

JULY 25, 2024



Driving Growth: The Economic Value of Child Care

IN CLEVELAND AND CUYAHOGA COUNTY

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**Early
Matters
NEO**

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Early Matters NEO

About Early Matters NEO: Early Matters NEO is a group of partners focused on changing policies to ensure working families have access to affordable, quality child care to support workforce and business growth in Northeast Ohio. To learn more and get involved, visit www.earlymattersneo.org.

We are grateful to the Cuyahoga County Workforce Funders Group for generously funding this research.

We also acknowledge the partners who came together over the past year to move this work forward and form Early Matters NEO:

- Cleveland-Cuyahoga County Workforce Development Board
- Cuyahoga County Workforce Funders Group
- Cuyahoga Community College
- PRE4CLE
- Cuyahoga County Office of Early Childhood/Invest in Children
- Starting Point



To Our Fellow Community Leaders and Partners,

As leaders committed to the prosperity and well-being of our community, we write to address a pressing issue that affects us all: the inadequacy of our child care system. In Northeast Ohio, our child care infrastructure is falling short for families, businesses, and our economy, impeding our growth and potential.

Child care is more than just a service for working parents; it is an essential component of our economy. Access to affordable, high-quality child care allows parents to enter and remain in the workforce, contributing to the productivity and growth of our local businesses.

In the following report, the results from a recent survey of Northeast Ohio families show how access to child care is impacting our economy, and the data speak volumes. Our region's economic growth is hampered by insufficient child care services, resulting in a GDP reduction of 0.4% to 0.8% annually in Cuyahoga County alone. Moreover, a staggering 78% of parents in our survey identified childcare accessibility as a barrier to work, with a significant portion either unemployed or not participating in the labor force due to child care strains.

This issue isn't confined to low-income families; middle-income families and mid/senior-level talent are also struggling to find affordable care. These sweeping challenges cost businesses in Cuyahoga County more than \$120 million every year due to lost productivity and turnover.

Yet, amidst these challenges lies an opportunity for transformation. We urge you to join us in reshaping Northeast Ohio's child care landscape into one that nurtures our workforce and fuels economic growth. Together, we can make Northeast Ohio the pinnacle of child-friendly, parent-supportive, and employer-engaged communities.

Here's how you can contribute:

- Understand the needs of working parents.
- Collaborate with child care experts to explore innovative solutions.
- Champion the cause for accessible and affordable child care in our region.

By working collectively, we can unlock the potential of thousands of untapped workers, bolster our economy, and ensure a brighter future for generations. Let us seize this moment to create a Northeast Ohio where every child, parent, child care professional, and employer thrives.

Sincerely,



Justin Bibb

Mayor, City of Cleveland




Chris Ronayne

County Executive, Cuyahoga County

Our Child Care System Isn't Working

The child care system isn't working for Northeast Ohio employers.

When child care doesn't work for parents, employers bear the brunt of the consequences.

Inadequate child care raises Cleveland's unemployment rate by **50%** 

~20,000 parents are on the sidelines of the labor market

The child care system isn't working for Northeast Ohio families.

Parents with young children want affordable, high-quality, and accessible child care, but it's not available to most families, leaving them to rely on a patchwork of multiple arrangements for child care.

55% of parents say child care is not affordable and middle-income families are more likely than low income parents to say that finding affordable care is a challenge.

78% of parents say child care access is a challenge including **92% of IT Workers and 81% of Health Care Workers**



of parents say that inadequate child care has impaired their career options



More than 7 in 10 parents say that child care problems have caused them to be distracted, late, or to have missed commitments at work.

Child care causes workplace disruptions in Healthcare, IT, and Manufacturing. Workers in these leading sectors report that child care impacts their productivity and hours worked and worry they may be fired.

The child care system isn't working for Northeast Ohio's economy. When child care doesn't work for parents or employers, everyone pays the price.



Parents annually miss out on **\$411 Million**

from fewer hours worked, lower wages, time spent searching for a job that fits a parent's existing child care arrangements, and diminished future earnings due to less training and less experience.



Businesses annually miss out on **\$121 Million**

from a workforce with lower productivity and shorter tenure. In addition to this loss, over time businesses also must pay for recruitment and hiring as their workforce changes; and there are added operational and managerial costs. Over time, the workforce is not optimally trained and has less experience.



The community annually loses **\$114 Million**

in tax revenue from lower economic output impacting tax revenues at the local, state, and federal levels.

Be part of the solution

Now is the time to transform our child care system to support and grow our workforce.

These challenges are solvable, but we need you. Help make Northeast Ohio the best place in the state and the country to be a child, a parent, a child care professional, and an employer.

Join the movement

1 Understand the needs of working parents:

Your greatest resource is at your fingertips! Parents working in your organization are dealing with child care challenges right now. Make sure you understand how these challenges are impacting your organization and your bottom line.

- **Talk to your HR department** about what data are already available to you.
- **Conduct a survey or host focus groups** to hear about child care challenges directly from the working parents in your organization.

2 Partner with child care experts:

The child care system is complex, but there are local experts who can help you think about and understand it more deeply.

- **The partners who came together to work on this report are a great place to start.** They represent decades of leadership on child care, education, policy, workforce, and economic development and are ready to talk to employers like you to identify solutions.
- **Ask questions and stay engaged.** Talk to the local experts and advocates, your employees, policymakers, state and local agencies, and even child care providers to learn about the landscape.
- **Think Big.** Child care is a big challenge that needs big solutions. Help disrupt, transform, and strengthen the child care system.

3 Become a champion:

Join our coalition to fix Northeast Ohio's child care system and propel our region forward!

- **Support advocacy** at the local, state, and federal levels. Add funding for high-quality child care to your organization's advocacy agenda.
- **Spread the word by sharing** this report with other employers and leaders you know.
- **Ask your local Chamber of Commerce** how they are engaging in child care policy and how membership can be more involved.



Join the movement!
Sign on to our coalition to receive information, updates, and action alerts.

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Summary

Finding care for children aged under five is a challenge for families in Cleveland and across Cuyahoga County.

This challenge was made significantly harder by the COVID-19 pandemic and has not recovered: in 2022-23, only slightly more than one-third of Cleveland children are participating in child care (down from one-half before the -pandemic).

High-quality child care – as well as boosting child development – helps families become economically secure. Without child care, many parents cannot fully participate in the labor market: family income is lower and career prospects are restricted. In turn, economic activity across the City of Cleveland – and across Cuyahoga County – is impacted.

This report calculates the full economic burden of the child care deficit. This analysis is the first of its kind for the City of Cleveland and Cuyahoga County, and estimates economic consequences for working families, for local businesses, and for the City of Cleveland and Cuyahoga County tax revenue, based on a representative sample survey of parents with children aged under five.

Child care is defined as education and caregiving before kindergarten. Most families rely on a patchwork of multiple arrangements for child care, including family care, center-based care and non-family care.

Emphatically, families with young children want affordable, high quality, and accessible child care.

But this child care is not available to most Cleveland-area families. Finding child care is challenge for:



Inadequate child care options affect the economic security and work options of parents. Cleveland-area families experience many labor market penalties:

Unemployment

Parents with young children are much less likely to have a job: **approximately 12% of parents report not being able to pursue jobs because of inadequate child care.**

Job Exits

More than one-third say they experienced a significant work disruption (e.g., exiting the job market or being demoted) because of child care challenges.

Career Opportunities

Almost one-half report that inadequate child care has impaired their career options (e.g., by forgoing job offers or work-related training); this limits their future career advancement and wage growth.

Productivity at Work

More than seven-in-ten report that child care problems have caused them to be distracted, late, or to have missed commitments at work.

Hours of Work

One-third report that the hours they can work are restricted. Inadequate child care has caused these parents to voluntarily reduce their hours, to have their hours cut at work, or to go part-time.

These labor market penalties are large and persist over multiple years.

As primary caregivers, mothers face much greater penalties. Compared to working men, working mothers report more burdens in terms of being late for work, missing work, having pay and/or hours reduced, changing from full-time to part-time, quitting their job, turning down job offers or promotions, and being unable to participate in work-related training. These disproportionate burdens equate to a wage penalty of 13%; they also increase the unemployment rate by 2 percentage points.

Also, the adversities are greater for African American families, low-income households, and families with more than one child under five. Even as these groups earn less than the average working parent, they experience relatively more adversities.

The economic consequences of inadequate child care for Cleveland and Cuyahoga County parents, businesses, and tax revenue are identifiable using an economic model of labor supply, business output, and the Ohio tax code.



Each year, per parent with children aged under five there are substantial annual losses:

Parents lose \$5,760 from lower earnings, reduced productivity at work, and from job search expenses.

Businesses lose \$1,700 in reduced revenue and in extra recruitment costs.

Tax Revenue is \$1,610 lower in lost federal and state/local taxes.

These per parent economic losses are even greater across the childhood years from birth to kindergarten.

Aggregated for the City of Cleveland, the annual parental income loss totals \$196 million, the business burden is \$58 million, and the tax burden is \$54 million. Overall, GDP in Cleveland is 0.2%-0.4% lower each year because of inadequate child care. As context, the International Monetary Fund says, “a recession is usually associated with a decline of 2% in GDP.”¹

Aggregated for Cuyahoga County, annual parental income loss totals \$411 million, the business burden is \$121 million, and the tax burden is \$114 million.

Overall, GDP in Cuyahoga County is 0.4%-0.8% lower each year because of inadequate child care.

Significant commitment to public funding of high-quality child care would offset much of these losses and would boost economic activity in Cleveland and across Cuyahoga County.



Introduction

Child care is necessary for parents to participate in the labor market. High-quality and sufficient child care allows parents to find work, increases their productivity at work, and helps them build successful careers.

Child care can therefore be an effective and efficient labor market policy.² Evaluations of local programs demonstrate how high-quality early care and education also support our future workforce by providing young children with significant developmental advantages.³

Many Cleveland-area parents cannot access affordable high-quality child care.

Access was limited before the COVID-19 pandemic; but the pandemic reduced access and has created a sizeable “capacity gap”. In 2019 almost one-half of 3- to 5-year-olds were in child care but the fraction fell to one-quarter in 2020. The rate is climbing back up but at one-third it is still below its pre-pandemic level. Affordability is also an issue for many families. Child care fees can exceed \$10,000 per year and eligibility for public subsidies across Ohio is limited to families close to the federal poverty line. Lastly, quality is a challenge, in part because child care teacher pay is low (and much lower than pay for teaching in K-12 schools).⁴



Enrollment of 3- to 5-year-olds in child care **fell by 1/2 in 2020**



Child care fees can **exceed \$10,000** per year and eligibility for public subsidies across Ohio is limited



Child care teacher **pay is low** impacting child care access and quality

How inadequate child care spills over into families, businesses, and tax revenues.



Inadequate child care spills over into how much families can work and earn—and even if they can work at all. Numerous studies have shown that with inadequate child care, labor market productivity falls, earnings are lower, business output is lower, and, consequently, tax revenues are lower. Looked at in the aggregate (across all Cleveland families) or over childhood (until kindergarten), this economic burden is likely to be substantial.

In this report, we calculate the economic consequences of inadequate child care options in Cleveland and across Cuyahoga County. To begin, we describe current patterns of child care for local residents. Next, we report on the labor market impacts for families when child care is inadequate. We then model the effects on family incomes, business output, and government revenues. We derive the economic burden across Cleveland and Cuyahoga County, both per family and in the aggregate from a social perspective and a taxpayer perspective.

This economic analysis uses a large county-specific survey of local families with children aged under five. The survey includes both working parents and parents who are not in the labor force. Administered in June 2023 the survey provides up-to-date evidence on child care and the world of work for local families in the aftermath of the COVID-19 pandemic.

Section 02

Survey of Parents in Cleveland and Cuyahoga County

The data for this analysis is from a survey of 402 working parents across Cleveland and Cuyahoga County. The sampling frame is parents with young children aged under five as of June 2023. (Appendix 1 describes the survey design).



The survey respondents are representative of parents with young children across Cleveland and Cuyahoga County.

These parents are distinctive from the average worker: they are younger and have less work experience. The demographics of the survey sample and the resident population are given in Appendix Table 1A. The sample population distributions are similar with respect to race, education, age, and single parenthood. Most of the parental respondents are female and there is oversampling of the Cleveland metro area (relative to Cuyahoga County). Therefore, the analysis is adjusted for differences by gender (e.g. in labor market involvement) and performed separately for the Cleveland metro area. General estimation biases are examined in sensitivity testing.

The work status of the survey respondents aligns with that of the Cleveland and Cuyahoga workforce. Appendix Table 1B

compares the labor market characteristics of the sample to the entire adult workforce of 1.034 million persons across the region. The sample has lower full-time employment rates and notably higher unemployment. Hours worked per week are almost identical to the county average. Weekly earnings are slightly lower (\$924 versus \$1,350 county-wide); but hourly earnings and average household income are equivalent (\$27 versus \$29; and \$62,690 versus \$61,950).⁵

Overall, this large-scale survey provides valid and up-to-date evidence on the child care experiences of families across Cleveland and Cuyahoga County.

Section 03

Child Care Programs

Patterns of Child Care

Child care is available through a mixed delivery system that includes school-based preschools, community-based child care centers and Head Start, licensed family child care homes, and informal care through family members or friends. Mapping studies show that approximately two-fifths of Cleveland families live in child care “deserts”, i.e. areas with too few licensed slots for the number of children aged up to five who need care.⁶ While Cleveland and Cuyahoga County have made significant progress on increasing the availability of preschool seats for 3- and 4-year-olds during the day, child care options for infants and toddlers are especially limited, and options for non-traditional hours, including overnight care, is extremely difficult to find. All of this means that for many families in Cleveland and across Cuyahoga County, their preferred child care options are unavailable, unaffordable, or both. To fill the gaps in care, families often rely on a patchwork of child care arrangements.

As well, the pandemic brought the child care and preschool sector to near-collapse. For four-year olds, the pandemic “wiped out a decade of progress” in many preschool places.⁷ The supply of slots for young children fell sharply and when centers did reopen they had significantly higher costs; this reduced supply even further and made care less affordable.⁸ On the demand side,

some parents lost their jobs or lost income – this made early education unaffordable; and infections meant some parents were reluctant to commit to child care. With home-based work, child care became a “juggling act for working parents”.⁹ As the pandemic abated in 2023, the child care “system” is recovering; but the damage has been significant.

As of summer 2023, child care for Cleveland and Cuyahoga County families with children aged under 5 is shown in Table 1. As shown, families do not rely on just one care type: they rely on family care at home (45%), non-family care at home (30%), and center-based child care and preschool (24% and 21%). Even with these options, many families describe their care as various, informal or irregular.¹⁰

Table 1: Child Care Participation

	Parents in Cleveland & Cuyahoga County
Preschool	21%
Parent/guardian stays home with children	45%
Formal care in home setting	12%
Center-based child care facility	24%
Multiple arrangements	14%
Informal care (family member or friend)	30%
No regular arrangements	8%
EMPLOYER SUPPORT FOR CHILD CARE (%)	
Financial support	15%
Program on-site	12%
Arrangements with off-site care	11%
Informal support	9%
Amount paid per week for child care ^a	\$220 (sd=190)
Observations	402

Source: Zogby Survey, June 2023. Notes: N=402. For type of care, respondents gave multiple responses. Formal care in home setting includes nanny or a licensed family child care home. a. Non-zero amounts only, N=361. Parents of children aged under 5.

Public funding for child care and preschool is available to a limited number of families in Cuyahoga County depending on a variety of factors including income level, work or school participation, and the school district in which families live. Families in Ohio below 145 percent of the federal poverty level can access publicly funded subsidized child care if they meet work or school participation requirements. In 2024, 145 percent of the federal poverty level equaled \$45,240 for a family of four.¹¹ Notably, this eligibility threshold, which is set by the State of Ohio, is the lowest in the nation.¹²

Families can also access federally funded Head Start programs if they meet the income eligibility requirement, which is typically 100 percent of the federal poverty level and below. Additionally, school districts offer special education preschool for all qualified students ages 3 and 4, and some school districts offer preschool for regular education students free or at a reduced cost through state and local funding. With specific interest to this study, the Cleveland Metropolitan School District greatly expanded their preschool seats starting in 2014, and now offers free preschool for more than 20 percent of the preschool-age population in Cleveland.¹³

Finally, local funding from Cuyahoga County supports scholarships for children to attend high-quality preschools that are participating in the County's Universal Pre-K program, or UPK. In the 2022-23 school year, scholarships were distributed to about 1,000 families in Cuyahoga County through the UPK program, lowering child care tuition costs by one-third to one-half for families under 400% of the federal poverty level.¹⁴

Public Child Care Assistance Funding

State Child Care Subsidy

Families in Ohio can access state funded subsidized child care

Eligibility Requirements

145% of the federal poverty level, \$45,240 for a family of four.

Head Start

Families can access federally funded Head Start and Early Head Start programs

Eligibility Requirements

100% of the federal poverty level, \$31,200 for a family of four.

School District Preschools

Families can access special education preschool for all qualified students ages 3 and 4, and some preschool for regular education students free or at a reduced cost

Eligibility Requirements

Varies by school district.

Cuyahoga County's Universal Pre-Kindergarten (UPK) Program

Families can access scholarships for children to attend high-quality preschools that are participating in the County's Universal Pre-K program, or UPK.

Eligibility Requirements

400% of the federal poverty level, \$124,800 for a family of four.

Employers can play a positive role in supporting child care that helps working families. However, most workplaces are unable to invest in child care, and few offer direct care. The bottom panel of Table 1 shows how few supports employers offer. These include financial support, on-site and off-site programs, and informational supports. However, these supports are rare, with only approximately one-in-ten families able to access each employer support. A far majority of families have no clear at-work support for their children.



Only one-in-ten families are able to access each employer support.

Barriers to Access

Parents are clear in what they need as care for their children. Care needs to be affordable, high quality, and – most fundamental – it needs to be accessible. However, many families face challenges in obtaining child care that has some or even any of these features.

Table 2 shows the challenges that families face: 55% report affordability is an issue and 66% report finding high quality care is a challenge. Notably, 78% of families cite access as a challenge.¹⁵

Table 2: Child Care Challenges

Parents in Cleveland & Cuyahoga County	
REPORT SIGNIFICANT CHALLENGES IN ACCESSING CHILD CARE	
Affordable	55%
High quality	66%
Accessible ^a	78%
Convenient location	57%
Matches work-week schedule	54%
Open slots	53%
Flexible to work shifts	53%
Finding emergency care	52%
Finding special needs care	38%
Observations	402

Notes: ^a Accessible includes affirmative responses to at least one of the listed categories: location; schedule; slots; flexibility. Pre-school is any non-parental care for children aged under 5. All parents.

Child care accessibility may be a challenge for families because available care options:

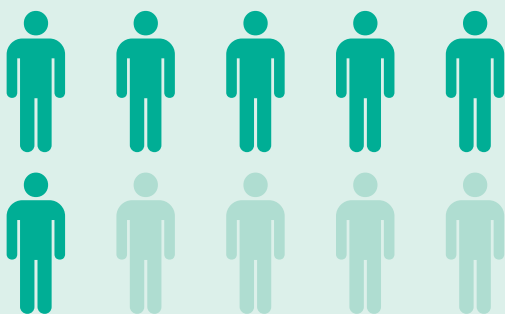
- are not in a convenient location
- do not match work schedules
- have strict hours
- do not have open slots
- are inflexible to work shifts or family emergencies

Section 04

How Inadequate Care Affects Work

Child care and preschool can help working families get jobs and earn more. In contrast, when care is inadequate, workers suffer in terms of work productivity, hours of work, job security, and career opportunities. Cleveland and Cuyahoga County parents report high rates of adversity in each area. These work-related penalties from inadequate care are shown in Table 3.¹⁶

In the three months prior to being surveyed, **more than half (61%) of parents report “being distracted to the point of being unproductive at work”**. Most working parents report being late for work, leaving work early, or missing either a shift or an entire work day. All these adversities are attributable to inadequate child care.



61% report being distracted to the point of being unproductive due to inadequate child care

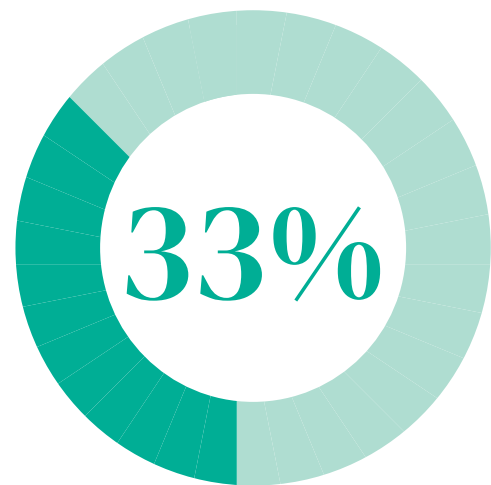
Looking over the years since their child was born, parents report even more disruptions.

One-third of workers report fewer hours

More than one-third report career adversities – either:

- fewer job offers
- promotions
- training opportunities

1/4– 1/3 report a job termination or demotion



Quit a Job



30% Changed from full-time to part-time



44%

Turned down new job offer



Disruptions from inadequate care are identified in three dimensions. Some parents cannot get work at all because child care is unavailable. Cost, quality and access impediments are such that the net wage they could secure is not worth it. These parents are paying the highest burden of inadequate child care. **Of Cleveland survey parents, 12% are unemployed and another 11% are not participating in the labor force** (not working and not looking for work); by contrast, the averages for Cuyahoga County are 4% and 6% respectively (Appendix Table 1B). Also, these unemployed respondents report quit and firing rates much higher than the survey average. After adjusting for familial status, **the net effect of inadequate child care is to drive up the unemployment rate for parents by 2 percentage points.**

As the unemployment rate in Cleveland was 4% in 2023, inadequate child care effectively raises the unemployment rate by 50%.¹⁷ These “lost workers” are included in this analysis to identify the full effect of inadequate child care.

Inadequate child care causes work-related penalties that are multi-faceted and substantial and that have chronic consequences. It reduces labor force participation, impairs productivity, and undermines career prospects. The aggregate economic consequences are therefore likely to be significant and widespread.

Table 3: Child Care and Work-Related Problems



	PRODUCTIVITY	
Over the Past 3 Months	Distracted to point of being unproductive at work	61%
	Been late for work	70%
	Left work earlier than normal	66%
	Missed a full-day of work	63%
	Missed work shift	41%
Since Child (Aged Under 5) was Born/Adopted	HOURS	
	Had pay or hours reduced	33%
	Changed from full-time to part-time work	30%
	TERMINATION	
	Quit a job	33%
	Reprimanded by supervisor	26%
	Been let go or fired	17%
	Demoted	12%
	CAREER	
	Turned down new job offer	44%
	Turned down opportunity to pursue further education	36%
	Turned down promotion or reassignment	30%
	Had problems participating in work-related training	28%
N	312	

Source: Zogby poll, May 2023. Parents not in work excluded.

Section 05

Modeling the Economic Impacts of Inadequate Child Care

Inadequate child care imposes direct economic burdens on family incomes and earnings growth. In turn, there are secondary burdens on businesses and the local economy and its tax base.

The economy-wide impacts of inadequate child care are calculated for these three groups – workers, businesses, and the community (tax revenue) – using a multi-period economic model.¹⁸ As well as survey data, these calculations rely on: evidence from the survey on the extent of disruptions; city-, county-, and state-specific economic data on earnings and business activity; and average and marginal tax rates. All figures are reported in 2023 present value dollars. (The full method is given in Appendix 2.)

Economic burdens on working families are large and immediate (as per Table 3). Both hours worked and wages per hour are lower. There are monetary losses in **time spent searching for a job that fits in with a parent’s existing child care arrangements**. And, with less training and less experience, **career opportunities and thus future earnings for working parents are diminished**.

Burdens on businesses come from having a **workforce with lower productivity and shorter tenure. This reduces output and revenue**. Firms may reduce workers’ pay, but the adjustment is not exact: wages do not instantaneously and perfectly adjust; and firms would prefer workers not to be constrained by care needs and to not lose their existing workers. **Firms must pay for recruitment and hiring as their workforce changes; and there are added operational and managerial costs**. (Specific training costs for new workers are not included in the model). These burdens are immediate (with workers who have young children); and they **extend over time because the workforce is not optimally trained and has less experience**.

For the community, lower economic output means lower tax revenues. Both state/local and federal tax revenues are affected.¹⁹ Each year of reduced economic activity therefore leads to a corresponding loss in general tax revenue.²⁰

The economic consequences are reported per parent with any children aged 0-5 and per parent across the child’s birth to preschool years. Model estimates are derived as the average per parent – not the amount per parent who is adversely impacted.²¹

Aggregate results are also calculated, with separate results for the City of Cleveland and for all Cuyahoga County. In Cleveland, there are approximately 20,000 children aged 0-4; across Cuyahoga County, there are 41,000. These correspond to 34,000 and 72,000 parents respectively.²² For annual burdens, aggregate losses are for all parents in 2024. For childhood burdens, calculations are reported for each annual cohort of parents whose children were born in 2024.

Section 06

Economic Burdens from Inadequate Child Care

Annual Burdens

Annual burdens are calculated per parent with a child aged under 5. These annual burdens will persist as long as child care is inadequate, or until the labor market adjusts to support working parents. The burdens are reported as averages per parent: some parents will experience no burden; and some parents will lose their jobs.

Annual losses per parent are economically significant. These are shown in Table 4.

Losses to a parent amounts to \$5,760 per year. Most of the burden is lost hourly wages and fewer work hours; terminations (lost jobs) are also economically significant.

Losses to a business amount to \$1,700 per year per parent. This burden comes from reduced revenue, lower productivity that is not offset by lower wages, and extra hiring costs.²³

Total tax revenues are reduced by \$1,610 per year per parent. Lower incomes lead directly to lower income tax contributions and indirectly to lower consumption taxes paid.

Table 4: Annual Loss in Cuyahoga County from Inadequate Child Care

Annual Loss per Parent with a child under age 5

Parents	
Lost Earnings	\$4,500
Extra Cost of Job Search	\$1,260
Total	\$5,760
Businesses	
Hiring/Staff Costs	\$800
Lost Revenue	\$900
Total	\$1,700
Tax Revenue	
Lost Federal Tax	\$870
Lost State Tax	\$740
Total	\$1,610

Burdens over Childhood

Direct economic losses occur every year that a child is aged under five. After that age, kindergarten options become available. From the family perspective, therefore, the burdens last five years, with each year varying depending on the availability of child care and preschool, as well as prior labor market decisions. In addition, the burdens accumulate because parents have less work experience and fewer skill development. Thus, the childhood burden is not simply the annual burden times five (and to provide a valid monetary account, the annual burden must be discounted).

The childhood burdens are shown in Table 5. Expressed as a lump sum at birth, working parents face a total economic loss of \$15,540 per child from inadequate child care. This childhood burden includes the annual burdens as well as a lower trajectory of earnings over the years up to the child reaching school age. Most of the burden is when the child is aged under three but there are persistent effects afterward.

Businesses face a total economic loss of \$2,810 per parent. This lump sum covers the period when the worker's child is under school age. However, the burden decays rapidly: workers and employers adjust to do the best they can, given their child care constraints. For example, workers shift to alternative jobs; and firms adjust wages and work allocations over time to match workers' productivity.

Total tax revenue losses are \$4,460 per parent from inadequate child care. Both federal government revenues and local government revenues – most of which come from income taxes – are impacted over the full period of young childhood. The trend in these burdens follows that of the losses in earnings.



Table 5: Economic Impact per Parent of Inadequate Child Care Access (Birth to Age 5)

	Loss per Parent ^a (Childhood from Birth to Age 5)
Parents	\$15,540
Businesses	\$2,810
Tax Revenue	\$4,460

Notes: ^a Present values at birth.

Aggregate Losses from Inadequate Child Care

There are 34,000 [71,400] parents with children aged under 5 in Cleveland [Cuyahoga County]. As shown in Table 6, the aggregate impact is substantial. For context, GDP for Cuyahoga County is \$110 billion.²⁴

Table 6: Annual Aggregate Loss from Inadequate Child Care

All Parents with Child Aged Under 5

	Annual burdens within the City of Cleveland are:	Across all of Cuyahoga County, the annual burdens are proportionately larger:
Parent Losses	\$195.8 m for parents	\$411.3 m for parents (0.3-0.4% of the local economy)
Business Losses	\$57.8 m for businesses	\$121.4 m for businesses (0.1% of the local economy)
Tax Revenue Losses	\$54.4 m for taxpayers	\$114.2 m for taxpayers (equivalent to 4% of local tax revenues)

Section 07

Subgroup Analysis

Families may face different challenges in finding child care; they also have different job opportunities. Within-group analysis is performed in three domains. First, patterns for mothers are examined. It remains the case that mothers bear the main responsibility either for child care in the home or for the organization of child care outside the home; also, mothers disproportionately experience job market penalties from inadequate child care. Second, patterns for specific groups are examined: Hispanic and African American families; low-income households; families with more than one young child; and families residing in Cleveland. To some degree,

these groups may be more disadvantaged and so face greater child care adversities. Finally, child care patterns are examined for workers in specific sectors: healthcare; manufacturing; and technology. Working parents will experience different challenges depending on what jobs they do, what working conditions they face, and what other jobs are available.

Within-group analysis is important: it can show how patterns of child care vary, which families face the most challenges, and what factors affect work and careers. This evidence is particularly important for families that are disadvantaged and so may face significant home and work pressures. However, these families typically earn less than the average family and so the absolute monetary economic burden is smaller for these families. (A pay cut of 10% is \$4,000 for a person earning \$40,000 per year but only \$2,000 for a person earning \$20,000). The relative burden is heavier for these groups; but the absolute dollar amounts are lower. Therefore, the focus here is on the relative number of challenges and penalties within groups.

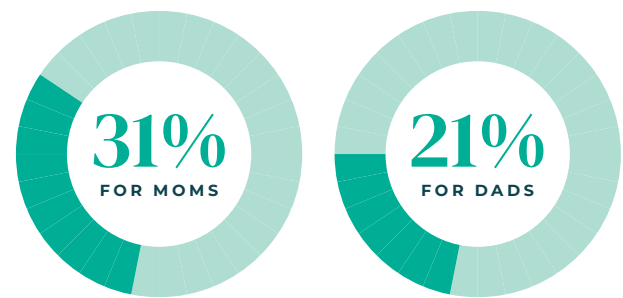


Challenges and Penalties Faced by Mothers

As mothers are the predominant caregivers for young children, the labor burden they face is especially relevant. (Child care patterns and challenges are expected to be similar for both household parents). Separating out Table 3 by gender, compared to fathers, working mothers are much more likely to report these burdens.

Compounded across almost every dimension of jobs and careers, there are significant relative disparities for working mothers over working

The proportion of mothers who report Quitting a Job due to child care challenges is ten percentage points higher than fathers



fathers. However, fathers reported a higher rate of demotion; for leaving early, reprimands and for work-related training, the rates are equivalent.

Working mothers earn significantly less than working fathers. In the survey, working fathers are earning \$30 per hour; working mothers are earning \$26 per hour on average (controlling for individual characteristics). Hence, these burdens equate to approximately 13% of each worker's wage.

Table 7: Work Burdens for Mothers Compared to Fathers

	Mothers	Fathers
Been Late for Work	71%	63%
Missed a Full Day of Work	68%	52%
Had Pay And Or Hours Reduced	42%	35%
Changed From Full-Time To Part-Time	32%	21%
Quit Their Job	31%	21%
Been Let Go or Fired	16%	13%
Been Demoted	11%	18%
Turned Down New Job Offer	43%	42%
Turned Down Opportunity to Pursue Further Education	38%	33%
Turned Down Promotion or Reassignment	31%	29%

Challenges and Penalties by Parental Group

Subgroup analysis is examined for Hispanic and African American families, low-income households, and families with more than one young child. Evidence is also reported for parents in the city of Cleveland. These groups may experience more substantial challenges in obtaining child care, and they may face larger work penalties.

As shown in Table 8, child care participation is a mix of family care, center-based care and multiple or informal arrangements. Family care is more common for low-income households. Notably, these groups report more combinations of care than the average working parent (i.e. more responses to each type of care). This captures the “juggling act” effect where parents do not have a single, reliable child care option.

Table 8: Child Care Participation by Subgroup

PARENTS IN CUYAHOGA COUNTY		African American	Hispanic	White	Other	Income >\$60,000	Income <\$60,000	> 1 Child	All Parents
Type of Care Used	Preschool	12%	33%	2% ¹	0%	12%	20%	24%	19%
	Parent/guardian stays home with children	29%	40%	39%	57%	65%	34%	43%	38%
	Formal care in home setting	29%	13%	29%	29%	12%	31%	28%	28%
	Center-based child care facility	24%	47%	24%	0%	0%	30%	24%	26%
	Multiple arrangements	18%	20%	12%	14%	0%	16%	11%	13%
	Informal care (family member/friend)	12%	27%	13%	29%	12%	17%	17%	16%
	No regular arrangements	12%	7%	5%	0%	12%	5%	9%	6%
Observations	17	15	76	7	17	103	46	120	
PARENTS IN CLEVELAND		African American	Hispanic	White	Other	Income >\$60,000	Income <\$60,000	> 1 Child	All Parents
Type of Care Used	Preschool	22%	25%	22%	11%	12%	25%	27%	22%
	Parent/guardian stays home with children	44%	27%	48%	50%	56%	39%	43%	43%
	Formal care in home setting	18%	31%	30%	17%	14%	26%	27%	23%
	Center-based child care facility	25%	31%	18%	11%	11%	27%	22%	23%
	Multiple arrangements	15%	20%	12%	17%	16%	15%	20%	15%
	Informal care (family member/friend)	10%	18%	13%	6%	12%	12%	15%	12%
	No regular arrangements	13%	6%	10%	22%	17%	10%	16%	11%
Observations	125	51	83	18	64	218	97	282	

Source: Zogby Survey, June 2023. Notes: For type of care, respondents gave multiple responses.

Table 9: Child Care Challenges by Subgroup

Parents who report significant challenges in accessing ECE that supports their work:								
PARENTS IN CUYAHOGA COUNTY	African American	Hispanic	White	Other	Income >\$60,000	Income <\$60,000	> 1 Child	All Parents
Affordable	35%	40%	67%	57%	53%	58%	57%	58%
High quality	76%	73%	71%	57%	65%	71%	70%	70%
Accessible ^a	82%	87%	78%	57%	65%	78%	74%	76%
Observations	17	15	76	7	17	103	46	120
PARENTS IN CLEVELAND	African American	Hispanic	White	Other	Income >\$60,000	Income <\$60,000	> 1 Child	All Parents
Affordable	49%	63%	59%	50%	41%	59%	53%	55%
High quality	59%	69%	75%	56%	55%	68%	74%	65%
Accessible ^a	79%	84%	80%	72%	69%	82%	82%	79%
Observations	125	51	83	18	64	218	97	282

Notes: ^a Accessible is any affirmative responses to location, matches schedule, flexible, back-up care, or open slots.

As shown in Table 9, challenges in finding child care are common across all groups. Broadly, parents in these groups report similar challenges to the average working parent with respect to affordability and quality. One difference is in access: almost all disadvantaged parents report this is as a challenge. For low-income parents, these challenges are not so onerous: only 43% say affordability is a challenge (the survey average is 55%); and 57% identify challenges in finding quality child care (versus 66% for all working parents in the survey). It may be that these parents are eligible for means-tested support.

As shown in Tables 10A and 10B, all groups experience significant labor market disruptions from inadequate child care. Generally, each group faces the same size penalty with respect to productivity and hours. However, termination rates – the biggest labor market burden – are higher for low-income families and for those in Cleveland. Therefore, parents in these two groups are likely to experience a moderately larger burden from inadequate child care.

Table 10A: Child Care Work-Related Problems by Subgroup

PARENTS IN CUYAHOGA COUNTY		African American	Hispanic	White	Other	Income >\$60,000	Income <\$60,000	> 1 Child	All Parents
Over the Past 3 Months	PRODUCTIVITY								
	Distracted to point of being unproductive	18%	40%	54%	71%	47%	48%	46%	48%
	Been late for work	47%	47%	59%	57%	29%	58%	52%	54%
	Left work earlier than normal	35%	60%	61%	57%	35%	58%	43%	55%
	Missed a full day of work	47%	47%	53%	43%	41%	51%	43%	50%
Missed work shift	29%	47%	33%	29%	29%	34%	33%	33%	
Since Child (Aged Under 5) was Born/Adopted	HOURS								
	Reduced your regular work hours	35%	47%	30%	29%	53%	28%	30%	32%
	Changed from full-time to part-time work	12%	40%	18%	14%	41%	16%	17%	25%
	TERMINATION								
	Quit a job	18%	13%	30%	0%	59%	19%	20%	48%
	Reprimanded by supervisor	12%	33%	26%	14%	18%	26%	30%	25%
	Been let go or fired	6%	20%	7%	0%	12%	9%	7%	9%
	Demoted	12%	13%	9%	0%	6%	11%	15%	10%
	CAREER								
	Turned down a new job offer	35%	20%	38%	43%	47%	33%	30%	35%
Turned down further education	29%	20%	37%	43%	35%	33%	37%	33%	
Turned down a promotion or reassignment	29%	33%	24%	43%	29%	25%	26%	26%	
Had problems participating in training	18%	13%	33%	29%	18%	29%	33%	28%	
Observations	125	51	76	7	17	103	46	120	

Source: Zogby poll, June 2023.

Table 10B: Child Care Work-Related Problems by Subgroup

PARENTS IN CLEVELAND		African American	Hispanic	White	Other	Income >\$60,000	Income <\$60,000	> 1 Child	All Parents
Over the Past 3 Months	PRODUCTIVITY								
	Distracted to point of being unproductive	39%	49%	58%	39%	30%	51%	46%	46%
	Been late for work	55%	63%	57%	33%	36%	61%	55%	55%
	Left work earlier than normal	46%	59%	52%	50%	33%	56%	48%	51%
	Missed a full day of work	56%	57%	41%	44%	39%	54%	53%	51%
Missed work shift	35%	33%	31%	22%	27%	34%	31%	32%	
Since Child (Aged Under 5) was Born/Adopted	HOURS								
	Reduced your regular work hours	42%	49%	46%	44%	42%	44%	48%	44%
	Changed from full-time to part-time work	37%	39%	33%	28%	48%	31%	39%	36%
	TERMINATION								
	Quit a job	36%	41%	34%	33%	52%	31%	40%	46%
	Reprimanded by supervisor	27%	31%	24%	17%	27%	26%	25%	26%
	Been let go or fired	22%	27%	18%	17%	25%	20%	29%	21%
	Demoted	15%	16%	12%	6%	14%	13%	18%	13%
	CAREER								
	Turned down a new job offer	48%	55%	47%	39%	53%	46%	55%	48%
Turned down further education	36%	39%	40%	33%	38%	38%	43%	38%	
Turned down a promotion or reassignment	27%	43%	31%	33%	34%	31%	40%	32%	
Had problems participating in training	29%	31%	33%	6%	25%	30%	33%	29%	
Observations	125	51	83	18	64	218	97	282	

Source: Zogby poll, June 2023.

Challenges and Penalties by Sector

Information on working parents is available for three specific sectors of the economy:



Health Care



Information Technology (IT)



Manufacturing

Health care is almost one-fifth of the U.S. economy and offers stable employment for many credentialed workers. However, health care jobs require in-person on-site work (rather than work from home); inadequate child care may be especially onerous for these workers. Despite being a large part of Northeast Ohio's economy, the manufacturing sector has declined over recent decades and pay has also lagged: parents may be unable to afford child care



and may have precarious employment. Finally, the IT sector has growing employment and it may offer flexible hours to some workers, ameliorating child care challenges.

Evidence by sector is suggestive: the sample sizes for each sector are small; estimates are therefore imprecise. Therefore, results by sector are reported in Appendix 4 and are summarized below.

There are notable patterns of child care penalties within and across groups. Further investigation into home and labor market factors will shed more light on the overall impact of inadequate child care.

Types of Child Care

Workers in all three sectors rely on a mix of child care. Health care and IT workers have high rates of parental care and use of facilities.

Challenges with Child Care

Having child care that is accessible is a big challenge for workers in each sector. Almost all IT workers (92%) and most health care workers (81%) identify accessibility as a challenge.

Impact on Productivity

Workplace disruptions are significantly high for workers in the health care and IT sectors. IT workers emphasize how their productivity and hours on the job are much affected by inadequate child care. Yet, these disruptions do not pass through into job loss for IT workers. For workers in health care and manufacturing, job termination is the biggest concern.

Section 08



Conclusions

In Cleveland and across Cuyahoga County, parents struggle to balance the need to work with the available child care options. Relative to parental needs, public support is inadequate and parents overwhelmingly describe their child care options as unaffordable, low quality, or simply inaccessible. These parents then directly relate these issues to their jobs and the adverse impacts on their productivity, work effort, and careers. Some parents are unable

to work at all. These results hold for parents regardless of their characteristics or family circumstances. From a range of perspectives, the current child care system imposes large economic losses.

Given these economic burdens— as well as the lost opportunities for child development there is a compelling case for additional investment in child care for Cleveland and across Cuyahoga County.



In Cleveland and across Cuyahoga County, the majority of working parents struggle to balance the need to work with the available child care options.

Appendix 1

Sampling

Zogby Analytics was commissioned by PRE4CLE to conduct an online survey of 402 parents of children under 5 in Cuyahoga County, Ohio in June 2023.

Using internal and trusted interactive partner resources, thousands of adults were randomly invited to participate in this interactive survey. Each invitation is password coded and secure so that one respondent can only access the survey one time.

Using information based on census data, voter registration figures, CIA fact books and exit polls, we use complex weighting techniques to best represent the demographics of the population being surveyed. Weighted variables may include age, race, gender, region, party, education, and religion.

Based on a confidence interval of 95%, the margin of error for 402 is +/- 4.9 percentage points. This means that all other things being equal, the identical survey repeated will have results within the margin of error 95 times out of 100.

Subsets of the data have a larger margin of error than the whole data set. As a rule, we do not rely on the validity of very small subsets of the data, especially sets smaller than 50-75 respondents. At that subset of estimations the data is more qualitative than quantitative. Also, additional factors can create errors, such as question wording and question order.

Appendix Tables 1A and 1B show the descriptive frequencies for the sample and descriptive frequencies for all employed population with young children across Cleveland and Cuyahoga County. Based on comparison of the survey with the city population, the survey appears to be generally representative of the target population with respect to race, location, and individual/family income (accounting for age and gender).

Appendix Table 1A: Individual Characteristics

	Survey Sample County-wide	Cuyahoga County Full Population
RACE		
White	41%	40%
African American	36%	50%
Hispanic	17%	12%
Other	7%	3%
EDUCATION		
HS diploma (or below)	39%	41%
Some college	30%	15%
Associate degree	7%	10%
Bachelor's degree+	23%	34%
AGE		
18-24	24%	17%
25-29	19%	21%
30-34	28%	29%
35-39	17%	22%
40+	12%	11%
GENDER		
Male	28%	49%
Female	72%	51%
FAMILY STATUS		
Single parent	37%	44%
Married	35%	31%
REGION		
Cleveland Metro	70%	31%
Rest of Cuyahoga County	30%	69%
Observations	402	1.264 million

Appendix Table 1B: Labor Market Involvement

	Survey Sample County-wide	Cuyahoga County Full Population
EMPLOYMENT STATUS		
Working full-time	62%	72%
Working part-time	15%	18%
Unemployed (looking for work)	12%	4%
Unemployed (not looking for work)	11%	6%
Hours worked per week	35 (10)	36
INCOME		
Individual usual weekly earnings	\$924 (499)	\$1,350
Individual usual hourly earnings	\$27 (16)	\$29
Average household income	\$62,690 (40240)	\$61,950
Observations	312	1.034 million

Appendix Table 1A Sources: U.S. Census at [census.gov/quickfacts/OH](https://www.census.gov/quickfacts/OH), March Current Population Survey 2021. [gov/data/tables/2021/demo/families/cps-2021.html](https://www.census.gov/data/tables/2021/demo/families/cps-2021.html). Race composition for Cleveland only. Education levels for Cuyahoga County: 2021 data, seriesHC01EST from fred.stlouis.org. Single parent household rate for Cuyahoga County. 2021 data, series S1101PHOUSE039035 from fred.stlouis.org. Appendix Table 1A Notes: Survey sample is Cuyahoga parents/guardians who are caregivers (unpaid) of at least one child currently aged under 5. Census data is parents with co-resident children under age 6 (or 18) or age-adjusted.

Appendix Table 1B Sources: Census, March Current Population Survey 2022; Bureau of Labor Statistics; fred.stlouisfed.org; Semega and Kollar (2022). Income data for Cleveland Elmyra MSA from [bls.gov/regions/ohio/countyeconomyandwages_ohio.htm](https://www.bls.gov/regions/ohio/countyeconomyandwages_ohio.htm); series RPIPC17640 [CLEV439PCPI] from fred.stlouis.org. Observation count of Cleveland-Elyria MSA workforce (2023 data, series SMU391 retrieved from fred.stlouis.org). Appendix Table 1B Notes: Standard deviations in brackets. All survey responses included (regardless of work status); missing values excluded. Unadjusted frequencies for Cuyahoga County.

Appendix 2

Economic Model

A static, limited-horizon economic model is used to calculate losses caused by inadequate early care and education. The model estimates the economic consequences of inadequate child care for three agents within Cleveland and Cuyahoga County: families, businesses, and taxpayers.

Results are given per working parent (not per affected working parent) per year and over childhood years. Immediate consequences are annual amounts when a child is any age under 5 (expected value 2). These calculations are then aggregated across the Cleveland population of working parents with children under 5. Childhood estimates are modeled per birth cohort (e.g., children born in 2024) up to kindergarten entry. Aggregated estimates are per birth cohort in Cleveland.

The model is populated by combining the survey data results and regional economic data. Regional economic data for Cleveland, Cuyahoga County, and Ohio is analyzed; national data is from the Census and Bureau of Labor Statistics. All figures are in 2023 present value dollars with a discount rate $\rho=3.5\%$. Appendix Table 2 provides full information on model variables and parameter values as well as on the formulae for economic burdens.

Earnings and Output Losses:

For Individuals

Baseline income y_b is adjusted to y_c with a set of parameters capturing labor market distortion caused by child care problems β . These distortions are: job quit/exit rates q ; and months unemployed m (weighted across all parents and regression adjusted for age, experience (linear and quadratic), education, and gender). These yield a wage penalty v . Individuals incur a dynamic proportion ϵ of these lost hours and lost earnings; $(1 - \epsilon)$ is incurred by firms.

Discouraged Workers

Discouraged workers are estimated at 2% of the workforce; thus, earnings and hours impacts are adjusted by 2 percentage points.

Workers

Workers incur job search costs as a % of y_b , adjusted for the job quit/exit rate.

For Individuals

Output losses are the sum of: the dynamic proportion $(1-e)$ of lost hours and lost earnings borne by the employer $(1 - e)hw$; and direct employment on-costs z and hiring costs d payable by the firm. These costs are a function of the quit/exit rate and the months unemployed. (Managerial costs attributable to low worker performance are not included.)

Federal Income Tax Revenue and State/Local Tax Revenue:

- Losses in federal income tax are derived from values for y_c multiplied by marginal federal tax rates of 15%.
- State/local income and non-income (consumption/sales and property tax rates) are averaged from rates across all states (weighted for population). Marginal state/local income taxes are rated at 10%. Marginal state/local non-income taxes are applied at 4% (adjusted for 30% tax-exempt consumption).
- Federal taxes paid by Cleveland residents pass back to Cleveland at $\eta = 0.94$.

Future Incomes, Output, and Income Tax Revenue:

- Future economic consequences are extrapolations proportionate to the immediate losses to individuals, businesses and taxpayers. Future losses are modeled up to age 5 (i.e., they are assumed to be fully alleviated as children enter kindergarten). For children aged over 3, access to preschool offsets the economic penalties, so a decay rate per penalty is derived (τ per annum, ages 3-4). Present value decay of impacts is $\rho\tau$.
- Each working parent experiences on average 5 years of disrupted work patterns from birth.
- Lower skills and less experience per worker are derived as proportionate annuities based on published estimates of the returns to experience and the returns to education/training. These annuities are lost for workers who experience care problems and are assumed to decay at rate λ to zero after three years.

Appendix Table 2: Model Variables and Parameters

		VALUE
VARIABLE/PARAMETER		
y_b	Baseline individual earnings p.a. (full/part-time adj.)	\$41,740
q	Job quit/exit rate p.a.	0.012
m	Months unemployed p.a.	0.38
j	Job search costs (% of y_b)	0.084
v	Wage penalty (% of y_b)	0.0193
η_t	Annual growth rate earnings	0.015
ϵ	Proportion of earnings loss incurred by worker	0.92
z	On-costs	0.1990
d	Hiring costs (% of y_b)	0.28
r	Federal tax rate	0.15
s_y	State/local income tax rate a	0.10
s_s	State/local non-income tax rate (net exemptions) ^a	0.04
n	Federal-Cuyahoga County tax pass-through	0.9
p	Discount rate	0.0350
y_e	Earnings with inadequate child care p.a.	$y_b(1 - v - qm/12)$
g	Tax base	$y_b - y_e$
ECONOMIC LOSS FORMULAE		
L_{w1}		$(y_b - y_e)\epsilon$
L_{w2}		$qmy_b/12$
L_{w3}		qjy_b
L_{w4}		vy_b
L_{worker}		$\sum L_{wk}, k = 1...4$
L_{f1}		$(y_b - y_e)(1 - \epsilon)$
L_{f2}		qdy_b
L_{f3}		$(y_b - y_e)z + zvy_b$
L_{firm}		$\sum L_{fk}, k = 1...3$
L_{s1}		rg
L_{s2}		$s_s g$
L_{s3}		$s_y g$
L_{fiscal}		$\sum L_{sk}, k = 1...3$

Notes/Sources: y_b, q – survey data, working parents. m – [www.bls.gov]. v – survey data, re- gression coefficients. η_t – Carneiro et al. (2011). ϵ – by assumption. z – includes paid leave (7.1%), in paid leave, supplemental pay (3%), health insurance (8.8%) [https://www.bls.gov/news.release/leccc.nr0.htm]. d – Boushey and Glynn (2012); Work Institute (2017). r – Saez and Zucman (2019). s_i – for income tax, no dividend tax or exemptions; state/local sales taxes ad-justed for tax-exempt consumption [taxpolicycenter.org]. a Tax rate from tax foundation. org/publications/state-local-tax-burden-rankings/#burdens/ohio. p – Moore et al. (2013). η – rockinst.org/issue-areas/fiscal-analysis/balance-of-payments-portal/. Parameters adjusted for non-work status as per Appendix Table 1B.

Appendix 3

Sensitivity Testing

Sensitivity testing is applied to the model estimates in two respects. One is to discuss how the model results might be affected by different assumptions. The other is to run a series of sensitivity tests to determine the range of possible outcomes.

The model estimates reported in Tables 4, 5 and 6 are based on conservative assumptions and so are biased downward in several respects. Specifically, the model estimates cannot account for preemptive decisions by parents to reduce their work commitments because they expect child care will be inadequate. When parents expect their future work opportunities to be constrained, they will invest less in career-

building skills. Also, the persistence of career shocks such as job loss or demotion to parents (lasting even after their children have entered school) are omitted from the analysis.¹ As well, only parental impacts are modeled: relatives and informal carers may incur economic burdens when child care is inadequate. Finally, managerial and operational costs from lost productivity are not considered (because of data availability). Given these factors, the full burdens are likely to be much more than reported here.

Another consideration is whether new parents will face different experiences. Possibly, more flexible-hours contracts or work-from-home practices may make child

Appendix Table 3A:
Economic Loss: Monte Carlo Simulations

LOSS PER PARENT	Mean	SD	Min.	Max.
ANNUAL LOSS (CHILD AGED UNDER 5)				
Parents	\$5,760	\$1,210	\$800	\$12,240
Businesses	\$1,700	\$310	\$140	\$3,210
Taxpayers	\$1,610	\$360	\$220	\$3,610
TOTAL LOSS (OVER CHILDHOOD)				
Parents	\$15,540	\$1,410	\$9,230	\$22,970
Businesses	\$2,810	\$340	\$1,160	\$4,360
Taxpayers	\$4,460	\$420	\$2,680	\$6,700

Notes: Monte Carlo simulation with 10,000 iterations. Mean estimates as per Tables 4-5. Distributions for earnings, quit rate, hours penalty, and wage penalty as per Appendix Table 1B.

care more compatible with work (if these parents can secure these jobs). But the size of these benefits is unknown. Demographic changes may also be influential, although these may increase or decrease the estimates. Overall, it seems unlikely that there will be a broad social change that enhances child care options.

To determine the range of estimated burdens, Monte Carlo sensitivity testing is applied. Specifically, 10,000 simulations are run based on the distributions of key variables (reported in Appendix Table 2). These key variables are individual earnings, the job/quit rate, and months unemployed.

The sensitivity testing results are reported in Appendix Table 3A. (The mean values are as per Tables 4 and 5.) For annual losses, the standard deviation is \$1,210; the minimum value is \$800 and an upper bound penalty per working parent is \$12,240. Looking at the total loss over childhood, the standard deviation of the estimated loss is \$1,410; the range is between \$9,230 and \$22,970. Similar boundaries are evident for business and taxpayer losses. Overall, simulation results are bounded $\pm 15\%$ around the mean estimates from Tables 4 and 5 and all scenarios yield burdens that are significantly above zero.ⁱ

Appendix Table 3B: Sensitivity Testing Results

ANNUAL LOSSES	
Standard Deviation	\$1,210
Minimum Value	\$800
Upper Bound Penalty	\$1,210
TOTAL LOSS OVER CHILDHOOD	
Standard Deviation	\$1,410
The Range	\$9,230–22,970

i. By assumption the labor market penalties have no persistent effects. This assumption is highly conservative based on prior trends (Goldin and Mitchell, 2017); it may significantly bias downward the life-time burden.

Appendix 4

Result by Sector

Appendix Table 4A: Child Care Patterns by Sector

PARENTS IN CLEVELAND & CUYAHOGA COUNTY	Health Care	Manufacturing	Information Technology
TYPE OF CARE USED			
Preschool	22%	35%	17%
Parent/guardian stays home with children	44%	20%	42%
Formal care in home setting	6%	10%	8%
Center-based child care facility	13%	15%	67%
Multiple arrangements	19%	15%	17%
Informal care (family member or friend)	25%	20%	na
No regular arrangements	4%	15%	17%
Observations	48	20	12

Appendix Table 4B: Child Care Challenges Problems by Sector

PARENTS IN CLEVELAND & CUYAHOGA COUNTY	Health Care	Manufacturing	Information Technology
PARENTS WHO REPORT SIGNIFICANT CHALLENGES IN ACCESSING ECE THAT SUPPORTS THEIR WORK			
Affordable	69%	60%	67%
High quality	54%	60%	50%
Accessible ^a	81%	75%	92%
Observations	48	20	12

Notes: ^a Accessible is any affirmative responses to location, matches schedule, flexible, back-up care, or open slots.

Appendix Table 4C: Child Care Work-Related Problems by Sector

PARENTS IN CLEVELAND & CUYAHOGA COUNTY WORK-RELATED ISSUES AS A RESULT OF INADEQUATE CHILD CARE		Health Care	Manufacturing	Information Technology
Over the Past 3 Months	PRODUCTIVITY			
	Distracted to point of being unproductive	38%	45%	75%
	Been late for work	48%	85%	67%
	Left work earlier than normal	46%	60%	67%
	Missed a full-day of work	48%	40%	58%
	Missed work shift	29%	35%	58%
Since Child (Aged Under 5) was Born/Adopted	HOURS			
	Reduced your regular work hours	56%	30%	50%
	Changed from full-time to part-time work	42%	15%	17%
	TERMINATION			
	Quit a job	35%	20%	8%
	Reprimanded by supervisor	20%	30%	17%
	Been let go or fired	17%	15%	8%
	Demoted	21%	20%	0%
	CAREER			
	Turned down a new job offer	52%	40%	17%
Turned down further education	42%	15%	25%	
Turned down a promotion or reassignment	31%	25%	42%	
Had problems participating in training	25%	10%	42%	
Observations		48	20	12

Notes

1. Claessens, S. and Ayhan Kose, M. (2019). Recession: When Bad Times Prevail. Finance and Development Magazine by International Monetary Fund. (<https://www.imf.org/en/Publications/fandd/issues/Series/Back-to-Basics/Recession>)
2. The evidence on developmental advantages is copious: examples are Reynolds et al. (2011); Heckman et al. (2013); Lipsey et al. (2015); Yoshikawa et al. (2016); van Huizen and Plantenga (2018). The labor market evidence is reviewed in Montes and Halterman (2011); Cascio (2018); Belfield (2019); Ruppanner et al. (2019); Borowsky et al. (2022). For calibrated economic models and labor supply studies see Ho and Pavoni (2020); Moschini (2023).
3. On the learning gains from Cuyahoga's Universal Pre-K program, see Anthony et al. (2020).
4. Data for Ohio shows low spending with few quality benchmarks for available programs (<https://nieer.org/yearbook/2022/state-profiles/ohio>). Evidence on the importance of pre-school for children in Cuyahoga County is at <https://hhs.cuyahogacounty.gov/divisions/detail/invest-in-children>.
5. The sample respondents work in a range of occupations, including healthcare (12%), education (6%), manufacturing (5%) and IT (3%). With the Cleveland– Elyria MSA, workers are in education/health services (20%) and leisure/hospitality (10%); data retrieved from https://www.bls.gov/regions/midwest/summary/blssummary_cleveland_oh.pdf.
6. Data from www.americanprogress.org/series/child-care-deserts/; and (Malik et al., 2018).
7. NIEER Yearbook, 2021.
8. On the fall in places, see Barnett et al. (2020). Higher costs arose because of cleaning costs and the need for physical distancing.
9. See Heggeness (2020). On shifting back to the family unit to meet child care needs, see Alon et al. (2020); Goldin (2022).
10. National Household Education Survey estimates are similar (Corcoran and Steinley, 2017). Other survey analyses also show the mixed patterns of care (<https://buildthefoundation.org/resource/early-education-in-the-time-of-covid-19-an-economic-analysis-for-nc/>).
11. United States Department of Health and Human Services, 2024.
12. Schulman, K. (2024). Two Steps Forward, One Step Back: State Child Care Assistance Policies 2023.
13. Cleveland Metropolitan School District, 2023.
14. Cuyahoga County Office of Early Childhood, 2023.
15. These results are similar to other state-wide and national studies (Montes and Halterman, 2011; Belfield, 2018, 2019).
16. These effects are similar to those found in recent studies for individual states (North Carolina, Pennsylvania, and Tennessee) and in national studies (see Montes and Halterman (2011); Davis et al. (2017); Talbert et al. (2018); Belfield (2018, 2019)).
17. Families with young children report lower participation rates of 3-4% compared to the average worker (see www.bls.gov/news.release/pdf/famee.pdf).
18. This approach is used in prior studies (Davis et al., 2017; Talbert et al., 2018; Goldberg et al., 2018; Belfield, 2018, 2019).
19. In 2022, Ohio's state income tax for married households is 3.99%; the overall state/local tax rate is 10%. The marginal federal tax rate is 15% (depending on income levels). The tax pass-through rate is conservatively estimated at 90%; i.e., almost all federal revenues are remitted back within Ohio. State/local tax rates are from taxfoundation.org/publications/state-local-tax-burden-rankings and <https://taxadmin.org/tax-rates-new/>. pdf. Federal tax rates are from Saez and Zucman (2019). One-time government allocations in response to COVID are omitted from this analysis. Corporate taxes are not included. See Appendix 2 for variable/parameters.

- 20.** The taxpayer burdens depend on transfers between government agencies. See: www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/projects/state-fiscal-briefs/; fred.stlouisfed.org/series/PAGOVNQGSP.
- 21.** A small minority of parents lose their jobs or cannot find work; these heavy individual burdens are averaged across all parents.
- 22.** The eligible population depends on the number of children in the family, the number of parents in the family, and the labor force participation rate. These estimates are weighted by population aged 0-5 from <https://www.census.gov/library/publications/2023/decennial/c2020br-06.html> and www.census.gov/quickfacts/fact/table/US/PST045222.
- Adjustments for household composition (twins, siblings, non-parent families) and labor force participation reduce the relevant parent count. Data from cdc.gov/nchs/data/nvsr/nvsr71/nvsr71-09.pdf and as per Tables Notes for Appendix Table 1A.
- 23.** These are not burdens per worker at each firm because not all workers have young children. These burdens are per worker who has a young family. These burdens are often obscured if the firm has a lot of workers and if firms do not monitor these disruptions.
- 24.** Data from 2021, series GDPALL39035 from fred.stlouis.org.

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Early Matters NEO is a group of partners focused on changing policies to ensure working families have access to affordable, quality child care to support workforce and business growth in Northeast Ohio.

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