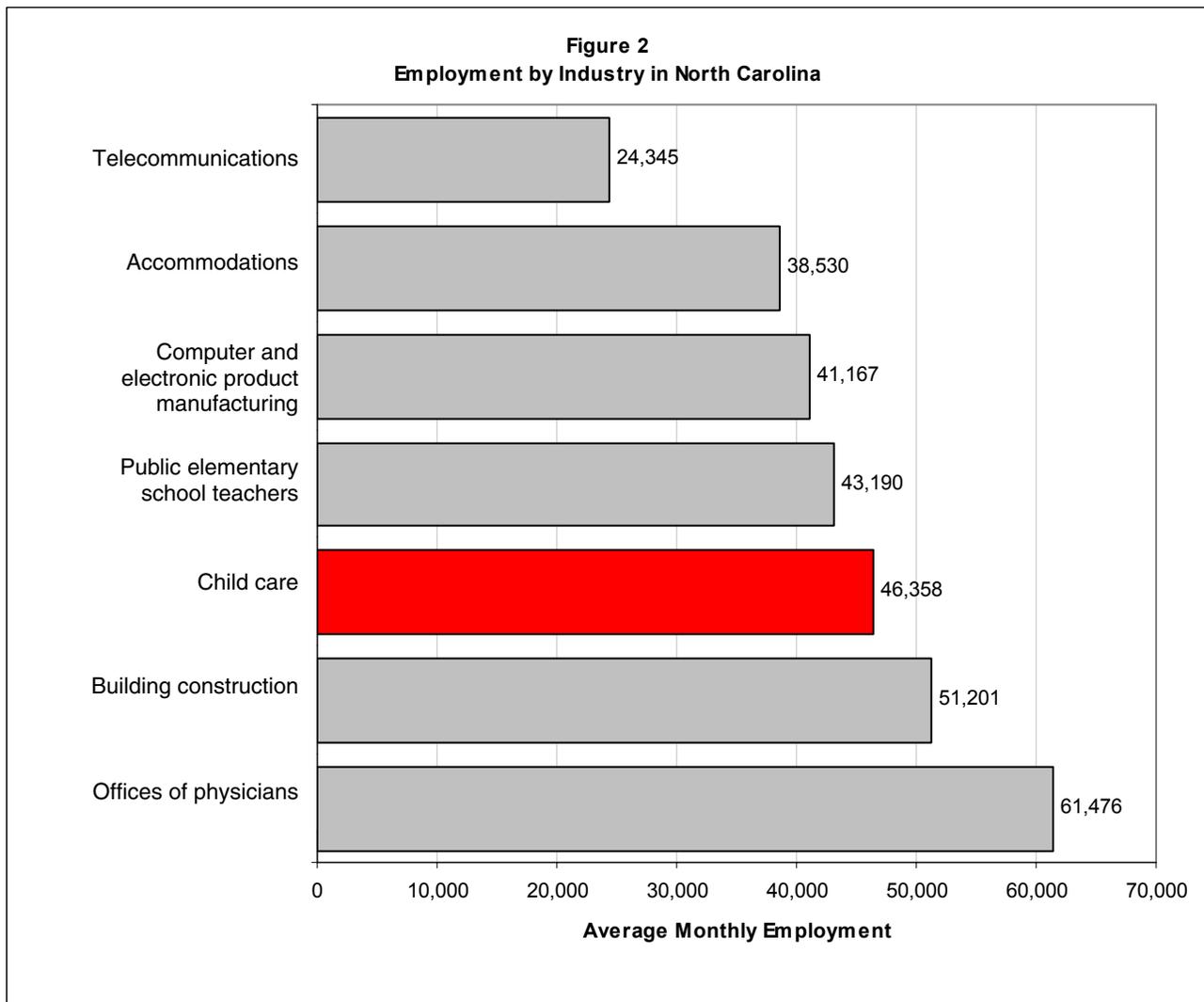
The Division of Child Development’s database includes regularly updated information about the number of people employed at child care facilities. Using staff-to-child ratios for the programs that are not included in the database, direct employment for child care in 2003 in North Carolina is estimated to be more than 46,000 employees.<sup>47</sup> This employment finding understates the total child care economic activity because it only counts minimal staff-to-child ratios in license-exempt formal programs, and also excludes informal care-giving by nannies, babysitters, relatives, or neighbors. It also does not include employees in pre-kindergarten programs in public facilities not yet licensed.

The child care industry directly supports more than 46,000 employees.

<sup>47</sup> North Carolina Division of Child Development data and Department of Public Instruction, May 2003.

## DIRECT EMPLOYMENT COMPARED WITH OTHER INDUSTRIES

To put employment findings in context, the number of employees in child care is compared to employment in other industries (see Figure 2). There are more child care professionals than there are public elementary school teachers or employees in computer and electronics manufacturing.<sup>48</sup> Almost twice as many people work in child care than telecommunications in the state. The child care industry is on a par with building construction and has slightly fewer employees than all doctors' offices. There are more employees in child care in the state than there are workers in the tourism industry's hotels, motels, and other accommodations.



<sup>48</sup> Elementary School Teachers employment data is from the Department of Public Instruction, *North Carolina Public Schools Statistical Profile: 2003*, p. 29. Elementary school teachers are defined as those who teach grade Kindergarten through Eighth Grades. All other employment data is from North Carolina Employment Security Commission. 2003 North Carolina Covered Employment and Wages (ES-202) survey, [www.eslmi12.esc.state.nc.us](http://www.eslmi12.esc.state.nc.us).

## MEASURING INDIRECT AND INDUCED EFFECTS

Child care is linked to the rest of the local economy in a number of ways. Child care providers purchase supplies from other businesses and employees spend their earnings in part on locally produced goods and services. These linkages can be measured using an input-output model and its associated multipliers, a methodology used by some economic development specialists. Many informed observers have indicated that these effects are not part of a conservative approach and thus these analyses are not included in the main body of this report. Information about these multipliers and child care linkages to other industries is included in Appendix B.

## FEDERAL AND STATE INVESTMENTS

The state and federal governments provide support for child care, including child care assistance, child development programs, and quality improvement. Federal spending for child care increased significantly with the passage of welfare reform. State investments are required to draw down some of the federal funds, and the availability of both federal and state child care supports plays an important role in local economic development, sustained employment of low-income families, and the development of North Carolina's children for future economic success. Funding areas that provide direct services in local communities are described here with the most recent funding information available. Some of these funds are a part of the gross receipts, but some do not go to direct services in licensed child care settings, and are therefore not a part of the gross receipts analysis earlier in this section.

- Child care assistance to help low-income North Carolina families afford child care programs is administered by the Division of Child Development and the Division of Social Services. In state fiscal year (SFY) 2003, assistance programs spent \$310 million in state appropriations and federal Child Care Development Fund (CCDF), Social Services Block Grant (SSBG) and Temporary Assistance to Needy Families (TANF) funds.<sup>49</sup> Of these funds, \$237.3 million were federal and \$72.5 million were state dollars.
- Another major source of funding for the child care industry is the Smart Start initiative, which is overseen by the North Carolina Partnership for Children. Smart Start is intended to build the infrastructure for quality child care to “ensure that all children under the age of six are healthy and prepared for success when they enter school.”<sup>50</sup> Smart Start funding totaled \$167.8 million in SFY 2003. Some of this money, \$59.7 million, funds child care assistance programs for income-eligible families.
- Head Start serves children from birth to age five, pregnant women, and families in child-focused programs designed to increase school readiness of young children in low-income families.<sup>51</sup> Because the federal government gives grants directly to agencies, county and statewide information is only available through surveying these agencies. A survey for current funding levels is underway. In federal fiscal year (FFY) 2001-02, North Carolina received \$120.6 million in federal funds for Head Start and an additional \$20.1 million for Early Head Start, expansion grants, and other related monies, for a total of \$141.7 million.<sup>52</sup>

North Carolina received \$141.7 million in state and federal funds for Head Start and Early Head Start child development programs.

<sup>49</sup> North Carolina Division of Child Development, provided February 2004.

<sup>50</sup> North Carolina Partnership for Children. *Smart Start: Celebrating 10 Years, 1993-2003*. Raleigh: North Carolina Partnership for Children, 2003.

<sup>51</sup> US Department of Health and Human Services, Administration for Children, Youth and Families; Head Start website at <http://www2.acf.dhhs.gov/programs/hsb/about/index.htm>.

<sup>52</sup> North Carolina Division of Child Development, January 2004.

- The United States Department of Agriculture runs a child care food program which contributes dollars directly to services within the industry, amounting to \$61.7 million for North Carolina. These funds enable providers to supply nutritious meals for children in low-income families.
- The Department of Public Instruction (DPI) runs pre-school programs for children with special needs. In SFY 2003, state funds totaled \$34.4 million and federal monies totaled \$10.5 million for a total of \$44.9 million. DPI also oversees federal Title I monies to provide pre-school programs in public schools for children at risk of school failure. These funds totaled \$39.8 million in North Carolina in SFY 2003. In addition, DPI collaborates with the Department of Health and Human Services to provide general guidance to the More at Four state pre-kindergarten program. More at Four is housed in the Office of the Governor and funds high-quality pre-kindergarten services for at-risk four-year-olds. More at Four is built on the existing service delivery system and funds child care slots in public school programs, Head Start programs, and non-profit and for-profit child care centers that meet More at Four standards. In SFY 2003, the program expended \$16.4 million in state funds which was blended with other funding to serve 7,600 students in 90 counties. In 2003-04, the program is expected to serve more than 10,000 children.
- Developmental Day programs for children with mental health problems totaled \$13.3 million.
- In addition, child care WAGE\$® scholarships and the T.E.A.C.H. Early Childhood® Project, two national programs initiated in North Carolina, provide salary supplements to child care professionals in North Carolina to encourage them to remain in the field and to take advantage of professional development opportunities. These programs also enable child care establishments to reduce the operating costs they must pass through to consumers, which, in turn, reduces the market rate that parents must pay. WAGE\$ salary supplements total \$7.0 million and T.E.A.C.H. distributed \$2.2 in teacher scholarships and \$1.7 in provider health insurance funding for a total of \$3.9 million.<sup>53</sup> The vast majority of these funds come from the state.

In total, North Carolina received \$493 million in federal funds for child care in SFY 2003.

In total, North Carolina received \$493 million in federal funds for direct services for child care in SFY 2003.

These funds are combined to create a child care system that can respond to different families' needs as seamlessly as possible. Many child care slots for low-income children are funded through a blend of monies from these different programs. Together, child care assistance to income-eligible families served over 150,000 children in SFY 2003. Still, 24,000 families are on waiting lists to receive government assistance.<sup>54</sup>

## THE CHILD CARE MARKET

Currently, the child care industry, including licensed child care centers, Head Start facilities, family child care homes, after-school programs, and pre-schools, has the capacity to serve 337,000 children at any one time.<sup>55</sup> Overall, there are an estimated 1.4 million children ages birth to twelve in the state, and 24 percent can be served at any one time by formal child care programs.

The child care industry can serve 337,000 children at any one time, 24 percent of all children from birth through age twelve.

<sup>53</sup> Child Care Services data for State Fiscal Year 2003, January 2004.

<sup>54</sup> North Carolina Division of Child Development, 2004.

<sup>55</sup> Data for all licensed programs as of June 2003 provided by North Carolina Division of Child Development, January 2004.

The percentage of children served varies considerably by age. Infants and toddlers are significantly more underserved than pre-schoolers, who are served by public pre-schools as well as centers and family child care homes (see Table 1).<sup>56</sup> The number of school-age children who are served by formal programs is low, although there are a variety of license-exempt, unregulated programs available to school-age children, such as parks and recreation programs, that are not captured in this analysis.

Age (in years)	Number in Population	Current Full-time Enrollment <sup>*</sup>	Percent of Population Served
Infants (less than 1)	116,171	15,202	13
1	113,502	23,843	21
2	109,432	31,941	29
3	109,014	38,516	35
4	111,870	43,314	39
5, not yet in school <sup>†</sup>	23,803	15,899	67
5 to 12, in school <sup>‡</sup>	863,315	56,113	6

<sup>\*</sup> This value may underestimate the total number of children using child care, because one full-time enrolled slot could serve more than one child if each child goes part time.

<sup>†</sup> Children whose birthdays fall after October 16<sup>th</sup>.

<sup>‡</sup> This includes only programs in licensed settings.

## DEMAND

Demand for the industry relies on key factors: need, quality, affordability, accessibility, and preference. These factors are interrelated, thus making it difficult to quantify market demand from an economic standpoint. Given the high labor force participation rates of parents, the need for some form of child care to enable parents to work outside the home is strong. The parental demand for quality is growing as parents understand the importance of quality early education opportunities for young children and how to identify quality programs using North Carolina's star rating system. Implemented in September 2000, the voluntary star rating system awards one to five stars based on evaluation by the Division of Child Development in three areas: program standards, staff education, and compliance history. Industry and economic development leaders also recognize that early education opportunities are the foundation of a high-quality education system in North Carolina (see Section Four). Their efforts to increase the quality of child care programs and educate parents will encourage parents to demand quality.

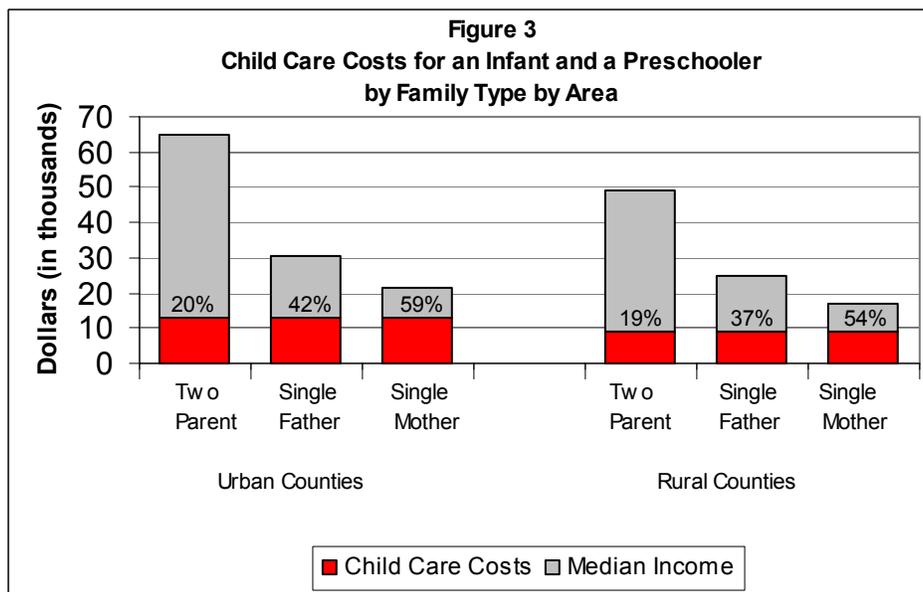
Affordability and accessibility remain critical barriers for many families who need or would prefer quality licensed child care. Demographic and economic trends indicate that more families will be challenged by these issues as the low-wage workforce expands.

As discussed in the previous section, center-based care for an infant and a four-year-old costs almost \$13,000 in urban counties and over \$9,000 in rural counties.<sup>57</sup> Comparing average child care

<sup>56</sup> U.S. Census Bureau. *Annual Population Estimates by State for July, 2003*, December, 2002. Estimates of the proportion of children in the 2003 population are based on Census 2000 and U.S. Census Bureau Population Estimates for 2003.

<sup>57</sup> Division of Child Development's market rate survey, 2004, averaged across fifteen urban and 85 rural counties as defined by the North Carolina Rural Economic Development Center.

costs to median incomes of various family types shows that child care expenses take up a significant portion of a family budget (see Figure 3).<sup>58</sup> For two-parent families living at the median income in rural counties, average child care costs for an infant and a pre-schooler take up 19 percent of the entire family income. For a single-mother household in an urban county, child care expenses for those two children make up over 50 percent of the total family income. Rent and mortgage payments are typically considered to be the largest family budget item, yet general home-ownership guidelines suggest that



mortgage payments should never be more than 28 percent of total family income.<sup>59</sup> Clearly child care costs are not in line with these budgeting guidelines.

Given the high costs of care relative to the median incomes of families with children, it is not surprising that many families are eligible for public assistance with their young children’s tuition costs. Limited program funds leave many of these families on waiting lists for assistance programs despite their eligibility. Others are just over the state-mandated threshold and have financial barriers to purchasing quality programs. The high expense affects not only children’s preparation for school, but also families’ abilities to participate in the labor force.

Accessibility refers to parents’ ability to use programs. Location, hours of operation, and transitions between part-day programs all affect accessibility. Rural and urban areas differ in the best service delivery system, since transportation and commuting patterns as well as parental preferences differ. Efforts to expand the industry to meet the growing needs of working parents and to improve the quality will not be successful unless affordability and accessibility for parents are addressed. If these factors are addressed, however, demand for regulated child care will continue to grow in the state.

## INCOME OF PARENTS USING REGULATED CHILD CARE

<sup>58</sup> Median incomes derived from U.S. Census Bureau, Census 2000. Median income by family type for 1999 was averaged across fifteen urban and 85 rural counties as defined by the North Carolina Rural Economic Development Center, and weighted for number of families in each county.

<sup>59</sup> Fannie Mae Foundation. “Becoming a Homeowner: How Much House Can You Afford?” [www.fanniemae.com](http://www.fanniemae.com), Retrieved April 20, 2004.

Current enrollment in regulated child care programs can be combined with Census information on the average size and median income of various family types in North Carolina to estimate the earnings of parents who use regulated child care for their children under age six. But because of the way the Census reports information, it is not possible to accurately estimate the income of families who use child care for their school-age children. More than 126,000 families have children under six in licensed care. Using the state median incomes for families with children, these families earn a total of \$6.2 billion.<sup>60</sup> This is a snapshot of the economic contribution that parents make to the state's economy in their earnings. As discussed in the previous section, however, these sizeable earnings do not mean that child care is easily affordable for many of these families.

## MAXIMIZING BENEFITS OF INDUSTRY GROWTH

Child care is expected to be one of the top ten fastest occupation growth areas through 2008, based on its recent growth and expectations that demographic and economic trends contributing to that growth will continue.<sup>61</sup>

Child care is expected to be one of the top ten fastest occupation growth areas in North Carolina.

But the industry faces challenges. It needs to meet increased demand for quality, affordable, and accessible programs that ensure maximum benefits for parents, business, and government alike. These challenges include:

- Lack of integration with economic development activities
- Barriers to increased quality
- Insufficient investment by other industries and government

First, because child care is a part of the economic infrastructure that enables people to work, it needs to be included in traditional economic development activities designed to stimulate the state's economy, which is not always the case. Child care providers are the largest group of self-employed individuals in North Carolina. They also represent a significant portion of small businesses in the state. Yet resources available to small businesses and entrepreneurs in North Carolina, such as business skills training and technical assistance in getting loans, are often not targeted to child care providers. They would be very valuable to help for-profit and not-for-profit facilities, both operating with tight budgets, with business planning for program stability and continued success.

Second, to improve quality, increasing the professionalization of the child care workforce is critical. Low wages, poor benefits, and inadequate higher education opportunities lead to high turnover and an unstable and less educated workforce. The average annual wage of a child care professional in North Carolina is \$14,893.<sup>62</sup> Center directors report that only 14 percent of staff receive fully paid health benefits, and 29 percent of teachers do not have any health benefits at all.<sup>63</sup> Only 51 percent receive time off for training.<sup>64</sup> About one in five center-based teachers said they would leave the field in three years. They cited low wages, even after getting a Bachelor's or higher degree, as one of the main reasons. If

The average annual wage of a child care professional in North Carolina is less than \$15,000 and only 14 percent of centers offer fully paid health benefits.

<sup>60</sup> Derived from U.S. Census Bureau, Census 2000 and Division of Child Development's enrollment data for May 2003. Median family income in 1999, weighted for family type, and average number of children under age 6, were used from the Census. Median income was adjusted to 2003 dollar values using the CPI.

<sup>61</sup> U.S. Census Bureau. *Occupation Projections: North Carolina, 2000*.

<sup>62</sup> Employment Security Commission. *North Carolina Occupational Employment and Wages, 2003*. Retrieved from <http://eslmi12.esc.state.nc.us/oeswage/>, March 7, 2004.

<sup>63</sup> S. Russell, J. Lyons, E. Schwab, and T. Smith. *Working in Child Care in North Carolina 2003*. Chapel Hill: Child Care Services Association, 2004.

<sup>64</sup> Ibid.

other occupations require similar skill levels and pay better, there is little incentive to stay in this field. Similarly, in a survey of family child care providers, 30 percent reported having no health insurance at all, and 13 percent reported they will be out of the field in three years.<sup>65</sup> There are a number of efforts underway to improve educational attainment, wages, benefits, and the retention rate of the child care workforce. Expanding these efforts will help the industry meet barriers to increasing quality.

Third, costs to parents must be brought down. Relying on parents to pay the full cost of quality, accessible child care is not realistic. As household expenditures in other areas go up and in many cases, wages go down (see the previous section), quality child care is cost-prohibitive for families in many income brackets. Increased investment by other beneficiaries of the child care system is necessary. These beneficiaries include industries who rely on a skilled workforce, economic development agencies working to create sustainable communities in North Carolina, and workforce agencies ensuring that people remain employed despite low wages. The benefits for these other stakeholders will be discussed in more detail in the following section.

## SUMMARY OF THE CHILD CARE INDUSTRY'S ECONOMIC PROFILE

The diversity of the child care system is a vital feature in its ability to meet the needs of North Carolina' families, but makes it difficult to analyze and measure. However, using data maintained by organizations that administer programs and track the supply, market price, and licensure of child care facilities, an estimate of its composite size can be derived. This overall size, measured in terms of gross receipts and employment, is comparable to many other more easily recognizable industries in the state, such as scientific research and development and wireless telecommunications.

The substantial size of the child care industry means that it not only supports the economy by allowing parents to work outside the home and preparing children for future academic success, but also contributes to the economy's vitality by employing significant numbers of workers, generating gross receipts, and purchasing goods and services from many other industry sectors. The industry also supports the economy by garnering significant levels of federal funds available to support quality improvement and to provide child care to low-income families. These families represent a substantial portion of the existing and potential workforce, and are vital to the continued growth of the economy.

Efforts to address challenges to growth will ensure that the child care industry can meet the needs of the North Carolina economy.

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<sup>65</sup> Ibid.

# SECTION FOUR

## CHILD CARE, BUSINESS AND ECONOMIC DEVELOPMENT

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In addition to being a significant job-creating, income-generating industry in its own right, there are five key ways in which the child care industry is linked to North Carolina businesses and the economy as a whole in the state. Child care:

- Enables parents to participate in the labor force in North Carolina
- Drives labor force productivity by decreasing absenteeism, reducing turnover, and enhancing recruitment at existing businesses
- Attracts businesses to North Carolina by increasing education and quality of life indicators
- Cultivates North Carolina's future workforce by improving the cognitive skills and emotional well-being of children and ensuring that they enter the traditional K-12 school system ready to continue learning
- Offers a financial return by reducing future public spending in such areas as criminal justice, remedial education, unemployment, and welfare

### ENABLING THE CURRENT LABOR FORCE

A strong child care industry:

- Sustains labor force participation rates of parents
- Enables career development and educational advancement
- Attracts young working families to the state and helps retain them

### *Sustaining Labor Force Participation*

Most parents work outside the home. Almost one in three labor force participants is a parent with a child under 18, and more than one in ten is a parent with a child under age six. In total, the half-million North Carolina families with children under 18 in which all parents work outside the home earn over \$34.5 billion annually.<sup>66</sup> Working parents with children under 6 earn \$13.8 billion dollars every year.<sup>67</sup> These estimates provide a snapshot of the vital role that working parents play in the economy.

Nearly one in three North Carolina workers has children under 18 and together they earn more than \$34.5 billion annually.

Similar to roads, public works, and bridges, child care is one of the economic infrastructures that enables parents'

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<sup>66</sup> Based on Census 2000 median income by family type, employment status of householders by children and age, and average number of children in each family type in North Carolina.

<sup>67</sup> This estimate is derived from Census 2000 median income by family type and families who have at least one child under 6. They may also have older children, so many are included in the estimate of families with children under age 18.

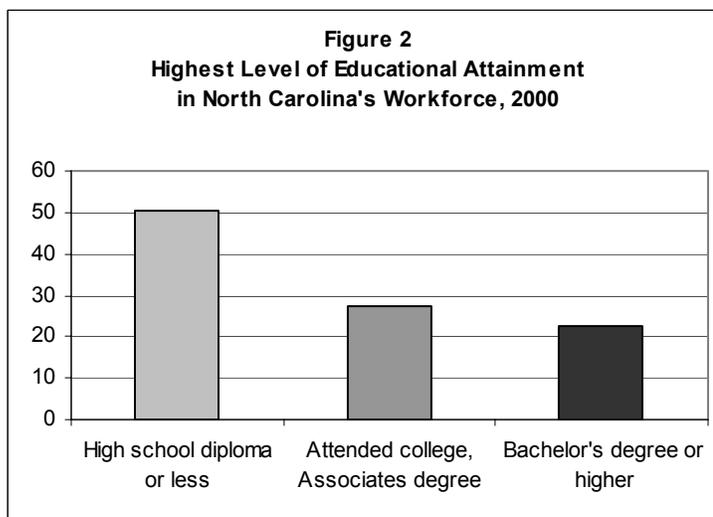
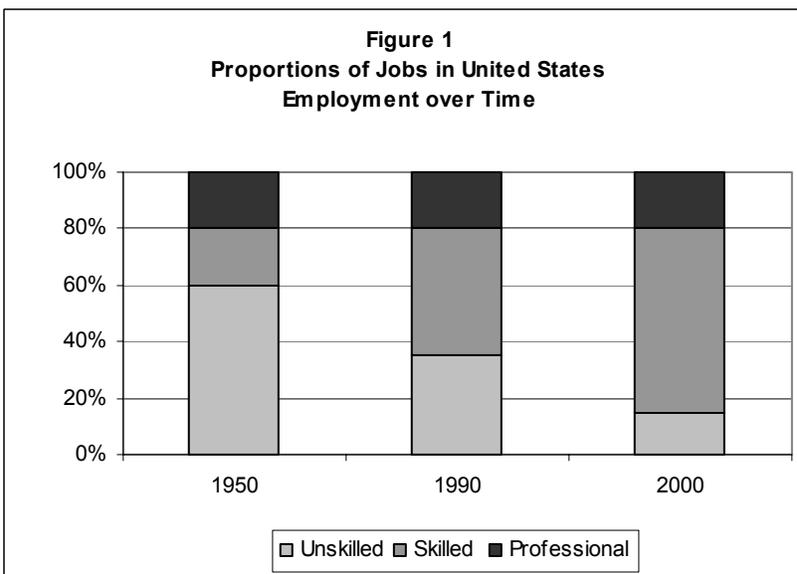
labor force participation. Providing the infrastructure so that all adults who wish to work outside the home can find and sustain employment is critical to meeting workforce demands for an economically competitive region. It offers the economy an untapped labor force in those who wish to work outside the home but who are unable to do so because they are caring for children.

### *Enabling Career Development and Educational Advancement*

More and more jobs require higher educational attainment and skills training (see Figure 1).<sup>68</sup> The availability of affordable, accessible child care affects parents' ability to pursue additional education or training. As the state shifts from manufacturing to high- and bio-technology, it is paramount to ensure that North Carolina's workers have access to skills training and higher education degrees so that they can be prepared to enter the workforce as skilled professionals or be able to develop new skills and change careers.

The current North Carolina workforce is unprepared for the demands of the labor market (see Figure 2).<sup>69</sup> The North Carolina Economic Development Board released a strategic plan in which it stated that "North Carolina must provide its workers with the opportunity to receive exceptional educational opportunities at all stages of their careers – from the emerging workforce to the dislocated workers needing to learn new skills or the incumbent workers who seek additional training or higher education."<sup>70</sup>

Clearly, for parents, a significant portion of the emerging, dislocated, and incumbent workforce, child care options are critical to enabling these educational opportunities. Child care subsidies for income-eligible families are restricted to two years of higher education. In counties where there are not enough funds to support all eligible families, the county has to decide which families will receive priority for services. Usually child care to support employment and child protective services are the top two priorities which means that a parent enrolled in post-secondary education remains on the waiting list until funding becomes available, if it ever does. The



<sup>68</sup> Figure 1 from the North Carolina Budget and Tax Center. *The State of the State's Economy: From Boom to Bust and Beyond*. Raleigh, fall 2003.

<sup>69</sup> Figure 2 from the North Carolina Budget and Tax Center's *State of the State's Economy*.

<sup>70</sup> North Carolina Economic Development Board. *We Are Changing the Way We Do Business: North Carolina's 2002 Economic Development Strategic Plan*. Raleigh, 2002.

state has appropriated funds towards child care for student-parents in the community college system, although these funds are restricted to those in curriculum programs and do not support parents in continuing education or basic skills classes. Associate Director of Student Development Services Karen Yerby added, “We do know from talking to colleges that not being able to afford child care is one of the main deterrents to coming to college.”<sup>71</sup> Strengthening these supports would increase human capital in North Carolina, and result in economic benefits to:

Strengthening child care supports for parents to attend educational programs would benefit the economy.

- Individuals through higher incomes
- Government through larger tax revenues, decreased reliance on government programs, and lower unemployment
- Businesses through a more skilled workforce and better productivity

In a long-term study of low-income North Carolina families who needed government assistance to meet basic family needs, mothers with children who participated in an intensive child development program that included parental involvement, achieved higher educational and employment status than similar mothers whose children were not randomly assigned to the program.<sup>72</sup>

Higher educational attainment reduces the likelihood of needing various government supports. A study investigating higher education opportunities for individuals transitioning from welfare to work found that 88 percent of individuals receiving welfare assistance who obtained four-year college degrees discontinued participation in welfare after earning their degree.<sup>73</sup> Unemployment is also less likely for those who have attained higher education: while 9 percent of the nation’s labor force with less than a high school diploma were unemployed between October 2002 and October 2003, only 5.4 percent of those with high school graduation, 4.8 percent of those with an associate’s degree or some college, and 3.1 percent of those with a Bachelor’s degree or higher were unemployed.<sup>74</sup>

Higher education levels increase income and decrease the need for government programs such as welfare and unemployment insurance.

Ensuring access to higher education for parents will help them meet the skilled labor force demands in North Carolina in the coming years. This benefits the

whole state’s economy. Expanding capacity in child care programs offered during non-traditional hours makes it possible for parents to enroll in classes or programs that are offered outside of the traditional work day.

### *Attracting and Retaining Young Workers*

Initiatives that encourage young adults and working families to settle in an area are critical to maintaining a healthy workforce in the state. As discussed in Section Two, many economic and civic leaders are realizing the importance of making social and economic policy changes to attract young professionals to North Carolina. A strong economic infrastructure, which includes a quality child care system, creates the sustainable communities that attract young professionals to the state.

<sup>71</sup> Karen Yerby, Associate Director, Student Development Services, North Carolina Community College System> Interview with National Economic Development and Law Center, May 3, 2004.

<sup>72</sup> Discussion of results of *The Abecedarian Study*, as cited on [www.fpg.unc.edu/~abc/](http://www.fpg.unc.edu/~abc/).

<sup>73</sup> T. Karier, *Welfare Graduates: College and Financial Independence*, Levy Economics Institute of Bard College, as cited in *Grassroots to Graduation: Low-income Women Accessing Higher Education*. Boston: Wellesley College Center for Research on Women and Women’s Institute for Housing and Economic Development, 2003.

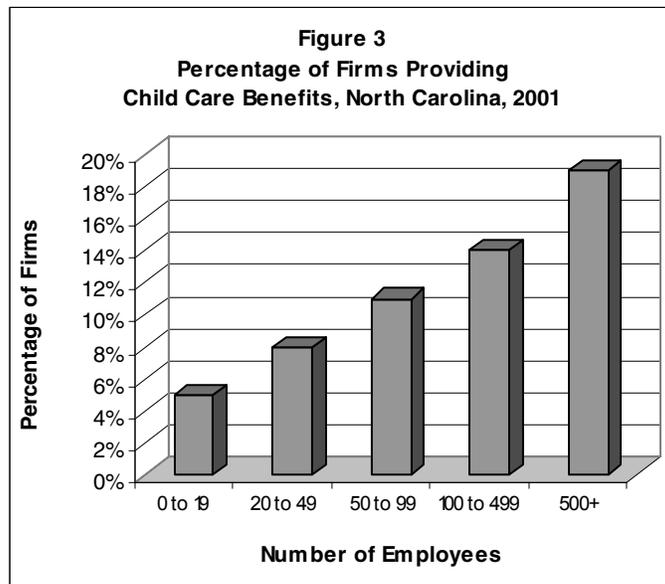
<sup>74</sup> U.S. Department of Labor. *The Employment Situation: October 2003*. Washington, D.C. : U.S. Department of Labor Bureau of Labor Statistics, 2003.

Maintaining a skilled workforce is also a critical component of attracting businesses to North Carolina. As the North Carolina Department of Commerce states, “North Carolina’s ability to attract and retain high growth industries increasingly depends on our capacity to supply a skilled labor force.”<sup>75</sup> Ensuring that parents are not left out of these efforts will benefit the state’s economy.

Improving child care opportunities makes North Carolina a more attractive place to live and work.

## BOLSTERING LABOR FORCE PRODUCTIVITY

The benefits to the labor force on a state level can be seen in individual businesses as well. The availability of affordable, accessible, quality child care has positive effects on businesses’ bottom lines. As a result, many companies work to ensure that good child care options exist for their employees. In North Carolina, the likelihood of child care benefits increases with the number of employees a company has. Approximately 19 percent of firms with more than 500 employees offered child care assistance, compared to around 5 percent of firms with fewer than 20 workers (see Figure 3).<sup>76</sup>



Individual businesses use child care as a business tool to:

- Increase employee retention
- Reduce absenteeism
- Enhance recruitment of the most skilled workers

<sup>75</sup> North Carolina Department of Commerce Division of Employment and Training. *The State of North Carolina Workforce Reinvestment Act Annual Report, 2002*. Raleigh, 2002.

<sup>76</sup> The Employment and Security Commission of North Carolina. *Company Policies and Fringe Benefits Survey: Day Care Assistance Statistics, 2001*.

## Increasing Employee Retention

Retaining existing staff is a priority, particularly for companies that rely on highly skilled workers. Non-portable benefits, such as child care, are an effective business tool to keep employees with young children from discontinuing work or moving to a more family-friendly company. Those who feel supported in their new family roles and who feel that their workplaces support a balance between work outside the home and home obligations are less likely to leave their jobs.<sup>77</sup> Child care benefits can also be used as a business tool to increase career advancement of female employees, an expressed goal of many companies.<sup>78</sup>

There is considerable evidence that child care benefits increase employee retention. A national study of companies that offer child care centers to their employees found that turnover was nearly one-half in those who used the center compared to other workers.<sup>79</sup> The survey also found that more than half of the center users had been with their company for more than five years and nearly half had been with their company for more than ten years. In a national survey, 19 percent of employees at companies with child care programs indicated that they have turned down another job rather than lose work-site child care.<sup>80</sup> A survey of employees at Bank of America headquartered in Charlotte found that those who used an income-eligible child care subsidy program offered by the bank were twice as likely to remain with the bank than those in similar jobs who did not use the program.<sup>81</sup>

When employees do leave because of child care problems or transfer to a company with better child care options, companies lose human capital and incur high turnover costs. A meta-analysis of 15 different turnover cost studies found that average turnover costs for a full-time employee making \$8 per hour are over \$9,000, 56 percent of the annual wages for that employee.<sup>82</sup> For salaried employees, costs are at least 150 percent of the base salary, and increase even more for higher-paid and more valued staff.<sup>83</sup>

On-site child care is an expensive option and not feasible for many employers in the state. Other options to increase retention do exist, however. For example, at the Market Central Operations Center in Jacksonville, North Carolina, the company provides education about local resource and referral agencies that can help employees find appropriate child care. As Steve Schmitz, Recruiter and Interviewer, said, "What we're trying to do is keep employees. Our goal is to keep them long term. If we can show that we care about them and their families, they're more likely to stay."<sup>84</sup>

A national study of companies that sponsor child care centers to their employees found that turnover was nearly one-half in those who used the center compared to other workers.

Bank of America employees in Charlotte who use a benefit to reimburse some of the costs of child care are twice as likely to remain as their peers.

<sup>77</sup> Blue Cross Blue Shield of Massachusetts. "Blue Cross Blue Shield of Massachusetts Named One of the 100 Best Companies for Working Mothers Nationwide." September 23, 2003, [www.bcbsma.com](http://www.bcbsma.com).

<sup>78</sup> Ibid. Other companies who have been recognized as one of the "100 Best Companies for Working Mothers" have expressed goals for advancing women in their organization.

<sup>79</sup> Bright Horizons Family Solutions. *The Real Savings from Employer-sponsored Child Care: Investment Impact Study Results*. Boston, MA: Bright Horizons, 2003.

<sup>80</sup> Simmons College, *Benefits of Work-Site Child Care*, 1997, as cited by Bright Horizons Family Solutions.

<sup>81</sup> Employee survey completed in January 2003, according to Litchfield, L.C., Swanberg, J.E., and Sigworth, C.M. *Increasing the Visibility of the Invisible Workforce: Model Programs and Policies for Hourly and Lower-Wage Employees*. Boston College Center for Work & Family, Carroll School of Management, April 2004.

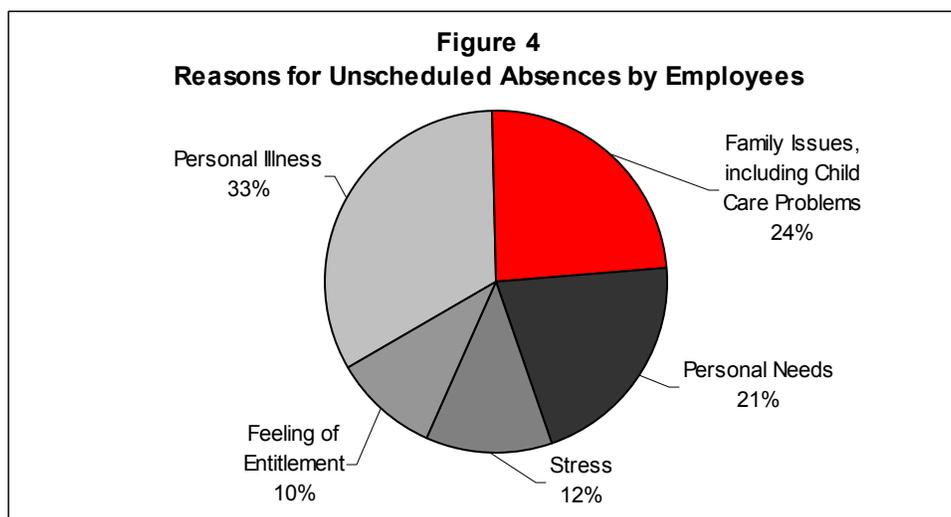
<sup>82</sup> Sasha Corporation. Turnover costs in 15 different studies. [www.sashacorp.com](http://www.sashacorp.com). November 2003.

<sup>83</sup> W. Bliss. *The Business Cost and Impact of Employee Turnover*. New Jersey: Bliss & Associates, Inc., [www.blissassociates.com](http://www.blissassociates.com) 1999.

<sup>84</sup> Steve Schmitz. Interview with the National Economic Development and Law Center, 2004.

## Reducing Absenteeism

Unscheduled absenteeism in 2002 cost an average of \$60,000 per year per small company and more than \$3.6 million per large company, according to a national survey of human resource executives.<sup>85</sup> While one-third of unscheduled absences were due to personal illness, one-quarter were due to family issues, including children's illness and unscheduled breakdown of child care arrangements (see Figure 4).



Currently, approximately 16 percent of major employers nationally offer sick or emergency back-up care to reduce absenteeism of their employees.<sup>86</sup> These programs offer a significant return on investment. PNC Financial Services Group, a 6,000 employee company based in Pittsburgh, Pennsylvania, found a 91.7 percent return on investment from a newly implemented back-up program, recovering 3,060 parent-days at work and receiving positive feedback from parent-employees, their coworkers, and their managers, who report less distraction and more loyalty.<sup>87</sup> Human resources staff at Bank of America report that parental financial supports for stable, quality child care reduces absenteeism and increase productivity because parents are able to concentrate on their work.<sup>88</sup>

## Enhancing Recruitment

The accessibility of quality, affordable child care, on-site or in the community, is a strong recruitment tool for businesses. Family-friendly policies indicate a company's commitment to the personal well-being of employees, which make the company more attractive in a competitive workforce market. Particularly for highly specialized workers, company values are critical to attracting the best of the labor pool, with or without young children. Wachovia Corporation, headquartered in Charlotte, North Carolina, offers flexible scheduling for employees to balance work and home-life demands. Wachovia has found it easier to fill entry-level positions and finds that "recruiting and retaining employees is one of the primary

<sup>85</sup> Harris Interactive. *The 2002 CCH® Unscheduled Absence Survey*. Riverwoods, IL: CCH®, 2003.

<sup>86</sup> Hewitt Associates. "Hewitt Study Shows Work/Life Benefits Continue to Grow Despite Slowing Economy" April 23, 2001. [www.was.hewitt.com](http://www.was.hewitt.com)

<sup>87</sup> K. D'Appolonia. *The Business Case for Back-Up Child Care*. PNC Financial Services Group. Presented at the 2003 WorkFamily Congress in New York, NY, October, 2003.

<sup>88</sup> Litchfield, L.C., Swanberg, J.E., and Sigworth, C.M. *Increasing the Visibility of the Invisible Workforce: Model Programs and Policies for Hourly and Lower-Wage Employees*. Boston College Center for Work & Family, Carroll School of Management, April 2004.

benefits of offering Flexible Work Options to its workforce.”<sup>89</sup> Similarly, David Selheim, General Manager of Consolidated Diesel Company in Whitakers, North Carolina said, “Companies that have family-friendly policies will have the advantage of attracting and retaining the best workforce in a given area.”<sup>90</sup>

Employees with and without children value child care benefits. In a recent survey of employees at two North Carolina companies offering on-site child care, half of employees without young children would support taxing themselves \$5 per pay period to support on-site child care.<sup>91</sup>

## ATTRACTING BUSINESSES TO NORTH CAROLINA

Just as businesses try to gain a competitive edge in recruiting employees from other regions of the country or other businesses in the area, the state tries to recruit the best businesses to North Carolina. The state’s pro-business policies and efforts have ranked it top in business climate three years in a row in a national magazine devoted to business relocation.<sup>92</sup> Relatively low business costs in relation to other states, an educated and robust workforce, healthy communities, and high quality of life all contribute to business relocation decisions. A strong, quality child care infrastructure is an important component of these indicators. As discussed earlier in this section, child care supports the career development of parents.

Business recruitment relies on a strong workforce, healthy communities, and high quality of life. A strong, quality child care infrastructure is an important component of these indicators.

R.H. Donnelly, a public company that is the largest stand-alone publisher of yellow pages, has 1,300 employees and is relocating its headquarters to Raleigh. According to Chairman and CEO David Swanson, “As a public company, we had to make this decision with shareholders and employees in mind.”<sup>93</sup> He stated that quality-of-life indicators affected the company’s choice. “‘Raleigh-Durham is regarded as one of this country’s best places to live and work,’ Swanson explained. ‘These are important elements to our employees and their families and instrumental in helping us recruit future employees as we grow.’”<sup>94</sup> Secretary of Commerce Jim Fain said, “If North Carolina is to retain and grow the industries of the 21<sup>st</sup> century, we must have quality child care in place. Employers and employees want a comprehensive community infrastructure, and excellent child care is a vital part of that infrastructure.”<sup>95</sup>

“If North Carolina is to retain and grow the industries of the 21<sup>st</sup> century, we must have quality child care in place. Employers and employees want a comprehensive community infrastructure, and excellent child care is a vital part of that infrastructure.”

- Secretary of Commerce Jim Fain

<sup>89</sup> Ibid., p. 70.

<sup>90</sup> D. Selheim, Consolidated Diesel Company, Internal Communication, 2004.

<sup>91</sup> R. Connelly, D.S. DeGraff, and R.A. Willis. Kids at Work: The Value of Employer-Sponsored On-Site Child Care Centers. W.E. Upjohn Institute: Kalamazoo, MI, 2004.

<sup>92</sup> Starnier, R. “2003 Business Climate Report. North Carolina’s Three-Peat Sets Benchmark. Tar Heel State Named No. 1 Business Climate for Third Consecutive Year.” *Site Selection Magazine*, November 2003. [www.siteselection.com](http://www.siteselection.com), Retrieved April 21, 2004. The annual ranking is determined by new plant performance and by the results of an annual survey of corporate real estate executives.

<sup>93</sup> Lyne, J. “North Carolina’s New Incentive Helps Land Donnelley HQ, 275 Jobs” *Site Selection Magazine*, [www.siteselection.com](http://www.siteselection.com) August, 2003., Retrieved April 21, 2004.

<sup>94</sup> Ibid.

<sup>95</sup> Jim Fain, Secretary of Commerce for the State of North Carolina, Internal Communication with the National Economic Development and Law Center, 2004.

## ENSURING NORTH CAROLINA'S FUTURE LABOR FORCE

There is a demonstrable link between high-quality child care programs and the preparation of qualified, skilled individuals entering the labor force. While not every early education program can guarantee lifelong success for its participants, quality early childhood education and care can increase children's ability to enter traditional K-12 schooling ready to continue learning so that they are prepared for future opportunities.<sup>96</sup> Decades of research have been dedicated to understanding the effects of child care on young children. A number of large surveys and long-term studies have consistently found that quality child care programs are beneficial to young children.

For example, a national survey found that young children who attended higher quality and more stable child care centers had the following characteristics through elementary school, compared to peers in care settings rated as having poorer quality:<sup>97</sup>

- Improved math and language ability
- Enhanced cognitive and social skills
- Fewer behavioral issues

The National Academy of Sciences recently brought together a committee of experts to synthesize research on early childhood development. They agreed that "the effects of child care derive not from its use or nonuse but from the quality of the experiences it provides to young children."<sup>98</sup>

The Smart Start initiative in North Carolina was launched in 1993 because "every child can benefit from, and should have access to, high-quality early childhood education and development services. The economic future and well-being of the state depend on it."<sup>99</sup> Now in its tenth year, evaluation findings from this quality initiative show substantial effects for North Carolina's young children. The researchers found that Smart Start increases program quality and that North Carolina children "who attended high quality centers score significantly higher on measures of skills and abilities deemed important for success in kindergarten than children from lower-quality centers."<sup>100</sup> Specifically, children in higher quality settings had significantly higher scores on tests of language literacy, including print awareness, book knowledge, and receptive language, and numerical skills, including counting and applied math.<sup>101</sup>

In an evaluation of North Carolina's Smart Start initiative, children in higher quality settings had significantly higher scores on tests of language literacy and numerical skills.

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<sup>96</sup> J. Brooks-Gunn. "Do You Believe in Magic? What We Can Expect from Early Childhood Intervention Programs." *Social Policy Report*, 17, 1. Society for Research in Child Development, 2003.

<sup>97</sup> E. S. Peisner-Feinberg, M. R. Burchinal, R. M. Clifford, M. L. Culkin, C. Howes, S. L. Kagan, and N. Yazejian. "The Relation of Preschool Child-Care Quality to Children's Cognitive and Social Development Trajectories through Second Grade." *Child Development*. September/October 2001, Volume 72, Number 5, Pages 1534-1553. Quality was assessed in this study using the following criteria: classroom quality measures using the Early Childhood Environment Rating Scale (ECERS), teacher sensitivity using the Caregiver Interaction Scale (CIS), child-centered teaching style using Early Childhood Observation Form (ECOF), teacher responsiveness using Adult Involvement Scale (AIS). In addition, teacher-child relationship and child assessment measures were used.

<sup>98</sup> J. Shonkoff and D.A. Phillips, Editors. *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington, D.C.: National Academies Press, 2000, p. 307.

<sup>99</sup> Smart Start's authorizing legislation, as quoted in: North Carolina Partnership for Children. *Smart Start: Celebrating 10 Years: 1993 – 2003*. Raleigh, 2003.

<sup>100</sup> FPG-UNC Smart Start Evaluation Team. *Smart Start and Preschool Child Care Quality in NC: Change over Time and Relation to Children's Readiness*. Chapel Hill, 2003.

<sup>101</sup> Ibid.

Smart Start's success in North Carolina garnered it two Innovations in American Government Awards and a national award from the Council of State Governments. The Smart Start Technical Assistance Center has provided assistance to dozens of states including intensive technical assistance grants to seven states to replicate the North Carolina system.<sup>102</sup>

In 2000, North Carolina also implemented a star-rating system, in which higher quality settings have higher star ratings from the state's Division of Child Development to indicate quality levels to parents and providers. The star system (described in Section Three) is successful in providing the tool to measure quality and the incentive for providers to achieve it.

Schools and universities receive public and private investments because their role in educating and preparing children for the future labor market is clear. While more research will enable a better understanding of the long-term effects of high-quality child care for all children, current findings indicate that investments in early education have greater returns than educational investments in later life because younger people have more time to generate returns on investments and because "skill begets skill."<sup>103</sup> As Governor Easley said when he announced the More at Four Pre-kindergarten Program, "Continued investments in our educational system will pay off in the long run by attracting high quality companies and bring good jobs to North Carolina. Education is the key to successful economic development."<sup>104</sup>

"Continued investments in our educational system will pay off in the long run by attracting high quality companies and bring good jobs to North Carolina. Education is the key to successful economic development."

*Governor Mike Easley, announcing the state's More at Four Pre-kindergarten Program*

Despite the research showing the effects of quality early educational opportunities and the success of the Smart Start initiative, North Carolina's investments in children under age six are considerably lower than those for children in later years (see Table 1). Per pupil state expenditure on students in kindergarten through twelfth grade was \$4,535 in 2001-02.<sup>105</sup> In the Higher Education system, state and local funds for educational and general operations was \$8,100 per full-time equivalent student in 2001-02, putting North Carolina in the top of all states.<sup>106</sup> The total state investment per child under six enrolled in licensed care is \$770, less than one tenth the investments in higher education.<sup>107</sup> The proportion that families must pay for their children's education is highest when children are between birth and age six. Clearly state investments in child care are not proportionate to investments in K-12 and higher education.<sup>108</sup>

<sup>102</sup> North Carolina Partnership for Children. *Smart Start: Celebrating 10 Years: 1993 – 2003*. Raleigh, 2003.

<sup>103</sup> J. J. Heckman and A. W. Forum. Policies to Foster Human Capital Joint Center for Poverty Research working paper, Northwestern University/University of Chicago, page 39.

<sup>104</sup> Governor's Press Office. *Governor Easley Announces First Round of More at Four Pre-K Program Grants*. Raleigh: 2001.

<sup>105</sup> K-12 data from the North Carolina Department of Public Instruction. Facts and Figures. <http://www.ncpublicschools.org/fbs/factsfigs.htm> Retrieved March 18, 2004.

<sup>106</sup> Southern Regional Education Board. Public Funds for Education and General Operations per Full-time Equivalent Student at Public Four-year Universities and Colleges, 2001-02. Per student tuition and fees information for 2002-03 is available; it is \$2,795. Data Library [www.sreb.org](http://www.sreb.org). Retrieved March 26, 2004. It is not possible to separate the local from state investments.

<sup>107</sup> Based on state funds for direct services (More at Four Pre-kindergarten Program), workforce programs (T.E.A.C.H. and WAGE\$), and quality enhancement dollars (including non-subsidy Smart Start dollars) and total enrollment in licensed child care programs.

<sup>108</sup> Only state investments are included in this analysis. Each level of education also has federal investments. Federal investments in higher education per student are not available. Combined federal and state investments for K-12 education, per student, is \$6,696 (as reported on the website: <http://www.ncpublicschools.org/fbs/factsfigs.htm>). Combined federal and state investments in early education and care is \$4,493 per student, still far less than K-12 education.

**Table 1**  
**State and Family Investments in Education in North Carolina**

<i>Education level</i>	<i>Cost for Families without Assistance</i>	<i>State Investment per Student*</i>	<i>Percentage of Investment from State Monies</i>
Child Care/Early Education, 2002-03**	\$5,740	\$770	13%
K – 12, 2001-02	\$0	\$4,535	100%
Four-year Public Colleges and Universities, 2001-02	\$2,641	\$8,100	74%

\* State investments calculated as investments in quality or services that affect all students; specific income-eligible financial aid programs in early and higher education are not included.

\*\* Rate is statewide average for center-based care for a three-year-old.

Government and economic development leaders have openly discussed the need for the state to ensure that it has a skilled workforce prepared for the economic demands of tomorrow. These recent efforts are more likely to succeed if there is an understanding that quality child care is part of that education system. The first goal of the Economic Development Board’s Strategic Plan is to “develop an outstanding education system and a highly qualified workforce.”<sup>109</sup> The plan recommends that North Carolina must “coordinate and improve the quality of K-16 public education to prepare students for further education and enhanced work opportunities.”<sup>110</sup> This goal does not take advantage of the already demonstrated success of quality early education in improving school readiness in North Carolina. Not recognizing quality early childhood programs as the beginning of an outstanding education in the state will decrease the impact of investments in a skilled and educated workforce.

“Early learning begets later learning and later success.”  
-James J. Heckman, Nobel Prize-Winning Economist, University of Chicago

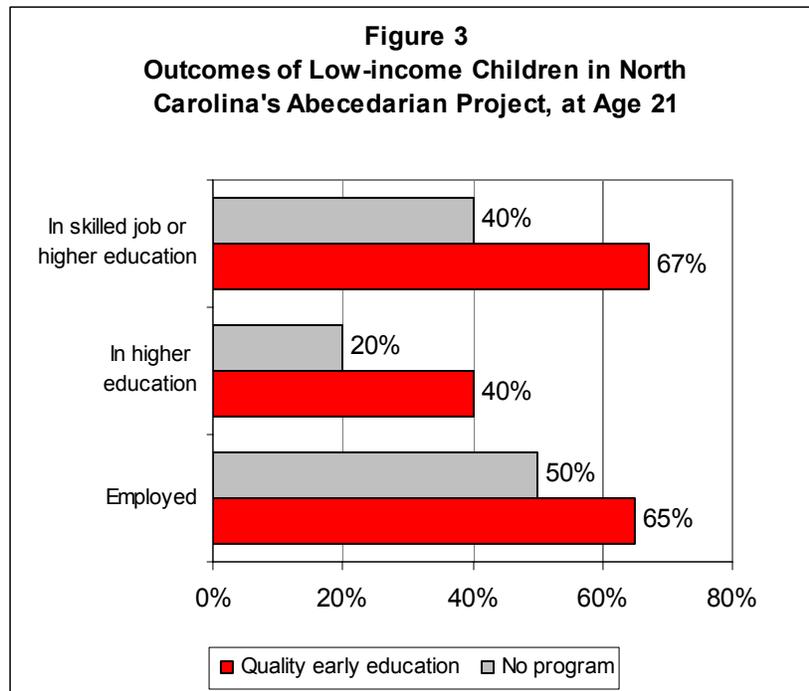
## INVESTING FOR A SIGNIFICANT FINANCIAL RETURN

Cost-benefit analyses of three long-term, high-quality, early education intervention programs indicate that there are significant future public savings when money is invested in high-quality child care, particularly for low-income children. One of these flagship studies, the Abecedarian Study, was conducted by the University of North Carolina at Chapel Hill. A group of low-income children were randomly assigned to an early intervention program and a second group of participants were not offered the program. Researchers found that, at age 21, the children who participated in the early intervention program were significantly more likely to attend college and be in a high-skilled job or in higher education (see Figure 3).<sup>111</sup>

<sup>109</sup> North Carolina Economic Development Board. *North Carolina’s Economic Development Strategic Plan, 2002.*

<sup>110</sup> *Ibid.*, pg. 6.

<sup>111</sup> See The Frank Porter Graham Child Development Institute at the University of North Carolina at Chapel Hill, *Early Learning, Later Success: The Abecedarian Study.* [www.fpg.unc.edu/~abc/](http://www.fpg.unc.edu/~abc/).



In another long-term study, the Chicago CPC Study, low-income children in a high-quality, child-focused intervention program were less likely to drop out of high school, be in special education, repeat a grade, or be arrested as juveniles than peers.<sup>112</sup> A third study, the High/Scope Perry Study, found that individuals who were in the high-quality child care program as children earned more money, were more likely to own their own home and were less likely to have been on welfare at age 27 than their peers who were not randomly assigned to the program.<sup>113</sup>

Decreasing the need for remedial education in the traditional school system and decreasing involvement in the criminal justice and welfare systems save public funds. Increased earnings by adults who attended quality early education programs translate to a larger tax base. Future savings can also be found in criminal justice costs and tangible costs to victims; decreased child welfare spending associated with child abuse and neglect; and decreased health costs from smoking and other causes. One cost that rises with increased investment in early education is higher education, because children are more likely to attend higher education. Economists have analyzed the overall costs and benefits of these three child care programs. They found that significant cost savings were realized in each program (see Table 2 for a summary).<sup>114</sup>

<sup>112</sup> A. J. Reynolds, J. A. Temple, D. L. Robertson, E. A. Mann. "Long-term effects of an early childhood intervention on educational achievement and juvenile arrest- A 15-year follow-up of low-income children in public schools." *Journal of American Medical Association*, May 19, 2001, v. 285, no. 18, pp. 2239-2346.

<sup>113</sup> L. J. Schweinwart, H. V. Barnes, and D. P. Weikart. *Significant benefits: The High/Scope Perry preschool study through age 27* (Monographs of the High/Scope Educational Research Foundation, 10). Ypsilanti, MI: High/Scope Press, 1993.

<sup>114</sup> Reynolds, Arthur J., Temple, Judy A., Robertson, Dylan L., Mann, Emily A. "Age 21 Cost-Benefit Analysis of the Title I Chicago Child-Parent Center Program: Executive Summary", 2001, and Reynolds, A. J., Temple, J. A. Robertson, D. L., Mann, E. A. & Ou, S. "Prevention and cost-effectiveness in the Chicago Child-Parent Centers." Paper presented at the Biennial Meeting of Society for Research in Child Development, Tampa, FL, April 2003. Values are in 1998 dollars, and benefits are based on a 3 % discount rate evaluated at beginning of pre-school participation. Barnett, Steven, W. *Lives in the Balance: Age 27 benefit-cost analysis of the High/Scope Perry Preschool Program*. Ypsilanti, MI: High/Scope Press. Values are in constant dollars and based on a 3% discount rate. Leonard N. Masse and W. Steven Barnett. *A Benefit Cost Analysis of the Abecedarian Early Childhood Intervention*. New Brunswick, NJ: National Institute for Early Education Research, 2002. Values are in 2002 dollars, and are discounted at 3 %.

	Number of Years of Program	Average Annual Cost per Child	Total Cost of Program per Child	Lifetime Benefit to Society per Child
Chicago CPC Study	2, half-day	\$3,500	\$7,000	\$48,000
Perry Pre-School Project	2, half-day	\$6,000	\$12,000	\$108,000
Abecedarian Project	5, full-day	\$7,200	\$36,000	\$136,000

All dollar values reported are based on a 3 percent discount rate.

These findings indicate the economic value of investing in quality child care, particularly for low-income young children in North Carolina. But children in middle- and high-income families are also affected by many of the negative outcome areas that were researched, however, including significant grade retention and high school dropout rates.<sup>115</sup> For example, in 2002, retention in grades K through three cost the state over \$170 million.<sup>116</sup> Significant future savings could be realized by using quality early childhood programs for young children to reduce grade retention.

Grade retention for students in kindergarten through third grade in North Carolina cost \$170 million in 2002.

After-school programs for school-age children also save public sector dollars. A review of multiple research studies to evaluate the effects of after-school programs showed significant gains in school engagement, school attendance, academic performance, and positive youth development.<sup>117</sup> A cost-benefit analysis found financial benefits from improved school performance, increased compensation, reduced juvenile and adult criminal activity, and reduced welfare costs outweighed the costs of increased attendance at school and the cost of programs.<sup>118</sup> In a George Mason University study,

Ninety-one percent of Police Chiefs surveyed agree: "If America does not make greater investments in after-school and educational child care programs to help children and youth now, we will pay more later in crime, welfare, and other costs."

91 percent of Police Chiefs surveyed agreed that "If America does not make greater investments in after-school and educational child care programs to help children and youth now, we will pay more later in crime, welfare, and other costs."<sup>119</sup>

A recent study by economists at the Federal Reserve Bank in Minneapolis used the Perry High-Scope findings to estimate returns on public investment. Quality early childhood

development programs generate a 16 percent rate of return on investment, 12 percent of which is a public rate of return.<sup>120</sup> They found that, "Most of the numerous projects and initiatives that state and local governments fund in the name of creating new private businesses and new jobs result in few public

<sup>115</sup> W. S. Barnett. *Characteristics of Successful Early Education Programs*. Presentation at *The Economics of Early Childhood Development: Lessons for Economic Policy* conference, Federal Reserve Bank of Minneapolis, October 17, 2003. Information is based on the National Center for Education Statistics.

<sup>116</sup> Kindergarten Readiness Issues Group of the Partners in Research Forum. *North Carolina Early Grade Retention in the Age of Accountability*. Raleigh, 2003. The Kindergarten Readiness Issues Group is made up of the Frank Porter Graham Child Development Institute of the University of North Carolina at Chapel Hill, the North Carolina Department of Public Instruction, and the North Carolina Child Care Resource and Referral Network.

<sup>117</sup> B.M. Miller. *Critical Hours: Afterschool Programs and Educational Success*. Quincy, MA: Nellie Mae Educational Foundation, 2003.

<sup>118</sup> W.O. Brown, S.B. Frates, I.S. Rudge, and R.L. Tradewell. *The Costs and Benefits of After-school Programs: The Estimated Effects of the After School Education and Safety Program Act of 2002*. Claremont, CA: The Rose Institute, September, 2002.

<sup>119</sup> Fight Crime, Invest in Kids. *Poll of Police Chiefs conducted by George Mason University Professors Stephen D. Mastrofski and Scott Keeter*. Washington, DC, November 1, 1999.

<sup>120</sup> A. Rolnick and R. Grunewald. *Early Childhood Development: Economic Development with a High Public Return*. Fedgazette. Minneapolis, MN: Federal Reserve Bank of Minneapolis, January, 2003.

benefits. In contrast, studies find that well-focused investments in early childhood development yield high public as well as private returns.<sup>121</sup>

A recent study by economists at the Federal Reserve Bank estimates that quality early childhood development programs generate a 16 percent rate of return on investment, 12 percent of which is a public rate of return.

“There are some areas of clear agreement between market economists and child development researchers. The time has come to invest in young children, and there are substantial gains to be made from these investments if they are made wisely.”

-Jack Shonkoff, Co-Editor of *From Neurons to Neighborhoods*<sup>122</sup>

## IMPLICATIONS FOR THE ECONOMY

Child care, business, and economic development are linked in many ways. A healthy child care industry ensures that the current labor force has access to jobs and career advancement opportunities and helps businesses attract and retain the best employees and increase their productivity. Investments in high-quality early education programs reduce future public expenditures and help the state develop a skilled and productive workforce in the future. In the same way that local government and the private sector collaborate to increase the availability of affordable housing and quality transportation systems in order to attract a skilled workforce, they benefit from investing together in the child care infrastructure. Investing in quality child care benefits all stakeholders:

- Taxpayers benefit when costs for criminal justice, remedial education, and welfare decline as a result of high-quality child care
- Businesses benefit when quality, affordable, accessible child care options attract new skilled workers to the area, and prepare children for skilled employment in the future
- Communities benefit when parents have access to safe, quality child care for their children while they work outside the home
- Children benefit because they enter the traditional K-12 school system with age-appropriate cognitive, social, and emotional skills they need to continue their education and because they are more likely to be productive and successful as adults.

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<sup>121</sup> Ibid., pg. 1.

<sup>122</sup> J. Shonkoff. Closing remarks at *The Economics of Early Childhood Development: Lessons for Economic Policy* conference, Federal Reserve Bank of Minneapolis, October 17, 2003.

# SECTION FIVE

## CONCLUSION AND RECOMMENDATIONS

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The child care industry in North Carolina plays an important role in economic development in the state. It generates \$1.5 billion in gross receipts annually and provides more than 46,000 jobs. This puts it on par with many other significant industries such as hotel accommodations, scientific research and development, and wireless telecommunications.

In addition, demographic and economic trends indicate the need for retraining the workforce which, for parents, necessitates a strong child care system. The growth in lower wage jobs during non-traditional hours highlights the need for a system of young children's care and education that does not solely rely on parents' ability to pay. Child care also plays a role in attracting and maintaining businesses and young professionals to the state.

Finally, the economy benefits from children's participation in high-quality child care and early education. Children in high-quality programs are better prepared for kindergarten and more likely to become life-long learners who are ready to meet the demands of the future economy. Children participating in high-quality programs at a young age have a reduced likelihood of negative outcomes, which saves the government money and increases the quality of life for all the state's residents.

Now is the time for government, business, the child care industry, and the general public to maximize the economic contributions of child care in North Carolina. Understanding the link between child care and the economy, these groups should work together to ensure that:

- The child care industry is understood as a vital part of the state's:
  - Economic and community development, and
  - Education and workforce development
- All children in child care programs in North Carolina receive high quality care and education to maximize the benefits of these programs to children and the state's future economy.
- Families' economic circumstances are not a barrier to quality child care for their children.

Meeting these goals will require an active partnership of child care industry stakeholders -- business, government, and the child care industry itself. The following strategies are examples of ways to achieve these goals.

Increase public understanding that the child care industry is  
a vital part of the state's economic and community development  
and education and workforce development.

### *Business Examples*

- Engage child care representatives in economic development and business community planning efforts and activities, such as those of local Chambers of Commerce.

- Include representatives from the North Carolina Partnership for Children and the Division of Child Development on the North Carolina Citizens for Business and Industry's education workgroup.
- Survey best management practices concerning child care benefits and successful business efforts towards creating quality, affordable child care and report to North Carolina businesses.
- Allocate space for child care facilities within business/commerce parks or in close proximity.
- Create mentorships between business leaders, such as current executives or members of SCORE, and child care directors to help directors develop business skills.
- Initiate partnerships between business and government to establish innovative funding mechanisms to address economic development needs of child care establishments, such as low-interest loan funds for facility creation, renovation or expansion, or funding for quality enhancement or expansion.

### *Government Examples*

- Include representatives of the North Carolina Partnership for Children and the Division of Child Development on the North Carolina Workforce Development Board and the North Carolina Economic Development Commission, and include local leaders on local boards.
- Track employment, economic, and wage data about the child care industry through the Employment Security Commission using an inclusive definition of the industry.
- Review existing community planning and zoning documents to remove barriers for the child care industry and add language about the importance of planning for the community's child care needs.
- Engage small business support services, such as low-interest loans and incubator projects of the U.S. Small Business Administration and state entrepreneurship programs, to work with child care directors and owners to increase financial sustainability of their programs.
- Incorporate child care information into state and local economic development materials as part of the community profile and recruiting process.
- Strengthen the business curriculum in the North Carolina Early Childhood Administration Credential for child care professionals.

### *Child Care Industry Examples*

- Seek opportunities for child care program directors and owners to serve on Chambers of Commerce, Workforce Development Boards, and Economic Development Commissions.
- Place representatives from the North Carolina Partnership for Children and the Division of Child Development on the North Carolina Citizens for Business and Industry's education workgroup.
- Increase attendance of child care program owners and directors and other child care leaders at Board and Commission meetings related to workforce and economic development.
- Take advantage of community-based business resources such as the university-sponsored Small Business Technology Support Center (SBTDC) network, the community-college-sponsored Small Business Centers (SBCs), and federally sponsored Small Business Administration programs, for business development technical assistance and training.
- Collaborate with new child care owners and directors to ensure that they have a sound business base.

- Educate child care professionals about the importance of their work in the economy and the significance of the child care industry in the state.

Ensure that all children in child care programs in North Carolina receive high quality education and care to maximize benefits of programs to children and to the state's economy.

### *Business Examples*

- Advocate to government for policies that improve the quality of child care programs.
- Earmark charitable giving and community development funds to non-profit child care quality initiatives or capital projects administered by Smart Start, child care resource and referral agencies, or non-profit centers.
- Partner with local child care resource and referral agencies to assist parent-employees in locating quality child care and education and understanding the elements and effects of quality programs.
- Provide information on how to choose and assess quality child care in new employee packets and post this information throughout the business.

### *Government Examples*

- Fully fund Smart Start and the More at Four Pre-kindergarten Program to ensure a quality early childhood care and education infrastructure in all counties in North Carolina.
- Expand and institutionalize the T.E.A.C.H. Early Childhood<sup>®</sup> and the child care WAGES<sup>®</sup> programs to support a well-compensated and educated work force and achieve nationally recognized quality standards in both urban and rural areas of the state.
- Implement policies to ensure that child care providers have health care benefits.
- Identify economies of scale that can reduce costs for child care establishments and encourage quality improvement.

### *Child Care Industry Examples*

- Develop an active collaboration between child care agencies, the Department of Public Instruction and the higher education system to ensure that seamless, high-quality, life-long learning for North Carolina residents begins at birth.
- Increase use of surveys to assess the child care needs of businesses and their employers, including the need for part-time care and child care during non-traditional work hours.
- Access business training to balance quality and cost.
- Identify economies of scale through child care membership and professional organizations that balance quality and cost.
- Advance outreach efforts to parents to inform them about the elements of quality child care and its importance.

Ensure that families' economic circumstances are not a barrier to accessible, quality child care for their children.

*Business Examples*

- Advocate for increased federal child care funding to ensure that employees have access to the child care services they need.
- Promote additional funding and initiatives to enable North Carolina's parents to increase their job skills and pursue life-long learning opportunities.
- Partner with state and local governments to ensure that the child care needs of lower-wage employees are met with high quality programs.
- Offer pre-tax flexible spending accounts that include child care as an option for employees.

*Government Examples*

- Fully fund the current child care subsidy system to support parents' completion of high school as well as their efforts to find a job, train, and continue with higher education.
- Generate new sources of funding for child care subsidies such as funds related to or targeted at economic development and business recruitment.
- Create special incentives for businesses operating in or wishing to relocate to North Carolina that provide child care and work/family benefits.
- Increase the state child and dependent care tax credit.

*Child Care Industry Examples*

- Identify "economy-of-scale" factors that maximize and support quality but minimize cost for parents.
- Collect data to track families' costs, eligibility for subsidies, and actual child care assistance.
- Educate the public about gaps in child care supports for working families.

North Carolina can maximize the economic benefits from the state's child care industry by implementing these strategies and recommendations. By partnering, child care industry stakeholders, including business, government, and the child care industry itself, will find solutions to the barriers to quality, affordable, accessible child care programs. Just as North Carolina was first in flight, the state can continue to lead the way in innovations in early education and care and create models for the rest of the country.

# APPENDIX A

## METHODOLOGY FOR CALCULATING GROSS RECEIPTS AND DIRECT EMPLOYMENT FOR CHILD CARE

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The economic contribution of the child care industry is significantly undercounted in traditional economic accounting tools and alternate methodologies for collecting data are necessary.

### UNIVERSE OF THE CHILD CARE INDUSTRY

The child care industry includes formal programs for children from birth through age 12:

- Child care centers licensed through the Division of Child Development (DCD), including faith-based programs or other program types with non-standard licensing requirements
- Family child care homes licensed through DCD
- Pre-schools in public schools

The estimates of gross receipts and direct employment represent a “snapshot” of the industry taken at a particular time. It is important to note that the estimates only capture the formal child care sector, because enrollment and costs are difficult to measure for the informal education and care sector. Adding informal, legally unlicensed care would increase gross receipts and direct employment figures.

### GROSS RECEIPTS

Direct service dollars include the following programs and/or funding:

- Private pay by parents who do not receive Smart Start or Department of Social Services subsidies
- Federal and state funds to low-income families to subsidize the cost of child care distributed through county Departments of Social Services (DSS)
- Parental co-payments of families who receive help paying for child care from government funds
- Federal and state funds for all Head Start programs, including Early Head Start and expansion grants
- Smart Start funding for slots, facilities, or workforce enhancement strategies
- More at Four Pre-kindergarten Program funding for child care slots or start-up costs
- Federal Title I dollars for state pre-schools
- Development Day/Mental Health funding
- Federal and state funds for special education pre-schools
- United States Department of Agriculture child care food program
- WAGE\$ teacher salary supplements
- T.E.A.C.H. Early Childhood® funding for health insurance or provider scholarships

The methodology for calculating private pay relies on comprehensive, timely data about current use of child care establishments maintained by the North Carolina Division of Child Development (DCD). DCD maintains a database of all active child care licenses, including child care centers, family child care homes, and licensed before- and after-school programs enrollment, and number of employees. Every month, DCD updates the comprehensive database to reflect the most recent information collected by licensing personnel who visit programs regularly. The May 2003 update was used for this report as a point in time to correspond to other economic information profiled in this report, and to ensure that school-age children in care only during summer months would not be counted as full-year child care enrollees.

Gross receipts estimates for the amount that parents paid to family child care homes and child care centers, are based on this calculation:

$$\text{Slots Filled} \times \text{Average Cost/Child/Year} = \text{Gross Receipts}$$

The number of filled slots is derived from the statewide database which tracks enrollment in licensed child care centers by children's age, as well as licensed family child care homes. From these estimates, the number of children receiving any government funding towards child care costs was subtracted to get an estimate of those children whose child care is paid by parents (or another private source).

The average yearly rate for child care was derived from data collected in a statewide survey conducted for DCD. Average rates were broken down by age, type of care (center-based and family child care home) and county. In cases where the county did not have sufficient data to reliably calculate an average rate, the average rate for other rural counties was used. All the urban counties had sufficient information in each rate category.<sup>123</sup>

Parental co-payment information was obtained from the Division of Child Development, which tracks this information as part of its administration of the majority of government child care funds.

Annual expenditures for subsidy programs, DSS subsidies, Smart Start, Title I, Special education pre-school, Developmental Day, United States Department of Agriculture's food program, WAGE\$, and T.E.A.C.H. were obtained directly from administering agencies for state fiscal year 2003. Head Start funding information was obtained from the Division of Child Development for Federal Fiscal Year 2000-01 because it was the most recent information available.

## DIRECT EMPLOYMENT

The Division of Child Development's database includes regularly updated information about the number of people employed at child care facilities. This number was used for all licensed programs. For special education public preschools, which are not licensed by the Division of Child Development, information was obtained from the annual report of the program.<sup>124</sup> More at Four Pre-kindergarten Program classrooms that are not yet licensed and therefore not included in the Division of Child Development's licensing database are not included.

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<sup>123</sup> Fifteen urban and 85 rural counties were defined according to the North Carolina Rural Economic Development Center.

<sup>124</sup> P. Mengel, B. Payne-Betts, P. Trohanis, and K. Baars. North Carolina Preschool Services for Children with Disabilities: A Profile of Local Education Agency Programs and Practices 2002-2003 School Year. Produced by the North Carolina Technical Assistance Project of the University of North Carolina at Chapel Hill and its Frank Porter Graham Child Development Center for the Department of Public Instruction, Exceptional Children Division, March 2003.

# APPENDIX B

## INDIRECT AND INDUCED EFFECTS OF THE CHILD CARE INDUSTRY

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Every industry, including child care, is linked to the rest of the local economy through a number of avenues, reflecting the fact that establishments purchase supplies from other businesses and the industry's employees spend their earnings in part on locally produced goods and services. The linkages of the child care industry in North Carolina can be measured using an input-output model and its associated multipliers, a methodology used by some economic development specialists. While the multiplier methodology is not without controversy, these estimates illustrate that child care is an important integrated component of the North Carolina economy, both through its direct employment and output, and through its economic linkages.<sup>125</sup>

These estimates for the impact of child care on indirect and induced earnings and other productivity effects are based on the application of the 2001 North Carolina module of the IMPLAN Input-Output (I-O) model. Initially developed for use by the U.S. Forest Service, IMPLAN is now used in many fields. It relies on the same basic model structure and underlying economic data as the U.S. Department of Commerce Bureau of Economic Analysis Regional Impact Modeling System (RIMS).

I-O models use area-specific data on industrial and commercial activity to trace the linkages between industries. IMPLAN is based on a table of direct requirement coefficients which indicate the inputs of goods and services from various industries required to produce a dollar's worth of output in another, single industry. Standard economic "production functions"—the capital, labor and technology needed to produce a given set of goods—determine how changes in one industry's demand ultimately affect the demand for the inputs to that industry. For example, producing a ton of steel may require three workers and a particular set of equipment, which would not be required if the steel were no longer needed. Likewise, child care programs must purchase educational materials, facilities and professional staff services.

IMPLAN contains more than five hundred economic sectors, and uses economic census data to compile regional economic information. National data are adjusted for the industrial and trading patterns for the subject region. Based on this structure, IMPLAN estimates the regional economic impact that would result from a dollar change in demand of a particular industry.

The multiplier effect estimates the links between an industry and other areas of the economy. For this analysis, Type II multipliers, which exclude government spending, are used. Estimates for the impact of child care on the economy are based on three primary types of multipliers:

- Direct effects: Effects introduced into the state's economy as a result of spending on child care.
- Indirect effects: Effects reflecting spending by the child care industry.
- Induced effects: Effects on household spending by the child care workforce. These effects reflect changes in the state's economy caused by increases or decreases in spending patterns as a result of the direct and indirect activity.

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<sup>125</sup> Some experts have criticisms of the methodologies used to generate multipliers, and some experts criticize the overstated claims that are sometimes made about industries' gross effects rather than net effects.

For North Carolina, the various multipliers for the child care industry are reported in Table 1.

<b>Table 1</b>			
<b>Child Care Industry Type II Multipliers</b>			
<b>North Carolina</b>			
	<b>Indirect</b>	<b>Induced</b>	<b>Total Type II</b>
Output	.343	.414	1.76
Value-Added	.355	.451	1.81
Employment	.123	.164	1.29
Indirect Business Taxes	2.11	2.75	5.87
Labor Income	.297	.371	1.67

These multipliers may be used to assess gross indirect and induced effects of these economic indicators.<sup>126</sup> Based on a gross receipts of \$1.5 billion in the child care industry, \$515,459,700 in gross indirect output, including output in real estate (\$84 million), wholesale trade (\$47.9 million), and food services (\$27 million). Gross receipts totaling \$1.5 billion also correspond to \$621,868,707 in gross induced output, including doctors' offices (\$33 million), eating and drinking establishments (\$33 million), real estate (\$31 million), banking (\$18 million), car dealers (\$14 million), power generation (\$8.8 million), and religious institutions (\$2.4 million). In total, direct, indirect, and induced industry output for the North Carolina child care industry totals \$2.64 billion.

Similarly, a direct employment estimate of 46,358 jobs in licensed child care corresponds to 5,683 gross indirect jobs sustained by the child care industry. These include jobs in real estate (767 jobs), maintenance and repair services (325 jobs), and accounting and bookkeeping (138 jobs). In addition, 7,653 gross induced jobs, including those in restaurants and bars (950 jobs), health care (870 jobs), colleges and universities (79 jobs), and even in museums, historical sites, and zoos (7 jobs), are sustained. In total, direct, indirect, and induced employment for the North Carolina child care industry totals 59,694 in this analysis.

Finally, an analysis of the effect of the \$493 million in federal funds that North Carolina receives for child care has gross indirect and induced effects as well. Bringing \$493 million into the North Carolina child care industry generates an additional \$169 million in indirect effects and \$204 million in induced effects, for a total of \$866 million in direct, indirect, and induced economic effects. It also corresponds to 14,233 direct jobs, 1,745 indirect jobs, and 22,350 induced jobs, totaling 18,327 in total direct, indirect, and induced employment.

<sup>126</sup> Gross economic impacts do not account for the effects of other spending that would be curtailed if funds were directed towards the child care industry. For example, if \$1000 spent on child care had not been spent on child care, and had instead been spent on food, this food spending would also have multiplier effects. Net economic impacts take these negative effects into account. The multiplier effects reported in this appendix are gross economic effects.