

# **A Benefit-Cost Analysis of Expanding Access to Child Care in La Crosse County, Wisconsin**

Prepared for La Crosse County

Prepared by: Genevieve Caffrey, Manman Ding, Dana Nielsen, and Anna Sucsy

December 17, 2021

La Follette School of Public Affairs  
University of Wisconsin–Madison  
Benefit-Cost Analysis | Fall 2021



**Robert M. La Follette**  
**School of Public Affairs**  
UNIVERSITY OF WISCONSIN-MADISON

## Table of Contents

<i>Executive Summary</i> .....	<i>iv</i>
<i>Acknowledgements</i> .....	<i>vi</i>
<i>List of Acronyms</i> .....	<i>vii</i>
<i>Introduction</i> .....	<b>1</b>
<i>Project Purpose</i> .....	<b>7</b>
Standing.....	<b>7</b>
<i>Policy Alternatives</i> .....	<b>8</b>
Current Policy .....	<b>8</b>
Alternative 1: Use funding to incentivize the creation of an employer-assisted child care cooperative.....	<b>10</b>
Alternative 2: Develop and operate a child care program for use by county employees.....	<b>13</b>
Alternative 3: Provide grants to child care programs to subsidize staff wages and benefits.....	<b>14</b>
<i>Benefits</i> .....	<b>17</b>
Benefits of Increased Parental Labor Force Participation.....	<b>17</b>
Benefits of Increased Parental Labor Force Productivity .....	<b>19</b>
Benefits of Decreased Parental Labor Force Turnover.....	<b>21</b>
Benefits of Improved Child Development.....	<b>23</b>
Benefits of Federal Provided Funding.....	<b>27</b>
<i>Costs</i> .....	<b>28</b>
Costs of Operating Child Care Programs .....	<b>28</b>
Costs of Wages for Child Care Program Workers.....	<b>29</b>
Costs of Infrastructure for New Child Care Programs .....	<b>31</b>
Costs of County-Provided Subsidies for Child Care Programs’ Wages and Benefits.....	<b>31</b>
<i>Costs of Grants to Incentivize the Creation of an Employer-Assisted Child Care Cooperative</i>	<b>32</b>
<i>Benefit and Cost Summary Tables</i> .....	<b>33</b>
<i>Results and Analysis</i> .....	<b>37</b>
Alternative 1: Use funding to incentivize the creation of an employer-assisted child care cooperative.....	<b>37</b>
Alternative 2: Develop and operate a child care program for use by county employees.....	<b>38</b>
Alternative 3: Provide grants to child care programs to subsidize staff wages and benefits.....	<b>38</b>
<i>Assumptions and Limitations</i> .....	<b>39</b>

<i>Recommendations and Considerations .....</i>	<b>43</b>
<i>References.....</i>	<b>48</b>
<i>Appendix A: Wisconsin DCF Staff-to-Child Ratios and Group Size Rules for Child Care Programs .....</i>	<b>62</b>
<i>Appendix B: Calculations for Required Child Care Staff Wage Rate .....</i>	<b>63</b>
<i>Appendix C: Calculations for Child Care Staffing and Slots Shortfalls.....</i>	<b>66</b>
<i>Appendix D: Calculations for Benefits of Increased Parental Labor Force Participation .....</i>	<b>68</b>
<i>Appendix E: Calculations for Benefits of Increased Parental Labor Force Productivity .....</i>	<b>69</b>
<i>Appendix F: Calculations for Benefits of Decreased Parental Labor Force Turnover .....</i>	<b>70</b>
<i>Appendix G: Additional Information and Calculations for Benefits of Improved Child Development .....</i>	<b>71</b>
<i>Appendix H: Calculations for Benefits of Avoided Costs of Travel Time.....</i>	<b>77</b>
<i>Appendix I: Calculations for Costs of Operating Child Care Programs .....</i>	<b>80</b>
<i>Appendix J: Calculations for Costs of Infrastructure for New Child Care Programs .....</i>	<b>86</b>
<i>Appendix K: Fiscal Analysis of Costs of County-Provided Subsidies for Child Care Programs’ Wages and Benefits .....</i>	<b>97</b>
<i>Appendix L: Accounting Procedures .....</i>	<b>99</b>
<i>Appendix M: Estimates if all Slots Created in Alternatives 1, 2, and 3 Were Filled by Low-Income Preschoolers. ....</i>	<b>101</b>
<i>Appendix N: Distributions for the Monte Carlo Simulation .....</i>	<b>103</b>
<i>Appendix O: Monte Carlo Simulation Stata Code.....</i>	<b>104</b>

## **List of Figures and Tables**

<b>Figure 1: Nationally, 12 Percent Fewer Employees Worked in Child Care in September 2021 than in February 2020 .....</b>	<b>3</b>
<b>Table 1: Goals-Alternative Matrix for Multi-Goal Analysis .....</b>	<b>6</b>
<b>Table 2: Present Value of Benefits and Costs Under Alternative 1, the Cooperative Model .....</b>	<b>34</b>
<b>Table 3: Present Value of Benefits and Costs Under Alternative 2, the County as an Employer Model.....</b>	<b>35</b>
<b>Table 4: Present Value of Benefits and Costs Under Alternative 3, the Subsidized Staff Wages Model .....</b>	<b>36</b>
<b>Figure 2: Distribution of Annual Net Benefits of Alternative 1, the Cooperative Model ....</b>	<b>37</b>
<b>Figure 3: Distribution of Annual Net Benefits of Alternative 2, the County as an Employer Model.....</b>	<b>38</b>

<b>Figure 4: Distribution of Annual Net Benefits of Alternative 3, the Subsidized Staff Wages Model.....</b>	<b>39</b>
<b>Table 5: Wisconsin DCF Child Staff Ratios and Group Size Rules.....</b>	<b>62</b>
<b>Table 6: Staff Shortages by Child Classroom Age Group .....</b>	<b>67</b>
<b>Table 7: La Crosse County Children on Child Care Site Waiting Lists .....</b>	<b>67</b>
<b>Table 8: Discounted Adult Earnings to Calculate Benefit of Preschool for Average-Income Children .....</b>	<b>74</b>
<b>Table 9: Fiscal Costs, Staffing.....</b>	<b>81</b>
<b>Table 10: Fiscal Costs, Supplies and Equipment .....</b>	<b>82</b>
<b>Table 11: Fiscal Costs, Facilities.....</b>	<b>83</b>
<b>Table 12: Average Operating Costs Under Alternative 3 .....</b>	<b>84</b>
<b>Table 13: Fiscal Costs, Property Purchase, Building, and Renovations.....</b>	<b>87</b>
<b>Table 14: Annualized Property Purchase, Building, and Renovation Costs.....</b>	<b>88</b>
<b>Table 15: Fiscal Costs, Start-up Equipment .....</b>	<b>89</b>
<b>Table 16: Summary of Equipment Costs.....</b>	<b>91</b>
<b>Table 17: Annualized Equipment Costs .....</b>	<b>92</b>
<b>Table 18: Fiscal Costs, Human Capital .....</b>	<b>94</b>
<b>Table 19: Annualized Human Capital Costs (per Staff Member).....</b>	<b>96</b>
<b>Table 20: Average Annualized Start-up Costs.....</b>	<b>96</b>
<b>Table 21: Accounting Procedures.....</b>	<b>99</b>
<b>Figure 5: Net Benefits if All Slots Created by Alternatives 1 and 2 Were Filled by Low-Income Preschoolers .....</b>	<b>101</b>
<b>Figure 6: Net Benefits if All Slots Created by Alternative 3 Were Filled by Low-Income Preschoolers.....</b>	<b>102</b>
<b>Table 22: Distributions from Monte Carlo Simulation.....</b>	<b>103</b>

## Executive Summary

At the request of La Crosse County, we completed a benefit-cost analysis of three potential alternatives to current policy to increase the availability and affordability of child care. Two of these alternatives involve creating new employer-sponsored child care facilities and one entails a wage subsidy for child care providers. Ultimately, on average, none of the alternatives to current policy considered in this report yielded positive net benefits. However, improved access to and affordability of child care potentially promotes equity and other social goals that should be considered along with economic efficiency. A multi-goal analysis could better weigh equity implications and other social values alongside our economic efficiency findings.

La Crosse County's child care industry faces three primary challenges. First, there is an insufficient number of licensed child care slots available to meet the needs of the county's families with young children. Second, families with access to child care in La Crosse County are often burdened by the cost of care. Third, child care programs have difficulty retaining and recruiting adequate numbers of staff to meet their full licensed capacity because of low wages.

To address La Crosse County's child care challenges, we analyzed three alternatives to current policy. Under Alternative 1, La Crosse County would provide grants to incentivize the creation of an employer-assisted child care cooperative. Under Alternative 2, La Crosse County would develop and operate a child care program for use by county employees. Under Alternative 3, La Crosse County would provide grants to child care programs to subsidize staff wages and benefits.

Based on our Monte Carlo simulation, we find negative average net benefits of approximately- **\$259,000** for the first alternative, with values ranging from -\$586,000 to \$102,000,

approximately **-\$264,000** for the second alternative, with values ranging from -\$591,000 to \$97,000, and approximately **-\$3,717,000** for the third alternative, with values ranging from -\$6,359,000 to -\$756,000. Accordingly, we recommend La Crosse County consider other policy alternatives to increase the availability and affordability of child care.

Notably, the net benefit estimates would be substantially larger if children from low-income families were targeted under Alternatives 1 and 2. We did not analyze this modification fully; however, it appears that with complete targeting of low-income children, it would be very likely that the first two alternatives would generate positive net benefits. Therefore, this modification to Alternatives 1 and 2 would be worthy of further analysis.

## Acknowledgements

We thank those who assisted us with the completion of this project. Particularly, we would like to thank our client, Brian Fukuda, for his time and expertise. We would also like to thank Karl Green at the University of Wisconsin Extension-La Crosse. His guidance was integral to our understanding of and access to local data. Additionally, we would like to thank Audra Wieser, who was kind enough to regularly meet with our team and provide her insight as Early Care and Education Director at The Parenting Place. We would also like to thank Gavin Luter at the UniverCity Alliance and Bonnie MacRitchie at the La Follette School of Public Affairs, both at the University of Wisconsin–Madison, for their fundamental roles in the creation of this project and partnership. Finally, we would like to thank Professor David Weimer at the La Follette School for his continued support and mentorship throughout this project.

## List of Acronyms

ARPA: American Rescue Plan Act

BLS: U.S. Bureau of Labor Statistics

DCF: Wisconsin Department of Children and Families

ECCCC: Energy Capital Cooperative Child Care

FPL: Federal Poverty Level

LISC: Local Initiatives Support Corporation

NICHHD: National Institute of Child Health and Development

REWARD: Rewarding Education with Wages and Respect for Dedication Wisconsin Stipend Program

UWL: University of Wisconsin–La Crosse

VTTS: Value of Travel Time Savings

WSIPP: Washington State Institute for Public Policy

## Introduction

Access to affordable child care allows parents with young children to enter the labor market, contributing to family wellbeing and the vibrancy of the local economy. La Crosse County, Wisconsin has an insufficient number of licensed child care slots available to meet the needs of the county's families with young children. Child care programs in La Crosse County have the capacity to serve up to 3,757 of the nearly 6,000 children under age six in the county,<sup>1</sup> leaving nearly one-third of the county's young children without access to regulated child care (Wisconsin Department of Children and Families (DCF), 2021a; U.S. Census Bureau, 2019). Staffing shortfalls further limit access to child care; 24 percent of child care providers in La Crosse County reported not having enough staff to meet their full licensed capacity in 2017 and this percentage has likely increased in recent years (DCF, 2021e). Indeed, a 2019 survey of child care providers in La Crosse found that 83 percent of child care programs that responded to the survey reported staffing shortages (The Parenting Place, 2019). Although some of the children without access to regulated child care have a parent or family member who prefers to stay home or are in other child care arrangements, there is likely unmet demand for licensed child care in La Crosse County. This is evidenced by a local survey that found that 1,173 children were on child care facility waiting lists (although this figure may reflect some children being on multiple waiting lists) (The Parenting Place, 2019). There are also likely parents of young children who stay home to care for children because of the high costs of child care. For some low- and moderate-wage earners, the cost of child care exceeds wages. Therefore, both the limited number

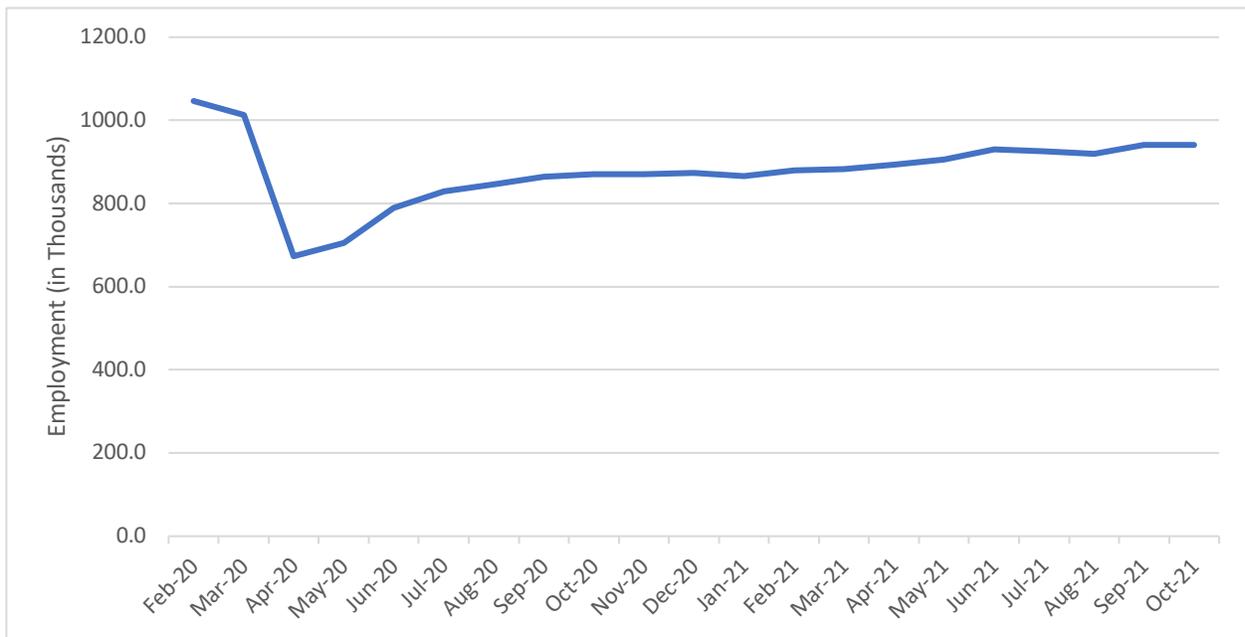
---

<sup>1</sup> This number includes slots from licensed family child care providers, licensed group centers, licensed home providers, certified homes, licensed preschool, school age, and Head Start. It does not include slots from unregulated child care.

of child care slots and the high cost of child care in La Crosse County limit some parents' ability to work full-time.

Troublingly, staffing shortfalls exacerbated by the COVID-19 pandemic have decreased the number of La Crosse County children able to access child care. Although child care programs in La Crosse County are licensed to serve up to 3,757 children, many are unable to recruit and retain adequate numbers of teachers to meet their licensed capacity because of low wages (DCF, 2021a). State licensing regulations require child care programs to meet maximum group size requirements and staff-to-child ratios (see Appendix A). Child care was one of the hardest hit industries by the COVID-19 pandemic, as shown by the reductions in industry employment in Figure 1 (U.S. Bureau of Labor Statistics (BLS), 2021b). In addition to the long-standing problems of low wages for child care staff, high staff turnover rates, and difficulty retaining a high-quality workforce prior to the pandemic, child care programs are now faced with trying to attract workers back to the child care industry. Staffing is a major issue for child care programs because potential employees often have higher-paying alternatives in other industries such as retail and K-12 education (Early Childhood Investment Collaborative, 2020). In Wisconsin, child care workers earned a mean hourly wage of \$11.84 in 2020 (BLS, 2020a). Child care programs have difficulty raising wages because higher costs price many families out of the market (Otten et al., 2018).

Figure 1: Nationally, 12 Percent Fewer Employees Worked in Child Care in September 2021 than in February 2020



**Source:** Author's illustration.

**Data:** Seasonally adjusted data from BLS (2021b)

**Note:** State or county level data not publicly available.

Families with access to child care in La Crosse County are often burdened by the cost of care and yet child care programs do not have adequate profit margins to retain and recruit workers. The average cost of child care in La Crosse County is \$764 per month per child, with amounts varying by child age, type of child care program, and the quality of care (Child Care Aware of America, 2021). The median family in La Crosse County spends an estimated 12 percent of its income on child care expenses each month (Child Care Aware of America, 2021). Limited access and affordability of child care may result in parents, particularly mothers, leaving the labor force. Decisions about whether to remain in the labor force and reduce hours when children are young have long-lasting impacts on parents' earnings, career paths, and human capital (U.S. Department of the Treasury, 2021). Although families are burdened by the high costs of care, child care programs often operate on razor thin margins and the cost to families does not cover

the “...[true] cost to provide high-quality, developmentally appropriate, safe, and reliable child care staffed by a professionally compensated workforce” (Workman, 2021, para. 1).

In view of high costs to families and low profit margins for child care providers, the challenges of child care can be explained by several market failures (U.S. Department of the Treasury, 2021). First, parents experience liquidity constraints. Parents with young children pay the most for child care when they can least afford to do so. Parental income and savings increase as children age and parents reach their peak earning years, yet parents are unlikely to be willing or able to borrow against future income to pay for child care. Second, child care creates positive externalities, including increased parental labor force participation and some developmental and educational benefits to low-income children. Because of the presence of positive externalities, economic theory predicts that child care is undersupplied (U.S. Department of the Treasury, 2021).

La Crosse County’s child care challenges are not unique and solutions to increase child care access and affordability are debated at the national, state, and local levels. As passed in the House of Representatives, the Build Back Better Act includes federal funding to expand child care subsidies for families, raise wages and compensation for child care employees, and create universal Pre-K for three- and four-year-olds (Guarino, 2021). Additionally, Wisconsin has allocated \$351 million in funds that will be distributed to child care programs over the next 18 months through its Child Care Counts program (November 2021 to May 2023). The Wisconsin Department of Children and Families (DCF) will incentivize child care programs that offer care during non-standard hours and care to children with special needs. DCF will also provide financial support to assist programs with the costs of recruiting and retaining high-quality staff.

Additionally, DCF plans to increase the Wisconsin Shares child care subsidy rate from 35 percent to 80 percent of the estimated cost of child care and launch Project Growth. Project Growth is a “20 million initiative aimed at growing innovative partnerships between the early care and education and business communities and expanding innovative, high-quality early care and education programs throughout the state” (DCF, 2021b, para. 9). Finally, many counties across the nation have passed taxes or dedicated set-aside funds to support child care. In the Midwest, Kent County and Leelanau County in Michigan passed property tax increases to fund local early childhood programs (Children’s Funding Project, 2021).

La Crosse County has begun to pursue innovative solutions to the child care challenges families and programs face. Initiatives include commissioning this benefit-cost analysis, commissioning previous reports by University of Wisconsin students, a partnership with University of Wisconsin Extension–La Crosse to study child care in La Crosse County and creating a task force to discuss putting American Rescue Plan Act (ARPA) funds toward child care.

Finally, benefit-cost analysis assesses policies in terms of economic efficiency and does not fully consider other social goals such as equity or political feasibility. A multi-goal analysis could better weigh equity implications and other social values alongside our economic efficiency findings. Table 1 shows a preliminary framework for a multi-goal analysis of the three alternatives to current policy considered in this report. However, the analysis in this report is limited to economic efficiency.

Table 1: Goals-Alternative Matrix for Multi-Goal Analysis

Goal	Impact Category	Policy Alternatives			
		Current Policy	Use funding to incentivize the creation of an employer-assisted child care cooperative.	Develop and operate a child care program for use by county employees	Provide grants to child care programs to subsidize staff wages and benefits
<b>Promote Efficiency</b>	<i>Minimize monetized costs to La Crosse County and child care providers</i>	<b>Good</b>	<b>Fair</b>	<b>Fair</b>	<b>Poor</b>
	<i>Maximize monetized benefits to parents, young children, and employers</i>	<b>Poor</b>	<b>Fair</b>	<b>Fair</b>	<b>Good</b>
<b>Increase Countywide Child Care Benefits</b>	<i>Promote child care availability</i>	<b>Poor</b> - under licensed capacity across county	<b>Poor</b> - does not create net slots increase	<b>Poor</b> - does not create net slots increase	<b>Excellent</b> - closes gap between current and licensed capacity across county
	<i>Promote child care affordability</i>	<b>Fair</b> - Wisconsin Shares benefit is underutilized	<b>Good</b> - subsidized for business employees	<b>Good</b> - subsidized for county employees	<b>Fair</b> - increases slots available for Wisconsin Shares
	<i>Promote child care quality</i>	<b>Fair</b> - delay in receiving REWARD program benefits	<b>Good</b> - raises some child care worker wages, increases employer-sponsored care	<b>Good</b> - raises some child care worker wages, increases employer-sponsored care	<b>Excellent</b> - raises child care worker wages across county
<b>Promote Equitable Labor Force Development</b>	<i>Increase future earnings for low-income children</i>	<b>Fair</b>	<b>Poor</b> - does not target low-income children	<b>Poor</b> - does not target low-income children	<b>Good</b> - increases slots available for Wisconsin Shares
	<i>Promote maternal labor force participation</i>	<b>Fair</b>	<b>Fair</b>	<b>Fair</b>	<b>Good</b>
<b>Promote Political Feasibility</b>	<i>Maximize probability of implementation</i>	<b>Fair</b>	<b>Good</b> - stated interest by La Crosse County	<b>Good</b> - stated interest by La Crosse County	<b>Poor</b> - high fiscal costs

## Project Purpose

The purpose of this project is to develop several alternatives for increasing families' access to child care in La Crosse County and to estimate their respective net benefits. To complete this benefit-cost analysis, we drew on the approaches suggested by our client, local data collected by The Parenting Place and the University of Wisconsin Extension-La Crosse, and the available literature on child care costs and benefits. For this analysis, we quantitatively assess the social costs and benefits of three alternatives relative to current policy based on established cost and benefit categories. Because families' child care needs and costs decrease once children become eligible for full-day Kindergarten, this benefit-cost analysis focuses on families with children under age six.

## Standing

Standing is simply defined as "...whose benefits and costs should be included and counted" in a benefit-cost analysis (Boardman et al., 2018, p. 7). In this report, the analysis is conducted for county standing. In effect, only the social costs and benefits incurred by La Crosse County residents are considered in the analyses. Under county standing, any revenue derived from federal or state grants is considered a benefit that is not offset by the cost of funding the grants to state and federal taxpayers. Additionally, under county standing, payroll taxes are considered a cost borne by the county. Further, any costs or benefits incurred by residents of neighboring counties because of changes to La Crosse County's child care landscape are not considered under county standing.

## Policy Alternatives

In this analysis, we consider three alternatives to current policy. Under Alternative 1, La Crosse County would provide grants to incentivize the creation of an employer-assisted child care cooperative. Under Alternative 2, La Crosse County would develop and operate a child care program for use by county employees. Under Alternative 3, La Crosse County would provide grants to child care programs to subsidize staff wages and benefits.

## Current Policy

Under current policy, La Crosse County does not subsidize child care for residents or provide child care subsidies or services to its employees. Most child care programs operate independently, and licensed child care providers must comply with state regulations. At present, child care programs in La Crosse County have the licensed capacity to serve 3,757 children under age six, nearly two-thirds of all young children in the county. However, many child care programs in La Crosse County are unable to recruit and retain adequate numbers of teachers to meet their full licensed capacity (DCF, 2021a). Providers operating under licensed capacity contribute to the unmet demand for child care in La Crosse County. The true number of children with unmet child care needs is unknown; however, approximately one-fifth of young children in La Crosse County are on waiting lists for child care slots in existing facilities (The Parenting Place, 2019).

Many families in La Crosse County use regulated child care, accessed in the private market and privately paid for (The Parenting Place, 2019). Families may enroll children in licensed child care centers, licensed family child care programs, unlicensed child care centers, unlicensed family child care programs, and informal child care (e.g., child care agreements with neighbors

or extended family). According to 2019 data collected from La Crosse County families with children of all ages, 28 percent of survey respondents primarily use a combination of multiple child care arrangements, 20 percent use a relative, 18 percent use a licensed child care center, 10 percent use a licensed family child care provider, and the remaining use other arrangements (The Parenting Place, 2019).

A small number of families in La Crosse County receive subsidized child care through the Wisconsin Shares program. In an average month in 2021, 382 families and 595 children in La Crosse County received Wisconsin Shares child care subsidies (Annie E. Casey Foundation, 2021; DCF, 2021c). Families with gross monthly incomes below 185 percent of the federal poverty level (\$1,556 per month for a family of three) are eligible for the Wisconsin Shares child care subsidy program (DCF, 2021d). The Wisconsin Shares program subsidizes child care for awarded families if children are enrolled in licensed child care that participates in YoungStar, Wisconsin's quality rating and improvement system. The limited availability of slots at licensed child care programs participating in YoungStar and continuing challenges with child care affordability (families are responsible for a child care copay that varies by income and number of children) may deter eligible families from utilizing Wisconsin Shares so that Wisconsin Shares is likely underutilized as compared to other state benefits programs. Comparatively, 100,545 households were enrolled in FoodShare alone in 2018 whereas only 1,902 households were enrolled in Wisconsin Shares alone in 2018 (unpublished Institute for Research on Poverty calculations from The Wisconsin Administrative Data Core data). Although these programs have slightly different eligibility criteria (families with gross monthly incomes below 200 percent of the federal poverty level qualify for FoodShare), the size of the difference in the number of households enrolled in the programs suggests that Wisconsin Shares may be underutilized.

Some families in La Crosse County have access to employer-based child care. Gundersen Health System and the University of Wisconsin–La Crosse (UWL), two of La Crosse County’s largest employers, offer on-site child care programs for a limited number of employees (La Crosse Tribune, 2013). Gundersen Health System operates an on-site child care center with a licensed capacity of 101 children and cares for children ages 6 weeks to 12 years (Gundersen Health System, 2021). Because Gundersen Health System employs roughly 4,500 workers in La Crosse County, we assume most employees with children do not have access to its on-site child care (Gundersen Health System, n.d.). UWL cares for the children of UWL students, employees, and alumni ages 1 to 5 years (University of Wisconsin–La Crosse, n.d.). It has a licensed capacity of 84 children, a capacity at which demand for child care among UWL affiliates far exceeds available slots (DCF, 2021a). Additionally, Kwik Trip, La Crosse’s fourth largest employer, is building a child care center that is expected to be able to accommodate 150 children of its corporate employees.

Alternative 1: Use funding to incentivize the creation of an employer-assisted child care cooperative.

Under the first alternative to current policy, La Crosse County would incentivize local employers to create a child care cooperative that provides employees with subsidized child care. Under this alternative, employers would collectively finance and organize a group child care center that serves up to 75 children of employees, depending on staffing availability. In view of the current child care labor shortfalls, we estimate that it is unlikely the cooperative could recruit sufficient staff to serve 75 children if paying the mean hourly wage rate for child care workers in Wisconsin (\$11.84 per hour). If the cooperative were to pay higher wages, it would likely be able to recruit and retain sufficient staff to serve 75 children of employees. For our analysis, we

estimate that a wage of \$21.72 per hour, without benefits, is required for a licensed child care facility in La Crosse County to hire and retain staff, which is based on a wage elasticity of 1.15 (see Appendix B for the calculations for this wage rate). However, the cooperative would likely lure some staff away from other child care programs in the county, likely resulting in less than 75 additional child care slots created for La Crosse County overall. We assume that the slots created by the child care cooperative offer a higher quality of child care for employees who choose to move their children into those slots than employees' previous child care. This is grounded in research that has found that employees using employer-assisted child care are more productive and more satisfied at their workplace than employees using other types of child care (Brandon & Temple, 2007; Gullekson et al., 2014).

Per our client's request, Alternative 1 is modeled after the Energy Capital Cooperative Child Care (ECCCC) in Hazen, North Dakota. Launched in 2017, ECCCC is a nonprofit, employer-assisted parent cooperative (Energy Capital Cooperative Child Care, n.d.). ECCCC was founded by eight area businesses and Hazen Public Schools to address Mercer County's lack of child care; the cooperative provides subsidized child care to employees and other Mercer County residents ranging from the weekly full-time rate of \$70 to \$180 depending on child age, in addition to a \$100 enrollment fee ("Rates and Schedule," n.d.). As of February 2020, ECCCC's pilot center served 86 children of employees (Rural Health Information Hub, 2021).

Alternative 1 would mirror ECCCC's design: local employers would be cooperative members. The child care cooperative would be open to all families in La Crosse County at a subsidized rate, however priority would be given to employees of the member employers. In view of the demand for affordable child care, we assume that employee demand would be high and access to non-employee families would be limited. Because child care created under this alternative is

subsidized by local employers, this alternative offers more affordable care for families who move their children into these slots relative to other private child care.

The county would use ARPA funds to provide a financial incentive for local employers to create a child care cooperative. One-time grants would be distributed to local employers that commit to the creation of a child care cooperative and would support a portion of the cooperative's start-up costs. The amount awarded would depend on the number of child care slots created by the cooperative. For example, a cooperative that creates at least 75 slots would be awarded the maximum grant of \$100,000. For cooperatives that create less than 75 slots, grant amounts can be determined by a per slot amount of \$1,333, so that the number of slots created would be multiplied by \$1,333 to determine the amount of the grant.

$$\textit{Number of slots} * \$1,333 = \textit{Amount of grant funding}$$

Comparatively, a cooperative with a capacity of 50 slots would receive a grant of \$66,650. This per-slot rate is informed by child care research, which finds that employers lose approximately \$1,150 per employee who quits due to child care issues (Belfield, 2018). Thus, this alternative seeks to incentivize local employers to pool resources so that they may avoid the costs of child care-driven employee turnover. For this analysis, we assume that Alternative 1 would result in the creation of one child care cooperative with 75 slots for children ages five and under that will receive a one-time grant of \$100,000, which is comparable to the size of ECCCC's initiative. We also assume that participating employers will maintain the cooperative after the one-time start up grant funds are depleted.

We estimate that the new facility would be 8,000 square feet and have the capacity to serve 75 children (ages 0 to 6). Construction of the new child care facility is predicted to take two years.

Once completed, we estimate that the child care center would be operational for 40 years (Internal Revenue Service, 2020). Initial construction and development costs of the center are therefore annualized over 40 years.

**Alternative 2: Develop and operate a child care program for use by county employees.**

Under the second alternative to current policy, La Crosse County would create a subsidized child care center for county employees. From a benefit-cost analysis standpoint, this alternative is nearly identical to Alternative 1. Both alternatives propose creating a maximum of 75 slots of employer-based, employer-subsidized child care by building new, similar sized facilities. (This 75-slot maximum was selected per client request). However, from a fiscal analysis perspective, these alternatives are notably different, as the startup and ongoing costs of both facilities would be borne by different parties within La Crosse County. Further, how many child care slots are created by both alternatives rely on the wage rates of child care staff. Should the county choose to pay child care staff wages competitive with retail and K-12 education jobs (approximately \$21.72 per hour), then these employer-based child care slots likely will offer better, higher quality care for children who move into these slots as compared to current child care slots. Like Alternative 1, Alternative 2 would likely not create 75 additional child care slots for La Crosse County at large because the cooperative may lure staff away from other child care programs in the county.

Per our client's request, under Alternative 2 La Crosse County would construct a new child care facility at the site of a current county-owned nursing home, Hillview Health Care Center. A recent evaluation concluded that renovations to Hillview Health Care Center would not be cost

effective and the county plans to tear down the facility. Like Alternative 1, the new proposed facility would be 8,000 square feet and have the capacity to serve 75 children (ages 0 to 6). Construction of the new child care facility is predicted to take two years. Once completed, we estimate that the child care center would be operational for 40 years (Internal Revenue Service, 2020). Initial construction and development costs of the center are therefore annualized over 40 years.

**Alternative 3: Provide grants to child care programs to subsidize staff wages and benefits.**

Under the third alternative to current policy, La Crosse County would develop a county-administered grant program to subsidize child care programs' staff wages and benefits. As described in the introduction, La Crosse County child care programs have difficulty recruiting and retaining the number of workers needed to serve children at their full licensed capacity and an estimated 11 percent of child care slots are unfilled because of staffing shortfalls (unpublished estimates from The Parenting Place). This alternative would subsidize workers' wages and benefits through grants distributed directly to child care programs. In contrast to Alternatives 1 and 2, which seek to increase the number of available child care slots through the creation of new child care centers, Alternative 3 seeks to increase the number of available child care slots at existing centers. This alternative would support the staffing needs of existing providers so that they can operate at licensed capacity and create up to 413 slots county wide (see Appendix C for more detailed calculations for this estimate) (DCF, 2021a; unpublished estimates from The Parenting Place). Implementation of Alternative 3 may indirectly impact the affordability of child care to families by increasing the number of slots in child care programs that meet Wisconsin Shares' requirements. To use the subsidy, Wisconsin Shares requires families to use

licensed child care programs that participate in YoungStar and have a 2-star or higher rating (DCF, 2021d). Increasing the number of Wisconsin Shares eligible child care slots may improve child care affordability for eligible families. When providers use the subsidy to increase wages and benefits for all staff, rather than solely hiring new staff at current wage rates, we also assume Alternative 3 improves quality of child care offered by these providers. This assumption is based on evidence that increased child care wages may reduce staff turnover; reduced turnover benefits children's development, as young children benefit from stable relationships with consistent caregivers (Whitebook & Sakai, 2003; Whitebook et al., 2014).

All licensed child care programs in La Crosse County would be eligible for competitive grant subsidies. Grants would be distributed on a first-come, first-served basis and awarded amounts would vary by each program's full licensed capacity, current numbers of staff, and current staff hours. Eligible grant expenses would include staff wages, benefits, and recruitment expenses including, but not limited to, signing bonuses, health insurance, retirement benefits, and education benefits. Child care providers would likely be unable to recruit new and retain old staff at the current average child care staff rate of \$11.84 per hour. So, under this alternative we assume that providers would apply for grants that not only allow them to hire enough new staff to reach their licensed capacity, but also increase wages and benefits for all staff up to \$21.72 per hour to attain this higher staff size (See Appendix B for further explanation of wage rate).

For example, a child care program with a licensed capacity of 60 children—and a facility with classrooms designed for 16 infant slots, 24 slots for children ages 2 to 2 ½ years, and 20 slots for children ages 3 years—would need 10 full-time staff to meet licensed capacity (see Appendix A). If the child care program only had 8 full-time staff, the program would be eligible for a

\$254,760 annual grant to hire two additional workers and increase wages to \$21.72 per hour (excluding benefits) for all staff.

Because the funds offered under this alternative would give significant support to any child care facility, we assume that all child care providers in La Crosse County currently operating under maximum licensed capacity will apply for the grant. We also assume sufficient grant funding to award all eligible applicants funds. These assumptions are necessary, as a net increase in child staff (and the resulting net increase in slots) is only likely if all centers in the county begin paying the higher staff wage. The longevity of the impacts of Alternative 3 is dependent on funding. Provided funding levels under Alternative 3 are consistent, the number of child care slots created would remain constant year to year. We assume that a decrease or termination of program funding would cause the number of child care slots created by the program to disappear soon after, because child care programs would not be able to maintain the necessary levels of staffing without external support. Because we assume that the number of child care slots are constant each year, the benefits and costs of Alternative 3 are annualized.

The La Crosse County Department of Human Services would develop and administer the grant program. The Department of Human Services was identified as the most appropriate office to develop and administer the grant program because it currently administers the Wisconsin Shares child care subsidy programs.

In view of existing state policies, Alternative 3 differs from the REWARD Wisconsin Stipend Program (REWARD)<sup>2</sup> in two key ways. First, Alternative 3 proposes grants be distributed to

---

<sup>2</sup> REWARD's full program name is Rewarding Education with Wages and Respect for Dedication Wisconsin Stipend Program. It is almost exclusively referred to in its shortened acronym form.

child care programs rather than employees. This reduces the administrative burden on the La Crosse County Department of Human Services by limiting the number of grant applicants and awardees. Dispersal to child care programs also decreases administrative burden to child care workers by allowing workers to immediately receive funds upon hire (rather than a delay as necessitated in REWARD) and benefit from increased wages and benefits without having to apply individually. Second, Alternative 3 is not tied to an education requirement whereas REWARD provides salary supplements based on employees' educational attainment and time spent working in the child care sector.

## Benefits

Research indicates that the predominant benefits of increased child care accessibility and affordability are derived from increases to parents' labor force contributions, namely, (1) increased parental labor force participation, (2) improved parental productivity at work, and (3) decreased parental labor force turnover. Literature suggests that some child care initiatives create a fourth benefits related to parents' labor force participation through reduced travel time between child care centers and places of employment. However, none of the alternatives proposed in this report create such a benefit and it is not included in this analysis (see Appendix H for more details). Additionally, some children may accrue educational and developmental benefits from enrollment in child care. Finally, federal grants also provide a benefit to La Crosse County.

Below, we detail our estimated benefits. All benefits are in 2020 dollars.

### Benefits of Increased Parental Labor Force Participation

Research indicates that increased availability and affordability of child care increases parental labor force participation (Davis et al., 2017b; Enchautegui et al., 2016; Hotz & Wiswall, 2019;

Morrissey, 2016). (See Appendix D for more discussion on existing research). We estimate that all three alternatives would create more affordable child care slots. Alternatives 1 and 2 would create employer subsidized child care slots, which would allow some parents to enter the labor force (e.g., Alternative 2 would create new child care slots for county employers and may incentivize spouses of county employers to enter the labor force). Because Alternatives 1 and 2 create slots available to employees of participating employers, we assume the working parents who move their children into these slots are not from low-income families. In contrast, Alternative 3 would improve availability and quality of child care by creating a net increase of slots at the county level (which Alternatives 1 and 2 may not). As a result, there would be an increase in the number of child care slots eligible for use by Wisconsin Shares child care subsidy recipients, effectively increasing the number of affordable child care slots in the county.

To estimate the benefits of increased parental labor force participation, we use half the median wage rate, inclusive of benefits as estimated to be 30 percent of the wage rate, to monetize the benefit of increased parental labor force participation (BLS, 2021a). We use the median wage because it is less influenced by high-wage outliers than the mean wage. This calculation represents increased earnings and accounts for the parent's opportunity cost of time spent in leisure and household production (Boardman et al., 2018).

$$\frac{\$19.11 + \$5.73}{2} = \$12.42$$

$$\$12.42 * 40 * 50 \approx \$24,840$$

The resultant marginal net present value of increased parental labor force participation is approximately **\$24,800** per year per child care slot. Our estimate of the net present value of increased parental labor force participation per child care slot assumes that one family has one

child in care and one parent (rather than two) realizes the benefit of increased labor force participation.<sup>3</sup>

At most, 20 percent of families with young children in La Crosse County could accrue the benefit of increased parental labor force participation (U.S. Census Bureau, 2019; U.S. Department of Labor, 2019). Approximately 80 percent of mothers with children under age six in La Crosse County already participate in the labor force, leaving approximately 20 percent of mothers who could enter the labor force if child care were available (U.S. Department of Labor, 2019). However, 20 percent is likely an overestimate because it does not account for mothers who prefer to not participate in the labor force. More conservatively, research that finds that a one percent increase in availability of child care is associated with a 0.27 percent increase in maternal labor force participation (Zhang & Managi, 2021).

### Benefits of Increased Parental Labor Force Productivity

When parents face issues with child care, such as child care falling through at short notice, working parents' work days are interrupted. Interruptions may lead to absenteeism—in which parents leave work early, are unable to work overtime, or do not show up to work—and presenteeism—in which parents are physically present at work but distracted worrying about their child's care or using time to make alternative care arrangements. Both absenteeism and presenteeism create costs for employers through lost productivity. In extreme cases, parents also face costs through missed trainings, human capital accrual, and earnings; potentially these parents may lose their job or miss out on opportunities for promotion due to significant child

---

<sup>3</sup> Our estimates do not incorporate challenges associated with finding care for multiple children. For example, if a new four-year-old child care slot is created, but a parent does not have child care for his or her infant, the parent would not be able to enter the labor force. Additionally, our estimate assumes that each child care slot is filled by a single child and does not account for siblings in care.

care-driven productivity issues. Research finds that increasing access to better quality child care can reduce child care-related absenteeism and presenteeism. The avoided costs of lost parental labor productivity are in turn a benefit created by all the alternatives in this analysis.

Studies find that parents lose 4 to 14 days of work time per year due to insufficient child care (Belfield, 2018; Davis et al., 2017a; The Parenting Place, 2019). The cost of lost productivity for employers is generally monetized at 150 percent of an employee's salary and benefits (Davis et al., 2017a). For this analysis, we monetize this benefit by using La Crosse County median hourly earnings, inclusive of benefits estimated at 30 percent of the wage rate (BLS, 2021a). With these measures, we estimate that the annual benefit of increased parental labor force productivity is between approximately **\$1,150** and **\$4,010** per parent of incrementally placed child (See Appendix E for more detailed calculations of this benefit's estimates). These estimates capture lost productivity to employers, assuming one family has one child in care. Of note, these estimates do not capture long term impacts to parents' careers (e.g., missing training, lost work experience, future job promotions or offers).

Furthermore, research suggests insufficient child care negatively impacts workplace productivity for 21.4 to 45 percent of parents (Davis et al., 2017a); these estimates correspond to data from a La Crosse County survey of employees, in which 38 percent of respondents shared those issues with child care impacted their productivity at work (The Parenting Place, 2019). For this analysis, we estimate that about 21 to 45 percent of child care slots created by each alternative will realize an increased parental labor force productivity benefit.

Literature on child care gives insight into the different ways that the three alternatives improve child care quality, and in turn parents' productivity at work. First, Alternatives 1 and 2 create

additional employer-provided and employer-subsidized care in the county. Research finds that parents using employer-based child care had lower absenteeism and higher worker productivity compared to coworkers using non-employer-based child care (Gullekson et al., 2014; Brandon & Temple, 2007). By increasing wages for all child care staff, Alternative 3 increases the quality of child care slots offered by any provider who receives the subsidy. Therefore, this alternative also reduces lost productivity for parents.

### Benefits of Decreased Parental Labor Force Turnover

Research indicates that increased availability and affordability of child care reduces parental labor force turnover caused by parents leaving their jobs to provide full- or part-time care for their children (Schochet, 2019). This benefit is primarily realized by two-parent households in which both parents work outside the home. (We assume parents in one-parent households typically work full time). Further, we assume that in two-parent households, decreased parental labor force turnover only effects one parent, as both parents typically do not leave the labor force to jointly provide full-time child care.

Approximately 80 percent of mothers with children under age six in La Crosse County already participate in the labor force (U.S. Department of Labor, 2019). We use this measure to approximate the percentage of families with young children in La Crosse County that have both parents working outside the home, because mothers are more likely to remain out of the labor force to provide child care than fathers (Schochet, 2019). Thus, we estimate up to 80 percent of slots created by each alternative could potentially realize a benefit from reduced costs of turnover. More conservatively, research finds that 4 percent of parents annually experience job turnover due to child care issues (Davis et al., 2017a). So, for our analysis, we estimate that 4 percent to 80 percent of slots created by each alternative would produce benefits from reduced

turnover. However, we assume the true proportion to be much closer to 4 percent than 80 percent.

Indeed, local data reinforces that the real percent of slots creating a parental labor force turnover benefit likely falls within this range. In a local survey of La Crosse County employees, about 66 percent of respondents who chose to answer the question “Has your household ever considered having a parent/caregiver not work (outside of the home) in order to provide childcare for your household?” reported that they or their spouse had considered leaving the labor force to care for their children (The Parenting Place, 2019). Many of these respondents chose to elaborate on their answer in a follow-up question, often explaining that, while considered, the option for one parent to stop working to provide child care was not financially feasible for families.

Like the benefit of increased parental labor force participation, benefits of reduced parental labor force turnover depend on alternatives improving affordability and availability of child care. We estimate that Alternatives 1 and 2 would create additional, more affordable child care slots through employer-subsidized care, which in turn would enable some working parents to remain in the labor force. Alternative 3 would cause a net increase in the number of child care slots in the county, effectively increasing the number of slots available to families eligible for Wisconsin Shares child care subsidies.

Further, studies have estimated the cost of parental labor force turnover to be approximately 21 percent of a worker’s annual salary (Davis et al., 2017a; Belfield, 2018). To monetize the benefits from the avoided cost of reduced turnover, we use La Crosse County’s median hourly wages earnings, inclusive of benefits estimated at 30 percent of the wage rate (BLS, 2021a). With these measures, we estimate that the benefit of reduced parental labor force turnover is

between approximately **\$10,290** to **\$10,430** per parent who does not leave his or her job (see Appendix F for more detailed calculations of these benefit estimates). These calculations capture lost earnings to families and lost productivity to employers. Like our other benefit estimates, the net present value of increased parental labor force participation assumes that each family has one child in care. However, these estimates do not capture long term impacts to parents' careers (e.g., missing training, lost work experience, future job promotions or offers) nor do they capture impacts to tax payers.

## Benefits of Improved Child Development

Children benefit from being in high-quality child care while their parents are working. First, high-quality child care can positively impact child safety. Regulated child care centers are subject to licensing requirements and staff to child ratios to ensure that children in their care are closely supervised and kept safe. Conversely, parents without access to regulated child care may rely on friends, family, or unlicensed child care. Although these child care situations often do not result in harm to children, children may be at increased risk of harm due to neglect if the caregiver is distracted or unreliable. Indeed, research on the impacts of stay-of-home orders during the COVID-19 pandemic has shown that children are at risk of harm when they are not supervised. For example, substantiated reports of child neglect in high-income counties rose during the COVID-19 pandemic because of increased child injuries and poisonings that are likely the result of decreased access to child care and parents being unable to consistently supervise children while working (Bullinger et al., 2020). However, because the scale of the effect of lack of child care on child safety is unknown, this benefit is not monetized.

Additionally, high-quality child care can positively impact children's development and child health. However, research on the effects of child care in both categories is mixed. In view of the

research, we estimate the benefits of child care to children's physical health and development to be \$0 (see Appendix G for more detail).

Importantly, children ages 3 to 6 enrolled in preschool programs receive educational benefits that result in higher earnings in adulthood (Bartik et al., 2012; Duncan and Magnuson, 2013; Duncan and Magnuson 2011; Hoagland et al., 2019; Zanoni & Johnson, 2019). Our quantitative estimates of the value of preschool attendance are detailed below.

Child care is associated with differing impacts on children's educational outcomes dependent on child age, family income, and type of program. Children receive positive educational benefits from attending preschool, but these benefits do not extend to younger children or older children enrolled in non-preschool child care programs.<sup>4</sup> Research suggests that younger children (ages 0 to 3) do not accrue educational benefits from child care. Studies find that full-time maternal employment and enrollment in child care in the first year of life is associated with lower cognitive test scores (Bernal 2008; Brooks-Gunn et al. 2002; Gregg et al. 2005; Herbst & Tekin, 2010; Ruhm 2004; Waldfogel et al., 2002; Washbrook et al., 2011). For 3-to-6-year-old children, research finds that preschool is associated with children's increased cognitive and achievement outcomes (Duncan and Magnuson, 2013; Duncan and Magnuson 2011; Zanoni & Johnson, 2019). Indeed, a metaanalysis of 84 studies of preschool programs' impacts on children's educational outcomes found that, on average, preschool is associated with a 0.21 standard deviation increase in cognitive and achievement outcomes (Duncan & Magnuson, 2013). The

---

<sup>4</sup> A robust body of literature demonstrates positive effects of Head Start to children's educational outcomes. Because of the differences in the curriculum and services provided by Head Start compared to private child care, we exclude this literature in our analysis.

impacts of child care on children's educational outcomes fade out by third grade (Duncan & Magnuson, 2013).

Children from low-income families disproportionately benefit from the educational impacts of attending preschool (Duncan & Magnuson, 2013). A benefit-cost analysis by the Washington State Institute for Public Policy (WSIPP) concluded that state preschool programs for low-income students improve children's test scores from the end of preschool to the end of kindergarten and reduce the likelihood of grade retention (Hoagland et al., 2019). Using the relationship between gains in test scores, likelihood of high school graduation, and earnings as an adult, WSIPP monetizes the educational benefits of preschool programs for low-income 3 and 4-year-olds to be \$7,468 per child per year in 2019 dollars. This equates to \$7,572 per year in 2020 dollars using a 1.4 percent inflation rate (BLS, 2020b).

Although children from low-income families disproportionately benefit from the educational impacts of attending preschool, all preschoolers accrue educational benefits (Bartik et al., 2012). A 2012 study on the earnings benefits to children enrolled in Tulsa, Oklahoma's universal preschool program by parental income level predicted that low-income (130 percent FPL or below) children's total future earnings will increase 10.4 percent compared to expected earnings based on parental income, moderate-income (130 to 185 percent FPL) children's total future earnings will increase 8.9 percent, and high-income (greater than 185 percent FPL) children's total future earnings will increase 5.5 percent (Bartik et al., 2012). We calculate the percent increase in average expected future earnings for La Crosse County children by using the La Crosse metropolitan area median wage of \$19.11 per hour (BLS, 2021a). Using a 3.5 percent discount rate and assuming children work from ages 22 to 65 (43 years), we estimate the net present value of increased lifetime earnings to be approximately \$20.16 per hour or \$40,320 per

year. This equates to \$2,100 in annual benefits for children from average income families in La Crosse County (See Appendix G for detailed calculations). This is less than WSIPP's estimate for low-income preschoolers because we assume that moderate- and high-income children who attend preschool do not accrue benefits from the increased likelihood of graduating from high school because high school completion rates for students from the two highest income brackets (middle high and highest) are over 96 percent as compared to approximately 93 percent for the lowest income brackets (McFarland et al., 2019).

In view of the evidence and the WSIPP benefit-cost analysis, we estimate the annual benefit of child care to children's education outcomes to be about **\$7,570 per low-income preschooler** and **\$2,120 per average-income preschooler**. Assuming that child care slots will be filled by mixed-income children, we consider a range between \$2,120 and \$7,570 for children ages 3 to 6 under Alternative 3. Most preschool-aged children in La Crosse County will accrue benefit amounts closer to \$2,120 and up to 8.4 percent of children will accrue benefit amounts of \$7,570 this estimate is based on the percentage of children living in poverty in La Crosse County (Annie E. Casey Foundation, 2021). We assume that Alternatives 1 and 2 do not serve low-income children because eligibility is limited to children of employees of business cooperative members and children of county employees. Long-term, the availability of childcare may incentivize some low-income parents to work for La Crosse County or businesses cooperative members. However, we assume that all 75 slots in Alternatives 1 and 2 will initially be filled with the children of current employees because we anticipate high demand for these slots. Educational benefits are limited to children ages 3 to 6 who attend child care programs that use preschool curriculums. Children ages 0 to 3 do not accrue these benefits.

## Benefits of Federal Provided Funding

La Crosse County is receiving federal funds from the American Rescue Plan Act (ARPA). The county has created an ARPA Child Care Task Force to discuss how ARPA funds could be used to address the child care crisis. The ARPA Child Care Task Force identified providing Get to Capacity Grants as a potential solution for the local child care crisis. These grants would address child care centers' challenge of meeting licensed capacity because of inability to fill or maintain staff openings. The Get to Capacity Grants would align with Alternative 3 because the goal of the grants is to provide short-term funding to currently existing child care centers so that they may retain workers and reach full licensed capacity. The Get to Capacity Grants would offer \$15,000 annually to 30 child care centers over the course of five years. In total, Get to Capacity Grants would infuse \$450,000 annually, or \$2,250,000 over 5 years, into La Crosse County's child care industry. In this benefit-cost analysis, the full annual grant amount of **\$450,000** is counted as a benefit under Alternative 3 because ARPA funds are federal funds and this analysis uses county standing.

As described above, under Alternative 1, La Crosse County would provide a grant of up to \$100,000 to an employer assisted child care cooperative to create 75 child care slots. If the county allocated ARPA funds to Alternative 1 to cover the cost of providing the \$100,000 grant, the county would avoid the costs associated with providing the grant. In the same way the Get to Capacity Grants count as a benefit toward the county, the **\$100,000** grant for the cooperative would also count as a benefit.

To count federal grants as benefits to the county, the opportunity cost of the federal grants must equal zero. In other words, there is no other next best alternative use of the ARPA dollars; the

county is committed to dedicating one-time \$100,000 ARPA funds to child care under Alternative 1 and \$2,250,000 over 5 years to child care under Alternative 2. In early December, the La Crosse County Board ranked 17 potential projects that would be funded by the \$22.89 million the county received from ARPA. Of the 17 projects, three were focused on child care. This meeting did not officially approve the use ARPA funds for projects, but the county board ranked all 17 projects by priority. Projects ranked in the top eight are high priority and most likely to receive ARPA funding. The three child care projects ranked first, ninth, and tenth. With these rankings as evidence that the county will commit ARPA funds to at least one child support initiative, we negate the opportunity costs of ARPA funding for Alternatives 1 and 3 and count ARPA funds as benefits.

## Costs

Child care costs fall into five primary categories: (1) wages, (2) operating costs, (3) infrastructure costs, (4) subsidies, and (5) grants. Child care staff wages include hourly wages and benefits paid to child care staff. Operating costs include recurring costs of operating a child care program. Infrastructure costs include start-up and construction costs for new child care facilities. Subsidies include the costs to the county of providing subsidies for child care programs' wages and benefits. Grants include the cost of incentivizing the creation of an employer-assisted child care cooperative. Below we discuss estimated costs by alternative. All costs are in 2020 dollars.

### Costs of Operating Child Care Programs

Operating costs are the expenses related to the operation of a business. Under Alternatives 1 and 2, the change in operating costs arises from the proposed business cooperative and La Crosse County administering a new child care facility. All three alternatives would also incur

incremental increases in operating costs because of the per worker increase in wages and fringe benefits, as compared to current policy. However, because of the magnitude of wage costs, child care staff wages and benefits are addresses as a separate cost category, below. Under Alternative 3, facilities also experience an increase in operating costs because of employing more child care workers and caring for more children. From a benefit-cost analysis perspective, we estimate the operating costs (excluding wages and fringe benefits) to be approximately **\$133,090** under Alternatives 1 and 2 and approximately **\$794,210** under Alternative 3 (see Appendix I). Please refer to Appendix I for a fiscal analysis of operating costs.

### Costs of Wages for Child Care Program Workers

Total cost of wages for child care program workers varies by alternative. For each alternative we use the hourly wage of \$21.72. This wage was derived from a wage elasticity of 1.15 and reflects the estimated market wage required to retain child care workers, prevent turnover, and allow child care programs to meet staff-to-child ratios needed to fill all child care slots. (See Appendix B for more detailed calculations for this wage rate). For each alternative, we assume child care programs are open 11 hours per day, five days per week, for 52 weeks per year (i.e., we assume the child care programs will be open for 2,860 hours per year). To minimize costs, we assume all child care workers will work on a part-time basis. Therefore, in calculations of cost of wages we refer to workers as full-time equivalents (FTEs), recognizing it will take multiple part-time workers to equal the hours worked by one FTE. Wage costs are calculated as follows:

$$(Number\ of\ FTEs * 2,860\ hours/year) * \$21.72/hour = Annual\ cost\ of\ wages\ for\ child\ care\ programs$$

We estimate a minimum and maximum cost of wages for each alternative, dependent on the number of child care program workers employed. State licensing regulations require child care

programs to meet maximum group size and staff-to-child ratios requirements (see Appendix A). To calculate maximum wage costs, we assume a child care program serves only children ages birth to two years or a mixed group with the youngest child under two years of age. The staff-to-child ratio for these two scenarios is 1:4. For minimum costs of wages, we assume a child care program serves only children aged five. The worker to child ratio required for this age group is 1:17 (DCF, 2019).

Under Alternative 1, we assume the employer-assisted cooperative will pay its workers an hourly rate of \$21.72, without benefits. We also assume the cooperative will create 75 new child care slots. For maximum wage costs, the worker to child ratio used is 1:4; therefore, 19 FTEs would be needed to care for 75 children ages birth to two years or a mixed group with the youngest child under age two. The maximum annual wage costs under Alternative 1 would equal approximately **\$1,180,000**. For minimum costs, the required worker to child ratio is 1:17. Five FTEs would be needed to care for 75 children aged five. The minimum wage costs under Alternative 1 would equal approximately **\$310,600**.

For the purposes of this analysis, estimated annual cost of child care worker wages under Alternative 2 is identical to estimated annual costs under Alternative 1. So, we use the same upper bound estimate of about **\$1,180,000** and lower bound estimate of about **\$310,600**.

Alternative 3 assumes that existing child care programs would be able to recruit and retain enough workers to meet full licensed capacity by paying workers \$21.72 per hour. All child care programs across La Crosse County have a total licensed capacity of 3,757. For maximum costs, the worker to child ratio of 1:4 is applied. Therefore, 940 FTEs would be needed to fill all 3,757 slots. The maximum cost of wages for child care program workers equals approximately

**\$58,392,000**, with rounding. For minimum costs, the worker to child ration of 1:17 is applied. 221 FTEs would be needed to fill all 3,757 slots. The minimum cost of wages for child care program workers equals approximately **\$13,728,000**.

### Costs of Infrastructure for New Child Care Programs

Infrastructure and start-up costs are the expenses incurred during the process of creating a new child care facility and hiring new staff. Our estimates assume that each new child care facility will operate with a maximum capacity of 75 children and occupy 8,000 square feet. All start-up cost subcategories are annualized to allow for the summation of net benefits and for comparisons across alternatives. To annualize start-up costs, we use the capital recovery method and convert the initial investment into a constant stream of annual investment, spreading across the planned facility time horizon. The annualized numbers are sensitive to both the choice of discount rate (we use 3.5 percent throughout) and the length of the time horizon (40 years for facility life, 20 years for outdoor equipment, 10 years for indoor equipment, 5 years for intangible assets, and 20 years for human capital). We estimate annualized infrastructure and start-up costs are, on average, approximately **\$102,460** under Alternative 1, **\$107,150** under Alternative 2, and **\$14,240** under Alternative 3. Although a new facility will not be built, Alternative 3 still incurs start-up costs because child care programs accrue training expenses for new hires (see Appendix J for details under the subsection Human Capital Costs). We estimate the one-time upfront cost of constructing an 8,000 square feet child care center with a licensed capacity of 75 slots is **\$2,000,000**. (See Appendices I and J for details).

### Costs of County-Provided Subsidies for Child Care Programs' Wages and Benefits

The cost to subsidize wages and benefits for child care programs is relevant to Alternatives 3. La Crosse County would provide grants to child care programs to increase child care workers'

wages from Wisconsin's current average hourly wage of \$11.84 (BLS, 2020a) to \$21.72 per hour. In a benefit-cost analysis, La Crosse County's subsidy costs for wages and benefits are received as a benefit by child care programs. This transaction is referred to as a transfer, in that "the offsetting costs and benefits result in a zero net-benefits" (Boardman, et al., 2018, p. 18). However, the county's costs would look quite different under a fiscal analysis, as detailed in Appendix K. As mentioned in the Benefit of Federal Provided Funding, La Crosse County was awarded federal ARPA money that could be used to cover the cost of providing wage and benefit subsidies.

### Costs of Grants to Incentivize the Creation of an Employer-Assisted Child Care Cooperative

Like the cost of wage subsidies, providing grants to incentivize the creation of an employer-subsidized child care cooperative would be a cost incurred by La Crosse County under a fiscal analysis, but is considered a transfer under a benefit-cost analysis. This cost is only applicable to Alternative 1 as it is the only alternative that would offer grants to employer-assisted cooperatives. Grants ranging from approximately \$10,700 to \$100,000 would be provided by the county to each cooperative based on the number of slots it creates. Our analysis assumes the creation of one cooperative that serves 75 children and receives maximum grant funding. Therefore, La Crosse County would accrue a cost of \$100,000 in Alternative 1 from providing a fiscal incentive for local employers to create a child care cooperative. However, as noted above, the transfer of \$100,000 from the county to the cooperative creates a social cost of **\$0**. While the county loses \$100,000 by giving it to the cooperative, the cooperative picks that amount up as a benefit, thus the \$100,000 nullified. Additionally, as mentioned in the Benefit of Federal

Provided Funding section, La Crosse County could use ARPA funds to cover the county's costs of providing \$100,000 to the cooperative.

## Benefit and Cost Summary Tables

The summary tables below show each of the benefit and cost categories discussed above that describe annual benefits and costs, as well as the fiscal impact to the county, for each alternative.

Table 2: Present Value of Benefits and Costs Under Alternative 1, the Cooperative Model

Category	Mean Present Value (2020 Dollars, from Monte Carlo Analysis)	90 Percent Range (2020 Dollars, from Monte Carlo Analysis)	
		Lower 5 Percent Point	Upper 5 Percent Point
<b>Benefits</b>			
Increased Parental Labor Force Participation (Appendix D)	128,840	9,750	301,010
Increased Parental Labor Productivity (Appendix E)	69,410	31,280	118,940
Decreased Parental Labor Turnover (Appendix F)	236,970	47,890	507,820
Improved Child Development (Appendix G)	81,900	37,240	126,400
Federal Provided Funding	100,000	N/A	
<b>Total Benefits</b>	<b>517,110</b>	<b>258,020</b>	<b>828,100</b>
<b>Costs</b>			
Operating Costs (Appendix I)	131,980	113,990	150,040
Wages (Appendix B)	542,230	370,850	714,180
Infrastructure Costs (Appendix J)	106,750	100,740	112,730
County-Provided Subsidies for Child Care Programs' Wages and Benefits	N/A	N/A	
Grants to Incentivize the Creation of an Employer-Assisted Child Care Cooperative	-4,680*	N/A	
<b>Total Costs</b>	<b>776,280</b>	<b>585,730</b>	<b>967,700</b>
<b>Net Benefits</b>			
	-259,170	-586,220	101,910
<b>Fiscal Impact</b>			
(Appendices I & J)	-46,800	N/A	

\*The annualized amount of the \$100,000 grant over 40 years with a discount rate of 3.5%

Table 3: Present Value of Benefits and Costs Under Alternative 2, the County as an Employer Model

Category	Mean Present Value (2020 Dollars, from Monte Carlo Analysis)	90 Percent Range (2020 Dollars, from Monte Carlo Analysis)	
		Lower 5 Percent Point	Upper 5 Percent Point
<b>Benefits</b>			
Increased Parental Labor Force Participation (Appendix D)	128,840	9,750	301,010
Increased Parental Labor Productivity (Appendix E)	69,410	31,280	118,940
Decreased Parental Labor Turnover (Appendix F)	236,970	47,890	507,820
Improved Child Development (Appendix G)	81,900	37,240	126,400
Federal Provided Funding	N/A	N/A	
<b>Total Benefits</b>	<b>517,110</b>	<b>258,020</b>	<b>828,100</b>
<b>Costs</b>			
Operating Costs (Appendix I)	131,980	113,990	150,040
Wages (Appendix B)	542,230	370,850	714,180
Infrastructure Costs (Appendix J)	106,750	100,740	112,730
County-Provided Subsidies for Child Care Programs' Wages and Benefits	N/A	N/A	
Grants to Incentivize the Creation of an Employer-Assisted Child Care Cooperative	N/A	N/A	
<b>Total Costs</b>	<b>780,960</b>	<b>590,410</b>	<b>972,380</b>
<b>Net Benefits</b>			
	-263,850	-590,900	97,230
<b>Fiscal Impact</b>			
(Appendices I & J)	-780,960	N/A	

Table 4: Present Value of Benefits and Costs Under Alternative 3, the Subsidized Staff Wages Model

Category	Mean Present Value (2020 Dollars, from Monte Carlo Analysis)	90 Percent Range (2020 Dollars, from Monte Carlo Analysis)	
		Lower 5 Percent Point	Upper 5 Percent Point
<b>Benefits</b>			
Increased Parental Labor Force Participation (Appendix D)	682,170	51,640	1,593,820
Increased Parental Labor Productivity (Appendix E)	3,343,160	1,506,830	5,729,160
Decreased Parental Labor Turnover (Appendix F)	1,254,710	253,570	2,688,860
Improved Child Development (Appendix G)	528,440	240,250	815,540
Federal Provided Funding	450,000	N/A	
<b>Total Benefits</b>	<b>6,258,480</b>	<b>3,833,110</b>	<b>9,033,970</b>
<b>Costs</b>			
Operating Costs (Appendix I)	796,440	697,090	896,110
Wages (Appendix B)	9,165,150	8,235,240	10,100,000
Infrastructure Costs (Appendix J)	14,370	9,600	19,150
County-Provided Subsidies for Child Care Programs' Wages and Benefits	0	0	0
Grants to Incentivize the Creation of an Employer-Assisted Child Care Cooperative	N/A	N/A	
<b>Total Costs</b>	<b>9,975,950</b>	<b>8,941,930</b>	<b>11,000,000</b>
<b>Net Benefits</b>			
	-3,717,470	-6,368,740	-755,756
<b>Fiscal Impact</b>			
(Appendices I & J)	-16,403,070	N/A	

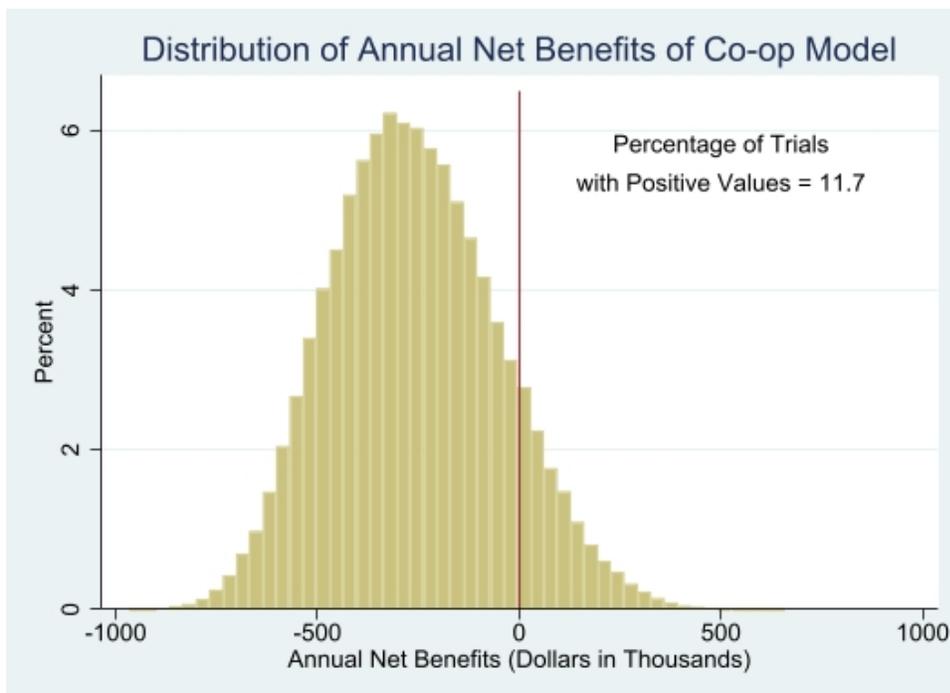
## Results and Analysis

For all three alternatives we consider the costs and benefits using county standing. Because our estimates have uncertainty, we conduct a Monte Carlo simulation with 100,000 trials for each alternative to current policy (see Appendix O for the Stata code). These simulations, shown below, account for variation in uncertain benefit and cost estimates. All costs and benefits are annualized and are discounted at 3.5 percent annually.

**Alternative 1: Use funding to incentivize the creation of an employer-assisted child care cooperative.**

Under Alternative 1, our analysis yields average negative net benefits of approximately **-\$259,000**. Net benefits ranged from approximately **-\$586,000** to **\$102,000**. This distribution is shown in Figure 2.

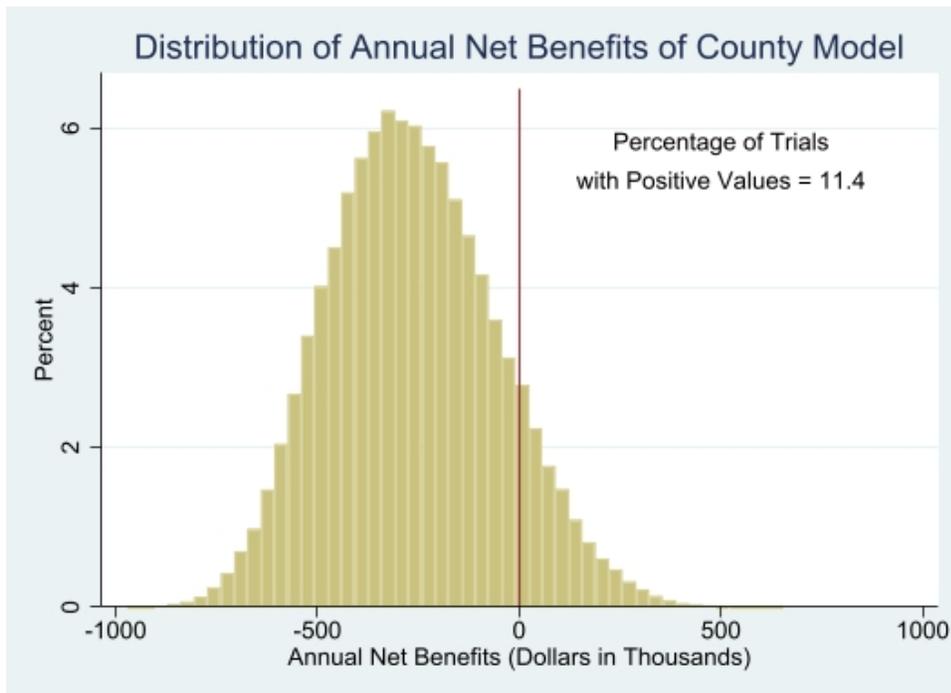
*Figure 2: Distribution of Annual Net Benefits of Alternative 1, the Cooperative Model*



Alternative 2: Develop and operate a child care program for use by county employees.

Under Alternative 2, our analysis yields average negative net benefits of approximately **-\$264,000**. Net benefits ranged from approximately **-\$591,000** to **\$97,000**. This distribution is shown in Figure 3.

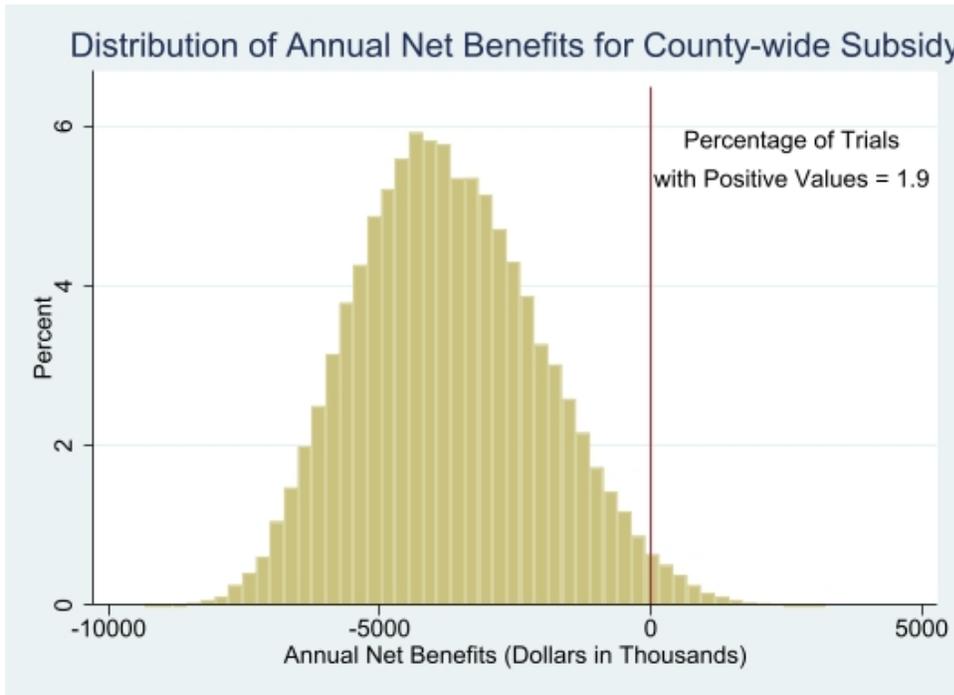
Figure 3: Distribution of Annual Net Benefits of Alternative 2, the County as an Employer Model



Alternative 3: Provide grants to child care programs to subsidize staff wages and benefits.

Under Alternative 3, our analysis yields average negative net benefits of approximately **-\$3,717,000**. Net benefits ranged from approximately **-\$6,369,000** to **-\$756,000**. This distribution is shown in Figure 4.

Figure 4: Distribution of Annual Net Benefits of Alternative 3, the Subsidized Staff Wages Model



## Assumptions and Limitations

Our analysis has several assumptions, limitations, and considerations that prevent us from making a stronger recommendation for La Crosse County.

### *Assumptions About Alternatives to Current Policy*

We assume that child care slots created under the three alternatives are filled by a child from La Crosse County; in other words, we assume no families outside of La Crosse Counties can place their children into these new slots. In addition, we assume that the parents of these children work in La Crosse County, which has implications for our benefits estimates. Finally, we assume that child care staff hired under these alternatives live and formerly worked in La Crosse County.

For all alternatives, we assume a child care staff wage rate of \$21.72 per hour, without benefits, or \$16.71, with benefits (assuming a 30 percent benefit rate per convention). We estimate that a

\$21.72 hourly wage is required to have sufficient staffing to be able to fill all new child care slots created under each alternative. This estimate is based on a wage elasticity of child care workers of 1.15; in other words, 1.15 percent more child care workers are willing to work for every 1 percent increase in wages (Blau and Currie, 2006). (See Appendix B for more detailed calculations.)

Additionally, we assume that Alternative 1, the business cooperative model, and Alternative 2, the county as an employer model, do not benefit low-income children. This assumption is based on average wage rates for employees of La Crosse County and businesses.

We also assume that Alternatives 1 and 2 may reduce the net number of child care slots in La Crosse County because there is a shortfall of child care workers at the current wage rate. If La Crosse County or the child care center created by the business cooperative model were to pay workers more than what they are likely to earn at other child care programs in La Crosse County (around \$11.84 per hour), we theorize that workers would be incentivized to leave their current positions to work for the county program or business cooperative. Because child care centers are struggling to hire adequate numbers of staff to meet their full licensed capacity, we assume that the child care programs left with staff vacancies may not be able to fill those positions and may have to decrease the number of child care slots available. (However, we do not monetize this loss because of the uncertainty of the number of slots, if any, that may be lost.)

Alternative 1 assumes that after the county-provided incentive has been exhausted, the member employers will continue to maintain the child care cooperative using private funding. This assumption is informed by the ECCCC, which we use as a model, which was developed and is maintained solely by Mercer County area businesses wanting to close the local gap in child care

(“About Us: Overview,” n.d.). It is worth noting that Mercer County is substantially more rural than La Crosse County and its residents experienced limited availability of child care options. The high unmet demand in the county fueled the implementation and maintenance of the ECCCC without outside funding. However, a federal tax credit is available to employer-provided child care centers, which could help maintain member employers investment in a cooperative in La Crosse County. The Credit for Employer-Provided Child Care Facilities and Services offers a tax credit to employers equal to 25 percent of qualified child care costs. The credit is capped at \$150,000 per tax year (U.S. Department of the Treasury, 2017).

#### *Assumptions Relevant to Benefits Calculations*

Our analysis of the benefits accrued from all three parental labor force benefits does not incorporate challenges associated with finding and managing child care for multiple children. For example, if a new four-year-old child care slot is created, but a parent does not have child care for his or her infant, the parent would not be able to enter the labor force. Additionally, our estimate assumes that each child care slot is filled by a child from a unique family and does not account for siblings in care. Finally, we assume that only two-parent households receive benefits from increased parental labor force participation and reduced parental labor force turnover. We also assume that only one parent within a two-parent household accrues any of the three parental labor force benefits. This assumption is based on our belief that most single-parent households are already in the labor force regardless of if they have access to affordable, regulated child care. We assume that single parents work to make ends meet and turn to networks of friends, family, and unregulated child care in the absence of the availability of affordable regulated care. We also assume that only mothers in two-parent households accrue the benefits of increased labor force participation because fathers typically do leave the labor force to jointly provide full-time

child care. Consequently, fathers would already be in the labor force and would not receive the benefit of reentry (BLS, 2021b). Importantly, our parental labor force benefits estimates do not include avoided costs to mothers in the form of lost human capital attainment and future promotions and income raises lost due to child care disruptions. This non-monetized benefit may cause our parental labor force benefits to be under estimated.

Our analysis of the benefits of child care to children's education did not include findings from research demonstrating positive effects of Head Start to children's educational outcomes. We excluded this research from our analysis because of the differences in the curriculum and services provided by Head Start compared to private child care. Additionally, based on the extant research, we assume that children ages 0 to 3 years do not accrue educational benefits from child care and that children ages 3 to 6 years only accrue educational benefits if enrolled in a child care program using a preschool curriculum.

#### *Assumptions Relevant to Cost Calculations*

Our analysis of costs assumes that the local market for all input goods is not distorted and that the project's total purchase would only have negligible impacts on prices. This way, the expenditure equals the social cost.

Under Alternatives 1 and 2, we assume that whether the county or the business constructs and operates the child care center would not have an impact on costs from a societal perspective, considering it has already been assumed that all input markets are efficient.

Under Alternative 3, we assume that sufficient facilities and equipment exist despite staffing shortfalls and thus no extra facility or equipment expenses are incurred. Similarly, we assume

that the staff-related expenditures relating to existing workers have already been accounted for (e.g., their insurance is already paid versus newly insured hires).

We apply the same costs of wages calculations to all three alternatives, estimating that child care centers will be open 11 hours per day, five days per week, for 52 weeks per year. We acknowledge that 52 weeks per year is likely an overestimate of how often child care centers will be open as it does not account for holidays, personal leave, or emergency closures. As a result, our cost of wages is slightly overestimated as it is tied to the 52-week assumption.

Appendix L provides detailed accounting procedures. Appendices I, J, and K provide additional detail of minor assumptions in estimating costs.

#### *Assumptions in Analysis and Results*

In our estimates of net benefits, we do not account for the impacts of each alternative to neighboring counties' child care markets. If La Crosse County raises wages for child care staff, nearby counties will likely lose child care staff and customers as both staff and families relocate to La Crosse County providers for higher wages and higher quality care. Regionally, this would likely create a net decrease in child care slots.

## Recommendations and Considerations

In view of the likely negative net benefits in our Monte Carlo analysis, we recommend La Crosse County pursue other policy alternatives to increase the availability and affordability of child care.

#### *Potential Alternatives for Further Study*

To minimize costs and maximize benefits, La Crosse County may consider (1) incentivizing businesses to offer vouchers to subsidize employees' child care costs, (2) creating a county-run

preschool program for low-income 3 and 4-year-olds, and (3) subsidizing Wisconsin Shares' families child care copays. Because we did not analyze these alternatives in our benefit-cost analysis, we cannot recommend La Crosse County implement these policies. Rather, we recommend that La Crosse County consider commissioning additional studies to estimate the effectiveness of these alternatives.

First, incentivizing local businesses to provide employees with child care vouchers may help working families afford child care at existing licensed providers. This alternative may increase affordability of child care for parents at a lower cost to employers, as compared to the business cooperative model presented in the above analysis (Alternative 1). Indeed, some research has found that child care voucher programs cost, on average, 11 percent of the cost of on-site employer-provided child care programs (Gullekson et al., 2014). Further, when comparing businesses that pursued child care vouchers to businesses who pursued on-site child care, employers perceive no difference in employee attitude and productivity between the two approaches, as both policies increase employee retention and decrease absenteeism and presenteeism (Gullekson et al., 2014).

Second, creating a preschool program that targets low-income 3 and 4-year-olds may generate positive net benefits under a benefit-cost analysis. This hypothesis is grounded in research findings that children from low-income families disproportionately benefit from the educational impacts of attending preschool, realizing higher high school graduation rates and increased earnings as adults (Bartik, 2010; Duncan & Magnuson, 2013). Indeed, estimates from our Monte Carlo analysis suggest that if all slots created in Alternatives 1 or 2 were filled by low-income preschoolers, these alternatives would generate positive average net benefits of approximately

**\$227,000.** These modified alternatives would generate positive net benefits 86 percent of the time, ranging from approximately -\$97,000 to \$585,600 (see Appendix M).

Third, subsidizing families receiving Wisconsin Shares child care subsidies' copayments may increase the affordability of child care. This alternative may generate positive net benefits in future benefit-cost analyses because of its targeted approach to low-income children. At present, 382 families and 595 children in La Crosse County received Wisconsin Shares child care subsidies (Annie E. Casey Foundation, 2021; DCF, 2021c). Families with gross monthly incomes below 185 percent of the federal poverty level (\$1,556 per month for a family of three) are eligible for the Wisconsin Shares child care subsidy program (DCF, 2021d). However, families may be responsible for a substantial monthly copayment amount, depending on their income and the number of children. If La Crosse County were to subsidize the difference between low-income families' true cost of child care and the amount subsidized by Wisconsin Shares, the county could increase child care affordability, potentially increase the number of low-income children enrolled in child care and preschool, and potentially generate positive net benefits stemming from low-income children's increased rates of high school graduation and increased earnings as adults.

### *Considerations*

Benefit-cost analysis is used to measure only the economic efficiency of policy alternatives. There are other goals that should be considered when selecting a policy alternative, such as political feasibility, ease of implementation, and equity (See Table 1). Equity should be evaluated for any potential child care policy. Equity can be analyzed in terms of parental equity in workforce participation (especially mothers' increased workforce participation) and increasing income equity. La Crosse County should consider producing analyses that measure alternatives'

impacts on equity, and other factors. Additionally, benefit-cost analysis does not measure increased economic activity created because of additional child care, which the county may value for its fiscal impacts.

Looking ahead, potential increases to state and federal funding may substantially change the child care landscape in La Crosse County. If passed, the Build Back Better Act would provide federal funding to expand child care subsidies for families, raise wages and compensation for child care employees, and create universal Pre-K for three- and four-year-olds (Guarino, 2021). Additionally, Wisconsin DCF has allocated \$351 million in funds to incentivize child care programs to offer care during non-standard hours and care to children with special needs. These funds will be distributed to child care programs through DCF's Child Care Counts program from November 2021 to May 2023. DCF also plans to provide financial supports to assist programs with the costs and recruiting and retaining high-quality staff and to increase the Wisconsin Shares child care subsidy rate from 35 percent to 80 percent of the estimated cost of child care, increasing family's affordability. Finally, DCF plans to launch Project Growth, a "20 million initiative aimed at growing innovative partnerships between the early care and education and business communities and expanding innovative, high-quality early care and education programs throughout the state" (DCF, 2021b).

If these programs and policies are implemented then La Crosse County may benefit from commissioning a second benefit-cost analysis because these changes could result in changes to the net benefits produced by Alternatives 1, 2, and 3, when using county standing. Under county standing, any federal funding sources are considered a benefit that is not offset by the cost of funding by the state or federal governments, whereas such funds would be considered a transfer

under state or national standing. Therefore, any state or federal funding awarded to La Crosse County for child care would be counted as a benefit rather than a cost.

## References

- “About Us: Overview”. Energy Capital Cooperative Child Care. (n.d.). Retrieved November 10, 2021, from <https://energycapitalcooperative.com/index.php/about-us/our-mission/>.
- Annie E. Casey Foundation. (2021). *Children receiving Wisconsin Shares childcare subsidies* | KIDS COUNT Data Center. <https://datacenter.kidscount.org/data/tables/3491-children-receiving-wisconsin-shares-childcare-subsidies?loc=51&loct=5>
- Barnett, W. S., & Masse, L. N. (2007). Comparative benefit–cost analysis of the Abecedarian program and its policy implications. *Economics of Education Review*, 26(1), 113–125. <https://doi.org/10.1016/j.econedurev.2005.10.007>
- Bartik, T. J., Gormley, W., & Adelstein, S. (2012). Earnings benefits of Tulsa’s Pre-K program for different income groups. *Economics of Education Review*, 31(6), 1143–1161. <https://doi.org/10.1016/j.econedurev.2012.07.016>
- Belfield, C. R., Nores, M., Barnett, S., & Schweinhart, L. (2006). The High/Scope Perry Preschool program cost–benefit analysis using data from the age-40 follow-up. *Journal of Human Resources*, XLI (1), 162–190. <https://doi.org/10.3368/jhr.XLI.1.162>
- Bernal, R. (2008). The effect of maternal employment and child care on children’s cognitive development. *International Economic Review*, 49(4), 1173–1209. <https://doi.org/10.1111/j.1468-2354.2008.00510.x>
- Bishop, S. (2021). Want to Strengthen Wisconsin’s Economy? Fix the Child Care Crisis: Impact of Infant-Toddler Child Care Challenges Felt by Families, Employers, and Taxpayers. ReadyNation. <https://strongnation.s3.amazonaws.com/documents/1301/f6b6f9f6-92e0-4bc0-9ec1-dd8260e4963a.pdf?1615813991&inline;%20filename=%22Want%20to%20>

[20Strengthen%20Wisconsin%E2%80%99s%20Economy?%20Fix%20the%20Child%20Care%20Crisis%20.pdf%22.](#)

Blau, D., & Currie, J. (2006). Chapter 20 Pre-School, Day Care, and After-School Care: Who's Minding the Kids? In E. Hanushek & F. Welch (Eds.), *Handbook of the Economics of Education* (Vol. 2, pp. 1163–1278). [https://doi.org/10.1016/S1574-0692\(06\)02020-4](https://doi.org/10.1016/S1574-0692(06)02020-4)

Boardman, A., Greenberg, D., Vining, A., & Weimer, D. (2018). *Cost-Benefit Analysis: Concepts and Practice* (5th ed.). Cambridge University Press.

Bousselin, A. (2021). Access to universal childcare and its effect on maternal employment. *Review of Economics of the Household*, 1–36. <https://doi.org/10.1007/s11150-021-09572-9>

Bradley, R. H., & Vandell, D. L. (2007). Child Care and the Well-being of Children. *Archives of Pediatrics & Adolescent Medicine*, 161(7), 669–676. <https://doi.org/10.1001/archpedi.161.7.669>

Brandon, P. D., & Temple, J. B. (2007). Family Provisions at the Workplace and Their Relationship to Absenteeism, Retention, and Productivity of Workers: Timely Evidence from Prior Data. *Australian Journal of Social Issues*, 42(4), 447–460. <https://doi.org/10.1002/j.1839-4655.2007.tb00071.x>

Brooks-Gunn, J., Han, W.-J., & Waldfogel, J. (2002). Maternal employment and child cognitive outcomes in the first three years of life: The NICHD Study of Early Child Care. National Institute of Child Health and Human Development. *Child Development*, 73(4), 1052–1072. <https://doi.org/10.1111/1467-8624.00457>

- Bullinger, L., Raissian, K., Feely, M., & Schneider, W. (2020). *The Neglected Ones: Time at Home During COVID-19 and Child Maltreatment* (SSRN Scholarly Paper ID 3674064). Social Science Research Network. <https://papers.ssrn.com/abstract=3674064>
- Chen, J.-H. (2012). Multiple Childcare Arrangements and Health Outcomes in Early Childhood. *Maternal and Child Health Journal*, 17(3), 448–455. <https://doi.org/10.1007/s10995-012-1016-9>
- Child Care Aware of America. (2021). *In Wisconsin, can families afford child care?* Retrieved November 11, 2021, from <https://www.childcareaware.org/our-issues/research/ccdc/state/wi/>
- Children’s Funding Project. (2021). Local Dedicated Children’s Funds Chart. Retrieved November 11, 2021, from, <https://docs.google.com/spreadsheets/d/1uGQCz69w2TLUaRu2zh9C98uuyLJ-uVvaVgJT025-OfE/edit#gid=0>
- Davis, B., Bustamante, A., Bronfin, M., & Candal Rahim, M. (2017a). *Losing Ground: How Child Care Impacts Louisiana’s Workforce Productivity and the State Economy*. Louisiana Policy Institute for Children.
- Davis, E. E., Krafft, C., & Forry, N. D. (2017b). Understanding churn: Predictors of reentry among families who leave the child care subsidy program in Maryland. *Children and Youth Services Review*, 77, 34–45. <https://doi.org/10.1016/j.childyouth.2017.03.014>
- Davis, E. E., Lee, W. F., & Sojourner, A. (2018). Family-Centered Measures of Access to Early Care and Education. *Early Childhood Research Quarterly*, 47, 472–486. <https://doi.org/10.1016/j.ecresq.2018.08.001>

- Duncan, G. J., & Magnuson, K. (2013). Investing in preschool programs. *Journal of Economic Perspectives*, 27(2), 109–132. <https://doi.org/10.1257/jep.27.2.109>
- Duncan, G., & Magnuson, K. (2011). The nature and impact of early achievement skills, attention skills, and behavior problems. *Whither Opportunity? Rising Inequality, Schools, and Children's Life Chances*, 47–69.
- Early Childhood Investment Collaborative. (2020). *2020 Report: 50-State Early Educator Policy and Practice Research*. Retrieved November 12, 2021, from, [https://earlyedcollaborative.org/assets/2020/12/EEIC\\_Report\\_50StateEarlyEducatorPolicy\\_2020.pdf](https://earlyedcollaborative.org/assets/2020/12/EEIC_Report_50StateEarlyEducatorPolicy_2020.pdf)
- Enchautegui, M., Chien, N., Burgess, K., & Ghertner, R. (2016). *Effects of the CCDF Subsidy Program on the Employment Outcomes of Low-Income Mothers*. <https://aspe.hhs.gov/reports/effects-ccdf-subsidy-program-employment-outcomes-low-income-mothers>
- Energy Capital Cooperative Child Care. (n.d.). Retrieved November 10, 2021, from <https://energycapitalcooperative.com/>.
- Fitzpatrick, M. D. (2010). Preschoolers enrolled and mothers at work? The effects of universal prekindergarten. *Journal of Labor Economics*, 28(1), 51–85. <https://doi.org/10.1086/648666>
- Gregg, P., Washbrook, E., Propper, C., & Burgess, S. (2005). The effects of a mother's return to work decision on child development in the UK. *The Economic Journal*, 115(501), F48–F80. <https://doi.org/10.1111/j.0013-0133.2005.00972.x>
- Guarino, A. (2021, November 3). *FAQ on the Child Care and Preschool Provisions in the Build Back Better Act*. First Five Years Fund. Retrieved November 11, 2021, from,

<https://www.ffyf.org/faq-on-the-child-care-and-preschool-provisions-in-the-build-back-better-act/>

Gullekson, N., Griffeth, R., B. Vancouver, J., T. Kovner, C., & Cohen, D. (2014). Vouching for childcare assistance with two quasi-experimental studies. *Journal of Managerial Psychology*, 29(8), 994–1008. <https://doi.org/10.1108/JMP-06-2012-0182>

Gundersen Health System. (2021). *Gundersen Child Care Center*. Retrieved November 11, 2021, from, <https://www.gundersenhealth.org/our-system/child-care-center/>

Havnes, T., & Mogstad, M. (2011). Money for nothing? Universal child care and maternal employment. *Journal of Public Economics*, 95(11), 1455–1465. <https://doi.org/10.1016/j.jpubeco.2011.05.016>

Heckman, J. J., Moon, S. H., Pinto, R., Savelyev, P. A., & Yavitz, A. (2010). The Rate of Return to the High/Scope Perry Preschool Program. *Journal of Public Economics*, 94(1–2), 114–128.

Herbst, C. M., & Tekin, E. (2010). Child care subsidies and child development. *Economics of Education Review*, 29(4), 618–638. <https://doi.org/10.1016/j.econedurev.2010.01.002>

Hoagland, C., Fumia, D., & Reynolds, M. (2019). *Early childhood education for low-income students: A review of the evidence and benefit-cost analysis UPDATE* (Document Number 19- 12-2201). Washington State Institute for Public Policy. [https://www.wsipp.wa.gov/ReportFile/1710/Wsipp\\_Early-Childhood-Education-for-Low-Income-Students-A-Review-of-the-Evidence-and-Benefit-Cost-Analysis-UPDATE\\_Report.pdf](https://www.wsipp.wa.gov/ReportFile/1710/Wsipp_Early-Childhood-Education-for-Low-Income-Students-A-Review-of-the-Evidence-and-Benefit-Cost-Analysis-UPDATE_Report.pdf)

- Hong, K., Dragan, K., & Glied, S. (2019). Seeing and hearing: The impacts of New York City's universal pre-kindergarten program on the health of low-income children. *Journal of Health Economics*, 64, 93–107. <https://doi.org/10.1016/j.jhealeco.2019.01.004>
- Hotz, V. J., & Wiswall, M. (2019). Child care and child care policy: Existing policies, their effects, and reforms. *The ANNALS of the American Academy of Political and Social Science*, 686(1), 310–338. <https://doi.org/10.1177/0002716219884078>
- Institute of Education Sciences. (2021, March). *Staff Turnover in the Early Childhood Workforce*  
*WHAT FACTORS MAKE A DIFFERENCE?*  
[https://ies.ed.gov/ncee/edlabs/regions/northeast/pdf/REL-NEI\\_ECE-turnover-infographic.pdf](https://ies.ed.gov/ncee/edlabs/regions/northeast/pdf/REL-NEI_ECE-turnover-infographic.pdf)
- Institute for Research on Poverty. (2021). Unpublished data analysis. University of Wisconsin-Madison.
- Internal Revenue Service. (2020). *Publication 946 (2020), How to Depreciate Property*.  
<https://www.irs.gov/publications/p946>
- Green, K. n.d. *Startup Costs Preschool Project*. Provided by the client.
- Gundersen Health System. (n.d.). *Careers at Gundersen*. Gundersen Health System. Retrieved December 4, 2021, from <https://www.gundersenhealth.org/careers/>.
- La Crosse County Salaries*. (2021). GovSalaries. <https://govsalaries.com/salaries/WI/la-crosse-county?year=2019>
- La Crosse Public Library. (2017, May 4). *Hillview Health Care property - 100+ years of care*. Retrieved November 24, 2021, from <https://archives.lacrosselibrary.org/blog/hillview-health-care-property-100-years-of-care/>

- La Crosse Tribune. (2013, September 1). *Largest Employers (La Crosse County)*. La Crosse Tribune. Retrieved November 12, 2021, from [https://lacrossetribune.com/largest-employers-la-crosse-county/article\\_d312f82c-12bc-11e3-90bf-001a4bcf887a.html](https://lacrossetribune.com/largest-employers-la-crosse-county/article_d312f82c-12bc-11e3-90bf-001a4bcf887a.html)
- Local Initiatives Support Corporation. (2020). *Resource Guide: Child Care Center Equipment & Furnishings*. Retrieved November 24, 2021, from [https://www.lisc.org/media/filer\\_public/a1/ae/a1aef793-bb06-400d-89fb-ffcac788ac7b/032421\\_equipment\\_and\\_furnishings.pdf](https://www.lisc.org/media/filer_public/a1/ae/a1aef793-bb06-400d-89fb-ffcac788ac7b/032421_equipment_and_furnishings.pdf)
- Local Initiatives Support Corporation. (2020). *Resource Guide: Child Care Center Playgrounds*. Retrieved November 24, 2021, from [https://www.lisc.org/media/filer\\_public/a1/ce/a1ce6e1e-6f2f-4826-b4bf-d506bcddefb8/032421\\_playgrounds.pdf](https://www.lisc.org/media/filer_public/a1/ce/a1ce6e1e-6f2f-4826-b4bf-d506bcddefb8/032421_playgrounds.pdf)
- Logan, D. (2021, November 9). *Building Materials Prices Post Record Year-To-Date Increase through October*. Eye on Housing. Retrieved December 6, 2021, from <https://eyeonhousing.org/2021/11/building-materials-prices-post-record-year-to-date-increase-through-october/>
- McDonnell, T., & Doyle, O. (2019). Maternal employment and childcare during infancy and childhood overweight. *Social Science & Medicine*, 243, 112639. <https://doi.org/10.1016/j.socscimed.2019.112639>
- McFarland, J., Cui, J., Rathbun, A., and Holmes, J. (2018). *Trends in High School Dropout and Completion Rates in the United States: 2018* (NCES 2019-117). U.S. Department of Education: National Center for Education Statistics. <http://nces.ed.gov/pubsearch>.

- Morrissey, T. W. (2019). *The Effects of Early Care and Education on Children's Health*. HealthAffairs. Retrieved November 12, 2021, from <https://www.healthaffairs.org/doi/10.1377/hpb20190325.519221/full/>
- Morrissey, T. W. (2016). Child care and parent labor force participation: A review of the research literature. *Review of Economics of the Household*, 15(1), 1–24. <https://doi.org/10.1007/s11150-016-9331-3>
- National Institute of Child Health and Development (NICHD), & Duncan, G. (2003). Modeling the Impacts of Child Care Quality on Children's Preschool Cognitive Development. *Child Development*, 74, 1454–1475. <https://doi.org/10.1111/1467-8624.00617>
- National Institute of Child Health and Development (NICHD). (2003). Does Amount of Time Spent in Child Care Predict Socioemotional Adjustment During the Transition to Kindergarten? *Child Development*, 74(4), 976–1005. <https://doi.org/10.1111/1467-8624.00582>
- Otten, J. J., Getts, K., Althausen, A., Buszkiewicz, J., Jardim, E., Hill, H. D., Romich, J., & Allard, S. W. (2018). Responding to an increased minimum wage: A mixed methods study of child care businesses during the implementation of Seattle's minimum wage ordinance. *Social Work*, 16(1), 22.
- The Parenting Place Child Care Survey: La Crosse County*. (2019). University of Wisconsin-Madison Division of Extension La Crosse County.
- Play & Park Structures. (n.d.). *Budgeting & Playground Cost*. Retrieved November 24, 2021, from <https://www.playandpark.com/planning/budgeting>
- Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., & Yazejian, N. (2001). The relation of preschool child-care quality to children's

- cognitive and social developmental trajectories through second grade. *Child Development*, 72(5), 1534–1553. <https://doi.org/10.1111/1467-8624.00364>
- “Rates and Schedule”. Energy Capital Cooperative Child Care. (n.d.). Retrieved November 10, 2021, from <https://energycapitalcooperative.com/index.php/rates/>.
- Rodriguez, B. X., Huang, M., Lee, H. W., Simonen, K. & Ditto, J. (2020). Mechanical, electrical, plumbing and tenant improvements over the building lifetime: Estimating material quantities and embodied carbon for climate change mitigation. *Energy and Buildings*, 226(), 110324–. <https://doi:10.1016/j.enbuild.2020.110324>
- Ruhm, C. J. (2004). Parental employment and child cognitive development. *Journal of Human Resources*, XXXIX(1), 155–192. <https://doi.org/10.3368/jhr.XXXIX.1.155>
- Rural Health Information Hub. (2021, July 1). *Energy Capital Cooperative Child Care (ECCCC)*. Rural Health Information Hub. Retrieved November 10, 2021, from <https://www.ruralhealthinfo.org/project-examples/1017>
- Schochet, L. (2019). *The Child Care Crisis Is Keeping Women Out of the Workforce*. Center for American Progress. <https://www.americanprogress.org/article/child-care-crisis-keeping-women-workforce/>
- Self-Help Credit Union. (n.d.). *Start-Up Costs for Child Care Center Worksheet*. Retrieved November 24, 2021, from <https://www.self-help.org/docs/default-source/PDFs/child-care-pdfs/start-up-costs-for-child-care-center-worksheet.pdf>
- Shingobee. (2021, March 24). *WHAT IS THE LIFESPAN OF A COMMERCIAL BUILDING? — ASK THE EXPERT*. Retrieved November 24, 2021, from <http://www.shingobee.com/About-Us/News/entryid/191/what-is-the-lifespan-of-a-commercial-building-ask-the-expert>

- University of Wisconsin La Crosse. (n.d.). *Enrollment—Campus Child Center*. UW-La Crosse. Retrieved November 12, 2021, from <https://www.uwlax.edu/campus-child-center/enrollment/>
- U.S. Bureau of Labor Statistics. (2021a). *La Crosse-Onalaska, WI-MN - May 2020 OEWS Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates*. Retrieved December 2, 2021, from, [https://www.bls.gov/oes/current/oes\\_29100.htm](https://www.bls.gov/oes/current/oes_29100.htm)
- U.S. Bureau of Labor Statistics. (2021b). Table B-1. Employees on nonfarm payrolls by industry sector and selected industry detail [In thousands]. Retrieved November 11, 2021, from, <https://www.bls.gov/webapps/legacy/cesbtab1.htm>
- U.S. Bureau of Labor Statistics. (2021c). *The Economics Daily, Labor force participation declines for mothers and fathers in 2020*. Retrieved December 2, 2021, from <https://www.bls.gov/opub/ted/2021/labor-force-participation-declines-for-mothers-and-fathers-in-2020.htm>
- U.S. Bureau of Labor Statistics. (2020a). *Wisconsin—May 2020 OEWS State Occupational Employment and Wage Estimates*. Retrieved November 12, 2021, from, [https://www.bls.gov/oes/current/oes\\_wi.htm](https://www.bls.gov/oes/current/oes_wi.htm)
- U.S. Bureau of Labor Statistics. (2020b). *The Economics Daily, Consumer Price Index: 2020 in review*. Retrieved December 2, 2021, from <https://www.bls.gov/opub/ted/2021/consumer-price-index-2020-in-review.htm>
- U.S. Census Bureau. (2019, July 1). *Census—Table Results*. Retrieved November 12, 2021, from, <https://data.census.gov/cedsci/table?q=La%20Crosse%20County,%20Wisconsin%20children&tid=ACSDP1Y2019.DP05&hidePreview=true>

- U.S. Department of Commerce. (n.d.). *U.S. Census Bureau QuickFacts: La Crosse County, Wisconsin*. U.S. Census Bureau. Retrieved December 5, 2021, from <https://www.census.gov/quickfacts/fact/table/lacrossecountywisconsin>.
- U.S. Department of Labor (2019). *Women's Labor Force Participation by Presence and Age of Children*. Retrieved December 2, 2021, from <https://www.dol.gov/agencies/wb/data/mothers-LFP-age-presence-children>
- U.S. Department of Transportation (2016, September 27). *2016 Revised Value of Travel Time Guidance*. Retrieved December 5, 2021, from <https://www.transportation.gov/office-policy/transportation-policy/revised-departmental-guidance-valuation-travel-time-economic>.
- U.S. Department of the Treasury. (2017). *Credit for Employer-Provided Childcare Facilities and Services*. <https://www.irs.gov/pub/irs-pdf/f8882.pdf>.
- U.S. Department of the Treasury. (2021). *The Economics of Child Care Supply in the United States*. <https://home.treasury.gov/system/files/136/The-Economics-of-Childcare-Supply-09-14-final.pdf>
- Vandelannoote, D., Vanleenhove, P., Decoster, A., Ghysels, J., & Verbist, G. (2015). Maternal employment: The impact of triple rationing in childcare. *Review of Economics of the Household*, 13(3), 685–707. <https://doi.org/10.1007/s11150-014-9277-2>
- Washbrook, E., Ruhm, C. J., Waldfogel, J., & Han, W.-J. (2011). Public policies, women's employment after childbearing, and child well-being. *The B.E. Journal of Economic Analysis & Policy*, 11(1). <https://doi.org/10.2202/1935-1682.2938>

Waldfogel, J., Han, W.-J., & Brooks-Gunn, J. (2002). The effects of early maternal employment on child cognitive development. *Demography*, 39(2), 369–392.

<https://doi.org/10.1353/dem.2002.0021>

Whitebook, M., Philipps, D., & Howes, C. (2014). Worthy Work, STILL Unlivable Wages: The Early Childhood Workforce 25 Years after the National Child Care Staffing Study.

*Center for the Study of Child Care Employment*. <https://cscce.berkeley.edu/worthy-work-still-unlivable-wages/>

Whitebook, M., & Sakai, L. (2003). Turnover Begets Turnover: An Examination of Job and Occupational Instability Among Child Care Center Staff. *Center for the Study of Child*

*Care Employment*. <https://cscce.berkeley.edu/turnover-begets-turnover-an-examination-of-job-and-occupational-instability-among-child-care-center-staff/>

Wisconsin Department of Children and Families. (2021a, November 5). *Licensed Child Care Directories*. Retrieved November 11, 2021, from,

<https://dcf.wisconsin.gov/cclicensing/lcc-directories>

Wisconsin Department of Children and Families. (2021b, November 3). *Monthly Child Care Counts Program, Historic Wisconsin Shares Rate Increase Coming Soon*. Retrieved

November 11, 2021, from, <https://dcf.wisconsin.gov/press/ccc-monthly-program>

Wisconsin Department of Children and Families. (2021c, November). *Wisconsin Shares Families Served by County*. Retrieved November 11, 2021, from,

<https://dcf.wisconsin.gov/files/wishares/stats/families-servedbycounty.pdf>

Wisconsin Department of Children and Families. (2021d). *How to Apply for the Wisconsin Shares Program*. Retrieved November 11, 2021, from,

<https://dcf.wisconsin.gov/wishares/apply>

- Wisconsin Department of Children and Families. (2021e). *PDG Sandbox Data*. Retrieved November 18, 2021, from, <https://dcf.wisconsin.gov/childcare/pdg/sandbox/data2>
- Wisconsin Department of Children and Families. (2019). *Your Guide to Regulated Child Care: Your Summary of the Child Care Rules*. Retrieved November 23, 2021, from, <https://dcf.wisconsin.gov/files/publications/pdf/2436.pdf>
- Wisconsin Department of Health Services. (2020, November 30). *WISH: Urban and Rural Counties*. Retrieved December 5, 2021, from <https://www.dhs.wisconsin.gov/wish/urban-rural.htm>.
- Workman, S. (2021). *The True Cost of High-Quality Child Care Across the United States*. Center for American Progress. Retrieved November 11, 2021, from, <https://www.americanprogress.org/article/true-cost-high-quality-child-care-across-united-states/>
- World Population Review. (2021a). *Minneapolis, Minnesota Population 2021*. World Population Review. Retrieved December 14, 2021, from <https://worldpopulationreview.com/us-cities/minneapolis-mn-population>.
- World Population Review. (2021b). *La Crosse, Wisconsin Population 2021*. World Population Review. Retrieved December 14, 2021, from <https://worldpopulationreview.com/us-cities/la-crosse-wi-population>.
- Zanoni, W., & Johnson, A. D. (2019). Child care subsidy use and children's outcomes in middle school. *AERA Open*, 5(4), 2332858419884540. <https://doi.org/10.1177/2332858419884540>

Zhang, C., & Managi, S. (2021). Childcare availability and maternal employment: New evidence from Japan. *Economic Analysis and Policy*, 69, 83–105.

<https://doi.org/10.1016/j.eap.2020.11.001>

## Appendix A: Wisconsin DCF Staff-to-Child Ratios and Group Size Rules for Child Care Programs

Table 5: Wisconsin DCF Child Staff Ratios and Group Size Rules

Program Type	Staff to Child Ratios	Max Group Size	Licensing Capacity	Required number of staff to meet licensed capacity
Family Child Care, birth to 2 years	N/A	4	4	1
Family Child Care, 2 to 5 years	N/A	8	8	1
Center-Based Care, birth to 2 years	1:4 (0.25)	8	Varies (by square footage and number of “groups”)	Dependent on licensed capacity
Center-Based Care, 2 to 2.5 years	1:6 (0.167)	12	Varies	Dependent on licensed capacity
Center-Based Care, 2.5 to 3 years	1:8 (0.125)	16	Varies	Dependent on licensed capacity
Center-Based Care, 3 years	1:10 (0.10)	20	Varies	Dependent on licensed capacity
Center-Based Care, 4 years	1:13 (0.077)	24	Varies	Dependent on licensed capacity
Center-Based Care, 5 years	1:17 (0.059)	34	Varies	Dependent on licensed capacity

Source: Wisconsin Department of Children and Families. (2019). *Your Guide to Regulated Child Care: Your Summary of the Child Care Rules*. Retrieved November 23, 2021, from, <https://dcf.wisconsin.gov/files/publications/pdf/2436.pdf>

## Appendix B: Calculations for Required Child Care Staff Wage Rate

These calculations aim to determine the county-wide wage increase needed to recruit and retain child care staff in La Crosse County, to create a net increase in county child care slots. Using local data, known values are displayed below:

Current licensed capacity (DCF, 2021a)	3,757 slots
Elasticity of child care staff labor supply (Blau & Curry, 2006)	$E_{supply} = 1.15$
Current quantity of child care staff (BLS, 2020a; DCF, 2021a)	$Q_{current\ staff} = 322\ staff$
Current average child care staff hourly wage (BLS, 2020a)	$P_{current\ wage} = 11.84$

Unknown values are displayed below:

Quantity of staff needed to meet county-wide licensed capacity:  $Q_{staff\ needed}$

To determine the county-wide wage increase needed to recruit and retain child care staff in La Crosse County, we use the general elasticity formula:

We can rewrite the formula  $E_{supply} = \left( \frac{\Delta Q_{staff}}{\Delta P_{staff\ wage}} \right) * \left( \frac{P_{current\ wage}}{Q_{current\ staff}} \right)$  in terms of  $\Delta P_{staff\ wage}$ :

$$\Delta P_{staff\ wage} = \left( \frac{P_{current\ wage}}{Q_{current\ staff}} \right) * \Delta Q_{staff} * \left( \frac{1}{E_{supply}} \right)$$

We rewrite the terms  $\Delta Q_{staff}$  and  $\Delta P_{staff\ wage}$  to use current and needed staff amounts and wage rates. We solve for the “new” wage needed recruit and retain child care staff, denoted as  $P_{new\ staff\ wages}$ :

$$(P_{new\ wage} - P_{current\ wage}) = \left( \frac{P_{current\ wage}}{Q_{current\ staff}} \right) * (Q_{staff\ needed} - Q_{current\ staff}) * \left( \frac{1}{E_{supply}} \right)$$

We rewrite the formula again, now in terms of  $P_{new\ wage}$ :

$$P_{new\ wage} = \left[ \left( \frac{P_{current\ wage}}{Q_{current\ staff}} \right) * (Q_{staff\ needed} - Q_{current\ staff}) * \left( \frac{1}{E_{supply}} \right) \right] + P_{current\ wage}$$

Plugging in our known values, we rewrite the formula as:

$$P_{new\ wage} = \left[ \left( \frac{\$11.84}{322} \right) * (Q_{staff\ needed} - 322) * \left( \frac{1}{1.15} \right) \right] + \$11.84$$

Before we solve for  $P_{new\ wage}$  we must solve for  $Q_{staff\ needed}$ . To do this, we use staff-to-child ratios required by Wisconsin for licensure, which vary by age of child, to determine maximum and minimum number of staff needed to meet county-wide licensed capacity (DCF, 2019).

Upper bound: If children are only birth to 2, staff-to-child ratio is 1:4.

$$3,757\ slot\ (or\ children) * \left( \frac{1\ child}{4\ staff} \right) = \mathbf{939\ staff}$$

Lower bound: If children are only age 5, staff-to-child ratio is 1:17.

$$3,757\ slot\ (or\ children) * \left( \frac{1\ child}{17\ staff} \right) = \mathbf{221\ staff}$$

Although the elasticity formula predicts a minimum of 221 staff needed to reach county-wide licensed capacity, we know that  $Q_{current\ staff} = 322$  (which is greater than 221) and we also know that that, at the county level, providers are under licensed capacity. Therefore, we assume the current staffing levels are at least one staff member shy of meeting county-wide licensed capacity, for a minimum of **323 staff** needed.

We now solve for  $P_{new\ wage}$  by using our wage elasticity equation derived above. We solve for  $P_{new\ wage}$  first using the upper bound of staff needed (939 staff) and again using the lower bound of staff needed (323 staff):

Upper bound: assuming  $Q_{staff\ needed} = 939$

$$P_{new\ wage} = \left[ \left( \frac{\$11.84}{322} \right) * (939 - 322) * \left( \frac{1}{1.15} \right) \right] + \$11.84 = \mathbf{\$31.57}$$

Lower bound: assuming  $Q_{staff\ needed} = 323$

$$P_{new\ wage} = \left[ \left( \frac{\$11.84}{322} \right) * (323 - 322) * \left( \frac{1}{1.15} \right) \right] + \$11.84 = \mathbf{\$11.87}$$

We use the median of this range, assuming the distribution of children's ages will require some combination of staff-to-child ratios approximately in the middle of all infants and all 5-year-olds:

$$(\$31.57 + \$11.87) \div 2 = \mathbf{\$21.72}$$

If employers would like to offer staff benefits (valued at 30 percent of hourly wage) without changing the overall earned income, the new hourly wage (denoted  $w$  below) would be:

$$1.30 * w = \$21.72$$

Rewritten in terms of w:

$$\$21.72 \div 1.30 = \$16.71$$

The median wage needed to recruit and retain child care staff is estimated to be **\$21.72 per hour** (without benefits) or **\$16.71 per hour** (with benefits). With or without benefits, the new take home income for child care staff would be **\$21.72 per hour**.

Note: this \$21.72 wage is approximately \$2 lower than the county median wage, non-inclusive of benefits.

## Appendix C: Calculations for Child Care Staffing and Slots Shortfalls

Unpublished 2019 data from The Parenting Place survey offers a view of into child care staffing and slot shortages in La Crosse County. We use this survey data to calculate the gap in child care slots between current county-wide capacity and the total licensed capacity for all county facilities. The gap is caused by child care facilities having insufficient staff to care for children at their full licensed capacity.

A local survey administered by The Parenting Place surveyed 32 La Crosse County child care sites; 30 sites responded to the survey, for a 94 percent response rate. Of the 30 respondents, 25 sites reported staff shortages (83 percent of responding facilities). Child care sites reported a combined 68 staff openings for which they are actively trying to hire. These 68 staff openings represent approximately 11 percent of the county's child care workforce. Based on this data, it could be assumed that 89 percent of classrooms were open at the time of the survey and serves as an estimate of the percent of child care slots available.

At present, licensed child care providers' total licensed capacity in La Crosse County is 3,757 slots (DCF, 2021a). So, to calculate the gap in child care slots, we estimate that 11 percent of the 3,757 licensed slots are currently unavailable to be filled due to staffing shortages:

$$3,757 \text{ maximum slots} * 0.11 = 413.27 \text{ slots unable to be filled}$$

We then round this estimate to **413**.

The survey data offers more detailed insight into the child care shortage in La Crosse County. Providers reported that these staff shortages affect their ability to staff child care classrooms for all age groups, as demonstrated by the following table:

*Table 6: Staff Shortages by Child Classroom Age Group*

Age Group	Number of vacancies reported by all responding sites
Infant, 0-12 months	12
12-24 months	4
2 years	18
3+ years	37

These staff shortages lead to unmet demand for child care in the county, as evidenced by survey data showing many children on child care waiting lists. The table below shows the age distribution of children on such waiting lists. Notably, some children may be on multiple facilities' waiting lists.

*Table 7: La Crosse County Children on Child Care Site Waiting Lists*

Children under age 3	Children aged 3 and older	Total number of children
956	217	1173

## Appendix D: Calculations for Benefits of Increased Parental Labor Force Participation

Most studies of parental labor force participation in response to child care availability take advantage of variation in the implementation of universal child care in European countries and Japan; few studies have researched the impacts of child care availability, rather than affordability, in the United States context (Bousselin, 2019; Fitzpatrick, 2010; Havnes & Mogstad, 2011; Vandellannoote et al., 2015; Zhang & Managi, 2021). Notably, a study of the impacts of universal preschool in Georgia and Oklahoma found no effect on parental labor force participation (Fitzpatrick, 2010). This may be because some parents participate in the labor force even when formal child care is not available by relying on networks of informal child care (e.g., the care of grandparents); increased child care availability allows parents to move children to formal child care when a slot becomes available (Zhang & Managi, 2021).

## Appendix E: Calculations for Benefits of Increased Parental Labor Force Productivity

We use the following formula for median annual earnings:

$$(1.3 * \text{median county hourly wage rate}) * \text{working hours per year} = \text{median annual earnings in La Crosse County}$$

We multiply the hourly wage by 1.3 to capture non-wage benefits, estimated as 30 percent of wage. The median hourly wage in La Crosse County is \$19.1123.38 per hour (BLS, 2021a). We use the median wage because it is less influenced by high wage outliers than the mean wage. We calculate working hours in a year as follows:

$$\text{Working hours per year} = 40 \text{ working hours/week} * 50 \text{ working weeks/year} = 2,000 \text{ hours}$$

Plugging in our known values, we can rewrite the formula and solve for median annual earnings:

$$(1.3 * \$19.11/\text{hour}) * 2,000 \text{ hours/year} = \$49,686 \text{ median annual earnings}$$

To monetize the cost of lost productivity, we calculate 150 percent of median annual earnings (Belfield, 2018; Davis et al., 2017; The Parenting Place, 2019):

$$\$49,686 * 1.5 = \$74,529$$

The literature estimates that the average working parent loses 4 to 14 days per year, with 260 working days per year (Belfield, 2018; Davis et al., 2017a):

$$\text{Lower bound: } (\$74,529) * (4/260) = \mathbf{\$1,146.61}$$

$$\text{Upper bound: } (\$74,529) * (14/260) = \mathbf{\$4,013.10}$$

We round these estimates to the nearest ten dollars:

$$\text{Lower bound: } \mathbf{\$1,150}$$

$$\text{Upper bound: } \mathbf{\$4,010}$$

## Appendix F: Calculations for Benefits of Decreased Parental Labor Force Turnover

We use the same median annual earnings as calculated in Appendix E (BLS, 2021a):

$$(1.3 * \$19.11.38/\text{hour}) * 2,000 \text{ hours/year} = \$49,686 \text{ median annual earnings}$$

To monetize the cost of lost productivity, we calculate 20.7 to 21 percent of median annual earnings (Belfield, 2018; Davis et al., 2017a):

$$\text{Lower bound: } \$49,686 * 0.207 = \mathbf{\$10,285}$$

$$\text{Upper bound: } \$49,686 * 0.21 = \mathbf{\$10,434.06}$$

We round these estimates to the nearest tens place:

$$\text{Lower bound: } \mathbf{\$10,290}$$

$$\text{Upper bound: } \mathbf{\$10,430}$$

## Appendix G: Additional Information and Calculations for Benefits of Improved Child Development

### *Benefits to Child Physical Health*

Child care is associated with mixed impacts on children's physical health. Children enrolled in child care are more likely to be receive developmental, hearing, and vision screenings (Hong et al., 2019), but more likely to contract communicable diseases and to be overweight than their peers in parental care only (Bradley & Vandell, 2007; Chen, 2012; McDonnel & Doyle, 2019; Morrissey, 2019). Troublingly, unstable child care can have negative impacts on children's physical health (Chen, 2012). Multiple child care arrangements are associated with children's increased risk of ear infections, gastrointestinal illnesses, and diagnosed asthma in young children (Chen, 2012). In view of the mixed evidence, we estimate the benefit of child care to children's physical health to be **\$0**.

### *Benefits to Child Developmental Outcomes*

Child care is associated with mixed impacts on children's development. For children whose parents can provide a safe, nurturing, and responsive environment at home, child care has few additional benefits for children's developmental outcomes and children in child care may have poorer outcomes than children in parental care only if they are in low-quality child care (Herbst & Tekin, 2010; Ruhm & Waldfogel, 2011; Washbrook et al., 2011). Low-income children may benefit from improved ability to interact with non-familiar adults and reduced disciplinary referrals in early elementary schools but may also experience increased aggression and increased conflict with adults (NICHD, 2003). Higher-income children receive insignificant or even negative developmental outcomes (Herbst and Tekin, 2010; NICHD & Duncan, 2003; NICHD, 2003; Peisner-Feinberg et al., 2001). In view of the mixed evidence of benefits to child

development and the conclusions of the 2019 WSIPP benefit-cost analysis that the benefits to child development do not impact children's later achievement, we estimate the benefit of child care to children's development to be **\$0**.

### *Benefits to Child Educational Outcomes*

Our estimates of children's educational benefits from child care differ substantially from those generated by the Abecedarian program and Perry program. A benefit-cost analysis of the Perry Program used data of the children at age 40 found net benefits of \$152,813 per child in 2006 dollars from increased adult earnings, reduced welfare use, and reduced crime (Belfield et al., 2006; Heckman et al., 2010). Similarly, the Abecedarian program generated \$94,802 per child in net benefits in 2006 dollars (Barnett & Masse, 2007). We do not use these estimates because the Abecedarian program and Perry program substantially differ from private, child care provided in La Crosse County today (Duncan & Magnuson, 2013). The Perry program provided one or two years of part-day early childhood education and weekly one to two-hour home visits to 58 low-income, low-IQ, Black children ages 3 and 4 years in Ypsilanti, Michigan in the 1960s (Duncan & Magnuson, 2013). The curriculum was geared towards children's age and development and teacher to child ratios were one to four. The Abecedarian project served 57 low-income, Black children in Chapel Hill, North Carolina in the 1970s. Enrolled children received year-round, full-time center-based from ages 1 to 5. The Abecedarian project provided children with transportation to and from child care, individualized educational activities, and had teacher to child ratios of one to three for the youngest children and one to six for older children. Enrolled families were also provided with high-quality health care, additional social services, and nutritional supplements (Duncan & Magnuson, 2013). Because of the differences in social supports to families, changes in social context and parenting practices experienced by children in

the 1960s and 1970s compared to children today, and the differences in the children targeted by the programs and children enrolled in private child care in La Crosse County, we conclude that these estimates are not applicable to our benefit-cost analysis.

We use the WSIPP estimate of the monetized educational benefits of increased test scores at the end of preschool for low-income children. A technical explanation of the calculations used can be found in section 4.8 of “[Benefit-Cost Technical Documentation](#).”

For average income preschoolers, we calculate the percent increase in average expected future earnings for La Crosse County children by using the La Crosse metropolitan area median wage of \$19.11 per hour (BLS, 2021a). Using a 3.5 percent discount rate and assuming children work from ages 22 to 65 (43 years), we estimate the net present value of increased lifetime earnings to be approximately \$40,320, assuming 40 hours of work per week for 50 weeks a year (a 5.5 percent increase from parental wages). Calculations shown below:

Estimated Parental Annual Earnings:  $\$19.11 * 40 \text{ hours} * 50 \text{ weeks} =$   
 $\$38,220 \text{ per year}$

Estimated Child Hourly Wage:  $\$19.11 * 1.055 = \$20.16$

Estimated Child Annual Earnings:  $\$20.16 * 40 \text{ hours} * 50 \text{ weeks} = \$40,320 \text{ per year}$

Difference in Parent and Child Annual Earnings:  $= \$40,320 - \$38,220 = \$2,100$

The table shows the estimated increase in child earnings by year, discounted at 3.5 percent.

Table 8: Discounted Adult Earnings to Calculate Benefit of Preschool for Average-Income Children

Year	Discounted Earnings Per Year, Using a 3.5 percent discount rate (Dollars)
1	2,028.99
2	1,960.37
3	1,894.08
4	1,903.23
5	1,768.14
6	1,708.35
7	1,650.58
8	1,594.76
9	1,540.84
10	1,488.73
11	1,438.39
12	1,389.74
13	1,342.75
14	1,297.34
15	1,253.47
16	1,211.08
17	1,170.13
18	1,130.56
19	1,092.33
20	1,055.39
21	1,019.70

22	985.22
23	951.90
24	919.71
25	888.61
26	858.56
27	829.53
28	801.47
29	774.37
30	748.18
31	722.88
32	698.44
33	674.82
34	652.00
35	629.95
36	608.65
37	588.07
38	568.18
39	548.97
40	530.40
41	512.47
42	495.14
43	478.39

The sum of the discounted values of a child's increased earnings per year over 43 working years is \$46,404.85. We then annualize this value using the calculations below,

$$\frac{\$46,404.85}{1 - (1 + 0.035)^{-43}} = \$2,122.44$$

Therefore, we estimate the benefit of child care to child development to be approximately **\$2,120** for preschoolers from average-income families in La Crosse County.

## Appendix H: Calculations for Benefits of Avoided Costs of Travel Time

Under Alternatives 1 and 2, parents could receive the benefit of reduced travel time if child care centers were located at parents' place of work. However, under Alternative 2, the county as an employer model, the proposed site of the new child care center is approximately 10 minutes away from most La Crosse County offices. Additionally, under Alternative 1, the employer-assisted cooperative model, some parents' travel time to child care may decrease or increase depending on where the employer-assisted cooperative decides to locate the new child care center. Because of this uncertainty, we do not include the benefit of avoided costs of travel time in our analysis.

If Alternatives 1 or 2 were to site their employer-provide child care centers directly on their corporate campuses or office sites, the following information explains how to calculate the benefits of reduced travel time. To calculate an estimated value of avoided costs of travel time, we use geographic data from Minnesota that was published by a study in *Early Childhood Research Quarterly*. Because La Crosse is an urban county, we use the available reported travel time to the nearest child care center for families living in the Minneapolis-St. Paul metro area. However, Minneapolis is much larger than La Crosse by square miles and population.

Minneapolis has a population density of 8,130 people per square mile and La Crosse has a population density of 2,336 people per square mile (World Population Review, 2021a; World Population Review, 2021b). We assume travel time is inversely proportional to population density. In other words, as the population density increases, travel time decreases. Therefore, because La Crosse County is 71 percent smaller than Minneapolis, we expect travel times in La Crosse County to be 71 percent longer than travel times in Minneapolis. Families living in the Minneapolis-St. Paul metro area spend about 3 minutes one-way driving to the nearest child care

center, or a total of about 6 minutes per day (Davis et al., 2018). However, when the researchers considered other factors that influence families' child care decisions such as centers' capacities and total number of children living in an area, the travel time for metro families increased to about 5 minutes one-way, or a total of 10 minutes per day (Davis et al., 2018). Factoring in that La Crosse travel times are 71 percent longer than Minneapolis, families in La Crosse spend on average 21 minutes per day driving to and from the nearest child care center.

We consider parents' travel to child care centers as "local personal travel time." The U.S. Department of Transportation recommends that the value of travel time savings (VTTS) for local personal travel be estimated at 50 percent of hourly median household wage (U.S. Department of Transportation, 2016). The hourly median household wage in La Crosse is \$19.11. Following the Department of Transportation's recommendation for VTTS, we calculate La Crosse County parents to have a VTTS for local personal travel of \$9.56 per hour, or approximately \$0.16 per minute. We assign the VTTS of \$0.16 per minute to the estimated average La Crosse daily travel time of 21 minutes to child care centers to monetize a minimum and maximum value of avoided travel time costs for La Crosse County families.

The child care cooperative in Alternative 1 creates 75 new child care slots for employees of the member employers. We assume that up to one parent per slot will receive the benefit of avoided travel time costs. In other words, we assume a maximum of 75 parents (100 percent) will receive the benefit of avoid travel time costs with Alternative 1 in place. We assume families will access the employer-assisted child care cooperative 5 days a week for 52 weeks, or 260 days each year. However, this is likely an overestimate because it does not account for holidays or personal leave. We also assume that families travel time to child care with employer-based care will be 0

minutes. A child care center that creates 75 slots would save parents 409,500 minutes per year, on average, equating to \$65,520, as shown in the calculation below.

Travel time saved

$$260 \text{ days per year} * 21 \text{ minutes per day} = 5,460 \text{ minutes per year per parent}$$

$$5,460 \text{ minutes per year per parent} * 75 \text{ parents} = 409,500 \text{ minutes}$$

$$409,500 \text{ minutes} * \$0.16 \text{ per minute} = \$65,520$$

$$\frac{\$65,520}{75} = \$873.60 \text{ per slot}$$

Therefore, we estimate the benefit of avoided travel time to be between **approximately \$870 per incrementally placed child.**

## Appendix I: Calculations for Costs of Operating Child Care Programs

We estimate operating costs by adding the costs of three subcategories: (1) staff-related cost, including wages and benefits, (2) supplies and equipment, including food, health care supplies, and other classroom supplies, and (3) facilities, including utilities and maintenance.

We use our client's estimates from local survey data as our basis for estimation and adjustments are made according to space, number of staff, or capacity differences.

### *Alternatives 1 and 2*

The tables below present our client's numerical estimates (Green, n. d.) in the second column, our adjusted estimates in the third column, and methodology in the fourth column. For our adjusted estimates, we assume 12 staff members for a child care center serving 75 children.<sup>5</sup>

---

<sup>5</sup> 12 staff is the average of the maximum number of staff for 75 children, 19 (1:4 staff/child ratio) assuming all aged 0-2, and the minimum, 5 (1:17) assuming all aged 5 or above.

Table 9: Fiscal Costs, Staffing

Cost Categories	Group Child Care (4 Staff, 12 Children, 1500 Sq Ft)	Child Care Center (12 Staff, 75 Children, 8000 Sq Ft)	Notes and Methodology
Salaries & Wages (Benefits Included)	\$204,927.20	\$521,280.00	Pre-tax Earning Rate of \$21.72/hr (Benefits Included) \$16.71/hr (Excluding 30 Percent Benefits)
Workers' Compensation	\$1,516.96	\$4,547.88	Adjusted for the Number of Staff
Payroll Taxes	\$7,728.00	\$30,675.32	7.65 Percent of Wages Excluding Benefits
Unemployment Insurance	\$1,820.00	\$5,460.00	Adjusted for the Number of Staff
Life and Disability Insurance	\$252.20	\$756.60	Adjusted for the Number of Staff
Liability insurance	\$750.00	\$2,250.00	Adjusted for the Number of Staff
Staff Development	\$4,000.00	\$12,000.00	Adjusted for the Number of Staff
Total Staff-Related Expense (/year)	\$220,994.36	\$576,969.80	Arithmetic Summation

Table 10: Fiscal Costs, Supplies and Equipment

Cost Categories	Group Child Care (4 Staff, 12 Children, 1500 Sq Ft)	Child Care Center (12 Staff, 75 Children, 8000 Sq Ft)	Notes and Methodology
Health (Gloves, PPE, First Aid)	\$299.88	\$1,874.25	Adjusted for Capacity (\$299.88 * 75/12)
Food	\$4,756.08	\$29,725.50	Adjusted for Capacity
General Supplies (Art, Cleaning)	\$506.28	\$3,164.25	Adjusted for Capacity
Office Supplies	\$1,731.48	\$10,821.75	Adjusted for Capacity
Annual Child Assessment Fee	\$180.00	\$1,125	Adjusted for Capacity
Total Supplies Expense	\$9,723.72	\$46,710.75	Arithmetic Summation

Table 11: Fiscal Costs, Facilities

Cost Categories	Group Child Care (4 Staff, 12 Children, 1500 Sq Ft)	Child Care Center (12 Staff, 75 Children, 8000 Sq Ft)	Notes and Methodology
Utilities (Gas, Electricity, Water/Sewer)	\$2,370.00	\$12,640.00	Adjusted for space (\$2370 * 8000/1500)
Phone & Internet	\$960.00	\$960.00	Unadjusted
Repairs	\$750.00	\$4,000.00	Adjusted for Space
Maintenance (Lawn, Snow Removal)	\$1,440.00	\$1,440.00	Unadjusted
<i>Property Taxes</i>	<i>\$0</i>	<i>\$0*</i>	<i>Transfer</i>
Licensing Fee	\$116.78	\$650.38	Prorated, \$30.25 + \$16.94/child
Property Insurance	\$1,500.00	\$8,000.00	Adjusted for space
Total Facilities Expense	\$5,636.78	\$27,690.38	Arithmetic Summation

\*In the county fiscal analysis of Alternative 1 where local employers own the child care facility, property taxes can be construed as a source of revenue. We assess the property's value to be land value (\$100/sq ft) plus construction cost (\$1,760,000) plus land improvement (\$100,000, please find details in Appendix J). This method gives the assessed value to be around 2.7 million dollars. We apply a property tax rate of 2 percent, and property taxes are estimated to be \$53,200.

As shown in the tables above, the average operating cost for a child care center serving 75 children is approximately **\$651,371**. This total includes wages and fringe benefits. Without wages and fringe benefits, the average operating cost would be \$133,090. Based on our Monte Carlo simulations, the operating costs under Alternatives 1 and 2 range, including wages and fringe benefits, range from **\$864,212 to \$484,834**. Excluding wages and fringe benefits, the operating costs under Alternatives 1 and 2 range from **\$150,035 to \$113,988**.

*Alternative 3*

Under Alternative 3, we assume there are no incremental facility costs. In other words, the centers have been physically well-maintained but underutilized due to staff shortage and operating under capacity. Second, we assume the cost of supplies per child is the same as those under Alternative 1 and 2. However, under Alternative 3, be 413 slots would be created rather than 75 slots under Alternative 1 and 2. So, the total cost of supplies under Alternative 3 will be higher than under Alternatives 1 and 2. Third, we assume that for any new staff attracted into the child care sector under Alternative 3, the per staff staff-related costs would remain the same as the staff-related costs under Alternative 1 and 2. For existing staff, however, the incremental cost would solely be the wage difference and payroll taxes. We estimate this difference to be **\$20,505**.<sup>6</sup> Simply, we assume the employers would have already covered costs per staff costs such as insurance and professional development for existing staff.

*Table 12: Average Operating Costs Under Alternative 3*

Category	Number of Staff/Child	Per Staff/Child Cost	Total
New Staff Costs (Appendix C)	64	\$48,081	\$3,077,184
Existing Staff Costs	322	\$20,505	\$6,602,610
Supplies Costs (Appendix C)	413	\$623	\$257,299

<sup>6</sup> Per an existing staff, the cost on average would be  $(21.72 - 11.84) * 2,000 + (16.71 - 11.84) * 2,000 * 0.0765$ , where \$11.84 is the current hourly wage, 2,000 is the annual work hours, and \$16.71 is the target wage excluding 30% benefits.

On average, the operating costs of Alternative 3 are approximately **\$9,937,093** (arithmetic summation) including wages and fringe benefits or **\$794,213** excluding wages and fringe benefits. Based on our Monte Carlo Simulations, the operating costs under Alternative 3 range from **\$8,932,328** to **\$11,000,000** including wages and fringe benefits or **\$697,090** to **\$896,114** excluding wages and fringe benefits.

From a fiscal perspective, La Crosse may gain **\$53,200** as property tax income annually under Alternative 1. However, this amount will decrease over time as the child care property depreciates. Under Alternative 2, the annual cost of operating the new Hillview child care center is estimated to be **\$651,371** (summation of the above expenses presented in the tables under “For Alternative 1 and 2”) less the revenue from the child care center. Under Alternative 3, the annual cost of subsidizing the existing child care centers to recruit and retain child care workers (assuming 64 people staff enter the field, Appendix C) is about \$7,627,3607 less \$450,000 in federal or state subsidies, or \$7,177,360.

---

<sup>7</sup> =  $(\$21.72 - \$11.84) * 40 * 50 * (322 + 64)$

## Appendix J: Calculations for Costs of Infrastructure for New Child Care Programs

We calculate start-up costs by adding three subcategories: (1) property purchase, building, and renovation costs; (2) equipment costs; and (3) pre-licensing costs.

### *Capital Recovery Method*

To calculate start-up costs, we annualize amounts using the capital recovery method. The capital recovery method is a standard financial procedure that converts the initial investment to the equivalent of a constant investment stream spreading across the project's lifespan. The capital recovery formula is as follows:

$$\text{Annuity (\$/year)} = \text{Initial Investment (\$)} * \text{Capital Recovery Factor}$$

The capital recovery factor (CRF) is:

$$CRF = \frac{i}{1 - (1 + i)^{-n}}$$

Where  $i$  is the discount rate and  $n$ , the length of time. It should be noted that, *ceteris paribus*, with a longer time frame and lower discount rate, the annualized cost would appear smaller.

### *Property Purchase, Building, and Renovation Costs*

Alternative 3 will not incur start-up costs relating to property purchase, build, and renovation costs because no new facility would be built. We assume that the markets for all input goods in La Crosse County are efficient. Therefore, from a benefit-cost perspective, it should make no difference whether La Crosse County or member businesses of the child care cooperative fund the building of a new child care facility. Therefore, we apply our estimates based on county-provided statistics on the Hillview Campus to the business cooperative model (Alternative 1). We assume all the money will be used for construction purposes.

Under Alternative 2, La Crosse County would tear down the Hillview Health Care Center and rebuild a child care center. Our client estimates that the per square footage construction cost ranges from \$220 to \$240. To account for the possibility of lowered construction service and material costs (Logan, 2021), we model the construction price with a lower bound of \$200 per square foot (\$1,600,000 total), a mean of \$220 per square foot (\$1,760,000 total), and an upper bound of \$240 per square foot (\$1,920,000). We assume an 8,000 square foot facility.

*Table 13: Fiscal Costs, Property Purchase, Building, and Renovations*

	Min	Mean	Max
Alternative 1	\$1,500,000	\$1,660,000	\$1,820,000
Alternative 2	\$1,600,000	\$1,760,000	\$1,920,000

### *Facility Life*

As discussed above, the annualized start-up cost of an item will vary depending on its projected lifespan. This analysis uses 40 years for the parameter of facility life of the new child care center to annualize its building expense. Reasons for choosing this parameter are discussed below.

We selected 40 years as the parameter because it corresponds to the current lifespan of the Hillview Health Care Center. It was opened in April 1982 and is projected to be demolished in the near future (La Crosse Public Library, 2017). 40 years also corresponds to IRS’s Modified Accelerated Cost Recovery System (MACRS), which stipulates that a nonresidential real estate’s capital recovery period is 40 years under the Alternative Depreciation System or 39 years under the General Depreciation System (IRS, 2020).

To annualize the cost, we apply a discount rate of 3.5 percent and time horizons of 40 years. The numbers are summarized below.

Table 14: Annualized Property Purchase, Building, and Renovation Costs

	Min	Mean	Max
Alternative 1	\$70,241	\$77,733	\$85,226
Alternative 2	\$74,924	\$82,416	\$89,908

We model the cost using a symmetric triangular distribution with the highest possibility at the mean value, **\$82,416** and **\$77,733**, respectively.

### *Equipment Costs*

Alternative 3 also will *not* incur this subcategory of start-up costs. We assume the equipment is already there at existing licensed centers, though (some of) it is not currently utilized due to staff shortage and operating under capacity. Additionally, per our assumption that all input markets are efficient, there is no difference between Alternative 1 and 2 from a benefit-cost perspective.

Equipment costs can be further subcategorized into intangible asset (curriculum) and tangible asset including both indoor equipment costs such as classroom furniture, toys, and safety equipment and outdoor equipment costs such as playgrounds and fencing. Our client estimates \$20,250 as the indoor equipment costs and \$15,000 outdoor equipment costs (excluding fencing) for 12 children. The detailed table is shown below. The second column is client-provided estimates, and the third column is our predictions based on other available estimates, detailed below.

Table 15: Fiscal Costs, Start-up Equipment

	Cost Categories	Group Child Care (4 Staff, 12 Children, 1500 Sq Ft)	Child Care Center (12 Staff, 75 Children, 8000 Sq Ft)	Notes and Methodology
Indoor Equipment	Safety Supplies (CO/Smoke, latches, etc.)	\$750.00	\$4,000.00	Adjusted for Space
	Electronic Surveillance System	\$1,000.00	\$5,333.33	Adjusted for Space
	Indoor Child Equipment & Materials	\$15,000.00	\$93,750.00	Adjusted for Capacity
	Office equipment and supplies	\$3,500.00	\$14,000.00	Adjusted for the Number of Staff
Outdoor Equipment	Outdoor Child Equipment & Materials	\$15,000.00	\$93,750.00	Adjusted for Capacity
	Fence for Yard	Not Provided	\$9,000.00	Please Find Details Below*
Intangible Asset	Curriculum Resources	\$3,310.00	\$3,310.00	Unadjusted (Negligible Marginal Cost Assumed)
	Total	\$38,650.00	\$223,143.33	Arithmetic Summation

\*The fencing costs are calculated as follows:

In another estimate, the client lists \$3,000 as the cost of fencing for eight children. Assuming 100 sq ft outdoor space per child, or 800 sq ft per 8 children, and that the area is a perfect square, we calculate the length of each side to be  $\sqrt{800} \text{ ft} \approx 30 \text{ ft}$ . Four times the figure, 120 ft, gives the perimeter of the square, and dividing \$3,000 by 120 ft gives the per foot cost of fencing, which is \$25/ft.

Now, based on the same assumption of 100 sq ft per child and the outdoor space being a perfect square, we have the side length to be  $\sqrt{7500} \text{ ft} \approx 90 \text{ ft}$ , and the perimeter 360 ft. Multiplying the figure by \$25/ft gives the projected fencing cost: \$9,000. It should be noted that this number is only a rough (under)estimate, notably as the fencing cost per linear foot can range from \$15 to \$65. But this uncertainty will be captured by our ranged estimates described below.

The Local Initiatives Support Corporation (LISC) recommends \$700 to \$1,000 per child for preschooler classroom equipment and \$1,000 to \$1,500 per child for infant and toddler classroom equipment (LISC, 2020). Assuming a 50/50 split of preschoolers and infant/toddlers (as the proposed facility serves children aged from six weeks to five years old), the indoor equipment cost is estimated to be \$1,050 to \$1,100 per child, or \$82,500 (88 percent of \$93,750) in total classroom equipment costs. LISC also provides estimates of playground equipment cost, which range from \$1,000 to more than \$90,000 depending on the size and material of the facilities. Additionally, a start-up cost template of a child care facility with a licensed capacity of 76 children on Self-Help Credit Union estimates \$36,000 (2020 dollars) for indoor equipment purchase and \$17,000 (2020 dollars) for outdoor equipment purchase. These estimates represent 32 percent of the client's estimate for indoor equipment and 17 percent of the client's estimate for outdoor equipment. We believe these are substantial underestimates. Finally, Play & Park Structures, a playground manufacturer, recommends a budget of \$1,000 per child when building a playground (Play & Park Structures, n.d.) This is equivalent to \$75,000 for total playground equipment cost.

Considering there is uncertainty whether the equipment cost may increase (e.g., kitchen furnishing is not included here), and other point estimates fall inside the 80 percent range of the client's estimates, we model the indoor equipment cost to range  $\pm 20$  percent, from **\$93,666** ( $\$117,083 * 80$  percent) to **\$140,500** ( $\$117,083 * 120$  percent). Similarly, we model the outdoor equipment cost to range from **\$82,200** ( $\$102,750 * 80$  percent) to **\$123,300** ( $\$102,750 * 120$  percent).

Table 16: Summary of Equipment Costs

	Min	Max
Indoor Equipment	\$93,666	\$140,500
Outdoor Equipment	\$82,200	\$123,300
Intangible Asset	\$3,310	

We annualize our projected equipment cost using a 5-year useful life (with no salvage value) for intangible asset, 10-year for indoor equipment, and 20-year for outdoor equipment (per the client’s preferred methodology; Green, n.d.). The discount rate is set at 3.5 percent. We apply the same capital recovery formula as shown previously, and the calculations yield an annuity of **\$733** for intangible asset, from **\$11,263** to **\$16,894** for indoor equipment, and **\$5,784** to **\$8,676** for outdoor equipment. We model the variations using a uniform distribution.

However, the more usual practice (IRS, 2020) seems to apply a 3-year useful life to intangible assets, 5 to 7 years to indoor equipment (we use 7 years throughout in this calculation) and 15 years to outdoor equipment. This change of time horizon, in turn, yields an annuity from **\$15,319** to **\$22,978** for indoor equipment and **\$7,137** to **\$10,706** for outdoor equipment. It should be noted that there may be a positive salvage value at the end of the equipment’s useful life, which is not included in the above estimates.

Table 17: Annualized Equipment Costs

	Discounting Horizon	Min	Max
Indoor Equipment	10 Years	\$11,263	\$16,894
	7 Years	\$15,319	\$22,978
Outdoor Equipment	20 Years	\$5,784	\$8,676
	15 Years	\$7,137	\$10,706
Intangible Asset	5 Years	\$733	
	3 Years	\$1,181	
Total	10, 20, 5 Years*	\$17,780	\$26,303
	7, 15, 3 Years	\$23,637	\$34,865

\*This row represents the numbers we adopt in our analysis.

### Human Capital Costs

Human capital costs are mostly staff-related costs that accrue before individuals qualify as child care workers. For instance, various training costs would be captured under this category. All three alternatives will incur this subcategory of start-up costs. Further, per our assumption that all input markets are efficient, the per person dollar amount of human capital costs across all three alternatives is identical. However, there will be a difference in total dollar amount because Alternative 3, compared to Alternative 1 & 2, will presumably attract more talent into the child care sector.

It should also be reemphasized here that we have assumed every newly hired child care worker in our three alternatives enters the sector with no relevant work experience and therefore must pass these training to qualify. We understand that this assumption may be too conservative, and as a result, the figures here may be too large. However, considering the relatively small dollar

amount associated with Human Capital Costs, we believe its specific uncertainty will be considered by other uncertain parameters and thus do not notably impact our estimates.

A detailed fiscal table on Human Capital Costs can be found below. The second column is client-provided estimates, and the third column is our predictions based on available research.

Table 18: Fiscal Costs, Human Capital

Cost Categories	Group Child Care (4 Staff, 12 Children, 1500 Sq Ft)	Child Care Center (12 Staff, 75 Children, 8000 Sq Ft)	Notes and Methodology
Licensing Inquiry Packet	\$25.00	\$25.00	Unadjusted
Background Check	\$191.00	\$573.00	Adjusted for the Number of Staff
Tuberculosis Test	\$104.00	\$312.00	Adjusted for the Number of Staff
Sudden Infant Death Syndrome (SIDS) and Shaken Baby Syndrome (SBS) Training	\$80.00	\$240.00	Adjusted for the Number of Staff
Intro to the Child Care Profession	\$680.00	\$2,040.00	Adjusted for the Number of Staff
Skills and Strategies Course	\$2,600.00	\$7,800.00	Adjusted for the Number of Staff
Registry Credential Courses	\$5,100.00 (3 Staff)	\$20,400.00	Adjusted for the Number of Staff
Cardiopulmonary Resuscitation (CPR) Training	\$240.00	\$720.00	Adjusted for the Number of Staff
Estimated Total	\$9,020.00	\$32,110.00	Arithmetic Summation

The Human Capital Costs must likewise be annualized. The discounting horizon in this case should appropriately be the longevity of service during which one stays at a child care center

(excluding that of the licensing inquiry packet, which should be the same as the facility's longevity, background checks, which are every 5 years; and CPR certifications, which are every 2 years). Additionally, we assume in this calculation that every new child care worker has no previous training in this field.

According to the Center- and Program-Level Factors Associated with Turnover in the Early Childhood Education Workforce Report (IES, 2021), the average turnover rate of child care workers at a facility that pays \$16.74 per hour or above is less than 5 percent per year. Assuming 5 percent annual turnover rate, calculations yield that, on average, a newly hired child care worker will serve 20 years at one child care facility.<sup>8</sup> This gives us a discounting horizon of 20 years. Further, we assume there is no scrap value of the human capital in the end, which is a somewhat unwarranted assumption (e.g., though certain training content will have become outdated over the course of 20 years, still a person trained some time ago is much more well-equipped to handle emergency situations than an untrained individual). This assumption proves to be an overall dismissible concern considering the relatively small dollar amount of the scrap value of human capital.

Using a discount rate of 3.5 percent and a discounting period of 20 years (5 years for background checks and 2 years for CPR certifications), the human capital cost per new staff is estimated to be about **\$224** per year.

---

<sup>8</sup> The problem can be conceptualized as a Bernoulli trial with 95% chance of staying and 5% of leaving. The expected number of trials before getting a leaving is  $1 / 5\% = 20$ , or the service provider stays on average for 20 years.

Table 19: Annualized Human Capital Costs (per Staff Member)

	Discounting Horizon	One-time Amount	Annualized Amount
CPR Training	2 Years	\$60*	\$32
Background Check	5 Years	\$47.75	\$11
Other Items	20 Years	\$2,566	\$181
Total	2; 5; 20 Years	\$2,674	\$224

\*We divide the number appear in the previous fiscal table by the number of staff. Same below.

### Summary

From our three annualized cost tables,

Table 20: Average Annualized Start-up Costs

	Alternative 1	Alternative 2	Alternative 3
Building*	\$77,733	\$82,416	N/A
Equipment**	\$22,042	\$22,042	N/A
Human Capital	\$2,688	\$2,688	\$14,336
Total	\$102,463	\$107,146	\$14,336

\*For Building Costs, we take the mean.

\*\*For Equipment Costs, we take the average between the minimum and maximum.

From our Monte Carlo Simulations,

1. Under Alternative 1, the annualized start-up costs fall between [\$96,053, \$108,048];
2. Under Alternative 2, the annualized start-up costs fall between [\$100,736, \$112,731];
3. Under Alternative 3, the annualized start-up costs fall between [\$9,600, \$19,150].

From a county fiscal standpoint, the planned child care facility (8000 sq ft, 75 slot capacity, 12 staff) costs around **\$2,015,000** (summation of the above expenses presented in the tables, unannualized) under Alternative 2.

## Appendix K: Fiscal Analysis of Costs of County-Provided Subsidies for Child Care Programs' Wages and Benefits

This fiscal analysis is included to show the dollar amounts associated with county-provided subsidies. In a fiscal analysis, all costs are incurred by La Crosse County.

In our calculations, we refer to workers as full-time equivalents (FTEs), recognizing it takes the hours of multiple part-time workers to be equivalent to the hours of one FTE. The cost of the county-provided subsidy, therefore, would be the difference between the subsidized wage (\$21.72/hour) and nonsubsidized wage (\$11.84/hour) multiplied by the product of hours worked in a year by the total number of FTEs receiving the subsidized wage, as shown in the calculation below.

$$\begin{aligned} & \text{(Total number of workers receiving subsidized wage * work hours/year) *} \\ & \text{(subsidized wage – nonsubsidized wage) = Cost of county-provided subsidies for} \\ & \text{child care programs' wages and benefits} \end{aligned}$$

The total number of workers receiving the subsidized wage is impacted by the number of child care programs eligible for La Crosse County's grant program. In our estimates, we assume all child care programs in the county receive the grant and provide all workers with the subsidized wage of \$21.72. With all child care workers earning \$21.72 per hour, worker recruitment and retention would be adequate for child care programs to meet full licensed capacity. As a result, all 3,757 child care slots would be filled.

The total number of workers receiving the subsidized wage is further impacted by the ages of the children who fill the 3,757 licensed slots. DCF provides worker to child ratios for supervision that are tied to children's ages (See Appendix A). We use these ratios to determine the maximum

and minimum cost of county-provided subsidies. We use the 1:4 worker to children ratio for ages birth to 2 years for maximum costs. With this ratio, 940 FTEs would be needed to care for the 3,757 children filling licensed slots. Therefore, the maximum cost of county-provided subsidies for child care program's wages and benefits is \$26,561,392, as shown in the calculation below.

$$(940 \text{ FTEs} * 2,860 \text{ hours}) * (\$21.72/\text{hour} - \$11.84/\text{hour}) = \mathbf{\$26,561,392}$$

We use the 1:17 worker to children ratio for age five for minimum costs. With this ratio 221 FTEs would be needed to care for the 3,757 children filling the licensed slots. Therefore, the minimum cost of county-provided subsidies for child care program's wages and benefits is \$6,244,753, as shown in the calculation below.

$$(221 \text{ FTEs} * 2,860 \text{ hours}) * (\$21.72/\text{hour} - \$11.84/\text{hour}) = \mathbf{\$6,244,753}$$

## Appendix L: Accounting Procedures

This section illustrates the detailed accounting procedures—e.g., what items are accounted and what not from different standings, perspectives, and alternatives—this analysis adopts.

Table 21: Accounting Procedures

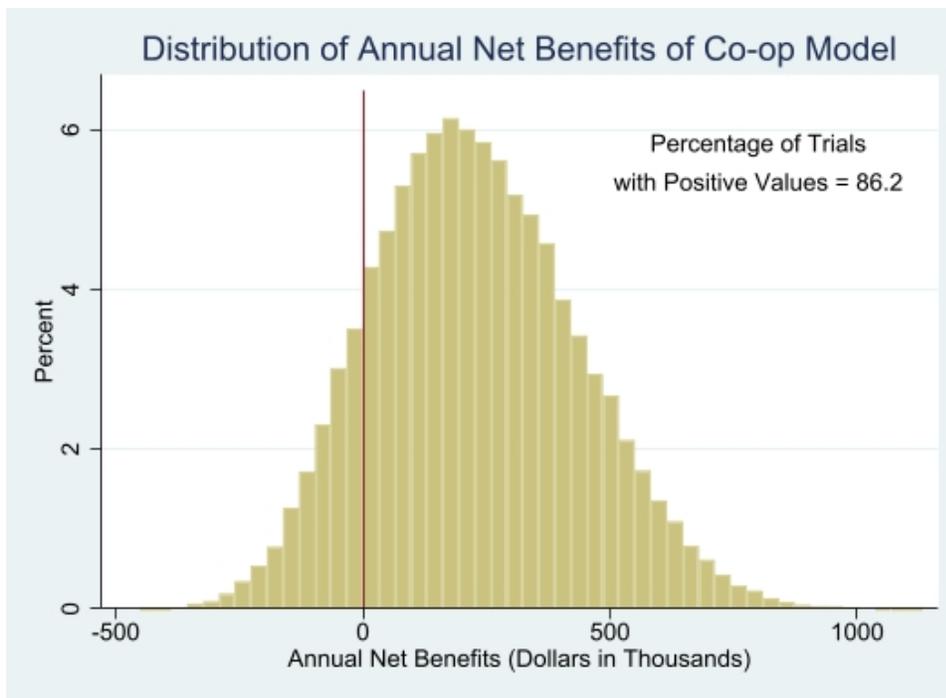
“ann” indicates annualized, “+” indicates a benefit, “-” indicates a cost, and “0” indicates a transfer				
		Benefit-Cost Perspective	Fiscal Perspective	
	Item	County Standing	County	Business
Alternative 1	Start-up Cost	ann; -	0	-
	Operating Cost (including wages)	-	0	-
	Payroll Taxes	-	0	-
	Property Taxes	0	+	-
	Federal/State Subsidy	+	+	+
	County Subsidy	0	-	+
	Center Revenue	0	0	+
Alternative 2	Start-up Cost	ann; -	-	N/A
	Operating Cost (including wages)	-	-	

	Payroll Taxes	-	-	
	Property Taxes	0	0	
	Federal/State Subsidy	+	+	
	County Subsidy	N/A	N/A	
	Center Revenue	0	+	
Alternative 3	Start-up Cost	ann; -	N/A	
	Operating Cost (including wages)	-	0	
	Payroll Taxes	-	0	
	Property Taxes	0	0	
	Federal/State Subsidy	+	+	
	County Subsidy	0	-	
	Center Revenue	0	0	
	Federal/State Subsidy	+	+	+
	County Subsidy	0	-	+
	Center Revenue	0	+	+

## Appendix M: Estimates if all Slots Created in Alternatives 1, 2, and 3 Were Filled by Low-Income Preschoolers.

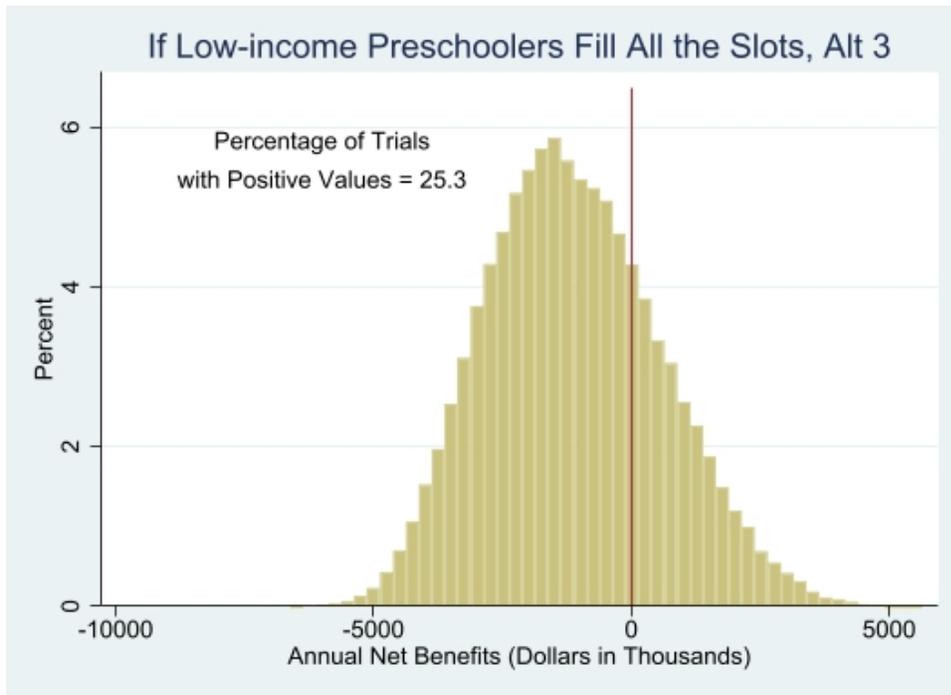
Estimates from our Monte Carlo analysis suggest that if all slots created in Alternatives 1 and 2 were filled by low-income preschoolers, Alternatives 1 and 2 would generate positive net benefits approximately 86 percent of the time. On average, the net benefit would be **\$227,000**, with values falling between -\$97,000 and \$585,600, as shown in Figure 5.

*Figure 5: Net Benefits if All Slots Created by Alternatives 1 and 2 Were Filled by Low-Income Preschoolers*



Similarly, net benefits under Alternative 3 would be substantially larger if the alternative targeted children from low-income families. However, Alternative 3 would, on average, generate negative net benefits of approximately -\$1,119,000, with values following between -\$3,758,000 and \$1,828,000. If modified, Alternative 3 would generate positive net benefits approximately 25 percent of the time. The distribution is shown in Figure 6.

Figure 6: Net Benefits if All Slots Created by Alternative 3 Were Filled by Low-Income Preschoolers



## Appendix N: Distributions for the Monte Carlo Simulation

Table 22: Distributions from Monte Carlo Simulation

Category	Distribution	Range	Notes
Number of Staff Increased	Normal Distribution	Alt 1 & 2 5–19 (Mode at 12)	The number is higher for Alt 3 because of more child care slots created
		Alt 3 25–104 (Mode at 64.5)	
Percentage of slots that create Labor Force Participation Benefits	Right Triangle Distribution	0%–20% (Mode at 0%)	
Percentage of slots that create Decreased Turnover Benefits	Right Triangle Distribution	4%–80% (Mode at 4%)	
Decreased Turnover Benefits	Uniform Distribution	20.7%–21%	Measured in terms of percentage of annual productivity
Reduction in Presentism/Absenteeism	Uniform Distribution	4–14	Measured in terms of working days
Percentage of slots that create Increased Productivity Benefits	Uniform Distribution	21.4%–45%	
Per Slot Educational Benefits	Normal Distribution	Alt 1 & 2 \$0–\$2,186 (Mode at \$1,092)	The number is slightly higher for Alt 3 due to the inclusion of low-income children
		Alt 3 \$0–\$2,561 (Mode at \$1,280)	
Per Square Foot Building Cost	Symmetric Triangular Distribution	\$200–\$240 (Mode at \$220)	
Indoor Equipment Cost	Uniform Distribution	\$86,000–\$143,600	
Outdoor Equipment Cost	Uniform Distribution	\$82,200–\$123,300	

## Appendix O: Monte Carlo Simulation Stata Code

### *Alternative 1 & 2*

```
clear
```

```
// Monte Carlo Program for La Crosse County Childcare Alternative 1 //
```

```
set obs 100000
```

```
set seed 182
```

```
/* Notations
```

```
Annualized = ann
```

```
Child Care = CC
```

```
Percentage = perc
```

```
Capital Recovery Factor = CPR
```

```
*/
```

```
// number of new licensed child care slots increased by each alternative [slot]
```

```
gen slots_increased = 75 //75 is for Alternatives 1 and 2;
```

```
gen d = 0.035
```

```
/*Right Triangle // kept in case
```

```
gen min_slots = 0
```

```
gen max_slots = slots_created
```

```

gen mode_slots = 0

gen dummy_1_slots = (mode_slots - min_slots) / (max_slots - min_slots)

gen dummy_2_slots = runiform()

gen slots_increased = min_slots + sqrt(dummy_2_slots * (mode_slots - min_slots) * (max_slots -
min_slots)) if dummy_2_slots < dummy_1_slots
replace slots_increased = max_slots - sqrt((1 - dummy_2_slots) * (max_slots - mode_slots) *
(max_slots - min_slots)) if dummy_2_slots >= dummy_1_slots

*/

//number of increased staff

gen staff_max = int(slots_increased / 4) + 1 //if all children are age 5; the "+1" ensures a whole
number of staff, not decimal point

gen staff_min = int(slots_increased / 17) + 1 //if all children are birth to 2

gen staff_mean = (staff_max + staff_min) / 2 //this is for creating a normal distribution

gen staff_sigma = (staff_max - staff_min) / 3

gen staff_increased = staff_mean + staff_sigma * rnormal()

drop if staff_increased > staff_max | staff_increased < staff_min

// Benefits estimates //

/*Formula for mean annual earnings:

```

(hourly wage rate + hourly value of benefits) \* hours in a week \* weeks in a year = mean annual earnings in La Crosse County \*/

gen cty\_hhs\_earning = 58692 //La Crosse County median household earnings [\$/year]

gen cty\_wage\_rate = 19.11 //La Crosse County median wage rate [\$/hour]

gen cty\_wage\_benefits = 1.3 \* cty\_wage\_rate //[assuming benefits at 30% of wages]

gen annual\_working\_hour = 40 \* 52 //[40 hours/week \* 52 weeks/year]

gen per\_hour\_cty\_hhs\_earning = cty\_hhs\_earning / annual\_working\_hour // [\$/hour]

//Parental labor related parameters

gen cty\_mean\_earning = cty\_wage\_benefits \* annual\_working\_hour

gen cty\_reserve\_wage = 1/2 \* cty\_mean\_earning //[\$/year/person] ; used for parental LF participation benefit

//Labor Force Participation (LFP)

//Right Triangle, 0%-20% of the slots impacted

gen min\_LFP = 0

gen max\_LFP = 0.2 \* slots\_increased

gen mode\_LFP = 0

gen dummy\_1\_LFP = (mode\_LFP - min\_LFP)/(max\_LFP - min\_LFP)

gen dummy\_2\_LFP = runiform()

```

gen increase_in_LFP = min_LFP + sqrt(dummy_2_LFP * (mode_LFP - min_LFP) * (max_LFP
- min_LFP)) if dummy_2_LFP < dummy_1_LFP
replace increase_in_LFP = max_LFP - sqrt((1 - dummy_2_LFP) * (max_LFP - mode_LFP) *
(max_LFP - min_LFP)) if dummy_2_LFP >= dummy_1_LFP

```

```

gen total_annual_LFP_benefit = increase_in_LFP * cty_reserve_wage // [$/year]

```

```

//Decreased Turnover (TO)

```

```

//Right Triangle, 4%-80% of the slots impacted

```

```

gen upper_bound_TO = 0.207 * cty_mean_earning

```

```

gen lower_bound_TO = 0.21 * cty_mean_earning

```

```

gen min_TO_perc = 0.04

```

```

gen max_TO_perc = 0.8

```

```

gen mode_TO_perc = 0.04

```

```

gen dummy_1_TO_perc = (mode_TO_perc - min_TO_perc)/(max_TO_perc - min_TO_perc)

```

```

gen dummy_2_TO_perc = runiform()

```

```

gen parental_TO_rate = min_TO_perc + sqrt(dummy_2_TO_perc * (mode_TO_perc -
min_TO_perc) * (max_TO_perc - min_TO_perc)) if dummy_2_TO_perc < dummy_1_TO_perc

```

```

replace parental_TO_rate = max_TO_perc - sqrt((1 - dummy_2_TO_perc) * (max_TO_perc -
mode_TO_perc) * (max_TO_perc - min_TO_perc)) if dummy_2_TO_perc >=

```

```

dummy_1_TO_perc

```

```
gen decreased_TO = parental_TO_rate * slots_increased // number of retained employees due to
increased child care [person]
```

```
gen annual_TO_benefit = lower_bound_TO + (upper_bound_TO - lower_bound_TO) *
runiform() // [$/year/person]
```

```
gen total_annual_DT_benefit = decreased_TO * annual_TO_benefit
```

```
//Increased productivity (IP)
```

```
gen IP_in_days = 4 + (14 - 4) * runiform() // number of days gained due to fewer child care
concerns [day/year/person]
```

```
gen annual_working_days = 50 * 5 // 5 days in a week * 50 weeks in a year
```

```
gen IP_in_years = IP_in_days / annual_working_days // [year/year/person]
```

```
gen productivity = cty_mean_earning * 1.5 // 150% of employee earning [$/year/person]
```

```
gen IP_benefit = IP_in_years * productivity // [$/year/person]
```

```
gen max_perc_parents_impacted = 0.45
```

```
gen min_perc_parents_impacted = 0.214
```

```
gen perc_parents_impacted = min_perc_parents_impacted + (max_perc_parents_impacted -
min_perc_parents_impacted) * runiform()
```

```
gen number_of_impacted_parents_IP = perc_parents_impacted * slots_increased // [person]
```

```
gen total_annual_IP_benefit = IP_benefit * number_of_impacted_parents_IP // [$/year]
```

```
//Child development (CD)
```

```
gen child_PH_benefit = 0 //physical health
```

```

gen total_PH_benefit = child_PH_benefit * slots_increased

gen development_benefit = 0 //development benefit

gen total_development_benefit = development_benefit * slots_increased

//Educational Benefit (EB) on future earnings

gen low_income_EB = 7572

//middle to high (MTH) income educational benefit

gen working_years = 43

gen annuity_factor = (1 - (1 + d)^(0 - working_years))/d

gen perc_increased_earning = 0.055

gen increased_cty_wage_rate = cty_wage_rate * (1 + perc_increased_earning)

gen annual_wage_difference = (increased_cty_wage_rate - cty_wage_rate) *
annual_working_hour

gen PV_wage_difference = annual_wage_difference * (1 - (1/(1 + d))^working_years) / d

gen ann_MTH_EB = PV_wage_difference / annuity_factor

//Alternative 1 & 2

gen min_MTH_EB = 0

gen max_MTH_EB = ann_MTH_EB

gen mean_MTH_EB = (min_MTH_EB + max_MTH_EB) / 2

gen sigma_MTH_EB = (max_MTH_EB - mean_MTH_EB) / 3

gen per_slot_MTH_EB = mean_MTH_EB + sigma_MTH_EB * rnormal()

```

```

gen total_MTH_EB = per_slot_MTH_EB * slots_increased

drop if per_slot_MTH_EB > max_MTH_EB | per_slot_MTH_EB < min_MTH_EB

gen total_annual_CD_benefit = total_PH_benefit + total_development_benefit + total_MTH_EB

//gen total_benefit = total_annual_LFP_benefit + low_income_EB * slots_increased +
total_annual_IP_benefit + total_annual_DT_benefit

gen total_benefit = total_annual_LFP_benefit + total_annual_CD_benefit +
total_annual_IP_benefit + total_annual_DT_benefit

//Costs Estimates

//Infrastructure & Start-up Cost

//Building Cost (BC) [$/year]

gen facility_space = 8000 //[sq ft]

gen per_sqft_BC = 220 //[$/sq ft]

gen BC_margin = 20 //[$/sq ft]

gen workforce_inno_grant = 100000

/* assume the grant money in one-time and goes into building; discard this line for Alt 2; assume
if no workforce innovation grant, then La Crosse would use $100,000 of ARPA funds here. */

gen mean_BC = facility_space * per_sqft_BC - workforce_inno_grant

```

```
gen max_BC = facility_space * (per_sqft_BC + BC_margin) - workforce_inno_grant
```

```
gen min_BC = facility_space * (per_sqft_BC - BC_margin) - workforce_inno_grant
```

```
gen building_life = 40 //[years]
```

```
gen BC_CPR = d / (1 - (1 + d)^(0 - building_life))
```

```
gen mean_ann_BC = mean_BC * BC_CPR
```

```
gen max_ann_BC = max_BC * BC_CPR
```

```
gen min_ann_BC = min_BC * BC_CPR
```

```
//Symmetric Triangular Distribution of Building Cost
```

```
gen dummy_BC = runiform() + runiform()
```

```
gen ann_BC = min_ann_BC + (max_ann_BC - min_ann_BC) * dummy_BC / 2
```

```
//Equipment Cost (EC)
```

```
gen per_sqft_SE_cost = 750 / 1500 //Safety Equipment
```

```
gen per_sqft_ES_cost = 1000 / 1500 //Electronic Surveillance
```

```
gen per_child_CM_cost = 15000 / 12 // Classroom Material
```

```
gen per_staff_OE_cost = 3500 / 4 // Office Equipment
```

```
gen per_child_PG_cost = 15000 / 12 // Playground Design
```

```
gen fencing_cost = 9000
```

```
gen CR_cost = 3310 // Curriculum Resources
```

```
//Indoor Equipment (IE)
```

```
gen mean_IE_cost = per_sqft_SE_cost * facility_space + per_sqft_ES_cost * facility_space +  
per_child_CM_cost * slots_increased + per_staff_OE_cost * staff_increased
```

```
//Outdoor Equipment (OE)
```

```
gen mean_OE_cost = per_child_PG_cost * slots_increased + fencing_cost
```

```
//Intangible Assets (IA)
```

```
gen IA_cost = CR_cost
```

```
//
```

```
gen perc_EC_margin = 0.2
```

```
gen max_IE_cost = mean_IE_cost * (1 + perc_EC_margin)
```

```
gen min_IE_cost = mean_IE_cost * (1 - perc_EC_margin)
```

```
gen max_OE_cost = mean_OE_cost * (1 + perc_EC_margin)
```

```
gen min_OE_cost = mean_OE_cost * (1 - perc_EC_margin)
```

```
gen IA_life = 5 // assumes every 5 years to update its curriculum resources
```

```
gen IE_life = 10 //[years]
```

```
gen OE_life = 20
```

```

/*

gen IA_life = 3

gen IE_life = 7

gen OE_life = 15

*/

gen IA_CPR = d / (1 - (1 + d)^(0 - IA_life))

gen IE_CPR = d / (1 - (1 + d)^(0 - IE_life))

gen OE_CPR = d / (1 - (1 + d)^(0 - OE_life))

gen ann_IA_cost = IA_cost * IA_CPR

gen max_ann_IE_cost = max_IE_cost * IE_CPR

gen min_ann_IE_cost = min_IE_cost * IE_CPR

gen max_ann_OE_cost = max_OE_cost * OE_CPR

gen min_ann_OE_cost = min_OE_cost * OE_CPR

//Annualized (ann) Indoor and Outdoor Equipment Cost, Uniform Distribution +/- 20%

gen ann_EC = min_ann_IE_cost + (max_ann_IE_cost - min_ann_IE_cost) * runiform() +
min_ann_OE_cost + (max_ann_OE_cost - min_ann_OE_cost) * runiform() + ann_IA_cost

//Human Capital Cost (HCC) [$/year]

gen longevity = 1 / 0.05 //average job longevity of a child care worker

gen TB_test = 104 / 4

```

```

gen SIDS_SBS_classes = 80 / 4 // Shaken Baby Sudden Infant Death
gen Intro_to_CC = 680 / 4 //Intro to Child Care Course
gen Ski_Str_Course = 2600 / 4 //Skills and Strategies Course
gen Reg_Cre_Course = 5100 / 3 //Registry Credential Course
gen CPR = 60 * (d / (1 - (1 + d)^(-2))) // $60 for every two years
gen background_check = 47.75 * (d / (1 - (1 + d)^(-5))) // $47.75 for every five years
gen licensing_inquiry = 25 // CPR the same as building

gen HCC_CPR = d / (1 - (1 + d)^(0 - longevity))
gen per_staff_HCC = (TB_test + SIDS_SBS_classes + Intro_to_CC + Ski_Str_Course +
Reg_Cre_Course) * HCC_CPR + CPR + background_check + licensing_inquiry * BC_CPR
gen ann_HCC = per_staff_HCC * staff_increased

gen ann_start_up_cost = ann_BC + ann_EC + ann_HCC

//Wage & Operating Cost

//Wage
gen hourly_target_wage_rate = 21.72 //[$/hr/staff]
gen annual_target_wage = hourly_target_wage_rate * annual_working_hour //[$/year/staff]
gen taxable_wage_rate = hourly_target_wage_rate / (1 + 0.3) // [$ /year]
gen annual_taxable_wage = taxable_wage_rate * annual_working_hour

```

//Annual Staff-Related Cost (SRC), Excluding Wage [\$/ (year\*staff)]

gen compensation = 1516.96 / 4

gen unemployment\_insurance = 14000 \* 0.0325

gen life\_insurance = 252.2 / 4

gen staff\_development = 4000 / 4

gen liability\_insurance = 750 / 4

//gen income\_taxes = 0.053 \* annual\_target\_wage // state income tax (5.3%) solo; likely 0% or  
small federal income tax for this income group

gen total\_payroll\_taxes = 0.0765 \* annual\_taxable\_wage \* staff\_increased /\* payroll taxes; 6.2%  
social security, 1.45% medicare; based on wage excluding benefit \*/

gen per\_staff\_SRC = compensation + unemployment\_insurance + life\_insurance +  
staff\_development + liability\_insurance + annual\_target\_wage

gen total\_SRC = per\_staff\_SRC \* staff\_increased + total\_payroll\_taxes //[\$/year]

//Annual Supplies Cost (SC), including health, food, art...

gen health\_supplies = 299.88 / 12 //[\$/slot]

gen food\_supplies = 4756.08 / 12 //[\$/slot]

gen general\_supplies = 506.28 / 12 //[\$/slot]

gen office\_supplies = 1731.48 / 12 //[\$/slot]

gen assessment\_fee = 15 //[\$/slot]

gen per\_child\_SC = health\_supplies + food\_supplies + general\_supplies + office\_supplies +  
assessment\_fee //[\$/(year \* slot)]

gen total\_SC = per\_child\_SC \* slots\_increased //[\$/(year \* slot) \* slot]

//Annual Facilities Cost (FC), including utilities, internet, property insurance...

gen per\_sqft\_utilities = 2370 / 1500 // [\$ /sq ft]

gen phone\_internet = 960

gen maintenance = 1440

gen per\_sqft\_repairs = 750 / 1500 // [\$ /sq ft]

gen per\_sqft\_property\_insurance = 1500 / 1500 //[\$ /sq ft]

gen licensing\_fee = 30.25 + 16.94 \* slots\_increased

gen total\_FC = per\_sqft\_utilities \* facility\_space + per\_sqft\_repairs \* facility\_space +  
per\_sqft\_property\_insurance \* facility\_space + phone\_internet + maintenance + licensing\_fee

gen operating\_cost = total\_SRC + total\_SC + total\_FC // the annual operating cost of the new  
child care facility [\$ /year]

gen operating\_cost\_EW = operating\_cost - annual\_target\_wage \* staff\_increased // excluding  
wage

// Calculate annual net benefits [\$ /year]

gen total\_cost = operating\_cost + ann\_start\_up\_cost // [\$ /year]

```
gen net_benefit = total_benefit - total_cost // [$/year]
```

```
gen NB_in_1000s = net_benefit / 1000
```

```
gen positive_count = 0
```

```
replace positive_count = positive_count + 1 if net_benefit > 0
```

```
// Summarize and plot results //
```

```
summarize
```

```
hist NB_in_1000s, percent title("Distribution of Annual Net Benefits of Co-op/County Model")
```

```
text (300 500 "Percentage of Trials" 275 500 "with Positive Values = 11.7") addplot(pci 0 0 6.5
```

```
0) legend(off)
```

### *Alternative 3*

```
clear
```

```
// Monte Carlo Program for La Crosse County Childcare Alternative 3 //
```

```
set obs 100000
```

```
set seed 182
```

```
/* Notations
```

```
Annualized = ann
```

Child Care = CC

Percentage = perc

Capital Recovery Factor = CPR

\*/

gen d = 0.035

gen current\_staff\_number = 322

gen current\_CC\_wage\_rate = 11.84 // current child care worker wage rate [\$/hour]

gen existing\_slots = 3757

gen slots\_increased = 413 //413 current slots

gen get\_to\_capacity = 450000 // annual Get to Capacity Federal Grant

//number of increased staff

gen staff\_max = int(slots\_increased / 4) + 1 //if all children are age 5; the "+1" ensures a whole number of staff, not decimal point

gen staff\_min = int(slots\_increased / 17) + 1 //if all children are birth to 2

gen staff\_mean = (staff\_max + staff\_min)/2 //this is for creating a normal distribution

gen staff\_sigma = (staff\_max - staff\_mean)/3

gen staff\_increased = staff\_mean + staff\_sigma \* rnormal() //don't forget to drop the tails

drop if staff\_increased > staff\_max | staff\_increased < staff\_min

// Benefits estimates //

/\*Formula for mean annual earnings:

(hourly wage rate + hourly value of benefits) \* hours in a week \* weeks in a year = mean annual earnings in La Crosse County \*/

gen cty\_wage\_rate = 19.11 //La Crosse County median wage rate [\$/hour]

gen annual\_working\_hour = 40 \* 50 //[40 hours/week \* 52 weeks/year]

gen cty\_wage\_benefits = 1.3 \* cty\_wage\_rate //[assuming benefits at 30% of wages]

//Parental labor related parameters

gen cty\_mean\_earning = cty\_wage\_benefits \* annual\_working\_hour

gen cty\_reserve\_wage = 1/2 \* cty\_mean\_earning //[\$/year/person] ; used for parental LF participation benefit

//Labor participation (LFP)

//Right Triangle, 0%-20% of the slots impacted

gen min\_LFP = 0

gen max\_LFP = 0.2 \* slots\_increased

gen mode\_LFP = 0

gen dummy\_1\_LFP = (mode\_LFP - min\_LFP)/(max\_LFP - min\_LFP)

gen dummy\_2\_LFP = runiform()

gen increase\_in\_LFP = min\_LFP + sqrt(dummy\_2\_LFP \* (mode\_LFP - min\_LFP) \* (max\_LFP - min\_LFP)) if dummy\_2\_LFP < dummy\_1\_LFP

```
replace increase_in_LFP = max_LFP - sqrt((1 - dummy_2_LFP) * (max_LFP - mode_LFP) *
(max_LFP - min_LFP)) if dummy_2_LFP >= dummy_1_LFP
```

```
gen total_annual_LFP_benefit = increase_in_LFP * cty_reserve_wage // [$/year]
```

```
//Decreased turnover (TO)
```

```
//Right Triangle, 4%-80% of the slots impacted
```

```
gen upper_bound_TO = 0.207 * cty_mean_earning
```

```
gen lower_bound_TO = 0.21 * cty_mean_earning
```

```
gen min_TO_perc = 0.04
```

```
gen max_TO_perc = 0.8
```

```
gen mode_TO_perc = 0.04
```

```
gen dummy_1_TO_perc = (mode_TO_perc - min_TO_perc)/(max_TO_perc - min_TO_perc)
```

```
gen dummy_2_TO_perc = runiform()
```

```
gen parental_TO_rate = min_TO_perc + sqrt(dummy_2_TO_perc * (mode_TO_perc -
min_TO_perc) * (max_TO_perc - min_TO_perc)) if dummy_2_TO_perc < dummy_1_TO_perc
```

```
replace parental_TO_rate = max_TO_perc - sqrt((1 - dummy_2_TO_perc) * (max_TO_perc -
mode_TO_perc) * (max_TO_perc - min_TO_perc)) if dummy_2_TO_perc >=
```

```
dummy_1_TO_perc
```

```
gen decreased_TO = parental_TO_rate * slots_increased // number of retained employees due to
increased child care [person]
```

```
gen annual_TO_benefit = lower_bound_TO + (upper_bound_TO - lower_bound_TO) *
runiform() // [$/year/person]
```

```
gen total_annual_DT_benefit = decreased_TO * annual_TO_benefit
```

```
//Increased productivity (IP)
```

```
gen IP_in_days = 4 + (14 - 4) * runiform() // number of days gained due to fewer child care
concerns [day/year/person]
```

```
gen annual_working_days = 50 * 5 // 5 days in a week * 50 weeks in a year
```

```
gen IP_in_years = IP_in_days / annual_working_days // [year/year/person]
```

```
gen productivity = cty_mean_earning * 1.5 // 150% of employee earning [$/year/person]
```

```
gen IP_benefit = IP_in_years * productivity // [$/year/person]
```

```
gen max_perc_parents_impacted = 0.45
```

```
gen min_perc_parents_impacted = 0.214
```

```
gen perc_parents_impacted = min_perc_parents_impacted + (max_perc_parents_impacted -
min_perc_parents_impacted) * runiform()
```

```
gen number_of_impacted_parents_IP = perc_parents_impacted * existing_slots // [person]
```

```
gen total_annual_IP_benefit = IP_benefit * number_of_impacted_parents_IP // [$/year]
```

```
//Child development (CD)
```

```
gen child_PH_benefit = 0 //physical health
```

```

gen total_PH_benefit = child_PH_benefit * slots_increased

gen development_benefit = 0 //development benefit

gen total_development_benefit = development_benefit * slots_increased

//Educational Benefit (EB) on future earnings

gen low_income_EB = 7572 //[$/year]

//middle to high (MTH) income educational benefit

gen working_years = 43

gen annuity_factor = (1 - (1 + d)^(0 - working_years))/d

gen perc_increased_earning = 0.055

gen increased_cty_wage_rate = cty_wage_rate * (1 + perc_increased_earning)

gen annual_wage_difference = (increased_cty_wage_rate - cty_wage_rate) *
annual_working_hour

gen PV_wage_difference = annual_wage_difference * (1 - (1/(1 + d))^working_years) / d

gen ann_MTH_EB = PV_wage_difference / annuity_factor

//Expected benefit of a slot

gen proportion_of_LI_child = 0.084

gen proportion_of_MTH_child = 1 - proportion_of_LI_child

gen per_slot_expected_EB = (ann_MTH_EB * proportion_of_MTH_child) + (low_income_EB
* proportion_of_LI_child)

```

```

gen min_MTH_EB = 0

gen max_MTH_EB = per_slot_expected_EB

gen mean_MTH_EB = (min_MTH_EB + max_MTH_EB) / 2

gen sigma_MTH_EB = (max_MTH_EB - mean_MTH_EB) / 3

gen per_slot_MTH_EB = mean_MTH_EB + sigma_MTH_EB * rnormal()

drop if per_slot_MTH_EB > max_MTH_EB | per_slot_MTH_EB < min_MTH_EB

gen total_expected_EB = per_slot_MTH_EB * slots_increased

gen total_annual_CD_benefit = total_PH_benefit + total_development_benefit +
total_expected_EB

// gen total_benefit = total_annual_LFP_benefit + low_income_EB * slots_increased +
total_annual_IP_benefit + total_annual_DT_benefit + get_to_capacity // spots filled by low
income only

gen total_benefit = total_annual_LFP_benefit + total_annual_CD_benefit +
total_annual_IP_benefit + total_annual_DT_benefit + get_to_capacity

//Cost Estimates

//Huamn Capital Cost (HCC) [$/year]

gen longevity = 1 / 0.05 //average job longevity of a child care worker

gen TB_test = 104 / 4

```

```

gen SIDS_SBS_classes = 80 / 4 // Shaken Baby Sudden Infant Death
gen Intro_to_CC = 680 / 4 //Intro to Child Care Course
gen Ski_Str_Course = 2600 / 4 //Skills and Strategies Course
gen Reg_Cre_Course = 5100 / 3 //Registry Credential Course
gen CPR = 60 * (d / (1 - (1 + d)^(-2))) // $60 for every two years
gen background_check = 47.75 * (d / (1 - (1 + d)^(-5))) // $47.75 for every five years
gen licensing_inquiry = 25 //CPR the same as building

gen HCC_CPR = d / (1 - (1 + d)^(0 - longevity))
gen per_staff_HCC = (TB_test + SIDS_SBS_classes + Intro_to_CC + Ski_Str_Course +
Reg_Cre_Course) * HCC_CPR + CPR + background_check
gen ann_HCC = per_staff_HCC * staff_increased

gen ann_start_up_cost = ann_HCC

//Wage & Operating Cost

//Wage
gen hourly_target_wage_rate = 21.72 //[$/hr/staff]
gen annual_target_wage = hourly_target_wage_rate * annual_working_hour //[$/year/staff]
gen taxable_wage_rate = hourly_target_wage_rate / (1 + 0.3) // excluding benefit [$ /year]
gen annual_taxable_wage = taxable_wage_rate * annual_working_hour

```

//Annual Staff-Related Cost (SRC), Excluding Wage [\$/((year\*staff))]

gen compensation = 1516.96 / 4

gen unemployment\_insurance = 14000 \* 0.0325

gen life\_insurance = 252.2 / 4

gen staff\_development = 4000 / 4

gen liability\_insurance = 750 / 4

gen payroll\_tax\_rate = 0.0765 /\* payroll taxes; 6.2% social security, 1.45% medicare; based on wage excluding benefit \*/

gen per\_staff\_SRC = compensation + unemployment\_insurance + life\_insurance +  
staff\_development + liability\_insurance + annual\_target\_wage + annual\_taxable\_wage \*  
payroll\_tax\_rate

gen new\_staff\_cost = per\_staff\_SRC \* staff\_increased

gen existing\_staff\_cost = (hourly\_target\_wage\_rate - current\_CC\_wage\_rate) \*

annual\_working\_hour \* current\_staff\_number + (taxable\_wage\_rate - current\_CC\_wage\_rate) \*

annual\_working\_hour \* payroll\_tax\_rate \* current\_staff\_number

// two parts, wage/benefits increase + increased payroll taxes

gen total\_SRC = new\_staff\_cost + existing\_staff\_cost

//Annual Supplies Cost (SC), including health, food, art...

gen health\_supplies = 299.88 / 12 //[\$/slot]

gen food\_supplies = 4756.08 / 12 //[\$/slot]

gen general\_supplies = 506.28 / 12 //[\$/slot]

gen office\_supplies = 1731.48 / 12 //[\$/slot]

gen assessment\_fee = 15 //[\$/slot]

gen per\_child\_SC = health\_supplies + food\_supplies + general\_supplies + office\_supplies +  
assessment\_fee //[\$/(year \* slot)]

gen total\_SC = per\_child\_SC \* slots\_increased //[\$/(year \* slot) \* slot]

gen operating\_cost = total\_SRC + total\_SC // the annual operating cost of the new child care  
facility [\$/year]

gen operating\_cost\_EW = operating\_cost - annual\_target\_wage \* staff\_increased -  
(hourly\_target\_wage\_rate - current\_CC\_wage\_rate) \* annual\_working\_hour \*  
current\_staff\_number // excluding wage

// Calculate annual net benefits from [\$ per year]

gen total\_cost = ann\_start\_up\_cost + operating\_cost // + annualized\_start\_up\_cost // [\$/year]

gen net\_benefit = total\_benefit - total\_cost // [\$/year]

gen NB\_in\_thousands = net\_benefit / 1000

gen TB\_in\_thousands = total\_benefit / 1000

gen positive\_count = 0

```
replace positive_count = positive_count + 1 if net_benefit > 0
```

```
// Summarize and plot results //
```

```
summarize
```

```
hist NB_in_thousands, percent title("Distribution of Annual Net Benefits for County-wide  
Subsidy") text (300 -6000 "Percentage of Trials" 275 -6000 "with Positive Values = 25.3")
```

```
addplot(pci 0 0 6.5 0) legend(off)
```

```
// you need to turn on the graph editor to see the texts
```