

# **The Child Care Conundrum**

The Costs and Consequences of Unmet Early Child Care Needs among Parents Working at Academic Institutions across the United States

By

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Submitted to the Department of Urban Studies and Planning  
in partial fulfillment of the requirements for the degree of

Master in City Planning  
at the  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
June 2019

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## ABSTRACT

Cities across the United States are saddled with a burgeoning child care conundrum, a mismatch between the skyrocketing need for child care and the fundamental insufficiency of child care infrastructure and policies to address the growing demand. To be sure, the broken child care market—characterized by too few spots, mediocre quality, and exorbitant costs—forces parents to make tradeoffs in order to fully meet their child care needs. These tradeoffs not only perpetuate deep-seated gender inequalities and compromise family economic security, but they also have broader social and economic consequences. Though research shows that large public investments could go a long way in fixing the child care conundrum and its pernicious effects, current political gridlock has hindered efforts to create universal child care programs and policies.

In the absence of large public investments in child care, this thesis builds a case for local employers and institutions to be held accountable for filling the early child care needs of their workforce. One such employer primed to tackle the child care conundrum is the American academe. I use the results of an original online survey of parents working, teaching, researching, or studying in academia with a child under the age of five to develop a deterministic model that quantifies the total cost of unmet child care needs to academic parents and academic institutions. The findings suggest that a variety of small investments in child care by academic institutions could generate substantial savings for parents and institutions alike, contribute to local economic development, and set the stage for innovative child care policy.

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## ACKNOWLEDGEMENTS

This thesis is an homage to care, caregiving, and people and institutions in cities that provide care to our communities. Without a network of care infrastructure of my own, this research would not have been possible.

I am beyond grateful to all of the parents who participated in the Child Care for Parents in Academia Survey for taking time away from caregiving for their little ones to help me understand the complexities and difficulties of the American child care landscape. Your contributions were essential to this research. And I hope this research is useful to you.

To the Association of Collegiate Schools of Planning, American Economic Association, National Postdoctoral Association, Association for Public Policy Analysis and Management, Academy of Management, Washington Center for Equitable Growth, Alyssa Fisher, Andrew Seeder, Ashley Vaughn, Beth Etscheid, Bridget Ansel, Brij Bhushan, Dale Wadman, Elisabeth Jacobs, Girish Krishnan, Hannah Weisz, Joy Beatty, Kim Emmons, Korin Davis, Mahika Rangnekar, Marshall Steinbaum, Melissa Brown, Murielle Ålund, Naomi Joseph, Nick Bunker, Raju Balakrishnan, Sanjay Krishnan, Shayer Chowdhury, Surabhi Nirkhe, Surya Kotha, Tia Vice, Vinod Narayanan, Vivek Narayanan, and the many, many others at academic institutions across the United States, thank you for all of your help in sharing this work and spreading the survey.

I am indebted to Professor Mariana Arcaya, who has been one of my greatest inspirations at MIT DUSP, for all of her help, guidance, mentorship, and advice. She pushed me to be a more thoughtful researcher and more compassionate human being, and I thank her sincerely for her patience with me throughout the thesis process, for meticulously reading through my ramblings, and for generously giving her time to sit and think with me whenever I hit a roadblock. Similarly, I am grateful to Professor Amy Glasmeier, who shared her passion for economic public policy research with me, taking me under her wing and serving as a tremendous source of knowledge for this work. To Professor Robert Lynch, thank you for teaching me the skills I needed in order to be able to conduct this type of research as I was first starting out my career, and since then, for being a constant mentor both professionally and personally.

As a final note of thanks, I am endlessly appreciative of the people who took good care of me—my classmates, friends, and family—through the vicissitudes of thesis-ing. Your care has meant the world to me.

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# 1

## INTRODUCTION

Cities across the United States are saddled with a burgeoning *child care conundrum*. In plain terms, this conundrum is the gap or mismatch between the skyrocketing need for child care and an insufficient collection of child care infrastructures and policies at the local, state, and federal level to address the growing demand. The central work of this research is around quantifying this gap and figuring out what can be done to fill it in the absence of the large-scale public investments that are needed to fix a broken child care market.

Though the child care conundrum has evolved into a complex, national crisis, it began with a much simpler, local phenomenon: *care*.

Child care—as with much other care work—has historically been perceived to be a labor of love, with the brunt of caregiving responsibilities falling upon women. But over the last four decades, as households up and down the income ladder experienced financial instability, women were called upon to make critical contributions to family economic security. This left families asking an important question: With more women participating in the labor force, who would fill the role of caregiver at home?

The changing role of women put pressure on the market to provide more care services in cities, and slowly, child care has shifted from being purely a labor of love to also being a commodity. Despite the tremendous growth of care industries and occupations, the supply of child care in the market is fundamentally failing to meet parents' needs. In fact, many argue that the child care market is broken, characterized by too few child care spots, mediocre quality, and exorbitant costs. The broken market forces parents to make difficult choices—or tradeoffs—about how to patch together a variety of child care arrangements to fully meet their child care needs. Research shows that these tradeoffs disproportionately

impact mothers, which not only perpetuates deep-seated gender inequalities but also compromises family economic security.

Large public investments in child care infrastructure and policies by cities, states, and the federal government are thought to be the answer to child care market failures and its pernicious effects. Yet current political gridlock and a chronic undervaluing of care work in American society has hindered public efforts to address an escalating child care crisis.

As child care needs continue to grow and public investments in child care continue to fall short, it has become clear that we need to explore other ways to solve the child care conundrum. This research builds a case for local employers and institutions to be held accountable for filling in gaps in the early child care needs of their workforce. And one such employer primed to tackle the child care conundrum is the American *academe*.

Using the results of an original online survey of parents working, teaching, researching, or studying in academia with a child under the age of five, this research develops a deterministic model to quantify the cost both academic parents and academic institutions underwrite to fill in the gaps between child care supply and actual child care need. We find that each year, both academic parents and academic institutions lose over \$2.660 billion and \$2.168 billion, respectively, to these *unmet* child care needs. Collectively, our findings suggest that a variety of small investments in child care infrastructures and policies by academic institutions could generate substantial savings for parents and institutions alike, contribute to local economic development, and set the stage for innovative child care policy across cities in the United States.

## A GUIDE TO THIS RESEARCH

This research begins by reviewing of the roots of the care conundrum in Chapter 2. Here, we define care and care work; discuss the gendered division of care labor; describe the changing role of women in the American labor market; and highlight the gaps between care work supply and care work demand. In Chapter 3, we explore the case of child care as an example of the care conundrum. We provide an overview of the history of early child care, the current state of child care, and the tradeoffs parents make, ending with a discussion about what can be done in the absence of public investments in child care. Chapter 4 turns the focus to academic institutions, an example of a local employer that could play a role in mitigating the impacts of the child care conundrum. In this chapter, we study the current child care landscape at academic institutions; pinpoint leaks in the academic pipeline that could be ameliorated by improved child care infrastructure and policies; and offer a framework for understanding how investments in child care by academic institutions could facilitate local economic growth and social policy innovation.

Following the context set by the first four chapters, Chapter 5 details the questions explored by our research. We ask three critical questions: (1) What is the state of child care for parents with children under the age of five who are working, teaching, researching, or studying at an academic institution in the United State? (2) What are the costs to parents, families, and academic institutions when current child care arrangements do not meet the unique needs of academic parents? And (3) what can academic institutions do to help their academic parent workforce meet their child care needs? Chapter 6 lays out the specifics of our methodological approach to answering these questions. Our methodology includes four parts: (1) piloting a national online survey on academic parents' experiences with child care; (2) performing a preliminary descriptive analysis of the results of our survey; (3) extrapolating some of the results of the survey into time and dollar cost estimates of unmet child care needs through a novel deterministic modeling exercise; and (4) conducting a simple regression analysis between a few variables in the survey to better understand what academic institutions can do to meet parents' child care needs.

Chapters 7, 8, and 9 present the results from our descriptive analysis of the survey, deterministic model, and regression analysis, respectively, while Chapter 10 places our findings back into the larger conversation about the causes, costs, and consequences of the child care conundrum.

In Chapter 11, we list some ideas about how academic institutions can create or expand their child care infrastructure and policies. Our final chapter, Chapter 12, provides concluding remarks that tie our discoveries back to care and offers our thoughts for how to push this work forward through future streams of research.

# 2

## THE ROOTS OF THE CARE CONUNDRUM

### CARE & CARE WORK

For all humans, the need for *care* extends across every stage of the life cycle at a very local scale. Care, according to feminist philosopher Martha Nussbaum, is part of a set of basic human capabilities that we need in order to survive, develop, and function as relational beings.<sup>1</sup> Care is so fundamental to the human experience that some theorists argue that it is a societal norm on which we all—either consciously or unconsciously—depend through our personal relationships and our professional, political, and social organizations and systems.<sup>2</sup> Though it is so elemental, care is awfully difficult to define.

In the absence of a systematic definition, perhaps the simplest way to think about care is as a type of *other-centered work*. As feminist economist Nancy Folbre helpfully puts it, this work is the essential connection or a service exchanged between people, often arising from a concern for a person’s wellbeing or motivated by an intrinsic desire to help others meet their needs.<sup>3</sup> Political scientists Berenice Fisher and Joan Tronto’s definition of care is similar but instead characterizes care as a four-phase process: caring about, caring for, caregiving, and care receiving.<sup>4</sup> Under Fisher and Tronto’s framework, care work begins with “caring about,” when we identify needs of someone by being attentive. Once a need has been recognized, we may develop a sense of “caring for” or responsibility towards helping someone or something meet their needs. Actually meeting the need, though, hinges upon “caregiving” or the performance of care tasks that require knowledge and competence. The fourth and final stage is “care receiving” or the response to being cared about, cared for, or given care.

What Folbre and Fisher and Tronto’s definitions have in common is the idea that care work can have both an emotional component *and* a labor component. Together, these components create what sociologist Carol Thomas terms the *nature of care*.<sup>5</sup> But Thomas

urges us to also consider the many other factors that go into care work. For this reason, Thomas deconstructs the concept of care into seven essential building blocks, ranging from the identity of the caregiver and the care-receiver to the physical location in which care work takes place.<sup>6</sup> (See Figure 1).

**FIGURE 1**

### The building blocks of care

While care is difficult to define, sociologist Carol Thomas argues that all definitions of care share these seven dimensions in common.

DIMENSION OF CARE	DESCRIPTION
<b>Social identity of the caregiver</b>	The social identity of the caregiver describes the role characteristics, or traits of the person giving care.
<b>Social identity of the care-receiver</b>	The social identity of the care-receiver describes the role, characteristics or traits of the person or subject receiving care.
<b>Interpersonal relationship between the caregiver and the care-receiver</b>	Interpersonal relationship refers to the “degree of personal familiarity or obligation” between the caregiver and the care-receiver. <sup>7</sup>
<b>Nature of care</b>	The nature of care is split into a “feeling state” and “activity state.” <sup>8</sup> The feeling state are the emotions around caring about or for someone or something, while the activity state is the actual work or labor of giving care. <sup>9</sup>
<b>Social domain</b>	The social domain of care refers to the idea that a care relationship can be located either within the public sphere (a catch-all term for civil society and the market) or the private or domestic sphere.
<b>Economic arrangement</b>	The economic arrangement of care refers to the fact that care labor or work can either be paid or unpaid.
<b>Institutional setting</b>	The institutional setting of care is the physical location in which care work takes place. Some examples of institutional settings include homes, hospitals, day care centers, or schools.

**Source:** Summary of the deconstructed concepts of care from Thomas, Carol. “De-Constructing Concepts of Care.” *Sociology* 27, no. 4 (November 1, 1993): 651-653. <https://doi.org/10.1177/0038038593027004006>.

These building blocks of care work reveal three noteworthy tensions. The first tension revolves around the nature of care work.<sup>10</sup> Although all care work has both emotional and labor components, these components can be given different weights or be highly interdependent depending on the care relationship. The second tension between the feelings and the activities associated with care work often plays out in the social domain

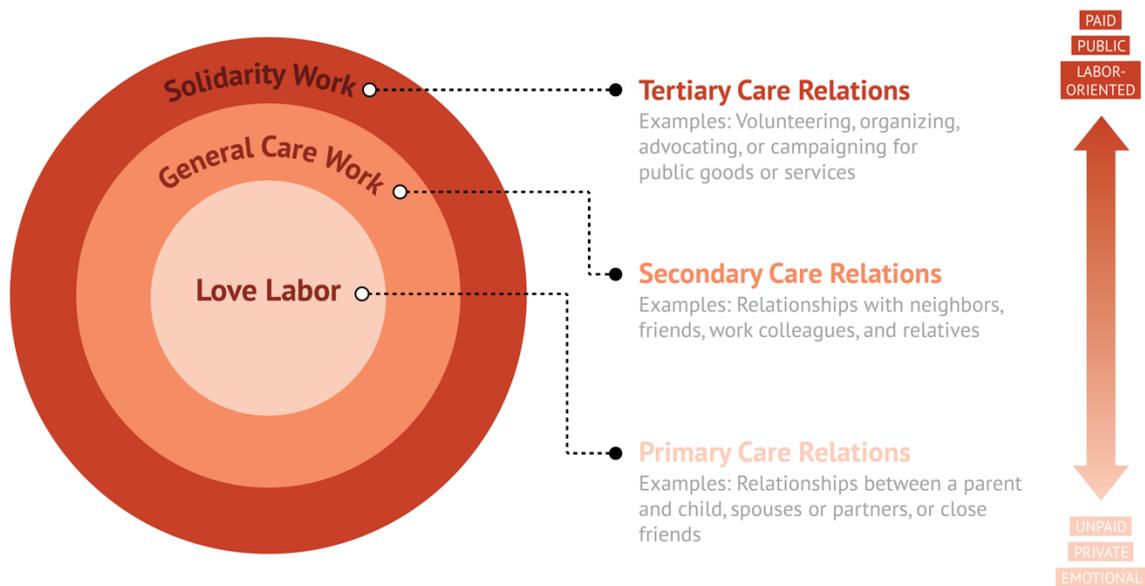
of care. The social domain of care is the “social division of [labor]” between the private sphere and the public sphere.<sup>11</sup> Another way to put this is that care work happens both at home and at outside the home, and in each of these places, the connection between care emotion and care labor can look different. The nature of care and the social domain of care ultimately influence the third tension—the economic arrangement of the care work.<sup>12</sup> Typically, care work can either be paid or unpaid.

Acknowledging these tensions, sociologist Kathleen Lynch posits that there are actually three concentric circles of other-centered work.<sup>13</sup> (See Figure 2).

**FIGURE 2**

**Concentric circles of care relations**

In Kathleen Lynch’s theoretical model of the types of care work, there are three concentric circles of relations: Love Labor, General Care Work, and Solidarity Work. This adaptation of the model shows the way in which the nature, social domain, and economic arrangements of care change with the type of care work.



**Source:** Adapted from Lynch, Kathleen. “Love Labour as a Distinct and Non-Commodifiable Form of Care Labour.” *The Sociological Review* 55, no. 3 (August 2007): 556. <https://doi.org/10.1111/j.1467-954X.2007.00714.x>.

In Lynch’s taxonomy, *love labor* is the innermost circle and refers to primary care relations between known individuals that are intimate, intense, or interdependent.<sup>14</sup> The second circle is what Lynch calls *general care work*, which is characterized by relations with known individuals that require less engagement, interdependency, time, commitment, or

responsibility than love labor.<sup>15</sup> The outermost circle in Lynch’s theoretical model represents *solidarity work* or tertiary care work done for strangers or the unknown other.<sup>16</sup>

To make Lynch’s concentric circles more concrete, there are several examples of what love labor, general care work, and solidarity work may look like in practice. The quintessential example of love labor is the care a parent gives a child. Similarly, love labor is described by the caring relationship between partners, spouses, or family members. General care work is best exemplified by the relationship between a teacher and a student or even the care work done by a doctor for a patient. Solidarity work, unlike love labor and general care work, lacks a face-to-face care relationship, which means locally-placed activities like running a homeless shelter, volunteering for a cause, or campaigning in support of public policy or candidate all fall under this category.

As we move from the innermost circle to the outermost circle, three trends begin to emerge. The nature of care seems to shift from being primarily emotionally-driven to primarily labor-oriented; the social domain of care transitions from the private sphere to the public sphere; and the economic arrangement of the care relationship goes from unpaid to paid. Implicit in this is Lynch’s argument that love laboring, in contrast to general care work and solidarity work, cannot be brought into the public sphere and cannot be paid because the feelings of “mutuality, commitment, trust, and responsibility” driving love laboring cannot be commodified.<sup>17</sup>

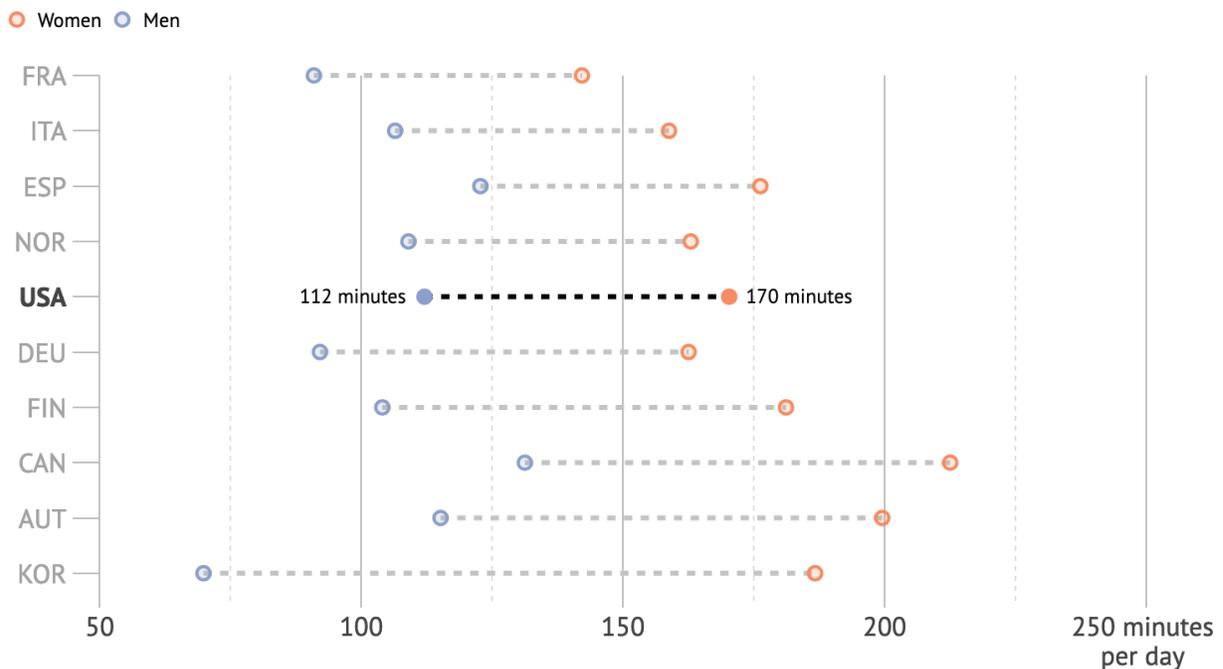
In the vacuum of theory, distinguishing between the types of care work that can and cannot be commodified makes sense. After all, it contributes to a clearer definition of care. But in the real world, these distinctions end up perpetuating socioeconomic inequities that run deep in our society. That is because care work of any sort is starkly divided across gendered lines.<sup>18</sup>

Traditionally, women have shouldered the bulk of care responsibilities due to highly gendered expectations around caregiving for their families. As psychologists Deborah Prentice and Erica Carranza put it, there is both a “stereotypic belief” and a “societal prescription” for women—not men—to be caring beings and therefore take on care work.<sup>19</sup> We see these stereotypes and prescriptions take shape clearly in social science survey data. At home, women across the world do about 2.6 times the amount of care work and domestic work, such as cooking and cleaning, done by men.<sup>20</sup> Women in the United States report spending an average of 4.4 hours per day specifically caring for and helping other household members compared to an average of 2.0 hours spent by men daily.<sup>21</sup> When it comes to child care tasks in particular, women in the United States, like in most other economically developed countries, spend an average of nearly an hour more of time per day with their children than American men.<sup>22</sup> (See Figure 3). All this emotionally-driven, private-domain care work, however, goes unpaid because it is classically “love labor.”

**FIGURE 3**

### Differences in time spent on child care between women and men

Across OECD countries, women on average spend more time than men on child care activities and tasks for their below school-age children.



**Source:** Organization for Economic Cooperation and Development. 2017. “Dare to Share: Germany’s Experience Promoting Equal Partnership in Families.” OECD Publishing, Paris. <http://dx.doi.org/10.1787/9789264259157-en>.

Unpaid care work comes at a high cost to women and their families.<sup>23</sup> Though love laboring can be deeply satisfying for many caregivers, the unequal distribution of unpaid care work between women and men strips women of their agency.<sup>24</sup> Gender imbalances in unpaid care work can push women towards “compulsory altruism,” leaving them with little choice to explore their capabilities and little time to pursue opportunities in other social domains.<sup>25</sup>

The personal and social costs of unpaid care work have economic consequences, too. By providing unpaid care at home, women are subsidizing the cost of care that would have to otherwise be provided by the market. For context, it is no small subsidy: Work by Jooyeoun Suh and Nancy Folbre estimated that in 2012, the value of unpaid child care work alone was \$3.2 trillion, or 20 percent of the Gross Domestic Product in 2012.<sup>26</sup> This massive economic contribution—which is not accounted for in *any* national statistics—effectively

saves families from having to pay for care work services and enables other members in the household to find stable employment.<sup>27</sup> Economists also theorize that unpaid care work boosts the home-based production and consumption of goods and services, bolstering regional economies.<sup>28</sup> At the same time, women forgo paid employment opportunities and wage earnings in order to perform unpaid care work, which translates to lower incomes for families overall.<sup>29</sup> Research by social economist Jane Waldfogel and, later, Michelle Budig and Paula England further finds that perceptions about a woman's commitment to unpaid family care work contribute to discrimination in employment, wage penalties, and earnings differentials between men and women.<sup>30</sup>

The state of care work outside of love labor is not much rosier. When care work is commodified or in the public sphere, it is both underpaid and heavily segregated by gender. What's more, care work in the public sphere is disproportionately performed to women from communities of color or migrant communities, entrenching longstanding social, racial, and economic inequalities.<sup>31</sup> Seminal research from 2002 by England, Budig, and Folbre found that occupations related to caregiving—which include jobs like counseling; child, elder, and health care services; and teaching—pay less than other occupational categories even after accounting for individual and occupational factors.<sup>32</sup> Their research revealed that there is a 5 to 6 percent *wage penalty* for these care workers. This means that care workers, on the whole, are paid 5 to 6 percent less than comparable workers in other occupations. More recent research by Barry Hirsch and Julia Manzella adds a caveat that public sector care workers experience a higher wage penalty than private sector care workers.<sup>33</sup> Today, in the United States, wages in care occupations are declining or stagnant at best.<sup>34</sup>

While both women and men working in caregiving occupations face a wage penalty and falling pay, academics agree that the burden of the penalty falls primarily upon women.<sup>35</sup> That is because occupational sex segregation is still high, and women make up the majority of the caregiving workforce.

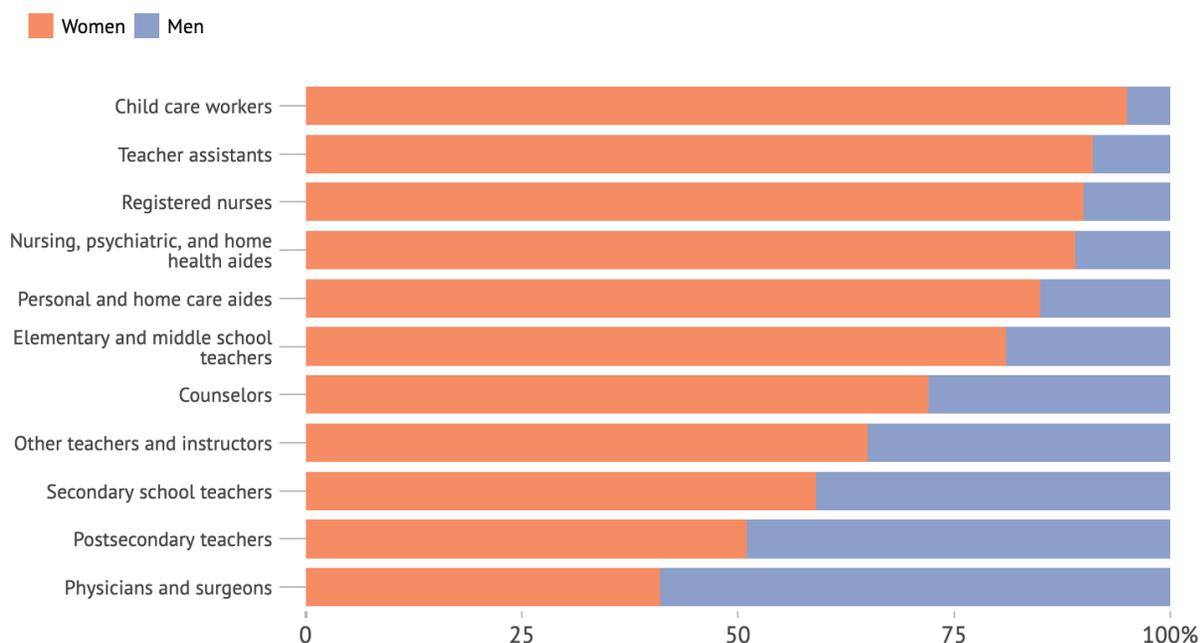
To enumerate the degree of occupational sex segregation—the likelihood that women and men will not work in the same occupation—in the United States, economists Francine Blau, Peter Brummund, and Albert Yung-Hsu Liu examine how the sex segregation index changed between 1970 and 2009.<sup>36</sup> The sex segregation index is calculated as the proportion of women who would need to switch occupations so that there were no differences in the occupational distribution between men and women.<sup>37</sup> An index score of 0 represents perfect occupational sex integration, while a score of 100 represents perfect segregation.<sup>38</sup> In 1970, the index was 64.48, but by 2009, the index had dropped to 51.67.<sup>39</sup> Blau, Brummund, and Liu cite increased education and fewer encounters with labor market discrimination as some of the reasons for the decline but also point out that the pace of this decline slowed over the decades.<sup>40</sup>

Persistent occupational sex segregation adds to the fact that caregiving occupations are mostly female. Women in the United States make up 88 percent of the caregiving workforce.<sup>41</sup> A closer analysis of the 50 largest occupations in the United States using 2013 to 2017 pooled data from the Current Population Survey Outgoing Rotation Group reveals that all but one caregiving occupation is dominated by women.<sup>42</sup> (See Figure 4). Women make up over 70 percent of child care workers, teaching assistants, nurses, home health and care aides, and primary school teachers.

**FIGURE 4**

**The largest caregiving occupations in the United States are mostly composed of women**

Among the 50 largest occupations in the United States, there are 11 care-related occupations. In all but one of these occupations, women make up more than 50 percent of the workforce.



**Source:** Author’s analysis of Center for Economic and Policy Research, 2013-2017, Current Population Survey Outgoing Rotation Group Uniform Extracts, Version 2.3, Washington, D.C. <http://ceprdata.org/cps-uniform-data-extracts/cps-outgoing-rotation-group/cps-org-data/>.

Unsurprisingly, these occupations that involve caregiving offer wages that fall within the bottom third of the hourly wage distribution.<sup>43</sup> At the extremely high end of the hourly wage distribution, women who worked in care occupations made under \$20.00 per hour in 2018, but median-wage and low-wage women workers made roughly \$10.00 per hour and \$7.75 per hour, respectively, barely over the minimum wage level in most states.<sup>44</sup> Many of

these care occupations also lack basic worker protections and benefits like sick leave, parental leave, and retirement savings.<sup>45</sup>

Faced with low compensation and the strenuous nature of the work, paid caregivers often experience a depletion in their intrinsic motivation.<sup>46</sup> As a consequence, there is high turnover in the paid care sector, which leads to interruptions in the quality of care for care-receivers and economic and family-based instability for caregivers.<sup>47</sup> Advocates and researchers alike describe paid care work, mostly done by women, as a low-quality job for these reasons.<sup>48</sup>

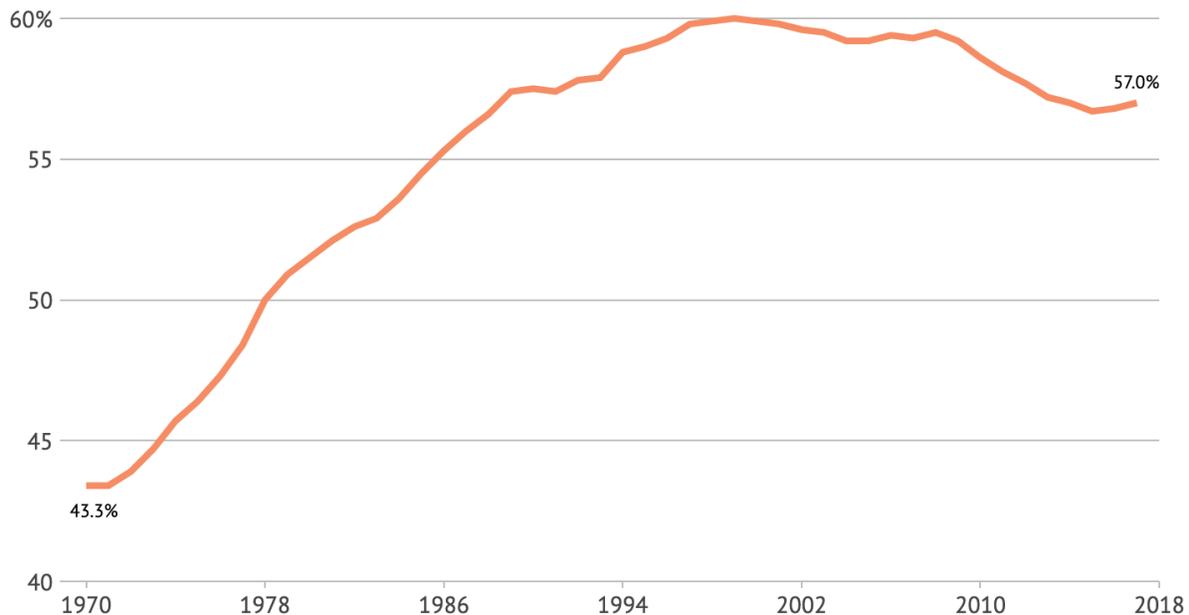
## THE CHANGING ROLE OF WOMEN

To make matters more complicated, as women continue to bear the burden of care work of all types, they are also participating in the labor force across almost all occupations at higher rates than ever before.

**FIGURE 5**

### **Women's labor force participation has drastically risen since the 1970s in the United States**

The percent of women in the United States labor force has grown from 43.3 percent in 1970 to 57.0 percent in 2017. While this is a dramatic increase, women's labor force participation gains have been plateauing.



**Source:** U.S. Bureau of Labor Statistics, Civilian Labor Force Participation Rate: Women [LNS11300002], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/LNS11300002>.

This changing landscape has fundamentally transformed the composition of local labor markets. Since the 1970s, the female labor force participation rate has increased rapidly, starting at 43.3 percent in 1970 and growing by 32 percent to 57.0 percent in 2017.<sup>49</sup> (See Figure 5).

Most of this growth in women’s labor force participation in the United States happened between 1970 and the late 1990s. Economist Claudia Goldin calls this period of time the “quiet revolution.”<sup>50</sup> During the “quiet revolution,” young women began to envision different “horizons” such that their careers would not end when they got married or had children.<sup>51</sup> For many women, this included plans to pursue higher education, which, in turn, promised improved employment and earnings outcomes.<sup>52</sup> The “quiet revolution” was supported by a number of demographic, social, and political changes in the United States that set the stage. Innovations in contraception, like the advent of the Pill, gave women the choice and power to plan when they wanted to start a family.<sup>53</sup> As the feminist and civil rights movements gained momentum, the federal government responded with legislation to prohibit discrimination in hiring and promotion practices and require equal treatment of men and women at educational institutions across the United States.<sup>54</sup>

Along with these massive demographic, social, and political shifts came an unexpected economic shift in the United States. Men’s labor force participation rates were steadily declining while families were also facing wage and income stagnation.<sup>55</sup> To offset these trends, women began entering the labor force and staying there. They started making critical contributions to their families’ economic security. Low-income, middle-class, and professional families in the United States, for instance, saw their incomes increase by \$1,473, \$5,703, and \$14,188 between 1979 and 2013 due to women working more hours alone.<sup>56</sup> To put this another way, if women had not increased their participation in the labor force since the 1970s, the United States economy would have been 13.5 percent or \$2.0 trillion smaller in 2013.<sup>57</sup> Women went from being a stay-at-home spouse or partner who could readily provide unpaid care to children, the elderly, or the ill to being breadwinners for their families in many cases.<sup>58</sup>

As the role of women began to transform, so too did the need for additional care services. With more women at work, the demand for formal care work in the United States also rose. Between 1990 and 2015, educational service and health and social assistance industries—industries that house care workers—grew by 105 percent and 99 percent, respectively, more than any other industry.<sup>59</sup> Current trends and projections from the United States Bureau of Labor Statistics suggest that these industries will continue to grow at a fast-pace.<sup>60</sup> Projections estimate that health care and social assistance industries will continue to add jobs at a rate between 3.0 percent and 4.4 percent per year through 2026.<sup>61</sup> These trends are largely due to an aging Baby Boomer generation who increasingly need elder care services and a relatively stable child population that adds to the demand for

education and child care, among other.<sup>62</sup> It is thought that by 2030, 150 million people in the United States, or close to 40 percent of the population, will be older than 65 or younger than 15.<sup>63</sup>

## CARE WORK SUPPLY MAY NOT MEET CARE WORK DEMAND

At the same time, there is evidence that the growth of caregiving industries may not be keeping pace with the demand for paid care work. Some researchers have been concerned that the recent downturn in the gains in female labor force participation is the direct result of an insufficient infrastructure for both unpaid and paid care work.

From a peak of 60.0 percent in 1999, the female labor force participation rate has decreased by 3 percentage points to 57 percent in 2017. (See Figure 5). Even when disaggregated by different sociodemographic factors, such as age, race and ethnicity, educational attainment, marital status, and presence of children, this trend endures.<sup>64</sup> While it is unclear why there has been a reversal in women's labor force participation, some research suggests that it may be due to declining demand in the labor market for low-skilled workers.<sup>65</sup> Others are skeptical of this explanation.<sup>66</sup>

Research by economist Robert Moffitt emphasizes that marital status and the presence of children is a critical consideration in women's employment. He cites that women's time use for unpaid care work and household production may have accompanied employment declines, but there are inconclusive results from time use studies between 1999 and 2007 to corroborate his assertion.<sup>67</sup> Moffitt's work, however, suggests that women may be leaving the labor force to provide care for their families in the absence of paid care work alternatives. It is a sign that women are still expected to retain their role as primary caregivers in the home sphere.

Sure enough, research by Claudia Olivetti and Barbara Petrongolo shows that federal "family-friendly" policies, especially early childhood education and child care programs, significantly improve women's labor force participation in high-income countries in the Global North.<sup>68</sup> The big problem, though, is that the United States lags radically behind all of its peers when it comes to family-friendly policies.<sup>69</sup>

An influential paper by labor economists Francine Blau and Lawrence Kahn further explores the role policies may play in the decline of women's labor force participation in the United States. Blau and Kahn observe that the United States drastically fell behind other Western economically advanced nations in their female labor force participation rates between 1990 and 2010.<sup>70</sup> They note that other countries expanded their parental leave programs, part-time work entitlements, and public child care spending, among other

family-friendly policies while the United States had not. Through a counterfactual regression analysis, Blau and Kahn find that the expansion of these policies accounted for nearly 30 percent of the drop in the female labor force participation rate in the United States relative to the other countries.<sup>71</sup>

It is not as though we lack ideas for how to bridge the gap between the supply and demand for unpaid and paid care work in the United States. For decades, advocates, academics, and policymakers have offered solutions for governments and businesses—such as policies around telecommuting, flexible work schedules, part-time work, job sharing, paid parental leave, family medical leave, child care, and elder care, among many others—that have yet to be broadly adopted.<sup>72</sup> Janet Gornick, Candace Howes, and Laura Braslow term these solutions *care policies*.<sup>73</sup>

Care policies, according to Gornick, Howes, and Braslow, are those that “directly shape the provision or receipt of care for children or for adults who need personal assistance.”<sup>74</sup> Gornick, Howes, and Braslow identify five major categories of policies that impact caregivers and care-receivers: (1) early childhood education and care, (2) family leave, (3) foster care, (4) early intervention and special education, and (5) long-term services and supports.<sup>75</sup> Within each these broad buckets, there is substantial variation in policy design. These policies can either establish direct services, grant cash payments, or regulate workplaces and providers.<sup>76</sup> Certain policies may authorize public spending or budgetary outlays while others only necessitate a change in existing practices. Depending on authorizing legislation, these policies can be administered by the federal, state, or local government.

With demand for care work rising, the American private sector has tried to fill the supply gaps in the absence of national, state, and local care policies. Research from economist Nick Bunker, for instance, uses job search engine data from Indeed.com to demonstrate that employers have increasingly posted about openings for child care work.<sup>77</sup> Yet the same data shows that job seekers’ interest in these postings have dropped, which indicates that those child care positions are going unfilled.<sup>78</sup> Bunker contends that interest in these private sector child care jobs is influenced by the fact that these jobs simply do not pay enough.

Bunker’s research highlights the reality that it is not enough to increase the supply of care work jobs alone. To actually encourage workers to take new job care policies must also focus on the quality of care occupations. A long line of research in sociology and economics has found that the quality of care work can be improved by setting higher minimum wages, creating maximum hour and overtime policies, practicing predictable scheduling, and strengthening opportunities for care workers to unionize.<sup>79</sup> But like with other care policies, these measures are not yet widespread in the United States.<sup>80</sup>

## A CARE CONUNDRUM IN THE UNITED STATES

The tensions between the supply and demand of care work beg a critical question: Why has the United States failed to enact care policies that support families in providing unpaid care or meaningfully invest in paid care work?

To simplify a complex dynamic, researchers argue that it is because American undervalue care. Evidence shows that we do not reward or recognize the hours of unpaid care work or the love labor performed by women and other family members.<sup>81</sup> And persistent low wages in caregiving industries suggest that we do not value paid care workers—mostly women—enough to pay them wages commensurate with their labor either.<sup>82</sup> As a dire consequence, we are saddled with a *care conundrum*—a mismatch between the skyrocketing need for care and the fundamental insufficiency of care infrastructure and policies—that has a resounding unequitable impact on American families and the economy.

# 3

## THE CASE OF EARLY CHILD CARE

The consequences of this care conundrum are particularly pronounced when it comes to *early child care*. At its core, early child care is the practice of looking after infants, toddlers, and other preschool-age children and supporting their physical, mental, and social development during these critical years. Early child care has garnered national notoriety for being the prime example of how insufficient public and private investments to increase the availability, accessibility, and quality of care work have resulted in highly unaffordable care for families across the income spectrum. The consequences of the care conundrum play out in an inherently local way. There are frequent “horror stories” about how waitlists for early child care programs start before a child is even born and how those lucky enough to get a coveted spot in child care pay more than the cost of in-state college tuition.<sup>83</sup> The state of child care for children under age five—and even for older children—in cities across the United States is forcing parents to make unimaginable tradeoffs between their child’s wellbeing and their families’ economic security.

Before taking a closer look at these tradeoffs, it is important to provide some context about the history of child care, the current organization of early child care, child care needs and availability, the quality of child care programs, and the cost of child care programs across the United States.

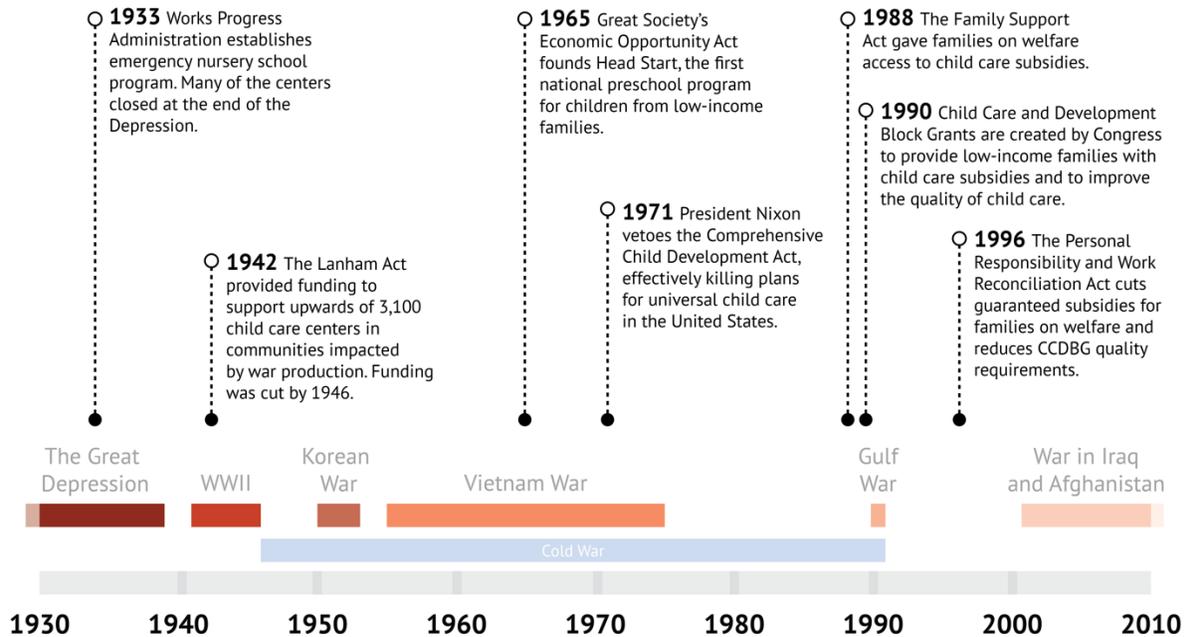
### A BRIEF HISTORY OF CHILD CARE IN AMERICA

The history of child care in America, like the history of most other care work, starts with love labor. Deep-seated gendered expectations have held women primarily responsible for raising and nurturing children from their infancy until they could become productive members of society. But the love labor put towards child care in white families was supported and supplemented by the work of Black women. To this effect, the history of child care in America also starts with race.

**FIGURE 6**

### A brief history of in child care policy in the United States

This timeline marks key developments for public child care in the United States. The turbulent history of child care policy in America signals that we struggle to justify why child care is necessary for *all* families.



**Source:** Author's analysis of historical trends in public policy around child care in the United States.

In the decades following the end of slavery, Black women saw their role in the American labor market transform.<sup>84</sup> With Black men enduring extreme discrimination in employment and wages, Black women's participation in the paid labor force became critical to garnering family economic security in Black households.<sup>85</sup> At the same time, as legal researcher Julie Vogtman notes, Black women began adhering to "a more gendered division of labor, in large part as a result of deliberate efforts [to reconstruct] 'Black femininity and Black masculinity [to be] consistent with prevailing [white] societal norms.'"<sup>86</sup> White and Black community leaders alike advocated to train Black women for domestic work.<sup>87</sup> All-Black institutions like Spelman College in Georgia and Tuskegee Institute in Alabama even reoriented their curriculum for Black women towards preparing them for domestic service.<sup>88</sup> An essential component of this service was providing child care to white families. Not only did Black women bear the brunt of child care in their own homes, but they also helped raise generations of white children for too little pay.

These care arrangements lasted through the first part of the 20th Century until, all of a sudden, the role of white women in America began to change. From 1929 to 1939, the

Great Depression destabilized economic security for families across the country, and the federal government responded in part by creating jobs to curb unemployment. In 1933, the Works Progress Administration established an emergency nursery school program to generate government-sponsored employment opportunities for teachers, nurses, janitors, and other workers.<sup>89</sup> The program served a secondary purpose, as well: It offered a sanctuary for young children from the worsening condition of many homes plagued by extreme economic and social deprivation.<sup>90</sup> The Works Progress Administration's initial funding of \$6.0 million for the program grew to \$10.7 million by 1938, supporting between 44,000 and 72,000 two- to five-year-olds each year.<sup>91</sup> As the Great Depression waned, though, so did the emergency nursery school program.

An even bigger demographic shift happened during as the United States entered World War II. While men exited the American labor force to join the armed services, women—both white and Black—were called upon to support wartime production. American women entered the labor force at record rates, and the demand for child care services surged.<sup>92</sup> It soon became clear that the few centers leftover from the Depression-era emergency nursery school program would not suffice, and the federal government would need to intervene. In August of 1942, the National Defense Housing Act of 1940—better known as the Lanham Act—authorized federal funding for child care to be administered by the Federal Works Agency.<sup>93</sup> Originally, the Lanham Act was not expressly designed to handle the provision of public child care; the Act directed funding to the maintenance of local infrastructure and public services.<sup>94</sup> Legislators “reinterpreted” the Act's provisions in order to advance the *care* infrastructure necessary to working mothers in cities across America.<sup>95</sup>

The Lanham Act operated through providing communities in major war production areas with grants for constructing and upkeeping child care facilities, training teachers, paying workers, and covering operating expenses.<sup>96</sup> In order to receive a grant, communities needed to demonstrate that they did not have enough monetary resources to address their child care needs.<sup>97</sup> The federal government contributed funds for up to 50 percent of the cost of the community child care project along with an expectation that states and localities would offer a local match.<sup>98</sup> Many states and localities fell short, and families had to pay between \$0.50 and \$0.75 per day for care for their zero- to 12-year-olds from 6:00 am and 6:00 pm.<sup>99</sup> In today's dollar's, that is between \$7.00 and \$10.00 for 12 hours of child care.<sup>100</sup>

Budget sheets show that 1942 and 1946, the federal government spent close to \$52.0 million in nominal terms on child care infrastructure, with states and localities contributing over \$26.0 million.<sup>101</sup> The Lanham Act's impact was broad-reaching. Approximately 3,100 centers in 47 states welcomed 600,000 children from a variety of socioeconomic backgrounds.<sup>102</sup> Though the quality of these child care centers varied

significantly, wartime investments in child care were the closest the United States has been to having universal child care system—and we never got it back.

By mid-1946, the war was over, and support for the Lanham Act had expired in spite of the fact that the experiment of universal child care yielded many societal benefits. Using a difference-in-difference-indifference analysis with data from the 1940 and the 1950 Census, Social policy researcher Christ Herbst finds that a \$100 increase in spending through the Lanham Act resulted in a 0.7 percentage point increase in employment and a 1.8 percentage point increase in earnings.<sup>103</sup> Herbst' additional lifecycle analysis of 1970 to 1990 Census data captures the long-term outcomes for Lanham Act beneficiaries. For each \$100 invested in child care programs, Herbst sees a 1.8 percentage point decline in high school dropout rates and a 1.9 percentage point growth in college graduation rates.<sup>104</sup> The death of funding for publicly-available child care thrust women back to the home sphere where they resumed their unpaid child care responsibilities. Men went back to being their families' breadwinners.

Two decades later, women's labor force participation began to rise again due to an amalgamation of factors that have been previously discussed. In 1947, women with children had a labor force participation rate of 19 percent, and by 1970, that rate was 42 percent.<sup>105</sup> Over the same time period, the labor force participation rate for women with children under age six grew by 167 percent, starting at 12 percent in 1947 and increasing to 32 percent by 1970.<sup>106</sup> The fantastic growth of women in the labor market renewed the demand for child care services.

President Lyndon B. Johnson's Great Society theoretically was the perfect vehicle through which to introduce national legislation for a public child care program to support women's labor force participation. But many child care scholars argue that it was a missed opportunity.<sup>107</sup> Under the umbrella of Great Society policies, the Economic Opportunity Act of 1964 founded Head Start, the first large-scale early childhood education program in the United States that was targeted at low-income three- to five-year-olds. Head Start was not necessarily intended to support maternal employment; instead, it was designed to improve the social, mental, and economic development of children from families receiving welfare by increasing school-readiness and child health and nutrition.<sup>108</sup> While it did in part address the need for child care, it was too narrowly tailored to those battling poverty.

Recognizing these gaps, Congress proposed the Comprehensive Child Development Act of 1971 to establish a network of child care centers and child development programs for families across the income spectrum.<sup>109</sup> The bill set aside \$2.0 billion every year to prepare the centers, train staff and teachers, and maintain high quality standards for care.<sup>110</sup> Families were also expected to make a contribution, albeit along a sliding scale so that those earning below \$4,320 per year in nominal terms would not need to pay.<sup>111</sup> Both

Democrats and Republicans in the House of Representatives and the Senate passed the bill, but on December 9, 1971, President Richard Nixon vetoed it.<sup>112</sup> President Nixon, caving to the demands of an extremely conservative lobby, argued that universal child care would "commit the vast moral authority of the National Government to the side of communal approaches to child rearing over against the family-centered approach."<sup>113</sup> In clearer terms, President Nixon, like many other conservatives at the time, did not want universal child care to weaken the traditional American family and disrupt the gendered division of work in the home sphere.<sup>114</sup>

Since the veto of the Comprehensive Child Development Act of 1971, the United States has taken a patchwork approach to supporting parents' child care needs. While mothers with children continued to find employment, it was not until the end of the 1980s another push for public child care emerged. In 1988, Congress passed the Family Support Act, which gave families receiving welfare child care subsidies so mothers could find stable jobs.<sup>115</sup> The next major development in child care policy happened in 1990, when President George H.W. Bush signed the Child Care and Development Block Grants into effect. Child Care and Development Block Grants provided full federal funding—with no requirement for state and local contributions—for child care subsidies for primarily low-income families.<sup>116</sup> Unlike the Family Support Act, the Child Care and Development Block Grants also created a 5 percent set-aside of funds to help improve the quality of child care, which was in part used to increase child care workers' wages.<sup>117</sup> The Block Grants would need to be reauthorized again in 1995.<sup>118</sup>

President Bill Clinton's welfare reform efforts in the mid-1990s backtracked some of the groundwork laid by the Child Care and Development Block Grants. In 1996, he signed into law the Personal Responsibility and Work Opportunity Reconciliation Act, most known for replacing New Deal-era Assistance to Families with Dependent Children with Temporary Assistance for Needy Families.<sup>119</sup> The Personal Responsibility and Work Opportunity Reconciliation Act also expanded federal funding for Child Care and Development Block Grants. At the same time, however, it cut guaranteed child care subsidies for welfare recipients and it drastically reduced standards for providing high quality child care and paying providers market-rate wages.<sup>120</sup>

President Clinton's welfare reform, in many ways, further exacerbated the child care conundrum in the United States. All recipients of Temporary Assistance for Needy Families and other subsidies were required to find employment, but at the same time, the administration made little effort to expand child care services so mothers could actually leave the home sphere to receive benefits.

In reflecting on this turbulent history of child care in the United States, legal scholar Abby Cohen contends that "the United States has yet to establish an underlying principle or set

of principles to justify public support of child care.”<sup>121</sup> And until we can build a comprehensive case for child care, we will be stuck in our child care conundrum. The pressing question is *how* to do so.

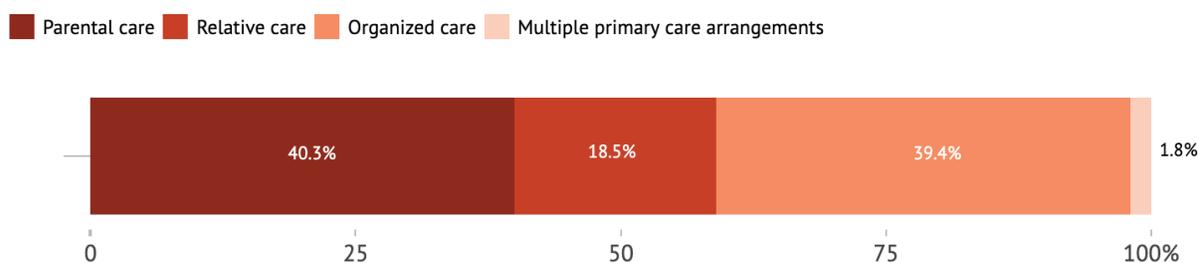
## THE AMERICAN EARLY CHILD CARE LANDSCAPE TODAY

The history of child care in the United States has certainly influenced the way in which families utilize early child care today. The insufficient patchwork of policies providing or subsidizing child care in the United States has pushed parents to find creative—and sometimes complex—ways to address their own child care needs. Parents typically fill these needs through three distinct types of child care arrangements: parental care, relative care, and organized care. (See Figure 7).

**FIGURE 7**

### Early child care arrangements in the United States in 2016

Parental care and relative care combined are the most common types of care arrangements for children age five and under in the United States.



**Source:** U.S. Department of Education, National Center for Education Statistics, Early Childhood Program Participation Survey of the National Household Education Surveys Program (ECPN-NHES:2016).

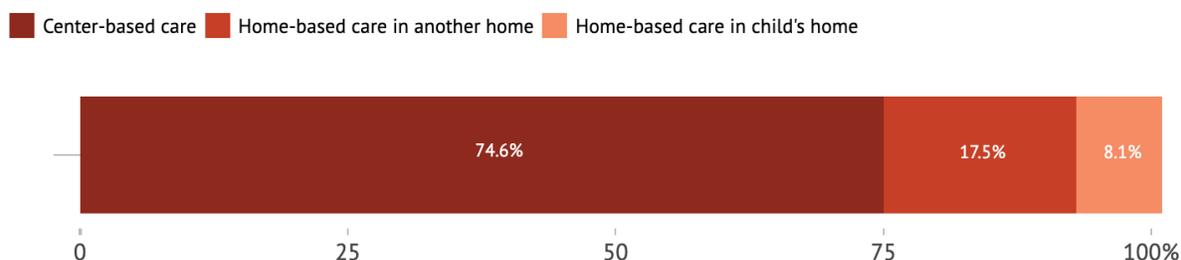
The vast majority of preschool-age children in the United States rely on either unpaid parental care or care from another relative. In 2016, the most recent year for available data, 40.3 percent of children age five and below were primarily under parental care and 18.5 percent were under care from a relative.<sup>122</sup> (See Figure 7). When families arrange for relative care, they most often call upon grandparents to look after their children. Close to 80 percent of relative care was provided by grandparents in 2016, compared to 13 percent provided by aunts and uncles and 9 percent provided by other relatives.<sup>123</sup>

Organized child care, unlike parental and relative care, are provided by the market on mostly a paid basis. In most cases, organized child care providers operate as formal non-profit or for-profit entities in either the private or public domain.<sup>124</sup> These organized arrangements generally take one of two forms: center-based child care or home-based care. (See Figure 8).

**FIGURE 8**

### A breakdown of organized child care arrangements in the United States in 2016

In 2016, organized child care served 8.4 million children under the age of six. Over three-fourths of these preschool-age children attended some form of center-based care.



**Note:** Percentages add up to slightly over 100 percent due to rounding in the National Center for Education Statistics summary tables.

**Source:** U.S. Department of Education, National Center for Education Statistics, Early Childhood Program Participation Survey of the National Household Education Surveys Program (ECPN-NHES:2016).

Of the 39.4 percent of children in organized care in 2016, 74.6 percent were in center-based care, which includes everything from day care centers, preschool programs, or Head Start facilities.<sup>125</sup> In the same year, 25.6 percent were in home-based care either in a family child care provider's home (17.5 percent) or in their own home (8.1 percent) using a nanny or a paid family member, friend, or neighbor.<sup>126</sup> Despite the fact that more children attend center-based organized care, there are significantly more home-based providers across the United States. Research using the National Survey of Early Care and Education in 2012—again, the most recently available data—found that there were approximately 3.8 million home-based early care providers and only 1.0 million center-based providers dispersed across 129,000 facilities.<sup>127</sup>

A growing body of research on the benefits of early childhood developmental programs has been both a blessing and curse to the provision of center-based child care in the United States. Interdisciplinary work in economics, child psychology, and neurobiology has codified the impacts of young children's environments in their subsequent development.

Seminal research by Eric Knudsen, James Heckman, Judy Cameron, and Jack Shonkoff, for example, demonstrates that during the early childhood years, a child's experiences can "influence the development of cognitive and social skills" and that meaningful investments in early childhood interventions can improve a child's overall wellbeing.<sup>128</sup> To many, these meaningful investments take the form of *early childhood education* for three- and four-year-olds. High-quality early childhood education programs—more commonly known as preschool and prekindergarten—are explicitly designed to promote a child's development and have been found to have several near-term and long-term benefits. Some of these near-term benefits include increases in a child's academic achievement, reductions in grade retention, decreases in the reliance on special education, and growth in high school graduation and college enrollment rates.<sup>129</sup> In the long-term, attending a high-quality preschool program can lead to improved health outcomes in preschool attendees, higher levels of employment, and greater earnings, among other benefits.<sup>130</sup> The promise of early childhood education is so great that economists estimate that for every dollar spent on preschool, the return on investments will range between \$3.78 and \$16.14 for society writ large.<sup>131</sup>

The problem is that early childhood education is a very narrow sliver of center-based child care in the United States. While research has been able to substantiate the benefits of this one type child care, it has failed to create a narrative or justification for why other forms of center-based and home-based care are equally important. Taryn Morrissey and Mildred Warner find two issues with this dichotomy. First, they argue that research on the benefits of early childhood education neglects the "ecological importance of person, place, and context" and forgets that working families "[require] full-time child care."<sup>132</sup> Second, they find that the same research "perpetuate[s] the separation of child care and [prekindergarten] to forward a human capital development argument."<sup>133</sup> The consequence of this separation is that education is seen as a public good, while pure child care arrangements remain in the private sphere.<sup>134</sup>

Morrissey and Warner advocate for early childhood education and child care to be unified under the term *early care and education* to ensure that other types of child care are held to the same quality standards as education.<sup>135</sup> This also has implications for alleviating the tension between center-based and home-based child care, as Morrissey and Warner point out. When child care of all types is taken into account, the economic impacts are much greater than considering center-based early childhood education alone.<sup>136</sup> Following this framework, this report does not separate early childhood education from our definitions of center-based child care.

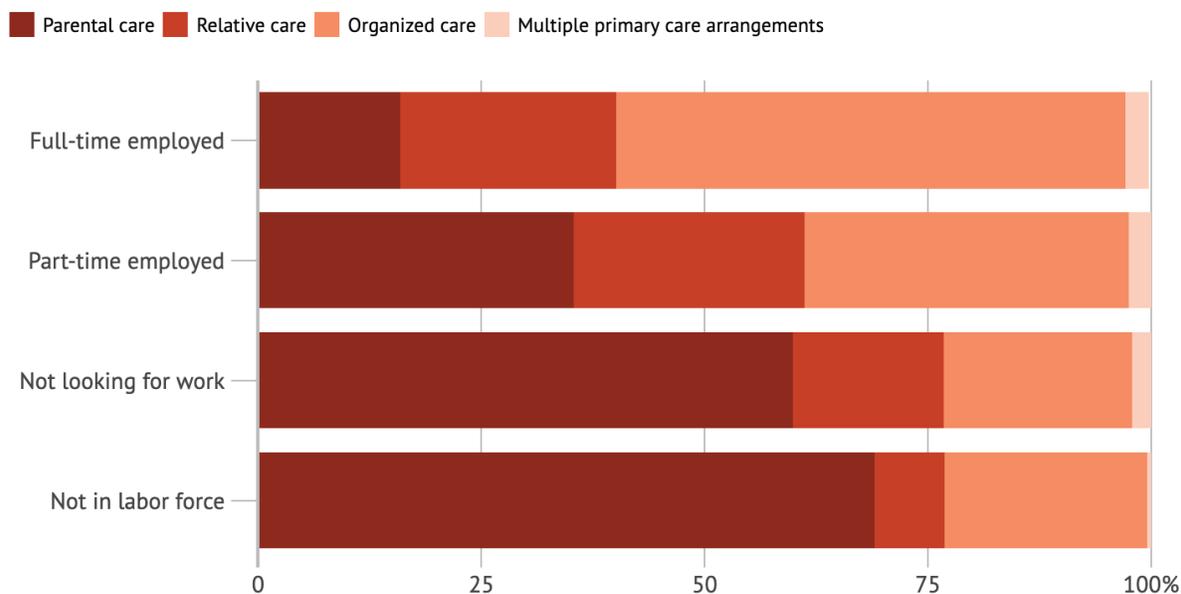
The usage of parental care, relative care, and organized care varies substantially across the American population. A closer look at the breakdown of child care arrangements across a mother's employment status, for instance, corroborates what we know about the

relationship between female labor force participation and the need for care services: Mothers with more involvement in the labor force generally rely more on relative care and organized care. (See Figure 9). In 2016, about 15.9 percent of children under age six with mothers who were working full time provided were under parental care; in stark contrast, 24.2 percent were looked after by another relative and 57.4 percent were in some type of center-based or nonrelative home-based care.<sup>137</sup> At the other end of the spectrum, 69.0 percent of young children with mothers who were not in the labor force were under parental care; 7.9 percent stayed with a relative for child care; and 22.7 percent used a form of organized care.<sup>138</sup>

**FIGURE 9**

**Early child care arrangements by mother’s employment status the United States in 2016**

In 2016, mothers with more involvement in the labor force tended to rely more on relative care and organized care for their children age five and under.



Source: U.S. Department of Education, National Center for Education Statistics, Early Childhood Program Participation Survey of the National Household Education Surveys Program (ECPN-NHES:2016).

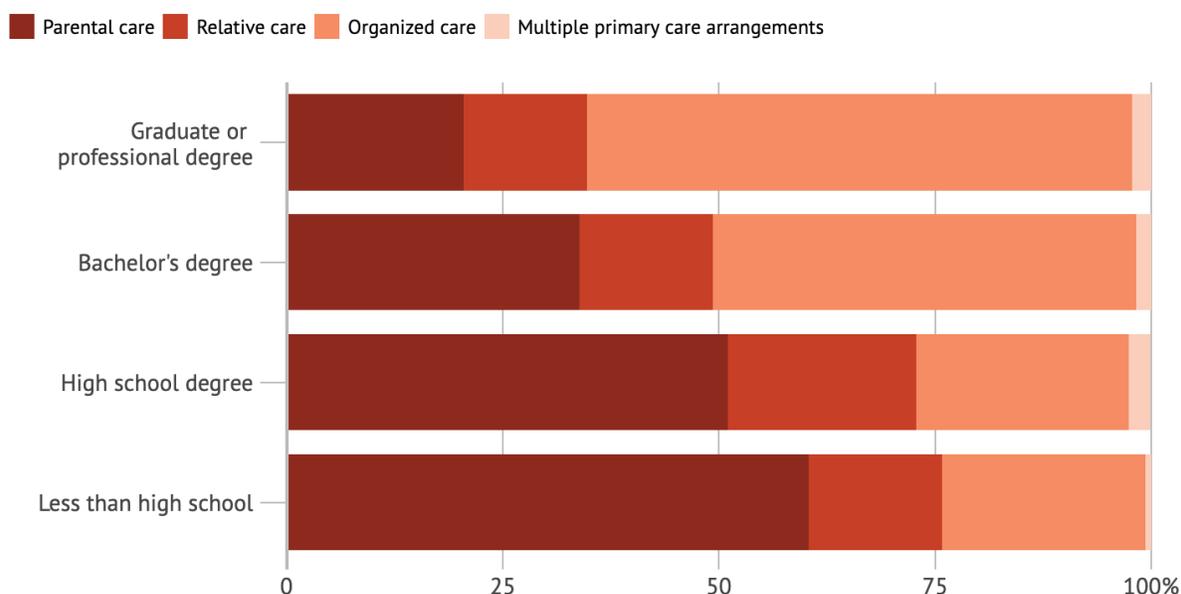
There are similar trends for child care arrangements by a mother’s highest level of education since higher levels of education are linked to higher rates of female labor force participation, as previously discussed.<sup>139</sup> As a mother’s level of education increases, her young children are less likely to receive parental care and more likely to be in a relative care or organized care arrangement. (See Figure 10). Only about 20.5 percent of children with mothers who have a graduate degree, professional degree, or higher are in parental

care arrangements, while 14.2 percent are under relative care and 63.1 percent attend some type of organized care program.<sup>140</sup> Roughly 60.4 percent of children with mothers who have less than a high school degree, on the other hand, are primarily under the care of a parent. Relative care and organized care for these children are utilized at 15.4 percent and 23.5 percent, respectively.

**FIGURE 10**

**Early child care arrangements by mother’s level of education the United States in 2016**

In 2016, mothers with higher levels of educational attainment used more relative care and organized care for their children age five and under than mothers with lower levels of educational attainment.



**Source:** U.S. Department of Education, National Center for Education Statistics, Early Childhood Program Participation Survey of the National Household Education Surveys Program (ECPN-NHES:2016).

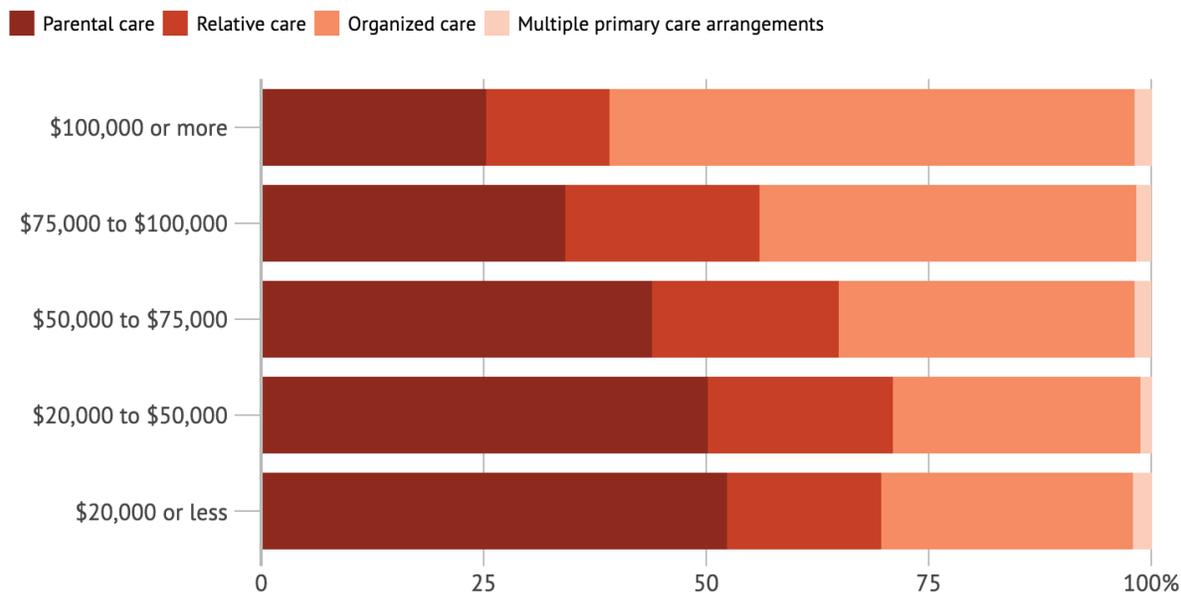
Also correlated with a mother’s employment and educational achievement is household income. As a result, families with higher household incomes—those likely to have mothers with higher levels of education working in the labor force—utilize parental care at much lower rates than families with lower household incomes. At the top of the income spectrum, 25.3 percent of children age five and under who come from families with annual incomes over \$100,000 use parental care, 13.8 percent use relative care, and 59.0 percent use either center-based or nonrelative home care.<sup>141</sup> At the bottom of the income distribution, the trends are nearly mirror images. Over 50 percent of children age five and

under from families with annual incomes under \$20,000 use parental care, 17.4 percent use relative care, and 28.2 percent use some form of organized child care.<sup>142</sup>

**FIGURE 11**

**Early child care arrangements by household income the United States in 2016**

In 2016, families with higher household incomes used more relative care and organized care for their children age five and under than families with lower household incomes.



Source: U.S. Department of Education, National Center for Education Statistics, Early Childhood Program Participation Survey of the National Household Education Surveys Program (ECP-P-NHES:2016).

After breaking down child care arrangements by mother’s employment status, mother’s highest level of education, and household income, two clear child care usage patterns emerge. First, parental care is critical to children from families where the mother is less likely to be employed, where the mother has completed less education, and where household income is low. But this also presents a dilemma for these families. In order to go back to school, find stable employment, increase earnings, or contribute to household income, parents—particularly mothers—need child care services. Low utilization rates of organized care arrangements suggest that there may be barriers that these families face in accessing more formal modes of child care. The second pattern reflects the converse: Organized care appears to be used at a greater rate among families who have greater maternal employment, higher levels of maternal educational attainment, and larger household incomes. To unpack these some of the drivers of these patterns, we build more context around child care need and availability, quality, and costs.

## CHILD CARE NEED & AVAILABILITY

In 2017, there were approximately 19,938,860 children under the age of five across the United States, making up roughly 6 percent of the total American resident population.<sup>143</sup> Assuming the distribution of care arrangements has not changed substantially since 2016, approximately 8,035,361 children under the age of five are under primarily parental care, 3,788,383 are taken care of by a relative, and 7,776,155 attend some type of organized child care program. While many families prefer parental or relative care arrangements, theoretically, in order for every child to be guaranteed early child care, the number of spots available in organized care programs would need to match the number of children under age five. In 2017, child care needs and availability did not sync. In contrast to the 19,938,860 children under five, there were only 10,069,571 child care slots available at either center-based care programs and licensed family child care homes, as reported by the Child Care Resource and Referral Agencies.<sup>144</sup> On a macro-scale, that amounts to a gap of 9,869,289 between the need for child care and the availability of child care. This gap varies significantly across the 50 states and Washington, D.C. (See Figure 12).

**FIGURE 12**

### The gap between child care needs and child care availability

Using a crude estimate of the number of child care slots, as reported by the Child Care Resource and Referral Agencies, subtracted from the number of children under the age of five, this table shows that child care needs are much higher than child care availability for children under five across the United States.

STATE	UNDER-FIVE POPULATION (2017)	NUMBER OF CHILD CARE SLOTS (2017)	NEED-AVAILABILITY GAP (CALCULATED)
Alabama	293,554	NOT AVAILABLE	NOT AVAILABLE
Alaska	54,083	29,513	24,570
Arizona	437,262	280,363	156,899
Arkansas	191,435	193,568	-2,133
California	2,471,513	1,372,878	1,098,635
Colorado	336,207	300,274	35,933
Connecticut	183,321	140,865	42,456
Delaware	54,992	47,510	7,482
District of Columbia	45,035	38,354	6,681
Florida	1,138,095	710,366	427,729
Georgia	660,313	362,997	297,316
Hawaii	90,109	35,662	54,447

<b>Idaho</b>	117,037	44,647	72,390
<b>Illinois</b>	773,049	335,928	437,121
<b>Indiana</b>	421,176	109,371	311,805
<b>Iowa</b>	198,996	191,005	7,991
<b>Kansas</b>	193,139	160,766	32,373
<b>Kentucky</b>	276,883	196,863	80,020
<b>Louisiana</b>	312,038	87,908	224,130
<b>Maine</b>	64,502	NOT AVAILABLE	NOT AVAILABLE
<b>Maryland</b>	366,385	272,449	93,936
<b>Massachusetts</b>	360,588	250,497	110,091
<b>Michigan</b>	573,282	393,976	179,306
<b>Minnesota</b>	355,231	222,348	132,883
<b>Mississippi</b>	187,177	NOT AVAILABLE	NOT AVAILABLE
<b>Missouri</b>	374,479	148,248	226,231
<b>Montana</b>	63,291	18,529	44,762
<b>Nebraska</b>	133,061	147,254	-14,193
<b>Nevada</b>	185,837	42,237	143,600
<b>New Hampshire</b>	64,481	53,790	10,691
<b>New Jersey</b>	521,718	393,935	127,783
<b>New Mexico</b>	128,145	70,355	57,790
<b>New York</b>	1,164,406	627,970	536,436
<b>North Carolina</b>	609,713	447,298	162,415
<b>North Dakota</b>	54,043	39,801	14,242
<b>Ohio</b>	698,780	450,874	247,906
<b>Oklahoma</b>	263,740	126,450	137,290
<b>Oregon</b>	235,968	119,169	116,799
<b>Pennsylvania</b>	708,829	NOT AVAILABLE	NOT AVAILABLE
<b>Rhode Island</b>	54,761	33,442	21,319
<b>South Carolina</b>	293,653	179,281	114,372
<b>South Dakota</b>	61,759	47,403	14,356
<b>Tennessee</b>	408,644	493,827	-85,183
<b>Texas</b>	2,031,625	NOT AVAILABLE	NOT AVAILABLE

<b>Utah</b>	255,200	41,144	214,056
<b>Vermont</b>	30,035	45,849	-15,814
<b>Virginia</b>	511,674	348,124	163,550
<b>Washington</b>	458,213	167,560	290,653
<b>West Virginia</b>	98,484	65,904	32,580
<b>Wisconsin</b>	335,888	161,864	174,024
<b>Wyoming</b>	37,031	21,155	15,876

**Source:** Author’s calculations from Child Care Aware. 2017. “Checking In: A Snapshot of the Child Care Landscape – CCAoA’s Annual State Fact Sheets.” [http://usa.childcareaware.org/wp-content/uploads/2017/07/FINAL\\_SFS\\_REPORT.pdf](http://usa.childcareaware.org/wp-content/uploads/2017/07/FINAL_SFS_REPORT.pdf) and United States Census Bureau, Population Division. 2017. “Table 1. Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2010 to July 1, 2017 (NST-EST2017-01).” [https://www.census.gov/data/tables/2017/demo/popest/state-total.html#par\\_textimage\\_1574439295](https://www.census.gov/data/tables/2017/demo/popest/state-total.html#par_textimage_1574439295).

With the exceptions of Arkansas, Nebraska, Tennessee, and Vermont, every other state in the United States has fewer center-based child care spots than the number of children. Again, while this does not necessarily mean that child care availability is inadequate, it does suggest that if every family in a particular state wanted to use center-based child care, they would be unable to do so.

Another, more sophisticated, way to represent the need-availability gap is by using a child care availability index. The child care availability index, created by researchers at the New America Foundation, takes the ratio between the number of center-based and home-based child care providers and the number of children under the age of five for each state.<sup>145</sup> Then, the proportion for each state is indexed to the average proportion nationally so that a value of 100 indicates that a state meets the national average. A value below 100 on the child care availability index means that a state is lagging behind in child care availability, and a value above 100 means that that a state has higher child care availability than the average state.<sup>146</sup>

The state-by-state variation in the child care availability index displays that most states did not meet the national average proportion between care providers and children under age five. (See Figure 13). States on the East Coast, however, appear to be more likely to meet or exceed the national average, perhaps suggesting that center-based and home-based child care infrastructure is more expansive there to meet the need of a smaller child population. Another outlier in exceeding the national average is Colorado, but it is unclear whether child care programs or small child populations are driving this trend. Western states and those with more rural populations appear to have substantially lower levels of child care availability.



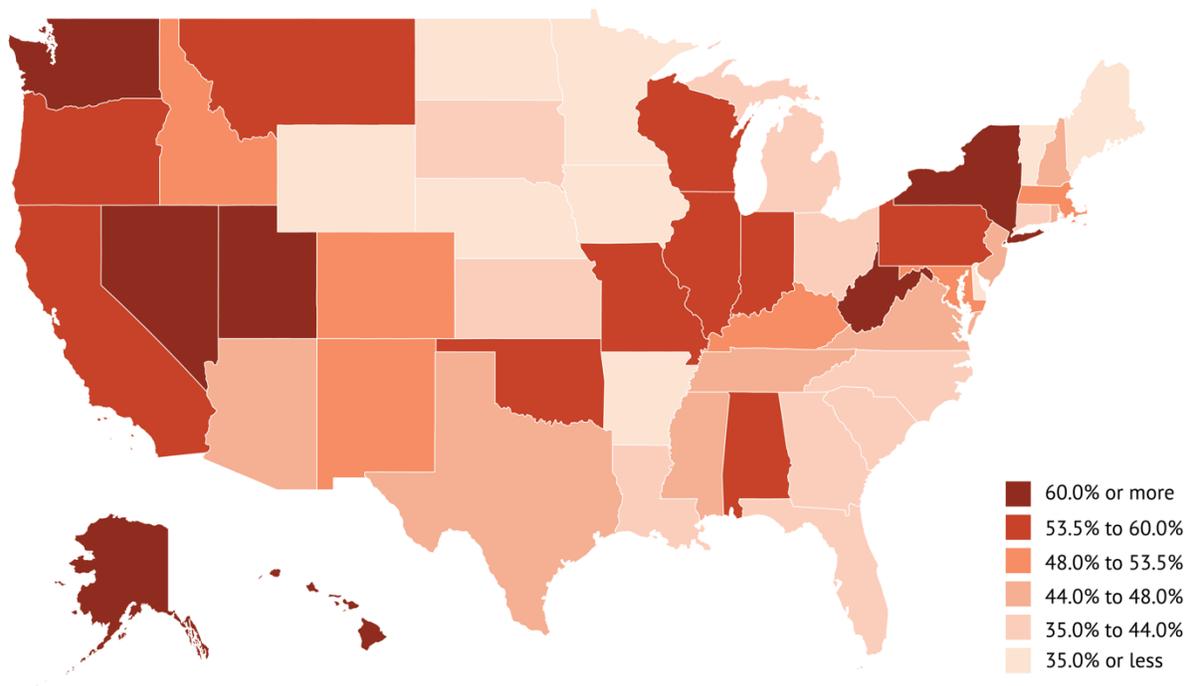
After collecting state-by-state data on the location and capacity of child care centers, home-based family child care providers, Early Head Start and Head Start programs, and preschool programs, the researchers merged the geocoded data with select census tract-level variables.<sup>150</sup> Through geographic analyses, they found that 51 percent of Americans and 42 percent of children under the age of five live in a census tract characterized as a child care desert.<sup>151</sup> Overwhelmingly, these child care deserts are located in areas with large rural populations, Latino communities, or low-income families.<sup>152</sup> Additional analysis with the dataset showed that maternal labor force participation rates decreased as the percent of people living within a child care desert in a state increased.

Much like with the need-availability metric, there is considerable variation in the share of the population living in a child care desert at the state level. (See Figure 14).

**FIGURE 14**

**Variations in percent of residents living in child care deserts by state in 2018**

In 2018, 51 percent of Americans lived in a child care desert. A child care desert is defined as a place that has at least 50 children under the age of five and no child care providers or three times as many children under five as child care providers.



**Source:** Malik, Rasheed, Katie Hamm, Leila Schochet, Cristina Novoa, Simon Workman, and Steven Jessen-Howard. “America’s Child Care Deserts in 2018.” Washington, D.C.: Center for American Progress, 2018. <https://www.americanprogress.org/issues/early-childhood/reports/2018/12/06/461643/americas-child-care-deserts-2018/>.

On the low-end, 22 percent and 23 percent of people in Maine and Iowa, respectively, live in an area without a sufficient number of providers. On the high-end, 72 percent and 77 percent of residents in Nevada and Utah, respectively, are in a child care desert.<sup>153</sup>

## CHILD CARE QUALITY

Addressing the child care need-availability gap in the United States is just one part of solving the child care puzzle in the United States. The research undeniably shows that the *quality* of child care matters, too.<sup>154</sup>

Quality can be a nebulous term, though researchers generally agree that there are two dimensions of quality that need to be considered when it comes to early child care: structure and process.<sup>155</sup>

The structural quality of child care is largely determined by its set characteristics or its regulable features.<sup>156</sup> These characteristics and features include indicators like adult-to-child or teacher-to-child ratios, group size, hours of operation, caregiver's education or experience, staff and teacher training, and compensation.<sup>157</sup> Process quality is based on the lived experiences of a child in their child care arrangements.<sup>158</sup> This often requires observations on the interaction between a student and their staff, teachers, peers, and activities, which can be much more challenging to measure than child care structure.<sup>159</sup> For this reason, child care quality in the United States is measured heavily through structural features. Research by Deborah Cassidy and colleagues points out that one of the most commonly used measures of child care process quality—the Early Childhood Environment Rating Scale-Revised—is actually more than half composed of indicators for structural quality.<sup>160</sup> Similarly, licensing and quality rating and improvement systems nearly exclusively judge the quality of early child care on structure.<sup>161</sup> While the structural quality of child care certainly influences the quality of process, it is thought that process ultimately contributes more to a child's development.<sup>162</sup>

We have a framework for measuring the quality of child care in the United States, yet there is little to no available data on the topic. This is in part because the child care landscape within states and across the country is so diverse. Each state employs different standards for assessing quality and licensing child care providers.<sup>163</sup> What's more, because so many care arrangements are informal or unlicensed in the private domain, it can be difficult to comprehensively assess the quality of child care.

The little data that is available shows that child care quality is “mediocre at best.”<sup>164</sup> A 2006 study from the United States Department of Health and Human Services estimated that less than 10 percent of non-maternal early child care arrangements were very high quality.<sup>165</sup> Less than 10 percent were also very low quality, suggesting that the quality of

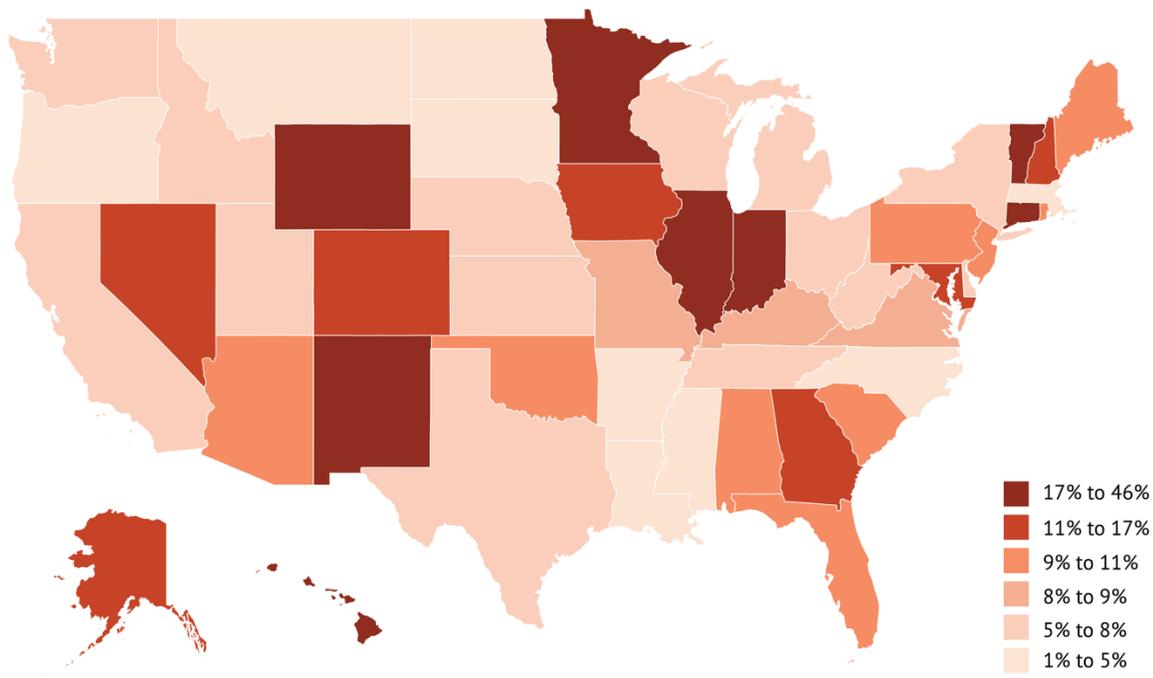
child care falls somewhere in the middle.<sup>166</sup> In this study, quality was measured by a child’s receipt of *positive caregiving*—the practice of encouraging development, reading, and trying out different forms of communication, among many other caregiving behaviors—from their care provider.<sup>167</sup>

More recent work from the New America Foundation takes a different approach to approximating the quality of child care across the United States. Using data on the percentage of center-based and family child care home-based programs that received accreditation by the National Association for Family Child Care and the National Association for the Education of Young Children, New America Foundation researchers discovered that only 11 percent of organized child care programs were accredited in 2016.<sup>168</sup> In most states, only between 0 percent to 12 percent of organized care programs are accredited.<sup>169</sup> (See Figure 15).

**FIGURE 15**

**Across the board, states had low shares of accredited child care programs in 2016**

In 2016, only 11 percent of center-based and home-based child care programs were accredited, with most states falling below the national average. As a proxy for quality, this suggests that most states have mediocre to poor child care.



**Source:** Howe, Susannah. “The Second Pillar of Care: Quality.” The Care Report. Washington, D.C.: New America Foundation, September 2016. <https://www.newamerica.org/in-depth/care-report/second-pillar-care-quality/>.

Accreditation is not the perfect measure of quality, but this research reveals that without uniform structural and process quality standards, there are very few ways to determine whether child care is in fact high quality.

To add another layer of complication to discussions around child care quality in the United States, parents' perceptions of high-quality child care do not always match what the research calls high quality. A poll conducted by National Public Radio in 2016, for example, found that about 88 percent of parents claimed that their child was receiving "very good" or "excellent" care.<sup>170</sup> The mismatch between perceived quality and measured quality may come down to the fact that there are not enough child care options nearby and the high-quality options that are available come at a high price.<sup>171</sup>

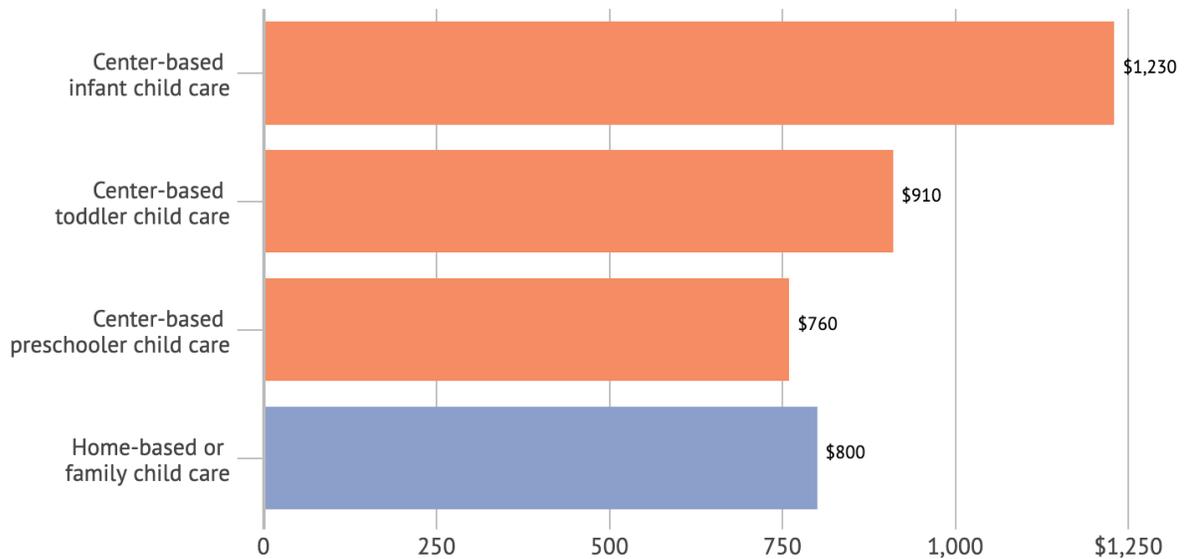
## THE COST OF CHILD CARE

The dynamic between child care needs, availability, and quality has a substantial impact on the costs of early child care. It is not an exaggeration to say that child care is expensive for everyone in the United States.<sup>172</sup>

**FIGURE 16**

### The average monthly cost of organized care by care arrangement in 2018

In 2018, the average cost of child care across all types of licensed organized care arrangements was about \$925 per month. Child care costs decrease, though, as a child ages.



**Source:** Workman, Simon, and Steven Jessen-Howard. “Understanding the True Cost of Child Care for Infants and Toddlers.” Washington, D.C.: Center for American Progress, November 2018. <https://www.americanprogress.org/issues/early-childhood/reports/2018/11/15/460970/understanding-true-cost-child-care-infants-toddlers/>.

On average, the cost of child care in the United States was \$8,606 per year in 2017.<sup>173</sup> These costs tend to vary by child care arrangement type as well as by the age of the child receiving care and geography. (See Figures 16 and 17).

Using a new state-by-state child care cost model, Simon Workman and Steven Jessen-Howard disaggregate the costs of licensed organized child care for infants (under age one), toddlers (between age one and age three), and preschoolers (between age three and age five).<sup>174</sup> Their model estimates that cost of center-based care for infants is \$1,230 per month or \$14,760 per year, decreasing to \$910 per month (\$10,920 per year) for toddlers and \$760 per month (\$9,120 per year) for preschool-age children. Home-based care providers generally charge \$800 per month or \$9,600 annually. These costs, however, reflect the price of child care programs that meet the basic—or minimum—licensing standards. For high-quality child care, the model predicts that cost climb significantly. High-quality center-based infant care, for instance, costs an average of \$2,260 per month or \$27,120 per annum. The costs of high-quality home-based care are almost double the previous estimates; on average, high-quality home-based or family child care home costs \$1,540 per month, which translates to close to \$18,480 per year.

Child care—whether it meets minimum or high-quality standards—places an economic burden on families with young children. In 2018, the costs of center-based child care for an infant accounted for between one-fifth to one-third of the national median income, depending on the quality of the program.<sup>175</sup> Other models estimate that the costs of child care amount to more than 30 percent of the median household income in America.<sup>176</sup> Child care is just one of many annual expenses, but the challenge is that its price is outpacing many of these other expenditures like rent, college tuition or student loans, transportation, food, and health, to name a few.<sup>177</sup> Child care costs for one child alone can be just as expensive as other annual economic burdens on families, so when two children require care, costs of child care can rival or exceed annual payments for a mortgage across all of the United States geographic regions.<sup>178</sup>

Research by Elise Gould and Tanyell Cooke analyzes the comparative impact organized child care expenditures have on family budgets across the states and in select metropolitan areas.<sup>179</sup> Gould and Cooke find that in 2015, center-based child care costs were more expensive than rent in over 80 percent of the areas they analyzed, exceeded the United States Department of Health and Human Services’ affordability standards by between 10 and 20 percent in their select metropolitan areas, and cost more than four-year in-state college tuition in 33 states and the District of Columbia.<sup>180</sup> To be sure, this

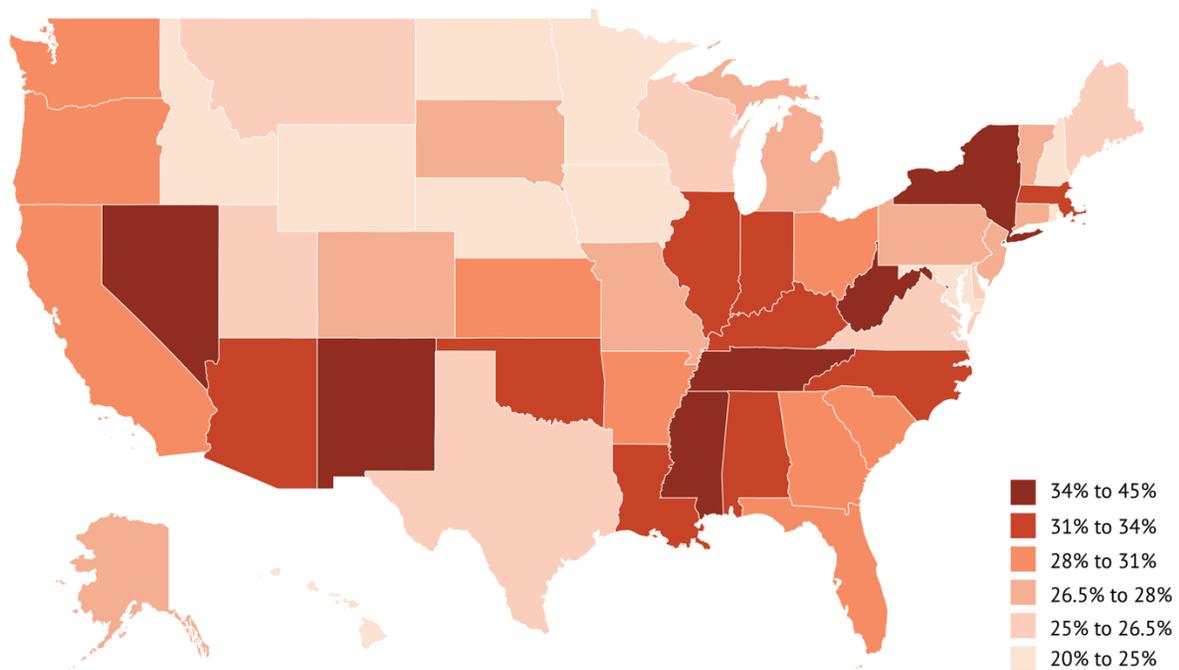
has inequitable impacts for families across the income distribution, with low- and middle-income families with children under five paying a substantial portion of their annual income towards child care. To afford center-based child care, minimum wage workers in every area that Gould and Cooke evaluated would need to breach their family budget thresholds.<sup>181</sup> In some cases, these workers would have to contribute their full-time wages for three-fourths of the year in order to pay the cost for child care.

These child care cost burdens fluctuate from state to state. (See Figure 17).

**FIGURE 17**

### The average cost burden of organized child care in 2016

In 2016, child care costs took up anywhere from one-fifth to two-fifths of household income across the United States.



**Source:** Oncken, Lindsay. “The First Pillar of Care: Cost.” The Care Report. Washington, D.C.: New America Foundation, September 2016. <https://www.newamerica.org/in-depth/care-report/first-pillar-care-cost/>.

Across all types of organized child care, states with the highest child care cost burdens were West Virginia and Mississippi, where child care costs made up 45 percent and 42 percent, respectively of household incomes in 2016.<sup>182</sup> At the low end, child care costs amounted to 20 percent of both New Hampshire and North Dakota’s household incomes.<sup>183</sup> The cost burden of child care appears to be highest in the South and relatively lower in the rural Midwest.

Workman and Jessen-Howard contend that the high cost of child care is mostly directed towards helping compensate staff or teachers with salaries and benefits.<sup>184</sup> According to their estimates, for every dollar spent on child care, an average of 57% and 58% goes towards the salaries and benefits of child care providers at center-based programs and home-based programs, respectively.<sup>185</sup> The next expenses are for office and administration, rents and utilities, and materials and food, in decreasing order.

Projections suggest that the cost of child care in the United States is on the rise. Based on index measures of the Consumer Price Index, just between 1994 and 2014, the price of child care grew by nearly 120 percentage points while the prices in the economy on the whole grew by close to 60 points.<sup>186</sup> Although some researchers like Chris Herbst are skeptical about the relative growth in child care costs, research by economist So Kubota confirms that the real hourly price of child care increased by 32 percent since the late 1990s.<sup>187</sup> Kubota's links the rise in child care costs for children under five to the recent decline in women's labor force participation in the United States.<sup>188</sup> Kubota also notes that hourly market or center-based care utilization rates per week shrank between 2000 and 2010 while non-market or home-based care has steadily increased.<sup>189</sup> Families appear to be substituting home-based care with market-based care to reduce the high and rising costs of child care. Kubota's work empirically underscores how the relationship between child care's demand, supply, quality, and price is forcing families to make impossible tradeoffs that impact their ability to participate in local labor markets.

## THE IMPOSSIBLE TRADEOFFS PROMPTED BY CHILD CARE

Faced with few child care options and a choice to settle for low-quality child care that could adversely affect their children's' development, forgo exorbitant amounts of monthly income for high-quality center-based child care, or sacrifice a career to stay at home to provide care themselves, parents—disproportionately mothers—are quickly realizing that child care in America has evolved into a crisis.

The trouble is that there are many different factors that can influence or impact parents' decision around child care choices, which can be a barrier in the pipeline to economic security. Child care decisions can be understood within the integrative *accommodation model*, which was first put forward by Marcia Meyers and Lucy Jordan in 2006. The accommodation model fuses the *rational consumer choice* framework, *heuristics and biases* framework, and the *social network* framework.<sup>190</sup> Under this combined framework, the accommodation model views child care decisions as highly contextual choices in consumption that are influenced by markets, family, and social realities.<sup>191</sup> For parents to make a decision about child care, they must weigh their “dual roles” as providers and

caregivers, which ultimately may engender economic and social tradeoffs for parents that further affect families, employers, and even federal, state, and local balance sheets.<sup>192</sup>

Sandra Hofferth and Nancy Collins' work helpfully outlines the pathways through which these tradeoffs can occur. They find that the unavailability of child care can compromise a mother's job stability and reduce her wages, while the high costs of child care increase exits from the labor force by moderate- and high-wage mothers.<sup>193</sup> It is approximated that women and men across the United States collectively lose over \$8,252,576,649 in wages per year as a consequence of inadequate child care infrastructure.<sup>194</sup>

But the pressures of child care impact everyday life, too. Parents may lose wages for every hour or day they miss work due to child care issues.<sup>195</sup> A nationally representative telephone survey of 1,431 household across the United States conducted in 2010 by Guillermo Montes and Jill Halterman found that about 21 percent of parents experienced work absenteeism and 27 percent rearranged their work schedule to deal with breakdowns in their child care arrangements.<sup>196</sup> Other research estimates that 29 percent of parents were absent, late to work, or could not concentrate at work thanks to child care troubles.<sup>197</sup> On average, child care breakdowns are thought to result in between 9 and 16.9 days of absence per year.<sup>198</sup> These absences can directly impact family economic security, but efforts to prevent absences and tardiness also can require depending on other family members, who could otherwise be working, to provide child care.

Employers can lose employee productivity to tardiness or absences due to child care issues, too. Each year, businesses lose between \$3.0 and \$4.4 billion due to child care-related breakdowns.<sup>199</sup> These losses stem from the cost of replacing absent workers at a rate of 150 percent for hourly wage workers and further result in reductions in employer revenues due to absences from salaried workers.<sup>200</sup> What's more, if child care issues prompt parents to exit the workforce altogether, a quit requires employers to spend money on replacing workers and training new hires. In these cases, employers pay 20.7 percent of a worker's annual salary to account for their turnover.<sup>201</sup>

Federal, state, and local governments may lose payroll tax and income tax revenue from decreased work time due to child care breakdowns.<sup>202</sup> In Louisiana, for example, worker absenteeism due to child care issues resulted in over \$13.0 million of lost tax revenues, while quits and employee turnovers sparked by long-term child care breakdowns resulted in nearly \$71.0 million lost in 2017.<sup>203</sup> Similar research in Maryland found that state tax revenue was reduced by \$43.9 million and \$73.3 million due to child care-related absenteeism and job turnover, respectively.<sup>204</sup>

Most of the time, these tax revenue losses fail to account for the wages forgone by parents, family members, and others who stay home to take care of a child. Because

earnings are generally correlated with market consumption, there is evidence that suggests lower earnings from child care breakdowns and unpaid arrangements can reduce sales tax revenues.<sup>205</sup> At the local level, research by economist Jean Kimmel and sociologist Mildred Warner demonstrates that regional economic growth and development can be negatively affected by these tradeoffs induced by insufficient child care.<sup>206</sup>

## POLICY RESPONSE TO THE GROWING CHILD CARE CRISIS

Between insufficient child care spots, mediocre quality, unaffordable costs, and numerous social and economic tradeoffs parents must make, it is clear that the child care market is fundamentally broken. As many social scientists argue, this is because traditional *laissez-faire* approach to markets simply does not work for child care.<sup>207</sup> When market efficiency cannot be achieved through supply and demand alone, large-scale public investments and subsidies become critical for keeping the market afloat.

In an ideal world, national, state, and local investments and policies would help increase access to high-quality child care and alleviate its prohibitively high costs. Years of political gridlock and budget wars between child care and early childhood education, however, have resulted in very few child care policies that are primarily targeted at lower-income populations.<sup>208</sup> Aside from child care quality and licensing regulations at the federal and state level, there are only three programs that currently help reduce the impact of child care tradeoffs. The first is the Child Care and Development Block Grant, discussed earlier, which was reauthorized in 2014 to provide subsidy vouchers for eligible parents who are employed with children under the age of 14.<sup>209</sup> The other two programs are tax-based. The Child and Dependent Care Tax Credit offers non-refundable tax credits for out-of-pocket expenses related to child or dependent care, and the Dependent Care Assistance Program allows parents to use employer-administered flexible spending accounts that are exempt from income and payroll taxes.<sup>210</sup>

These programs are important, but they do not do sufficiently increase the availability of child care or bring down costs. Trends also show that families' access to the Child Care and Development Block Grant is declining because of lowered income eligibility standards across states. In 2015, for instance, a family of three at 150 percent of the federal poverty level was not eligible to receive vouchers through the Child Care and Development Block Grant.<sup>211</sup> The tax credits, too, are problematic because they are capped at \$3,000 annually.<sup>212</sup> That covers just over a third of the costs of the national average cost of child care.

As public investments and policies around child care in the United States lag behind, the care conundrum continues to be propelled forward. In the absence of public funding and

universal child care policies, perhaps we need to hold employers and other institutions equally accountable to supporting the needs of their workforce. Though it may be a stopgap approach, employers and institutions may be the key to helping families fill their *unmet* child care needs.

# 4

## ACADEMIC INSTITUTIONS & CHILD CARE

One such employer that is theoretically primed to tackle the child care conundrum is the American *academe*. This is because academic institutions in across cities in the United States have long-served as local economic engines and social policy incubators in their communities. Admittedly, however, very little is known about the state of child care in academia aside from the fact that inadequate child care policy adds to long-standing gender inequalities in the academe.

### CHILD CARE POLICIES AT ACADEMIC INSTITUTIONS TODAY

Part of the reason there is so little data on child care at academic institutions is because there are many different types of institutions across the United States and no harmonized approach to child care. In some cases, academic institutions offer their faculty, staff, researchers, or students some form of financial assistance for child care outside of the university. In other cases, institutions have on-site child care available. Some institutions have strict restrictions on who qualifies for financial support for child care or a spot in the institution's own child care facility, while others have no child care offerings whatsoever.

A review of child care policies at some of some of the top research universities in the United States shows the diversity of child care policies. (See Figure 18). This comparison also reveals that in addition to child care subsidies and on-campus child care services, several universities offer back up care programs and grants for the supplementary child care needed during conference travel. Back up care—provided either at on-campus child care centers or at home—is intended to fill in the gaps when child care arrangements breakdown or academic engagements unexpectedly crop up. Grants for child care during travel, again, are meant to ensure that academics have child care coverage when their

travel schedules conflict with the schedules of their usual child care arrangements. Both back up care and travel grants help mitigate the impacts of unpredictable schedules. All this said, child care policies at universities—whether they are subsidies, on-campus care centers, back up care services, or travel grants—do not always appear to be equally accessible to *everyone* at an academic institution. Most of these policies are geared towards prioritizing the child care needs of full-time faculty and staff.

## FIGURE 18

### A review of child care policies at top research universities in the United States

Among some of the most productive research universities in the United States, child care policies are highly varied. Note that this is not a comprehensive list of universities nor does it comprehensively cover the nuances of each school's child care policy.

#### BROWN UNIVERSITY • Providence, Rhode Island

<b>Policy</b>	<b>1</b> Child care subsidy program for children between age 0 and 6 • <b>2</b> Dependent care travel funds • <b>3</b> Back-up child care for up to 15 days in either a Bright Horizons center or in-home care
<b>Eligibility</b>	<b>1</b> Staff, faculty, postdoctoral research associates, graduate students, medical students, and postdoctoral fellows • <b>2</b> Lecturers, Senior Lecturers, Distinguished Senior Lecturers, Assistant Professors, Associate Professors, and Professors • <b>3</b> Benefit-eligible employees
<b>Subsidy or Cost</b>	<b>1</b> Staff, faculty, postdoctoral research associates—\$1,000-\$4,000 per year maximum; graduate students—\$4,000 per year maximum; medical students and postdoctoral fellows—\$1,000-\$4,000 per year maximum • <b>2</b> Up to \$750 per year • <b>3</b> Center-based care—\$15 per child per day or \$25 per family per day; home-based care—\$4 per hour for at least 4 hours

#### COLUMBIA UNIVERSITY • New York, New York

<b>Policy</b>	<b>1</b> Child care subsidy benefit for dependents under 5 • <b>2</b> Back-up child care for up to 150 hours per year • <b>3</b> University-affiliated early learning centers
<b>Eligibility</b>	<b>1</b> Benefits-eligible officers • <b>2</b> Full-time Officer of Instruction, Officer of Research, Officer of the Library, non-union support staff, postdoctoral researchers; doctoral students (full- and part-time), and teaching fellows with household income under \$120,000 per year • <b>3</b> NOT AVAILABLE
<b>Subsidy or Cost</b>	<b>1</b> \$2,000 per year • <b>2</b> Center-based—\$3.00 per hour per child; home-based care—tiered by hours of use between \$7.00 and \$12.00 per hour for at least 4 hours • <b>3</b> NOT AVAILABLE

## CORNELL UNIVERSITY • Ithaca, New York

<b>Policy</b>	<b>1</b> Child care grant • <b>2</b> Bright Horizons Cornell Child Care Center for age 6 weeks to 5 • <b>3</b> Back-up child care for up to 10 times per year
<b>Eligibility</b>	<b>1</b> Eligible staff or faculty with household income under \$150,000 per year; undergraduate and graduate students with household income under \$120,000 per year • <b>2</b> Benefits-eligible faculty, academic and nonacademic staff, and students • <b>3</b> Benefits-eligible faculty, academic and nonacademic staff, and students
<b>Subsidy or Cost</b>	<b>1</b> Faculty and staff—\$5,000 per year; undergraduates and graduates—up to \$2,000 per infant/toddler/preschooler per year maximum, \$500 per preschooler through 13 per year, \$250 per 13 through high school per year, all tiered by income level • <b>2</b> Between \$443 and \$1,829 per month per child depending on age and usage • <b>3</b> Center-based care—\$40 per child per day for the full day or \$25 per child per day for a half day

## HARVARD UNIVERSITY • Cambridge, Massachusetts

<b>Policy</b>	<b>1</b> Child care scholarships • <b>2</b> On-campus child care centers
<b>Eligibility</b>	<b>1</b> Eligible faculty, staff, and postdoctoral fellows • <b>2</b> NOT AVAILABLE
<b>Subsidy or Cost</b>	<b>1</b> Need-based (vary case-by-case) • <b>2</b> NOT AVAILABLE

## MASSACHUSETTS INSTITUTE OF TECHNOLOGY • Cambridge, Massachusetts

<b>Policy</b>	<b>1</b> On-campus child care centers • <b>2</b> Childcare scholarship program for children enrolled in on-campus child care centers
<b>Eligibility</b>	<b>1</b> Current employee; postdoctoral associate; postdoctoral fellow; student in an undergraduate or graduate degree program; or visiting engineer, scholar, or scientist with special priority given to faculty • <b>2</b> Eligible full- and part-time employees or postdoctoral fellows with a household income under \$140,000 per year
<b>Subsidy or Cost</b>	<b>1</b> Ranges from \$921 to \$2,760 per child per month depending on child age and usage • <b>2</b> Center-based care—\$35.00 per child per day; home-based care—\$16.00 per hour for at least 4 hours

## NORTHWESTERN UNIVERSITY • Evanston, Illinois

<b>Policy</b>	<b>1</b> Center-specific child care fee assistance program • <b>2</b> Graduate student child care grants for children age 6 and under • <b>3</b> Back up care reimbursement program for up to 6 days per academic year • <b>4</b> Dependent care professional travel grants that can be used for extra dependent care, conference child care, or transportation
<b>Eligibility</b>	<b>1</b> Full-time faculty, staff, graduate students, and undergraduate students whose children are full-time enrolled in Bright Horizons @ Evanston, Bernice E. Lavin Early Childhood Education Center, McGaw YMCA Children's Center, and the University Children's Center and who have a household income under \$130,000 per year • <b>2</b>

Active, funded PhD and MFA candidates associated with The Graduate School with a household income under \$130,000 • **3** Full-time faculty, staff, graduate students, and undergraduate students • **4** Only faculty

**Subsidy or Cost** **1** NOT AVAILABLE • **2** \$2,500 for one child or \$5,000 for two children paid on a quarterly basis • **3** Reimbursement of up to \$25 per day (a total of \$150 per year) • **4** \$1,000 per academic year

### PRINCETON UNIVERSITY • Princeton, New Jersey

**Policy** **1** Employee child care assistance program grants for children through prekindergarten • **2** On-campus child care centers and discounts from 9 other centers • **3** Back up care program • **4** Graduate child care assistance grants

**Eligibility** **1** Faculty and staff who are eligible based on household income (determined by a committee) • **2** Faculty, staff, and students are given priority for admission • **3** Faculty, staff, and graduate students • **4** Graduate students with household incomes under \$130,000 per year

**Subsidy or Cost** **1** \$5,000 for one child per year with additional support for a second child • **2** Between \$1,925 and \$2,200 per month depending on age and contract • **3** Center-based care—\$2.00 per child per hour; home-based care—\$4.00 per hour for up to 3 dependents • **4** Between \$1,000 and \$5,000 per year with additional funding given for a second child

### STANFORD UNIVERSITY • Palo Alto, California

**Policy** **1** Faculty child care assistance program grants for children age 5 and under • **2** Child care subsidy grants for children age 10 and under • **3** On-site child care centers for children age 5 and under • **4** Junior faculty dependent care travel grant • **5** Tuition savings program at participating centers

**Eligibility** **1** Faculty with household income under \$225,000 per year • **2** Benefits-eligible university employees with a household income under \$175,000 per year • **3** NOT AVAILABLE • **4** Junior faculty (untentured or non-tenure track) • **5** Faculty, staff, postdoctoral fellows, students, and hospital staff

**Subsidy or Cost** **1** Between \$6,000 and \$24,000 per year depending on household income • **2** Between \$1,000 and \$5,000 depending on age of child and household income • **3** Between \$1,269 and \$2,645 depending on age, usage, and co-oping • **4** \$1,000 per calendar year • **5** 10 percent discount on weekly tuition

### UNIVERSITY OF TEXAS, AUSTIN • Austin, Texas

**Policy** **1** On-campus child development center

**Eligibility** **1** Faculty, staff, and students (tiered by full-time and part-time status)

**Subsidy or Cost** **1** Between \$710 and \$1,130 per year depending on age of child and household income

## UNIVERSITY OF CALIFORNIA, BERKELEY • Berkeley, California

<b>Policy</b>	1 On-campus child care center • 2 Back up care • 3 Child care reimbursement program
<b>Eligibility</b>	1 Faculty, staff, and students (tiered by affiliation with university) • 2 Student parents • 3 Academic student employees
<b>Subsidy or Cost</b>	1 Between \$1,725 and \$2,275 per month depending on age of child and COLA adjustments (subsidies available on sliding scale basis for student parents) • 2 Center-based care—\$8 per four hours; home-based care—\$16 per four hours • 3 \$1,650 per semester or \$1,100 per summer term

## UNIVERSITY OF CHICAGO • Chicago, Illinois

<b>Policy</b>	1 On-site child care centers • 2 Dependent care travel grants
<b>Eligibility</b>	1 Faculty members, other academic appointees, staff, students and postdoctoral researchers • 2 Assistant Professors
<b>Subsidy or Cost</b>	1 NOT AVAILABLE • 2 \$500 per academic year

## UNIVERSITY OF MICHIGAN • Ann Arbor, Michigan

<b>Policy</b>	1 On-site child care centers • 2 Financial assistance for child care • 3 Child care tuition grants • 4 Back up child care services for a maximum of 48 hours at a subsidized rate
<b>Eligibility</b>	1 Faculty, staff, and students • 2 Undergraduate and graduate students • 3 Faculty, staff, and students • 4 Faculty, staff, and students who will be at school or work when using back up care
<b>Subsidy or Cost</b>	1 NOT AVAILABLE • 2 Between \$1,415 and \$5463 per term depending on the term length and number of children • 3 Determined based on family size and income • 4 \$6 per hour (\$22 per hour if not subsidized)

## UNIVERSITY OF PENNSYLVANIA • Philadelphia, Pennsylvania

<b>Policy</b>	1 Care.com benefits (details are unavailable) • 2 Snow day child care • 3 On-site child care center • 4 Back up child care for up to 10 days per year
<b>Eligibility</b>	1 Care.com benefits (details are unavailable) • 2 Snow day child care • 3 On-site child care center • 4 Back up child care for up to 10 days per year
<b>Subsidy or Cost</b>	1 NOT AVAILABLE • 2 Between \$15 and \$35 per child per day depending on salary • 3 Reduced rate and regular rates vary but can cost up to \$458 per week • 4 \$5 per hour or \$8 per hour depending on salary

## UNIVERSITY OF VIRGINIA • Charlottesville, Virginia

<b>Policy</b>	<b>1</b> On-campus child care • <b>2</b> Back up care for up to 15 days per year
<b>Eligibility</b>	<b>1</b> Faculty, staff, and students (with priority system for full-time employees and students) • <b>2</b> Eligible employees
<b>Subsidy or Cost</b>	<b>1</b> Between \$211 per week and \$280 per week depending on age • <b>2</b> Center-based care—\$15 per child per day; home-based care—\$6 per hour

### YALE UNIVERSITY • New Haven, Connecticut

<b>Policy</b>	<b>1</b> Back up child care
<b>Eligibility</b>	<b>1</b> Different types of back up care for different groups
<b>Subsidy or Cost</b>	<b>1</b> NOT AVAILABLE

**Source:** Author’s analysis of “Child Care Resources | University Human Resources.” Brown University, 2019. <https://www.brown.edu/about/administration/human-resources/worklife-brown/child-care-resources>; “Child Care & Schooling | Office of Work-Life at Columbia University.” Columbia University, 2019. <https://worklife.columbia.edu/content/child-care-schooling>; “Child Care Grant - Cornell University Division of Human Resources.” Cornell University, 2019. <https://hr.cornell.edu/benefits-pay/retirement-finances/financial-assistance/child-care-grant>; “Tuition Rates | Technology Childcare Centers.” Massachusetts Institute of Technology, 2019. <https://childcare.mit.edu/tuition-scholarships/tuition-rates>; “Backup Child Care | Human Resources at MIT.” Massachusetts Institute of Technology, 2019. <https://hr.mit.edu/worklife/backupchildcare>; “Paying for Childcare: Human Resources.” Northwestern University, 2019. <https://www.northwestern.edu/hr/benefits/work-life/paying-for-childcare/>; “Child Care - Office of Human Resources.” Princeton University, 2019. <https://www.princeton.edu/hr/benefits/worklife/child/>; “Off-Site Early Childhood & Child Care Support | Cardinal at Work.” Stanford University, 2019. <https://cardinalatwork.stanford.edu/benefits-rewards/worklife/children-family/off-site-child-care>; “Childcare.” University of Texas at Austin, 2019. <https://gradschool.utexas.edu/services-and-resources/campus-services/childcare>; “Childcare | Student Parent Center.” University of California, Berkeley, 2019. <https://studentparents.berkeley.edu/child-care>; “Child Care Resources.” University of Michigan, May 21, 2015. <https://hr.umich.edu/benefits-wellness/work-life/child-care-resources>; “Caring for Your Family and Self.” University of Pennsylvania, 2019. <https://www.hr.upenn.edu/PennHR/wellness-worklife/family-care>; “About, Child Development Center.” University of Virginia, 2019. <http://www.virginia.edu/childdevelopmentcenter/about.html>; “Backup Care and Babysitting | It’s Your Yale.” Yale University, 2019. <https://your.yale.edu/work-yale/benefits/worklife/child-care/backup-care-and-babysitting>.

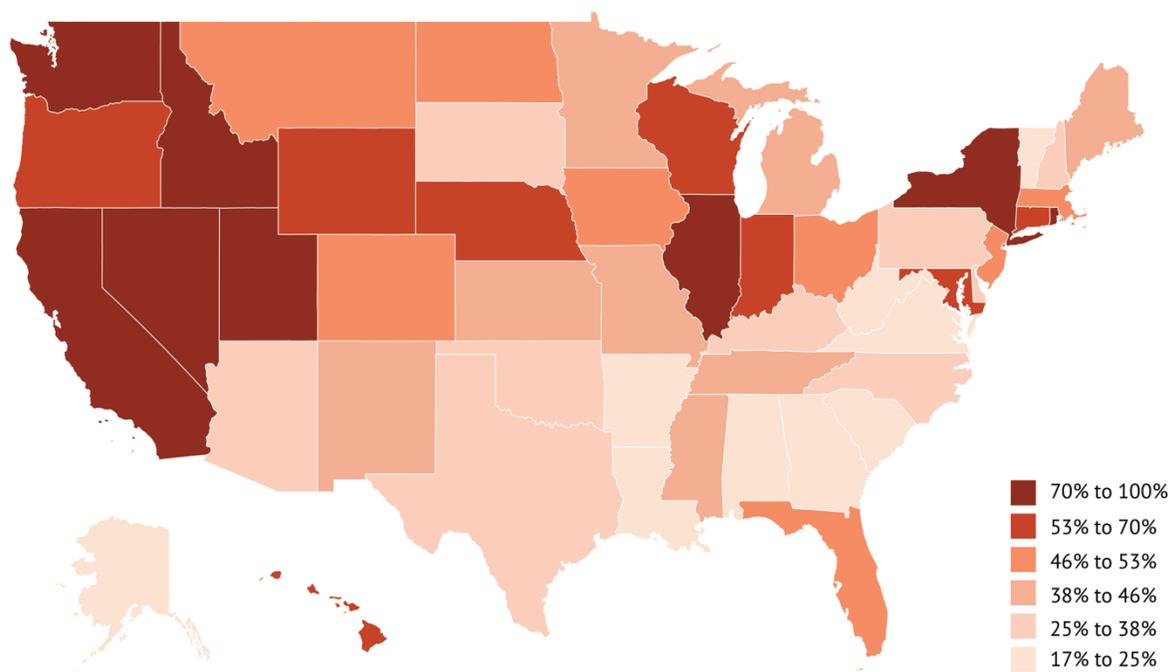
The child care policies at these top research universities are outliers in many ways. Though these schools do not always have comprehensive or equitable policies, they often are much more substantial than what is available at other academic institutions. Without the financial resources to be able to maintain investments in child care infrastructure, recent research shows that the availability of on-campus child care is actually on the decline at many academic institutions across the United States. A report by the Institute for Women’s Policy Research found that in the early 2000s, the share of four-year public institutions and

community colleges with campus-based child care was over 55 percent and 53 percent, respectively.<sup>213</sup> By 2015, the share of these institutions dropped to 49 percent and 44 percent.<sup>214</sup> Currently, there is substantial state-by-state variation in the percent of public academic institutions and community colleges with on-campus care. (See Figure 19). On the whole, states in the South appear to have smaller shares of academic institutions with child care centers on campus.

**FIGURE 19**

### Percent of public institutions and community colleges with on-campus child care in 2015

In 2015, only 44 percent of public institutions and community colleges across the nation had on-campus child care centers available.



**Source:** Eckerson, Eleanor, Lauren Talbourdet, Lindsey Reichlin, Mary Sykes, Elizabeth Noll, and Barbara Gault. “Child Care for Parents in College: A State-by-State Assessment.” Washington, D.C.: Institute for Women’s Policy Research, September 2016.

Even when campus-based child care is available, waitlists to access care can be long. A survey of a 100 campus child care leaders also conducted by the Institute for Women’s Policy Research found that the average waiting list has 82 children.<sup>215</sup> Faced with fewer seats and long waitlists for child care, academic parents must look outside of their institution for child care, with the hope of being covered by a subsidy if it is available. This can create added stressors and costs for academic families, while simultaneously placing more demand on an already-tight local child care market.

## WOMEN & THE LEAKY ACADEMIC PIPELINE

Insufficient child care infrastructure on campuses and limited subsidies breed another problem. These supports are vital for mothers working in academia, and without them, existing gender inequalities in the academic pipeline are being perpetuated. Decades of research have shown that the academic pipeline—or the pathway from graduate school to tenure—is leaky.<sup>216</sup> Since the 1980s, women have made tremendous gains in educational achievement.<sup>217</sup> Today, more women graduate with bachelor's, master's, and doctoral degrees than men.<sup>218</sup> Across all fields in 2016, 57 percent of bachelor's degree recipients, 59 percent of master's degree recipients, and 53 percent of doctoral degree recipients were women.<sup>219</sup> These academic gains, however, have not translated to equal representation in the academe itself.

In 1993, women held 38.6 percent of all full-time faculty positions in the United States, and by 2016, that share had grown to roughly 46.0 percent.<sup>220</sup> In spite of this steady progress, the tenure track is much slower for women than it is for men.<sup>221</sup> As a consequence, women make up between 37.6 percent and 42.0 percent of tenured positions and are disproportionately concentrated in community colleges and undergraduate degree-granting institutions.<sup>222</sup>

These trends, in part, may be reflective of the slow pace of change at American universities, a product of the multi-stage and multi-year tenure process. It is thought that faculty turnover tends to happen in 30-year cycles as a result of tenure structures.<sup>223</sup> Discrimination is also another important contributor to gender imbalances in the academic pipeline. A study conducted at the University of California at Irvine interviewed 80 women faculty found that discrimination at Research One universities happens at both the individual and institutional level.<sup>224</sup> Even when women were in more authoritative positions at University of California at Irvine, they expressed that their power was devalued because of their gender.<sup>225</sup> The study also confirmed that the social environment or large research universities still largely adheres to a traditionally male professional culture.<sup>226</sup>

The male professional culture is notably one that does not provide leeway for the many roles women must play within and outside of the academe. The academic workplace is rigid and “configured for the typical male career of the nineteenth century, in which the man in the household was the single breadwinner and the woman was responsible for raising the children,” as Mary Ann Mason and Marc Goulden aptly put it.<sup>227</sup> The unpredictable schedules, long hours of work, travel requirements, and unreasonable standards for productivity that emerge when women and men enter graduate school or start on the tenure track all seem to coincide with the time women begin having children.<sup>228</sup> Early on, women are implicitly asked to make a choice between dropping out of

academia altogether, delaying childbearing or marriage to keep up with the demands of academia, or trying their best to balance it all while climbing the ladder.

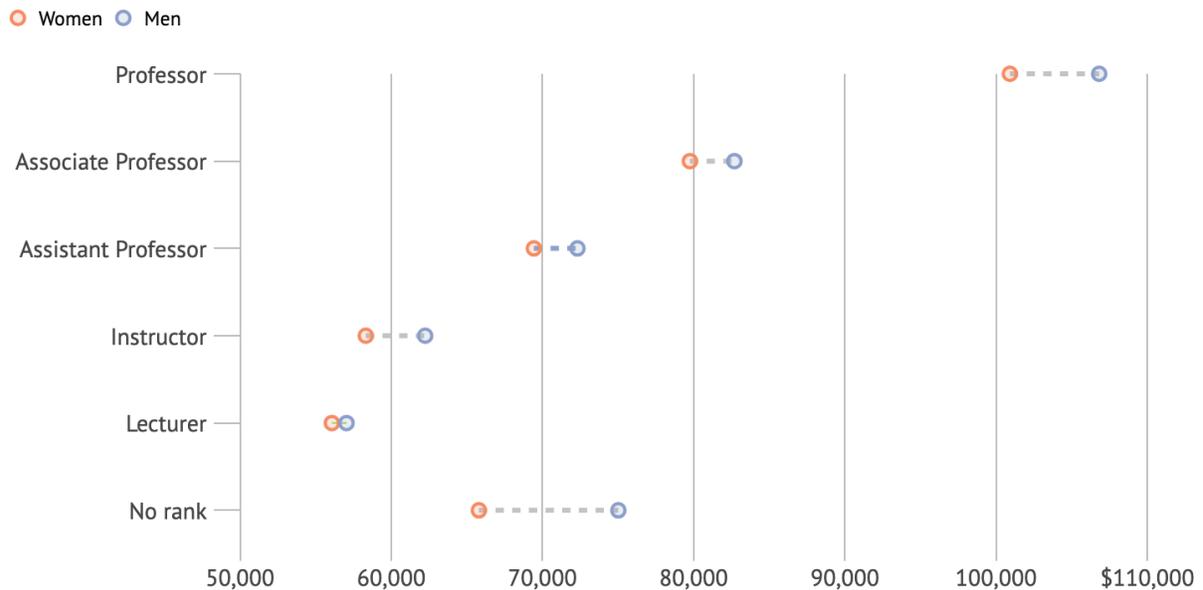
It seems that many women in academia choose the second option, with the majority of academics postponing fertility until they are between the ages of 35 and 39—over 10 years after the average age of childbirth in the United States.<sup>229</sup> Mason and Goulden use the Survey of Doctorate Recipients from 2004 to confirm this tradeoff. Women who were given tenure within three years of finishing their doctorate degree were 50 percent less likely to be married in comparison to their male counterparts, and 61 percent less likely to have a child under the age of six.<sup>230</sup> This may be attributed to the fact that there is a motherhood penalty on scholarly productivity, while fatherhood appears to boost the research output of men.<sup>231</sup>

The motherhood penalty extends to the wages of women in academia, too. Mason, Goulden, and coauthor Nicholas Wolfinger find that an academic mother’s income drops by 1 percent for every one of her children.<sup>232</sup> Men do not see this same. Cumulatively, women in academia make less than men in academia at every rank. (See Figure 20).

**FIGURE 20**

### Annual salary gaps between men and women in academia in 2018

At every academic rank, men make more than women on average in public, private, and other academic institutions across the United States.



**Source:** “The Annual Report on the Economic Status of the Profession, 2017-2018.” Academe. Washington, D.C.: American Association of University Professors, April 2018. [https://www.aaup.org/sites/default/files/ARES\\_2017-18.pdf](https://www.aaup.org/sites/default/files/ARES_2017-18.pdf).

At the top of the spectrum, male Professors across public and private institutions made an average of \$106,820 per year, while women Professors made \$100,917 in 2018.<sup>233</sup> At the bottom of the academic ladder, male Assistant Professors made \$72,317 and women Assistant Professors earned \$69,435 per year.<sup>234</sup>

## FACILITATING ECONOMIC GROWTH & SOCIAL POLICY THROUGH ACADEMIA

Patching the leaky pipeline and bridging gaps between men and women in academia is no easy task. It requires a long-term commitment from American academic institutions to reorient the academic profession away from a male-centric work culture. Creating robust child care policies or better tailoring existing policies to suit the unique needs of academic parents may be one way of alleviating the pressures mothers face as they move through the academic pipeline. As an added bonus, investments in child care by academic institutions may have wider ripple effects. That is because academic institutions play a crucial economic and social role in local labor markets.

Academic institutions—ranging from colleges and universities to research consortiums—are local economic engines. Higher education policy researcher Sachi Hatakenaka explains that higher education institutions play a significant role in regional and local economic development through three primary channels.<sup>235</sup> First, scientific discoveries made at academic institutions can spur industrial spin-offs, commercial projects, or startups that chose to locate near the institution.<sup>236</sup> In some cases, these initiatives help build a “local industrial community” that contributes to the local economy by accelerating scientific discoveries and encouraging the growth of other supporting financial and professional industries.<sup>237</sup> Second, universities provide learning opportunities for the local workforce to further build their skills and knowledge.<sup>238</sup> It is well-established that increased education, skill building, or other human capital development contributes to economic growth.<sup>239</sup> Higher levels of education generally increase an individual’s productivity, which in turn increases their earnings potential and local economic consumption.<sup>240</sup> The third channel through which academic institutions impact local economic development, according to Hatakenaka, is contract work by academics.<sup>241</sup>

Under Hatakenaka’s framing, we can think of investments in child care by academic institutions function as spin-offs by generating distinctly local employment opportunities in a new industry. Closely related to Hatakenaka’s second point, institutional investments in training for child care workers further develops local human capital, opening up the possibility for low-wage child care workers to boost their earnings potential. Having reliable child care can also increase the productivity of academic workers who would be burdened with fewer child care breakdowns.

While these economic contributions are salient, Hatakenaka notes that academic institutions also influence the “social, cultural, and intellectual tone of a local area.”<sup>242</sup> Ongoing research and work by academics within the institution is frequently used by advocates, lobbyists, policymakers, and government officials in local, state, and federal decision-making processes. Through their own policies, programs, development, community engagement, and responses to emerging social, economic, and political problems academic institutions play an additional role in shaping their localities. In this way, academic institutions are poised to be an example not just for innovations in science and technology but also in designing social policy. By implementing innovative and equitable child care policies, academic institutions can send a message that echoes through their spheres of influence: It is time to start valuing care.

# 5

## BUILDING A CASE FOR CHILD CARE

Up to this point, the previous sections have laid out a recurring theme: The child care conundrum in America is widespread. Even large employers, like academic institutions, have struggled to meet the ballooning demand for child care. But this is not because it is an impossible problem to resolve. The inability to fix the child care conundrum in the United States is more reflective of American priorities and values that have been developed with little regard for the needs of women. Our economy, the primary system of valuation in America, was built to reward self-interested capitalists, not other-centered workers.<sup>243</sup> As a result, the system reproduces the social and economic inequalities that feed right back into the child care conundrum.

There are two possible ways to break this pernicious cycle. The first relies on a transformation of American values around gender equity in both the public and private domains.<sup>244</sup> Given how entrenched gender inequality is and its intersection with other forms of systemic oppression, dismantling current attitudes and practices toward gender roles is a critical but multi-generational effort. The second is an option for the interim. To build a case for child care, child care must be placed within the current American framework of value. This approach begins with quantifying child care's worth in economic terms.

### RESEARCH QUESTION: QUANTIFYING THE COSTS OF UNMET CHILD CARE NEEDS FOR ACADEMIC PARENTS

The theoretical motivation for this research is that the child care conundrum has manufactured several tradeoffs that have significant social and economic consequences. While previous research has meticulously identified what the tradeoffs associated with

child care are, it has seldom been able to quantify *how much* different actors lose to these tradeoffs. In other words, there is little information on the *costs of not meeting child care needs*. Mildred Warner asserts that this is because economists and social science researchers fundamentally lack data on child care that would enable them to model the social and economic impacts of the tradeoffs parents make.<sup>245</sup> The downside is that without the data, we are still at a stalemate with the child care conundrum.

In an attempt to fill these data and research gaps, this paper goes through an exercise of estimating the costs of unmet early child care needs among parents with children under the age of five working, teaching, researching, or studying in academia in order to better understand how insufficient child care infrastructure impacts the economic wellbeing of families and the economic outlook of academic institutions. We first work to answer several questions that build a baseline understanding of the state of child care in academia:

- What arrangements do academic parents rely on for child care?
- What are the barriers academic parents face in securing child care or making decisions about child care arrangements?
- What perceptions do academic parents have about the quality of their child care arrangements? What are the drivers of child care that are perceived to be high in quality?
- What are the costs of child care for parents in academia? Do they differ from what we know about the costs of child care for the general population? What sorts of subsidies do parents access to reduce the cost of child care?
- What are the unique tradeoffs parents make in order to balance the demands of academic work with caregiving responsibilities? How do academic parents cope with breakdowns in child care?

We use the baseline results to then to explore the many economic losses families and academic institutions underwrite when child care needs go unmet, ranging from the cost of having to rely on unpaid care to the cost associated with lost productivity due to child care breakdowns. We then ask what are some of the ways, based on our results, that academic institutions can help fill the gaps. The results are meant to encourage academic institutions and even other large employers to expand their child care policies in order to minimize their annual economic losses and help build a broader case for adopting public and universal child care policies across the United States.

# 6

## METHODOLOGICAL APPROACH

To answer these questions, we rely on a four-stage mixed-method quantitative approach. In the first stage of the research, we piloted a national online survey on academic parents' experiences with child care. Next, in the second stage, we conducted a preliminary analysis on the results from the survey to characterize academic parents' current child care arrangements and their experiences with child care availability, quality, costs, and tradeoffs.

This analytic dataset was then used in two distinct ways during the third and fourth stages of our research. In the third stage, we extrapolated the results from the survey into national cost estimates of academic parents' unmet child care needs through a deterministic modeling exercise. In the fourth and final stage, we dove deeper into one dimension of unmet child care needs—location—using a regression analysis to evaluate relationship between variables and better identify possible pathways to meet academic parents' child care demands.

### STAGE 1: SURVEY ON ACADEMIC PARENTS' EXPERIENCES WITH CHILD CARE

Because so little is known about the state of early child care among academic parents, we designed Child Care for Parents in Academia Survey to construct a preliminary understanding about the five key facets of child care—child care arrangements, need and availability, quality, costs, and tradeoffs—among academics with children under the age of five at academic institutions across the United States. To this effect, our online survey includes seven distinct modules on: (A) characteristics of children under the age of five and parents' academic institutions, (B) current child care arrangements, (C) child care choice

and accessibility, (D) child care quality, (E) tradeoffs associated with child care, (F) basic demographics, and (G) final thoughts. (See Figure 21 or Appendix A for the full survey).

**FIGURE 21**

**Modules of the 2019 Child Care for Parents in Academia Survey**

This table includes a brief overview of the types of questions asked or the information collected in each of the seven modules of the Child Care for Parents in Academia Survey that was piloted between March 4, 2019 and April 7, 2019.

SURVEY MODULE	DESCRIPTION OF QUESTIONS ASKED
<b>MODULE A: Academic Parents and Children Under 5</b>	<p>This section mainly identifies eligibility for the survey: Whether a person considers themselves an academic parent and whether they currently live with a child under the age of five. Additional questions solicit information on the number of children and the age of children; the academic institution’s control, Carnegie Classification, size, and Metropolitan Statistical Area (MSA); and parent’s position or role and field of study at their institution. Parents who are not eligible are redirected to a narrative response, where they are asked to share their experiences with child care qualitatively.</p>
<b>MODULE B: Current Child Care Arrangements</b>	<p>This section asks about children’s’ primary child care arrangement, the cost of these arrangements, receipt of financial support, and typical days and hours of use.</p> <p>As a critical note, one question in this section was modified mid-way through the survey in response to feedback provided by participants. Originally, when asking about the cost of child care arrangements, one option listed “My child care arrangement is free,” following the language present in other surveys. The language was not intended to demean the work of family members or other unpaid child care workers, but to clarify the intention, the answer choice was amended to: “My child care arrangements are free (<i>this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs</i>).”</p>
<b>SECTION C: Child Care Choice and Accessibility</b>	<p>This section asks about how academic parents learned about child care choices, the ease of finding choices, challenges in the hunt for child care, and whether their current arrangement was their ideal arrangement. Additional questions solicit information from parents who have campus-based child care at their institution about the clarity of information provided about programs, the ease of enrollment, fairness, affordability, and waitlist times.</p>
<b>MODULE D: Child Care Quality</b>	<p>This section asks parents who <i>pay</i> for child care about their overall satisfaction and a rating for location, hours, cost, provider education, provider experience, curriculum for kindergarten readiness, activities for</p>

physical and socioemotional development, safety, and cleanliness of indoor and outdoor spaces.

**MODULE E: Tradeoffs  
Associated with Child Care**

This section both asks about parents' current work and school arrangements (days and hours) and about whether parents have ever quit, switched to part-time, been unwilling to go to full-time, been fired, or refused a promotion due to child care issues. Additional questions probe into wages, child care breakdowns, additional commute times to child care, and the usage of back up child care arrangements when current arrangements fail to meet needs.

**MODULE F: Demographics**

This section collects basic demographic information about gender, country of birth, state of residence, marital status, level of education, and household income.

**MODULE G: Final Thoughts**

This section offers a long-form narrative response for parents to elaborate on their unique experiences with child care or provide feedback about the survey.

**Note:** Please see Appendix A for a full list of questions in each module within the Child Care for Parents in Academia Survey.

**Source:** Child Care for Parents in Academia Survey, piloted March 4, 2019 to April 7, 2019.

The questions in the Child Care for Parents in Academia Survey are based on several surveys that have been previously tested and used in child care research studies. Modules B and E are an adaptation and significant expansion of a 2016 survey conducted by the Louisiana Policy Institute for Children, which was similarly used to derive the costs of unmet child care needs through deterministic modeling. Modules B and E also used questions similar to those found in the Survey of Income and Program Participation's Set E on child care.<sup>246</sup> Modules C and D are informed by questions included in 2016 poll conducted by National Public Radio, the Robert Wood Johnson Foundation, and Harvard University's T.H. Chan School of Public Health on the relationship between child care and health outcomes in the United States.<sup>247</sup> All basic demographic questions found in Module A and Module F were modeled on data categories found in the United States Census Bureau's American Community Survey and the United States Department of Education's National Center for Education Statistics, two nationally-representative datasets that form critical crosswalks for poststratification of our survey data in the third phase of research.<sup>248</sup>

Many of questions found in these validated sources are geared towards the general American population, so the Child Care for Parents in Academia Survey used our previously collected information about child care policies in academic institutions and anecdotes from current academic parents to make the survey more applicable to families in the academe.

## **IDENTIFYING A SAMPLE POPULATION**

The Child Care for Parents in Academia Survey sampled from a universe of academic parents with children under the age of five. For the purposes of the study, we defined “academic parent” broadly as people working, teaching, researching, or studying at an academic institution in the United States. This definition included tenured and untenured faculty, instructors and lecturers, research associates or affiliates, postdoctoral fellows and researchers, doctoral students, medical students, law students, master’s students, undergraduates, administrative staff, and other employees. We cast this wide net in order to capture any inequalities in the distribution of child care resources by academic institutions that arise as a consequence of narrowly tailored child care policies.

The choice to exclude academic parents with children age five and older was impelled by the fact that the nature of child care needs drastically changes after children enter the education system.<sup>249</sup> By the end of the 1980s, publicly-funded kindergarten had become available to virtually all five-year-olds in the United States.<sup>250</sup> This means that almost all kindergarteners and other school-age children receive care from school teachers and staff for nearly a full working day. Being in school does not preclude them from needing some form of child care, but it does suggest that unlike infants, toddlers, and preschoolers, they do not regularly need child care when their parents are at work. In a similar vein, some parents with three- or four-year-olds enroll their children in preschool or prekindergarten. While these programs follow similar schedules to kindergarten, they are not nearly as universal. There are very few public early childhood education programs, and in many states, preschool is inaccessible to those who may be unable to afford its high price.<sup>251</sup> For these reasons, it is reasonable to assume that most parents with a child below the age of five seek and select similar care arrangements.

Several narrative responses from both ineligible and eligible parents emphasized the importance of unpacking the complex and unusual care arrangements for school-age children when parents work in academia. A few of these narratives mentioned that choices around early child care are also connected to the decision-making process parents have around care arrangements for their older children. To be sure, this is a known limitation of the study that will likely result in an underestimate of unmet child care needs for families.

## **SURVEY DISTRIBUTION STRATEGY**

In order to reach the universe of academic parents with children under the age of five, we disseminated the Child Care for Parents in Academia Survey using a social media distribution strategy. The decision to share the survey via social media emerged from three goals. First, because no national survey about child care has previously been sent to parents at academic institutions, the Child Care for Parents in Academia Survey functions

as a pilot for a future and more refined study on child care among the whole academic population. Second, in its role as a pilot, the survey needed to reach a very targeted population—parents with infants, toddlers, and preschoolers—within academia instead of soliciting and sorting through all academics. Third, though the target population is narrow, national representation needs to be expansive in order to generate any meaningful estimates in the deterministic modeling phase of the research. For reasons explained below, social media distribution strategies meet these three goals and have the added benefit of being a timely and cost-effective way to collect data.<sup>252</sup>

Social media distribution strategies are premised on the qualitative concept of *snowball sampling*. In qualitative research, snowball sampling denotes a process where one participant recommends another participant who may have similar characteristics to them.<sup>253</sup> Here, participation is linked to a chain of referrals between people. It has typically been used to sample from “hard-to-reach” populations, but it is also rooted in the idea that people with similar traits may be connected to each other. From anecdotal evidence, academic parents of young children tend to share their experiences, challenges, and lessons through social media, email listservs, other web-based forums. By tapping into these networks and then relying on a snowball sampling strategy, the survey more effectively targets academic parents with young children.

From a statistical perspective, however, snowball methods are a form of nonprobability sampling, which means that people are selected into the survey in a nonrandom way. As a result, it is not possible to calculate sampling error—the level of difference between the sample and the actual population—when using snowball sampling. Depending on distribution channels, snowball sampling can also result in undercoverage, or the inability to collect adequate information for certain demographic groups that are excluded from or do not have access to the networks of distribution used by referring participants. This may compromise the external validity or the generalizability of our rote survey results. To increase the external validity of research that uses snowball sampling, we can reweight results to the known characteristics of the overall population.

To put our snowball sampling plan into effect, we constructed an anonymous online survey using the Qualtrics platform and identified several social media groups, email listservs and forums, and individuals who could more broadly share the survey with academic parents with children under the age of five.

The primary channels of dissemination on social media were through Twitter and Facebook. On Twitter, targeted Tweets were crafted to include common hashtags followed by academics, parents, and child care-research users. Over 25,000 Facebook users were reached primarily through posts in groups frequently visited by academic parents. Email listserv and forum distribution, unlike the social media channels, were more geared

towards broad groups of academics who tend to advocate for rights of academics or tend to be connected to social science or child care research networks that could spread the survey further. The survey was sent via email listserv to recipients of the Association of Collegiate Schools of Planning's weekly newsletter, 6,000 members of the American Economic Association, 14,000 members of the National Postdoctoral Association, an unknown number of members of the Association for Public Policy Analysis and Management's general listserv and student forum, and approximately 150 academic grantees and university grants administration staff in Washington Center for Equitable Growth's academic network. Over 30 other academic listservs were asked to distribute the survey, but it is unclear whether these requests were forwarded on to their affiliates. In addition to social media postings and listserv solicitation, we asked over 50 academic department administrators, faculty, and students across the United States to distribute the survey to any known networks of academic parents. We were notified that in two instances of personal outreach, individuals forwarded the survey to other nationwide listservs. In one case, the survey was forwarded to a national network of faculty, residents, and researchers at American medical schools, and in another, it was distributed to the Gender and Diversity in Organizations subgroup within the Academy of Management.

The snowball sampling distribution strategy yielded 1,299 responses to the Child Care for Parents in Academia Survey within a month. Data were collected between March 4, 2019 and April 7, 2019.

## STAGE 2: PRELIMINARY DESCRIPTIVE ANALYSIS

After the results from the survey were received, the second stage of this research centered around gathering a preliminary descriptive understanding of academic parents' experiences with early child care in five dimensions: (1) their child care arrangements, (2) their access to child care resources and services, (3) their perceptions of the quality of their current child care arrangement, (4) the costs associated with their current child care arrangement, and (5) work-, school-, and productivity-related tradeoffs that they make as a result of child care breakdowns or gaps between child care needs and current child care arrangements.

To build this understanding, raw survey response data were first filtered by eligibility and other quality measures. In total, of the 1,299 responses that were collected, 138 were dropped due to incompleteness, as measured by a participant not clicking through the entirety of the survey. Additional surveys were filtered out of the sample if they were categorized as a survey preview, disagreed to the informed consent, or were identified through narrative responses as an academic parent at an institution outside of the United States. Then, the analysis limited the sample to those who met the eligibility criteria of

being both an academic parent *and* living with or having a child under the age of five. After factoring in the eligibility criteria, the final dataset included a total of 726 respondents.

Data cleaning was done mostly to ameliorate mistyped responses in open text fields or to ensure that the units of these fields were comparable across respondents. While most respondents answered the majority of survey questions, the dataset includes missing responses because respondents were allowed to skip questions. Questions that asked sensitive information around an academic institution's Metropolitan Statistical Area, a parent's state of residence, their wages, or their annual household income category were skipped the most frequently. No imputations were made to fill in missing information, and as a result, the sample sizes vary from question to question.

The filtered and cleaned dataset was then used to calculate a variety of summary statistics and crosstabulations for variables within each of the five dimensions of child care.

## STAGE 3: DETERMINISTIC MODELING

The third stage of this research plugs the results of the survey into a deterministic model that helps estimate the costs of unmet child care needs to (1) academic parents and their families and (2) academic institutions. In simple terms, a deterministic model is a type of mathematical model that calculates outcomes through the fixed or known relationships between inputted data. While the specifications for creating the deterministic model are detailed below, the premise of this exercise was to develop an input-output methodology that can be used alongside larger-scale iterations of the Child Care for Parents in Academia Survey or be used independently by academic institutions to derive the costs of unmet child care needs for their internal purposes. The inputs come directly from survey results, while the outputs are generated through calculations using survey inputs and data from a variety of other sources that are subsequently scaled to match what we might see in the real population of academic parents with a child under the age of five. The estimates produced by this model are designed to be conservative, and they likely underestimate the total time and dollar costs associated with child care.

### **COSTS OF UNMET CHILD CARE NEEDS TO ACADEMIC PARENTS & THEIR FAMILIES**

The costs of unmet child care needs to academic parents and their families are built by five main components: (1) the lost earnings from unpaid child care work by parents, spouses, partners, relatives, and nonrelative caregivers; (2) the total costs of spending additional time commuting to child care arrangements; (3) the total costs of relying on

backup care options when typical child care arrangements breakdown or are insufficient; (4) the total costs of setting up alternate child care arrangements while being on a waitlist for on-campus child care; and (5) the lost earnings from quitting or taking an extended leave of absence from work in order to provide parental child care. Before any of these costs can be estimated, however, we needed to develop estimates for the number of academic parents with children under the age of five need in order to rescale the survey data to the total population.

## ESTIMATING THE SIZE OF THE ACADEMIC PARENT POPULATION WITH CHILDREN UNDER FIVE

Population data for individuals working, teaching, researching, and studying in academia largely comes from the United States Department of Education's National Center for Education Statistics. Oftentimes, however, these data are released with a time lag or do not provide population estimates for smaller subgroups. As a result, to generate a comprehensive population estimate of academic parents, disaggregated by both gender and academic role, we collected data from a variety of sources and benchmarked it against totals available in the National Center for Education Statistics' datasets.

The total number of Professors, Associate Professors, Assistant Professors, and Research Associates, Lecturers, Instructors, and Visiting Professors by gender came directly from the National Center for Education Statistics' full-time faculty estimates in degree-granting postsecondary institutions series, updated to include Fall 2016 data.<sup>254</sup> Individual data for Instructors, Lecturers, and Other Faculty were summed together to get a combined estimate for the women and men in our Research Associates, Lecturers, Instructors, and Visiting Professors category. This grouping may underestimate the total number of research associates and public service faculty across academic institutions.

Data on the number postdoctoral fellows in the United States is near-impossible to find. This is because there is no data that is systematically collected on the postdoctoral worker population at academic institutions.<sup>255</sup> The National Academies of Science, Engineering, and Medicine estimate that there is somewhere between 60,000 and 100,000 postdoctoral fellows and researchers across all fields.<sup>256</sup> The National Science Foundation Survey of Graduate Students and Postdoctorates in Science and Engineering conducted in 2016 found that there were 64,712 postdoctoral fellows in the United States, but this value is sure to exclude postdoctoral academics who are outside of the scope of their grantmaking.<sup>257</sup> They are likely to underestimate the total number of postdoctoral fellows from non-Science, -Technology, -Engineering, and -Mathematics (STEM) and health fields. To best approximate the number of postdoctoral fellows in the United States, we take the average between the 60,000 and 100,000 reported by the National Academies, resulting in 80,000 postdoctoral fellows. To further break this down by gender, we use the percent of

women postdoctoral fellows from a widescale postdoctoral survey by Scientific Research Society conducted in 2005 (42 percent) averaged with the percent from more recent survey estimate from 2018 by researchers Sean McConnell, Erica Westerman, Joseph Pierre, Erin Heckler, and Nancy Schwartz (53 percent).<sup>258</sup>

Doctoral student and graduate student data came from the Council of Graduate Schools and the Graduate Record Examination's Survey of Graduate Enrollment and Degrees released in 2018. We specifically used the 2017 total graduate enrollment data—not first-time graduate school enrollment data—broken down by degree type (doctoral or master's/others) and gender.<sup>259</sup>

Estimates for the number of executive, managerial, and administrative staff historically have been available from the National Center for Education Statistics, however, this series was discontinued in 2011, and all academic administrative staff members were folded into an “other” employees category. To find the current number of executive, managerial, and other administrative staff members working at academic institutions, we apply the year-over-year growth rate of the other employees category to the 2011 estimate of administrative staff.<sup>260</sup> This yields an estimate of the population of administrative staff for 2016, the most recent year of available data.

While data is available for undergraduate populations, we choose to exclude undergraduates from the deterministic model analysis because there was only one undergraduate respondent to the survey. Similarly, we chose to exclude respondents who selected “other” as their academic role or were located at a private for-profit institution or community college due to small sample sizes. Along gender lines, the National Center for Education Statistics does not include any gender breakdowns for transgender populations and individuals who prefer to self-describe their gender. As a consequence, we were unable to include these gender groups in the calculations of costs to academic parents.

The total academic populations for each gender and role next need to be attenuated by the percent of individuals in academia who are actually parents. Again, data on the percent of parents in academia is extremely limited and outdated and has been sourced from a several different places.

The most recent estimates of the percent of parents teaching in academia by their position along the tenure track comes from the 2004 National Study of Postsecondary Faculty, collected by the National Center for Education Statistics.<sup>261</sup> We first sum together their estimates of the percent of single parents with dependent children and married parents with dependent children in order to get the total percent of instructional faculty and staff with a child by gender and academic role. Then, we take the average of the percent instructional faculty and staff with a child between doctoral and four-year nondoctoral

academic institutions, resulting in a percent of academic parents with children by gender for Professors, Associate Professors, and Assistant Professors. Because the demographic profile of our Research Associates, Lecturers, Instructors, and Visiting Professors category closely matches that of Assistant Professors, we set their percentage estimates for the share with children as equal. The age of this data may be concern: The fertility rate in the United States has been on the decline since the 1970s, although there are relatively similar fertility rates between the early 2000s and late 2010s.<sup>262</sup>

Data on the percent of postdoctoral fellows with students is taken from McConnell and coauthors' survey summary statistics. In a sample of 7,532 postdoctoral fellows, they found that 31.0 percent of men and 22.3 percent of women had children.<sup>263</sup>

Currently, no datasets or surveys include a national estimate for the percent of doctoral or graduate students with children. One of the few publicly available figures comes from research by Mary Ann Mason, a legal and social policy researcher. In a study of doctoral students at the University of California, she found that 13 percent have children prior to graduating.<sup>264</sup> We use this 13 percent estimate for both doctoral students *and* other graduate students, acknowledging that this may be low for master's, law, and medical students who tend to be older and have more children than the typical doctoral population.<sup>265</sup> We use the same estimates for both men and women in the absence of other information about the gender breakdowns. Based on our previous understanding of the literature, this may not fully reflect parent population distributions as doctoral and graduate students who are men are more likely to be parents while enrolled in school than women.<sup>266</sup>

There is little information about administrative staff at academic institutions who are parents, so we rely on data 2004 National Study of Postsecondary Faculty to create an estimate for the share of administrative staff with children.<sup>267</sup> Here, we sum the percent of single and married parents with dependent children and take the average of this percent between full-time faculty and staff at four-year institutions and part-time faculty and staff at four-year institutions. We assign the same share for women and men due to insufficiently disaggregated data.

After multiplying the academic populations by gender and role by the percent of each subgroup with a dependent child, we perform one last attenuation to find the percent of the academic population with a child under the age of five. Traditional education statistics do not provide any information on the age distribution of academic parents' children. For this data, we instead turn to the United States Census Bureau's estimates on the number of parents with coresident children in 2018.<sup>268</sup> We divide the total number of parents who have a child under the age of six by the total number of parents to get a rough estimate of the portion of the overall population that has an infant, toddler, or preschooler of 31.2

percent. This may slightly overestimate the percentage of the parent population with a child under the age of five since five-year-olds are included, but these higher estimates may be offset by our overall conservative estimates of academic populations. As a final step, we multiply the total academic population with children for each gender and academic role category by percent of parents with a young child from the Census, generating an approximation of the total population of academic parents with a child under the age of five.

## GENERATING AND CALIBRATING WEIGHTS THROUGH RAKING TO SCALE SAMPLE TOTALS TO POPULATION TOTALS

Population data for academic parents with a child under the age of five by gender and academic role opens the possibility of producing weights to adjust for survey nonresponse and rescale the Child Care for Parents in Academia Survey to create a deterministic model. The first step in this process is to create a design weight based on the sampling fraction. To calculate the design weight, we take the inverse of the ratio between the sample size and the population size for a particular gender-academic role strata. This weight is also known as a sampling weight.

The sampling weight next needs to be calibrated. The process of calibration adjusts the weight so that any weighted totals scale to the actual population total for a given strata or subgroup. While there are many different ways to calibrate weights, we choose to use a process known as iterative proportional fitting or *raking*. Calibrating weights through raking takes the sampling weight for each respondent and modifies it iteratively based on specified characteristics—gender and academic role, in our case—until weighted survey totals come close to converging with the totals for the population.<sup>269</sup> These raked weights ultimately function as population weights for any descriptive statistics used in input-output modeling.<sup>270</sup>

## OUTPUT: LOST EARNINGS FROM UNPAID CHILD CARE WORK BY ACADEMIC PARENTS & OTHERS

With population estimates and raked population weights set, the first output we calculate is the lost earnings from unpaid child care work by academic parents, spouses, partners, relatives, and other nonrelative caregivers who do their work without a financial transaction. We consider this unpaid care work to be an unmet child care need because it takes away from the time parents, spouses, partners, relatives, and nonrelatives could be participating in the labor market and earning wages. Underpinning this assumption are two generalizations. The first is that people within the sample would be otherwise working if they did not have to provide child care, and the second is that these unpaid caregivers are part of the working-age population. Certainly, there are parents and others who prefer

to stay home and provide child care to their infant, toddler, or preschooler, but a large number of narratives and feedback from Module G of the survey corroborated the idea that this decision came at the sacrifice of lost wages for the caregiver.

To calculate the annual cost of unpaid child care needs, we first merge the 2017 average hourly wage of child care workers by state from the Bureau of Labor Statistics Occupational Employment Statistics with the Child Care for Parents in Academia Survey data.<sup>271</sup> This average hourly wage serves as a proxy for how much an unpaid care worker would be earning if they did similar work in the labor market. We do not make any inferences about what an unpaid caregiver would be making based on their occupational interests or educational attainment in order to provide a conservative estimate of lost earnings. For each respondent that used some form unpaid care work performed by themselves, their spouse or partner, a relative, or a nonrelative for one or more of their children, we multiplied the average hours per day of this care work by the average days per week, 52 weeks per year, and the average hourly wage of child care workers for their state of residence. When the state of residence was missing, we used the average national hourly wage of child care workers.

Research on the cost of unpaid care work by Jooyeoun Suh and Nancy Folbre points out that there is an intensity factor for child care work that must also be considered.<sup>272</sup> The intensity for child care work depends on the number of children a child care worker must look after on their own. When more than one child is added to the care mix, the wage of that child care worker increases by a factor of 18 percent.<sup>273</sup> So, if there are two children receiving care, we multiply the annual cost of unpaid care needs by 1.18. If there are three children, we multiply the annual cost of unpaid care needs by 1.36. This results in intensity-adjusted wages lost by providing unpaid child care per year.

We then calculate a population-weighted mean of these lost wages by both gender and academic role and multiply it by a weight-generated total number of academic parents using unpaid care to get the total annual cost of—or lost annual earnings from—using unpaid child care to academic parents' families.

#### OUTPUT: COSTS OF SPENDING ADDITIONAL TIME ON COMMUTING TO CHILD CARE ARRANGEMENTS

The second output generated is the cost of spending additional time on commuting back and forth to child care arrangements every year. The impetus for determining this cost was two-fold. On one hand, data from the Bureau of Labor Statistics' 2017 Consumer Expenditure Survey reveals that the second largest annual expense for American families is transportation, only behind spending on housing.<sup>274</sup> For married couples with children, transportation amounts to 16.4 percent of their overall expenditures, and for single-

parents with children, transportation is 15.4 percent.<sup>275</sup> On the other hand, there is evidence that transportation spending has been steadily growing due to both increases in vehicle purchases and fuel costs.<sup>276</sup> Given the rising burden transportation places on families, determining the cost of commuting to and from child care allows us to estimate how much more financial pressure families feel from not being proximally located to their arrangement. The distance or added commute time to get to a child care arrangement is a measure of unmet locational needs.

Given the challenges in collecting local data to find the prices of certain forms of commute like riding a commuter rail or taking the subway, we only calculate the costs of commute for academic parents who take their infant, toddler, or preschooler to child care by car.

To find the cost of additional commute time to child care for parents who drive, we begin by collecting information on the average gas price by state, average speed limits by state, and the fuel economy for a standard car. State-by-state gas prices are acquired from the American Automobile Association, while state-by-state standard urban and residential speed limits are taken from research by traffic law and policy specialist John Carr.<sup>277</sup> The average vehicle fuel economy across all car manufacturers of 25.4 miles per gallon comes from the United States Environmental Protection Agency's real-world fuel economy estimates.<sup>278</sup> We then calculate the annual miles traveled to child care by multiplying the average days of child care used per week by 52 weeks, the additional commute time to child care in hours, and the urban and residential speed limit for the respondent's state. Then, to find the preliminary cost of commuting, we multiply the annual miles traveled to child care by the price of regular gas for the respondent's state and divide this number by the average fuel economy.

This preliminary cost of commuting is further adjusted by accounting for the annual costs related to depreciation, tires, and maintenance. Using a estimates from a standard commuting costs calculator, we determine the annual costs of depreciation, tires, and maintenance averaged across small, mid-sized, and large vehicles is about \$0.17 per mile.<sup>279</sup> This wear-and-tear cost is then multiplied by the annual miles traveled to child care and added to the preliminary cost of commuting.

Our calculation for commuting costs possibly underestimates the annual costs of commuting because it does not account for the annual cost of car ownership or the annual cost of parking. We choose to exclude these costs because they may only negligibly affect the additional time spent commuting to child care. These components of commuting by car are more relevant in calculating the overall cost of commuting.

As a final step, we take the population-weighted mean of the costs of additional time spent commuting to child care by both gender and academic role and multiply it by the

total number of academic parents with children under five who reported using a car to get the total annual cost of spending additional time commuting to child care arrangements.

#### OUTPUT: COSTS OF USING BACKUP OPTIONS WHEN TYPICAL CHILD CARE ARRANGEMENTS BREAK DOWN OR ARE INSUFFICIENT

The third output generated by the deterministic model is the cost of using an alternative—or backup—child care option either when typical child care arrangements break down or when current arrangements prove to be insufficient to meet an academic parents' weekly or monthly child care needs.

To find the costs associated with using backup child care, we start by creating a distribution of all of the different forms of backup child care academic parents' in the sample reported using. Because we did not ask for how many hours of each type of care they used, we assume that the hours of backup care used was evenly distributed across each backup arrangement. If an academic parent noted using both parental care and a family child care home, for instance, we allot 50 percent of the hours they spent using backup care to parental care and 50 percent to a family child care home. After multiplying the total hours of backup time used per month by this child care arrangement distribution, we multiply again by 12 to get the annual hours a parent used each type of backup child care arrangement.

Next, we tabulate the average hourly cost for each type of child care arrangement. Because all parental, spouse, and partner care, most relative care, and some nonrelative care go uncompensated, we generate an additional estimate for the cost of unpaid care categories. Much like our previous methodology for calculating the cost of unpaid child care work, we multiply the merged state-level average hourly wage data for child care workers from the Occupational Employment Statistics by an intensity multiplier of 1.00 if a respondent has one child, 1.18 if a respondent has two children, and 1.36 if a respondent has three children.<sup>280</sup> This produces an hourly intensity-adjusted wage, which is a conservative proxy for the cost of for unpaid care work. Some relative and nonrelative care is paid, however, so in these cases, we take a weighted mean of the hourly intensity-adjusted wage for unpaid care work and the hourly cost of paid care work to get the average cost of unpaid *or* paid care work for relative and nonrelative care.

Finally, we multiply the average hourly cost for each child care arrangement by the annual hours a parent uses each type of backup arrangement. We calculate the population-weighted mean of these costs by both gender and academic role, and multiply it by the total number of academic parents with children under the age of five who reported using backup child care. This results in the total annual cost of using backup child care.

## OUTPUT: COSTS OF USING ALTERNATE CHILD CARE ARRANGEMENTS WHILE ON A WAITLIST FOR ON-CAMPUS CHILD CARE

The fourth output generated by the deterministic model is the costs that academic parents must shell out for a mix of child care arrangements while waiting for a spot at on-campus child care centers at their academic institution. This cost measure is a representation of the unmet child care needs begotten by insufficient child care availability. Any valuations of the cost of waitlist time, however, will be an underestimate because only parents who currently have an infant, toddler, or preschooler at a center-based child care arrangement at their academic institution were asked the question about their waitlist experience.

We start by calculating the costs associated with being on a waitlist for on-campus child care by finding the number of parents in the sample who currently have a child in on-campus care and scale it to total population counts by gender and academic role using the population weights. Then, we find the proportion of these parents who reported that their child was put on a waitlist for on-campus care. By taking the product between the total number of parents who have at least one child in their institution's child care program and the proportion who were made to wait for this arrangement, we find the total number of academic parents whose child or children were put on a waitlist.

Next, we turn to finding the length of time a child was placed on the waitlist. The Child Care for Parents in Academia Survey asks academic parents to indicate whether they had no wait to access on-campus child care, waited between 0 and 3 months, waited between 3 and 6 months, waited between 6 months and 1 year, or over 1 year. As a result, we had to create an approximation for the percent of a year they spent on the waitlist by taking the average number of months for each category bracket and dividing it by 12.

Based on academic parents' reported waitlist child care plan, we were able to calculate the amount they paid for alternate child care arrangements during their wait. For all paid child care arrangements—which included a small number of people using relative care, nonrelative care, family child care homes, center-based care not affiliated with an academic institution, or another category—we multiplied the average annual cost of the arrangement by the percent of the year a child spent on the waitlist. To calculate the cost of unpaid care, we multiplied out our previously calculated intensity-adjusted hourly wage estimates for unpaid care work by parents, spouses and partners, relatives, and nonrelatives by the average hours of care given per day, the average number of days care is used per week, and 52 weeks to get an annual cost. Then we discounted this value by the percent of the year spent on the waitlist.

We finally took a weighted average of these costs of waiting by gender and academic role and multiplied it by the total number of academic parents whose child or children were

put on a waitlist. This yielded the costs of using alternate child care arrangements while waiting for a spot at an on-campus child care center by gender and academic role.

#### OUTPUT: LOST EARNINGS FROM QUITTING OR TAKING AN EXTENDED LEAVE OF ABSENCE DUE TO CHILD CARE TRADEOFFS

The fifth and final unmet need output calculated through deterministic modeling is the earnings lost by academic parents when they quit a job or take an extended leave of absence in order to provide parental child care. Because academic institutions have inconsistent paid family leave policies, these quits or extended absences from work often result in forgone earnings to academic parents.<sup>281</sup> The earnings lost from quits or extended absences are an examples of how the gaps in or a lack of diversity of child care policies at academic institutions inhibit parents from meeting their child care needs.

To find the total value of lost earnings, we first calculate the total population of academic parents with a child under the age of five who quit or take an extended leave of absence by gender and academic role using the population weights.

The lost earnings from quits or extended absences are produced by multiplying an academic parent's annual earnings by an attenuation factor of 25.0 percent. This factor is based on the assumption that when people quit or take an extended leave of absence, they do so for roughly 12 weeks—or three months—out of the year. The 12-week timeframe corresponds to the amount of unpaid time off parents can take through the Family and Medical Leave Act provisions set by the United States Department of Labor.<sup>282</sup>

In the last step, like with the other output calculations, we took the weighted mean of lost earnings due to quits and long-term absences and multiplied it by the total number of academic parents who quit or took a leave of absence by gender and academic role. The final result was an estimate of total lost earnings due to quits and extended absences by gender and academic role.

#### OUTPUT: COST OF PAID CHILD CARE

The deterministic model is unquestionably focused on finding the costs of *unmet* child care needs for academic parents with a child under the age of five. But equally important are the costs that parents already pay for their current child care arrangements. Consequently, we also calculate the total costs of child care to academic parents to serve as a point of comparison and help characterize the *true* costs of child care.

To find the current costs of paid child care, we use population weights to scale the number of academic parents in the sample using paid care to population totals and multiply this

value by the average total cost of child care per year. The total annual costs of child care include the cost of care for each child under the age of five an academic parent may have, so it is more reflective of the total expenditures families have on child care.

## OUTPUTS NOT INCLUDED IN THE COSTS TO ACADEMIC PARENTS AND THEIR FAMILIES MODEL

Collectively, the lost earnings and costs associated with unmet child care needs and the amount that academic parents currently pay towards their child care arrangements represent the *true* costs of child care for families. But this is a very conservative estimate of the true costs of child care for several reasons, explained below.

Aside from the previously documented decisions that were made to keep the *inputs* of the deterministic model conservative, the model leaves out several *outputs* that would otherwise drive up the true costs of child care for academic families. There are, for instance, a number of parents who choose to switch to part-time work in order to provide child care. Switching to part-time work leads to reductions annual earnings for academic parents. Similarly, there are academic parents who choose to remain part-time workers and are unwilling to go to full-time work due to the demands of child care. This tradeoff produces unrealized earnings for parents—that is earnings that they could be making if their child care needs were fully met. In extreme cases, academic parents could be fired, indirectly due to issues with child care. Separations, like quits or extended absences, result in losses to earnings over a protracted period of time.

The Child Care for Parents in Academia Survey actually asks parents whether they have previously dropped to part-time work, have been unwilling to go to full-time work, or have been fired due to child care-related issues. Theoretically, the model could have used these survey inputs to generate cost outputs, but there were either too few people in the sample who experienced these tradeoffs or too little information in the literature about how to model these tradeoffs to make broader generalizations.

Another output missing from the model is the cost of being on a waitlist for child care that was not based at an academic institution. The Child Care for Parents in Academia Survey did not include a question about parents' general experiences with waitlists, a major shortcoming of our child care choice and accessibility module. As a consequence, we did not have sufficient information about non-academic child care waitlists to be able to include it as an output.

The final, and perhaps most salient, output missing from this deterministic model is related to the lost earnings and costs of unmet child care needs for the spouses and partners of academic parents. Data from the United States Department of Education's

National Center on Education Statistics reveals that a vast majority of academics who have a child are also married.<sup>283</sup> Just like academic parents in the sample, these spouses and partners are making tradeoffs that could reduce their overall earnings or augment the costs associated with unmet child care needs. What's more, many academic parents are married to other parents in academia, which could mean that the total value of lost earnings and costs produced by this deterministic model could be doubled in reality.<sup>284</sup>

## **COSTS OF UNMET CHILD CARE NEEDS TO ACADEMIC INSTITUTIONS**

The second part of the deterministic model estimates the total costs of unmet child care needs to academic institutions. These costs are built from five main model outputs: (1) the total cost of missing full days of work due to child care breakdowns; (2) the total costs of arriving to work late due to child care breakdowns; (3) the total costs of leaving work early due to child care breakdowns; (4) the total costs associated with child care-related quits and extended leaves of absence; and (5) the lost revenues from reductions productivity due to child care breakdowns. Like with calculating the costs of unmet child care needs to parents, this model hinges upon first identifying the total number of academic parents with children under the age of five at academic institutions across the United States.

### **ESTIMATING THE SIZE OF THE PARENT POPULATION WITH CHILDREN UNDER FIVE AT ACADEMIC INSTITUTIONS**

The first part of the deterministic model collected population estimates by gender and academic role to help unpack the interaction between gender and tenure ladder disparities when it comes to unmet child care needs. Here, however, we disaggregate the academic parent population data by gender and institution type to better understand whether institutional resource structures may influence the type of tradeoffs academic parents make. As previously explained, because there is a patchwork of data sources for population estimates of the number of people working, teaching, researching, and studying in academia, finding up-to-date data stratified by certain specifications can be an added challenge. Absent crosstabulations of academic populations by both gender and institution type, we had to make an assumption about the gender distribution at public and private universities and colleges, described below.

To build our estimate for the population at public and private academic institutions, we collected data on the number of faculty and researchers, administrative staff members, postdoctoral fellows, and doctoral and graduate students for each institution type. The total number of faculty and researchers at public and private institutions came directly from 2017 data reported by the National Center for Education Statistics.<sup>285</sup>

Data on administrative workers at public and private academic institutions was also derived from the National Center for Education Statistics.<sup>286</sup> As noted earlier, since 2011, the number of executive, managerial, and administrative employees at academic institutions was merged with the “other” employees category.<sup>287</sup> So we used the recent growth rate of the other employees category to scale the 2011 estimate of administrative staff working at two- and four-year public and private institutions to what it would be in 2016.

For the number of postdoctoral students, we continue to use the average between the 60,000 and 100,000 range reported by the National Academies of Science, Engineering, and Medicine.<sup>288</sup> The distribution of postdoctoral fellows across public and private institutions was taken from the 2018 survey of postdoctoral fellows and researchers conducted by McConnell and others.<sup>289</sup> Their research found that 57 percent of postdoctoral fellows worked in public institutions, and 43 percent were based at private institutions.<sup>290</sup>

The final component of the population estimate—the number of doctoral and graduate students—came from the Council of Graduate Schools and the Graduate Record Examination’s 2018 Survey of Graduate Enrollment and Degrees. The survey provided data on the total graduate enrollment by public and private universities in 2017.<sup>291</sup>

Like with the population methodology for the first part of the deterministic model, we choose to exclude undergraduate populations due to the small sample size in the survey. Given that we are not disaggregating by academic role, though, we do not exclude respondents who selected “other” as their academic role since they are likely to fall within the faculty and researcher counts for public and private institutions.

After summing the number of faculty and researchers, administrative staff members, postdoctoral fellows, and doctoral and graduate students for each institution type, we further break down the data by gender. To do so, we first calculate the percent of women and percent of men across all academic institutions from data provided in the National Center for Education Statistics’ series on employees at postsecondary institutions in the United States.<sup>292</sup> We then multiply these percentages by the total number of individuals at public and private institutions, yielding the total number of women and men at public and private institutions. It is important to note that due to insufficient information from the National Center for Education Statistics, we were unable to include individuals who identified as transgender or who preferred to self-describe their gender from the model.

As a next step, we attenuate the total population of women and men at public and private institutions by the percent of academics who are parents. The attenuation factor was constructed by averaging the previously collected data on the percent of parents by gender and academic role. We estimate that approximately 35.1 percent of all women in

academia are parents, while 41.3 percent of academic men are parents. We use our earlier estimate of 31.2 percent to further attenuate the number of academic women and men parents at public and private universities to the total number of parents with a child under the age of five by gender and institution type.

#### GENERATING AND CALIBRATING WEIGHTS THROUGH RAKING TO SCALE SAMPLE TOTALS TO POPULATION TOTALS

The total population data for academic parents with a child under the age of five by gender and institution type helps generate population weights. We first generate a sampling weight for every respondent that is the inverse of the ratio of the ratio between the sample size and population size for each gender-institution type strata. Then, we calibrate the sampling weight through a raking procedure to produce population weights to be used to scale up inputs for this part of the deterministic model.<sup>293</sup>

#### OUTPUT: COST OF MISSING FULL DAYS OF WORK

The population estimates and raked weights along with inputs from the Child Care for Parents in Academia Survey help us generate our first output: the cost to employers of missing full days of work due to child care breakdowns. When there are temporary disruptions to a young child's usual care arrangement, academic parents are sometimes forced to take a full day off from work to provide care. Full-day absenteeism comes at the cost of less time spent at work and ostensibly lower levels of productivity for parents. For their academic employers, however, the cost of absenteeism is from paying an academic parent's salary even when they do not come to work. This is rooted in the assumption that most academics are salaried workers and therefore get paid time off benefits from their academic institution.

To calculate the cost of absenteeism, we multiply the number of days a respondent reported missing work in the last three months due to child care breakdowns by four to get the approximate number of days they missed in a year. Then, we multiplied this by a respondent's daily earnings, resulting in the annual cost of their missed days to their employer.

We then computed the weighted mean of these costs by gender and institution type and multiplied it by the total number of academic parents who reported missing at least a day of work. This gave us an estimate of the total costs of full-day absenteeism to academic institutions by gender and institution type. Additionally, we found the average number of days an academic parents with an infant, toddler, or preschooler missed due to child care issues and multiplied this by the total number of academic parents who missed at least a day of work to create a proxy for lost days of productivity by gender and institution type.

The costs of full-day absenteeism to employers is underestimated by this model. This is largely because we do not factor in any of the replacement costs that go along with missing a day of work. Academic parents, particularly instructional staff, must make alternate arrangements for their students when they cannot attend class. This could require finding a teaching substitute paid for by the institution or using Employee Assistance Program services. When a substitute is not possible, students pay the price: They lose out on building their knowledge base and classroom productivity and unfairly pay tuition towards a class that gets canceled. Given the limited information collected in the survey, we were unable to model these other costs that come with absenteeism.

#### OUTPUT: COST OF ARRIVING TO WORK LATE

The second output generated by the employer-costs deterministic model is the total cost of arriving to work late due to child care breakdowns. Like with missing a day, arriving to work late lowers the productive work time of academic parents and costs academic institutions a portion of an academic parent's daily salary.

We find the cost of arriving late by multiplying the number of days a respondent arrived late in the last three months by four to get the rough number of days an academic arrives late due to child care issues for the year. We make a conservative assumption that parents arrive only one hour late, multiplying the yearly count of days late by an academic's hourly pay rate. Next, we take the weighted mean of both the total hours late per year and the annual cost of arriving late by gender and institution type. We multiply each of these values by the scaled total number of academic parents who reported arriving late at least one day in the last three months to get the total lost hours of productivity and the total annual cost of arriving late.

#### OUTPUT: COST OF LEAVING WORK EARLY

The third output generated is the total annual cost of leaving work early due to child care breakdowns. There are both productivity costs as well as salary costs to employers from these early departures.

First, we find the number of days an academic parent in the sample left work early in a year due to child care issues by multiplying the number of days they left early in the past three months by four. Next, we take the product between the yearly number of early departures and the respondent's hourly pay rate, assuming that academic parents left only an hour early in each instance. We then take the weighted mean of the total hours departing early per year and the annual cost of leaving early by gender and institution time. By multiplying each of these by the total number of academic parents who noted

they left work early at least one day in the last three months, we arrive at the total annual lost hours of productivity and the total annual cost associated with leaving early by gender and institution type.

#### OUTPUT: COST OF QUITTING OR TAKING AN EXTENDED LEAVE OF ABSENCE

The fourth output of the employer-cost deterministic model is the total annual costs to academic institutions from quits or extended leaves of absence due to child care. Quits and extended absences affect both parents—as seen in the parent-costs deterministic model—and employers. For employers, quits and extended periods of absence from work require academic institutions to find a longer-term replacement. Searching, hiring, and paying for these replacements can be expensive for academic institutions. As previously noted, it has been estimated that an employer pays 20.7 percent of a worker’s salary when dealing with their turnover.<sup>294</sup> This is a more conservative estimate of replacement costs compared other sources that suggest that employers can pay between 75.0 percent and 150 percent of a salaried worker’s total compensation.<sup>295</sup>

To calculate the employer-side costs related to quits and absences, we first find the total population of academic parents with an infant, toddler, or preschooler who have quit or have taken an extended leave of absence by gender and institution type. Next, we multiply this total by the weighted mean of an academic parent’s annual earnings and attenuate that product by a factor 25.0 percent. As was the case earlier, this attenuation factor comes from an assumption that most of these quits or extended absences are in fact temporary leaves taken for roughly three months out of the year as unpaid family care time.

As a last step, we downweight the average earnings lost due to a quit or an extended absence by 20.7 percent to transform it into the cost an academic institution pays to replace an academic parent during their absence.<sup>296</sup> The end result is an approximation of the total annual costs to employers of quits and absences due to child care breakdowns by gender and institution type.

#### OUTPUT: LOST REVENUES FROM THE LOWERED PRODUCTIVITY OF ACADEMIC PARENTS

The fifth and final output of the deterministic model is the lost revenues to academic institutions from reductions in academic parents’ productivity due to child care breakdowns. When salaried workers, like most academic parents, miss a day, come in tardy, or leave early, their productivity is not replaced by a temporary worker. As a consequence, their workplace contributions lead to shortfalls in revenues. Revenues, in the case of public and private nonprofit academic institutions, can be characterized as the monies from grants and contracts awarded to faculty, researchers, and students; philanthropical

contributions supported by solicitations by faculty, researchers, and administrative staff; departmental sales and services; payouts from patents and royalties; and income from auxiliary operations such as hospitals and university presses.<sup>297</sup> These are just a sampling of the type of revenue-generating activities that are contingent on the productivity of academic parents working, teaching, researching, or studying at academic institutions.

To calculate the lost revenues, we multiply the total costs of missing a full day of work, arriving late, and leaving early by a multiplier of 0.36. This multiplier comes from research that suggests that lost revenues amount to 36.0 percent of a salaried employee's compensation that is paid even when they are absent.<sup>298</sup>

## STAGE 4: REGRESSION ANALYSIS

The fourth and final stage of our research uses the analytic results of the survey to further investigate the relationship between some of the features of child care arrangements and academic parents' satisfaction. We specifically take a closer look at the effect of the location of child care on academic parents' child care quality ratings. While the survey lends itself to many different opportunities for regression analysis, we choose to hone in on the location of child care because of its direct connection unmet care needs. As previously discussed in the deterministic modeling methodology, the added commute time spent on child care drop-offs and pick-ups is a measure of unmet locational needs. So, by assessing how different aspects of the location of child care influence parents' perceptions of quality, we can improve our understanding how to best meet academic parents' locational needs and, subsequently, reduce their overall spending on child care.

This very simple regression analysis attempts to unpack the relationship between four key aspects of the location of child care arrangements and parents' satisfaction or quality ratings. We examine: (1) whether locational quality is indeed a driver of overall satisfaction; (2) whether longer added commute times to and from child care reduces academic parents' quality rating of location; (3) whether the child care's proximity to home, academic institution, or another location changes parents' quality rating of location; and (4) whether the mode of transport academic parents use to get to child care changes their quality rating of location.

### **THE RELATIONSHIP BETWEEN QUALITY RATINGS OF LOCATION & OVERALL SATISFACTION WITH CHILD CARE**

We begin by confirming whether parents' perceptions about the locational quality of their current arrangements are a driver of their overall satisfaction with child care. To do so, we rely on a bivariate ordinal logistic regression to characterize whether a one-point increase in locational ratings of child care arrangements (scored on a seven-point Likert scale from

terrible to excellent) is associated with higher levels of overall satisfaction (scored on a seven-point Likert scale from extremely dissatisfied to extremely satisfied).

Ostensibly, the type of paid child care arrangement and other quality ratings on a variety of factors—such as hours of operation; cost; child care providers’ level of education and experience; curriculum geared towards kindergarten readiness, physical development, and socioemotional development; safety protocols; and the built environment—are also associated with a parent’s overall satisfaction. To account for these other potential drivers of overall satisfaction, we add the type of child care arrangement and other quality ratings into the model as controls. The covariate-adjusted model shows whether a one-point increase in a parent’s quality rating of their child care arrangements’ location results in higher overall satisfaction, holding the type of arrangement and other quality measures constant.

### **THE RELATIONSHIP BETWEEN ADDED COMMUTE TIME TO AND FROM CHILD CARE ARRANGEMENTS & QUALITY RATINGS OF LOCATION**

After exploring whether location truly matters for overall satisfaction, we assess the relationship between additional time spent commuting to and from child care arrangements and parents’ locational quality ratings of their arrangements. Again, we use a bivariate ordinal logistic regression to investigate whether more time spent commuting to and from child care reduces the odds of a parent rating the locational quality of their arrangement as excellent.

Given the fact that the locational quality ratings may be influenced by the type of child care arrangement as well as a parents’ household income, we further control for these factors in a covariate-adjusted model. In the covariate-adjusted model, we determine whether a one additional minute of commute time to child care arrangements results in lower locational quality score by parents, holding constant the type of arrangement and household income category.

### **THE RELATIONSHIP BETWEEN PROXIMITY OF CHILD CARE ARRANGEMENTS TO HOME, WORK, OR ANOTHER LOCATION & QUALITY RATINGS OF LOCATION**

The next portion of our regression analysis focuses on whether the proximity of child care to certain locations—measured as being closest to home, a parent’s academic institution, or another location—influences a parent’s rating of locational quality in any way. Through a bivariate ordinal logistic regression, we look at whether the proximity work or another location—in reference to proximity to home—changes the odds of a parent rating locational quality as excellent. Like with the analysis for added commute time, we include

controls for type of paid child care arrangement and household income in a covariate-adjusted version of this model.

The results from this analysis is critical to understanding *where* parents prefer their child care arrangements to be located.

### **THE RELATIONSHIP BETWEEN MODE OF TRANSPORTATION TO CHILD CARE ARRANGEMENT & QUALITY RATINGS OF LOCATION**

In addition to added commute time and locational proximity, the mode of transportation academic parents use to take their infant, toddler, or preschooler to their child care arrangement may further affect the quality ratings of location. A bivariate ordinal logistic regression helps us tease apart whether certain modes of transport to and from child care arrangements—in reference to traveling by car—increase or decrease the odds of a parent rating their child care’s location as excellent. In a covariate-adjusted version of this model, we control for the type of paid child care arrangement as well as household income.

### **A COMBINED MODEL FOR PREDICTING LOCATIONAL QUALITY RATINGS**

As a final step in our regression analysis, we build a fully-adjusted logistic regression model that accounts for added commute time, locational proximity, *and* mode of transportation taken to and from child care arrangements, holding constant type of paid child care arrangement and household income. As a methodological sensitivity test, we ran the fully-adjusted model as a multivariate Ordinary Least Squares regression, too, such that a parent’s locational quality rating—which is measured through a Likert scale—was treated as a continuous variable instead.

Altogether, the fully-adjusted model helps us identify whether longer commutes; closeness to home, work, or another location; and mode of transportation affect parents’ ratings of the location of their child care arrangement. Using the results from this regression analysis, we can better shape recommendations for how academic institutions can help meet parents’ unmet locational needs.

# 7

## **The State of Child Care for Academic Parents: Preliminary Results from the Child Care for Parents in Academia Survey**

Between March 4, 2019 and April 7, 2019, the Child Care for Parents in Academia Survey received 1,299 responses, of which 726 were eligible parents with a child under the age of five who were working, teaching, researching, or studying at an academic institution in the United States. The results from the survey help paint a stark image of academic parents' experiences with early child care are like across the United States and corroborate longtime narratives and anecdotes about the challenges of child care in academia.

We take a close look at academic parents' (1) primary child care arrangements, (2) access to child care, (3) perceptions about the quality of child care, (4) costs of child care, and (5) tradeoffs due to unmet child care needs. Before delving into these results, we first provide some context about the survey's participants.

### **ABOUT THE SAMPLE**

The Child Care for Parents in Academia Survey collected three distinct categories of demographic data: information about children under the age of five, details about parents and their family structure, and characteristics of academic institutions represented in the survey.

#### **CHILDREN UNDER AGE FIVE & THEIR CHARACTERISTICS**

While there were 726 eligible parents within the sample, these parents collectively had 933 children under the age of five, an average of 1.29 children per respondent.

Overwhelmingly, the sample was composed of parents who had one child under the age of five. Close to 75 percent of parents reported having one child under the age of five, 24.7 percent had two children under five, and only 1.9 percent—just 14 parents—had three children under five. The survey did not ask about the number of children parents have who are age five and older. These infants, toddlers, and preschoolers, however, were evenly spread across the age distribution, with 170 (18.2 percent) under one, 204 (21.9 percent) one-year-olds, 191 (20.5 percent) two-year-olds, 187 (20.0 percent) three-year-olds, and 181 (19.4 percent) four-year-olds.

## ACADEMIC PARENTS & THEIR CHARACTERISTICS

Parents themselves came from relatively similar backgrounds, which is likely a result of the snowball sampling and social media distribution methodology. (See Figure 22).

**FIGURE 22**

### Details about parents represented in the 2019 Child Care for Academic Parents Survey

This table provides summary statistics on the academic parents present in our sample.

#### CHARACTERISTICS OF ACADEMIC PARENTS IN THE SAMPLE, 2019

<b>TOTAL NUMBER OF ACADEMIC PARENTS</b> (academic parents for the purposes of this study are defined as a person who works, teaches, researches, or studies at a higher education institution with a child under the age of five)	<b>726 (100 percent)</b>
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#### ACADEMIC ROLE

Professor	21 (3 percent)
Associate Professor	84 (12 percent)
Assistant Professor	248 (34 percent)
Research Associate, Lecturer, Instructor, Visiting Professor (this categorization included adjunct professors)	86 (12 percent)
Post-doctoral fellow	156 (21 percent)
Doctoral student	78 (11 percent)
Graduate student	20 (3 percent)
Undergraduate student	1 (0.2 percent)
Administrative staff	29 (4 percent)
Other	3 (0.5 percent)

**SCIENCE, TECHNOLOGY, ENGINEERING, OR MATH  
(STEM) FIELD OF WORK**

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STEM field	362 (50 percent)
Non-STEM field	364 (50 percent)

**EDUCATIONAL ATTAINMENT**

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Some college	1 (0.2 percent)
4-year college degree	11 (2 percent)
Master's degree	80 (12 percent)
Professional degree	56 (8 percent)
Doctorate degree	512 (78 percent)

**GENDER**

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Female	537 (81 percent)
Male	117 (18 percent)
Transgender	1 (0.2 percent)
Prefer to self-describe	1 (0.2 percent)
Prefer not to say	5 (1 percent)

**MARITAL STATUS**

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Single	5 (1 percent)
Married or in a partnership	640 (97 percent)
Divorced	7 (1 percent)
Separated	5 (1 percent)
Widowed	1 (0.2 percent)

**COUNTRY OF BIRTH**

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United States	509 (78 percent)
Puerto Rico	2 (0.31 percent)
Other country	144 (22 percent)

**ANNUAL INDIVIDUAL EARNINGS**

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Less than \$10,000	4 (1 percent)
\$10,000 to \$15,000	4 (1 percent)
\$15,000 to \$25,000	24 (3 percent)
\$25,000 to \$35,000	31 (4 percent)
\$35,000 to \$50,000	87 (12 percent)
\$50,000 to \$75,000	219 (30 percent)
\$75,000 to \$100,000	109 (15 percent)

\$100,000 to \$150,000	83 (11 percent)
\$150,000 to \$200,000	29 (4 percent)
\$200,000 or more	136 (19 percent)

**ANNUAL HOUSEHOLD INCOME**

\$15,000 to \$24,999	6 (1 percent)
\$25,000 to \$34,999	3 (0.5 percent)
\$35,000 to \$49,999	29 (5 percent)
\$50,000 to \$74,999	71 (11 percent)
\$75,000 to \$99,999	93 (14 percent)
\$100,000 to \$149,999	186 (29 percent)
\$150,000 to \$199,999	101 (16 percent)
\$200,000 to \$249,999	63 (10 percent)
\$250,000 or more	91 (14 percent)

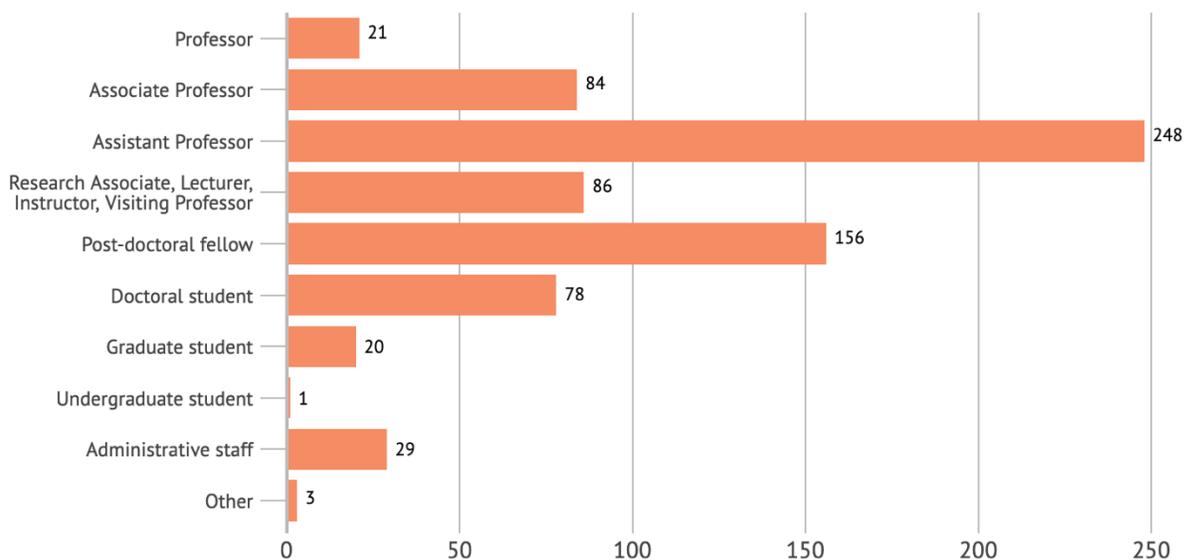
**Note:** Though a total of **726 of 1,299 respondents** who took the survey qualified as eligible to take the survey, these summary statistics may not sum to 726 because respondents could choose not to answer certain questions.

**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

**FIGURE 23**

**Academic parents with young children surveyed tend to be lower on the tenure ladder**

The results of the Child Care for Parents in Academia Survey show that academic parents of infants, toddlers, and preschoolers are disproportionately Assistant Professors, postdoctoral fellows and researchers, and current master’s or doctoral students.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

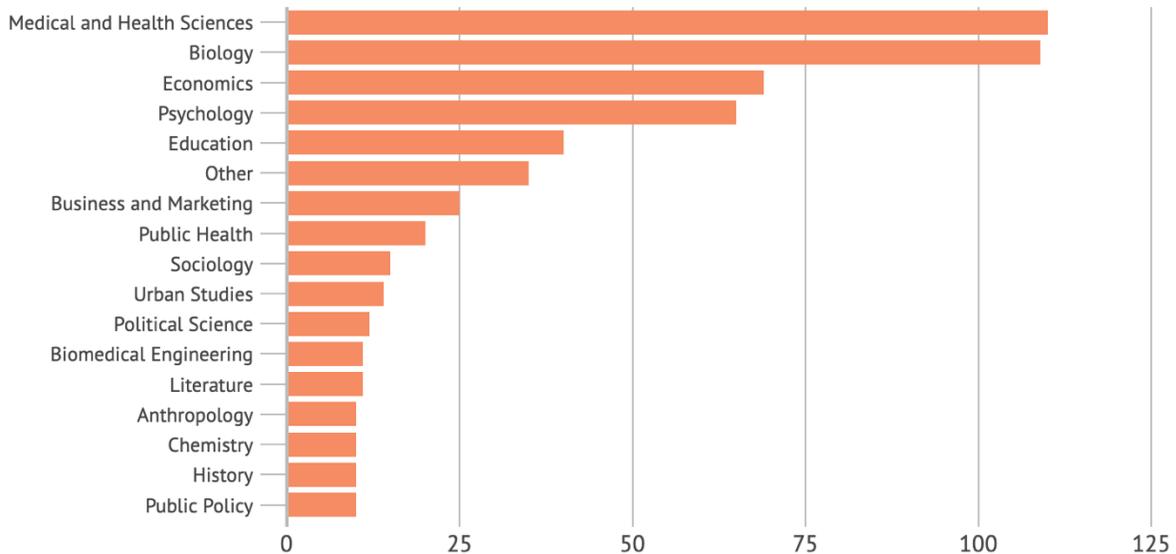
Most parents in the sample were still untenured, not on the tenure track, working as a postdoctoral researcher or fellow, or in graduate school. (See Figure 23). Assistant Professors—faculty at the bottom of the tenure ladder—made up 34 percent of the sample (248 parents), followed by postdoctoral fellows who accounted for 21 percent of the sample (156 parents). Collectively, doctoral students and master’s students were the next largest group at 14 percent. Only one undergraduate student participated in the survey. Aside from inconclusive results on undergraduate students, this distribution makes intuitive sense given what we know about the age when parents in academia typically start having children. These academic roles are also highly correlated with parents’ academic achievement. The vast majority of parents (78 percent) have a doctoral degree, and over 98 percent of the sample has some type of post-baccalaureate degree, including master’s, medical, and law degrees.

In spite of being concentrated in pre-tenure positions, academic parents with children under five come from a wide variety of disciplines. (See Figure 24).

**FIGURE 24**

**Top fields of study among academic parents surveyed**

Academic parents with infants, toddlers, and preschoolers come from many different disciplines. This chart shows all fields of study that have over 10 respondents.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

The top five largest disciplines represented in the sample include Medical and Health Sciences, Biology, Economics, Psychology, and Education. Across the whole sample, there is an even split between parents in Science, Technology, Engineering, and Mathematics (STEM) fields and those in non-STEM fields.

The sample is primarily composed of women. Over 80 percent of respondents, or 537 parents, identified as female compared to only 117 male respondents. This indicates that the survey undercovers men since national education statistics show that we are relatively close to gender parity in the academe. At the same time, this result is not surprising. Both inside and outside of the academic profession, gendered expectations around care work hold women primarily responsible for child care. For this reason, surveys about child care may tend to appeal more to women respondents.

This heavily female sample is also disproportionately likely to be married or in a partnership. Over 97 percent of parents who answered the question about their marital status cited being married or in a partnership. While there is very little up-to-date data available on the percent of faculty that are currently married, the survey's estimate is high. According to data from the United States Department of Education's 2004 National Study of Postsecondary Faculty, 78.1 percent of all full-time faculty is married, and 45.7 percent of all full-time faculty is married with dependent children.<sup>299</sup> That same research shows that 5.4 percent of full-time faculty are single parents.<sup>300</sup> Together, these numbers suggest that a more representative sample should be about 90 percent married parents and 10 percent single, divorced, separated, and widowed parents.

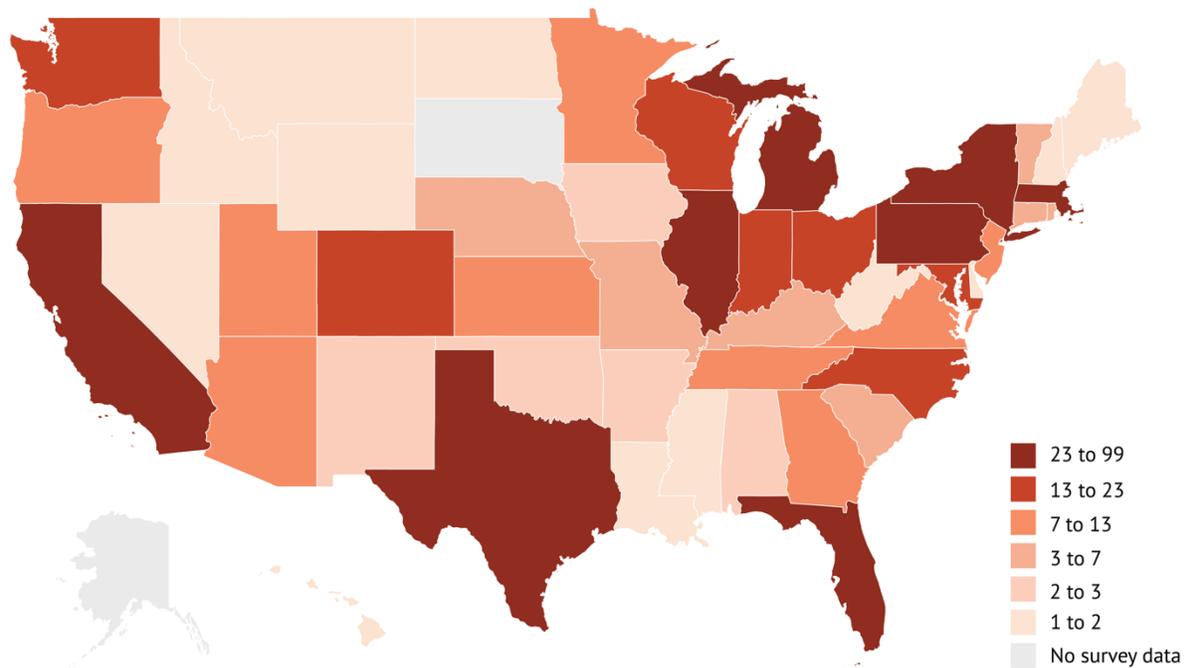
Academic parents in this sample were chiefly born in the United States, but close to one-fifth of the sample includes academics who come from other countries. Though no data was collected on immigrants' national origin to protect privacy, the Child Care for Parents in Academia Survey asked academic parents about their current state of residence. (See Figure 25).

A majority of the academic parents in the sample came from states across the United States relatively well-known for their higher education and research institutions. Massachusetts had close to 100 respondents, followed by California with 55 and New York with 50. Pennsylvania, Texas, Illinois, Florida, Michigan, North Carolina, Ohio, and Washington all had over 20 academic parents who responded to the survey. No data, however, is available for Alaska and South Dakota.

**FIGURE 25**

### States represented in the sample of academic parents surveyed

Though the Child Care for Parents in Academia Survey was nationally distributed, a majority of the respondents resided in states known for their academic institutions.



**Source:** Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

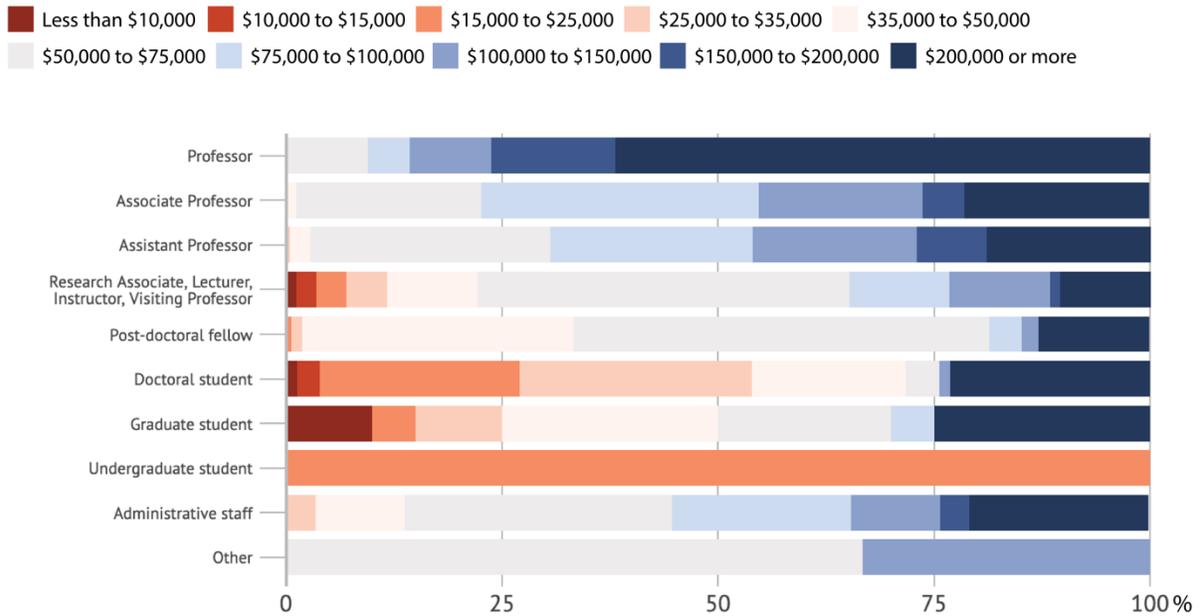
The final pieces of information collected specifically about parents were their wages and household income. Across all academic roles, average annual earnings for academic parents within the sample is \$81,798, and median annual earnings amounts to \$66,000. The highest earning the sample makes \$500,000 per year, while the lowest non-zero earnings are \$6,038 per year. A closer look at the annual earnings distribution among academic parents reveals that it is left-skewed, with most academic parents making above \$50,000 a year. (See Figure 22).

The distribution can be further disaggregated by parents' academic role, which mainly shows that as academic parents progress along the tenure track, their wages grow. (See Figure 26).

**FIGURE 26**

### Annual earnings distribution across academic parents surveyed

Data from the Child Care for Parents in Academia Survey confirms the trend that as an academic parent moves up the tenure ranks, earnings distributions become more and more left-skewed.



**Note:** The results for undergraduate students and other academic parents in this figure are not valid or generalizable because there was only one undergraduate student and three other academic parents who participated in the survey.

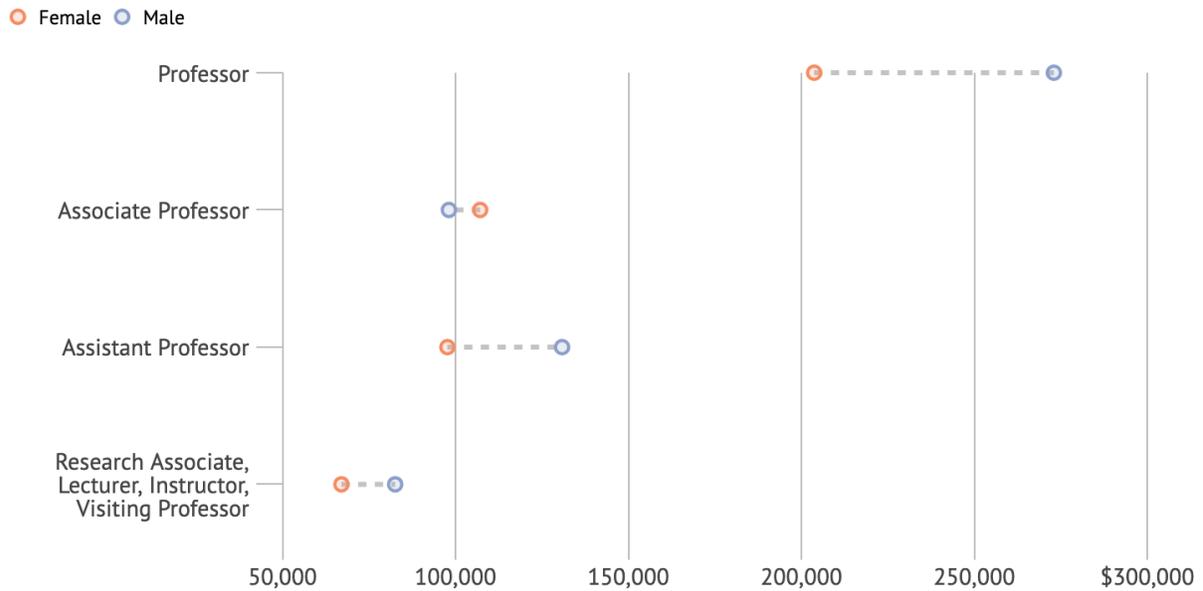
**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

As a ground-truthing exercise, we also examine how the gender wage gap for faculty aligns with existing data on pay inequalities among academics. (See Figure 27). With the exception of Associate Professors, data from the survey captures the wage gaps that exist between men and women along the tenure track. Notably, the wage gap widens at higher levels of the tenure ladder, female full-Professors earning close to \$70,000 less than their male counterparts. These gaps are larger than what we find across aggregated data for parents and non-parents, perhaps indicative of a motherhood wage penalty. In the case of Associate Professors, however, there appears to be a small wage gap in which women are earning more than men annually. Upon closer inspection, this is likely due to a very small sample size of male Associate Professors. Only six male Associate Professors responded to the survey. For this particular case, the wage comparison is not valid.

**FIGURE 27**

### Annual earnings gaps between academic men and women parents surveyed

With the exception of the Associate Professor rank, wage inequality between men and women appears across the tenure track and seems to widen at higher ranks.



Note: The wage gap between men and women Associate Professors may not be valid due to extremely small sample sizes among men for this group. Only six male Associate Professors participated in the survey. It is important to note that even if they are not as extreme as the case for Associate Professors, across all faculty rank categories, there are small sample sizes for men.

Source: Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

The household income distribution of academic parents in the sample, like with earnings, is left-skewed, with more than 60 percent of academic parents living with a household income of over \$100,000 per year.

## ACADEMIC INSTITUTIONS & THEIR CHARACTERISTICS

While children and their parents are core constituents of child care research, this research is also premised on the idea that large local employers like academic institutions can play an instrumental role in the filling the child care need gaps within their communities. For this reason, we also collect information about academic institutions. (See Figure 28).

**FIGURE 28****Details about academic institutions in the 2019 Child Care for Academic Parents Survey**

This table provides summary statistics on the academic institutions present in our sample.

**CHARACTERISTICS OF ACADEMIC INSTITUTIONS IN THE SAMPLE, 2019****TYPE OF ACADEMIC INSTITUTION**

Public college or university	392 (54 percent)
Private college or university	295 (41 percent)
For-profit college or university	3 (0.41 percent)
Community college	8 (1 percent)
Other (these include some medical schools and federally-funded academic research institutes)	28 (4 percent)

**2-YEAR OR 4-YEAR DEGREES**

4-year degree-granting institution	624 (86 percent)
2-year degree-granting institution	17 (2 percent)
Other	85 (12 percent)

**CARNEGIE CLASSIFICATION**

Research 1 university	488 (67 percent)
Not Research 1 university	202 (28 percent)
Don't know	36 (5 percent)

**ACADEMIC INSTITUTION SIZE**

Small (fewer than 5,000 students)	123 (17 percent)
Medium (5,000 to 15,000 students)	179 (25 percent)
Large (more than 15,000 students)	417 (58 percent)

**Note:** Though a total of **726 of 1,299 respondents** who took the survey qualified as eligible to take the survey, these summary statistics may not sum to 726 because respondents could choose not to answer certain questions.

**Source:** Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

For the most part, there is even representation across the two major types of academic institutions in the sample: There are 392 academic parents (54 percent) at public colleges and universities and 295 (41 percent) at private nonprofit universities. For-profit colleges

and universities and community colleges together make up less than 2 percent of the sample. Undercoverage of academic parents at for-profit and community colleges does not necessarily compromise the validity of the results or the ability to make cost estimates around unmet child care needs through deterministic modeling, but it does paint a less holistic story.

Closely related to type of academic institution is the number of years required for postsecondary students to receive a degree. Traditional academic institutions like public and private nonprofit colleges and universities generally grant a degree to undergraduates within four years of study. Because the sample is mostly composed of these traditional institutions, it makes sense that 86 percent of academic parent respondents were based at four-year degree-granting institutions.

The majority of academic parents in the sample worked, taught, researched, or studied at large academic institutions with more than 15,000 students present on campus. Again, this categorization is connected to the types of institutions, with public colleges and universities tending to be larger than private, for-profit, and community colleges.

On a final note about academic institutions, the Child Care for Parents in Academia Survey asked about whether academic parents' institutions were Research 1 universities, as defined by the Carnegie Classification of Institutions in Higher Education. According to the Carnegie Classification system, Research 1 or R1 institutions have very high research activity, award at least 20 doctoral degrees annually, and spend at least \$5.0 million on research per year.<sup>301</sup> Earlier definitions, to which many institutions still adhere, mention that in order to qualify as a Research 1 institution, a university also has to offer baccalaureate, graduate, and doctoral degree programs and receive \$40.0 million in federal funding.<sup>302</sup> Roughly 131 academic institutions across the United States meet the Carnegie standard.<sup>303</sup> Over 67 percent of respondents (488 academic parents) said that their institution was a Research 1 university. As a result, Research 1 universities are overrepresented in the sample, but they are also the institutions that likely have the most resources to enact child care policies that meet the needs of their faculty, staff, researchers, and students.

## PRIMARY CHILD CARE ARRANGEMENTS

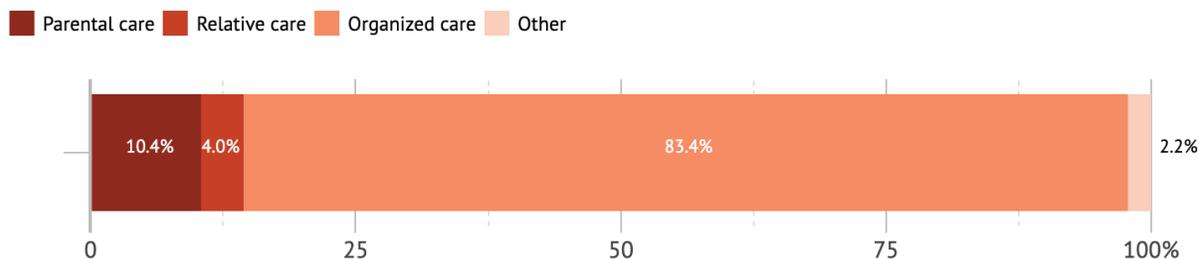
Like other parents in the United States, academics with children under the age of five rely on three typical arrangements to meet their child care needs: parental care, relative care, and organized care. (See Figure 29). While most academic parents—83.4 percent—in the sample used some form of organized care, 10.4 percent and 4.0 percent used parental care and relative care, respectively. These results are relatively comparable to the child care

arrangements of parents in the general population who have a graduate or professional degree, albeit there are higher rates of organized care utilization in this sample.

**FIGURE 29**

### Academic parents' primary child care arrangements

Academic parents who took the Child Care for Parents in Academia Survey overwhelmingly use some type of organized care.



**Source:** Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

To better understand the nuanced types of child care arrangements academic parents select, the survey asked for more detailed information about arrangements within each of these categories. (See Figure 30).

Within the parental care bucket, arrangements were more likely to come from a spouse or partner. Only 2.5 percent of parents within the sample filled the role of primary child care provider for their infant, toddler, or preschooler. By contrast, 7.9 percent of academic parents reported that their spouse or partner provided the primary child care arrangement for their young child. As previously mentioned, only a very small fraction (4.0 percent) of the sample used some form of relative care.

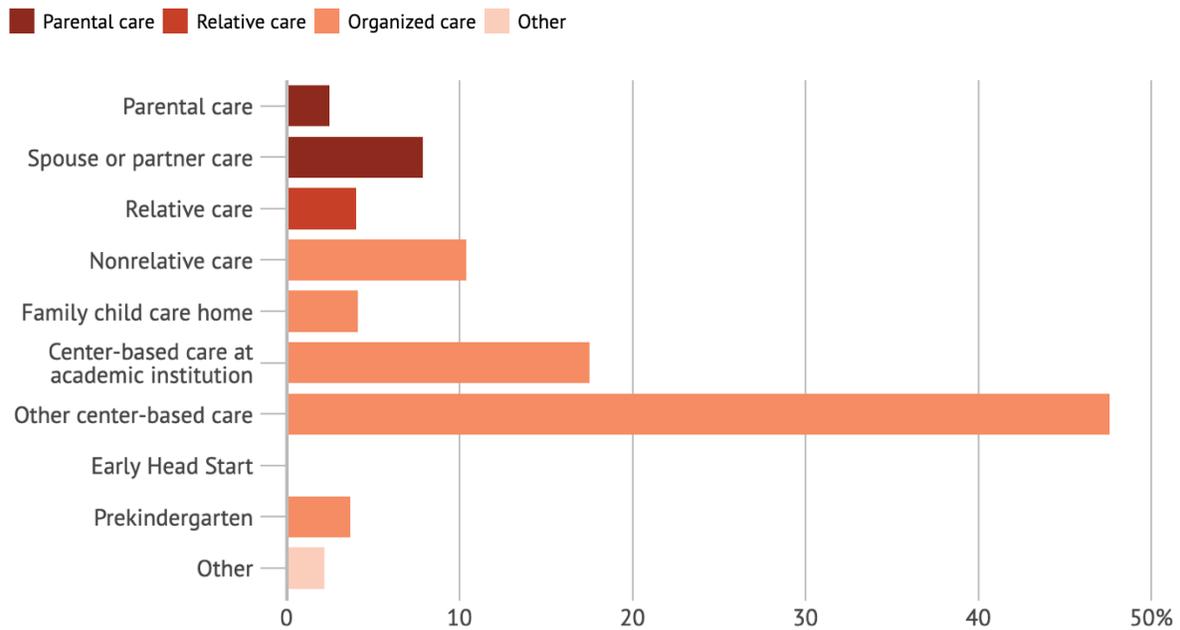
Organized care among academic parents, however, is very diverse. Most academic parents (47.6 percent) place their young children in center-based care that is not affiliated with their academic institution. About 17.5 percent of parents in the sample are able to place their children in center-based care centers on-campus. The next most common care arrangement is nonrelative care, used by 10.4 percent of the academic parent sample. In some of the narratives provided by academic parents in the survey, they elaborated that nonrelative care was typically given by nannies and au pairs.

Family child care homes, prekindergarten programs, and Early Head Start were used by some academic parents in the sample, but they are utilized at a much lower rate than other organized care arrangements.

**FIGURE 30**

**A breakdown of academic parents’ primary child care arrangements**

Academic parents who took the Child Care for Parents in Academia Survey overwhelmingly use some type of center-based care, whether on- or off-campus.



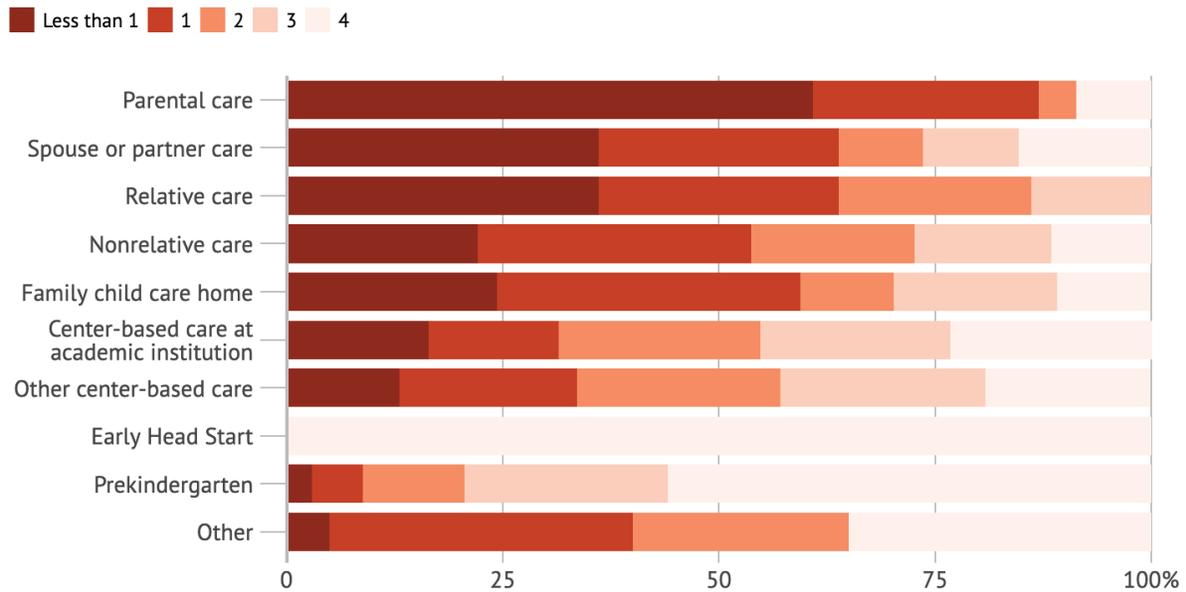
**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

Further disaggregating these arrangements by a child’s age reveals that academic parents tend to find more personalized child care arrangements for their children when they are younger. (See Figure 31). Parental care, spouse or partner care, and relative care, for instance, are most commonly used among children of academic parents when they are between the ages of zero and one. As children age, they are more likely to be placed in a center-based care on- or off-campus. These findings suggest that academic parents may need support from different types of child care policies and programs depending on the age of their young children.

**FIGURE 31**

**Academic parents’ primary child care arrangements by the age of their children**

Academic parents with infants tend to choose more personal caregiving options, but as children age, academic parents shift to using more center-based care options.



**Note:** The results for Early Head Start participation in this figure are not valid or generalizable because there was only one academic parent who placed their child in an Early Head Start program.

**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

On average, academic parents in the sample rely on these primary child care arrangements for an average of 8.25 hours a day for about 4.72 days a week. There is not much variation in the time use of child care arrangements by type of arrangement, child’s age, or even a parent’s academic role. While usage time appears to complement a standard full-time work schedule, the results do not necessarily suggest that these are the hours or schedules of child care that academic parents need.

## AVAILABILITY & ACCESSIBILITY OF CHILD CARE

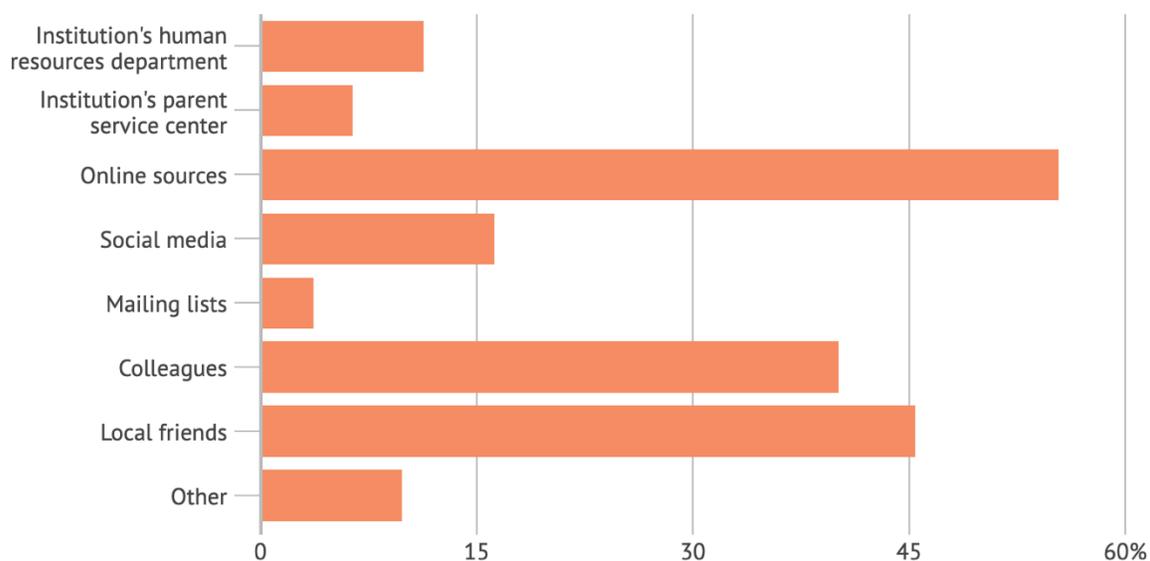
A closer look at academic parents’ decision-making experiences, choices, and perceptions around the availability and accessibility of early child care can better help us understand what these parents are looking for when it comes to meeting their child care needs.

For many parents, the decision-making process around child care first begins with exploring the options that are available and weighing the tradeoffs that come with selecting each. As such, the Child Care Survey for Parents in Academia asked academic parents where they learned about possible child care arrangements. (See Figure 32).

**FIGURE 32**

### Resources academic parents surveyed used to learn about child care options

While academic parents who took the Child Care for Parents in Academia Survey learned about child care options through a variety of different channels, the majority of them used online searchers and personal networks to understand the child care landscape around their institutions.



Note: This question in the Child Care for Parents in Academia Survey allowed parents to select multiple options for how they learned about child care options in their community. The results presented here treat each category individually and take the percentage of academic parents selecting a response out of the total number of people who saw this question.

Source: Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

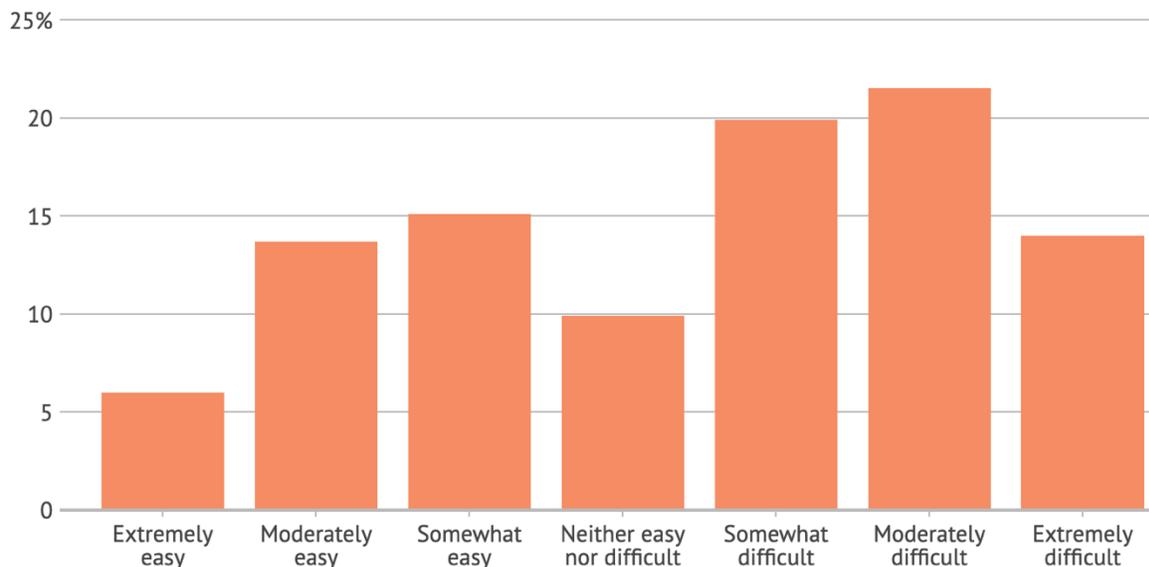
Over 55 percent of academic parents surveyed cited using online sources to learn about their child care options. Gathering information about child care from colleagues and local friends were the next most common ways parents learned about potential arrangements. The data show that only about 17.7 percent of parents turned to their academic institutions with help for their child care search. This result could either indicate that academic parents may not be aware of child care identification resources available to them or that academic institutions do not sufficiently provide these services to their employees, faculty, researchers, and students.

Even if there are multiple channels through which parents explore child care arrangements, it can be challenging to find an arrangement that meets all of their needs. When asked about the ease with which they were able to find their current child care arrangements, 19.9 percent and 21.5 percent of academic parents in the sample felt that it was somewhat difficult or moderately difficult, respectively. Less than 6 percent found the process of finding their current arrangement extremely easy. (See Figure 33).

**FIGURE 33**

**The ease with which academic parents found their child care arrangements**

Over 41.4 percent of academic parents reported that finding child care arrangements for their infant, toddler, or preschooler was difficult.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

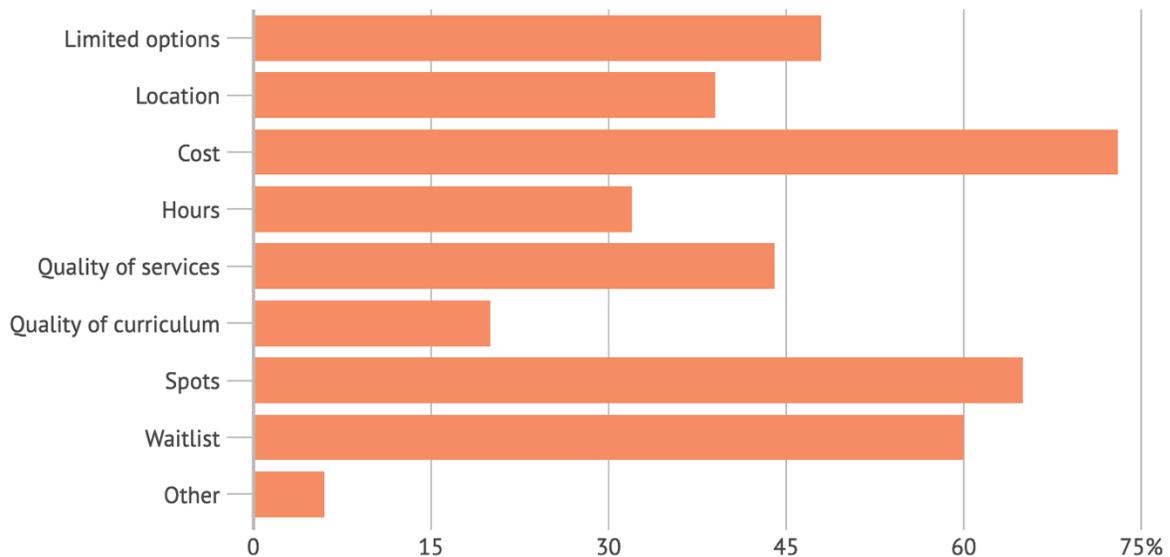
To dissect the reasons why academic parents felt finding their current child care arrangement was difficult, the survey included a question about the challenges that parents encountered during their search. (See Figure 34). For an overwhelming majority of academic parents, affordability was the biggest barrier to child care: Over 73.4 percent of parents agreed that high costs of child care were a challenge in the search. Academic parents also have trouble finding spots (64.6 percent) or are placed on a waitlist in order to get a spot (60.5 percent). Connected to these challenges, nearly 50 percent of academic parents faced limited child care options, and the quality of options was a concern for 43.6

percent of them. The convergence of these four challenges signpost a greater child care availability problem among academic parents.

**FIGURE 34**

### Challenges academic parents encountered in their search for child care

Most academic parents in the sample experienced challenges in finding affordable child care. Many academic parents in the sample also encountered issues with number of options, spots, waitlists, and the quality of child care services.



**Note:** This question in the Child Care for Parents in Academia Survey allowed parents to select multiple options for the challenges they encountered in their search for child care in their community. The results presented here treat each category individually and take the percentage of academic parents selecting a response out of the total number of people who saw this question.

**Source:** Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

The hours of operation and location of child care, factors generally thought to create accessibility-related challenges for parents, were not as widespread of a concern amongst academic parents. In spite of the fact that academic parents did not expressly identify location as a challenge in the child care search, the distance to child care arrangements added an average of 20 minutes of commute time to their regular daily travel time. For academic parents whose child care arrangement is closest to home or to work, an average of 25 minutes was added to their commutes. When child care arrangements are closer to

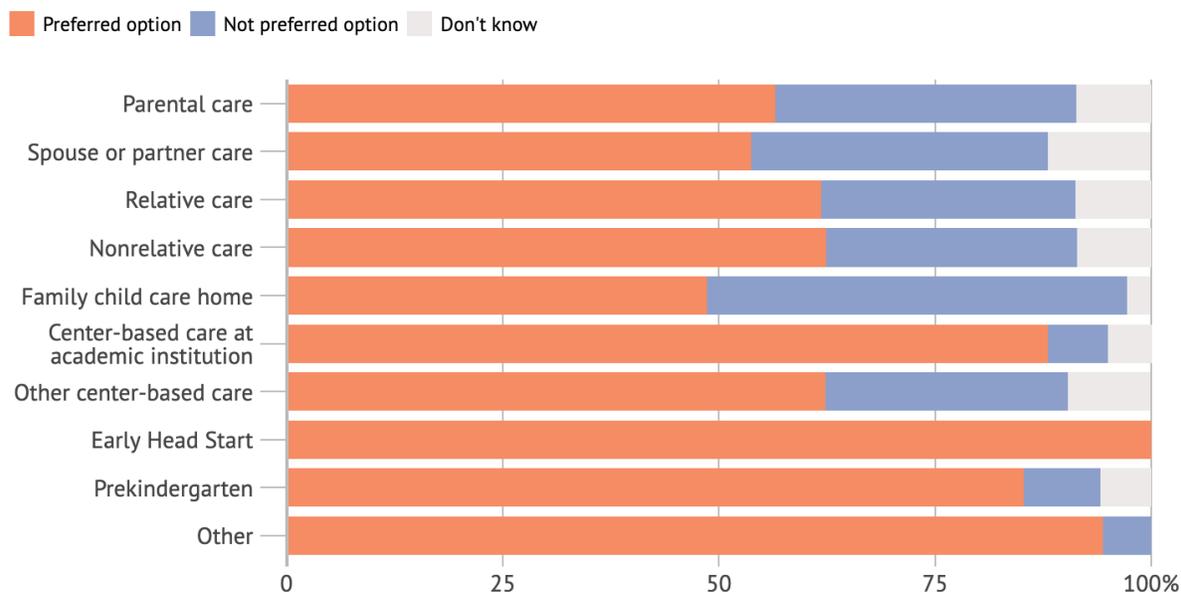
another location, they tend to be less accessible; in these cases, academic parents spent close to 40 additional minutes on their commutes to get to child care.

In 66 percent of cases, the search for child care yielded academic parents’ preferred outcomes. But for 26 percent of academic parents in the sample, their current child care arrangement was not to their preference. Stratifying the data by academic parents’ current child care arrangements, we find that the parents who have their children enrolled in on-campus child care at their academic institution or in a prekindergarten program overwhelmingly preferred their arrangement. (See Figure 35). Academic parents who used non-campus-based child care options—such as parental care, spouse or partner care, relative, care, and other center-based care—mostly preferred their current arrangement, but between 28 percent and 35 percent of parents did not prefer these arrangements.

**FIGURE 35**

**Academic parents’ preference for their current child care arrangement**

This figure shows the percent of academic parents surveyed by their current child care arrangement, broken down by whether this arrangement was their preferred option or not. Overall, on-campus child care at academic institutions and prekindergarten programs were most preferred by academic parents.



**Note:** The results for Early Head Start preferences in this figure are not valid or generalizable because there was only one academic parent who placed their child in an Early Head Start program.

**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

The situation with family child care homes, however, is less clear. Academic parents whose children currently are enrolled in family child care homes seem to be evenly split on whether this is a preferred option. It is possible that these dichotomous responses are driven by large inconsistencies in the quality of home-based child care services, but this relationship requires further exploration.

Over 68.2 percent of academic parents who said their current child care arrangement was not their preferred option, noted that their ideal arrangement would have been center-based care at their academic institution. Their preference for on-campus child care signals that child care centers at academic institutions are inaccessible to many that feel it would best meet their needs. This may be due to a combination of limited on-campus choices, insufficient spots, and long waitlists or it could be because on-campus child care infrastructure does not exist for some academic institutions altogether.

To further build an understanding of the barriers to on-campus child care, the survey asked follow-up questions to the 62.9 percent of academic parents who either had a child who was enrolled in on-campus child care or were at an institution that provided on-campus care. Within the sample, roughly 66.4 percent of public colleges and universities and 43.8 percent of private colleges and universities have some type of child care service provided on campus.

Parents' perceptions about the availability and accessibility of these on-campus child care centers varies significantly. (See Figure 36). Academic parents, for instance, were relatively split between agreeing and disagreeing on whether enough information was provided to them about how to enroll in their academic institution's child care program.

But when it comes time for actually enrolling children in child care on campus, academic parents in the sample tended to strongly disagree (39.2 percent) and disagree (18.6 percent) that the enrollment process was easy.

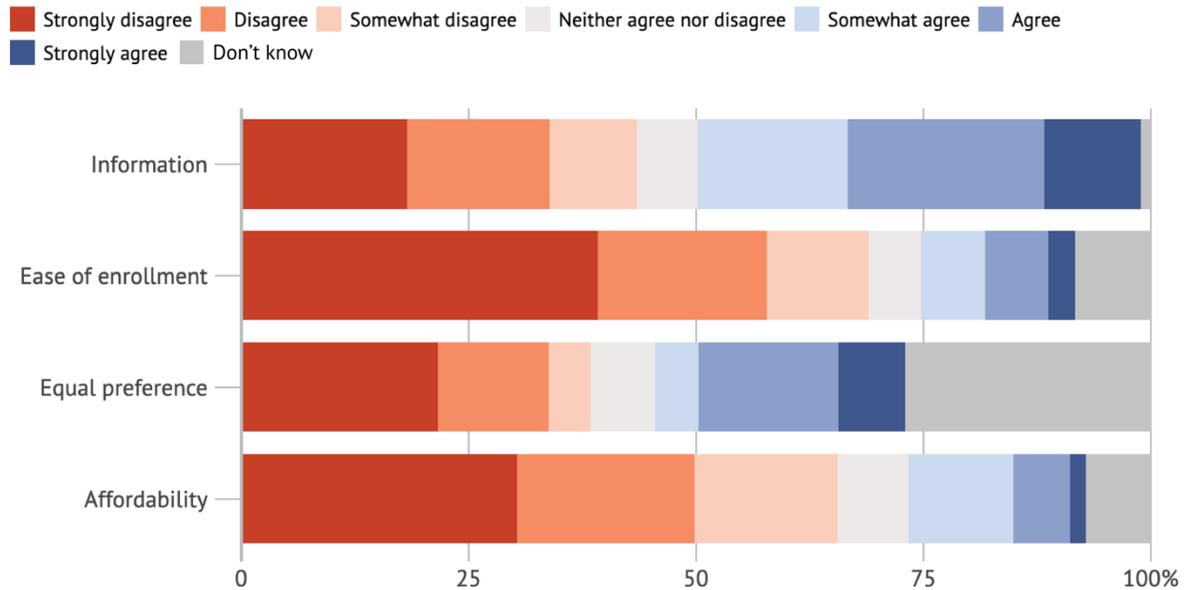
On the question of whether equal preference was given to different tiers of academic parents, academic parents largely either did not know how to respond (27.1 percent) or strongly disagreed that the selection process was equal (21.6 percent). Among specific academic roles, parents who were on the tenure track were relatively evenly distributed across the spectrum of agreement, disagreement, and uncertainty, but postdoctoral fellows and doctoral students were much more likely to disagree that child care enrollment was a fair process.

On the final question about their perceptions about the cost of on-campus child care options, over 65.6 percent of academic parents strongly disagreed, disagreed, and somewhat disagreed that this option was affordable.

**FIGURE 36**

**Perceptions about availability and accessibility of on-campus child care centers**

Academic parents surveyed had relatively mixed feelings about the information given and equal preference in child care enrollment but strongly disagreed that on-campus care was easy to enroll in or affordable.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

Through anecdotes and earlier responses to survey questions, we also know that academic parents frequently encounter waitlists prior to getting a spot for their children at their ideal arrangement. Of the parents who currently have their children enrolled at a child care center based at their academic institution, 75.6 percent were put on a waitlist. A larger share of academic parents at public institutions (81 percent) were put on a waitlist compared to the private institutions (73 percent).

There are too few Professors, graduate students, undergraduates, and administrative staff members in the sample to make any conclusions about their experiences with waitlists. But 72.2 percent of Associate Professors, 80.0 percent of Assistant Professors, 62.5 percent of research associates, lecturers, instructors, and visiting professors, 76.9 percent of postdoctoral fellows, and 100 percent of doctoral students were placed on the waitlist at their academic institution’s child care center. Across the board, academic parents are stuck on the waitlist for long periods of time. The typical academic parent in the sample had to wait between six months and a year to get off the waitlist, and 36.4 percent of academic parents had to wait for more than a year to enroll in on-campus child care.

During the wait for a spot at their institution’s child care center, academic parents resorted to a variety of temporary child care arrangements to fill the gaps in their child care needs. (See Figure 34). Most academic parents—a total of 38.8 percent—either stayed home with their child or relied on their spouse or partner to provide child care while their children were on the waitlist. Center-based care not affiliated with an academic institution was another popular interim option for 32.7 percent of academic parents in the sample. These results make indicate that parents primarily make a tradeoff between providing unpaid care for their children at home or finding some other paid center-based alternative as they wait for the convenience of campus-based care.

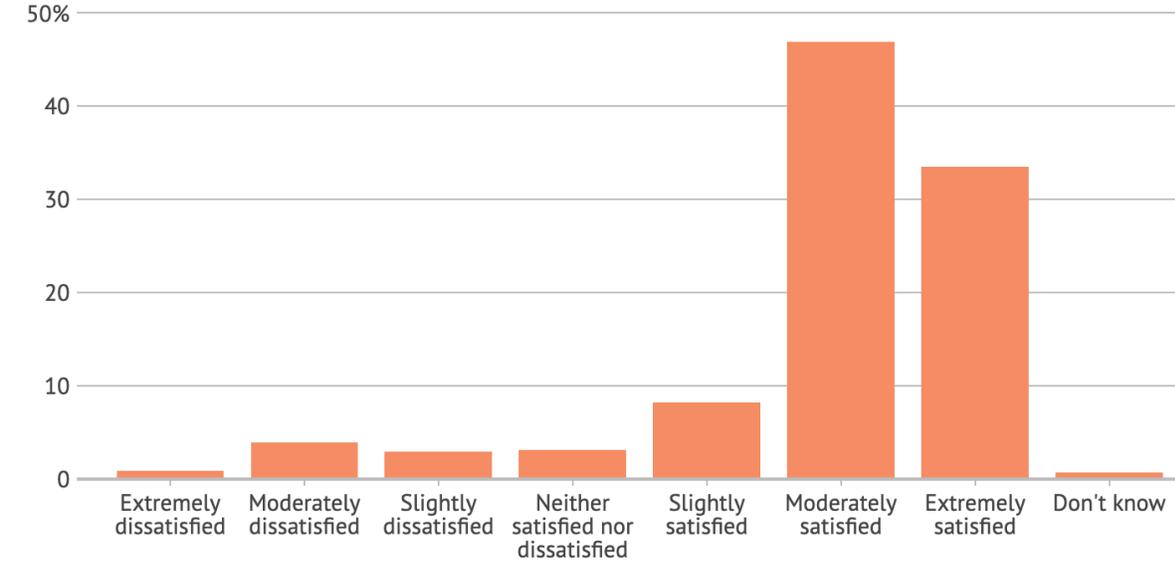
## PERCEPTIONS ABOUT THE QUALITY OF CHILD CARE

As mentioned earlier, one of the challenges that many academic parents encountered in their search for child care was finding high-quality services. To better understand whether academic parents ultimately enrolled their children in high-quality child care, the Child Care for Parents in Academia Survey asks about their perceptions about the quality of their current child care arrangements. Overall, parents were moderately to extremely satisfied with their current child care arrangements. (See Figure 37).

**FIGURE 37**

### Academic parents’ overall satisfaction with their current child care arrangements

On the whole, academic parents surveyed were moderately to extremely satisfied with the quality of their child care arrangements.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

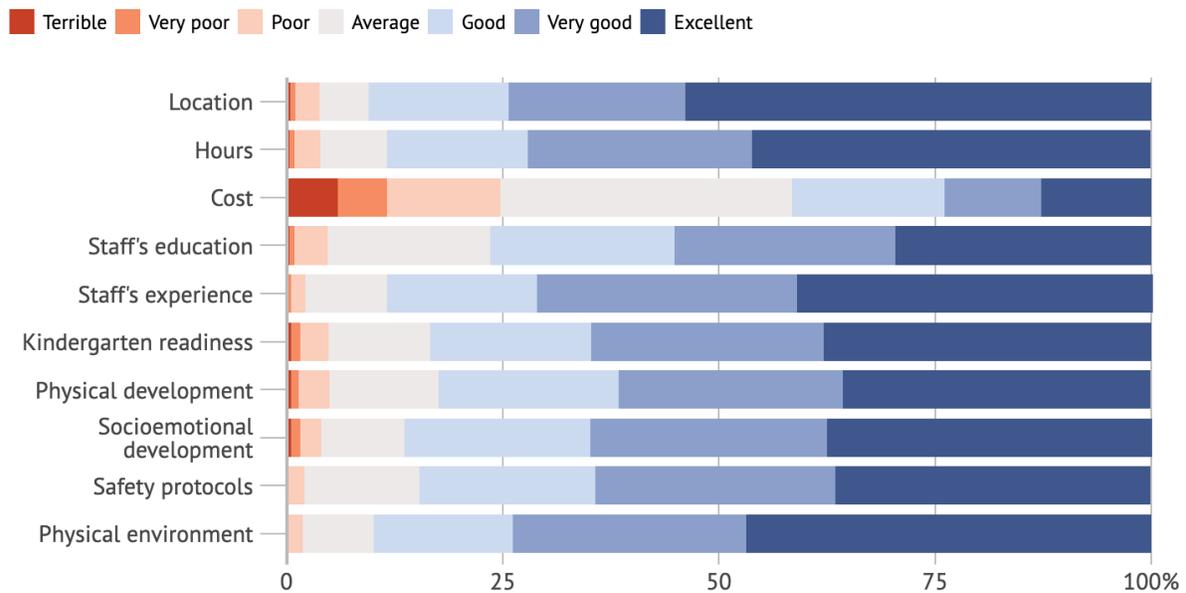
Though overall satisfaction with child care was high, the survey further asked parents to rate the quality of non-parental care based on both structural- and process-related measures of their care arrangements. On the structure side, we inquired about the location, hours, cost, staff education level and experience, safety protocols, and physical environment. On the process side, we included a rating of the curriculum, broken down by its connection to their child’s kindergarten readiness, physical development, and socioemotional development.

Parents rated each of these components of child care quality as mostly good to excellent, with the pronounced exception of cost. (See Figure 38).

**FIGURE 38**

**Academic parents’ quality ratings for their current child care arrangements**

Across the board, academic parents rated many dimensions of their child care as good to excellent with the stark exception of costs, which was mostly given a rating of average.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

Over 24.7 percent of the parents surveyed rated quality as measured by cost somewhere between poor to terrible. Another 33.8 percent of the sample called the quality of costs average. These results show that costs may be one of the primary drivers in parents’

perceptions about the quality of child care. This focus on costs may help explain why parents’ perceptions about the quality of care often vary from traditional measures of quality.<sup>304</sup>

## COSTS OF CHILD CARE

In every module of the survey, the costs of child care have come up as the largest concern for academic parents. And this is because the costs of early child care are undoubtedly high. Child care costs academic parents in the sample an average of \$16,441 per year. The typical or median academic parent pays \$14,400 annually to cover their child care expenses. To put these costs in perspective, the average cost of child care for academic parents is ironically 1.6 times as much as the cost of in-state tuition for public, four-year universities in the United States.<sup>305</sup> In every state that has more than 20 academic parents in the sample, the average annual cost of child care exceeds the price of in-state tuition.<sup>306</sup> (See Figure 39). In three states—Florida, New York, and North Carolina—child care for academic parents may cost twice as much as in-state tuition.

**FIGURE 39**

### The cost of child care for academic parents surveyed exceeds the cost of in-state tuition

For the 11 states that have more than 20 people represented in the sample, the average annual state cost of child care for academic parents exceeds the price of in-state tuition at public, four-year universities.

STATE	AVERAGE ANNUAL CHILD CARE COST	AVERAGE IN-STATE TUITION (2018-2019)	RATIO OF CHILD CARE COST TO TUITION
California	\$16,680	\$9,870	1.69
Florida	\$12,833	\$6,360	2.02
Massachusetts	\$16,008	\$13,970	1.15
Michigan	\$23,155	\$13,200	1.75
New York	\$14,321	\$13,420	1.07
North Carolina	\$19,618	\$8,190	2.40
Ohio	\$14,731	\$7,220	2.04
Pennsylvania	\$10,872	\$10,790	1.01
Texas	\$16,533	\$14,770	1.12
Washington	\$12,979	\$10,300	1.26

**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019; “2018-19 Tuition and Fees at Public Four-Year Institutions by State and Five-Year Percentage Change

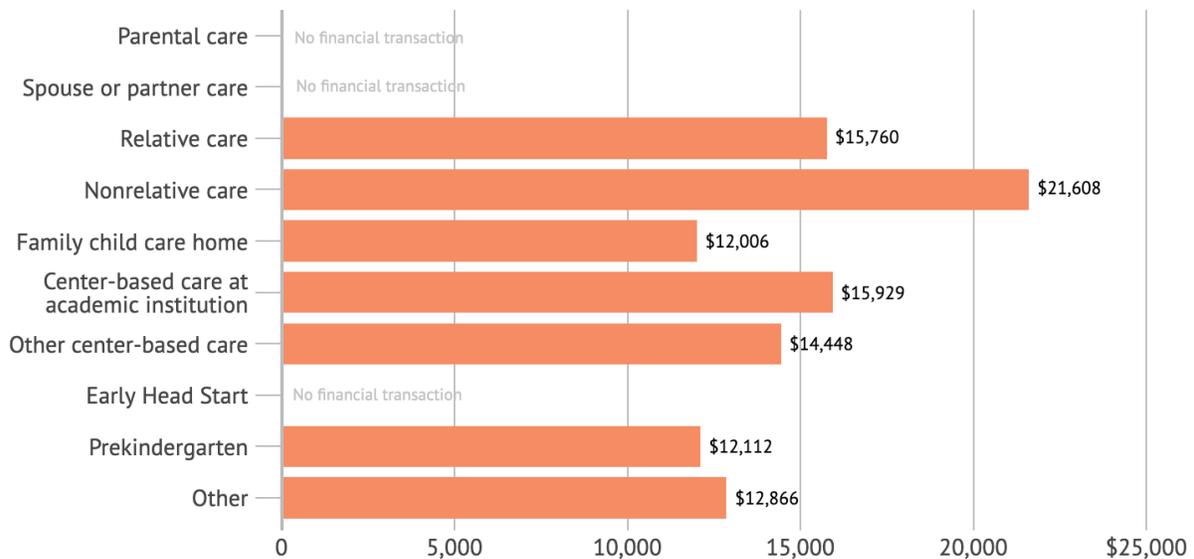
in In-State Tuition and Fees.” Trends in Higher Education - The College Board, 2019.  
<https://trends.collegeboard.org/college-pricing/figures-tables/2018-19-state-tuition-and-fees-public-four-year-institutions-state-and-five-year-percentage>.

Certain child care arrangements, however, are less expensive than others. (See Figure 40). At the bottom end, family child care homes and prekindergarten programs cost an average of \$12,006 and \$12,112, respectively, per year for academic parents in the sample. Center-based care, relative care, and care at academic institutions are in the middle of the price range at \$14,438, \$15,760, and \$15,929 annually. At the very top, nonrelative care—such care given by nannies and au pairs—costs \$21,608 per year.

**FIGURE 40**

**The cost of child care by child care arrangement for academic parents surveyed**

The average cost of every type of child care arrangement (except for those that do not have any financial transactions) is about \$12,000 per year.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019

These average costs do not necessarily share the full story. Academic parents who have multiple children pay even more. Parents in the sample with one child pay an average of \$16,646 per year. Parents with two and three children see their costs of care nearly double, paying \$30,903 and \$31,896 per year, respectively.

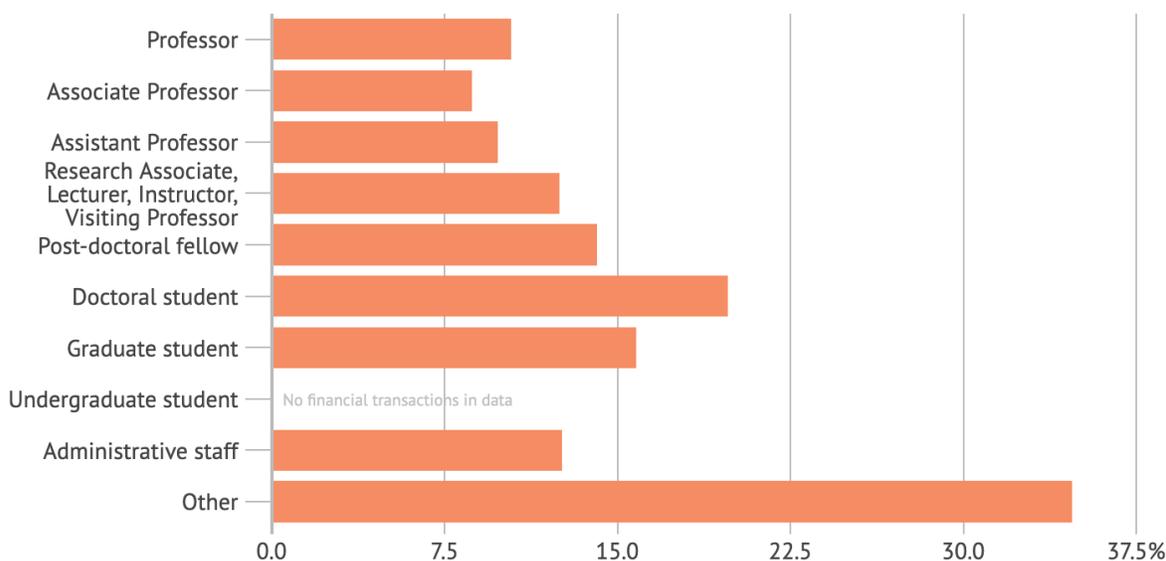
The high cost of care per year can place a large burden on academic families. For the average academic family, the total cost of child care arrangements makes up 12.7 percent of household income. Across the income distribution, child care cost burdens range between 10.7 percent and 14.1 percent of annual household income.

A closer look at cost burden across academic roles reveals that the child care cost burden generally decreases as an individual climbs the tenure ladder. (See Figure 41). Doctoral students tend to be the most burdened with child care-related expenses, paying roughly 19.8 percent of their household incomes towards child care. Associate Professors, on the other hand, see the lowest cost burdens, contributing approximately 8.7 percent of their household incomes to pay for child care.

**FIGURE 41**

**Child care cost burdens by academic role of surveyed parent**

As academic parents climb the tenure ladder, their child care cost burdens tend to decrease.



**Note:** The results for undergraduate students and other academic parents in this figure are not valid or generalizable because there was only one undergraduate student and three other academic parents who participated in the survey.

**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

Given the burden child care costs place upon families, some academic parents seek out financial support to pay for their care arrangements. About 2.0 percent of parents receive

government assistance, 1.3 percent receive support from their spouse or partner’s employer, and 7.6 percent of parents have some type of stipend or subsidy provided by their academic institution to pay for child care. Private nonprofit colleges and universities provide financial support to more academic parents than public institutions. These contributions, though, are meager, and only bring down the average cost of child care to \$16,053 per year.

## TRADEOFFS ASSOCIATED WITH CHILD CARE

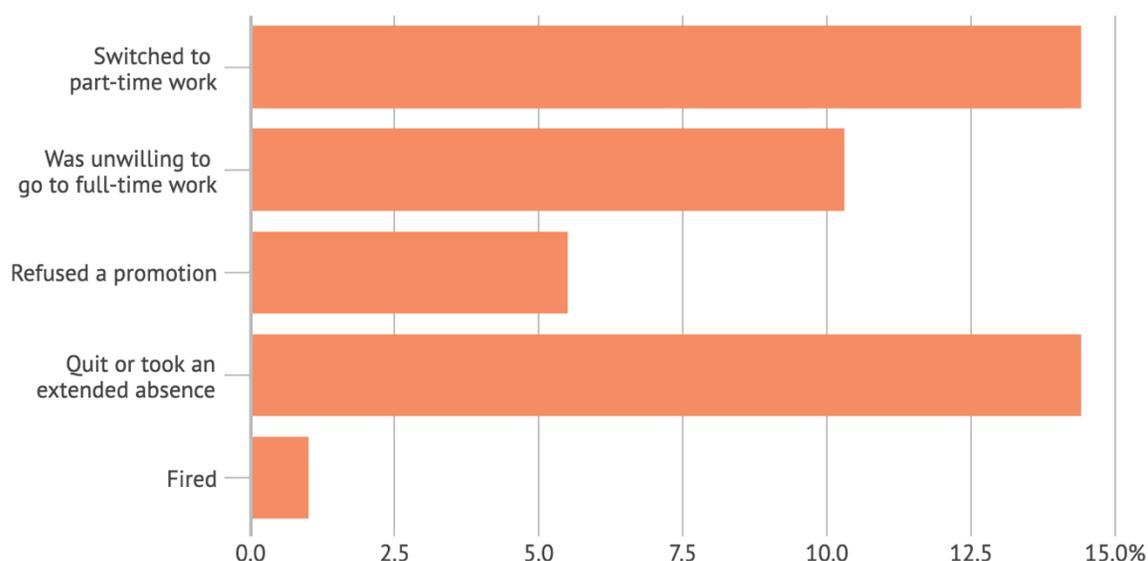
The challenges academic parents encounter related to the availability, accessibility, quality, and cost of child care come with several tradeoffs. To put it another way, when the availability, accessibility, quality, or cost of child care are in some way incompatible with parents’ needs, parents look to a hodgepodge of solutions—both big and small—to fill the gaps.

One way academic parents attempt to meet their child care needs is by making changes to their work arrangements. (See Figure 42).

**FIGURE 42**

### Changes academic parents make to work arrangements to meet child care needs

Academic parents in the sample made a variety of changes to their work arrangements in order to provide care for their children, but the three largest changes were switching to part-time work from a full-time schedule, being unwilling to go to full-time work, and quitting or taking an extended leave of absence.



**Source:** Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019

Roughly 14.4 percent of the academic parents in the sample, for instance, reported switching to part-time work; 10.3 percent were unwilling to go from part-time work to full-time work; 5.5 percent refused a promotion; 14.4 percent quit a job or took an extended leave of absence; and 1.0 percent were fired due to issues with their child care arrangements.

Another way academic parents fill in their unmet child care needs are through smaller-scale compromises. About 70.5 percent of academic parents missed at least one day of work in the last three months due to issues with child care. The average parent, however, missed about 10.7 days of work or school in last year. Fifty-seven percent of academic parents in the sample showed up late at least one day in the last three months thanks to a child care breakdown. In the last year, the average parent showed up late to work or school about 13.5 days. Close to 70.0 percent of parents left work early at least one in the last three months, with the average parent taking off early to deal with child care 15.3 days a year.

In addition to these listed tradeoffs, 26.5 percent of parents in the sample felt as though their current child care arrangements did not meet their actual needs. To fully meet their child care needs, parents expressed wanting an average of 16.5 more hours of child care per month or and additional 24.8 working-days of child care.

# 8

## THE COSTS OF UNMET CARE NEEDS: RESULTS FROM THE DETERMINISTIC MODEL

These tradeoffs do not come without consequences. When academic parents rearrange their work schedules or make smaller-scale concessions to provide comprehensive care for their young children, parents, their families, and academic institutions incur significant social and economic losses.

Using the deterministic model explained in our methodology, we find that overall, academic parents, their families, and academic institutions lose \$8.841 billion per year between paying for current child care arrangements and filling in the gaps in care. (See Figure 43).

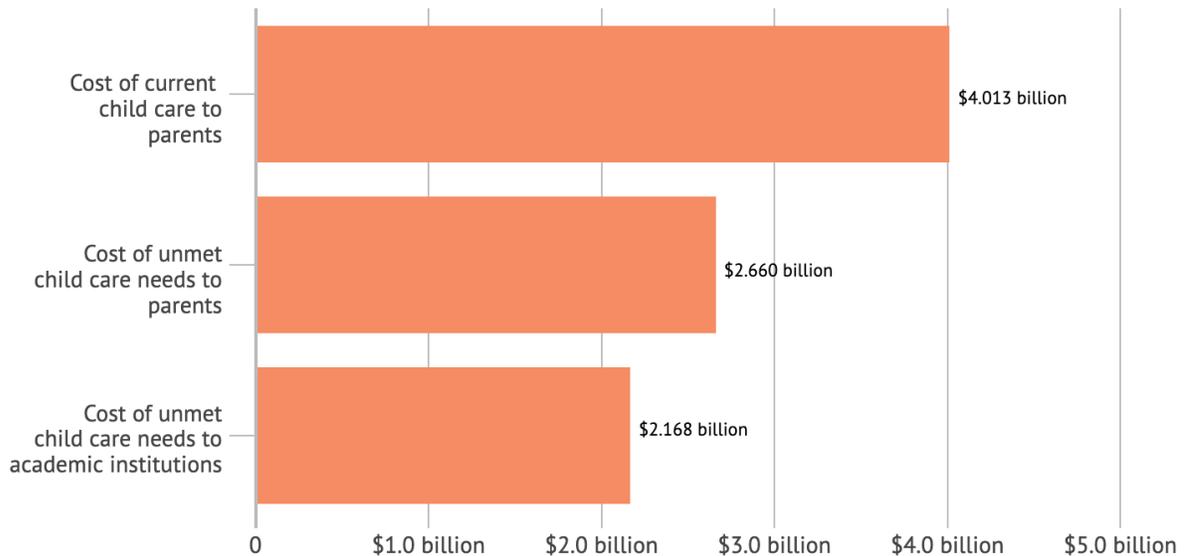
This \$8.841 billion is broken into three main components: (1) the cost of current child care arrangements to parents, (2) the costs of unmet child care needs to parents, and (3) the cost of unmet child care needs to institutions. Paid child care arrangements, ranging from the nonrelative care to center-based care, cost academic parents with at least one child under the age of five \$4.013 billion per year. Per capita, this averages out to about \$15,906 spent per year.

Unmet child care needs, composed of both lost earnings and additional costs, amount to \$2.660 billion per year or \$10,147 per capita, a burden that falls upon both academic parents and their families. Unmet child care needs also affect academic institutions, who shoulder costs and lost revenues totaling \$2.168 billion per year or \$5,066 per academic parent employed.

**FIGURE 43**

**Overall, child care costs academic parents, their families, and their institutions \$8.8 billion**

Every year, academic parents, their families, and their academic institutions collectively pay \$8.8 billion to current child care arrangements and fill unmet needs.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019

## COSTS OF UNMET CHILD CARE NEEDS TO ACADEMIC PARENTS & THEIR FAMILIES

The \$2.660 billion spent per year on unmet child care needs includes five different costs to academic parents: (1) lost earnings from unpaid child care; (2) costs of added commute to child care arrangements; (3) costs of relying on backup care options; (4) costs of setting up alternate child care arrangements while being on a waitlist for on-campus child care; and (5) lost earnings from quitting or taking an extended leave from work. (See Figure 44).

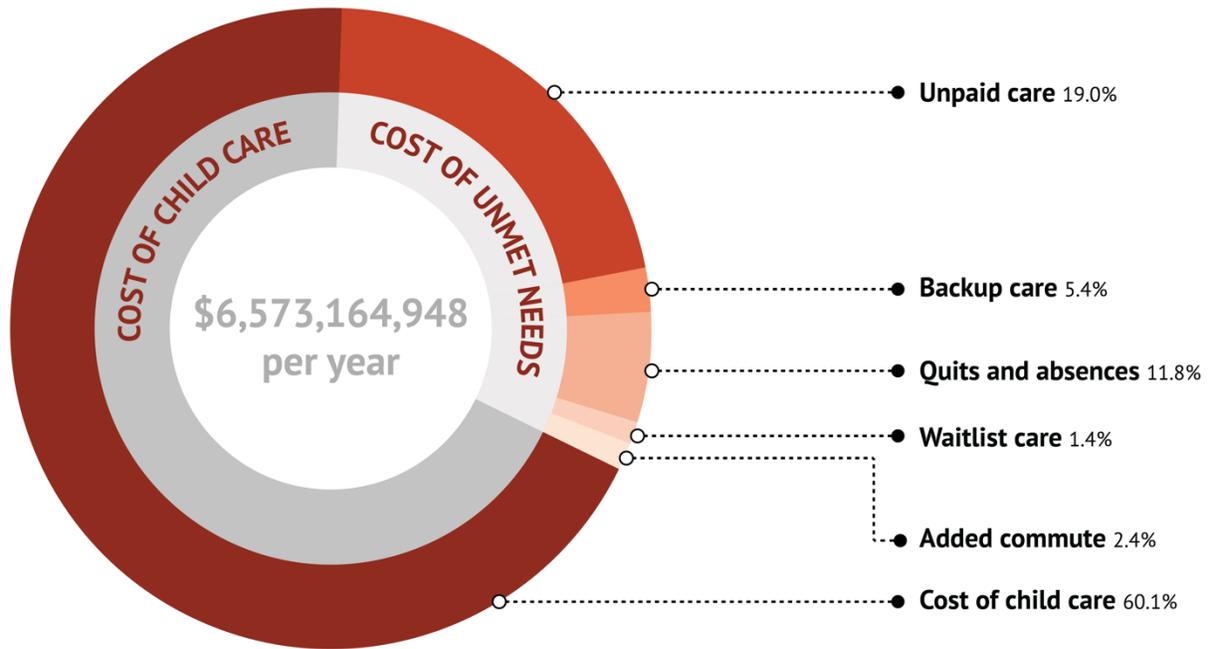
The largest cost to academic parents and their families is the lost earnings of unpaid parents, spouses, partners, relatives, and nonrelative caregivers. To provide unpaid care, individuals forgo collective earnings of about \$1.3 billion per year. The second largest cost comes from quitting or taking extended leaves of absence from work, which add up to over \$684 million in lost earnings to academic parents each year. Adding extra commute time

to get to child care, setting up backup or alternative plans when typical child care arrangements break down or are insufficient, and spending time on a waitlist for on-campus child care sums to \$158 million, \$361 million, and \$90 million per year, respectively.

**FIGURE 44**

**A breakdown of the *true* costs of child care to academic parents and their families**

Each year, academic parents spend \$4.013 billion on their current child care and \$2.660 billion to fill in gaps.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019

When these costs of unmet child care needs are added to the total that academic parents and their families already pay for child care per year, we find that the *true* cost of child care is \$6.673 billion per year. (See Figure 44). Close to two-fifths of this cost are from unmet child care needs alone.

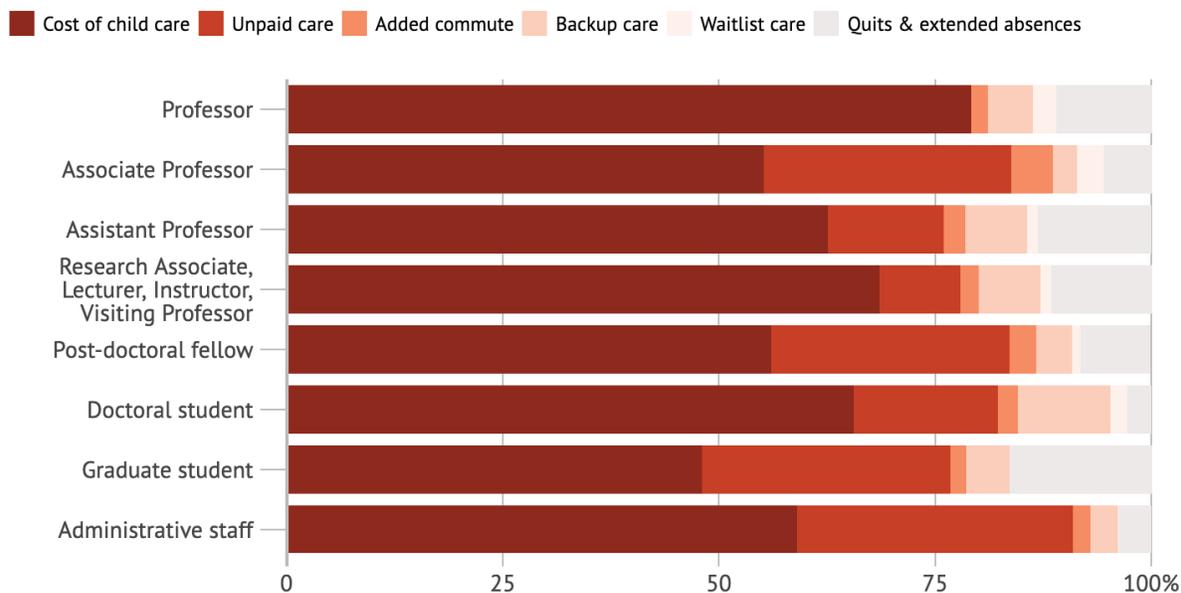
To understand some of the inequalities in the true costs of child care between academic parents, we disaggregate the results by academic role. (See Figure 45). On the whole, as we go down the tenure ladder, the per capita costs of unmet child care needs increase, with Professors paying the least towards unmet child care needs and graduate students paying the most. A closer look at how this is distributed by type of cost reveals a clear

disparity between Professors and other lower-ranked academic parents. The results in Figure 45 highlight a few important patterns.

**FIGURE 45**

**A breakdown of the *true* costs of child care to academic parents by their role**

There is tremendous variation in the costs of current care and unmet child care needs by academic role.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019

First, we find that Professors and their families are seldom losing earnings to unpaid child care arrangements. This is likely a product of the fact that their higher salaries enable them to pay for child care arrangements. It may also be reflective of the fact that Professors tend to be older and have older children who require less individualized care. Second, we learn that most of the cost of unmet care needs for postdoctoral fellows, associate professors, graduate students, and administrative staff and their families comes from losing earnings to unpaid care. Assistant Professors costs of unmet care needs are mostly driven by using unpaid care and quitting or taking an extended leave of absence. This may be due to the fact that Assistant Professors are younger and just starting to have children, which requires more time for parental care. A fourth key finding is that a large share of doctoral students’ costs of unmet child care needs goes toward paying for backup arrangements, an indicator that their work schedules may not necessarily be compatible with the schedules of traditional child care arrangements. A fifth pattern worth acknowledging is that a large portion of the true costs of child care for graduate students

is lost earnings from quits or extended leaves of absence. It is unclear why this is the case for graduate students, but as with all of the other trends, there is a need for more investigation.

While these findings are stark, there are currently no estimates of how much parents spend on unmet child care needs each year to serve as a point of comparison. The costs of unmet child care needs to academic parents generated by our deterministic model may function as a benchmark for similar studies of academic populations moving forward.

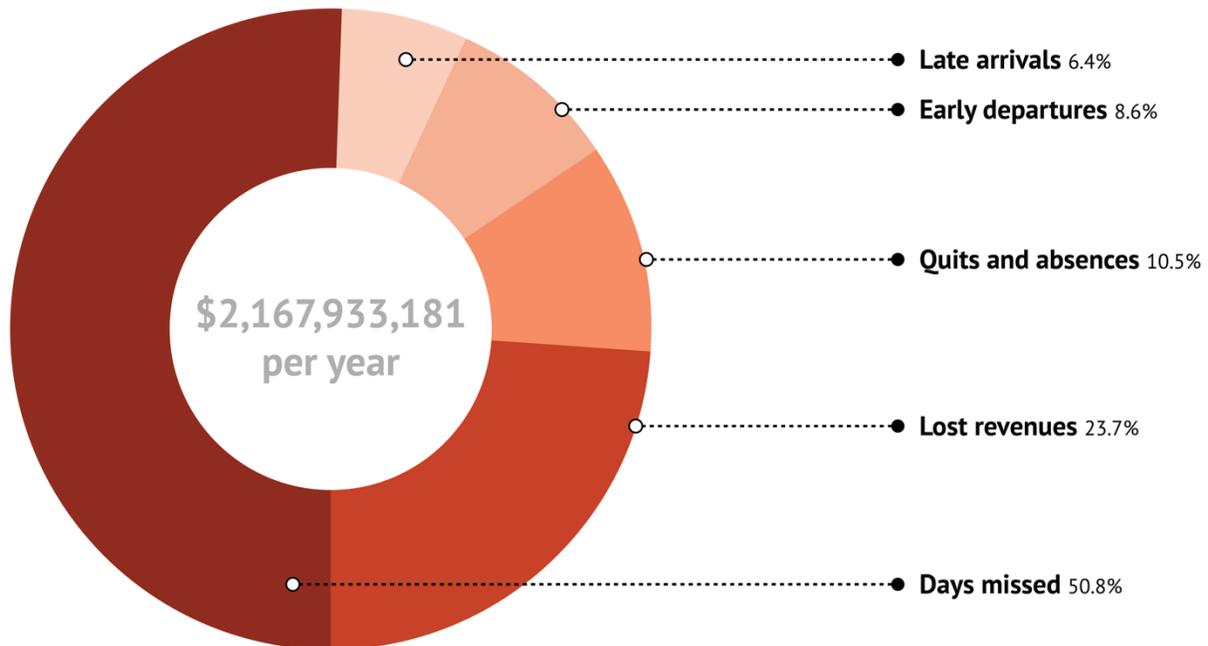
## COSTS OF UNMET CHILD CARE NEEDS TO ACADEMIC INSTITUTIONS

Academic institutions lose \$2.168 billion each year due to the unmet child care needs of academic parents with a child under the age of five. (See Figure 46).

**FIGURE 46**

### A breakdown of the costs of child care to academic institutions

Each year, academic institutions forgo \$2.168 billion when academic parents fill the gaps in their care needs.



**Source:** Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019

The cost of unmet needs for academic institutions is split into five different components: (1) costs of missing a full day or more of work due to child care breakdowns; (2) costs of being tardy to work due to child care breakdowns; (3) costs of leaving work early due to child care breakdowns; (4) costs of associated with quitting or taking an extended leave of absence to provide parental child care; and (5) lost revenues from reduced levels of productivity due to absenteeism, late arrivals, and early departures.

The biggest cost to academic institutions comes from the days of work academic parents miss when they have to deal with a child care breakdown or other child-related issue. Academic employers lose over \$1.102 billion due to full-day absenteeism per year. In other terms, every year, academic institutions across the United States lose out on 3,640,668 days of productivity from academic parents with a child under the age of five due to their unmet child care needs.

Late arrivals and early departures by academic parents due to child care breakdowns collectively make up 15.0 percent of the cost of unmet child care needs to academic institutions. Tardiness costs these institutions \$138 million each year, while leaving early amounts to \$185 million annually. Put in terms of productivity, academic parents miss 153,072 days of work from late arrivals and 201,123 days of work from early departures.

Full-day absenteeism and condensed work days impact academic institutions' revenues, too. Overall, academic institutions see their revenues drop by \$513 million each year due to these reductions in work productivity.

Quits and extended absences create added costs to academic employers, who must find a way to temporarily or permanently replace an academic parent who leaves to provide child care to their infant, toddler, or preschooler. Every year, quits and prolonged absences cost academic institutions \$228 million.

We can further stratify the results by gender and type of academic institution to understand whether there are differences in the costs of unmet child care needs to public and private universities. (See Figure 47).

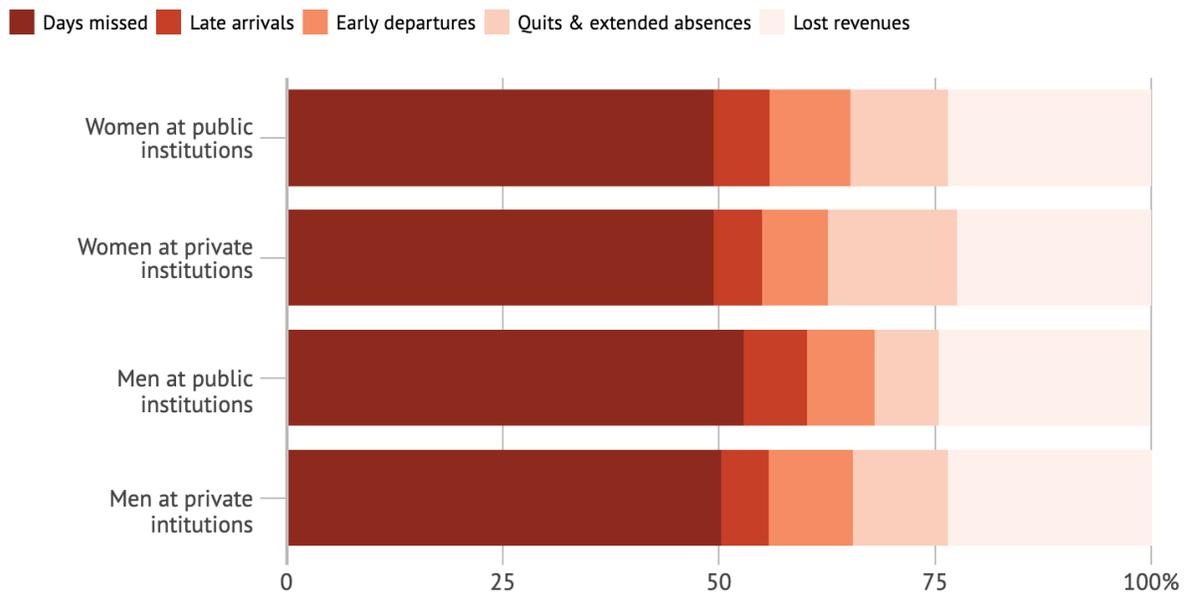
It turns out that the costs of the unmet child care needs of women significantly outweigh the costs of the unmet child care needs of men at both public and private academic institutions. Each year, the unmet child care needs of women cost public institutions close to \$620 million and 1,137,972 days of lost productivity and costs private institutions \$746 million and 1,654,143 days of lost productivity. For men, the results are smaller in magnitude but still costly. Public academic institutions underwrite \$378 million per year for the unmet child care needs of men and lose 627,457 days of productivity for men.

Private academic institutions forgo \$424 million to the unmet child care needs of men, which is equivalent to 613,665 days of lost productivity.

**FIGURE 47**

**A breakdown of the costs of child care to academic institutions by gender and type**

While there is little variation in how the costs of unmet child care needs breakdown between women and men, on the whole, the unmet care needs of women significantly outweigh those of men at both public and private institutions.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019

Taking a closer look at how the different types of costs are distributed for women and men at public and private institutions, we find that the costs of unmet needs to academic institutions are spread in a relatively similar way by gender. The exception to this, however, is the cost associated with quits and extended leaves of absence: Academic parents who are women tend to cost both public and private universities more when it comes to quits and extended leave time. This is likely driven by the fact that academic parents who are women are expected to stay home to provide parental care more frequently than men due to gender norms entrenched inside and outside of the academe.

Overall, these findings about the costs of unmet child care needs to academic institutions seem reasonable. Research by Elizabeth Talbert, Ali Bustamante, Lindsay Thompson, and Margaret Williams shows that unmet child care needs for parents with a child under five in

Maryland—slightly smaller to the number of academic parents with a child under five across the country—cost employers in the state \$2.415 billion each year.<sup>307</sup> Our estimate is lower than Talbert and coauthors' because of methodological differences that took a conservative approach to calculating the costs of quits and extended absences.<sup>308</sup> If we used similar assumptions to their model, we would expect that cost of unmet child care needs to academic institutions to be higher than their estimate of \$2.415 billion due to the higher average and median earnings of academic parents populations.

# 9

## A DEEPER DIVE INTO LOCATION: RESULTS FROM REGRESSION ANALYSIS

The results from our deterministic modeling exercise highlight that both academic parents with children under the age of five and their academic institutions lose billions of dollars per year due to unmet child care needs. A natural question that arises is what can be done to fill the gaps?

To answer this question, we investigate the relationship *between* different variables in the survey, paying close attention to factors that may be influencing academic parents' unmet needs. While our dataset is rich and lends itself to investigating several different relationships related to unmet child care needs, we only focus in on the barriers to meeting parents' locational needs, which add close to \$160 million collectively per year to the true cost of child care.

Academic parents' ratings of their current child care arrangements' location—what we refer to as the locational quality of child care—serves as a proxy for whether parents perceive their locational needs as being met. The closer the rating of location is to excellent, for instance, the less a parent may feel as though their locational needs are going unmet. In our preliminary descriptive analysis, we found that academic parents' ratings of location were generally positive. (See Figure 38). Nearly 54.0 percent of academic parents who use non-parental or non-spouse or -partner care said that the location of their current child care arrangement was excellent; 20.4 percent said it was very good; and 16.2 percent said it was good. What factors cause these academic parents to rate the location of their arrangements so high? The empirical response to this overarching question can help us establish concrete ways that academic institutions and child care providers can locate child care infrastructure to better meet academic parents' needs.

We explore three key relationships to identify the features of location that are either barriers or supports to meeting academic parents’ locational needs using a series of regression analyses described in our methodology. After confirming that location is in fact a driver of academic parents’ overall satisfaction with child care, we test (1) whether longer added commute times to and from child care arrangements reduce locational quality ratings; (2) whether closeness or proximity to certain locations change locational quality ratings; and (3) whether certain modes of transportation used to drop off and pick up children from child care improve or reduce locational quality ratings.

## DO HIGHER QUALITY RATINGS OF LOCATION DRIVE HIGHER OVERALL SATISFACTION WITH CHILD CARE ARRANGEMENTS?

Before even identifying the features of location that help or harm parents’ ability to meet their locational needs for child care, we need to establish whether location actually matters to academic parents with infants, toddlers, or preschoolers. In other words, is the locational quality of child care a significant driver of academic parents’ overall satisfaction with their arrangements?

When looking at the relationship between locational quality and overall satisfaction with child care alone, we find that for a one-point increase in the rating of location, the odds of parents rating their overall satisfaction as extremely satisfied—versus a lower rating—are 1.598 times greater. (See Figure 48). Without taking into account any other factors that may influence overall satisfaction, we see that a better rating of location predicts higher levels of satisfaction with child care arrangements. The likelihood that the relationship between these variables is caused by chance alone is very low.

**FIGURE 48**

### Do higher quality ratings of location drive higher overall satisfaction with child care?

In this analysis, we use both bivariate and covariate-adjusted logistic regression models to see how a one-point increase in a parent’s rating of locational quality changes the odds of being extremely satisfied with their child care arrangements. In the covariate models, we adjust for the type of paid child care arrangement and other quality ratings.

#### ASSOCIATION BETWEEN LOCATION RATINGS AND OVERALL SATISFACTION

	OVERALL SATISFACTION WITH CHILD CARE ARRANGEMENTS			
	MODEL 1 (Odds Ratio)	MODEL 2 (Odds Ratio)	MODEL 3 (Odds Ratio)	MODEL 4 (Odds Ratio)
Location quality rating	1.598***	1.558***	1.291**	1.214*

**Paid child care arrangements**

Nonrelative care	0.872	8.077**
Family child care home	0.586	1.810
Center-based care at academic institution	1.926	3.743*
Other center-based care	1.060	2.515
Prekindergarten	1.554	4.134*

**Other quality ratings**

Hours	1.383***	1.390***
Cost	1.246**	1.311***
Staff's level of education	1.232**	1.224
Staff's level of experience	1.285	1.290
Kindergarten readiness	1.285	1.405*
Curriculum for physical development	0.762	0.720*
Curriculum for socio-emotional development	2.364***	2.413***
Safety	1.130	1.160
Physical environment	1.251	1.223

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Number of observations	611	611	520	520
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\*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001

**Source:** Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

When we do consider the other factors that may affect a parent's overall satisfaction with child care—such as the type of unpaid child care arrangement they use or other quality ratings—we find similar results, albeit with a weaker association. In this case, for a one-point increase in the rating of location, the odds of a parent being extremely satisfied is 1.214 times greater. While this relationship is still statistically significant, it is important to note that we found a lower level of statistical significance when holding constant type of unpaid child care arrangement and other quality ratings. Parents' ratings of hours, costs, and curriculum geared towards socioemotional development were all strong positive

forces in improving overall satisfaction with extremely high levels of statistical significance. The curriculum for socioemotional development in particular, had the strongest association with overall satisfaction: For a one-point increase in the rating of curriculum for socioemotional development, the odds of overall satisfaction being extremely satisfied versus lower ratings are 2.413 times greater. Additionally, parents appear to have a strong preference for child care centers located at academic institutions and prekindergarten programs, both of which were statistically significant.

Knowing that location matters to academic parents with children under five validates the importance of investigating what features of location best meet parents’ needs.

## DO LONGER ADDED COMMUTE TIMES TO AND FROM CHILD CARE ARRANGEMENTS REDUCE LOCATION QUALITY RATINGS?

The first feature of location that we dig into is the amount of additional time academic parents add to their commute when they drop off and pick up their child from child care. We specifically investigate whether longer commute times—which may be synonymous with farther distances to child care—reduce parents’ location quality ratings.

In isolation, longer added commute times appear to predict worse ratings of locational quality. (See Figure 49). We find that for one additional minute of commute to and from child care arrangements, the odds of a parent rating location as excellent are 0.958 times lower. We find that this relationship holds true at high levels of statistical significance even when we adjust for the type of paid child care arrangement and a parent’s household income.

**FIGURE 49**

### Do longer added commutes to and from child care reduce location quality ratings?

In this analysis, we use both bivariate and covariate-adjusted ordinal logistic regression models to see how a one-minute increase in a parent’s added commute to and from child care changes the odds rating of locational quality as excellent. In the covariate models, we adjust for the type of paid child care arrangement and household income.

#### ASSOCIATION BETWEEN COMMUTE TIME AND LOCATION RATINGS

	LOCATION QUALITY RATING OF CHILD CARE ARRANGEMENTS			
	MODEL 1 (Odds Ratio)	MODEL 2 (Odds Ratio)	MODEL 3 (Odds Ratio)	MODEL 4 (Odds Ratio)
Added commute time	0.958***	0.961***	0.956***	0.959***

**Paid child care arrangements**

Nonrelative care		1.381		1.055
Family child care home		0.242*		0.241*
Center-based care at academic institution		0.818		0.724
Other center-based care		0.449		0.394
Prekindergarten		0.556		0.470
<b>Household income</b>			1.231***	1.224***

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Number of observations	582	582	564	564
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\*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001

**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

When we compare people with similar paid child care arrangements and similar household income, for instance, we learn that for a one-minute increase in commute time, the odds of rating location as excellent are 0.958 lower, a near identical result to the looking at added commute times and locational quality alone.

Overall, longer added commute times to and from child care reduce locational quality ratings, suggesting that parents’ locational needs are better met when child care is closer.

## DOES CHILD CARE ARRANGEMENTS’ CLOSENESS TO CERTAIN LOCATIONS CHANGE LOCATION QUALITY RATINGS?

The second feature of location that we examine follows up on the results about added commute times by asking closer to *what*. Here, we test whether child care arrangements’ proximity to certain locations—like home, a parent’s academic institution, or another place—changes their ratings of locational quality in any way.

Relative to child care arrangements being closest to home, child care that was located closer to another location predicted worse locational quality ratings. (See Figure 50). For child care that was closest to a location that was not home or work, the odds of a parent rating location as excellent was 0.137 times lower compared to the odds of an excellent

rating when child care is closest to home. A similar, statistically significant relationship is found when we adjust for the type of paid child care arrangement and a parent’s household income.

**FIGURE 50**

**Does the proximity to home, work, or another location change location quality ratings?**

In this analysis, we use both bivariate and covariate-adjusted ordinal logistic regression models to see how child care’s closeness to work or another location, relative to home, changes the odds rating of locational quality as excellent. In the covariate models, we adjust for the type of paid child care arrangement and household income.

**ASSOCIATION BETWEEN PROXIMITY TO CERTAIN LOCATIONS AND LOCATION RATINGS**

	LOCATION QUALITY RATING OF CHILD CARE ARRANGEMENTS			
	MODEL 1 (Odds Ratio)	MODEL 2 (Odds Ratio)	MODEL 3 (Odds Ratio)	MODEL 4 (Odds Ratio)
<b>Locational proximity of care</b>				
Closest to academic institution	0.897	0.617*	0.973	0.686
Closest to another location	0.137***	0.115***	0.140***	0.122***
<b>Paid child care arrangements</b>				
Nonrelative care		2.664		2.398
Family child care home		0.706		0.710
Center-based care at academic institution		3.898*		3.238
Other center-based care		1.629		1.488
Prekindergarten		2.388		2.206
<b>Household income</b>			1.165**	1.135*
Number of observations	473	473	458	458

\*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001

**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

Though it is not statistically significant, these results show that proximity to work predicts worse locational ratings when compared to being close to home. This finding is somewhat in contradiction to what we uncovered earlier about parents’ preferences for center-based care at academic institutions, but it may suggest that parents generally want to live closer to their academic institutions. Nonetheless, this analysis reveals that when child care is not located near a parent’s home or their institution, parents’ locational needs may be going unmet.

## DOES THE MODE OF TRANSIT TO CHILD CARE ARRANGEMENTS CHANGE LOCATION QUALITY RATINGS?

The third feature of location that we analyze is the mode of transportation that parents take to drop off or pick up their infant, toddler, or preschooler from their child care arrangement. We specifically check whether different modes of transit, relative to driving a car, change parents’ ratings of locational quality.

We find that walking, relative to driving, strongly predicts better locational quality ratings of child care arrangements and is the only mode of transportation that is statistically significant. (See Figure 51). For a parent that walked their child to their child care arrangements, the odds of an excellent location rating are 4.109 times greater compared to the odds of an excellent rating when parents drove a car. This strong and statistically significant association holds even when we adjust for type of paid child care arrangement and household income.

**FIGURE 51**

### Does the mode of transit to child care change location quality ratings?

In this analysis, we use both bivariate and covariate-adjusted ordinal logistic regression models to see how the mode of transportation to child care, relative to driving, changes the odds rating of locational quality as excellent. In the covariate models, we adjust for the type of paid child care arrangement and household income.

ASSOCIATION BETWEEN MODE OF TRANSPORTATION AND LOCATION RATINGS				
LOCATION QUALITY RATING OF CHILD CARE ARRANGEMENTS				
	MODEL 1 (Odds Ratio)	MODEL 2 (Odds Ratio)	MODEL 3 (Odds Ratio)	MODEL 4 (Odds Ratio)
<b>Mode of transportation</b>				
Bus	0.557	0.6234	0.598	0.663
Subway or light rail	0.354	0.254	0.376	0.262

Bike	0.635	0.631	0.708	0.750
Walking	4.109***	4.001***	3.457***	3.397***
Other	0.533	0.365	0.464	0.322
<b>Paid child care arrangements</b>				
Nonrelative care		2.152		2.050
Family child care home		0.620		0.656
Center-based care at academic institution		2.508		2.413
Other center-based care		1.338		1.274
Prekindergarten		2.018		1.872
<b>Household income</b>			1.171**	1.160**
<hr/>				
Number of observations	477	477	461	461

\*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001

**Source:** Author's analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

This strong and positive association between walking and better locational quality ratings suggests that interventions or policies that enable parents to walk their children to their care arrangements may help better fill unmet locational needs.

## HOW DO ALL THE DIFFERENT FEATURES OF LOCATION TOGETHER CHANGE CHILD CARE ARRANGEMENTS' LOCATION QUALITY RATINGS?

As a final check, we test to see whether our findings about added commute times, proximity, and mode of transportation remain true when we include them all in the same regression model. (See Figure 52).

When we adjust for each locational feature, we find largely identical results: Longer added commute times and child care located near a non-home or non-work location predict lower locational quality ratings, while the ability to walk to child care arrangements predict higher locational quality ratings even after adjusting for the type of paid child care

arrangement and household income.

**FIGURE 52**

**How do the different features of child care’s location change location quality ratings?**

In this analysis, we use both a covariate-adjusted ordinal logistic regression model and an Ordinary Least Squares linear model to explore what effect our different variables of interest—added commute time, proximity, and mode of transportation—changes parents’ rating of locational quality. In both models, we adjust for the type of paid child care arrangement and household income.

**ASSOCIATION BETWEEN FEATURES OF LOCATION AND LOCATION RATINGS**

LOCATION QUALITY RATING OF CHILD CARE ARRANGEMENTS		
	MODEL 1 (Odds Ratio)	MODEL 2 (OLS)
<b>Added commute time</b>	0.959***	-0.022***
<b>Locational proximity of care</b>		
Closest to academic institution	0.691	-0.167
Closest to another location	0.174***	-1.131***
<b>Mode of transportation</b>		
Bus	1.758	0.314
Subway or light rail	0.557	-0.334
Bike	0.792	-0.180
Walking	3.815***	0.482**
Other	0.556	-0.351
<b>Paid child care arrangements</b>		
Nonrelative care	0.818	-0.022
Family child care home	0.264	-0.527
Center-based care at academic institution	1.135	0.157
Other center-based care	0.563	-0.163
Prekindergarten	0.870	0.054
<b>Household income</b>	1.132*	0.052

<b>Constant</b>	N/A	6.380***
Number of observations	457	457

\*p < 0.05, \*\*p < 0.01, \*\*\*p < 0.001

**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019.

These associations remain robust even when we treat locational quality ratings as a continuous variable instead of an ordinal variable. Here, we find that for every additional minute of commuting to child care, quality ratings of location reduce by 0.022 points; child care’s proximity to another location decreases location quality ratings by 1.131 points relative to being proximal to home; and the when parents walk to child care arrangements, their location quality ratings increase by 0.482 points relative to driving. In this linear regression model, however, the statistical significance of relationship between walking to child care arrangements relative to driving and locational quality ratings is lower.

# 10

## INTERPRETING THE RESULTS

The results from our survey, deterministic model, and regression analysis collectively begin to paint a picture of the state of child care for academic parents with children under the age of five and underscore the causes, costs, and consequences of academic parents' unmet child care needs. Undoubtedly, this research is a pilot that has several limitations. But at the same time, it uses a unique methodology to contribute novel findings—summarized below—that provide critical insights about how academic institutions may be able to solve the burgeoning child care conundrum at a local scale.

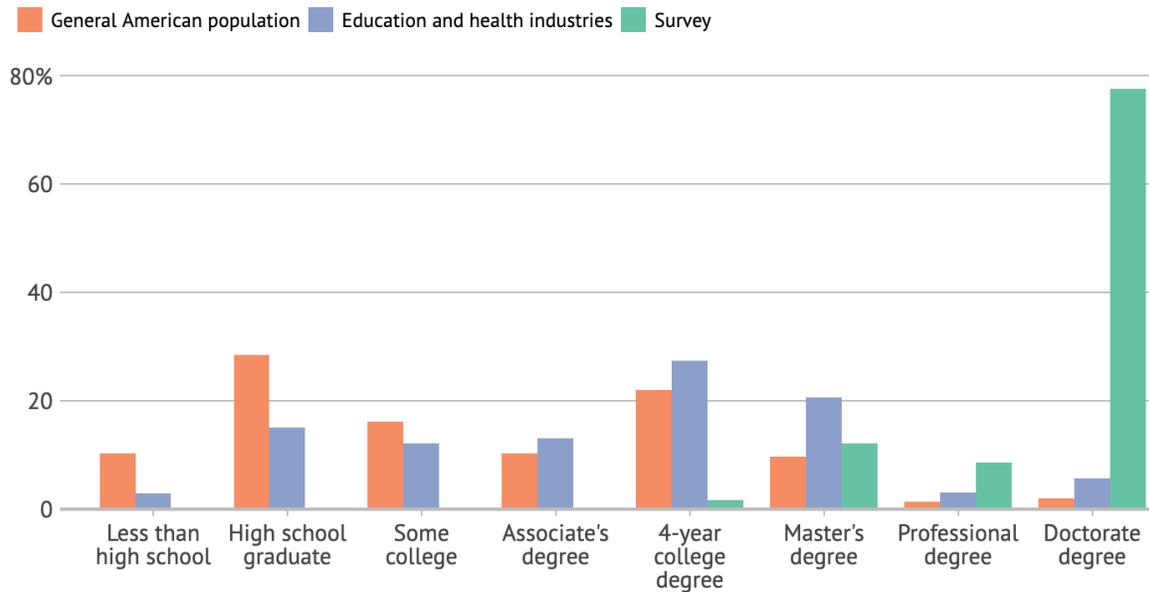
Before delving into the findings, it is important to ground our interpretation of the results in a caveat. While parents who participated in our survey may share similar child care experiences to the typical American parent, the academic parents in our sample differ from the typical parent in some significant ways. Notably, the academic parents who took the survey have much higher levels of educational attainment and much higher household incomes than the average American.

When looking at the educational attainment, for instance, we find that the percent of people within the general American population with higher than a college degree tapers off, such that doctorate degree holders represent only about 2.0 percent of total population.<sup>309</sup> (See Figure 53). Restricting the population to just those who work in the education and health services industries, we see that there is not only a greater share of people with a four-year college degree, but also there is a larger percent of workers who have a master's degree, professional degree, or doctorate degree compared to the general American population.<sup>310</sup> Our survey respondents, however, are radically different. The vast majority of people who participated in the Child Care for Parents in America Survey—77.6 percent—have a doctorate degree.

**FIGURE 53**

**A comparison of educational attainment between our survey and the general population**

Respondents of the Child Care for Parents in Academia Survey have much higher levels of educational attainment than the general American population and even the population who works in the education and health services industry.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019; “Educational Attainment in the United States: 2018.” United States Census Bureau, February 21, 2019. Table 2: Educational Attainment of the Population 25 Years and Over, by Selected Characteristics: 2018. <https://www.census.gov/data/tables/2018/demo/education-attainment/cps-detailed-tables.html>.

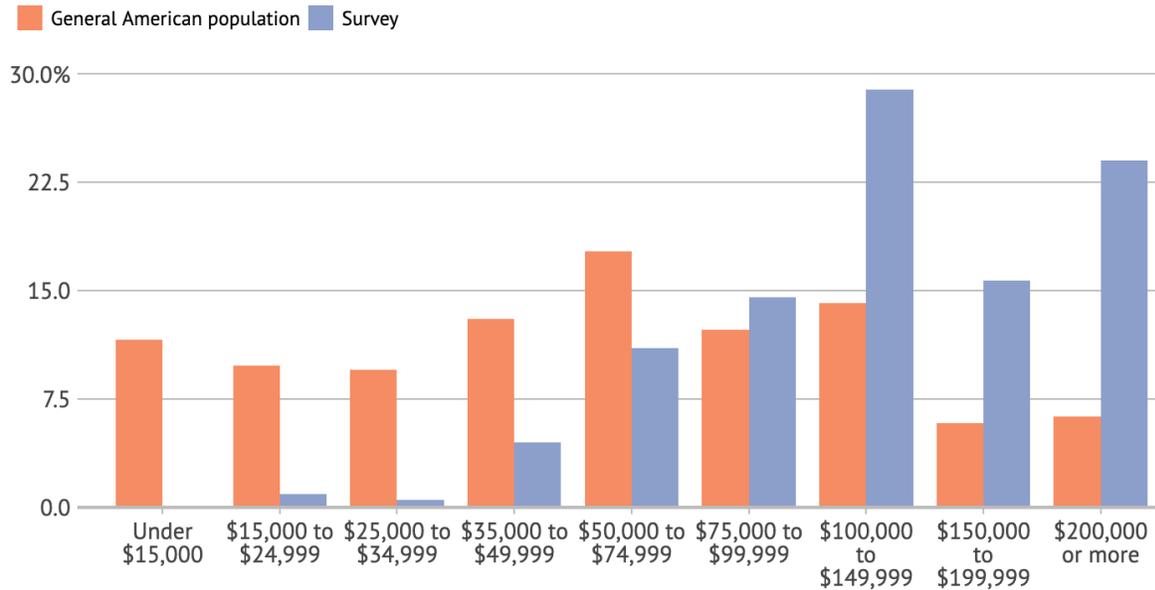
Closely connected to educational attainment, the household income distribution of parents who took the survey is much more left-skewed than the household income distribution of the general American population. (See Figure 54). In 2017, the national median household income in the United States was \$61,372 per year.<sup>311</sup> By comparison, 68.6 percent of parents in our survey have a household income that is above \$100,000 per year.

Unsurprisingly, academic parents in our survey are an extremely well-off group in comparison to typical American population, so our findings may be endemic to academia alone. This does not in any way discount academic parents’ challenges with child care. Rather, it helps demonstrate that if the broken child care market compromises the family economic security of academic parents, chances are that families with young children at every rung of the education and income ladder are struggling, too.

**FIGURE 54**

**A comparison of household income between our survey and the general population**

Respondents of the Child Care for Parents in Academia Survey have much higher household incomes than the general American population.



**Source:** Author’s analysis of the Child Care for Parents in Academia Survey, collected March 4, 2019 to April 7, 2019; “American Fact Finder.” United States Census Bureau, 2019. Income in The Past 12 Months (In 2017 Inflation-Adjusted Dollars), 2013-2017 American Community Survey 5-Year Estimates. [https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_17\\_5YR\\_S1901&prodType=table](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_5YR_S1901&prodType=table).

With this context in mind, we place the results of this research into conversation with the broader child care conundrum happening across cities in America.

**CHILD CARE ARRANGEMENTS**

The survey detailed two key trends about child care arrangements and utilization among parents working, teaching, researching, or studying in academia. The first was that parents in academia predominantly rely on organized, center-based care, and the second was that the use of certain care typologies transition from parental care to organized care as a child ages.

In comparison to the typical American parent, academic parents select organized care arrangements at a much higher rate.<sup>312</sup> In fact, parents in our sample—who are full-time

employed with high levels of education—enrolled their infants, toddlers, and preschoolers in organized child care at even higher rates than American parents who were full-time employed or had a graduate degree, the two populations that use organized care the most.<sup>313</sup> This suggests that a network of organized, center-based care infrastructure is vital for academic parents with children under the age of five. At the same time, however, this makes academic parents more susceptible to the risks of the formal child care market: limited child care availability, mediocre quality, and unaffordability.

Despite the fact that academic parents tend to use organized, center-based care more, they are similar to typical American parents when it comes to relying on different care types as children age. For instance, both academic parent population and the general parent population in the United States opt for some form of parental care or relative for infants.<sup>314</sup> By the time children are preschoolers, though, both academic and non-academic parents switch to using center-based child care as their primary arrangement.<sup>315</sup> This result emphasizes that the types of child care infrastructures and supports parents need as their young children age are different.

## **CHILD CARE CHOICE**

When it comes to the choices academic parents have for child care, we found that parents generally learned about child care options from online sources or local networks of colleagues and friends. There is little information about how other non-academic parents learn about child care, so it is difficult to place this result within the larger child care choice literature.

A more striking finding, though, is that only a small share of respondents to the survey cited using their academic institutions as a source for exploring their child care options. This discovery pinpoints a potential unmet child care resource need at American academic institutions. When parents turn to informal networks to learn about their child care choices, they may miss out on hearing about the breadth of opportunities and supports provided by their own academic institutions.

This result raises a broader concern, too: Do parents rely on online sources, colleagues, and local friends out of comfort or is it driven by the fact that they are not aware of child care resource service centers at their institutions? This begs a more cynical question of whether academic institutions even offer these services in the first place.

## **CHILD CARE PREFERENCES**

Connected to child care choice, academic parents who took the survey exhibited a strong preference for center-based care at their academic institution or prekindergarten

programs. For parents who did not get their preferred child care option, an overwhelming majority noted that their ideal arrangement is on-campus child care. These findings about child care preferences are some of the most salient contributions of this research: They demonstrate that for many parents, meeting child care needs means having access to some form of on-campus child care infrastructure.

## **GENERAL CHILD CARE ACCESSIBILITY**

People who took the Child Care for Parents in Academia Survey generally felt that finding child care arrangements was a difficult task, an indication that available child care options may not be meeting academic parents' needs. Sure enough, costs, limited options, limited spots, waitlists, and quality of services were the top challenges parents cited encountering in their search for child care.

When comparing these results to the experiences of the wider population of parents, we find that academic parents seem to have a harder time finding child care that fits their needs.<sup>316</sup> A national 2016 poll conducted by National Public Radio, the Robert Wood Johnson Foundation, and Harvard T.H. Chan School of Public Health discovered that 66.0 percent of parents thought finding child care was easy and 32.0 percent thought it was difficult.<sup>317</sup> The responses for the same question in our survey had opposite results: The majority, or 55.4 percent, of academic parents reported that finding child care was difficult, while 34.7 percent said it was easy. A possible explanation for this difference is that academic parents' disproportionate reliance on organized, center-based care means that they have a limited number of available child care options that optimally meet their needs.

For academic parents, costs, limited options, limited spots, waitlists, and the quality of services were the biggest barriers to finding child care arrangements. Parents who participated in 2016 National Public Radio poll also identified costs and quality of services as their biggest challenges, albeit at a much lower rate than academic parents.<sup>318</sup> By contrast, only 4.0 percent, 5.0 percent, and 5.0 percent of the parents polled by National Public Radio were confronted with difficulties related to limited options, limited spots, and waitlists, respectively. These differences signal that academic parents have vastly different barriers to accessing child care than the general parent population. Again, this may be driven by the fact that academic parents utilize organized, center-based child care arrangements at a higher rate than non-academic parents.

## **ON-CAMPUS CHILD CARE ACCESSIBILITY**

While academic parents in the survey did have a preference for on-campus child care, only about two-thirds of the sample said their institution offered some type of center-based care and less than one-fifth of the sample actually accessed it. For many parents, the

barriers to accessing on-campus child care were related to enrollment and high costs of care. This result identifies an unmet child care need: Academic parents prefer on-campus care, but there are shortcomings in actually being able to access the care even if the infrastructure exists.

What's more, the survey showed that long waitlists may be a significant obstacle to being able to enroll in on-campus child care. To improve the accessibility of on-campus child care, this finding accentuates the need for academic institutions to significantly expand the number of child care spots.

## **CHILD CARE QUALITY**

Academic parents in the survey exhibited high levels of overall satisfaction with their child current child care arrangements in spite of challenges they may have faced with choice, preference, and accessibility. High child care satisfaction ratings are also common among the general parent population, according to the 2016 National Public Radio poll.<sup>319</sup> Some 98.0 percent of parents who took the poll were satisfied with their child care. In our sample, 88.5 percent were satisfied with their arrangement. Even when broken down by subcomponents of quality, academic parents still gave high ratings for almost every category; the same was true in the National Public Radio Poll.<sup>320</sup>

On its face, these results feel contradictory to the idea that academic parents have unmet child care needs. For this reason, we used regression analyses to unpack some of the drivers or excellent ratings in order to better understand what may be helping—or compromising—parents' ability to meet their needs. We specifically dive into location. On one hand, we find that longer additional commutes to and from child care and closeness to a location that is not home or work predict worse location ratings. On the other hand, the ability to walk to child care arrangements predicts higher location ratings relative to taking a car. These three findings show that the high ratings for location may mask some of the barriers to fully meeting parents' locational needs. The results highlight the need to child care to be located in places that are short, walkable distances from parents' homes or their academic institutions.

## **CHILD CARE COST**

Academic parents gave the costs of their child care much lower ratings than other subcomponents of quality, likely motivated by the fact that on average, they pay more than the typical American parent. While child care costs an average of \$8,606 per year across the United States, our sample reported paying twice that amount.<sup>321</sup> The higher costs of child care in our data may be the result of two factors. The first is that academic parents may be able to afford higher quality—and consequently, more expensive—child care than the average American parent due to higher household incomes. Theoretically, this could

also be an explanation for why academic parents rated quality so high. The second is that the overwhelming majority of academic parents use some type of center-based child care for their infant, toddler, or preschooler, which may be driving the average price up since these options tend to be more expensive than home-based paid care. Related to this point, non-relative home-based care in our sample was much higher in cost than what child care price models predict.<sup>322</sup> This discrepancy may be due to the fact that academic parents seek out home child care providers with higher levels of experience or education or they rely more on au pairs who may be compensated at a higher level.

Even though academic parents pay more per year for their child care arrangements, their higher household incomes keep their cost burdens lower than other American parents'.<sup>323</sup> Cost burden also marginally decreases as parents' move up the academic ranks. But to place these findings in a broader perspective, the cost burdens of child care for academic parents exceeds the United States Department of Health and Human Services' affordability threshold for child care.<sup>324</sup> In theory, child care is considered to be affordable if it is at 7.0 percent or less of household income, but even amongst relatively well-off academic parents, cost burdens average 12.7 percent.<sup>325</sup> These results show that academic parents—especially those just starting their academic career—need financial supports and subsidies to make child care more affordable.

## **CHILD CARE TRADEOFFS**

Our survey yielded two main findings about the tradeoffs that academic parents make in order to fill the gaps in their child care needs. The first was that academic parents are much more likely to make smaller tradeoffs—like missing work, arriving late, or leaving early—than bigger tradeoffs that change their work arrangements. The second is that the academic parents who took our survey make these smaller tradeoffs at a much higher rate than other parents with young children.

Less than one-fifth of academic parents in our sample rearranged their work schedules or took time off work to better accommodate their child care needs. When comparing this to the 27.0 percent of American parents that rearranged their work schedules to address their child care needs, we find that our sample of academic parents is more employment-stable than the average American parent.<sup>326</sup> This is probably due to the fact that it is risky to leave academic jobs because it can be difficult to reenter the pipeline. While academic parents were less likely to make big changes to their work arrangements, the vast majority of parents reported missing a day, showing up late to work, or leaving work early to deal with their child care needs.

Parents in our sample also reported making these smaller tradeoffs much more frequently than other parents. Other research shows that about 29.0 percent of parents are absent,

late to work, or have diminished concentration due to child care worries; our data shows the majority of academic parents, ranging from 57.0 percent to 70.5 percent, are absent, late to work, or leave early due to child care problems. This is a wide disparity between academic parents and the general parent population, but it is likely driven by the fact that academic parents may be less willing to make larger work arrangement tradeoffs. As a result, more of them resort to smaller tradeoffs. Nonetheless, the average of 10.7 days missed per year by academic parents aligns well with estimates from other studies that show parents miss work due to child care breakdowns between 9 and 16.9 days per year.<sup>327</sup>

Together, these two results show that academic parents may have a high demand for stopgap or quickly-accessible child care options that fill in their needs when child care arrangements break down. At the same time, however, the results reveal that academic institutions must strongly consider establishing policies that make it acceptable for parents of young children to change their work schedules or take leaves of absence to deal with child care without the risk of falling behind on the tenure track.

## **COSTS OF UNMET CHILD CARE NEEDS**

The dollar estimates from our deterministic model are stark and help place the impacts of the child care conundrum for academic parents into the wider economy. While the model reveals several novel findings, some of the most salient results are that: (1) the total costs of current and unmet child care needs are substantial in terms of academic budgeting; (2) academic parents cover a much greater portion of the costs of current and unmet child care than academic institutions; (3) the burden of different types of unmet needs varies for parents with different academic roles; (4) losses at academic institutions are driven by the unmet care needs of women; and (5) interventions that reduce the cost of unpaid care work and worker absenteeism are critical.

Through the model, we learn that to cover the current costs of child care and the costs of unmet child care needs, parents, their families, and their academic institutions pay about \$8.841 billion per year. To put these numbers in perspective, the \$8.841 billion per year spent on child care is larger than the size of 108 of the 120 largest endowment funds at universities across the United States.<sup>328</sup> The costs of unmet child care needs to academic parents, their families, and their institutions alone makes up close to 1.0 percent of the total value of endowment funds across all American academic institutions.<sup>329</sup>

About three-fourths of this \$8.841 billion are attributed to parents and their families, while one-fourth falls upon academic institutions. This suggests if academic institutions treat their relatively small per capita losses due to unmet child care needs as investments in child care infrastructure and policy, they could not only alleviate the high burden of costs on parents, but they could also potentially recoup lost productivity and revenues and

mitigate employee turnover. Academic Institutions are in a unique position to be able to fill in the large gaps caused by the child care conundrum for their workers through small and local investments.

While all academic parents make large sacrifices to shoulder the high costs of current and unmet child care needs, the results show that different populations of academic parents may be affected in different ways. While some academic parents pay large amounts for backup child care, for instance, other may rely more on unpaid child care, both of which can take a toll on family economic security. The variation in the cost of current and unmet child care needs by academic demonstrates the need for a holistic collection of policies, infrastructures, and supports for academic parents: A monolithic approach to child care at academic institutions will not fill in the gaps for parents in an equitable or efficient way.

Our results also indicate that gender matters. At both public and private universities, the unmet child care needs of women costs more than the unmet child care needs of men. This does *not* suggest that women are an added cost burden for institutions; rather, this finding is reflective of the fact that work culture at institutions does not adequately accommodate the disproportionate amount of caregiving responsibilities placed on women.

Aside from the demographic considerations, our findings highlight two major areas for policy intervention by academic institutions. Unpaid caregiving and worker absenteeism due to child care breakdowns are to the two largest contributors to the cost of unmet care needs to parents and academic institutions, respectively. The costs of these unmet care needs could be reduced if academic institutions expanded both long-term child care infrastructure and stopgap child care supports on campus.

## LIMITATIONS

Though there are an overwhelming number of findings produced by this research that lay the groundwork for understanding the state of child care, unmet needs, and the impacts of the child care conundrum for academic parents with young children, there are many important limitations to this work. It cannot be overemphasized that this work is a pilot that not only sought to establish a benchmark for future research but also tested new survey instruments and methodologies. As such, when interpreting the results, we also need to consider the following limitations of the survey, deterministic model, and regression analyses.

### **LIMITATIONS OF THE CHILD CARE FOR PARENTS IN ACADEMIA SURVEY**

One of the biggest limitations of the Child Care for Parents in Academia Survey was that the snowball sampling strategy resulted in undercoverage of certain populations of

academic parents and a small sample overall. The survey did not have a substantial number of male participants and collected data on too few undergraduate students, administrative workers, non-instructional employees, and non-research employees at academic institutions. Similarly, the snowball sampling methodology yielded little geographic variation to be able to conduct more localized analyses at the state, regional, or city level.

The survey itself did not collect information about using multiple or complex structures of care arrangements. This has the effect of both underestimating the average cost of child care and underestimating the use of certain backup child care arrangements. Without an understanding of all of the types of care academic parents use and for how long, we cannot build a comprehensive understanding of the patchwork of solutions to fill in gaps in care.

Our survey further underestimates the magnitude of the child care conundrum because it does not capture any details about school-age children and their child care arrangements or the tradeoffs made by spouses and partners in order to provide child care. Additionally, we assume that the tradeoffs that typical American parents make to fill in their child care needs are the same for academic parents. In reality, however, data on tradeoffs due to unmet child care needs may be different for academic parents due to the structure of work arrangements.

A final limitation worth noting about the survey is that while we did collect narratives, we did not perform a formal analysis of academic parents' stories. What's more, the survey could have benefitted from more open narrative fields to give parents more opportunities to share their experiences and expand upon their answers.

## **LIMITATIONS OF THE DETERMINISTIC MODEL**

The details about our deterministic model provided earlier outline a relatively comprehensive—albeit conservative—methodology for calculating the costs to academic parents with children under the age of five, their families, and their academic institutions. But there are several additional costs that unmet child care needs place on others outside of the parent-institution dyad that our model does not currently factor in.

One such example is the economic ripple effects unmet child care needs have on a locality. The combination of the current costs, lost earnings, and expenditures of other unmet child care needs may place a high financial burden on families, which could reduce their consumption or their propensity to spend. Lower levels of productivity at an academic institution and reduced revenues can also lead to decline in spending at or

investment in local labor markets. In order to model these ripple effects, however, we would require multiplier effects for academic institutions.

Taxes are another channel through which the cost of unmet child care needs affect society writ-large. The earnings forgone from unpaid care work, quits, or extended absences are reductions to an individual's taxable income. As a consequence, tax revenues are likely to shrink when an academic parent's child care needs are not being met. Calculating these tax consequences are most meaningful at the state and local level, where tax revenues are used to feed back into the education system and provide other critical services for families. Small sample sizes by state from this pilot study do not permit us to reliably calculate lost tax revenues at such a granular level.

Though local economic ripple effects and taxes are the two largest costs to society, there are two other ramifications of having unmet child care needs that could be considered, too. The first are the environmental costs of the added commute to child care. When academic parents use cars to commute to child care, they contribute to air pollution, which has further consequences for local populations' health. Also related to health are the increased levels of stress parents experience from dealing with unmet child care needs. This can result in higher family expenditures on health services, adding to household cost burdens and increasing local funding for mental health care.

To be sure, there are many other costs to local, state, and federal governments, the private sector, and Americans more generally. The Child Care for Parents in Academia Survey pilot does not collect nearly enough information to be able to model all of these costs to society at-large. Nonetheless, it is important to keep in mind that there are much broader implications for us all when child care needs go unmet.

## **LIMITATIONS OF THE REGRESSION ANALYSIS**

While the survey data included several opportunities to explore the relationships between variables, we only looked at the associations between the ratings of location and a few of locational features. We performed a simple regression analysis to demonstrate the potential of how the survey data can be used to identify the barriers to meeting child care needs. But this analysis was by no means comprehensive.

Though the analysis did uncover critical information about where child care should be located to best meet parents' needs, it invoked several questions about whether quality ratings data are reliable. Because all of the variables are self-reported, there is a worry that some questions, like the ones on quality ratings, are susceptible to response biases. Without adequate benchmarks in the existing literature or a repository of validated questions, however, it is sometimes unclear what results to expect from conducting

regression analyses with this dataset. For this reason, the narrative responses to the survey provide a wealth of anecdotes that may help corroborate findings about relationships between variables.

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## **FILLING IN THE GAPS IN CHILD CARE NEEDS: RECOMMENDATIONS**

When taken altogether, the results from this research show the causes, costs, and consequences of the child care conundrum for academic parents with infants, toddlers, and preschoolers are multifaceted. There are so many considerations when it comes to the types of arrangements, availability, quality, and costs that prompt academic parents to make unique choices and tradeoffs to meet their child care needs. These tradeoffs place over four billion dollars-worth of financial burden on academic parents and academic institutions jointly. For academic parents and their families, these tradeoffs come at the price of family economic security. For academic institutions, these tradeoffs cut productivity, reduce revenues, hasten employee turnover, and compromise institutions' ability fully realize their potential as a local economic engine.

To lessen the impacts that unmet child care needs have on both academic parents and academic institutions, academic institutions across the United States should invest in a multidimensional collection of child care infrastructures and policies. We suggest six different channels through which academic institutions can make investments and a series of guiding principles, all of which stem from barriers and opportunities identified through our research. It is outside of the scope of this research to provide a benefit-cost analysis for the returns on each of these investments; however, our results show that without these investments, parents, their families, and their academic institutions will continue to underwrite billions of dollars in unmet child care needs.

### **SET GUIDING PRINCIPLES**

Our background research as well as the results from the Child Care for Parents in Academia Survey revealed that academic institutions have highly varied child care infrastructures and academic parents have highly varied child care needs. For this reason,

academic institutions would tremendously benefit by collecting data on their academic parent populations and their experiences with child care. With this baseline data, academic institutions can develop a set of guiding principles to tailor child care programs and policies to best meet the unique needs of different segments of the academic parent population.

Among these guiding principles, academic institutions should consider including language about guaranteeing equitable access to child care infrastructure and policies among all academic parents and about working as a resource to help connect parents to child care arrangements that are the best fit for their child and family. It would also behoove academic institutions to establish their own cost burden threshold for child care affordability to better help identify academic families who may be at risk of financial instability due to child care.

## **EXPAND SUBSIDIES, GRANTS & STIPENDS**

The high price of child care was of utmost concern to parents in our sample, further exacerbated the additional costs associated with unmet child care needs. Academic institutions could help make the local costs of child care more affordable for their workforce by offering subsidies, grants, and stipends.

Institutions that already offer subsidies or stipends for on- or off-campus child care services should consider extending these subsidies to all academic parents and increasing per-parent funding levels to match or exceed the per-capita cost to institutions of unmet child care needs. Improving the distribution of information about these subsidies and stipends or auto-enrolling parents in these programs can help reduce barriers to accessing affordable child care.

Institutions that do not currently have a subsidy or stipends program to help with the cost of child care should set up an endowment to specifically help academic parents with funding child care. As part of this child care funding assistance infrastructure, they should consider including one-off grants for filling in child care needs during conferences or work-related travel.

Our results also highlight the need for two other types of subsidies, grants, or stipends that academic institutions may not currently offer. The first is funding assistance to help parents partially cover the cost of being on the waitlist for on-campus child care. During this time, many parents reported using unpaid child care, which has implications for academic parents' earnings as well as work productivity. This funding assistance would work to offset the costs of unmet child care needs by helping parents pay for stable, alternative care arrangements as they wait. The second is a stipend for families that rely

on unpaid child care from a spouse, partner, or other relative. While many academic institutions help subsidize paid care, spouse, partner, and relative caregivers receive no compensation, which comes at the price of lost earnings and lower levels of family economic security. Extending the child care stipends to unpaid caregivers can reduce the costs of unmet child care needs.

## **EXPAND & ENHANCE ON-CAMPUS CHILD CARE INFRASTRUCTURE**

The results from the survey, deterministic model, and regression analyses all point towards the need for expanding local, on-campus child care infrastructure. Academic institutions should make investments to increase the total number of on-campus child care centers; expand the number of available spots; reduce the cost of on-campus child care so that it is *under* market rate or effectively subsidized; develop a sliding payment scale for on-campus child care programs; and offer guaranteed subsidies for on-campus child care for families below a certain household income threshold.

If academic institutions do not have the bandwidth to expand on-campus child care, they should consider partnering with local child care providers to co-locate child care centers on campus or within walking-distance of neighborhoods where several academic parents live.

## **CREATE STOPGAP CHILD CARE SUPPORTS**

While long-term on-campus child care infrastructure is critical, so too are stopgap child care supports on campus. These stopgap measures enable parents to utilize quickly-accessible care when their existing child care arrangements fall through.

Stopgap supports can be designed in many different ways. Academic institutions, for instance, can provide 24-hour backup child care providers for parents in academic at a fully-subsidized rate or establish a 24-hour on-campus child care facility that can be accessed by all parents when child care arrangements break down or unpredictable work schedules require immediate child care. Institutions could also help arrange for school-cancellation care programs, coordinating between local school districts and other local child care providers to ensure that parents who have children enrolled in prekindergarten have access to care during closures.

Stopgap supports could also be set up through more informal channels. Libraries at academic institutions, for example, could offer drop-in child care and enrichment hours. Academic institutions could also facilitate a low-cost babysitting program between interested and certified students and affiliates and academic parents looking for a short-term child care arrangement.

## **IMPROVE ACADEMIC WORK CULTURE**

Central to solving the child care conundrum at academic institutions is shifting the work culture of academic institutions to be more accommodating towards caregivers. On a practical level, this could include exempting academic parents with young children from evening or night class teaching requirements or offering child care services during non-standard work hours for academic parents who have evening, night, or weekend work obligations.

## **IMPLEMENT BROADER CARE POLICIES**

The results from our research underscored the idea that child care policies do not work in isolation: Solving the child care crisis for academic parents is not just about setting up child care centers for infants, toddlers, and preschoolers. Academic institutions need to take a much broader approach to caregiving over the life course. The deterministic model revealed that parents and academic institutions alike pay the price unmet child care needs that require parents to take extended leaves of absence or even quit.

This suggests that academic institutions need to set up broader care policies that enable parents to take paid time off while planning and budgeting in advance for temporary replacements. Some of these care policies could include paid leave programs for extended caregiving for young children and fully- or partially-compensated maternal and paternal leave programs around child birth.

## **WORK ON EXTERNAL ADVOCACY AND ACTION WITH MUNICIPALITIES**

Academic institutions may not always have the resources to build a comprehensive child care infrastructure or develop policies on their own. But in their unique position as local innovators, they have the opportunity to work closely with city and regional governments to design and implement universal child care programs. These programs would not only benefit academic parents, but they would also be accessible to several other parents of infants, toddlers, and preschoolers within the community. By serving as an advocate for a multidimensional collection of policies, academic institutions can help create a network of child care infrastructure at a uniquely local scale.

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## CONCLUSIONS

This research has traversed the story of the child care conundrum—a national crisis stemming from the failures to publicly invest in child care that has a uniquely local impact on parents, their families, employers, and society writ-large. The costs and consequences of this child care conundrum are substantial in the case of academia: Academic parents and institutions alike forgo billions of dollars each year in order to fill in gaps in child care needs for infants, toddlers, and preschoolers. These results, while stark, are not surprising when we reflect on just how broken the child care market is. Parents make countless tradeoffs on a daily basis to navigate the limited availability, mediocre quality, and unaffordability of child care, so it makes sense that the cost of unmet child care needs is so high.

While our research explored several dimensions of child care at academic institutions, there is much room to sketch an even fuller picture. For this reason, future iterations of this work will update and improve on the survey tool to sample from a larger pool of academic parents and expand the deterministic modeling methodology to more comprehensively capture the costs of unmet child care needs. At the same time, there are many other aspects of child care at academic institutions that this research leaves untouched but are worth exploring as well. More research, for instance, about existing child care infrastructure and policies at academic institutions can elucidate the gaps between child care availability and need for academic parents. Furthermore, research on existing infrastructure and policies can help us develop concrete recommendations based on more detailed models. Just as parents and employers struggle with the child care conundrum, child care providers feel the fallout of its effects, too. Child care workers at academic institutions work long hours for little pay, and their experience needs to be documented in order to improve their working conditions.

Perhaps the most important direction this research can take moving forward, however, is assessing what the scale of the child care conundrum is for *everyone* at the city, state, and national level. Academic parents only represent a small fraction of the parents living with young children in communities across the United States. So, if academic parents and institutions are losing billions of dollars each year, it is unimaginable how much other parents and their employers underwrite annually to cover cost of unmet child care needs.

By quantifying the costs of these unmet child care needs, we hope to build a case for institutions, employers, and local, state, and federal governments alike to invest in child care infrastructure and policies to solve the child care conundrum. But the costs alone cannot be the only motivation to do so. The child care conundrum persists because we have yet to deal with the systemic gender inequalities that delegate care work women and then undervalue their contributions. Institutions, employers, and governments are at a critical juncture: They can let the child care conundrum continue to reproduce inequality and compromise family economic security, or they can set a precedent for valuing care and bringing care work out of the economic invisibility by tackling the child care conundrum head-on.

As we wait for these systemic changes, however, recognizing that the national crisis can be solved through local efforts is critical. After all, care begins with the people, places, and institutions in communities creating the infrastructure to help each other thrive.

# 13

## APPENDICES

### APPENDIX A

#### **2019 CHILD CARE FOR PARENTS IN ACADEMIA SURVEY**

In this appendix, we include the complete Child Care for Parents in Academia Survey that collected data through the Qualtrics platform between March 4, 2019 and April 7, 2019. For ease of reading, we have excluded the skip logic instructions for this survey.



# CHILD CARE FOR PARENTS IN ACADEMIA

## **About This Survey & Electronic Consent**

### **About This Survey**

This survey is part of a graduate student project at the Massachusetts Institute of Technology working to understand the costs of unmet or inadequate child care needs among faculty, post-doctoral fellows, researchers, students, staff, and other employees in academic institutions across the United States. The project will culminate in a publicly-available master's thesis and a condensed issue brief with policy recommendations for academic institutions and governments. The questions found in this survey are similar to those found in a study sponsored by the Louisiana Policy Institute for Children in 2017. (Please visit this [link](#) for more information.)

**The survey takes about 10 minutes to complete. If you agree to do the survey, we ask that you carefully read the following information:**

### **Participation**

Your participation in this survey is completely voluntary. If you choose to participate in the survey:

- You can choose not to answer any or all questions asked
- You are welcome to stop the survey at any time for any reason, without any adverse consequences

### **Benefits**

You will receive no direct benefits from this research study; however, your responses are invaluable to helping us learn more about whether and how academic institutions provide child care services and how much it costs families and society at large when child care services are nonexistent, inaccessible, or inadequate.

### **Risks**

There are no foreseeable risks involved with participating in this study, although you may find some of the questions to be sensitive.

## Confidentiality

- All of the information you provide on this survey will remain confidential.
- Your survey answers will be sent to a secure link at [mit.qualtrics.com](https://mit.qualtrics.com) (powered by Qualtrics) where your data will be stored in a password-protected electronic format.
- We will protect all of the information you share through the survey and keep it private. Qualtrics does not collect any identifying information such as your name, address, or IP address. Therefore, your responses will remain completely anonymous.
- We will make only de-identified or anonymous data publicly available for research.
- We will continue to store your data securely after this study is complete so that the dataset from this research can be used as a resource in the future.

## Contact

This study is being led by Kavya Vaghul, a Master in City Planning candidate in the Massachusetts Institute of Technology's Department of Urban Studies and Planning. Please do not hesitate to contact Kavya Vaghul at [kvaghul@mit.edu](mailto:kvaghul@mit.edu) with any questions or concerns.

If at any point you feel you have been treated unfairly, or you have questions regarding your rights as a research subject, you may contact the Chairman of the Committee on the Use of Humans as Experimental Subjects, MIT, Room E25-143b, 77 Massachusetts Avenue, Cambridge, MA 02139 or by phone at 1-617-253-6787.

## Electronic Consent

You may print a copy of this information and consent form for your records. Please select your choice from the options below. Selecting "Agree" choice indicates that:

- You are 18 years of age or older
- You have read the above information
- You voluntarily agree to participate in this survey
- You have not completed this survey at a previous time

**Agree:** Begin the survey

**Disagree:** I do not wish to participate

## Disagreed to Consent

*At this time, you have indicated that you do not wish to participate in the survey. We thank you for your interest in the state of child care for parents in academia, and we appreciate your time. If you want to learn more about this project or if you have any questions or comments, please do not hesitate to contact Kavya Vaghul at kvaghul@mit.edu.*

### **SECTION A: Academic Parents with Children Under Five**

### **SECTION A: Academic Parents with Children Under Five**

*The first part of this survey asks some preliminary questions about your role as an academic parent, some characteristics of your academic institution, and the children that may live with you.*

Are there any **children under the age of 5** who live with you?

- Yes
- No
- Some of the time

How many **children under age 5** currently live with you?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

Are you a **parent, guardian, or some other caretaker** for this child?

- Yes
- No

What is **their age**?

- Less than 1
- 1
- 2
- 3
- 4

Are you a **parent, guardian, or some other caretaker** for these children?

- Yes
- No

What are **their ages**?

	Less than 1	1	2	3	4
Child 1 (Oldest)	<input type="radio"/>				
Child 2	<input type="radio"/>				

What are **their ages**?

	Less than 1	1	2	3	4
Child 1 (Oldest)	<input type="radio"/>				
Child 2	<input type="radio"/>				
Child 3	<input type="radio"/>				

What are **their ages**?

	Less than 1	1	2	3	4
Child 1 (Oldest)	<input type="radio"/>				
Child 2	<input type="radio"/>				
Child 3	<input type="radio"/>				
Child 4	<input type="radio"/>				

What are **their ages**?

	Less than 1	1	2	3	4
Child 1 (Oldest)	<input type="radio"/>				
Child 2	<input type="radio"/>				
Child 3	<input type="radio"/>				
Child 4	<input type="radio"/>				
Child 5	<input type="radio"/>				

What are **their ages**?

	Less than 1	1	2	3	4
Child 1 (Oldest)	<input type="radio"/>				
Child 2	<input type="radio"/>				
Child 3	<input type="radio"/>				
Child 4	<input type="radio"/>				
Child 5	<input type="radio"/>				
Child 6	<input type="radio"/>				

What are **their ages**?

	Less than 1	1	2	3	4
Child 1 (Oldest)	<input type="radio"/>				
Child 2	<input type="radio"/>				
Child 3	<input type="radio"/>				
Child 4	<input type="radio"/>				
Child 5	<input type="radio"/>				
Child 6	<input type="radio"/>				
Child 7	<input type="radio"/>				

What are **their ages**?

	Less than 1	1	2	3	4
Child 1 (Oldest)	<input type="radio"/>				
Child 2	<input type="radio"/>				
Child 3	<input type="radio"/>				
Child 4	<input type="radio"/>				
Child 5	<input type="radio"/>				
Child 6	<input type="radio"/>				
Child 7	<input type="radio"/>				
Child 8	<input type="radio"/>				

What are **their ages**?

	Less than 1	1	2	3	4
Child 1 (Oldest)	<input type="radio"/>				
Child 2	<input type="radio"/>				
Child 3	<input type="radio"/>				
Child 4	<input type="radio"/>				
Child 5	<input type="radio"/>				

	Less than 1	1	2	3	4
Child 6	<input type="radio"/>				
Child 7	<input type="radio"/>				
Child 8	<input type="radio"/>				
Child 9	<input type="radio"/>				

What are **their ages**?

	Less than 1	1	2	3	4
Child 1 (Oldest)	<input type="radio"/>				
Child 2	<input type="radio"/>				
Child 3	<input type="radio"/>				
Child 4	<input type="radio"/>				
Child 5	<input type="radio"/>				
Child 6	<input type="radio"/>				
Child 7	<input type="radio"/>				
Child 8	<input type="radio"/>				
Child 9	<input type="radio"/>				
Child 10	<input type="radio"/>				

Do you consider yourself to be an **"academic parent"**—a person who works, teaches, researches, or studies at a higher education institution with a child?

- Yes
- No

Is your academic institution **public, private, or for-profit**?

- Public college or university
- Private college or university
- For-profit college university
- Community college
- Other

Is it a **2-year or 4-year** academic institution?

- 2-year
- 4-year
- Other

Is your academic institution considered a **Research 1 (R1) institution**? *This designation is based on the Carnegie Classification of Institutions of Higher Education, where Research 1 or R1 universities offer a full range of baccalaureate, graduate, and doctoral programs, award at least 50 doctoral degrees per year, receive at least \$40 million in federal funds, and have very high research activity.*

- Yes
- No
- Don't know

Is your academic institution considered **small, medium, or large**?

- Small (fewer than 5,000 students)
- Medium (5,000 to 15,000 students)
- Large (more than 15,000 students)

How would you describe your **role or position** at your academic institution?

- Professor
- Associate Professor
- Assistant Professor
- Research Associate, Lecturer, Instructor, Visiting Professor
- Post-doctoral fellow
- Administrative staff
- Doctoral student
- Graduate student (master's or other professional degree)
- Undergraduate student
- Other

What best describes your **industry of work or research**?

What **Metropolitan Statistical Area (MSA)** is your academic institution located in?

**Not an Academic Parent of a Child Under 5**

*At this time, we are specifically looking at child care utilization and costs amongst parents working, teaching, researching, or studying in academia with children under the age of 5, but we appreciate your interest in our survey. Because child care is an important issue for all parents with children of all ages, **please feel free to share any thoughts you may have about your previous or current experiences with child care or comments you may have heard from other families dealing with child care issues.***

### **SECTION B: Current Child Care Arrangements - 1 Child**

#### **SECTION B: Current Child Care Arrangements**

*This section includes questions about your current child care arrangements and the costs associated with them.*

You indicated that there is 1 child under age 5 that lives with you. What is the **primary child care arrangement** you currently use for this child?

- I stay at home with my child
- A spouse, partner, step-parent, or other guardian stays at home with my child
- Another family member or relative looks after my child
- Another unrelated person (such as a nanny) looks after my child
- My child stays with a person who cares for several children in their home
- My child attends a child care or day care center at my academic institution
- My child attends a child care or day care center not affiliated with my academic institution
- My child attends an Early Head Start program
- My child attends a prekindergarten program at a school
- Other

**Do you currently pay** for this child care arrangement?

- Yes
- No

**How much do you pay** for this child care arrangement? *Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest dollar.*

Cost

Per Hour, Day, Month, or Year?

Do you receive any **additional financial support** for your child care arrangement?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer
- No, I do not receive any additional financial support for child care

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar.*

Financial Support

Per Hour, Day, Month, or Year?

You indicated that you do not pay for this child care arrangement. Is there another source of funding for this arrangement?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer
- My child care arrangement is free (*this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs*)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar.*

Financial Support

Per Hour, Day, Month, or Year?

How many **days per week** do you use this child care arrangement?

- 1

- 2
- 3
- 4
- 5
- 6
- 7

On average, how many **hours per day** do you use this child care arrangement?

**SECTION B: Current Child Care Arrangements - 2 Children**

**SECTION B: Current Child Care Arrangements**

*You indicated that there are 2 children under age 5 that live with you. This section will ask about your child care arrangements for each of these children.*

You indicated that there are 2 children under age 5 that live with you. What is the **primary child care arrangement** you currently use for each of these children? *Please use the drop down menus to fill out the primary child care for each of these children, with Child 1 being the oldest.*

	I stay at home with my children	A spouse, partner, step-parent, or other guardian stays at home with my children	Another family member or relative looks after my children	Another unrelated person (such as a nanny) looks after my children	My children stay with a person who cares for several children in their home	My children attend a child care or day care center at my academic institution	My children attend a child care or day care center not affiliated with my academic institution	My children attend an Early Head Start program	My childrer attend a prekindergart program at school
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you currently pay** for these child care arrangements? *Please fill out the answer for each child.*

	Yes	No
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>

**How much do you pay** for these child care arrangements? *Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest dollar for each child.*

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>

Do you receive any **additional financial support** for your child care arrangements? Please fill out the answer for each child.

	I or someone else in my household receives assistance from the government to pay for child care	I receive financial support for my child care arrangements from my academic institution	Someone else in my household receives financial support for child care through their employer	No, I do not receive any additional financial support for child care
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>

You indicated that you do not pay for any child care arrangements. Is there another source of funding for these arrangements?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer
- My child care arrangements are free (*this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs*)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>

How many **days per week** do you use these child care arrangements? *Please fill out the answer for each child.*

	1	2	3	4	5	6	7
Child 1 (Oldest)	<input type="radio"/>						
Child 2	<input type="radio"/>						

On average, how many **hours per day** do you use this child care arrangement?

Child 1 (Oldest)	<input type="text"/>
Child 2	<input type="text"/>

### SECTION B: Current Child Care Arrangements - 3 Children

#### SECTION B: Current Child Care Arrangements

*You indicated that there are 3 children under age 5 that live with you. This section will ask about your child care arrangements for each of these children.*

You indicated that there are 3 children under age 5 that live with you. What is the **primary child care arrangement** you currently use for each of these children? *Please use the drop down menus to fill out the primary child care for each of these children, with Child 1 being the oldest.*

- I stay
- A spouse, partner, step-parent, or other
- Another family member or
- Another unrelated person
- My children stay with a person who cares
- My children attend a child care or day
- My children attend a child care center
- My children

	at home with my children	guardian stays at home with my children	relative looks after my children	(such as a nanny) looks after my children	for several children in their home	care center at my academic institution	not affiliated with my academic institution	attend an Early Head Start program	My childrer attend a prekindergart program at school
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you currently pay** for these child care arrangements? *Please fill out the answer for each child.*

	Yes	No
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>

**How much do you pay** for these child care arrangements? *Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest dollar for each child.*

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>

Do you receive any **additional financial support** for your child care arrangements? *Please fill out the answer for each child.*

	I or someone else in my household receives assistance from the government to pay for child care	I receive financial support for my child care arrangements from my academic institution	Someone else in my household receives financial support for child care through their employer	No, I do not receive any additional financial support for child care
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial*

support per hour, per day, per month, or per year and round to the nearest dollar for each child.

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>

You indicated that you do not pay for any child care arrangements. Is there another source of funding for these arrangements?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer
- My child care arrangements are free (*this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs*)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>

How many **days per week** do you use these child care arrangements? *Please fill out the answer for each child.*

	1	2	3	4	5	6	7
Child 1 (Oldest)	<input type="radio"/>						
Child 2	<input type="radio"/>						
Child 3	<input type="radio"/>						

On average, how many **hours per day** do you use this child care arrangement?

Child 1 (Oldest)

Child 2

Child 3

**SECTION B: Current Child Care Arrangements - 4 Children**

**SECTION B: Current Child Care Arrangements**

You indicated that there are 4 children under age 5 that live with you. This section will ask about your child care arrangements for each of these children.

You indicated that there are 4 children under age 5 that live with you. What is the **primary child care arrangement** you currently use for each of these children? Please use the drop down menus to fill out the primary child care for each of these children, with Child 1 being the oldest.

	I stay at home with my children	A spouse, partner, step-parent, or other guardian stays at home with my children	Another family member or relative looks after my children	Another unrelated person (such as a nanny) looks after my children	My children stay with a person who cares for several children in their home	My children attend a child care or day care center at my academic institution	My children attend a child care or day care center not affiliated with my academic institution	My children attend an Early Head Start program	My children attend a prekindergart program at school
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you currently pay** for these child care arrangements? Please fill out the answer for each child.

	Yes	No
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>

**How much do you pay** for these child care arrangements? Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest

dollar for each child.

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>

Do you receive any **additional financial support** for your child care arrangements? *Please fill out the answer for each child.*

	I or someone else in my household receives assistance from the government to pay for child care	I receive financial support for my child care arrangements from my academic institution	Someone else in my household receives financial support for child care through their employer	No, I do not receive any additional financial support for child care
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>

You indicated that you do not pay for any child care arrangements. Is there another source of funding for these arrangements?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer

- My child care arrangements are free (this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>

How many **days per week** do you use these child care arrangements? *Please fill out the answer for each child.*

	1	2	3	4	5	6	7
Child 1 (Oldest)	<input type="radio"/>						
Child 2	<input type="radio"/>						
Child 3	<input type="radio"/>						
Child 4	<input type="radio"/>						

On average, how many **hours per day** do you use this child care arrangement?

Child 1 (Oldest)	<input type="text"/>
Child 2	<input type="text"/>
Child 3	<input type="text"/>
Child 4	<input type="text"/>

**SECTION B: Current Child Care Arrangements - 5 Children**

**SECTION B: Current Child Care Arrangements**

*You indicated that there are 5 children under age 5 that live with you. This section will ask about your child care arrangements for each of these children.*

You indicated that there are 5 children under age 5 that live with you. What is the **primary child care arrangement** you currently use for each of these children? *Please use the drop down menus to fill out the primary child care for each of these children, with Child 1 being the oldest.*

	I stay at home with my children	A spouse, partner, step-parent, or other guardian stays at home with my children	Another family member or relative looks after my children	Another unrelated person (such as a nanny) looks after my children	My children stay with a person who cares for several children in their home	My children attend a child care or day care center at my academic institution	My children attend a child care or day care center not affiliated with my academic institution	My children attend an Early Head Start program	My children attend a prekindergarten program at school
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you currently pay** for these child care arrangements? *Please fill out the answer for each child.*

	Yes	No
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>

**How much do you pay** for these child care arrangements? *Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest dollar for each child.*

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>

Do you receive any **additional financial support** for your child care arrangements? Please fill out the answer for each child.

	I or someone else in my household receives assistance from the government to pay for child care	I receive financial support for my child care arrangements from my academic institution	Someone else in my household receives financial support for child care through their employer	No, I do not receive any additional financial support for child care
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>

You indicated that you do not pay for any child care arrangements. Is there another source of funding for these arrangements?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer
- My child care arrangements are free (*this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs*)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>

How many **days per week** do you use these child care arrangements? *Please fill out the answer for each child.*

	1	2	3	4	5	6	7
Child 1 (Oldest)	<input type="radio"/>						
Child 2	<input type="radio"/>						
Child 3	<input type="radio"/>						
Child 4	<input type="radio"/>						
Child 5	<input type="radio"/>						

On average, how many **hours per day** do you use this child care arrangement?

Child 1 (Oldest)	<input type="text"/>
Child 2	<input type="text"/>
Child 3	<input type="text"/>
Child 4	<input type="text"/>
Child 5	<input type="text"/>

**SECTION B: Current Child Care Arrangements - 6 Children**

**SECTION B: Current Child Care Arrangements**

*You indicated that there are 6 children under age 5 that live with you. This section will ask about your child care arrangements for each of these children.*

You indicated that there are 6 children under age 5 that live with you. What is the **primary child care arrangement** you currently use for each of these children? *Please use the drop*

down menus to fill out the primary child care for each of these children, with Child 1 being the oldest.

	I stay at home with my children	A spouse, partner, step-parent, or other guardian stays at home with my children	Another family member or relative looks after my children	Another unrelated person (such as a nanny) looks after my children	My children stay with a person who cares for several children in their home	My children attend a child care or day care center at my academic institution	My children attend a child care or day care center not affiliated with my academic institution	My children attend an Early Head Start program	My children attend a prekindergarten program at school
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you currently pay** for these child care arrangements? *Please fill out the answer for each child.*

	Yes	No
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>

**How much do you pay** for these child care arrangements? *Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest dollar for each child.*

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 6	<input type="text"/>	<input type="text"/>

Do you receive any **additional financial support** for your child care arrangements? *Please fill out the answer for each child.*

	I or someone else in my household receives assistance from the government to pay for child care	I receive financial support for my child care arrangements from my academic institution	Someone else in my household receives financial support for child care through their employer	No, I do not receive any additional financial support for child care
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>

You indicated that you do not pay for any child care arrangements. Is there another source of funding for these arrangements?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer

- My child care arrangements are free (*this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs*)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>

How many **days per week** do you use these child care arrangements? *Please fill out the answer for each child.*

	1	2	3	4	5	6	7
Child 1 (Oldest)	<input type="radio"/>						
Child 2	<input type="radio"/>						
Child 3	<input type="radio"/>						
Child 4	<input type="radio"/>						
Child 5	<input type="radio"/>						
Child 6	<input type="radio"/>						

On average, how many **hours per day** do you use this child care arrangement?

Child 1 (Oldest)	<input type="text"/>
Child 2	<input type="text"/>
Child 3	<input type="text"/>
Child 4	<input type="text"/>
Child 5	<input type="text"/>
Child 6	<input type="text"/>

**SECTION B: Current Child Care Arrangements - 7 Children**

**SECTION B: Current Child Care Arrangements**

You indicated that there are 7 children under age 5 that live with you. This section will ask about your child care arrangements for each of these children.

You indicated that there are 7 children under age 5 that live with you. What is the **primary child care arrangement** you currently use for each of these children? Please use the drop down menus to fill out the primary child care for each of these children, with Child 1 being the oldest.

	I stay at home with my children	A spouse, partner, step-parent, or other guardian stays at home with my children	Another family member or relative looks after my children	Another unrelated person (such as a nanny) looks after my children	My children stay with a person who cares for several children in their home	My children attend a child care center at my academic institution	My children attend a child care center not affiliated with my academic institution	My children attend an Early Start program	My childrer attend a prekindergart program at school
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you currently pay** for these child care arrangements? Please fill out the answer for each child.

	Yes	No
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>

**How much do you pay** for these child care arrangements? Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest

dollar for each child.

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>

Do you receive any **additional financial support** for your child care arrangements? *Please fill out the answer for each child.*

	I or someone else in my household receives assistance from the government to pay for child care	I receive financial support for my child care arrangements from my academic institution	Someone else in my household receives financial support for child care through their employer	No, I do not receive any additional financial support for child care
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 7	<input type="text"/>	<input type="text"/>

You indicated that you do not pay for any child care arrangements. Is there another source of funding for these arrangements?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer
- My child care arrangements are free (*this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs*)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>

How many **days per week** do you use these child care arrangements? *Please fill out the answer for each child.*

	1	2	3	4	5	6	7
Child 1 (Oldest)	<input type="radio"/>						
Child 2	<input type="radio"/>						
Child 3	<input type="radio"/>						
Child 4	<input type="radio"/>						
Child 5	<input type="radio"/>						
Child 6	<input type="radio"/>						

	1	2	3	4	5	6	7
Child 7	<input type="radio"/>						

On average, how many **hours per day** do you use this child care arrangement?

Child 1 (Oldest)	<input type="text"/>
Child 2	<input type="text"/>
Child 3	<input type="text"/>
Child 4	<input type="text"/>
Child 5	<input type="text"/>
Child 6	<input type="text"/>
Child 7	<input type="text"/>

**SECTION B: Current Child Care Arrangements - 8 Children**

**SECTION B: Current Child Care Arrangements**

*You indicated that there are 8 children under age 5 that live with you. This section will ask about your child care arrangements for each of these children.*

You indicated that there are 8 children under age 5 that live with you. What is the **primary child care arrangement** you currently use for each of these children? *Please use the drop down menus to fill out the primary child care for each of these children, with Child 1 being the oldest.*

	I stay at home with my children	A spouse, partner, step-parent, or other guardian stays at home with my children	Another family member or relative looks after my children	Another unrelated person (such as a nanny) looks after my children	My children stay with a person who cares for several children in their home	My children attend a child care or day care center at my academic institution	My children attend a child care or day care center not affiliated with my academic institution	My children attend an Early Head Start program	My childrer attend a prekindergart program at school
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

		A spouse, partner, step-parent, or other guardian	Another family member or relative	Another unrelated person (such as a nanny)	My children stay with a person who cares for several children in their home	My children attend a child care or day care center at my academic institution	My children attend a child care or day care center not affiliated with my academic institution	My children attend an Early Head Start program	
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you currently pay** for these child care arrangements? *Please fill out the answer for each child.*

	Yes	No
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>

**How much do you pay** for these child care arrangements? *Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest dollar for each child.*

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>
Child 8	<input type="text"/>	<input type="text"/>

Do you receive any **additional financial support** for your child care arrangements? *Please fill out the answer for each child.*

	I or someone else in my household receives assistance from the government to pay for child care	I receive financial support for my child care arrangements from my academic institution	Someone else in my household receives financial support for child care through their employer	No, I do not receive any additional financial support for child care
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>
Child 8	<input type="text"/>	<input type="text"/>

You indicated that you do not pay for any child care arrangements. Is there another source of funding for these arrangements?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer
- My child care arrangements are free (*this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs*)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>
Child 8	<input type="text"/>	<input type="text"/>

How many **days per week** do you use these child care arrangements? *Please fill out the answer for each child.*

	1	2	3	4	5	6	7
Child 1 (Oldest)	<input type="radio"/>						
Child 2	<input type="radio"/>						
Child 3	<input type="radio"/>						
Child 4	<input type="radio"/>						
Child 5	<input type="radio"/>						
Child 6	<input type="radio"/>						
Child 7	<input type="radio"/>						
Child 8	<input type="radio"/>						

On average, how many **hours per day** do you use this child care arrangement?

Child 1 (Oldest)	<input type="text"/>
Child 2	<input type="text"/>
Child 3	<input type="text"/>
Child 4	<input type="text"/>
Child 5	<input type="text"/>
Child 6	<input type="text"/>
Child 7	<input type="text"/>
Child 8	<input type="text"/>

**SECTION B: Current Child Care Arrangements - 9 Children**

**SECTION B: Current Child Care Arrangements**

You indicated that there are 9 children under age 5 that live with you. This section will ask about your child care arrangements for each of these children.

You indicated that there are 9 children under age 5 that live with you. What is the **primary child care arrangement** you currently use for each of these children? Please use the drop down menus to fill out the primary child care for each of these children, with Child 1 being the oldest.

	I stay at home with my children	A spouse, partner, step-parent, or other guardian stays at home with my children	Another family member or relative looks after my children	Another unrelated person (such as a nanny) looks after my children	My children stay with a person who cares for several children in their home	My children attend a child care or day care center at my academic institution	My children attend a child care or day care center not affiliated with my academic institution	My children attend an Early Start program	My childrer attend a prekindergart program at school
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you currently pay** for these child care arrangements? Please fill out the answer for each child.

	Yes	No
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>

	Yes	No
Child 7	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>
Child 9	<input type="radio"/>	<input type="radio"/>

**How much do you pay** for these child care arrangements? *Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest dollar for each child.*

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>
Child 8	<input type="text"/>	<input type="text"/>
Child 9	<input type="text"/>	<input type="text"/>

Do you receive any **additional financial support** for your child care arrangements? *Please fill out the answer for each child.*

	I or someone else in my household receives assistance from the government to pay for child care	I receive financial support for my child care arrangements from my academic institution	Someone else in my household receives financial support for child care through their employer	No, I do not receive any additional financial support for child care
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial*

support per hour, per day, per month, or per year and round to the nearest dollar for each child.

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>
Child 8	<input type="text"/>	<input type="text"/>
Child 9	<input type="text"/>	<input type="text"/>

You indicated that you do not pay for any child care arrangements. Is there another source of funding for these arrangements?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer
- My child care arrangements are free (*this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs*)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 8	<input type="text"/>	<input type="text"/>
Child 9	<input type="text"/>	<input type="text"/>

How many **days per week** do you use these child care arrangements? *Please fill out the answer for each child.*

	1	2	3	4	5	6	7
Child 1 (Oldest)	<input type="radio"/>						
Child 2	<input type="radio"/>						
Child 3	<input type="radio"/>						
Child 4	<input type="radio"/>						
Child 5	<input type="radio"/>						
Child 6	<input type="radio"/>						
Child 7	<input type="radio"/>						
Child 8	<input type="radio"/>						
Child 9	<input type="radio"/>						

On average, how many **hours per day** do you use this child care arrangement?

Child 1 (Oldest)	<input type="text"/>
Child 2	<input type="text"/>
Child 3	<input type="text"/>
Child 4	<input type="text"/>
Child 5	<input type="text"/>
Child 6	<input type="text"/>
Child 7	<input type="text"/>
Child 8	<input type="text"/>
Child 9	<input type="text"/>

## SECTION B: Current Child Care Arrangements - 10 Children

### SECTION B: Current Child Care Arrangements

*You indicated that there are 10 children under age 5 that live with you. This section will ask about your child care arrangements for each of these children.*

You indicated that there are 10 children under age 5 that live with you. What is the **primary child care arrangement** you currently use for each of these children? *Please use the drop*

down menus to fill out the primary child care for each of these children, with Child 1 being the oldest.

	I stay at home with my children	A spouse, partner, step-parent, or other guardian stays at home with my children	Another family member or relative looks after my children	Another unrelated person (such as a nanny) looks after my children	My children stay with a person who cares for several children in their home	My children attend a child care center at my academic institution	My children attend a child care or day care center not affiliated with my academic institution	My children attend an Early Head Start program	My children attend a prekindergarten program at school
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Do you currently pay** for these child care arrangements? *Please fill out the answer for each child.*

	Yes	No
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>
Child 9	<input type="radio"/>	<input type="radio"/>
Child 10	<input type="radio"/>	<input type="radio"/>

**How much do you pay** for these child care arrangements? *Please enter it in terms of either cost per hour, cost per day, cost per month, or cost per year and round to the nearest*

dollar for each child.

	Cost of Care Arrangement Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>
Child 8	<input type="text"/>	<input type="text"/>
Child 9	<input type="text"/>	<input type="text"/>
Child 10	<input type="text"/>	<input type="text"/>

Do you receive any **additional financial support** for your child care arrangements? *Please fill out the answer for each child.*

	I or someone else in my household receives assistance from the government to pay for child care	I receive financial support for my child care arrangements from my academic institution	Someone else in my household receives financial support for child care through their employer	No, I do not receive any additional financial support for child care
Child 1 (Oldest)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Child 10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
	<input type="text"/>	<input type="text"/>

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>
Child 8	<input type="text"/>	<input type="text"/>
Child 9	<input type="text"/>	<input type="text"/>
Child 10	<input type="text"/>	<input type="text"/>

You indicated that you do not pay for any child care arrangements. Is there another source of funding for these arrangements?

- I or someone else in my household receives assistance from the government to pay for child care
- I receive financial support for my child care arrangements from my academic institution
- Someone else in my household receives financial support for child care through their employer
- My child care arrangements are free (*this includes child care arrangements that may not have any direct financial transactions but may have other important economic, social, and personal costs*)
- Other

Approximately how much do you or someone else in your household receive in assistance or financial support for your child care arrangements? *Please enter it in terms of either financial support per hour, per day, per month, or per year and round to the nearest dollar for each child.*

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 1 (Oldest)	<input type="text"/>	<input type="text"/>
Child 2	<input type="text"/>	<input type="text"/>
Child 3	<input type="text"/>	<input type="text"/>
Child 4	<input type="text"/>	<input type="text"/>
Child 5	<input type="text"/>	<input type="text"/>
Child 6	<input type="text"/>	<input type="text"/>
Child 7	<input type="text"/>	<input type="text"/>
Child 8	<input type="text"/>	<input type="text"/>

	Financial Support Amount in Dollars (\$)	Per Hour, Day, Month, or Year?
Child 9	<input type="text"/>	<input type="text"/>
Child 10	<input type="text"/>	<input type="text"/>

How many **days per week** do you use these child care arrangements? *Please fill out the answer for each child.*

	1	2	3	4	5	6	7
Child 1 (Oldest)	<input type="radio"/>						
Child 2	<input type="radio"/>						
Child 3	<input type="radio"/>						
Child 4	<input type="radio"/>						
Child 5	<input type="radio"/>						
Child 6	<input type="radio"/>						
Child 7	<input type="radio"/>						
Child 8	<input type="radio"/>						
Child 9	<input type="radio"/>						
Child 10	<input type="radio"/>						

On average, how many **hours per day** do you use this child care arrangement?

Child 1 (Oldest)	<input type="text"/>
Child 2	<input type="text"/>
Child 3	<input type="text"/>
Child 4	<input type="text"/>
Child 5	<input type="text"/>
Child 6	<input type="text"/>
Child 7	<input type="text"/>
Child 8	<input type="text"/>
Child 9	<input type="text"/>
Child 10	<input type="text"/>

### SECTION C: Child Care Choice and Accessibility

#### SECTION C: Child Care Choice and Accessibility

*This section asks about how you came to a decision about your child care arrangements, some of the reasons you may have chosen your particular child care arrangements, and your perceptions about how accessible child care is, more generally.*

What were some of the ways you learned about available child care arrangements?

- My institution's human resources department
- On-campus service center for families
- Online sources
- Social media
- Mailing lists
- Colleagues
- Local friends
- Other

How easy or difficult was it for you to find your current child care arrangements?

- Extremely easy
- Moderately easy
- Somewhat easy
- Neither easy nor difficult
- Somewhat difficult
- Moderately difficult
- Extremely difficult
- Don't know

What challenges, if any, did you encounter in your search for child care? *Please select all that apply.*

- Limited options
- Location
- Cost
- Hours of operation
- Quality of child care services
- Quality of the child care curriculum
- Limited number of spots at child care facility
- Waitlist for child care services
- Other

Were the child care arrangements you chose your ideal or preferred option?

- Yes

- No
- Don't know

What child care arrangement would have been your ideal or preferred option? *Please select all that apply.*

- Staying at home with my child/children
- A spouse, partner, step-parent, or other guardian staying at home with my child/children
- Another family member or relative staying at home with my child/children
- Another unrelated person (such as a nanny) looking after my child/children
- My child/children staying with a person who cares for several children in their home
- My child/children attending a child care or day care center at my academic institution
- My child/children attending a child care or day care center not affiliated with my academic institution
- My child/children attending an Early Head Start program
- My child/children attending a prekindergarten program at a school
- Other

Does your child or at least one of your children currently attend a child care or day care center at your academic institution?

- Yes
- No
- Don't know

Does your academic institution provide child care or day care services?

- Yes
- No
- Don't know

***Please tell us how much you agree or disagree with the following statements.***

There was clear information provided to me about how to enroll my child/children in my institution's child care or day care program.

- Strongly disagree
- Disagree
- Somewhat disagree

- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree
- Don't know

It is easy to enroll my child/children in my institution's child care or day care program.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree
- Don't know

Faculty, post-doctoral fellows, researchers, students, staff, and other employees are given equal preference for enrollment in my institution's child care or day care program.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree
- Don't know

Child care or day care services provided by my institution are affordable.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree
- Don't know

Were you put on a **waitlist** prior to being able to enroll in your institution's child care or day care program?

- Yes
- No
- Don't know

How long did were you on the waitlist before being able to enroll in your institution's child care or day care program?

- No wait
- 0 to 3 months
- 3 to 6 months
- 6 months to 1 year
- 1 year or longer
- Other

What did you do for child care while you were on the waitlist?

- Stayed at home with my child/children
- A spouse, partner, step-parent, or other guardian stayed at home with my child/children
- Another family member or relative looked after my child/children
- Another unrelated person (such as a nanny) looked after my child/children
- My child/children stayed with a person who cares for several children in their home
- My child/children attended a child care or day care center not affiliated with my academic institution
- Other

#### **SECTION D: Child Care Quality**

#### **SECTION D: Child Care Quality**

*This section asks questions about the quality of paid child care that you receive and your satisfaction with them.*

Overall, how satisfied are you with your child care arrangements?

- Extremely satisfied
- Moderately satisfied

- Slightly satisfied
- Neither satisfied nor dissatisfied
- Slightly dissatisfied
- Moderately dissatisfied
- Extremely dissatisfied

*Please rate the following aspects of the quality of care provided by your current child care arrangements on the following scale: excellent, very good, good, average, poor, very poor, or terrible.*

	Excellent	Very good	Good	Average	Poor	Very poor	Terrible	Don't know	Not Applicable
Location	<input type="radio"/>								
Hours of operation	<input type="radio"/>								
Cost	<input type="radio"/>								
Level of education, certifications, or training held by your child care provider	<input type="radio"/>								
Provider's amount of experience with child care	<input type="radio"/>								
Activities designed for learning or kindergarten readiness	<input type="radio"/>								
Activities designed for a child's physical development and exercise	<input type="radio"/>								
Activities designed for a child's socio-emotional development	<input type="radio"/>								
Safety and emergency protocols	<input type="radio"/>								
Cleanliness of the indoor and outdoor child care spaces	<input type="radio"/>								

**SECTION E: Tradeoffs Associated with Child Care**

**SECTION E: Tradeoffs Associated with Child Care**

*This section asks questions about some of the economic tradeoffs associated with your current child care arrangements.*

How would you currently describe your **employment status**?

- Employed full-time
- Employed part-time
- Unemployed and looking for work
- Unemployed and not looking for work
- Disabled or cannot work
- Retired

If applicable, approximately, **how many hours do you work for pay per week?**

If applicable, when do you typically work these hours? *Please select all that apply.*

- Weekdays, day-time
- Weekdays, night-time
- Weekends, day-time
- Weekends, night-time
- It varies or it is unpredictable
- Don't know

Were you a **student** at any point in this past year?

- Full-time student
- Part-time student
- Not a student

Approximately, **how many hours did you spend on school-related activities** (class, homework, and other school commitments) each week?

What times of the day did you usually participate in school-related activities? *Please select all that apply.*

- Weekdays, day-time
- Weekdays, night-time
- Weekends, day-time
- Weekends, night-time

- It varies or is unpredictable
- Don't know

Have you ever had to quit or take an **extended leave of absence from a job or school** due to child care issues?

- Yes
- No
- Don't know

Have you ever had to **switch from full-time to part-time at work or school** due to issues with child care?

- Yes
- No
- Don't know

Have you ever been **unwilling to go from part-time to full-time work or school** due to issues with child care?

- Yes
- No
- Don't know

Have you ever **been let go or fired from a job because you missed work** due to child care issues?

- Yes
- No
- Not Applicable
- Don't know

Have you ever **refused a promotion** due to issues with child care?

- Yes
- No
- Not Applicable
- Don't know

Over the last three months, **how many days have you:**

Missed a full day of work or class due to child care issues? (Please write your response in the number of days.)

Arrived at work or class late due to child care issues? (Please write your response in the number of days.)

Left work or class early due to child care issues? (Please write your response in the number of days.)

On average, how many **additional minutes per day did you add to your commute** to get to and from your child care provider? *Please round your answer to the nearest minute. If you did not spend any time commuting for child care, please enter 0.*

Are your child care arrangements located closest to your **home, work, or another convenient location?**

- Closest to home
- Closest to work
- Closest to another location
- Don't know

What **mode of transportation** do you usually take to drop your child/children off at child care?

- Car
- Bus
- Commuter train
- Subway or light rail
- Bike
- Walking
- Other

Think about the number of hours per week that your work or school demands and the number of hours per week you currently use child care services. **Do the hours of operation of your current child care arrangement generally meet your weekly child care needs?**

- YES
- NO
- Don't know

In an ideal world, how many **additional hours per week** would you use child care services?

In the last month, how many hours did you need of **additional, supplemental, or "backup" child care support** (beyond your current child care arrangement)?

If you used supplemental or additional child care beyond your current child care arrangement in the last month, what type of child care did you use?

- Stayed at home with my child/children
- A spouse, partner, step-parent, or other guardian stayed at home with my child/children
- Another family member or relative looked after my child/children
- Another unrelated person (such as a nanny) looked after my child/children
- My child/children stayed with a person who cares for several children in their home
- My child attended a child care or day care center at my academic institution
- My child/children attended a child care or day care center not affiliated with my academic institution
- Other

What was your **individual income** last year before taxes? *Please enter it in terms of either wages per hour, wages per month, or salary per year and round to the nearest dollar. We ask this question in order to accurately estimate state- and national-level costs associated with lost hours of work due to child care issues.*

Individual Income

Per Hour, Month, or Year?

## SECTION F: Demographics

### SECTION F: Demographics

*This final section asks some demographic questions to help us understand the academic parents who took part in this survey. To protect your identity around reporting the characteristics of your institution, we have chosen not to ask questions about your race, ethnicity, or age.*

What **state or U.S. territory** do you live in?

Were you born in the United States, Puerto Rico, another U.S. territory, or another country?

- United States of America
- Puerto Rico
- U.S. Territory (Guam, American Samoa, U.S. Virgin Islands, Northern Mariana Islands)
- Other country

What is your **gender**?

- Female
- Male
- Transgender
- Prefer to self-describe
- Prefer not to say

What is your current **marital status**?

- Single
- Married or in a partnership
- Divorced
- Separated
- Widowed

Which of the following best describes your **highest level of education**?

- Less than high school
- High school diploma or equivalency
- Some college or vocational school, but no diploma
- A 2-year college degree (such as an Associate's degree)
- A 4-year college degree (such as a Bachelor's degree)
- A master's degree (such as a MA, MS, MSW, or MBA)
- A professional degree (such as a MD, DDS, DVM, LLB, or JD)
- A doctorate degree (such as a PhD or EdD)
- Other

What was your **household income** last year?

- Under \$10,000
- \$15,000 to \$24,999
- \$25,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 to \$199,999
- \$200,000 to \$249,999
- \$250,000 or more

### **SECTION G: Final Thoughts**

#### **SECTION G: Final Thoughts**

*The final section of the survey asks for any other thoughts you may have about your experiences with child care.*

**Please feel free to share any additional thoughts you may have about your previous or current experiences with child care or comments you may have heard from other families dealing with child care issues.**

This study is being led by Kavya Vaghul, a Master in City Planning candidate in the Massachusetts Institute of Technology's Department of Urban Studies and Planning. Please do not hesitate to contact Kavya Vaghul at kvaghul@mit.edu with any questions or concerns. If at any point you feel you have been treated unfairly, or you have questions regarding your rights as a research subject, you may contact the Chairman of the Committee on the Use of Humans as Experimental Subjects, MIT, Room E25-143b, 77 Massachusetts Avenue, Cambridge, MA 02139 or by phone at 1-617-253-6787.

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