Economic Impacts of Inadequate Child Care Access

Knox County, Nebraska

April 2024

Prepared by:

Melissa L. Trueblood, Ph.D.
Economist
Economic Development Department
Nebraska Public Power District
1327 H Street, Suite 1
Lincoln, Nebraska 68508

Telephone: (402) 465-3537
Email: mltrueb@nppd.com

Introduction

This report analyzes the financial impacts of inadequate child care on Knox County, Nebraska families and businesses. It mirrors the methods and strategy used in a report[1] by the Bureau of Business Research, University of Nebraska--Lincoln (BBR), Appendix A, to estimate similar impacts for the State of Nebraska. The BBR report incorporates data from the American Community Survey, the Bureau of Labor Statistics (BLS), and five surveys of parents with young children[2]. In this study, Knox County data from the American Community Survey (ACS) and the BLS are combined with data in the BBR report to estimate similar impacts for the Knox County, Nebraska area. Estimated potential annual impacts of inadequate child care in Knox County, Nebraska, include $1,333,848 of lost household income and $749,777 of added costs to Knox County area businesses.

Knox County, Nebraska, Individuals with Young Children

As with the BBR report, this study is based on the estimated number of Knox County working parents with at least one child under age five in the household. These families are grouped into three household categories (married couple, single male head of household, and single female head of household) and three work categories (part-time/hourly wages, full-time/hourly wages, and full-time annual salary) for analysis. Table One estimates the number of individuals for each of the nine household and work categories.

Table One: Number of Individuals with Children Under the Age of Five by Household Types

	Married-Couple[3]	Single Male	Single Female	Total
Individuals Working Part-time and Earning Hourly Wages (Part-time/Hourly)	63	5	5	**73**
Individuals Working Full-time and Earning Hourly Wages (Full-time/Hourly)	165	15	12	**192**
Individuals Earning Full-time Annual Salaries (Annual Salary)	141	12	11	**164**
Total	**369**	**32**	**28**	**429**

[1] Rosenbaum, D., Thompson, E. & Cass, H. 2020. *The Bottom Line: Economic Impacts of Inadequate Child Care Access in Nebraska.* prepared for First Five Nebraska.

[2] Maryland: Talbert, E., Bustamante, A., Thompson, L. & Williams, M. 2018. *Counting our Losses: The Hidden Cost to Marylanders of an Inadequate Child Care System*. Maryland Family Network.
Louisiana: Davis, B., Bustamante, A. Bronfin, M. & Rahim, M. 2017. *Losing Ground: How Child Care Impacts Louisiana's Workforce Productivity and the State Economy*.
Georgia: Goldberg, H., Cairl, T. & Cunningham, T. 2018. *Opportunities Lost: How Child Care Challenges Affect Georgia's Workforce and Economy*.
National: Montes & Halterman. 2011. "The Impact of child care problems on employment: findings from a national Survey of U.S. parents." Academic Pediatrics. 11(1):80-87.
National: Belfield. 2018. The Economic Impacts of Insufficient Child Care on Working Families. ReadyNation/Council for a Strong America.

[3] For explanations of how the numbers of workers for the married-couple category and other similar values used in this report are calculated, see pages 2-3 of the BBR report in Appendix A.

Income of Households with Young Children

In the BBR study, income data for working parents was calculated from the Current Population Survey. For this study, the ACS 5-Year Estimates – Public Use Microdata Sample 2021 was used to calculate the average earnings by household type, as shown in Table Two below.

Table Two: Average Earnings by Household Type

	Married-Couple[4]	Single Male	Single Female
Average Earnings Full-time	$47,016	$30,581	$27,716
Average Earnings Part-time	$30,115	$17,195	$17,046

Child Care-Related Disruptions to the Ability to Work

Child care-related disruptions to work include short-term interruptions such as absences, tardiness or leaving work early to care for a sick child. They also include long-term disruptions such as being fired, being unable to go from part- to full-time, or having to go from full- to part-time. Estimates of the frequency and length of both long- and short-term impacts were derived from the five studies listed in footnote 1 on the previous page and available on page 5 of Appendix A.

Impacts of Inadequate Child Care on Individual Incomes and Local Business Costs

Estimates of the annual potential impacts of inadequate child care on incomes of Knox County families with young children are derived using procedures described on pages 9-11 of Appendix A and shown in Table Three below. As shown in Table Three, the total annual potential lost income is estimated to be $1,333,848.

Table Three: Estimated Potential Annual Impacts of Inadequate Child Care on Knox County Families

	Married Individual	Single Male	Single Female	Total
Absenteeism	$135,740	$7,929	$5,852	**$149,522**
Turnover	$484,766	$27,139	$21,514	**$533,420**
Remain Part-time	$78,083	$9,816	$7,825	**$95,724**
Go to Part-time	$347,189	$32,628	$20,807	**$400,624**
Forgo Promotion	$137,635	$9,550	$7,373	**$154,558**
Total	**$1,183,413**	**$87,064**	**$63,371**	**$1,333,848**

The impact of inadequate child care on business firms includes the costs to replace employees who temporarily miss work and reductions in revenues due to productivity losses from salaried workers who miss work due to child care issues. Impacts to business firms also include the costs of searching for and training new workers due to child care-related turnover. Estimates of the annual potential impacts to local businesses because of inadequate child care are summarized in Table Four on the following page and total $749,777 annually.

[4] For explanations of how the numbers of workers for the married-couple category and other similar values used in this report are calculated see pages 3-4 of the BBR report in Appendix A.

Table Four: Estimated Potential Knox County Area Employer Costs of Inadequate Child Care

	Married Individual	Single Male	Single Female	Total
Absenteeism	$67,870	$3,965	$2,926	$74,761
Productivity	$441,099	$24,474	$20,343	$485,915
Turnover	$171,829	$9,603	$7,669	$189,101
Total	$680,798	$38,041	$30,938	$749,777

Impacts of Inadequate Child Care on Local Taxable Retail Sales

The BBR report provides estimates of the impacts of inadequate child care on state income tax revenues and in-state purchases due to reductions in household income. The income tax estimate applies only at the state level and is not included in this report. A different strategy is employed in this report to show the potential impact on local sales.

Table Five below contains data on total personal income and non-motor vehicle taxable retail sales for Knox County for the period 2013–2022. Also shown is the relationship between total personal income and total taxable retail sales for this period. As the data presented in Table Five indicate, taxable retail sales for the Knox County Area have averaged 11.2 percent of total personal income during the period 2013-2022. Statewide, non-motor vehicle retail sales averaged 24.2 percent of total personal income during the same 2013–2022 period.

Table Five: Total Personal Income and Taxable Retail Sales, Knox County, Nebraska, 2013–2022

Year	Total Personal Income ($1,000)	Total Retail Sales ($1,000)	Retail Sales as % of Tot. Pers. Inc. (%)
2013	352,603	43,849	12.4
2014	370,033	45,338	12.3
2015	385,826	41,060	10.6
2016	368,924	40,635	11.0
2017	383,890	41,331	10.8
2018	388,104	41,060	10.6
2019	395,089	44,721	11.3
2020	443,071	47,375	10.7
2021	483,707	52,765	10.9
2022	489,419	56,057	11.5
Average, 2013–2022			**11.2**

To estimate the level of non-motor vehicle, taxable retail sales associated with inadequate child care in the Knox County area, it is assumed area net taxable retail sales are reduced by 11.2 percent (the Knox County value) of the estimated reduction in total employee compensation associated with inadequate child care. The estimated annual reduction in retail sales for the Knox County Area Economy is estimated to be $149,391 ($1,333,848 reduction in total employee compensation x 0.112) annually.

Appendix A: The Bottom Line: Economic Impacts of Inadequate Child Care Access in Nebraska

If further information about this analysis is desired or if the reader has questions about any aspect of this report, please contact:

Melissa L. Trueblood Ph.D.

Economist

Economic Development Department

Nebraska Public Power District

1327 H Street, Suite 1

Lincoln, Nebraska 68508

Telephone: (402) 465-3537

Email: mltrueb@nppd.com

A Bureau of Business Research Report
From the UNL College of Business

Final Report

The Bottom Line: Economic Impacts of Inadequate Child Care Access in Nebraska

Prepared for First Five Nebraska

August 4, 2020
Bureau of Business Research
Department of Economics
College of Business
University of Nebraska—Lincoln
Dr. Eric Thompson, Director

University of Nebraska Lincoln

Executive Summary

When parents face inadequate childcare, they may choose family over work. This has implications for their incomes, firms' outputs, and state tax revenues. This study estimates the economic and tax revenue impacts of inadequate childcare for Nebraska working parents with children under age five. Estimates of the impact are based on information collected from similar studies done by other states as well as data related to Nebraska's working parents.

Table ES.1 shows the direct effect of inadequate childcare in Nebraska on an annual basis. Working parents lose $489 million in annual income. The effects of reduced productivity and increased costs in businesses are $234 million per year. State income tax revenues fall by $21 million annually.

Table ES1: Summary of Annual Impacts in Millions of Dollars

	Income	Output	Jobs	Taxes
Direct	$489,383,431	$234,372,147		$21,100,805
Multiplied	$150,416,360	$497,365,702	3,337	$5,353,533
Total	$639,799,791	$731,737,848	3,337	$26,454,338

These initial effects are multiplied through the economy; as parents lose income, they spend less in the economy. This, in turn, means fewer dollars that businesses in Nebraska receive as income and, consequently, less that they and their employees can spend. Table ES.1 also shows the multiplied effects on the Nebraska economy. There is an additional $150 million in lost income, $497 million in lost output and $5.3 million in lost tax revenues. Altogether, inadequate childcare each year costs Nebraskans $639 million in income, $731 million in business output, 3,337 jobs lost and $26.4 million in income tax revenues.

Table of Contents

I. DATA 1
Background 1
Number of Individuals 1
Income 3
Disruptions in Ability to Work 4
Impacts on Employers 7
II. IMPACT ON INDIVIDUAL INCOMES 9
Short-Term Disruptions 9
Long-Term Disruptions 9
Summary 11
III. IMPACT ON BUSINESS 11
Short-Term Absenteeism 11
Long-Term Turnover 12
Summary 12
IV. Nebraska Economic Impact Estimate 12
Multiplied Income Impact: 12
Income Tax Impact: 15
Appendix A. The Bureau of Business Research 17
Appendix B. Key Personnel 17

List of Figures and Tables

Table 1: Number of Households with Children under Age Five, by Household Type 2

Table 2: Average Earnings by Household Type 4

Table 3: Labor Impacts 5

Table 4: Short-Term Lost Annual Earnings of Hourly Wage Workers 9

Table 5: Lost Annual Earnings due to Leaving a Job 10

Table 6: Lost Annual Income from Part-Time Work and Foregone Promotions 10

Table 7: Aggregate Impacts on Individuals' Incomes 11

Table 8: Employer Cost due to Short-Term Child Care Issues 11

Table 9: Employer Cost of Employee Turnover 12

Table 10: Summary of Employer Costs 12

Table 11: Multipliers 14

Table 12: Multiplied Impacts on the Nebraska Economy 15

Table 13: Average and Marginal Tax Rates 15

Table 14: State Income Tax Losses 16

I. DATA

Background

Analyzing the financial impacts that inadequate access to child care has on families with young children requires a variety of labor market information. Some of this information can be obtained from sources such as the American Community Survey or Bureau of Labor Statistics publication and tables. Other data related to participation in the labor market are derived from surveys of working parents with young children. Maryland, Louisiana and Georgia, as well as two national studies developed surveys to acquire such participation information. [1, 2] Other states relied on the participation rates developed from these five studies to examine the impact of inadequate early child care in their states. This report uses a similar strategy. The participation rates from the Maryland, Louisiana, Georgia and national surveys are combined with other Nebraska-specific information to estimate the impacts of inadequate early child care in Nebraska.

Number of Individuals

This report is based on a sample of Nebraska working parents who have at least one child under age five in the household. This includes married families as well as

---

[1] Maryland: Talbert, E., Bustamante, A., Thompson, L. and Williams, M. 2018. Counting our Losses: The Hidden Cost to Marylanders of an inadequate Child Care System. Maryland Family Network.
Louisiana: Davis, B., Bustamante, A., Bronfin, M. and Rahim, M. 2017. Losing Ground: How Child Care Impacts Louisiana's Workforce Productivity and the State Economy.
Georgia: Goldberg, H., Cairl, T. and Cunningham, T. 2018. Opportunities Lost: How Child Care Challenges Affect Georgia's Workforce and Economy.
National: Montes & Halterman. 2011. "The impact of child care problems on employment: findings from a national survey of U.S. parents." Academic Pediatrics. 11(1): 80-87.
National: Belfield. 2018. The Economic Impacts of Insufficient Child Care on Working Families. ReadyNation /Council for a Strong America.

[2] The Maryland study looks at families with children under age six. The Louisiana and Georgia studies look at families with children under age five. The Montes & Halterman and the Belfield studies look at families with children under ages 14 and 3, respectively.

families headed by a single male or female parent. The number of Nebraska households falling into these categories came from the most recently available American Community Survey (ACS) estimates.[3] The ACS shows the number of households with children under age six. Assuming children are spread evenly between ages zero and six, five-sixths of that number is used to estimate the number of Nebraska households with children under age five. Our estimates of households by type are shown in the first row of Table 1.

Table 1: Number of Households with Children under Age Five, by Household Type

	Married-Couple	Single Male	Single Female
Number of Nebraska Households with Children Under Age 5	61,748	5,733	17,241
Individuals Working Part Time and Earning Hourly Wages	16,071	821	2,172
Individuals Working Full Time and Earning Hourly Wages	42,136	2,152	5,694
Individuals Earning Annual Salaries	36,330	1,855	4,909

Since married couple households by definition consist of two heads of household, the number of individuals in that category is double the number of households shown in Table 1. The Bureau of Labor Statistics (BLS) found that among married-couple families with children, 96.8 percent had at least one employed parent. In families in which the youngest child was under six years old, 56.3 percent had two working parents.[4] The BLS also found that among families maintained by fathers, 84.2 percent of fathers were

[3] The 2013-2017 5-year American Community Survey estimates. The American Community Survey is seeks responses from 3.5 million Americans annually. Unlike the every-10-year census, this survey continues all year, every year. Answers are collected to create up-to-date statistics used by many federal, state, tribal, and local leaders.

[4] https://www.bls.gov/opub/ted/2017/employment-in-families-with-children-in-2016.htm. Downloaded on 3/2/2020.

employed, a greater share than the 74.1 percent of employed mothers in families maintained by mothers.[5] The BLS estimates that among those who are employed, about 17 percent work part time and the remainder work full time.[6] We assume that part-time employees average 20 hours of work per week.

Later analysis in this report makes a distinction between those individuals who are paid hourly wages and those earning salaries. A study from the Bureau of Labor Statistics found that 54 percent of full-time workers were paid hourly rather than earning an annual salary.[7] This figure is consistent with the rate used in a Maryland study.[8] The second through fourth rows of Table 1 combine all of the relevant proportions and show the number of individuals working part time and earning hourly wages and working full time and earning either hourly wages or salaries in each household category.

Income

Income data for working parents were taken from the Current Population Survey.[9] Individuals were selected if they met the following criteria:

- Lived in Nebraska
- Worked for wages or salaries
- Were employed
- Were a primary family
- Were in the civilian labor force
- Were either a husband/wife primary family, unmarried male or unmarried female
- Had at least one child under age five in the household

[5] https://www.bls.gov/news.release/famee.nr0.htm. Downloaded on 3/2/2020.
[6] https://www.bls.gov/cps/cpsaat08.htm.
[7] https://stats.bls.gov/opub/mlr/1986/02/art3full.pdf. Downloaded on 3/2/2020.
[8] See note 1, supra.
[9] The Current Population Survey (CPS), sponsored jointly by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS), is a monthly survey of about 60,000 U.S. households. It is the primary source of labor force statistics for the population of the United States.

The data are in year 2019 dollars. Table 2 shows the average earnings across individuals working either full time or part time. Note that given limited sample sizes, single males and single females working part time were combined in the data.

Table 2: Average Earnings by Household Type

	Married-Couple	Single Male	Single Female
Average Earnings Full Time	$58,842	$29,926	$23,579
Average Earnings Part Time	$25,253	$15,254	

Disruptions in Ability to Work

Working parents with young children face childcare-related disruptions in their ability to work. These disruptions can be categorized into short-term and long-term disruptions. Short-term interruptions are non-permanent disruptions such as missing work to care for a sick child. These situations result in either absences, tardiness, leaving work early or being distracted while at work. Long-term interruptions refer to making significant, long-term employment changes due to systemic child care issues - difficulties accessing child care or the expense of child care. These include events such as having to quit a job, being fired, unable to go from part-time to full-time, or having to go from full-time to part-time.

This analysis did not survey Nebraskans to understand the likelihood and duration of such events. Instead, survey results in reports from Maryland, Louisiana, Georgia, and two national studies were used to estimate average impacts. Table 3 indicates the incidence and duration of short-term and long-term work disruptions for childcare-related reasons across the five studies and the average impact.[10]

Table 3: Labor Impacts

	Maryland	Louisiana	Georgia	Montes & Halterman	Belfield	Average
Percent of Individuals with Childcare-Related Absenteeism	34.1%	40.6%	56.8%	21.4%	32.0%	37.0%
Annual Days of Absenteeism	16.9	14.0	7.0	3.6	13.0	10.9
Percent of Individuals with Childcare-Related Turnover	1.7%	4.0%	3.5%		8.0%	4.3%
Length of Unemployment due to Turnover	365 days					
Unable to go From Part Time to Full Time (Single Parent)	4.3%	6.3%	33.4%			14. 7%
Unable to go From Part Time to Full Time (Married Parent)		3.2%	14.5%			7.3%
Went from Full Time to Part Time (Single Parent)	8.8%	12.4%	28.8%		15%	16.3%
Went from Full Time to Part Time (Married Parent)		6.2%	19.8%		15%	12.5%
Turned Down a Promotion (Single Parent)	7.5%	10.5%	16.7%			11.6%
Turned Down a Promotion (Married Parent)		3.3%	17.9%			9.6%

On average, 37 percent of working parents with young children face childcare related absences. This is in contrast to conservative estimates such as 21.4% from Montes and Halterman and more generous estimates such as 56.8% as presented in the Georgia study. A recent survey by the Nebraska Children and Families Foundation found that 50.4% of surveyed Nebraska parents indicated that they either had to miss a full day of

[10] Other states have conducted studies similar to Maryland, Louisiana and Georgia, but have relied on likelihood and duration data from those three states as we do in this analysis. Therefore, they are not included in the averages.

work, had been late for work, left work earlier than normal, or had been distracted while at work because of child care issues.[11] This estimate is toward the high side of the distribution and our estimate incorporates this figure to use an average rate of 39.2 percent. The estimate for average work days missed annually due to child care issues, 10.9, came from averaging values ranging between seven days in the Georgia study to 16.9 days in the Maryland study.

The average rate for child care related turnover of 4.3 percent is similar to the Louisiana estimate of 4.0 percent and well below the Belfield national study of 8.0 percent. Montes and Halterman estimate that 2.8 percent of individuals quit a job due to childcare related issues. This does not include individuals who were fired, so their number is understandably lower than others and excluded from the average. Only the Maryland study explicitly indicates the length of unemployment due to job loss. That study assumes "12 months without reemployment because of the chronic and long-term nature of child care related turnover."[12] Bureau of Labor Statistics (BLS) data show that for American workers, the average duration of unemployment is about 20 weeks.[13] One-fifth of those unemployed are unemployed for 27 weeks or more. We compromise between the Maryland figure and the BLS average, and assume those who are unemployed due to inadequate child care are unemployed for 36 weeks.

For the next three long-term disruptions, Maryland indicated one measure for all parents. In contrast, Louisiana and Georgia reported the likelihood of disruption for

[11] https://www.nebraskachildren.org/what-we-do/preschool-development-grant/needs-assessment.html.
[12] Maryland study, pg. 27.
[13] https://www.bls.gov/news.release/empsit.t12.htm.

single parents versus married parents. The Maryland combined figure is averaged with the Louisiana and Georgia disaggregated data to estimate the probability of occurrence for single and married parents. Single parents are twice as likely as married parents to be unable to go from part time to full time. Almost 17 percent of single parents went from full time to part time, whereas just over 12 percent of married parents made the same transition. Finally, while 11.6 percent of single parents turned down a promotion, only 9.6 percent of married parents did so.

Impacts on Employers

Firms face costs when they replace workers due to daily absences. A review of studies measuring the impacts of child care related absences indicates that firms may hire temporary substitutes for hourly wage workers as they miss days of work, but will not temporarily replace salaried workers.[14] The cost estimates of temporarily replacing wage workers are varied, but generally equate to an additional 50 percent of wage costs.[15]

While employers incur no additional salary costs when salaried workers miss work for short-term child care issues, employers do lose productivity from those employees. State studies estimate that salary and benefit costs for salaried workers make up 37 percent of revenues.[16] The latest Bureau of Labor Statistics data from the Employer

[14] See footnote 7.
[15] See the Maryland study, for example. These studies trace this cost to: Circadian. 2005. Absenteeism: the Bottom Line Killer. Circadian: Lexington, MA. Circadian estimates the cost of absenteeism as 150 percent of hourly wages. However, if an employee were not absent, the firm would still pay those wages, so the incremental cost of absenteeism among hourly wage workers is 50 percent of the wage.
[16] See the Louisiana and Maryland reports. They estimate that salaries and benefits equate to 36 percent of revenues. Dividing, revenues are 278 percent of salaries and benefits.

Cost of Employee Compensation (ECEC) series indicates that benefits make up about 31.3 percent of total compensation.[17]

Worker turnover imposes various costs on firms. These include lost productivity as well as costs to search for and train new employees. Estimates vary as to the cost of replacing workers. Some studies use rates as high as 150 percent of annual wages and salaries.[18] Louisiana and Maryland take a more conservative approach and use a turnover cost equal to 20.7 percent of annual income for wage workers and 20.7 percent of annual salary and benefits for salaried workers.[19]

[17] See https://www.bls.gov/ncs/ect/data.htm. The ECEC series aggregates wage and salary workers. Benefits as a percentage of compensation is for all civilian employees across all occupations.
[18] See citations in the Maryland and Louisiana reports.
[19] This percentage is developed from Boushey, Heather and Sarah Jane Glynn. 2012. There Are Significant Business Costs to Replacing Employees. Center for American Progress: Washington, DC.

II. IMPACT ON INDIVIDUAL INCOMES

Based on the data described above, this section estimates the impact in Nebraska of the lack of adequate childcare.

Short-Term Disruptions

Given the duration of absenteeism from Table 3 above, assume that salaried workers use vacation and personal time off to accommodate those needs. This is a standard treatment in the literature reviewed. Working parents who earn hourly wages lack paid time off benefits that provide them with compensation when they are forced to miss work due to child care issues. Therefore, absenteeism reduces the incomes of these working parents. This is standard treatment in the literature as well. Table 4 below combines the data in Tables 1 through 3 above to show the income loss suffered by hourly wage-earning parents in Nebraska due to insufficient access to child care.[20] The direct loss in income is almost $46 million annually.

Table 4: Short-Term Lost Annual Earnings of Hourly Wage Workers

	Married	Single Male	Single Female	Total
Wage Loss Part Time	$1,736,114	$53,551	$141,718	$1,931,383
Wage Loss Full Time	$40,792,723	$1,059,407	$2,209,005	$44,061,134
Total Wage Loss	$42,528,836	$1,112,958	$2,350,723	$45,992,517

Long-Term Disruptions

Long-term disruptions occur as workers, due to child care issues, are either laid off or forced to quit a job, remain part time, drop from full time to part time or turn down

[20] Table 1 shows the number of individuals with children under age 5 who are either married, single males or single females. Table 2 shows their average annual earnings. This is divided by 260 to get average daily earnings. Table 3 indicates the percentage of working parents in each category who encountered childcare-related absenteeism and the number of days they were absent. To get the estimates in Table 4, the number of parents in each category is multiplied by the daily salary, the percentage with absenteeism and the duration of absenteeism each year. A similar process is used to generate the other estimates in this section.

a promotion. Table 5 below shows the impact on earnings for both wage and salary workers when they are forced to leave a job due to child care issues. This impact alone surpasses $161.8 million annually.

Table 5: Lost Annual Earnings due to Leaving a Job

	Married	Single Male	Single Female	Total
Part-Time Wage Earners	$12,081,753	$372,666	$986,227	$13,440,645
Full-Time Wage Earners	$73,808,749	$1,916,849	$3,996,887	$79,722,485
Full-Time Salary Earners	$63,637,711	$1,652,702	$3,446,105	$68,736,519
Total Income Loss	$149,528,214	$3,942,217	$8,429,219	$161,899,650

Other long-term disruptions on workers include: 1) remaining part time when full time work is available, 2) going from full time to part time work, or 3) turning down a promotion. None of the other state studies estimated the impact of turning down a promotion. Table 6 below indicates the income impacts from these three disruptions. Note that the income impact of foregone promotions assumes that a promotion includes a 10 percent increase in pay and that only full-time workers would have gotten promotions. These three disruptions cost workers $281 million annually in foregone income.

Table 6: Lost Annual Income from Part-Time Work and Foregone Promotions

	Married	Single Male	Single Female	Total
Remaining Part Time	$39,568,574	$1,766,394	$2,652,404	$43,987,373
Switching from Full Time to Part Time	$176,205,408	$5,129,964	$7,703,116	$189,038,489
Forgoing a Promotion	$44,185,308	$1,387,329	$2,892,766	$48,465,403
Total	$259,959,291	$8,283,687	$13,248,286	$281,491,264

Summary

Table 7 below aggregates the previous information and summarizes the impacts on individuals' incomes due to child care issues. In total, the impact is nearly half a billion dollars annually.

Table 7: Aggregate Impacts on Individuals' Incomes

	Married	Single Male	Single Female	Total
Absenteeism	$42,528,836	$1,112,958	$2,350,723	$45,992,517
Turnover	$149,528,214	$3,942,217	$8,429,219	$161,899,650
Remain Part Time	$39,568,574	$1,766,394	$2,652,404	$43,987,373
Go to Part Time	$176,205,408	$5,129,964	$7,703,116	$189,038,489
Forgo Promotion	$44,185,308	$1,387,329	$2,892,766	$48,465,403
Total	$452,016,340	$13,338,863	$24,028,228	$489,383,431

III. IMPACT ON BUSINESS

Businesses also face costs when workers either are absent or leave due to child care related issues. These losses relate to the additional short-term costs of replacing workers and lost productivity from absences, as well as the long-term cost induced by worker turnover. This section estimates the impact of inadequate childcare on businesses in Nebraska.

Short-Term Absenteeism

Table 8 below estimate firms' costs due to short-term absences. These are the cost to replace wage-earning employees that miss work temporarily due to child care issues and productivity losses from salaried workers. These costs are $176.6 million annually.

Table 8: Employer Cost due to Short-Term Child Care Issues

	Married	Single Male	Single Female	Total
Replacement Cost for Hourly Wage Earners	$21,264,418	$556,479	$1,175,361	$22,996,259
Productivity Losses from Salaried Employees	$142,210,008	$3,693,263	$7,700,947	$153,604,218
Total	$163,474,426	$4,249,742	$8,876,309	$176,600,477

Long-Term Turnover

Table 9 below shows the annual cost to employers of searching for and training new employees due to child care related turnover. That cost tops $57 million annually.

Table 9: Employer Cost of Employee Turnover

	Married	Single Male	Single Female	Total
Wage Earners	$25,681,260	$684,565	$1,489,951	$27,855,776
Salary Earners	$27,696,762	$719,298	$1,499,833	$29,915,894
Total Turnover Cost	$53,378,022	$1,403,863	$2,989,784	$57,771,670

Summary

Table 10 below summarizes the impacts on employers. In aggregate, disruptions due to employees with inadequate child care reduces revenues by almost one-quarter of a billion dollars annually.

Table 10: Summary of Employer Costs

	Married	Single Male	Single Female	Total
Absenteeism	$21,264,418	$556,479	$1,175,361	$22,996,259
Productivity	$142,210,008	$3,693,263	$7,700,947	$153,604,218
Turnover	$53,378,022	$1,403,863	$2,989,784	$57,771,670
Total	$216,852,448	$5,653,606	$11,866,093	$234,372,147

IV. Nebraska Economic Impact Estimate

Multiplied Income Impact:

When parents lose income, there is a multiplied impact on the Nebraska economy. As parents lose income, they spend less in the economy. This, in turn, means fewer dollars that businesses in Nebraska receive as income and, consequently, less that they and their employees can spend. An income multiplier estimates the lost income to the total economy stemming from the original loss in income to working parents with child care related issues. In addition to an income multiplier, it is possible to estimate

multipliers that show how a loss in income will affect firm output and the number of jobs in the economy.

The economic multipliers are estimated using the IMPLAN model.[21] The IMPLAN model utilizes average spending rates (100% minus the saving rate) by household income group and linkages between sectors of the economy to estimate how lost income will impact activity (output, employment, wages-paid) in industries throughout the state economy. The IMPLAN model uses the unique industry structure of each state economy when developing estimates but model calculations reflect the average supplier-customer relationships between pairs of industries. The model also does not reflect how spending rates may change over time or capture how supplier-customer relationships might change as the price of supplied goods or services rise or fall. Given these features, the IMPLAN model is best suited for making current estimates of economic multipliers in a state economy.

[21] The IMPLAN model software is the leading multiplier model with capacity to estimate the economic impact of businesses and organizations in over 400 industries, in cities, counties, states, or combinations of counties. IMPLAN, Impact Analysis for Planning. (2019). Available: http://implan.com/

Multipliers vary by income level. Table 11 below shows the multipliers used in this analysis. They are a weighted average of income-based multipliers. For married couples, the weights depend on the percentage of working either part time or full time and the percentage of households with either one or two working parents. For single male and single female headed households, the weights just depend on the percentage of working either part time or full time.

Table 11: Multipliers

	Married	Single Male	Single Female
Income Multiplier	0.30298	0.36033	0.36033
Output Multiplier	1.0000	1.2166	1.2166
Jobs Multiplier	.0000067	.000008	.000008

The income multiplier shows the amount of lost wages in the economy for each direct dollar of income forgone by workers. The multiplier impact also shows similar ratios for employment and output. These ratios vary by household income, and the values in Table 11 are aggregated across income levels. Lower income households have larger multipliers since spending rates are higher (i.e., savings rates are lower), and a larger share of spending is devoted to locally-provided services and goods. The multipliers show the total decline in economic activity in Nebraska due to the loss of income.

Table 12 below shows the additional multiplied impact on income, output and jobs lost due to inadequate child care in Nebraska. There is an additional multiplied income loss of $150 million annually. State aggregate output falls by an additional $497 million and 3,337 jobs are lost.

Table 12: Multiplied Impacts on the Nebraska Economy

	Married	Single Male	Single Female	Total
Multiplied Income Impact	$136,951,950	$4,806,366	$8,658,043	$150,416,360
Output Lost	$451,905,385	$16,227,887	$29,232,430	$497,365,702
Jobs Lost	3,038	107	192	3,337

Income Tax Impact:

When employees lose income, Nebraska loses income tax revenues. The earnings information from Table 12 above is combined with Nebraska standard deductions, tax rates and tax brackets to estimate average and marginal tax rates applicable to married workers and single heads of household.[22] The average and marginal tax rates are shown in Table 13 below. The Average tax rate is used to estimate tax revenue losses due to job loss. Marginal tax rates are used to estimate all other tax losses.

Table 13: Average and Marginal Tax Rates

	Married – Working Full Time	Married – Working Part Time	Male Head of Household – Working Full Time	Female Head of Household – Working Full Time	Any Head of Household – Working Part Time
Average Tax Rate	3.6%	3.0%	3.2%	3.1%	2.8%
Marginal Tax Rate	5.0%	3.5%	3.5%	3.5%	3.5%

[22] For married individuals, the tax rates and brackets are 2.46% up to income of $6,440, 3.51 percent up to income of $38,680 and 5.01 percent beyond. For heads of household, the tax rates and brackets are 2.46% up to income of $6,020 and 3.51 percent up to income of $30,940. The standard deductions are $13,000 for married individuals and $6,500 for heads of household.

Table 14 below shows the income tax implications for income losses due to parents losing income caused by inadequate access to child care. Due to inadequate child care, the state loses over $26 million in income tax revenues annually.

Table 14: State Income Tax Losses

	Married	Single Male	Single Female	Total
Absenteeism				
Part Time	$60,938	$1,880	$4,974	$67,792
Full Time	$2,043,715	$37,185	$77,536	$2,158,437
Turnover				
Part Time	$357,395	$10,390	$27,495	$395,280
Full Time	$4,943,732	$115,660	$233,702	$5,293,094
Full Time to Part Time	$8,827,891	$180,062	$270,379	$9,278,332
No Full Time	$1,388,857	$62,000	$93,099	$1,543,957
No Promotion	$2,213,684	$48,695	$101,536	$2,363,915
Multiplier	$4,925,945	$155,734	$271,854	$5,353,533
Total	$24,762,156	$611,606	$1,080,576	$26,454,338

Appendices

Appendix A. The Bureau of Business Research

The Bureau of Business Research is a leading source for analysis and information on the Nebraska economy. The Bureau conducts both contract and sponsored research on the economy of Nebraska and its communities including: 1) economic and fiscal impact analysis; 2) models of the structure and comparative advantage of the current economy; 3) economic, fiscal, and demographic outlooks, and 4) assessments of how economic policy affects industry, labor markets, infrastructure, and the standard of living. The Bureau also competes for research funding from federal government agencies and private foundations from around the nation and contributes to the academic mission of the University of Nebraska-Lincoln through scholarly publication and the education of students.

Appendix B. Key Personnel

Dr. David Rosenbaum – Principal Investigator

Dr. David Rosenbaum is a professor of economics at the University of Nebraska-Lincoln and Associate Director of the Bureau of Business Research. Dr. Rosenbaum has been involved in a number of research projects involving cost-benefit and/or cost-effectiveness analyses of both public private investments, including:

- a cost-effectiveness analysis of new paradigms in helping families in crisis;
- a cost-benefit analysis of the impact that irrigation restrictions would have on state and local economies;
- A cost-benefit analysis of investments in early childhood education;
- an analysis of the benefits from forest fuel reduction projects in a four-state region;
- a cost-benefit analysis of a major arterial redesign in Lincoln, Nebraska;
- a cost-benefit analysis of a single number information and referral network;
- a review of a proposed beltway to the east and south of Lincoln;
- a community cost-benefit analysis of a new prison in Tecumseh, Nebraska;

- an analysis of the costs and benefits associated with a multi-product utility in South Dakota.

In addition, Dr. Rosenbaum served as Economic Consultant to the Nebraska Public Service Commission where he conducted extensive research and testified several times about a variety of telecommunications issues. Dr. Rosenbaum earned his Ph.D. in economics from the University of Wisconsin-Madison in 1985. He has authored several economic analysis reports, as well as more than 30 articles published in a variety of professional journals.

Dr. Eric Thompson – Principal Investigator

Dr. Eric Thompson is the principal investigator for this project. Dr. Thompson is the Director of the Bureau of Business Research and the K.H. Nelson Professor of Economics at the University of Nebraska-Lincoln. Dr. Thompson has conducted a broad group of economic studies including impact studies of Nebraska agriculture, Sandhill Cranes migration, the Nebraska the Nebraska child care industry, Omaha's Henry Doorly Zoo and Aquarium, the Nebraska horseracing industry, Husker Harvest Days, and the UNL Athletic Department. Dr. Thompson also works on demographic projections, and analyses of economic development programs for Nebraska and cities in Nebraska. He has further conducted numerous economic studies for the Lincoln Department of Economic Development, the Greater Omaha Chamber, the Nebraska Department of Economic Development, various Nebraska industries, and Nebraska tourism attractions. Dr. Thompson's research has received support from the United States Department of Labor, the Robert Wood Johnson Foundation and the United States Department of Agriculture, as well as Lincoln, Omaha, and Nebraska organizations and agencies. In his previous employment, Dr. Thompson served as the Director of the Center for Business and

Economic Research and a Research Associate Professor of Economics at the University of Kentucky. Dr. Thompson received his Ph.D. in agricultural economics from the University of Wisconsin-Madison in 1992. His research fields include regional economics, economic forecasting, and state and local economic development. His research has been published in Regional Science and Urban Economics, the Journal of Regional Science, the American Journal of Agricultural Economics, the Journal of Cultural Economics, and the Economic Review of the Federal Reserve Bank of Cleveland.

Hannah Cass – Bureau of Business Research Scholar

Hannah Cass is an undergraduate at UNL majoring in economics and minoring in German. She is an honors student, has been awarded the Dean's list for every semester, and is the College of Business student government senator. Hannah is a Bureau of Business Research scholar working as research assistant to Dr. Rosenbaum. Bureau of Business Research scholars are high achieving economics majors or minors who are selected to make major contributions to the Bureau of Business's research topics.