

The Economic Impact of Oklahoma's Child Care Industry

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Despite the rapid growth of child care as an industry and the increasingly formal role played by child care in the decision to work, the state's child care industry has never been examined in detail from an economic impact perspective. In order to facilitate a comprehensive and up-to-date assessment of the child care industry, the Child Care Division of the Oklahoma Department of Human Services commissioned a survey of the state's licensed child care facilities. This analysis serves as the first detailed look at the structure of the state's child care industry and its impact on the Oklahoma economy. Key findings are summarized below.

- Although the state's 4,500 family care homes outnumber centers more than 2 to 1, child care centers remain the cornerstone of the industry, serving more than 100,000 of the nearly 134,000 children in licensed care.
- Approximately one in four Oklahoma children ages twelve and under will use the services of a licensed child care facility in 2003. In both centers and family homes, care is rendered on a full-time basis for approximately 80 percent of the children enrolled.
- The total number of licensed facilities has nearly doubled from 3,510 to 6,322 since 1990. Currently the industry has a licensed capacity of more than 140,000 children.
- In fiscal year 2003, subsidy payments made to facilities on behalf of qualifying parents are projected to total \$131.3 million, or approximately one-third of the gross receipts of all licensed facilities. Federal funding for the state's Head Start programs will total an estimated \$71.3 million in 2003.

- The state's child care facilities, with revenues of \$410 million in 2003, provide jobs for an estimated 25,569 workers. Much of the industry's economic impact is generated through the payment of \$240 million in labor income to workers.
- The \$410 million in revenue is comparable to that of the state's hotel and lodging industry, while the total earnings of child care workers is approximately equal to the combined earnings of all private elementary and secondary school, private college and university employees in the state.
- Because of low wages which average \$6.82 per hour in 2003, meeting the projected future demand for full-time child care workers presents a significant long term challenge for the industry.
- In 2003, the \$410 million in direct revenue earned by the state's child care industry is estimated to support \$330 million in indirect and induced output at other Oklahoma firms through multiplier effects. In other words, each new dollar of revenue in the child care sector generates \$0.81 of new revenue for other state firms.
- Similarly, 1,000 new jobs in the child care industry will support 190 new jobs in other sectors, while \$1 million in added labor income will generate \$480,000 in labor income for other workers statewide. The industry currently supports 5,000 jobs and \$115 million in earnings in other industries.
- On average, approximately 6.9 percent of all direct labor income earned by child care workers is paid in sales and income taxes. Through multiplier effects, total state and local tax revenue generated by economic activity in the child care sector is estimated at \$24.4 million in 2003.

Oklahoma's \$410 million licensed child care industry continues to grow rapidly, and will only increase in importance as a component of the state economic infrastructure in the future. Ongoing demographic trends of working mothers and single parent households suggest that the demand for licensed child care services will continue to increase at a rapid rate. Other state industries now depend heavily upon the substantial economic impact generated by the child care sector. The spending of earnings by child care workers, coupled with purchases of more than \$85 million in goods and services by child care facilities from other state industries, create large ripple, or multiplier, effects statewide. The role of child care in the economic development of the state can also be evaluated in terms of the decision of parents to work. Many parents who rely upon formal child care services to work would not otherwise participate in the workforce without the services of licensed child care facilities. The availability of formal child care to working parents, in turn, generates productivity benefits to employers in the form of reduced absenteeism and turnover, while society benefits from an increase in the overall level of economic activity.

I. Introduction

Child Care Has Become a Critical Component of the State's Economic Infrastructure

The state's child care industry is no longer the loosely organized network of social service providers of only a few decades ago. The industry is now a thriving and indispensable component of the state's economic infrastructure with a licensed capacity of approximately 134,000 children.

The child care industry is undergoing fundamental change as the decision of parents to work and use paid child care services increases the demand for care in formal child care settings. Families are increasingly choosing arrangements with child care centers and family care homes in lieu of parent or relative care. At the national level, an estimated 42 percent of all children under five with working mothers receive care in either a child care center or family child care home, with the remainder cared for by either a parent, relative, baby-sitter, or nanny.¹

Much of the industry transformation can be traced to important ongoing demographic changes. Increasing numbers of both working mothers and single parent households have served to accelerate the growth and development of child care into a mature industry. Census estimates indicate that nearly 60 percent of Oklahoma children ages 12 and under have all parents in the workforce.²

More recently, the child care system has begun a transition away from merely ensuring safe custody of children to becoming the entry point into the educational system for many children. Even children whose mother is not in the labor force are enrolled in non-parental care and in pre-education programs.³ Existing studies highlight enhanced personal and cognitive development and greater school readiness as a possible byproduct of early care and intervention programs.⁴

Formal child care is also being used more frequently by parents seeking to further their education, while searching for work, and other reasons.

Measuring the Economic Impact of the Industry

Despite the rapid growth of child care as an industry and the increasingly formal role played by child care in the decision to work, the state's child care industry has never been examined in detail from an economic impact perspective.

One obstacle to the study of the industry in the past has been a lack of available data detailing the structure of the industry. Most existing data sources do not account for the large number of self-employed proprietors who operate much of the industry, making it difficult to prepare a complete evaluation of the child care industry.

In order to facilitate a comprehensive and up-to-date assessment of the economic impact of the child care industry, the Child Care Division of the Oklahoma Department of Human Services commissioned a survey of the state's licensed child care facilities.⁵ The survey provides detailed data describing the revenue, earnings, and employment of the state's child care facilities, and serves as the foundational basis for a detailed analysis of the state's child care sector. The resulting analysis is contained in this study and serves as the first detailed look at the structure of the state's child care industry and the resulting economic impact on the Oklahoma economy.

Paper Organization

Section II of the study presents an overview of the child care industry in Oklahoma, including the types of child care facilities that make-up the industry, factors driving the long-run demand for child care, and the mechanisms in place to make child care services more affordable. Section III contains a detailed economic profile of the Oklahoma child care industry and workforce, and compares the child care sector with other major services industries in the state.

Section IV provides estimates of the economic multiplier, or ripple, effects generated by the direct economic activity in the child care sector, as well as the role of child care in the decision of parents to work. Section V concludes the study.

II. Oklahoma's Child Care Industry – A Profile and Trends

More than 6,300 Licensed Facilities Provide Child Care Services Statewide

For the purposes of this study, the child care industry is defined to include only the approximately 6,300 child care facilities licensed and regulated by the Oklahoma Department of Human Services (OKDHS) in 2003.⁶ Licensed facilities include child care centers, family child care homes, Head Start programs, and government operated facilities.

Most licensed child care facilities are operated as either child care centers or family care homes, however the two types of facilities are structured very differently as business enterprises. Child care centers tend to be much larger businesses, hire more employees on average, and provide care for more children per facility than family care homes. Family care homes are mostly small sole proprietorships operated by a single child care professional or with the help of an additional employee. The rate of business turnover is also higher among family care homes, with only 90 percent of licensed facilities operating at any one time, as compared to 96 percent for centers.⁷

Although the state's 4,500 family care homes outnumber centers more than 2 to 1, child care centers remain the cornerstone of the industry, serving more than 100,000 of the nearly 134,000 children in licensed care (Figure 1). In both centers and family homes, care is rendered on a full-time basis for approximately 80 percent of the children enrolled.

Figure 1.
Licensed Oklahoma Child Care Facilities (2003)

	Licensed Facilities	Children in Care		
		Full-Time	Part-Time	Total
Child Care Centers	1,875	86,135	15,831	101,966
Family Care Homes	4,447	26,600	5,316	31,916
Total	6,322	112,735	21,147	133,882

Source: Oklahoma State Econometric Model, OKDHS 2003 Child Care Rate Survey

Because the study excludes all informal and non-licensed care arrangements, as well as uncompensated family and relative care, the size of the entire child care industry is significantly larger.

The OKDHS survey data include most child care centers in the state, but some family care homes operate without a license and are not captured in the survey. Although the exact size of the market for unlicensed paid care is unknown, estimates suggest that paid relative and non-relative care outside of centers and homes comprises 8-12 percent of preschool age children in care.⁸

Continued Growth in the Demand for Child Care Services

Census 2000 estimates indicate that there are 631,440 children ages 12 and under, and 281,790 under the age of six, living and potentially needing child care services in Oklahoma. Based on estimated total enrollment of 133,882, approximately one in four Oklahoma children ages twelve and under will use the services of a licensed child care facility in 2003.

The child care industry in Oklahoma continues to grow in order to meet the demands of the state's parents. The total number of licensed facilities has nearly doubled from 3,510 to 6,322 since 1990 (Figure 2), an annual increase of 4.6 percent in the period.

Figure 2.
Child Care Industry Providers and Capacity

Fiscal Year	Licensed Providers			Licensed Capacity
	Centers	Homes	Total	
1990	1,349	2,161	3,510	90,411
1991	1,388	2,444	3,832	80,572
1992	1,508	1,986	3,494	83,451
1993	1,539	3,543	5,082	100,005
1994	1,654	3,948	5,602	107,878
1995	1,675	3,716	5,391	107,995
1996	1,738	3,843	5,581	110,626
1997	1,780	4,065	5,845	117,029
1998	1,693	3,872	5,565	114,271
1999	1,810	3,919	5,729	120,220
2000	1,841	3,988	5,829	124,175
2001	1,888	4,016	5,904	130,144
2002	1,897	4,161	6,058	135,226
2003	1,875	4,447	6,322	140,258

Source: OKDHS

Much of the growth is due to a doubling in the number of family care homes in the period, a 5.7 percent annual increase. In comparison, child care centers have increased by one-third since 1990, from 1,349 to 1,868 facilities, a 2.6 percent annual growth rate. The growth in centers has slowed markedly in recent years, adding only 65 licensed centers since 1999.

The licensed capacity of the system has increased along with the number of facilities, adding nearly 50,000 child care slots since 1990. On average, the industry has added approximately 200 licensed child care facilities and 4,000 child care slots annually since 1990. Currently the industry has a licensed capacity of more than 140,000 children.

The use of historical growth rates as a predictor of future growth may overstate projected demand. During welfare reform, large numbers of families moved from welfare to work and training and created a significant expansion in subsidized child care. In addition, changes in policy, eligibility and improved rates paid to child care providers may have also contributed to increased demand.

Dual-Wage Earners and Single Parent Households Underlie the Increased Demand for Child Care Services

Consistent with national trends, working parents have become the norm in Oklahoma as approximately 91 percent of Oklahoma fathers, and 62 percent of mothers, with children under the age of six, now participate in the labor force. Much of the increased demand is due to women continuing to enter the workforce in unprecedented numbers, many because of financial necessity and others for the challenge, independence, and rewards a career offers. Of the nearly 200,000 married couple families in the state with pre-school age children, more than 52 percent are dual-wage earner families.⁹

The rapid increase in single parent households across the state has also contributed to the increased need for child care services, with more than 75,000 households with children under the age of six headed by a single parent.¹⁰ Women currently head nearly four of five single parent homes in Oklahoma, and 73 percent of these mothers are employed, up from 62 percent in 1990.

Rapid growth is also occurring in the number of single parent homes in the state headed by fathers, increasing from 9,961 in 1990 to 16,948 in 2000 according to Census estimates, with approximately 81 percent of single parent fathers in the labor force. Much of the increase in the number of single parents in the workforce reflects the emphasis on child care as a work support mechanism in recent welfare reform initiatives.

Paying For Child Care in Oklahoma

Child care costs in Oklahoma range from \$3,500 to \$7,500 annually per child for full-time care, and represent a substantial portion of the disposable income of many working families. Other than housing and transportation, few goods or services play as important a role as child care in the budget of a family with children in paid care.

Child care expenses are paid for in many ways, with approximately 50 percent paid directly from family expenditures and the remainder funded through a combination of government programs, employer contributions, and free programs. Publicly funded programs include state subsidies, the federal Child and Dependent Care Tax Credit, and federally funded programs such as Head Start.

The State of Oklahoma, through its child care subsidy program, assumes an active role in assuring the availability and affordability of child care for working families. Subsidy payments are transferred on behalf of qualifying parents directly to child care facilities under contract with OKDHS. In fiscal year 2003, subsidy payments are projected to total \$131.3 million, or approximately one-third of the gross receipts of all licensed facilities.¹¹

The state's Head Start programs are operated with federal funding that is passed-through directly to local sponsors, most often Community Action Agencies,¹² and will total an estimated \$71.3 million in 2003. Head Start facilities are licensed by OKDHS and currently provide more than 16,000 funded slots for low-income children, primarily ages three and four.

Federal tax credits have long played a role in the funding of child care services. For the 2001 tax year, the most recently reported data, more than 60,000 Oklahoma families claimed the federal Child and Dependent Care tax credit (Figure 3), for a total of \$23.5 million.¹³ The average credit of \$385 per return covers only approximately 10 percent of the annual cost of child care for one child. The federal tax credit does not provide significant assistance to low income families as 77 percent of tax returns claiming the credit reported adjusted gross income of \$30,000 or more.

In addition, the tax credit is nonrefundable and available only to taxpayers paying federal income taxes. Nonetheless, it is higher income families that generate the greatest tax revenue per dollar of tax credit, which reflects the federal government's historical preference of offering child care tax credits to those families that provide the greatest economic benefit in return.¹⁴

Figure 3.
Federal Child & Dependent Care Tax Credit

Adjusted Gross Income		Number of Returns	Amount of Credit	Average Credit
\$ 0.01	to \$ 9,999	9	\$ 1,000	\$ 111
10,000	to 19,999	4,554	1,335,000	293
20,000	to 29,999	9,175	3,373,000	368
30,000	to 49,999	17,159	6,321,000	368
50,000	to 74,999	17,554	7,195,000	410
75,000	to 99,999	7,470	3,117,000	417
100,000	to 149,999	3,621	1,507,000	416
150,000	and over	1,396	616,000	441
All Returns		60,938	\$ 23,465,000	\$ 385

SOURCE: Internal Revenue Service (2001 Tax Year)

Employer funded child care is not a widely available employee benefit and plays only a minor role in the overall funding of child care. A recent study using the 2000 Survey of Compensation found that only five percent of workers in private industry received employer assistance for child care.¹⁵ Those most likely to receive the benefit were in professional and technical occupations, and tended to work for employers with more than 100 workers. A provision in the federal tax code further mandates that workers receiving employer funded child care benefits may also face a reduction in eligible expenses for the federal child care tax credit.¹⁶

The Cost of Child Care and the Decision to Work

Existing studies find that the cost of child care is a major factor in both the decision to work and the decision to use paid formal child care services.¹⁷ This is especially true for women, who typically serve as the primary caregiver for their children. Empirical estimates suggest that each 10 percent reduction in the cost of child care increases the number of mothers who work by between 3 and 9 percent.¹⁸

The lowering of child care costs through government subsidies is believed to increase both the probability that mothers will work and the likelihood that they will use paid child care. One estimate finds that if tax incentives were used to reduce the cost of child care to zero, 87 percent of women with preschool age children would participate in the labor market.¹⁹

Other findings indicate that the response of mothers to child care costs is related to common demographic factors. Low income and single mothers are less likely to use paid care than high income and married mothers,²⁰ while mothers with the least jobs skills are the most sensitive to the cost of child care.²¹ Working mothers who are in the workforce full-time are also found to be more sensitive to the cost of care than those working part-time.²² That is, reducing the cost of child care allows more single women to take full-time jobs, while increasing the cost of child care would result in fewer single women in full-time jobs.

III. The Economic Role of Oklahoma's Child Care Industry

Child Care Has Become an Important Oklahoma Industry

The state's more than 6,300 licensed child care facilities comprise a vibrant Oklahoma industry with estimated revenues of \$410 million in 2003 (Figure 4). On a per child basis, the industry generates more than \$3,000 per year in revenue for each of the approximately 133,000 children in full- and part-time care.

Child care is a highly labor-intensive industry, providing jobs for an estimated 25,569 state workers in 2003.²³ Consequently, much of the economic impact generated by the industry occurs through the payment of \$240 million in labor income to workers, which represents 60 percent of the revenue earned by child care facilities.

Figure 4.
Economic Profile of the Child Care Industry (2003)

	Licensed Facilities	Operating Facilities	Children In Care	Revenue	Labor Income	Employees
Child Care Centers	1,875	1,806	101,966	\$329,622,299	\$187,236,294	19,184
Family Care Homes	4,447	4,010	31,916	79,842,870	52,552,151	6,385
Total	6,322	5,816	133,882	\$409,465,170	\$239,788,445	25,569

Source: Oklahoma State Econometric Model, OKDHS 2003 Child Care Rate Survey

Although child care centers make-up only 30 percent of child care facilities, they generate more than 80 percent of the industry's gross receipts and dominate the economic impact generated by the industry. The state's 1,875 licensed child care centers will produce estimated revenue of \$330 million in 2003 and employ more than 19,000 workers earning \$187 million in labor income. For comparison, the nearly 4,500 licensed family care homes statewide are expected to produce \$80 million in gross receipts in 2003, while employing 6,385 workers earning \$52 million in labor income.

Because centers provide care for an average of 56 children, versus 8 children in family care homes, child care centers have a significantly larger economic impact per facility than family care homes. The average child care center will produce \$182,500 in annual revenue and employ ten workers with combined earnings of \$103,600 in 2003. A typical family care home is expected to produce \$20,000 in annual gross receipts while employing one or two workers with total earnings of \$13,100 in 2003.

Child care centers also have a greater economic impact than family care homes measured both per employee and per child in care. Annual revenue per employee averages \$17,182 for centers and \$16,014 for homes, while centers collect annual revenue of \$3,233 per child versus \$3,058 for family homes.

Oklahoma's Child Care Industry Is Comparable to Other Major Services Industries

The increasingly important role of the child care industry in the state economy becomes more evident when viewed relative to other major services industries (Figure 5). Employment in the child care sector is equal to that in the accounting, auditing, and bookkeeping industry, and is considerably higher than the number of workers in both the insurance and the hotels and lodging sectors.

The \$410 million in revenue produced by licensed child care facilities is comparable to that of the state's hotels and lodging industry, while the total earnings of child care workers is approximately equal to the combined earnings of all private elementary & secondary school, college, and university employees in the state. Continued rapid growth in the child care industry will only serve to advance the relative importance of the sector over time.

Figure 5.
Child Care vs. Other Services Industries

Industry	Employment	Industry Revenue	Labor Income
Labor and Civic Organizations	27,802	\$461,358,000	\$452,474,000
Accounting, Auditing and Bookkeeping	25,565	761,574,000	540,816,000
Child Care Services	25,569	409,465,170	239,788,445
Insurance Agents and Brokers	17,509	722,055,000	427,307,000
Pvt. Elem. & Sec. Schools, Colleges, and Univ.	15,758	432,671,000	256,788,000
Domestic Services	15,376	133,896,000	133,896,000
Hotels and Lodging Places	12,770	463,656,000	185,026,000

Source: Bureau of Labor Statistics, 2003 Child Care Market Rate Survey, and IMPLAN.

Economic Impact by Facility Type and Star Rating

The survey data indicate that the revenue of child care facilities and earnings of child care workers differ by facility type and quality rating. Figure 6 provides a breakdown of the revenue for the state's licensed child care facilities by facility type and OKDHS Star Rating.²⁴ Licensed child care facilities in Oklahoma are categorized in one of four levels; One Star, One+ Star, Two Stars, and Three Stars. Facilities with higher star levels implicitly offer more comprehensive child care services than do lower star levels, thereby placing their services in higher demand. A recent study of the Oklahoma Star rating system examined the link between Star rating and quality delivered and found that facilities with a higher star rating are in fact providing higher quality child care services.²⁵ Other studies at the national level validate the positive link found between the quality of care and both the cost of care and worker pay.²⁶

Figure 6.
Revenue of Licensed Child Care Facilities

Centers			Revenue Per		
Star Rating	Operating Facilities	Revenue	FTE		
			Facility	Employee	Child
1	729	\$104,532,042	\$143,329	\$19,395	\$3,016
1+	428	65,901,820	154,062	18,449	2,912
2	571	130,074,189	227,676	21,104	3,372
3	78	29,114,249	373,080	25,522	4,771
All	1,806	\$329,622,299	\$182,472	\$20,264	\$3,233
Homes			Revenue Per		
Star Rating	Operating Facilities	Revenue	FTE		
			Facility	Employee	Child
1	2,691	\$48,016,833	\$17,841	\$13,656	\$2,431
1+	702	14,216,747	20,240	12,990	2,348
2	592	16,795,657	28,352	15,997	2,841
3	23	813,634	34,707	22,559	4,203
All	4,010	\$79,842,870	\$19,913	\$14,016	\$2,502
Total	5,816	\$409,465,170	\$70,402	\$18,644	\$3,058

Source: 2003 Child Care Market Rate Survey

For centers and homes, revenue per facility, revenue per employee, and revenue per child, increase as the quality rating of the facility increases. For example, the annual revenue per child in a Three Star center is \$1,755 more than the revenue per child for One Star centers. A nearly identical annual difference of \$1,772 exists in revenue per child between Three Star and One Star family care homes.

The only exception to the relationship is that revenue per FTE employee and revenue per child for One Star facilities exceeds that for One+ Star facilities. This is due to the relatively new status of the Star quality initiative and the large number of the state’s licensed facilities that remain classified as One Star. Because many high quality child care facilities remain in the One Star category, the average revenue per child in One Star centers and homes remains above the average for One+ Star facilities.

A Profile of the State’s More Than 25,000 Child Care Workers

Oklahoma’s child care centers provide both part- and full-time employment for more than 25,000 workers statewide (Figure 7). Centers employ 75 percent of workers in the industry, while the remaining work in private family care homes.

The industry relies heavily upon part-time employees to staff the state’s child care facilities. More than 7,000, or 28 percent of all, workers are part-time, as compared to only 18 percent of workers across all industries nationally.²⁷ The ratio of part-time workers differs by facility type as well, with child care centers hiring relatively more part-time workers (30 percent) than family care homes (22 percent).

Figure 7.
Employment at Licensed Child Care Facilities

	Full-Time	Part-Time	Total	Full-Time Equivalent
Child Care Centers	13,348	5,836	19,184	16,266
Family Care Homes	5,008	1,377	6,385	5,697
All	18,356	7,214	25,569	21,963

Source: 2003 Oklahoma Child Care Market Rate Survey

The demand for child care workers is expected to continue growing rapidly throughout the current decade. Nationally, the number of child care workers has increased 5.5 percent per year in the 1990 to 2002 period, more than three times the 1.5 percent annual growth in total non-farm employment in the same period. In Oklahoma, the demand for child care service workers is predicted to increase 42 percent in the 2000 to 2010 period, ranking it as one of the 25 fastest growing industries in the state over the current decade.²⁸

Higher Quality Child Care Translates Into Higher Paying Jobs

Child care is traditionally a low paying industry, with the average full-time child care worker in Oklahoma earning wages of approximately \$10,918, or \$6.82 per hour, in 2003.²⁹ This is well below the state average wage of \$14.82 per hour across all industries,³⁰ as well as the national average wage rate for child care providers of \$9.50 per hour in 2002.³¹

Because of low wages, meeting the projected future demand for child care workers presents a significant long-run challenge for the industry. The earnings of Oklahoma child care workers also vary by both facility type and the quality rating of the facility at which they work.

**Figure 8 .
Earnings of Licensed Child Care Workers**

Centers			Earnings Per FTE	
Star Rating	Employees	Labor Income	Employee	
1	6,535	\$56,866,081	\$10,551	
1+	4,225	39,364,131	11,020	
2	7,116	75,057,955	12,178	
3	1,308	15,948,127	13,980	
All	19,184	\$187,236,294	\$11,511	
Homes			Earnings Per FTE	
Star Rating	Employees	Labor Income	Employee	
1	3,873	\$31,895,525	\$9,071	
1+	1,234	9,576,547	8,750	
2	1,231	10,772,569	10,260	
3	47	307,509	8,526	
All	6,385	\$52,552,151	\$9,225	
Total		25,569	\$239,788,445	\$10,918

Source: Oklahoma State Econometric Model, OKDHS 2003 Child Care Rate Survey

To illustrate these influences, Figure 8 categorizes the earnings of workers in both centers and homes by Star rating. In general, workers earn more in centers than in homes, and wage rates are higher in facilities with higher Star ratings. In 2003, full-time equivalent (FTE)³² employees working an average of 32 hours per week in child care centers reported earning nearly \$2,300, or 25 percent, more per year than workers in family care homes. The same relationship is found for every Star rating.

In addition, the data show a tendency for both categories of child care facilities to pay higher wage rates as the Star rating increases (Figure 8). For child care centers, the link between pay and facility quality is evident, as the average annual pay per FTE employee increases steadily from \$10,551 for 1 Star centers to \$13,980 for 3 Star centers.

The link is not as evident, however, in the earnings data for family care homes. The homes rated as 1+ and 2 Star have the expected relationship, but 1 and 3 star homes do not fit the expected pattern. Again, the reason is the relatively new status of the Star quality initiative and the fact that 2 of 3 family care homes remain classified as 1-Star.³³ Many high quality family care homes continue to have a 1 Star rating, thereby artificially pushing the average earnings for 1 Star facilities above that of 1+ Star rated homes. At the other end of the Star rating scale, the relatively small number (47 of 1,875) of home care facilities that have completed the 3 Star certification process makes the resulting sample size too small to provide a reliable basis for computing earnings differentials for 3 Star facilities.

IV. Economic Multiplier Effects

The Child Care Industry Creates Economic Ripple Effects Statewide

The direct economic impact of the formal, licensed child care industry is increasing in significance each year. The state's more than 6,300 child care facilities will produce an estimated \$410 million in gross receipts and pay wages of nearly \$240 million to workers in 2003. The interrelated nature of regional economies means that this activity in the child care sector will have multiplier effects on the overall state economy.

The multiplier effects are triggered when child care facilities purchase goods and services from other firms within the state and pay labor income to workers. These purchases and payments subsequently trigger multiple rounds of spending among the various sectors of the state economy. Throughout the process, the economic activity generates a significant stream of tax payments to state and local government.

Oklahoma's Child Care Facilities Purchase \$85 Million in Goods and Services from Oklahoma-Based Businesses

Child care is a highly labor-intensive industry and much of the economic impact generated by the industry occurs through the payment of labor income to workers. Despite the key role played by labor, the state's child care facilities purchase a large quantity of goods and services from other Oklahoma-based firms in the process of providing child care services. These purchases, in turn, trigger the well-known economic multiplier process.

Estimates detailed in Figure 10 indicate that the state's child care facilities will purchase \$85 million in goods and services from Oklahoma-based businesses in 2003, or more than half of the estimated \$155.5 million in total purchases made by the state's child care facilities.³⁴ These *local* purchases benefit most major industry sectors across the state including real estate (\$15.9 million), business (\$11.4 million) and professional (\$7.8 million) services, food products (\$6.9 million), and the maintenance of structures (\$6.6 million). Key infrastructure industries such as utilities (\$5.2 million) and communications (\$2.8 million) also receive significant purchases, along with the wholesale (\$4.2 million) and retail (\$1.3 million) trade sectors.

Figure 10.

Purchases of Oklahoma-Produced Goods & Services by Industry (2003)

Industry	Purchases
Real Estate	\$15,912,000
Business Services	11,429,000
Professional Services	7,798,000
Food Products	6,867,000
Maintenance and Repair Of Structures	6,556,000
Financial Services	6,484,000
Utilities	5,758,000
Wholesale Trade	4,642,000
Communications	3,044,000
Other Industries	2,734,000
Transportation Services	2,496,000
Entertainment Services	2,390,000
Transportation	2,139,000
Paper Products and Containers	1,855,000
Detergents, Chemicals, Adhesives, & Petroleum Products	1,420,000
Retail Trade	1,399,000
Personal Services	872,000
Other Durable Manufactured Products	713,000
Plastic, Leather, Glass, and Metal Products	211,000
Total Purchases	\$84,719,000

Source: IMPLAN, Oklahoma State Econometric Model

Measuring The Economic Impact of the Oklahoma Child Care Industry

Input-output models are commonly used to quantify the economic multiplier effects in a regional economy resulting from business activity in a given industry such as child care. These models formalize the interrelationships among the various industry sectors within a region and make it possible to estimate the resulting impact on output, employment, and earnings from a given change at the industry level.

For this study, we use a state-level IMPLAN³⁵ input-output model to estimate the multiplier effects generated by the child care sector.³⁶ In describing the economic impact, the estimated 2003 revenue, employment, and earnings derived from the OKDHS survey data are deemed the “direct” effects.

The direct effects in turn generate what are referred to as “indirect” and “induced” effects. The indirect effect is the statewide inter-industry economic activity resulting from the purchases of the state’s child care facilities in Figure 10, while the induced effect reflects the economic activity resulting from new household spending out of employee earnings received as part of the direct and indirect effects.

Combinations of the various impacts are summarized using economic impact multipliers. Estimated Type I and Type II child care industry multipliers are shown in Figure 11 and can be applied to the direct output, earnings, and employment in the child care sector in order to estimate the resulting indirect and induced effects in other industries across the state. A *Type I* multiplier considers only the direct and indirect effects, while a *Type II* multiplier allows for the induced effects of added rounds of spending generated from employee earnings.³⁷

Figure 11.
Child Care Industry Economic Impact Multipliers

	Direct Effect	Indirect Effect	Induced Effect	Type I Multiplier	Type II Multiplier
Output	1.00	0.28	0.53	1.28	1.81
Employment	1.00	0.06	0.13	1.06	1.19
Labor Income	1.00	0.16	0.32	1.16	1.48

Source: IMPLAN. Type I multipliers are (direct + indirect)/direct. Type II multipliers are (direct + indirect + induced)/direct.

Three categories of multipliers are estimated for this study - output, employment, and labor income. Jointly, the three provide a comprehensive assessment of the various channels through which revenue, hiring, and the earnings of workers in the child care sector impact the larger state economy. *Output* multipliers forecast the change in revenue, or output, of a region per dollar of new revenue generated in a given industry. *Employment* multipliers provide an estimate of the new full- and part-time hiring that results per new employee in a sector. Similarly, *earnings* multipliers³⁸ show the expected change in earnings in the regional economy as the earnings in an industry change.

Interpreting the child care industry multipliers in Figure 11 is straightforward. The output multipliers indicate that each \$1 million in revenue generated directly by the child care industry has an indirect multiplier effect (Type I) that produces \$280,000 of additional revenue in other state industries.

The spending of new household income generated by the direct and indirect effects spawns additional induced (Type II) revenue of \$530,000 accruing to firms statewide. In other words, through multiplier effects, each new dollar of revenue in the child care sector generates \$0.81 of new indirect and induced revenue for other state firms.

The Type II employment and labor income multipliers are interpreted similarly: 1,000 new jobs in the child care industry will support 190 new indirect and induced jobs in other sectors, while \$1 million in added labor income in the child care industry will generate \$480,000 in indirect and induced labor income for other workers statewide.

The Child Care Industry Indirectly Supports a Total of \$330 Million in Revenue, 5,000 Jobs, and \$115 Million in Earnings in Other Industries

Economic impact multipliers are also useful for estimating the total, or aggregate, economic impact that Oklahoma's child care facilities are having on the overall state economy.³⁹ The multipliers are simply multiplied by the direct impacts in the child care sector to estimate the total economic activity supported. These total impacts, or multiplier effects, are shown in Figure 12.

Figure 12.
Child Care Industry Multiplier Effects

	Multiplier Effects			Total Impact
	Direct Effects	Indirect	Induced	
Output	\$409,465,170	\$114,650,247	\$217,016,540	\$741,131,957
Employment	25,569	1,534	3,324	30,428
Labor Income	\$239,788,445	\$38,366,151	\$76,732,302	\$354,886,899

Source: IMPLAN. Type I multipliers are (direct + indirect)/direct. Type II multipliers are (direct + indirect + induced)/direct.

In 2003, the \$410 million in direct revenue earned by the state's child care industry is estimated to support \$330 million in indirect and induced output at other Oklahoma firms through multiplier effects. The 25,569 direct jobs in the child care industry support nearly 5,000 existing jobs statewide through indirect and induced effects, and the \$240 million in labor income earned by child care workers supports \$115 million in labor income to workers in other industries across the state.

The economic impact can also be cast in the somewhat more familiar terms of the growth each year in the number of children receiving care. This would represent the added, or incremental, economic impact on the state economy resulting from the ongoing expansion of the industry. A representative measure of the annual expansion of the industry is the 4,000 licensed child care slots added statewide on average each year since 1990.

Using estimated ratios for revenue, employment, and earnings per 4,000 children in care, the direct incremental economic impact on the Oklahoma economy of the industry growing by 4,000 children is \$12.2 million in industry revenue and 764 new child care workers earning \$7.2 million in new labor income each year (Figure 13). These direct impacts subsequently trigger incremental estimated indirect and induced multiplier effects of \$9.9 million in added revenue, 145 new jobs, and \$3.4 million in labor income in other industries across the state.

Figure 13.
Annual Economic Impact of 4,000 Additional Children in Care

	Multiplier Effects			Total
	Direct	Indirect	Induced	
Revenue	\$12,233,615	3,425,412	6,483,816	\$22,142,843
Employment	764	46	99	909
Labor Income	\$7,164,173	1,146,268	2,292,536	\$10,602,977

Source: IMPLAN, Oklahoma State Econometric Model

In total, the annual incremental economic impact on the state economy of the child care industry expanding by 4,000 children in care is an estimated \$22.1 million in new revenue, 909 new jobs, and \$10.6 million in new labor income. To accommodate the expected annual growth in the industry, an estimated 174 licensed facilities would be needed each year, including 120 family care homes serving 954 children, and 54 child care centers providing care for 3,046 children.

Child Care Industry Workers Contributed More Than \$16 Million in Sales and Income Taxes in 2003

The direct, indirect, and induced economic activity in the child care industry generates substantial tax revenue for state and local governments. The most important tax streams are personal income taxes at the state level and sales taxes at both the state and local levels.⁴⁰

As shown in Figure 14, the state's child care workers are expected to earn \$240 million in labor income and pay an estimated \$16.5 million in direct taxes, including \$9.3 million in sales taxes and \$7.2 million in state income taxes. On average, approximately 6.9 percent of all direct labor income earned by child care workers is paid in sales and income taxes.

Figure 14.
Estimated Tax Revenue From Child Care Industry Earnings (2003)

Multiplier Effect	Labor Income	Taxes		State Income	Total Tax Revenue
		State Sales	Local Sales		
Direct	\$239,788,445	5,395,240	3,896,562	7,193,653	\$16,485,456
Indirect & Induced	115,098,454	2,589,715	1,870,350	3,452,954	7,913,019
Total	\$354,886,899	7,984,955	5,766,912	10,646,607	\$24,398,474

Source: Oklahoma Econometric Model, Oklahoma Office of State Finance

Through multiplier effects, total estimated tax revenue generated as a result of economic activity in the child care sector equals \$24.4 million in 2003. Two-thirds of the total taxes paid as a result of child care industry activity results from the direct labor income earned by child care workers, while the remainder is generated from indirect and induced earnings.

Other Economic Impacts of Child Care

The economic impact of the child care industry can also be evaluated in terms of the supply decision of parents to enter the workforce and pursue income-producing activities. The presence of readily accessible child care aids the entry into the workforce of many working parents who would not otherwise participate in the workforce without the services of licensed child care facilities.

The primary economic benefit to parents with children in paid care is the added income and increased financial independence of participating in the labor force. The increase in earnings due to the availability of child care is undoubtedly significant, however estimating the exact proportion of the total earnings of parents attributable to the availability of formal child care services remains difficult to quantify.⁴¹

Those families most dependent upon paid child care services in order to work include the state's more than 100,000 dual-income households, and the more than 75,000 working single parents, with children under the age of 6.

The economic benefits of the child care sector extend beyond the households of working parents to both the business community and society at large. Existing studies find that the employers of workers with children in child care benefit from lower absenteeism, lower turnover, and better maintenance of job skills through continuous employment as a result of the availability of formal child care services.⁴² Society likewise benefits along with families and the business sector as the added earnings of parents and the increased productivity of the workforce create an increase in the overall level of activity in the regional economy.

V. Conclusion

Oklahoma's \$410 million licensed child care industry continues to grow rapidly, and will only increase in importance as a component of the state economic infrastructure in the future. Ongoing demographic trends of working mothers and single parent households suggest that the demand for licensed child care services will continue to increase at a rapid rate.

Approximately 134,000, or one in four, Oklahoma children under the age of 12 will use one of the state's 6,300 licensed care facilities in 2003. To meet this demand, the industry is currently adding an average of 200 licensed child care facilities and 4,000 child care slots each year, pushing the current licensed capacity of the industry to more than 140,000 slots.

Employment growth in the industry remains strong despite historically low wages and few opportunities for advancement in the child care industry. Although annual pay for a full-time child care worker will reach only \$10,918 in 2003, the industry employs more than 25,000 full- and part-time workers earning \$240 million in annual labor income.

Other state industries now depend heavily upon the substantial economic impact generated by the child care sector. The spending of earnings by child care workers, coupled with purchases of more than \$85 million in goods and services by child care facilities from other state industries, create large ripple, or multiplier, effects statewide.

The resulting economic multiplier effects provide an estimated \$330 million in revenue to other state industries and support the jobs of 5,000 workers statewide earning \$115 million in labor income. Activity in the child care sector will also generate nearly \$25 million in tax revenue in 2003, with \$16.5 million paid directly by child care workers and \$7.9 million in indirect and induced tax revenue.

The role of child care in the economic development of the state can also be evaluated in terms of the decision of parents to work. Many parents who rely upon formal child care services to work would not otherwise participate in the workforce without the services of licensed child care facilities. The availability of formal child care to working parents, in turn, generates productivity benefits to employers in the form of reduced absenteeism and turnover, while society benefits from an increase in the overall level of economic activity.

¹ See Capizzano, Jeffrey, Gina Adams, and Freya Sonenstein. "Child Care Arrangements for Children under Five: Variation Across States." Urban Institute, Series B, No. B-7, March 2000. Nationally, for children under five with employed mothers, 54 percent are cared for by a parent or relative, 28 percent of are in center-based care, 14 percent are in family child care homes, and 4 percent receive care from a nanny or baby-sitter. The form of care also undergoes change as a child ages. A parent or relative cares for nearly two-thirds of children under age 3 with employed mothers, while more than half of children ages 3 or 4 with mothers in the labor force are in center or family home-based care. Income also affects the pattern of child care, as low income working mothers tend to use more parent and relative care, and high income working mothers use more center and home-based child care. These estimates reflect the typical child care arrangement at the national level and do not reflect the variability in care choice across the states.

² Census 2000 Summary File 4 (SF 4).

³ See Tout, Kathryn, Martha Zaslow, Angela Romano Papillo, and Sharon Vandivere. *Early Care and Education: Work Support for Families and Developmental Opportunity for Young Children*. Urban Institute, Occasional Paper No. 51, Sep. 2001.

⁴ See, for example, Karoly, Lynn A., et. al.. *Investing in Our Children: What We Know and Don't Know About the Costs and Benefits of Early Childhood Interventions*. RAND, 1998; and Waldfogel, Jane. "Child Care, Women's Employment, and Child Outcomes." *Journal of Population Economics*, 2002, Vol. 15, pp. 527-548.

⁵ See Miller, Steve, Mark Snead, Christine Johnson, and Brandon Welch. *2003 Oklahoma Child Care Market Rate Survey*, Child Care Division, Oklahoma Department of Human Services. Forthcoming.

⁶ The number of total facilities is from the July 2003 OKDHS Monthly Statistical Bulletin.

⁷ The ratio of operating facilities to total facilities is estimated using the survey data from Miller et.al.. Those facilities ruled ineligible for the survey (e.g. no children in care) or having no phone number in service are considered inactive as businesses. The ratios are calculated independently for centers and homes.

⁸ See p.40 of Burton et. al.. *Estimating the Size and Components of the U.S. Child Care Workforce and Caregiving Population*. Center for the Child Care Workforce, May 2002.

⁹ Census 2000 Summary File 4 (SF 4).

¹⁰ 2000 Census of Population and Housing.

¹¹ Child Care Division, Oklahoma Department of Human Services.

¹² See the Oklahoma Association of Community Action Agencies website at <http://www.okacaa.org>

¹³ For tax year 2003, eligible expenses are capped at \$3,000 for one child and \$6,000 for more than one child, with the credit calculated as a percentage of eligible expenses ranging from 20-35 percent.

¹⁴ See Henderson, David R.. *Child Care Tax Credits: A Supply-Side Success Story*. National Center for Policy Analysis, NCPA Policy Report No. 140, July 1989.

¹⁵ See the National Compensation Survey: Employee Benefits in Private Industry in the United States, 2000. U.S. Department of Labor. Bureau of Labor Statistics. <http://www.bls.gov/ncs/ebs/sp/ebbl0019.pdf>

¹⁶ See IRS Publication 503 – Child and Dependent Care Expenses.

¹⁷ The decision by a parent to enter the work force does not necessarily imply the use of paid, organized child care services. Many parents instead choose to share parental care duties with the other parent, use paid or unpaid relative care, or use other informal care arrangements.

¹⁸ See Blau, David M. and Philip K. Robins. “Child-Care Costs and Family Labor Supply.” *The Review of Economics and Statistics*, August 1988, 70(3): 374-381; and Kimmel, Jean. “Child Care Costs as a Barrier to Employment for Single and Married Mothers.” *Review of Economics and Statistics*, May 1998, 80(2), pp. 287-299.

¹⁹ See Blau, David M. and Philip K. Robins. “Child-Care Costs and Family Labor Supply.” *The Review of Economics and Statistics*, August 1988, 70(3): 374-381.

²⁰ See Kimmel, Jean. “Child Care Costs as a Barrier to Employment for Single and Married Mothers.” *Review of Economics and Statistics*, May 1998, 80(2), pp. 287-299.

²¹ See Anderson, Patricia M. and Phillip B. Levine. “Child Care and Mothers’ Employment Decisions.” National Bureau of Economic Research. March 1999. Working Paper No. 7058.

²² See Tekin, Erdal. “Child Care Subsidies, Wages, and Employment of Single Mothers.” June 2002. Institute for the Study of Labor. Discussion Paper No. 517.

²³ Identifying the exact number of child care workers in the state is complicated by the large number of self-employed child care workers. The estimates used in this study are instead derived using survey data collected by OKDHS as a component of the 2003 Child Care Market Rate Survey. The IMPLAN database is widely used to estimate total employment in an industry, but it does not account for the significant number of self-employed workers operating family care homes. The ES-202 Covered Employment database likewise excludes self-employed workers as well as those employees not covered under the Unemployment Insurance (UI) program.

²⁴ Licensed child care facilities in Oklahoma are categorized in one of four levels; One Star, One+ Star, Two Stars, and Three Stars. Facilities with higher star levels implicitly offer more comprehensive child care services than do lower star levels, thereby placing their services in higher demand. One Star facilities must meet minimum licensing requirements. In addition to meeting One Star Criteria, One+ Star programs require formal training and established lesson plans for enrolled children. Two Star facilities must meet One+ Star requirements and are required to have either a minimum number of instructors with training in early childhood development or education, or be accredited through an approved national accrediting body. Three Star facilities must meet both options for Two Star facilities.

²⁵ See Norris, Deborah J., Loraine Dunn, and Lisa Eckert. “Reaching for the Stars. Center Validation Study Final Report.” 2003. Early Childhood Collaborative of Oklahoma.

²⁶ See Blau, David M. and H. Naci Mocan. "The Supply of Quality in Child Care Centers." *The Review of Economics and Statistics*, August 2002, 84(3): 483-496.

²⁷ See Current Employment Statistics, Current Employment Situation - Selected Employment Indicators. Bureau of Labor Statistics. <http://www.bls.gov>

²⁸ For projected wage and salary employment changes at the national level in the 2000 to 2010 period, see <http://www.bls.gov/news.release/ooh.t03.htm> For Oklahoma projections, see the Occupations section of Workforce Oklahoma Employment Outlook 2010 at <http://www.oesc.state.ok.us/lmi/publications/publication.asp?pubID=15>

²⁹ The hourly wage estimate assumes each child care worker will work an average of 1,600 hours annually - 32 hours per week for 50 weeks. Nationally, child care production workers (excluding administrative workers) worked an average of 30 hours per week in 2002.

³⁰ Average annual state wages are estimated using total wage and salary income for 2nd quarter 2003 of \$44.325 billion from the Bureau of Economic Analysis (<http://www.bea.gov>) State Quarterly Personal Income Estimates, and total employment of 1,618,038 in 2nd quarter 2003 from the Bureau of Labor Statistics' Local Area Unemployment Statistics program. Hourly wages are then calculated assuming 1,850 working hours per year.

³¹ See Center for the Child Care Workforce. *Current Data on Child Care Salaries and Benefits in the United States*. March 2002.

³² The average part-time employee is assumed to work 16 hours per week, half the estimated 32 hours per week worked by the average full-time employee. Consequently, in calculating FTE employment, two part-time workers equal one full-time worker.

³³ Based on the 2003 Oklahoma Child Care Market Rate Survey, only 50,786 (38 percent) children received care in 2 and 3 Star facilities in 2003. An estimated profile of the number of children in care by facility type and Star rating is as follows:

Children in Licensed Care (2003)							
	Full-Time	Part-Time	Facility Star Rating				Total
			1	1+	2	3	
Center	86,135	15,831	34,655	22,630	38,579	6,102	101,966
Home	26,600	5,316	19,755	6,056	5,911	194	31,916
Total	112,735	21,147	54,410	28,686	44,491	6,296	133,882

³⁴ Total purchases are estimated as \$155.5 million, with 54.5 percent (\$84.7 million) of total purchases made from firms within the state. Total output is determined from data collected in the 2003 Child Care Market Rate Survey. Local purchase estimates by industry are then formed using the regional purchase coefficients from the IMPLAN database.

³⁵ Minnesota IMPLAN Group, 1998. IMPLAN Professional: User's guide, analysis guide, data guide. Stillwater, MN.

³⁶ The underlying IMPLAN dataset for Oklahoma is edited to reflect the employment and earnings information collected in the 2003 Child Care Market Rate Survey. The IMPLAN estimates are adjusted because, although IMPLAN estimates are first based on Bureau of Labor Statistics ES-202 employment and earnings estimates and then adjusted to include the self employed, the child care industry estimates provided in the IMPLAN 1999 dataset are approximately equal to the level expected for wage and salary workers only and do not accurately reflect the role of self employed workers in the child care industry. Most child care facilities are operated as sole proprietorships, yet the IMPLAN data assumes all income from the child care sector is earned in the form of employee compensation. Consequently, the following changes were made to IMPLAN sector 499 - Child Day Care Services: Employment = 25,569, Industry Output = \$409.46 million, Employee Compensation = \$164.037 million, Proprietor's Income = \$75.751 million, Other Property Income = \$10.241 million, and Indirect Business Taxes = \$3.895 million. Because the number of self-employed workers in the child care industry is great and the exact proportion of total earnings accruing to proprietors is unknown, total Proprietor's Income is estimated as twice the proportion of proprietor's income to total labor income across all industries (15.8 percent x 2 = 31.6 percent). After estimating Proprietor's Income, the remaining labor income is attributed to Employee Compensation. Both Other Property Income and Indirect Business Taxes are scaled in proportion to the change in Industry Output relative to the original IMPLAN estimates. It is important to note that the new industry totals remove any influence of unlicensed child care facilities from the model.

³⁷ Because increased child care expenditures may represent a shift in consumption away from other goods and services rather than 'new' spending, it is possible that Type II multipliers may overstate the realized economic impact of an expansion in the child care sector.

³⁸ The earnings multipliers are based on labor income rather than a more narrow income measure such as employee compensation because the child care industry has a large number of self-employed workers and labor income better reflects the impact of the earnings of both wage and salary and self employed workers.

³⁹ Caution must be exercised when using input-output multipliers to estimate the total economic activity 'supported' by an existing industry or firm. Input-output multipliers are intended to predict the change in economic activity that results from an incremental change in the current state of a regional economy. More specifically, the estimates we provide for the child care industry reflect input-output model predictions of the incremental impact that would result from adding \$410 million of industry revenue to the existing child care industry, or a doubling of the current size of the industry.

⁴⁰ The tax revenue estimates assume that 50 percent of all labor income received by workers in the child care industry is spent on taxable goods and services within Oklahoma. The combined state and local sales tax estimates assume an average combined sales tax rate of 7.75 percent. The personal income tax estimate of 3 percent was estimated with the assistance of the research staff of the Oklahoma Office of State Finance and reflects the expected average personal income tax rate for child care industry workers. The 3 percent income tax rate will likely produce a conservative estimate of the state income taxes paid through the indirect and induced components of labor income. The economic impact estimates ignore all federal income tax payments.

⁴¹ The practice followed in many studies of attributing the total wages of working parents to the availability of child care grossly overstates the impact of child care on parent wages. A rigorous analysis of the earnings effects of the decision to work and use child care would only be possible with detailed data on the reason for the child being in care, parent wage rates, child care costs, and relative industry effects. For more discussion, see Frye, Celeste, et. al., "Measuring the Economic Importance of Child Care. Excerpts from the Cornell Methodology Guide." The Cornell Linking Child Care and Economic Development Project. Forthcoming December, 2003.

⁴² See "It's Good Business to Invest in Child Care." Child Care Bureau, U.S. Department of Health and Human Services. <http://nccic.org/ccpartnerships/toolkit/tocword.htm>