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Economic Impacts of Early Care and Education in California



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*Cover photo: U.S. Air Force photo by Rhonda Siciliano*

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# EXECUTIVE SUMMARY

Early care and education (ECE) is an important industry in California, serving more than 850,000 California children and their families and bringing in gross receipts of at least $5.6 billion annually. The industry not only benefits the children who receive care, but also strengthens the California economy as a whole, which is especially important during this time in which California is struggling with high unemployment and a weak economic recovery. This paper discusses the range of economic benefits that the ECE industry brings to California.

Our review of the research finds that the ECE industry benefits the California economy by promoting and facilitating parents' ability to participate in the paid workforce. Research has found that high-quality and reliable child care increases worker productivity and improves businesses' bottom line. Access to ECE reduces absenteeism and decreases turnover. ECE is especially important to the careers and earnings of mothers. Parents' ability to pursue education is also tied to the availability of ECE.

The human development aspects of the ECE industry also have a significant economic impact on California. Studies of the costs and long-term benefits of high-quality ECE programs have consistently found substantial savings derived over the course of years and decades from reduced need for remedial and special education, reduced incarceration rates, lower rates of teen pregnancy, and many other factors. Analyses of the costs and benefits of ECE have found impressive returns on investment to the public, ranging from $2.69 to $7.16 per dollar invested. Quality ECE can also help foster the development of a productive workforce to meet the future needs of California businesses in light of our state's changing economy and shifting demographics.

In this paper, we also build on existing research by quantifying the impact that the ECE industry has on California's economy in terms of parents' purchasing power, economic output, jobs, and tax revenue. We found that parents who rely on paid ECE services have purchasing power of $26.4 billion, based on their annual earnings. We also found that every dollar spent on the ECE industry yields two dollars in economic output for the entire California economy. This is because ECE spending creates demand for suppliers and at the businesses where ECE workers and their families shop. Spending on ECE supports nearly 200,000 jobs, both direct jobs in the ECE industry and jobs in educational supplies, food, health care, and other industries, and also results in more than half a billion dollars in state and local tax revenue.

ECE is a critical part of California's infrastructure for economic development. Like the system of highways and roads and public transportation, parents need the infrastructure of reliable, affordable child care in order to productively participate in the workforce. It is important to maintain the ECE system even during periods of recession and high unemployment. If the system atrophies during times of economic contraction, a child care shortage during recovery impedes the workforce mobilization and productivity of many parents and hinders new economic growth. Like the public highway system, the child care infrastructure cannot be rebuilt overnight when the number of jobs returns to previous levels.

# INTRODUCTION

California, like many states, is facing a large budget deficit and difficult budgetary choices. The state legislature has made cuts to Early Care and Education (ECE)[1] projected to total more than $1.6 billion between fiscal years 2009–2010 and 2011–2012 (California Budget Project [CBP] 2011). Since 2009, California has faced double-digit unemployment rates (California Employment Development Department 2011) and unemployment is projected to remain at that level through 2012 (Legislative Analyst's Office [LAO] 2010b). In this context, it important that policymakers understand the role that ECE spending plays in California's economy.

At the same time that California is decreasing ECE funding, researchers throughout the nation are documenting the importance of the ECE industry as an engine of economic development. More than 58 states and localities have conducted analyses of the size and regional economic impact of the industry. Because of the way that ECE expenditures "ripple" through the local economy, this sector has been found to have an economic impact that rivals the impact of many of the industries that have traditionally received economic development dollars from local and state governments (Liu et al. 2004). Increasingly, researchers and advocates are contending that ECE can and should be a crucial component of jobs programs.

In this paper, we explore the economic effect of the ECE industry in California. We first provide an overview of the industry in California, describing characteristics of the workforce, costs for parents, and the availability of public dollars to assist low-income families needing child care. Next, we review the literature on two of the main means by which the ECE industry supports state and local economic development: first, by promoting the workforce mobilization and productivity of parents, and second by promoting the cognitive and social development of children, who grow to be individuals less likely to need public services and more likely to make positive social and economic contributions. Wherever possible, we discuss data specific to California, and we differentiate the effects of different types of care—center-based or family child care (FCC) homes—when this information is available.

We then turn to the third major means by which the ECE industry supports economic development in California, which is by creating jobs and generating local income. We first conduct our own analysis of the purchasing power of parents who use paid ECE services, using public data. Then we analyze the economic development impact of the ECE industry in California using IMPLAN, an economic modeling software package.

[1] Though there is no formal definition of "Early Care and Education," it typically includes developmentally appropriate educational programs and child care for the zero to three age group and the preschool age group (four- and five-year olds), as well as afterschool care and programs for children through age 12 (Brown, Ramos & Traill, 2008). Throughout this paper we use the terms "Early Care and Education" and "child care" interchangeably.

# OVERVIEW OF THE ECE INDUSTRY IN CALIFORNIA

## Licensed ECE

The ECE industry is a complicated system that is difficult to quantify because a large portion of it is unregulated. Much of what we know about the ECE industry in California—and nationally—is limited to the "formal" part of the industry, which consists of licensed child care centers and/or preschools, and licensed FCC. FCC is defined as non-parental paid care that is provided in the home of the caregiver (Morrissey & Banghart 2007). In California, FCC homes are licensed as small or large, and are allowed to care for up to 8 children or 14 children respectively. Licensing requirements focus on providers' health and safety training, background checks, and standards concerning the physical space of the child care facility or home. The requirement for fully qualified teachers and center directors working in licensed child centers is 12 credits in early childhood education.

As shown in Table 1, there are 10,850 licensed child care centers in California, and 38,989 licensed FCC homes. Overall, centers in California have enough slots to provide care for up to 693,267 children; FCC homes in California have enough slots for 379,676 children. Thus, around two-thirds of the licensed child care slots are in centers, and the other one-third are in FCC homes (California Child Care Resource & Referral Network [CCCRRN] 2009).

**Table 1**

### Licensed Child Care in California

| | Number of facilities | Number of slots |
|---|---|---|
| Centers | 10,850 | 693,267 |
| Family Child Care | 38,989 | 379,676 |
| Total | 49,839 | 1,072,943 |

Source: CCCRRN 2009

Johnson (2005) found that center-based care is used for three- and four-year olds more often than for infants, while use of FCC does not vary by the age of the child.

## License-Exempt ECE

California does not require FCC licensing when the provider cares for children from just one family, in addition to her own children, if applicable. Nearly 80,000 children are enrolled in subsidized care provided by license-exempt FCC homes in California (California Department of Social Services [CDSS] 2010, California Department of Education [CDE] 2010). School-based extended day programs, parent co-ops, and military child care are also typically license-exempt in California.

License-exempt ECE is often called "family, friend and neighbor" (FFN) care, and tends to be based on a different type of relationship between the caregiver and the child and his family. As explained by O'Donnell et al. (2006), "this child care choice is embedded in relationships between caregivers and parents that begin—especially for relatives—long before the child care starts and continues long after the child care ends" (p.15). Many parents prefer license-exempt care because they can select providers who share their culture or language to care for their children. In addition, license-exempt care is more affordable than licensed care, and for many families fills the void left by the shortage of licensed care (Child Care Law Center, 2004). Johnson (2005) reports that low-income families who do not receive child care subsidies are more likely than higher-income families to use home-based, mostly license-exempt, care.

## About the ECE Workforce

The ECE industry in California directly employs around 154,000 to 169,700 individuals caring for children. In licensed FCC homes there are 38,989 providers and 19,262 paid assistants (CCCRRN 2009 and Whitebook et al. 2006c),[2] and in licensed centers there are 44,600 teachers, 22,600 assistant teachers, and 6,900 directors (CCCRRN 2011). We estimate that between 24,100 and 39,800 Californians are employed in license-exempt FCC (authors' analysis, see Appendix C). The vast majority of ECE workers are female. The highest paid center-based teachers with at least a BA earn on average $34,382 (CCCRRN 2011), which is around $16,000 less than the average California kindergarten teacher (Whitebook et al. 2006a). The highest paid center-based assistants earned $10.21 per hour, on average (CCCRRN 2011). It is more difficult to obtain data on the salaries of FCC providers. Using 2003 data, an analysis of the FCC workforce in Los Angeles County found the average net income of small home providers was $11,968, while that of large home providers was $19,254 (Burton 2003).

## State Funding for ECE

In fiscal year 2010–2011, the state of California provided $2.669 billion per year in funding for child care and development programs, though this amount is slated to be cut in fiscal year 2011–2012 (Ehlers 2011). Some of these state expenditures are paid for using federal funding through the Child Care and Development Fund, the Temporary Assistance for Needy Families program, and the American Recovery and Reinvestment Act of 2009. Overall, current state funding meets only 60 percent of the need: while the state subsidizes the child care expenses of 300,000 children, there are nearly 200,000 children on waiting lists (CBP 2011).

### Voucher Programs

The primary method by which the state distributes child care funding is a voucher system. The state provides child care vouchers to low-income families, defined (in 2010–2011) as families with incomes at or below 75 percent of the state median income, which is currently $45,228 for a family of

[2] Number of paid assistants was estimated by applying the ratio of providers to paid assistants (Whitebook et al. 2006c) to the most recent number of providers (CCCRRN 2009).

three (CBP 2011). Vouchers can be used at licensed centers, licensed FCC homes, or license-exempt providers. Reimbursement rates are determined using regional market rates (Ehlers 2011).

The vast majority of voucher funding goes to families participating in the CalWORKS Child Care Program.[3] Low-income families that have not participated in CalWORKs are far less likely to receive child care vouchers. CalWORKs Child Care served an estimated 166,361 children at a state cost of $1.127 billion in 2010–2011; non-CalWORKs vouchers enrolled 38,777 children at a state cost of $271 million (Ehlers 2011).

Fifty-four percent of FCC providers and 56 percent of centers provide services to at least one child whose family receives a subsidy (Whitebook et al. 2006a).

### Other Programs

California also has a "General Child Care" program, in which the state contracts directly with licensed centers or networks of FCC homes to provide ECE. This program was established in the 1960s through Title 5, and sets standards for higher staff qualifications than is required under regular licensing. Payment is set at a standard statewide reimbursement rate. Funding for this program was $797 million with an enrollment of 86,169 in 2010–2011 (Ehlers 2011). There are 1,358 General Child Care centers/providers in the state (CCCRRN 2009). The California State Preschool Program, which provides full- and part-day programs, served 116,847 children at a cost of $439 million in 2010–2011 (Ehlers 2011). There are 1,604 state preschools (CCCRRN 2009). Finally, there are 1,373 Head Start programs in the state (CCCRRN 2009) which received $841 million in federal funding and served 104,883 low-income children in 2009–2010 (LAO 2010).

**Table 2**

## Major ECE Programs in California

| | Funding amount in millions, 2010–2011 | Enrollment, 2010–2011 | Number of facilities, 2008 |
|---|---|---|---|
| CalWORKS vouchers | $1,127 | 166,361 | |
| Non-CalWORKS vouchers | $ 271 | 38,777 | |
| General Child Care | $ 797 | 86,169 | 1,358 |
| California State Preschool Program | $ 439 | 116,847 | 1,604 |
| Head Start | $ 841* | 104,883* | 1,373 |

Sources: Ehlers/LAO 2011; LAO 2010; CCCRRN 2009

*Head Start funding and enrollment data are from 2009–2010.

[3] There are three stages to the CalWORKS Child Care Program. In Stage 1, individuals receive cash assistance (as well as child care vouchers) in exchange for participating in Welfare-to-Work activities. Stage 1 lasts for six months or until employment is "stable," after which participants enter Stage 2. In this stage, low-income CalWORKS families (defined in 2010–2011 as families with incomes at or below 75 percent of the state median) receive vouchers for up to 24 months after cash assistance ends. After this, recipients enter Stage 3, during which they continue to receive vouchers, assuming that they meet the eligibility requirements and that adequate funding exists (Child Care Law Center 2010).

## The Cost of ECE

Full-time licensed ECE for preschoolers in California costs on average $6,596 per year in FCC homes, and $7,856 per year in centers. The cost for full-time infant care in FCC homes is a bit more, at $6,854 per year, but in centers averages $11,276—more than the average tuition and fees at a public university in California (NACCRRA 2011). California is ranked as the fifth least affordable state for center-based infant care, and the twelfth least affordable for center-based care for preschoolers (NACCRRA 2010a). Paying for full-time center-based infant care would require 13.9 percent of the median income of two-parent families; it would require fully 40 percent of the median income of a single-mother family (NACCRRA 2011). Full-time licensed care costs at least 23 percent of the median income of a single mother, whether the child is an infant or a preschooler, and whether the care is provided at a center or a FCC home (see Table 3).

**Table 3**

### Average Full-Time Cost of Child Care in California

| | Infant | | | Four-year old | | |
|---|---|---|---|---|---|---|
| | Cost | As a percent of median income of two-parent family | As a percent of median income of single-mother family | Cost | As a percent of median income of two-parent family | As a percent of median income of single-mother family |
| Centers | $11,276 | 13.9% | 40.0% | $7,856 | 9.7% | 27.9% |
| FCC homes | $6,854 | 8.4% | 23.8% | $6,596 | 8.1% | 23.4% |

Source: NACCRRA 2011 and authors' calculations

Not surprisingly, the cost of child care is a concern to many parents. More than three out of four (76 percent) parents rate affordable child care as the most or one of the most important issues facing working families (NACCRRA 2010b). The 2010 California Parent Survey commissioned by the Lucille Packard Foundation found that 16 percent of children have parents who do not believe they have affordable child care options. The parents most likely to feel this way are Spanish-speakers, those without a high school diploma, and those with household incomes under $25,000 (Berkeley Policy Associates 2010).

# ECE BOOSTS PARENTS' WORKFORCE PARTICIPATION AND PRODUCTIVITY

Early care and education is a critical part of the state's infrastructure for economic development. Just as the system of highways and roads and public transportation allows workers to get to work "with the confidence that at the end of the day they will be able to return home" (Moss 2001, p.11), so too

parents need the infrastructure of reliable, affordable child care in order to productively participate in the workforce. In the final section of this paper, we describe how our analysis found that parents using paid ECE services in California have purchasing power of approximately $26.4 billion per year, based on their earnings.

As part of California's infrastructure for economic development, it is important to maintain the ECE system even during periods of recession and high unemployment. As explained by Mildred Warner, PhD, of the "Linking Economic Development and Child Care Research Project" at Cornell University, if the system atrophies during times of economic contraction, there will be a child care shortage during the recovery that will impede the workforce mobilization and productivity of many parents and hinder new economic growth (2009).

## Licensed ECE Supply is Inadequate for Working Parents

In California, 60 percent of children aged 0 to 5—around 1.8 million children—live in families where all parents work (Children Now 2011). Among children aged 0 to 13, almost 4 million live in families where all parents work. There are only enough licensed child care slots in California to accommodate 27 percent of these children (CCCRRN 2009).

Licensed child care is especially difficult to find for infants and children whose parents work nonstandard hours. One in five California workers had a non-traditional work schedule in 2000 (CCCRRN 2007). Only 6 percent of licensed child care slots in California are available for infants (Children Now 2011), despite the fact that mothers of infants are almost as likely to be working as mothers of older preschoolers (Morrissey & Warner 2007).

FCC homes are far more accommodating to parents who work nonstandard hours than are centers. Twenty-seven percent of licensed FCC homes offer evening and/or weekend care; just 2 percent of licensed centers offer evening care, and 1 percent offer weekend care (CCCRRN 2011). FCC homes are also much more willing to care for mildly ill children than are centers (Kimmel 2006).

## ECE Improves Businesses' Bottom Line

Studies have repeatedly found that a reliable ECE infrastructure improves businesses' bottom line, and that its absence can be costly. While very few businesses themselves invest in ECE support for their employees, those that do see significant returns on their investment, and the lessons learned there can be applied to systems of reliable and affordable ECE more generally.

### ECE Reduces Absenteeism

Unscheduled absences are a big expense for employers. Carillo (2004) found that the total cost of absenteeism is a minimum of two times the absent worker's wage, after including the cost of benefits, supervisor's time, and lost productivity.

Twenty-two percent of unscheduled absences are due to "family issues," including child care problems (CCH 2007). A 1997 study found that almost 30 percent of working parents had had a breakdown in their child care arrangements in the previous three months, which affected absenteeism, tardiness, or concentration on the job (Bond, Galinsky & Swanberg 1998). Working parents in the U.S. miss an average of nine days per year due to breakdowns in child care. Friedman (1986) reports that absenteeism from breakdowns in care (including eldercare) cost American businesses an estimated $3 billion or more per year.

Studies show that reliable ECE increases working parents' productivity. J.P. Morgan Chase had a 112 percent "return on investment" when it provided back-up child care and resource and referral services to its employees (Brown et al. 2008). A review of three national studies of businesses that provide reliable (in these cases on-site) child care for their employees found that 54 percent of the employers reduced absenteeism by 20 to 30 percent as a result of this service (Friedman 1986).

## ECE Reduces Turnover

Of even greater importance to businesses is employee turnover, which can be affected by availability of ECE. The cost of turnover has been estimated to be equal to 150 percent of the annual salary for exempt employees, and 75 percent of the yearly wages of non-exempt employees (Phillips & Reisman 1992). Others argue that exempt employee turnover cost is as high as 250 percent of annual salary (Carillo 2004).

One company found that its on-site child care center, which offered extended hours, decreased staff turnover from 9.1 percent to 7.7 percent and within five years had paid for itself (Circadian Technologies 2003). Another study found that for every $1 investment in back-up child care, employers can receive $3 to $4 in productivity and turnover improvements (Elswick 2003).

Women coming off welfare comprise a population with relatively unstable employment and high rates of job turnover. Boushay (2002) found that two main factors determine whether or not a woman trying to move from welfare to work will be able to sustain employment: job quality and availability of ECE. In addition, former welfare recipients who received child care subsidies were 60 percent more likely to be employed after two years than those who did not (Boushey 2002).

It is also worth mentioning that a thriving social infrastructure, which includes affordable and reliable ECE options, improves the quality of life in a community and can serve to attract and retain workers to the area (Warner et al. 2004).

## ECE Enhances Productivity

In the mid 1990s, a group of 21 of the largest corporations in the U.S.—calling itself "The American Business Collaboration for Quality Dependent Care" or "The Collaboration"— invested $125 million to support child and elder care programs for their employees. The Collaboration had invested in over 1,000 projects to "expand the quantity and enhance the quality of dependent care in 66 communities

nationwide" (American Business Collaboration [ABC] for Quality Dependent Care 2000). In a 2000 study of the effects of this investment, it was found that 40 percent of the employees who used the business-supported dependent care reported feeling less stress and worrying less at work about their families; 35 percent reported being better able to concentrate at work; and 30 percent reported having to leave work less often to deal with family issues (ABC 2000).

Other studies also illustrate that parents' productivity at work is affected by child care issues and concerns. A study of public employees in New York City who were provided with child care subsidies found that the employees had a 17.8 percent decrease in disciplinary action compared to a control group that did not receive the subsidy. Overwhelmingly, those in the subsidy group reported leaving work less often, concentrating better at work, being more productive at work, and using fewer sick days to deal with child care issues (Impact Brief One 2010).

The time between the end of the school day and when parents get home from work can be especially worrisome for parents of school-age children who do not have adequate, high-quality afterschool care. The result is what has been dubbed "Parental After-School Stress (PASS)." Compared to other working parents, those with high levels of PASS are more frequently interrupted and distracted at work by family issues; make more errors; are less likely to agree to work extra hours; and miss meetings and deadlines because of family issues. They rate their own productivity and the quality of their work lower than co-workers rate their own work (Community, Families & Work Program 2004).

Nonparents are affected by inadequate ECE as well: 78 percent of workers have reported that their own work environment would improve if their coworkers' ECE needs were met (Burud 2002).

## ECE Supports Women's Careers and Earnings

The gender gap in earnings for men and women has long been a concern for policymakers. The condition of the ECE system in the United States has much to do with this ongoing problem. Better pay and benefits are correlated with a continuous work history. Workers' careers are disrupted because of child care failure—care that is unreliable, unaffordable, or just unavailable—and these workers are usually women (Hofferth & Collins 2000). Periods of non-employment lead to lower wages because of "skill depreciation," loss of seniority, and sometimes being less likely to receive further training or mentoring due to questions of commitment (Kimmel 2006, p.79).

A study of Los Angeles women transitioning off CalWORKs found that lack of access to or ability to afford ECE was the most significant barrier to employment. The researchers found "for all mothers, regardless of whether they are in one- or two-parent households, whether or not they have strong labor force connections, and whether or not they have any college education, lack of child care is by far the most frequent barrier to employment" (Flaming, Kwon & Burns 2002, p.15).

Hofferth & Collins (2000) found that the cost and stability of ECE affected labor force participation of middle-income mothers more than it affected either low- or high-income mothers. As the authors

explain, "Low-wage mothers have different options—they depend more upon low-cost relative care and father care, or receive child care subsidies. High-wage mothers can afford high-priced care" (p.389).

Lower ECE cost to parents would increase maternal labor force participation. Kimmel (1998) estimates that if the cost of child care were decreased by 10 percent, the employment rate for single women would increase by 2 percent, and for married women it would increase by 10 percent. Blau (2001) estimates that full government funding of ECE would increase overall maternal employment by up to 10 percent.

### ECE Supports Student Parents

In California, 16 percent of those seeking ECE are parents in school or training (CCCRRN 2009). The benefits of having a more skilled workforce are clear: families have higher incomes leading to more tax revenues and less reliance on public services, and businesses see increased productivity (Brown et al. 2008). A national study found that 88 percent of welfare recipients who obtained a four-year college degree were able to move off welfare after receiving their degree (Brown et al. 2008).

Among student parents attending community college, 80 percent reported that the availability of ECE for their children was very important to their decision to pursue education, and almost 60 percent said they would not have been able to continue college without child care services (Keyes & Boulten 1995). Another study found that student parents with access to on-campus ECE have higher grade point averages and are more likely to graduate than student parents who do not have access to reliable child care such as this (Brown et al. 2008).

## ECE GENERATES LONG-TERM HUMAN DEVELOPMENT BENEFITS

> "Skill begets skill; learning begets learning. Early disadvantage, if left untreated, leads to academic and social difficulties in later years. Advantages accumulate; so do disadvantages" (Heckman & Masterov 2007, p.447).

Fully 90 percent of a child's postnatal brain growth occurs between birth and age three (Shonkoff & Phillips 2000). Neuroscientists as well as social scientists now know that fundamental skills begin to develop in infancy and are well-established by the time children enter kindergarten. This includes cognitive skills like development of language, but also "character" skills such as attentiveness, motivation, self-control, and sociability (Heckman & Masterov 2007). Children's earliest experiences lay the foundation for later academic success—or failure. The developmental advantages or disadvantages with which a child enters kindergarten are compounded over the rest of their education. Numerous studies have shown that high-quality ECE can help lay a foundation for success.

### Longitudinal Studies Demonstrate Long-Term Effects

Studies conducted over several decades have found that early experiences of high-quality ECE have profound impacts on virtually every aspect of the participants' lives. Three high-quality ECE programs in particular have been the focus of much research and study: the Chicago Child-Parent

Centers, the Abecedarian program in North Carolina, and the High/Scope Perry Preschool in Michigan.[4]

All three of these programs featured well-paid teachers trained in early childhood development, low turnover, and low child-staff ratios. The program participants were preschool-aged low-income, high-risk children. Each study followed the participants and members of a control group that did not participate in the programs over several decades (Heckman & Masterov 2007; Brown et al. 2008; Morrissey & Warner 2007). Collectively, as adults, the participants in these programs did significantly better than the control groups on measures of economic performance, health, lower criminality, and education (Barnett & Masse 2007; Campbell et al. 2002; Reynolds et al. 2002; Schweinhart et al. 1993; Schweinhart et al. 2005).

Compared to the control groups, the ECE participants performed better throughout school; earned more; and generated higher tax revenues. The ECE participants were less likely than the control groups to repeat a grade; to need special education; to be arrested or incarcerated; to smoke; to be on public assistance; or to be pregnant as a teen. The ECE participants were more likely than the control groups to graduate high school; to graduate high school on time; to go to college; to be employed; to own their own home; to have a savings account; and to attend a four-year college.

## Cost/Benefit Analyses Demonstrate High Returns on Investment

The benefits derived from investments in high-quality ECE programs translate into significant monetary savings for the general public over the medium and long term. Several cost-benefit analyses have been conducted using data from the longitudinal studies described above, and they find substantial "returns on investment" of the public funds that were used to pay for the programs.

Robert Lynch (2004) explains the four ways that high-quality ECE programs save the public money:

> "First, subsequent public education expenses are lower because participants spend less time in school (as they fail fewer grades) and require expensive special education less often. Second, criminal justice costs come down because participants—and their families—have markedly lower crime and delinquency rates. Third, both participants and their parents have higher incomes and pay more taxes than non-participants. Fourth, ECD [early childhood development] investment reduces public welfare expenditures because participants and their families have lower rates of welfare usage" (p.9).

[4] The Chicago Child-Parent Centers study involved a half-day program conducted through the Chicago public schools. The children were three- and four-year olds. The study involved around 1,500 children, and used a "quasi-experimental" design in which participants were compared to a matched group. The Abecedarian program was a full-day, year-round ECE program in Chapel Hill, North Carolina, for children from infancy to age five. The study had 111 participants and used a randomized trial study design. Finally, the High/Scope Perry Preschool, in Ypsilanti, Michigan, was a half-day public school-based program for three- and four- year olds. The study had 123 subjects and used a randomized trial design (Heckman & Masterov 2007; Brown et al. 2008; Morrissey & Warner 2007).

In the cost/benefit analyses of the ECE programs, two types of budget costs are factored in: the expenses of the ECE program itself and the extra public higher education expense due to increased enrollment by the program participants.

Looking at the three longitudinal studies, for every one dollar invested in these ECE programs there were returns on investment—accruing to the general public—that ranged from $2.69 to $7.16 by the time participants were in their 20s. There were additional, smaller benefits that accrued to the participants themselves (see Table 4).

**Table 4**

## Costs and Benefits per Participant for Three ECE Programs (2002 dollars)

| Costs and Benefits | High/Scope Perry Preschool (Michigan) | Chicago Child–Parent Centers | Abecedarian Project (North Carolina) |
|---|---|---|---|
| ***Program costs*** | | | |
| Average cost of program per participant* | $15,844 | $7,384 | $35,864 |
| Average cost for one year of participation | $9,759 | $4,856 | $13,900 |
| ***Program benefits*** | | | |
| Age of participants when benefits calculated | 27 | 21 | 22 |
| Total benefits | $138,486 | $74,981 | $135,546 |
| Net benefits (benefits minus costs) | $122,642 | $67,595 | $99,682 |
| Total benefit per dollar invested | $8.74 | $10.15 | $3.78 |
| Public benefit per dollar invested (benefit–cost ratio) | $7.16 | $6.87 | $2.69 |

Source: Temple & Reynolds 2007

* The cost of these programs can at first glance appear to be high, but it should be kept in mind that current ECE costs in California, as detailed in Table 3 of this report, already approach some of these amounts. Average center-based care for a four-year old in California runs $7,856 per year, which is 80 percent of the cost of the High/Scope Perry Preschool program, and substantially more expensive than the Chicago Child-Parent Centers program.

As participants age, the returns on investment will grow larger still, as savings continue to accumulate from increased earnings, lower rates of crime, lower rates of public assistance, and the like. An analysis of the High/Scope Perry Preschool participants at age 40 found a benefit-cost ratio of 17.1 to 1; $4.17 of this return accrued to the participants, mostly due to increased earnings, while $12.90 accrued to the general public, mostly due to reduced crime (Belfield et al. 2006).

Using data from the Chicago study, Economic Policy Institute researcher Robert Lynch (2004) calculated that a national high-quality publicly-financed ECE program provided to all of the nation's three- and four-year olds who live in poverty would generate billions in savings for all levels of government. The budget benefits generated by the program would fully offset the costs by year 17.

Within 25 years, the budget benefits would exceed costs by $31 billion, and within 45 years the program would save the public $61 billion a year.[5]

Researchers from the Federal Reserve Bank in Minnesota found that investment in ECE programs yields returns "far exceeding the return on most investments, private or public … [T]he return to [ECE programs] far exceeds the return on most projects that are currently funded as economic development" (Rolnick & Grunewald 2003, p.7).

In another well-known study, researchers at RAND Corporation used data from the Chicago study to calculate the costs and benefits of a universal half-day preschool program for all of California's four-year olds regardless of family income. Controlling for the fact that only 25 percent of the program participants would have risk factors similar to the Chicago participants, and using conservative assumptions, the researchers calculated that there would nonetheless be a return on investment of $2.62 for every dollar spent (Karoly & Bigelow 2005).

While most attention is given to the powerful impact of high-quality ECE programs on disadvantaged children, the RAND study highlights the fact that middle- and high-income children can benefit from such programs as well. This can also be illustrated by looking at the grade retention rates for different income groups. Though low-income children have the highest grade retention rate at 12 percent, middle-income and high-income children have not-insignificant rates of grade retention as well (8 percent and 4 percent respectively). The consequences of grade retention can be substantial. Jimerson et al. (2002) report that students who repeat a grade are between two and eleven times more likely to drop out of high school than other students, and grade retention has been found to be the "single most powerful predictor of dropping out" (p.52). High-quality ECE programs reduce the likelihood of grade retention for their participants, and there is room for improvement in grade retention rates among all income groups, not just low-income groups. Economist W. S. Barnett argues that "If you were to get one-tenth the public savings from high-quality preschool for middle-income children (as you do for low-income children), high-quality preschool programs would still be cost effective" (2004).

## Human Development Aspects of ECE are Essential for the Economy

Current workforce trends bode poorly for U.S. productivity and competitiveness. The labor force is aging, and there are fewer replacements for old workers. The growth of the labor force is slowing, especially among "young and skilled workers who are a source of vitality for the entire economy" (Heckman & Masterov 2007, p.449). Compounding this problem is the fact that rates of educational attainment have stagnated in the United States: "The growth in the quality of the workforce, which was a mainstay of economic growth until recently, has diminished. Assuming that these trends

[5] In his projections, Lynch assumed the universal ECE program would go into effect in 2005; all figures are in 2004 dollars.

continue, the U.S. economy will add many fewer educated persons to the workforce in the next two decades than it did in the past two decades" (Heckman & Masterov 2007, pp.451–452).

California has not been spared. A report commissioned by America's Edge, a national business leaders group, states that in 1970, California ranked seventh among all the states in the percent of the workforce that had a high school degree; by 2008 it ranked *last* (Warner et al. 2011). The report estimates that by 2018, three of every five jobs in California will require some education beyond high school. The number of jobs requiring a postsecondary education is projected to grow 50 percent faster than the number of jobs for high school dropouts. Experts predict that by 2025, California's workforce will have a shortage of 1 million college graduates. The America's Edge report also describes a growing "skills gap" in California. Currently, even during a time of recession and high unemployment, there are more middle-skill jobs—jobs that require more than a high school degree but not necessarily a full four-year college education—than middle-skill workers (Warner et al. 2011).

Economists are joining child development professionals in calling for increased attention to early care and education as a way to promote a healthy and productive economy and workforce. James Heckman, Nobel Laureate in Economics and University of Chicago professor, argues that investment in young children is a win-win. "Investing in disadvantaged young children reduces the inequality associated with the accident of birth and at the same time raises the productivity of society at large" (Heckman & Masterov 2007, p.446). Federal Reserve Chairman Ben Bernanke has remarked that "Although education and the acquisition of skills is a lifelong process, starting early in life is crucial. Recent research … has documented the high returns that early childhood programs can pay in terms of subsequent educational attainment and in lower rates of social problems …." (quoted in Brown et al. 2008, p.26).

As shown, participation in quality ECE leads to benefits that accrue both to the individual participants and to the general public over the course of years and decades. Ultimately, the cost of high-quality ECE is recouped many times over due to participants' higher earnings, lower crime rates, and lower use of public services. This is not to suggest that investment in ECE should take the place of investments in human development that occur later in the lifecycle, but "if early investments are made, the returns to later investments will rise" as they will be building on a well-developed foundation (Heckman & Masterov 2007, p.476).

## ECE CREATES JOBS AND ECONOMIC MULTIPLIER EFFECT

ECE not only reduces working parents' absenteeism and turnover, increases their productivity, and enhances children's human development, but the industry is also important to the economy in the short-term: It allows parents to participate fully in the labor market and also increases economic output, jobs, and tax revenue throughout the entire California economy as a result of the multiplier effect spending has on other industries beyond ECE.

As an industry comprised mostly of small businesses, ECE is an important source of direct jobs and job growth in California. While certain types of jobs—such as manufacturing jobs—are increasingly off-shored to other countries, ECE and other service sector jobs cannot be moved to another country or even another part of the U.S. "Economists are increasingly recognizing the importance of local service sectors to employment growth" and therefore "regional economic analyses have given increased attention to the role of the ECE sector" (Morrissey and Warner 2007).

In this section, we estimate the purchasing power of parents using ECE services and analyze the economic impact that ECE spending has on the entire California economy in terms of economic output, jobs, and tax revenue.

## Parents Using Paid Child Care Have Significant Purchasing Power

The availability of ECE programs and services enables many parents to participate fully in the labor market. We estimate that parents using paid ECE services in California earn approximately $26.4 billion per year, an amount that signifies the purchasing power of these parents. More than half (56 percent) of the families reflected in our analysis are headed by single parents who may not be able to work without the availability of child care (California Department of Finance [CDF] 2011). In families with two working parents (44 percent of families in our analysis), the loss of child care could affect one or both parents' incomes.

To estimate parents' purchasing power, we followed "Measuring the Regional Importance of Early Care and Education: The Cornell Methodology Guide" and multiplied the number of households with working parents using paid ECE services by the median income of California households. Our estimate assumes that at least 469,954 California households use paid ECE services, based on the number of allowed Child and Dependent Care Tax Credits in Tax Year 2008 (California Franchise Tax Board [FTB] 2009). While the tax credit can also be used for elder care, our estimate primarily reflects the use of child care because 98 percent of federal claims for the tax credit are for child care (Ribeiro and Warner 2004).

This estimate is conservative because some eligible families do not file for the tax credit. California's tax credit is refundable, enabling low-income families with limited or no tax liability to benefit from the credit, but families must file a state income return in order to receive the credit. Families with income that exceeds the eligibility threshold of $100,000 are not eligible for the credit (California FTB 2000). Immigrants may also be less likely to claim this tax credit (Capps and Fortuny 2006).

In order to confirm that our estimate of the number of parents using paid ECE services fell within a reasonable range, we conducted a similar analysis using a second methodology (described in detail in Appendix A). We started with the number of children enrolled in ECE (Table 7) and, using publicly available data, adjusted that number based on the ratio of parents to children and the ratio of parents to households. Using this methodology yielded similar results.

## Benefits of ECE are Multiplied throughout California Economy

Child care centers and FCC homes are small businesses that use much of the revenue they receive to purchase food and other supplies to run their businesses. ECE workers spend much of their income locally at the grocery store, health care center, or other nearby businesses. Some of the money that is spent at suppliers and other local businesses continues to circulate through the California economy until all of the money is leaked out of the state, yielding an economic impact that is greater than the initial spending. This is called the multiplier effect.

In California, every dollar spent in the ECE industry results in two dollars in economic output, based on our analysis using IMPLAN 3.0, an industry-standard input-output modeling software package. IMPLAN allows us to compute not just the direct impact of ECE spending, but also the indirect impact on suppliers, and the induced effect resulting from changes in household income and resulting spending patterns. IMPLAN estimates not only the first round of effects, but also the subsequent rounds of effects as the dollars cycle through the economy.

In order to analyze the economic impact of the ECE industry, we estimated that the industry receives a total of $5.6 billion in gross receipts each year in California, including the fees paid by parents and the subsidies provided by the government. See Appendix B for more information about how we estimated gross receipts.

Our analysis found that the $5.6 billion ECE industry supports $11.1 billion in economic output in the state due to the multiplier effect, as shown in Table 5. In other words, every dollar spent on ECE yields two dollars in economic output.

Spending on ECE supports between 188,600 and 204,300 jobs, most of which are direct jobs for the providers, but these figures also include indirect jobs at ECE suppliers, and induced jobs at local businesses where ECE workers shop. The vast majority of these jobs are private sector jobs. This job impact estimate does not include the impact that ECE has on supporting parents' ability to stay in the labor market, which was discussed in the previous section of this brief.

Spending on ECE also supports more than half a billion dollars in state and local tax revenue, including sales tax, income tax, property tax, and other revenue sources.

These numbers are summarized in Table 5, page 21.

**Table 5**

## Estimated Economic Impact of ECE Industry by Setting, 2011

| | Licensed child care center | Licensed FCC home | Subsidized license-exempt FCC home | Total |
|---|---|---|---|---|
| **Economic output ($ millions)** | $7,609 | $2,912 | $538 | $11,059 |
| Direct | $3,820 | $1,462 | $270 | $5,552 |
| Indirect | $1,751 | $670 | $124 | $2,545 |
| Induced | $2,037 | $780 | $144 | $2,961 |
| **Jobs** | 96,200 | 66,700 | 25,700–41,400 | 188,600–204,300 |
| Direct | 74,100 | 58,300 | 24,100–39,800 | 156,500–172,200 |
| Indirect | 9,600 | 3,700 | 700 | 14,000 |
| Induced | 12,500 | 4,800 | 900 | 18,200 |
| **State and local tax revenue ($ millions)** | 380 | 146 | 27 | 553 |

Source: Authors' analysis using IMPLAN 3.0 (2008 California data); direct licensed jobs based on CCCRRN 2011; direct license-exempt jobs based on authors' analysis (see Appendix C)
Note: Jobs may not sum due to rounding.

# CONCLUSION

The ECE industry benefits not only the children who receive care, but also the California economy. The availability of child care is associated with working parents' reduced absenteeism, reduced turnover, and increased productivity at their jobs. Access to ECE services also allows greater labor market participation of parents, especially mothers, and increases the ability of parents to pursue education. Studies have found significant long-term benefits associated with children's participation in high-quality ECE, including improved educational achievement, higher earnings and savings, fewer arrests and incarceration, and other reductions in public spending. Several cost-benefit analyses have been conducted that found substantial "returns on investment" for public spending on ECE. Finally, ECE spending also results in a multiplier effect that increases economic output, jobs, and tax revenue throughout the entire California economy.

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# Appendix A: Analysis of Parents' Purchasing Power

Our estimate of purchasing power assumes a median income of California households of $56,134 (U.S. Census Bureau 2009).

Our estimate that 469,954 California households use paid ECE services was based on the number of allowed Child and Dependent Care Tax Credits in Tax Year 2008 (FTB 2009). The number of taxpayers represented by these households was not available in 2009, however in 2007, 524,775 California tax returns, representing 755,892 taxpayers, claimed the Child and Dependent Care Tax Credit. This implies that about 44 percent of the returns are filed by families with two working parents (CDF 2011).

In order to confirm our estimate of the number of parents using paid ECE services, we conducted a similar analysis using a second methodology. We started with 855,800 children enrolled in ECE (Table 7). Using California data from the Census Bureau reported by the National Association of Child Care Resource & Referral Agencies (2011), we multiplied the number of children by 1.61, the ratio of parents to children under age 6 with parents in the labor force. To account for families with multiple children, we then divided the number of parents by 1.95, the average number of children in California families with children under age 18 (U.S. Census Bureau 2004). We then divided the number of parents by 1.44, the ratio of parents to households based on Child and Dependent Care Tax Credit data (CDF 2011). This methodology yielded an estimate of 490,683 California households using paid ECE services, which was close to our estimate based on the tax credit data.

In a 2001 study, the Insight Center for Community Economic Development estimated that "the licensed child care sector enables Californians to earn approximately $13 billion annually" (Moss 2001, p. 12). Our estimate is double the Insight estimate as a result of several methodological differences. Our estimate includes parents who use all types of child care while the Insight estimate included only parents who use licensed care. Our estimate is based on median household income, as suggested in The Cornell Methodology Guide (Ribeiro and Warner 2004). The Insight figure was based on a conservative estimate of income of $31,000, well below the median family income of $46,500 at that time, though the authors noted that "it is likely that families paying for child care have above-average incomes" (Moss, 2001, p. 24). Additionally, Insight subtracted out the wages of caregivers, while we do not. To the degree that ECE workers are also parents who benefit from ECE services, there may be overlap between our estimate of parent purchasing power and our estimate of the economic impact of the industry.

## Appendix B: Analysis of Gross Receipts

In order to analyze the economic impact of the ECE industry in California using IMPLAN, we began by estimating gross receipts for the industry. We estimated that the ECE industry in California receives a total of $5.6 billion in gross receipts each year, including the fees paid by parents and the subsidies provided by the government. Licensed child care centers receive $3.8 billion of the gross receipts, licensed FCC homes receive $1.5 billion, and subsidized license-exempt FCC homes receive $270 million, as shown in Table 6. Our estimate of gross receipts, equal to the product of enrollment and the average annual cost of care, was informed by The Cornell Methodology Guide (Ribeiro and Warner 2004).

**Table 6**

### Annual Gross Receipts of ECE Industry by Setting ($ millions)

| | Licensed child care center | Licensed FCC home | Subsidized license-exempt FCC home | Total |
|---|---|---|---|---|
| Annual gross receipts | $3,820 | $1,462 | $270 | $5,552 |

Source: Authors' analysis of children enrolled in ECE and average annual cost of ECE

### Estimating the Number of Children Enrolled

More than 850,000 children receive care in child care centers and FCC homes. As shown in Table 7, 61 percent of these children receive care in licensed child care centers, 29 percent in licensed FCC homes, and 9 percent in license-exempt FCC homes. This excludes any children who receive unsubsidized care from license-exempt providers, as this care is not tracked by state agencies or other researchers.

**Table 7**

### Estimated Number of Children by Setting and Subsidy Status

| | Licensed child care center | Licensed FCC home | Subsidized license-exempt FCC home | Total |
|---|---|---|---|---|
| Subsidized care | 220,800 | 65,700 | 79,500 | 366,000 |
| Unsubsidized care | 304,100 | 185,700 | N/A | 489,800 |
| Total | 524,900 | 251,400 | 79,500 | 855,800 |

Sources: Whitebrook et al. 2006, California Department of Social Services 2010, California Department of Education 2010, Internal Revenue Service 2005 and 2009

The total number of California children enrolled in licensed ECE is based on a 2005 survey of California ECE providers (Whitebook et al. 2006b and 2006c), the most recent data available on subsidized and unsubsidized care. The number of children enrolled in licensed centers excludes children enrolled in centers licensed only for after school care but includes centers are licensed for after school care along with preschool or infant care.

The number of children enrolled in licensed FCC homes is based on the midpoint between the low and the high estimates. The number of families using paid ECE services is likely to have declined since 2005 due to the increase in the unemployment rate. Therefore, we adjusted the number of children enrolled in licensed ECE down by 3.3 percent based on Internal Revenue Service data indicating that 3.3 percent fewer households received the Child Care tax credit in 2009, after the recession began, relative to 2005 when the survey was conducted. The number of children enrolled in license-exempt FCC homes is based on state data and includes only those children receiving subsidized care (CDSS 2010; CDE 2010).

The number of children enrolled in subsidized care is estimated using state data on the General Child Care, CalWORKs Stages 1–3, Alternative Payment, California State Preschool, General Migrant Care, and Severely Handicapped programs (CDSS 2010; CDE 2010). CalWORKs Stage 1 licensed enrollment is not broken down in the data by setting; therefore we assume the same distribution of children across centers and FCC homes as seen in Stage 2 and 3 licensed enrollment. Head Start enrollment is not included in the subsidized category because it is not included in the state data, but Head Start enrollment is included in the total number of children.

The number of children in unsubsidized care is estimated by subtracting enrollment in subsidized care from total enrollment.

### Estimating the Cost of Care

The average annual cost of licensed care is based on state market rate survey data reported by the CCCRRN (2011). We assume that the cost of license-exempt care is 60 percent of the cost of care in a licensed FCC home, reflecting the maximum state reimbursement for license-exempt care beginning July 1, 2011. We weight our estimates of the cost of licensed and license-exempt care by the age of children receiving care in that setting using state data on enrollment in subsidized care by the type of care and age (CDE, 2009). Due to the lack of data on age of children enrolled in unsubsidized care, we assume that the age distribution in subsidized care is similar to the age distribution in unsubsidized licensed care. We also adjust our estimates to account for the use of part-time care by assuming that 88 percent of care is full time based on the share of requests (CCCRRN 2009) and that part-time care costs half as much as full-time care. The average annual cost of care in each setting is shown in Table 8 (page 31).

**Table 8**

## Estimated Average Annual Costs of ECE by Setting

| Setting | Licensed child care center | Licensed FCC home | Subsidized license-exempt FCC home |
|---|---|---|---|
| Infant, full-time | $11,276 | $6,855 | $4,113 |
| Preschool, full-time | $7,856 | $6,596 | $3,958 |
| School-age, full-time | $5,997 | $5,462 | $3,277 |
| Total, weighted by age and adjusted to account for part-time care | $7,278 | $5,815 | $3,399 |

Sources: CCCRRN 2011, California Department of Education 2010, California Department of Education 2009, authors' analysis

## Appendix C: IMPLAN Analysis

We analyze the economic impact of ECE spending in California using IMPLAN 3.0. We estimate the effect of an industry change in Sector 399 Child Day Care Services using the estimated gross receipts in each setting. We revised the direct job estimates in IMPLAN to reflect California-specific data. Direct jobs for licensed centers and FCC homes are based on estimates by CCCRRN (2011 and 2009, respectively). In licensed FCC homes, the number of paid assistants was estimated by applying the ratio of providers to paid assistants (Whitebook et al. 2006c) to the most recent number of providers (CCCRRN 2009). No research is available quantifying the number of jobs in license-exempt FCC homes. We estimate the number of jobs based on the number of children in subsidized license-exempt care and a range of two estimates of the ratio of children to providers: An analysis by the CCCRRN that assumed two children per provider (CCCRRN 2010), and an analysis by Insight that estimated 3.3 children per provider in Los Angeles County (Brown et al., 2008).

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