Child Care Devolution in Texas

The Relationship of Child Care Policies to Subsidy, Employment and Market Durations

Final Technical Report

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Daniel Schroeder

March 2008

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for the Study of Human Resources

Center for Social Work Research
School of Social Work
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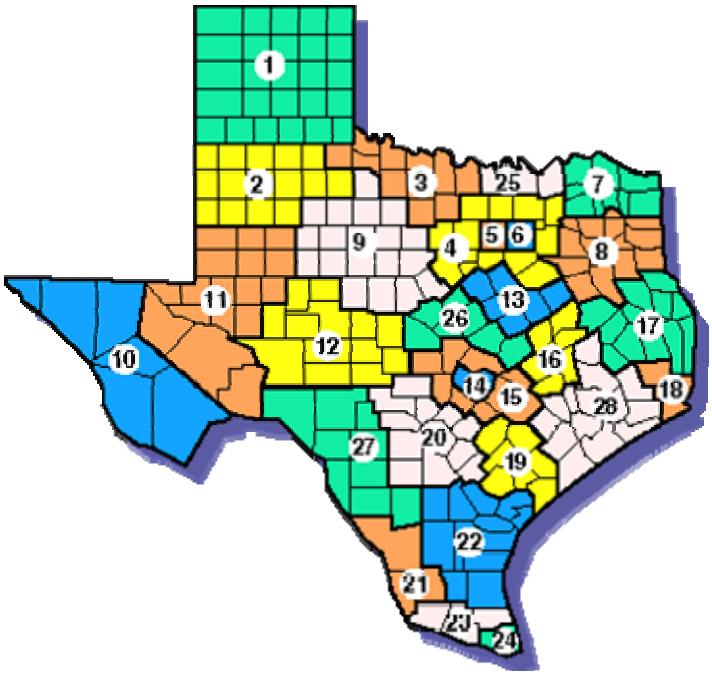
Chapter 1: Background and Project Overview

In 1995, the Texas Legislature passed its first major welfare reform legislation, House Bill (HB) 1863. One provision of HB1863 consolidated a number of workforce programs—including child care—under a new agency, the Texas Workforce Commission (TWC), and authorized the creation of 28 local workforce development boards (local boards) representing the geographical areas outlined in Figure 1. As these boards formed and were certified to administer programs, they assumed responsibility for the management of many workforce development programs in their geographical areas of the state.[1]

TWC began devolving responsibility for the management of existing contracts with child care brokers to the local boards in September 1997. Beginning in September 1999, the local boards also assumed responsibility for defining specific local goals and setting selected policies for the provision of subsidized child care.

Figure 1. Map of Texas Local Workforce Development Areas



1. Panhandle
2. South Plains
3. North Texas
4. North Central
5. Tarrant County
6. Dallas
7. North East
8. East Texas
9. West Central
10. Upper Rio Grande
11. Permian Basin
12. Concho Valley
13. Heart of Texas
14. Capital Area
15. Rural Capital
16. Brazos Valley
17. Deep East Texas
19. Golden Crescent
20. Alamo
21. South Texas
22. Coastal Bend
23. Lower Rio Grande Valley
24. Cameron County
25. Texoma
26. Central Texas
27. Middle Rio Grande
28. Gulf Coast

[1] Boards are prohibited from providing any direct services.

Overview of Texas Child Care Devolution Project

In September 2001, Administration for Children and Families within the U.S. Department of Health and Human Services (HHS) awarded a grant to the University of Texas at Austin to study Texas' decision to devolve management and some policy authority for its subsidized child care program from the state to its local boards. This research project examined the Texas subsidized child care program from Fiscal Years (FYs) 1998 through 2003, a time period that began two years before policies were devolved to the local level and ended four years after this change in authority. The project described the processes by which local boards developed child care policies and developed preliminary regressions to explore which of those local policy changes were associated with changes in subsidy participation patterns (subsidy dynamics), family economic outcomes, and child care markets in these geographic areas.

To answer the project's research questions, researchers compiled federal and state legislation and regulations enacted during the six years of the study, as well as local policies developed by all 28 local boards. Researchers also conducted two rounds of telephone interviews with local board child care staff members to better understand the process by which local boards made their policy decisions and local boards' perceptions of the issues they faced in achieving their child care goals. To better understand certain aspects of policy development and financing that could not be determined from those sources, researchers interviewed TWC child care policy staff members throughout the period of this study. They also extracted information from administrative databases related to the operation and financing of the child care subsidy program, and obtained current and historical market rate survey data for each local area. Finally, the research team conducted site visits to three local areas to gain the perspective of local organizations and individuals involved in developing, implementing local policies, or affected by these policies for subsidized child care.

A report released in June 2004, *The Texas Child Care Subsidy Program after Devolution to the Local Level*, (Schexnayder et al., 2004) summarized data from all sources over the entire six-year study period. It described how local child care policies varied following the devolution of responsibility for policy to the local boards and the process by which the local boards decided upon and implemented local policy changes.

A preliminary econometric analysis measuring the relationship between subsidy policies and subsidy, employment and market outcomes was conducted as part of the original grant. Later, Educational Services, Inc. (ESI) contracted with the study's original authors to conduct additional econometric analyses utilizing the datasets constructed using HHS grant funds. Another report based on the original work — but not funded by ESI — has developed a conceptual model of the local boards' decision-making process and summarized key findings from the detailed site visits from local board areas. The ESI contract also required a summary report that draws from all facets of this research and identifies the policy relevance of the findings to subsidized child care program administrators.

Contents of this Report

This report describes findings from the econometric analyses described above. It includes seven chapters and one appendix. The first two chapters discuss the project's origins and background, the three major research questions addressed by the analysis and methods used to answer these questions. The next chapter describes the policy context within which this research originated and the changes in child care policies and subsidy use that occurred over the project's duration. In Chapters 4-6, the authors discuss the existing research literature relevant to each research question, present descriptive statistics, and then summarize the structure and results from each regression equation. In the final chapter, the authors draw conclusions from these three separate analyses and identify the policy relevance of these findings. The appendix provides additional information on the data sources, variable definitions and variable means for readers interested in this level of technical detail.

Chapter 2: Research Questions and Methods

Research Questions

The following research questions are analyzed in this report:

1. Which combinations of child care subsidy policies did Texas local boards adopt after devolution of policy choices from the state to the local level?
2. Which local policy choices were statistically associated with:
    a. longer child care subsidy duration
    b. longer employment duration for families receiving subsidies
    c. increased stability among local child care providers?

Quantitative Research Approaches

Research Methods. To answer these questions, RMC researchers used two complementary research techniques:

- A cluster analysis to determine patterns in the many variations in local policy choices following devolution, and
- Regression models to measure the probability of ending a period of subsidized care, the probability of ending a period of employment, and the probability of child care providers closing their businesses and various factors associated with those outcomes, including clusters of local policy choices as explanatory variables.

The *cluster analysis* documented changes that local boards made in three major types of policies after September 1999: income eligibility limits, parental co-payment levels and maximum payment rates. Local boards used six combinations of these policies that differed from the baseline policies in place prior to devolution. Variables describing the policy combinations adopted by local boards were developed and included in the regression analyses.

A series of *regression equations* were developed to explore the relationship of these policy variations to the outcomes of interest. Cox proportional regression models with time-varying covariates were used to measure the probability of ending a period of subsidized child care for families who were already receiving a subsidy, the probability of leaving employment for adults who received child care subsidies while employed, and the probability of child care facilities closing their businesses.

Data available for the analysis. To conduct these analyses, researchers created a unique longitudinal data set of all Texas child care subsidy participation from 1997-2003 linked to quarterly earnings records, local child care policies adopted from 1999-2003, subsidy payment information, local child care subsidy funding allocations, Temporary Assistance for Needy Families (TANF) participation and other contextual economic and community variables, including variables that captured key characteristics of local board areas. A separate dataset of all Texas licensed and regulated child care providers was created and used in the provider regression analysis. Table 1 describes the categories of variables developed for use in this research, the time periods covered for each category of variables and the data sources from which they were created. A more complete description of the data sources used to create these variables is included in the appendix.

Table 1. Data Sources for Categories of Variables Used in Regressions

Categories of Variables	Data Source	Time Periods Available
Child Care Subsidy		
Policy variables	State plans; Correspondence with workforce board child care staff members	SFYs 1999-2003[2]
Program participation Participant demographics	Child care subsidy individual-level longitudinal administrative data files	Monthly files: October 1997 – September 2003
TANF Choices Participation	Child care subsidy individual-level longitudinal administrative data files	Monthly files: October 1997 – September 2003
Employment and Earnings	TX Unemployment Insurance wage record and employer files	Quarterly files: 1997 to 2003
Local Boards		
Size and structure	Census Bureau; interviews with local boards	2000; Spring 2002, Spring 2003
County Data		
Economic and geographic statistics	Bureau of Labor Statistics; Census Bureau	1999-2003
Head Start and Pre-kindergarten participation	Texas Kids Count Project	1999-2003
Child Care Market		
Provider information (formal market only)	TX Department of Family and Protective Services	SFYs 1998-2003
Market rate data	U.T. Market Rate Survey data files	Annual (or biennial) 1999-2003

[2] The Texas state fiscal year (SFY) runs from September through August each year.

Depending on the research question being addressed, different research samples were constructed from the master database. The research samples in each regression are described in Chapters 4-6.

Limitations. A separate report (Lein et al., 2007) used qualitative research approaches to explore the factors that influenced the development of specific child care subsidy policies by the local boards. Although it would have been of interest to develop an econometric analysis of the factors that influenced local policy choices, such an analysis would require different data sets and econometric techniques than those used and was beyond financial the scope of this project.

Chapter 3: Local Policy Choices and Use of Child Care Subsidies Following Devolution

Texas is a large and diverse state. The local boards responsible for setting child care policies also vary substantially from each other in size, configuration of counties and the characteristics of the population served. Gulf Coast, the largest of the 28 local board areas, encompasses a larger child population than 32 states and covers a 13-county area that includes the city of Houston and the urban, suburban and rural counties surrounding it. Conversely, the smallest board area, Concho Valley (San Angelo area), only included 38,549 children in 2003. (U.S. Census Bureau, 2005)

Findings from Earlier Reports

In 1995, the responsibility for administration of subsidized child care programs was transferred from the Texas Department of Human Services to the newly formed Texas Workforce Commission. Several years later, TWC began transferring responsibility for the management of subsidized child care programs to local boards. An earlier report from this project, *The Texas Child Care Program After Devolution to the Local Level*, describes in detail the changes that occurred in the management and operation of the boards from 1997 (two years before they assumed responsibility for setting policies) through September 2003 (four years after local boards began setting some policies) and provided a detailed statistical appendix with statistics and trends on funding and policy changes, subsidy use, and demographic characteristics of families using subsidies. Key findings from that report are summarized briefly below. Readers interested in more information should refer directly to the full report.

The 2004 report noted that the Texas Legislature and TWC both contribute to the formation of the performance criteria under which the local boards must operate. Such performance requirements include the number of children served, the number of child care providers meeting specific quality criteria, and the number of individuals who receive training through TWC programs. However, local boards are able to set a number of policies, including income eligibility guidelines for child care services, attendance standards, provider eligibility and parent co-payment rates. Over the four years after they assumed policy-making authority, boards exhibited considerable variation in such policy areas as the income

eligibility ceilings for working parents, the co-payments required of parents, and the reimbursement rates for the most common types of care. Boards also differed considerably in their perception of local flexibility in responding to TWC directives and their ability to make the child care program responsive to specific conditions in their local areas.

The funding available to boards, as well as the restrictions on the expenditures that they receive, had considerable impacts on the policy decisions they made. Boards responded to funding constraints in different ways. In the early years of this study, substantial increases in child care funding meant that more funds were available to local boards. Over time, changes in welfare policy and in performance criteria put greater demands on this funding, primarily by increasing the number of children to be served. Although funding for child care tripled in Texas from 1996 to 2001, Texas never allocated sufficient funding to meet all of its demand for subsidized child care. Boards continually dealt with the tension between the increasing funds and the even more quickly increasing number of children to be served.

Over the study period, both the total dollars of funds re-allocated among boards and the number of boards losing funds due to an inability to come up with the matching funds decreased as boards became better at securing matching funds. However, large boards in economically active areas reported considerably less trouble in obtaining matching funds than did boards in smaller, more impoverished and economically limited areas.

In addition to raising funds and serving the requisite number of children, boards were responsible for developing the quality of care in their local area, a responsibility that many boards assumed enthusiastically. However, Texas state policies governing the state's investment in quality initiative changed considerably over time. From 1999-2001, local areas received funds that were specifically targeted for quality activities. During the last two years of this project the state removed the dedicated quality funds and increased the number of children local boards were expected to serve. Boards responded in different ways to this move away from local quality initiatives. Their responses depended largely on the additional funding they could raise to devote to quality initiatives, the internal staff expertise they could draw upon, and services and expertise available in their local communities.

Changes in Key Policies Over Time

After local boards gained authority to set many policies for subsidized child care within their geographical areas, their decisions produced a wide degree of policy variation

across the state. The following section briefly describes the key policies of interest that were in effect during a baseline period from October1997- September 1999, and then summarizes the changes that occurred from the fall of 1999 through September 2003.

Baseline Child Care Policies

Income eligibility ceilings. Following the passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996 through September 1999, Texas working families were eligible for child care subsidies if their income was less than the lower of 85% of the state median income (SMI) or 150% of the federal poverty income level (FPIL). TANF families participating in the state's TANF workforce program (Choices) received priority for service during this time period, a practice that continues to this day. In general, insufficient funding was available to serve all eligible working families and some parts of the state maintained a waiting list for income-eligible families.

Parental co-payments. All Texas families who receive child care subsidies must pay for a portion of that care unless the family is also participating in Choices, the Food Stamp Employment and Training program or child protective services. Prior to the fall of 1999, all income-eligible families with one child paid 9% of their gross monthly family income for subsidized child care. Families with two or more children contributed 11% of their income toward the cost of this care.

Provider reimbursement rates. CCDF regulations require that each state commission a survey of child care market rates each year to guide them in setting maximum rates for reimbursing providers of subsidized child care. Given the diversity of the local labor markets in Texas, there have always been substantial differences in the actual cost of child care across the state. However, prior to devolution, although reimbursement rates varied to account for the differing child care costs in local areas, all reimbursement rates were set by the state agency.

Local Child Care Policies After Devolution

Many program and policy decisions, including the three types of policies cited above, were devolved to local boards beginning in September 1999. Local boards set their own income eligibility ceilings and parental co-payment policies throughout the study period. However, the state resumed some control of provider reimbursement rates by freezing the

maximum reimbursement rates in February 2002. Rates remained frozen through the end of the study period.

Action by local boards produced a number of different combinations of child care subsidy policies across the state. In order to organize these policy changes into a form that could be used in the regression models discussed in subsequent chapters of this report, an informal cluster analysis was conducted to categorize the various combinations of three major policies – income eligibility limits, parental co-payment levels and maximum payment rates – that were implemented by the local boards. The three policies were first broken into natural groupings based on their frequency of occurrence over time subsequent to devolution. Prior to the inclusion of local policy indicators in the Texas estimation model, it was necessary to devise a categorization scheme to represent these policies in such a way that the interrelatedness between the policy decisions does not obscure their interpretation. The approach taken was to break each of the three policy dimensions into a small number of natural categories, then create a matrix showing the intersection of these categories, and examine the frequency of policies falling into the cells of this matrix to find dominant patterns, or combinations of policies as implemented over the four years after devolution.

Basic income eligibility ceilings showed an interesting near-bimodal distribution, ranging from 50-60% of state median income (SMI) on the low end, and from 75-85% of SMI on the high end, but never between 60% and 75% of SMI. This distribution led quite naturally to a two-category scheme for basic income eligibility ceilings: those areas with eligibility ceilings at or below 60% of SMI had relatively *unchanged* income eligibility ceilings from the baseline policies, and the remaining boards had significantly *increased* their ceilings. The unchanged group, with ceilings at or near the level of the statewide policy before devolution, was the more common policy, accounting for 65% of board-months of local policy after devolution, while the increased eligibility limit group accounted for 35%.[3]

[3] The study included 1,344 board-months following devolution, computed by multiplying 28 boards by the 48-month post-devolution study period.

The distribution of parental co-payment levels also lent itself quite naturally to categorization. As described above, the statewide policy prior to devolution set co-payment levels at 9% of income for families with one child in subsidized care and 11% for those with two or more children. Subsequent to devolution, co-payment levels were both raised and lowered in different areas, but the baseline policies accounted for 76% of board-months in this latter period. A mere 9% of board-months showed *reduced* co-payment levels during the post-devolution period, and 15% of board-months were characterized by *increased* co-payment levels. Thus, the co-payment policy dimension was split into three natural categories: reduced, unchanged, and increased.

Local boards set the maximum provider payment rates, or the highest daily rate that can be paid for subsidized care. To compare these rates across all local boards, the authors constructed a maximum payment ratio, defined as the maximum payment rate set by a local board as a share of the 75th percentile of rates available in the local market.[4] For example, if the market rate survey found that three out of every four (or 75%) rates for full-day toddler care in licensed homes in a local area was at or below $15 per day and the local board set the maximum reimbursement rate for that type of care at $12 per day, then the maximum payment ratio for this category of care would be $12 divided by $15, or 0.80. The distribution of maximum payment ratios was approximately normal or bell-shaped, with none of the flaws that made the other two policy variable distributions so easy to split into categories. The mean maximum payment ratio across the post-devolution period was only 82% of the 75th percentile suggested by federal rules, thus allowing subsidy recipients access to a smaller share of the child care market than is recommended. Because of this, a decision was made to split the maximum payment ratio index into categories not at a natural break in the distribution, but at a level that has policy relevance. Boards that set their maximum payments rates at 90% or more of the ideal 75th percentile rate were defined as having *Moderate* maximum payment rates, while lower rates were referred to as *Low* payment rates. Only 21% of board-months fell into the moderate payment rate category during the four years after devolution of policy control to the local level.

[4] Although it would have been preferable to use the actual percentile of reimbursement rates compared to market rates, the data needed for that computation were not available for all years of the study.

Table 2 illustrates a cross tabulation of the three policies: Eligibility ceiling (Unchanged vs. Increased), by Co-payment level (Reduced, Unchanged, or Increased), by Maximum Payment rate (Moderate vs. Low), yielding a total of twelve cells. The cell in the center, bottom row, represents the combination of policies that existed on a statewide basis prior to devolution of policy-making authority to the local level. This cell, labeled *Baseline Policy*, consists of relatively low eligibility ceilings (Unchanged), moderate co-payment levels (Unchanged), and low reimbursement or payment rates. Other policy clusters that represent the more common combinations of policies were given labels defined relative to this baseline policy. The grayed-out cells represent policy combinations that were virtually never utilized (e.g., no boards reduced co-payment levels without also increasing income eligibility ceilings). Furthermore, several adjacent cells had to be collapsed because too few boards used those policy combinations for them to be included as separate categories for regression modeling purposes (note asterisk on policy cluster name). The resulting six clusters of local policy combinations each represent distinctive variations from the baseline policy of the pre-devolution period and can be directly interpreted in the regressions used later in this report.

Table 2. Texas Policy Clusters Utilized by Local Boards

<table>
<tr><th colspan="2"></th><th>Reduced
Co-payment</th><th>Unchanged
Co-payment</th><th>Increased
Co-payment</th></tr>
<tr><td colspan="5">Increased income eligibility limit</td></tr>
<tr><td rowspan="2">Maximum
Payment rate</td><td>Moderate</td><td rowspan="2">Increased Eligibility,
Reduced Co-pay*</td><td>Moderate Payment Rate,
Increased Eligibility</td><td></td></tr>
<tr><td>Low</td><td>Increased
Eligibility</td><td>Incr. Eligibility,
Increased Co-pay</td></tr>
<tr><td colspan="5">Income eligibility limit unchanged</td></tr>
<tr><td rowspan="2">Maximum
Payment rate</td><td>Moderate</td><td rowspan="2"></td><td>Moderate Maximum
Payment Rate</td><td rowspan="2">Increased
Co-pay*</td></tr>
<tr><td>Low</td><td>Baseline
Policy</td></tr>
</table>

Notes: 1) Italicized text refers to policy cluster labels, defined relative to Baseline Policy (in bold).
2) Grayed-out areas are extremely uncommon policies.
3) * denotes two similar clusters collapsed into one to meet sample size requirements.

Table 3 displays both the number of Boards that adopted the various policy combinations following the devolution of policy authority in September 1999 and the share of time following devolution (measured in board-months) that each policy combination was in effect. Some Boards used more than one policy combination, as shown by the total count of 44 different policy combinations used by the 28 boards from September 1999 through August 2003. In 45% of the board-months after devolution, local boards used the baseline policies that had been in place prior to devolution.

Table 3. Changes in Child Care Policies from September 1999 - August 2003

Local Board Action	Number of Boards*	Share of Board-Months
Kept baseline policies	5	45%
Increased maximum reimbursement rates (to moderate levels)	12	14%
Increased reimbursement rates and income eligibility ceiling	7	11%
Increased co-payment	8	8%
Increased income eligibility ceilings	5	7%
Increased income eligibility and family co-payments	4	7%
Increased income eligibility limits and reduced family co-payments	3	8%

*N>28 because some boards changed policies more than once during this time period.

Changes in Patterns of Child Care Utilization Over Time

The number of children who used child care subsidies increased substantially over the study period, from 244,073 in the two years prior to devolution (FYs 1998 and 1999) to 328,818 in FYs 2002 and 2003. Subsidies were distributed fairly evenly across infant, toddler, pre-school and school-age care. Over 40% of children receiving care were Hispanic, a figure that increased slowly over time and reflects the growing share of Hispanic children in the state of Texas. The overall race/ethnic distribution shown in Table 4, however, masks wide variation across the different local board areas. In local board areas near the Mexico border, 99% of children served were Hispanic compared to less than 5% in some board areas near the Arkansas and Louisiana borders. Whites comprised the majority of children using subsidies in many areas in northern and western parts of Texas while in Houston, Dallas and

Fort Worth, as well as areas of East Texas, Black children made up 60-70% of all children served.

Nearly half of the families using subsidies had only one child in subsidized care. While less than 25% of all families had three or more subsidized children in subsidized care, that share was getting larger over time. In FYs 2002 and 2003, the parent in 73% of all families had never married. Of the remainder, 9% of the parents were married and 18 % were divorced, separated or widowed.

Table 4. Characteristics of Subsidy Recipients

	FY 1998 & 1999	FY 2000 & 2001	FY 2002 & 2003
Children			
Total children receiving care	244,073	294,882	328,818
Age of child			
Infant (1 to 17 months)	22%	22%	22%
Toddler (18 to 35 months)	20%	20%	21%
Pre-schooler (36 to 71 months)	32%	30%	29%
School age (72 months and older)	27%	28%	28%
Race/ethnicity of Child			
White	19%	18%	18%
Black	33%	35%	34%
Hispanic	41%	44%	45%
Other	8%	4%	4%
Family			
Average number of subsidized children	2	2	2
Families with one child	46%	43%	43%
Families with two children	34%	35%	34%
Families with three or more children	20%	22%	23%
Parent			
Marital status (if known)			
Single (never married)	70%	70%	73%
Married	9%	9%	9%
Divorced/separated/widowed	21%	21%	18%

Source: *The Texas Child Care Program After Devolution to the Local Level*, 2004.

As shown in Table 5, the patterns of child care purchased with subsidies also changed after devolution. Compared to other states, Texas still used a very high share of center care after devolution. However, the use of center care in Texas has been declining over time (from 85% in 1994 to 79% in FYs 1998 and 1999 — the baseline period — to 76% in FYs 2002 and 2003, the last two years of this study).[5] Two of the local board areas along the Mexico border used far less center care than the statewide average — South Texas (which

[5] Rates for use of center care in 1994 are included in Schexnayder et al., 1999.

declined from 59% in the baseline period to 38% in FYs 2002-03) and Lower Rio Grande Valley, in which center care comprised only 55% of all care throughout the study period.

Other differences in use of care after devolution involved the use of tiered reimbursement providers and the share of TANF recipients using subsidies. The frequency of care using Texas Rising Star (tiered reimbursement) providers doubled after devolution from 14% to 29% of all care. However, due to the Texas legislature removing the quality performance measures for child care subsidies in 2003, this figure was expected to decline in the time periods after the end of the study. The share of days used by TANF families increased from 19% during the baseline period to 27% in FYs 2002-03, while the share of days used by income-eligible families declined over that same time period. Even so, over the last two years of the study, these families still used 59% of all subsidized care. Other differences in the patterns of subsidy use are shown in Table 5.

Table 5. Characteristics of Services Provided

	FY 1998 & 1999	FY 2000 & 2001	FY 2002 & 2003
Type of care arrangement			
Center	79%	77%	76%
Group Day/Registered Family Homes	6%	6%	6%
In home relative	7%	7%	8%
Out of home unregulated	8%	10%	10%
Features of care provided			
Texas Rising Star provider care	14%	22%	29%
Self-arranged care	10%	9%	11%
Full-time care	76%	88%	87%
Reason for care			
Working/Seeking work	78%	72%	70%
Training	22%	27%	28%
Other	1%	1%	2%
Eligibility type			
Income eligible	67%	64%	59%
Choices/TANF	19%	23%	27%
Transitional	13%	8%	11%
Other workforce development programs	0%	5%	3%
Other	1%	1%	1%
Family-level subsidy amount	$393	$449	$470
Family-level co-payment			
Percent of families with co-pay due	80%	74%	72%
Average monthly co-pay (of those with co-pay due)	$90	$103	$112
Percent of service months by age			
Infant (1 to 17 months)	13%	13%	14%
Toddler (18 to 35 months)	20%	20%	20%
Pre-schooler (36 to 71 months)	36%	35%	34%
School age (72 months and older)	31%	32%	32%

Source: The Texas Child Care Program After Devolution to the Local Level, 2004

Chapter 4: Length of Subsidy Receipt

This chapter examines child care subsidy participation patterns, also known as subsidy dynamics, and identifies which of the policy combinations used by local boards were associated with the length of child care subsidy use. To provide the reader with some background on this topic, a short review of the literature is discussed, followed by a description of the data set and methods used to analyze this research question and descriptive statistics estimating the length of subsidized child care spells during the study period. Finally, regression equations measuring the statistical associations between the policy combinations used by local boards and the length of subsidy use are presented and discussed.

Prior Research on Subsidy Duration

In prior years, the current authors conducted several studies on Texas subsidy receipt and duration. The first study, which analyzed Texas child care utilization patterns and outcomes, used Texas administrative data from the child care and TANF programs and earnings from Unemployment Insurance (UI) wage records to describe child care usage and rates of employment, earnings and TANF receipt for subsidized child care recipients in the 1994-1997 time period. This study, which was primarily descriptive in nature, also compared labor market and TANF outcomes between subsidy recipients and persons on waiting lists for services who did not receive subsidies (Schexnayder et al., 1999).

More recently, this research team conducted the Texas analysis in *The Dynamics of Subsidy Use: A Collaborative Study of Five States*, which compared subsidy policies and subsidy usage across five states in the 1997-1999 time period (Meyers et al., 2006). Findings indicated that median durations of subsidy receipt were quite short across all five states, ranging from three to seven months in a typical spell, but that recidivism was high among those who had left the subsidy system. Texas was distinguished among these other states for having both the longest subsidy spells and the highest proportion of center-based care (about 80%).

Other prior research relevant to child care arrangements touches variously upon aspects of duration, quality, and use of center-based care. Berger and Black (1992), for

example, compared single mothers receiving subsidies to those on a waiting list for subsidies in Kentucky. In addition to employment effects cited in Chapter 5, they found that those receiving subsidies were in higher quality care arrangements. Brooks (2002) used a comparison of those receiving subsidies against those on waiting lists in Georgia, and found that those receiving subsidies were much more likely to use state-licensed care (91% vs. 28% of those on waiting lists who were in child care). Brooks also found that those receiving subsidies were more likely to have stable arrangements. Although a snapshot does not provide the best measure of duration, those receiving subsidies had been in the current arrangement for an average of 18 months, compared to only 9 months for those on the wait list. Those receiving subsidy were also much less likely to report a desire to change their care arrangement (12% vs. 68%), and had fewer problems finding care to fit their schedules.

Capizzano and Adams (2000) provided a different perspective on child care arrangements, using 1997 National Survey of America's Families (NSAF) data to examine the use of multiple arrangements for the same child. They found that, contrary to popular belief, low-income families were no more likely than others to be using multiple arrangements. About 38% of children overall were in multiple arrangements, both nationally and within Texas. They also found that most of those in multiple arrangements (65%) used a combination of formal and informal care, with much smaller shares using either exclusively formal or informal care.

Huston et al (2002) re-examined data from three workforce development demonstration studies promoting employment among low-income parents to find out which family and individual characteristics predicted child care use, problems with child care, and receipt of subsidies. In taking a closer look at the experimental or "program" groups in those studies, they found that families with a subsidy were about twice as likely to use formal center-based care as those without one. Greater educational attainment was also associated with greater use of center care, but ethnicity was inconsistently related to use of center care (different patterns emerged from the studies).

None of these studies, however, linked duration of child care subsidies to particular policy choices available within the CCDF program. Abt Associates and MDRC are currently conducting the first random assignment studies that test the impacts of specific subsidy rules

on use of subsidies, subsidy duration and other outcomes in two different experiments in Illinois and Washington. (MDRC, 2007) Those interventions are modifying the income eligibility limits and co-payment rules in those states and measuring the impacts of those policy interventions for a number of different outcomes.

The research discussed in this report will add to the existing research knowledge base by identifying which policy combinations are statistically linked to longer subsidy durations and other outcomes of interest. Although these findings cannot claim causal impacts of these policy combinations on various outcomes, they will identify promising practices across a number of different policy environments that are suitable for more rigorous testing through experimental techniques.

Specific Methods and Data Used to Measure Subsidy Duration

The equations in this chapter measure exits from subsidized child care over time (also known as subsidy dynamics) and the factors associated with longer or shorter spells of subsidy receipt.[6] To analyze this question, researchers used a sample from the available data set described in Chapter 2 that consisted of one randomly chosen spell of subsidy receipt for all Texas families who began using child care subsidies between October 1997 and August 2003. Receipt of subsidy by any child in the family for a given month was sufficient to consider the family spell as continuing in that month.

First, descriptive statistics were computed to illustrate both the median duration of subsidy spells and the differences in the length of subsidy receipt by the purpose for which it was used (i.e., job search or employment). Then, simple regressions were computed to illustrate how the length of new subsidy spells changed over each year after devolution.

The full statistical models used Cox proportional hazards regressions with time-varying covariates, in which each observation was a family-spell of subsidy receipt. The data set for these regressions only included data from the post-devolution period (September 1999 through August 2003).Two separate regressions were run based on whether families began using subsidies for employment or TANF-related job search purposes. Dependent variables

[6] Measuring an exit from subsidy use is the statistical inverse of measuring the length of an individual spell of subsidy use.

in both regressions measured the length of the subsidy spell. Independent predictor variables from each of the following categories and measured at the family-month level were included in both regressions:

- Policy decisions made at the local level,
- Family demographics of subsidy recipients,
- Type of care needed by family (e.g., full-time, employment-related)
- Child care provider characteristics,
- Economic and geographic context of the local board area and county.

The variables of interest in these regressions measured whether the six distinctive clusters of local policies used after devolution had a stronger effect on the length of subsidy spells than the baseline policies. Other categories of variables were included as controls to ensure that the effects observed for the policy variables were not driven by other factors. Definitions of the variables are included in appendix Table A-3 and descriptive statistics for the predictors used in these regressions are summarized in appendix Table A-4.

Research Results

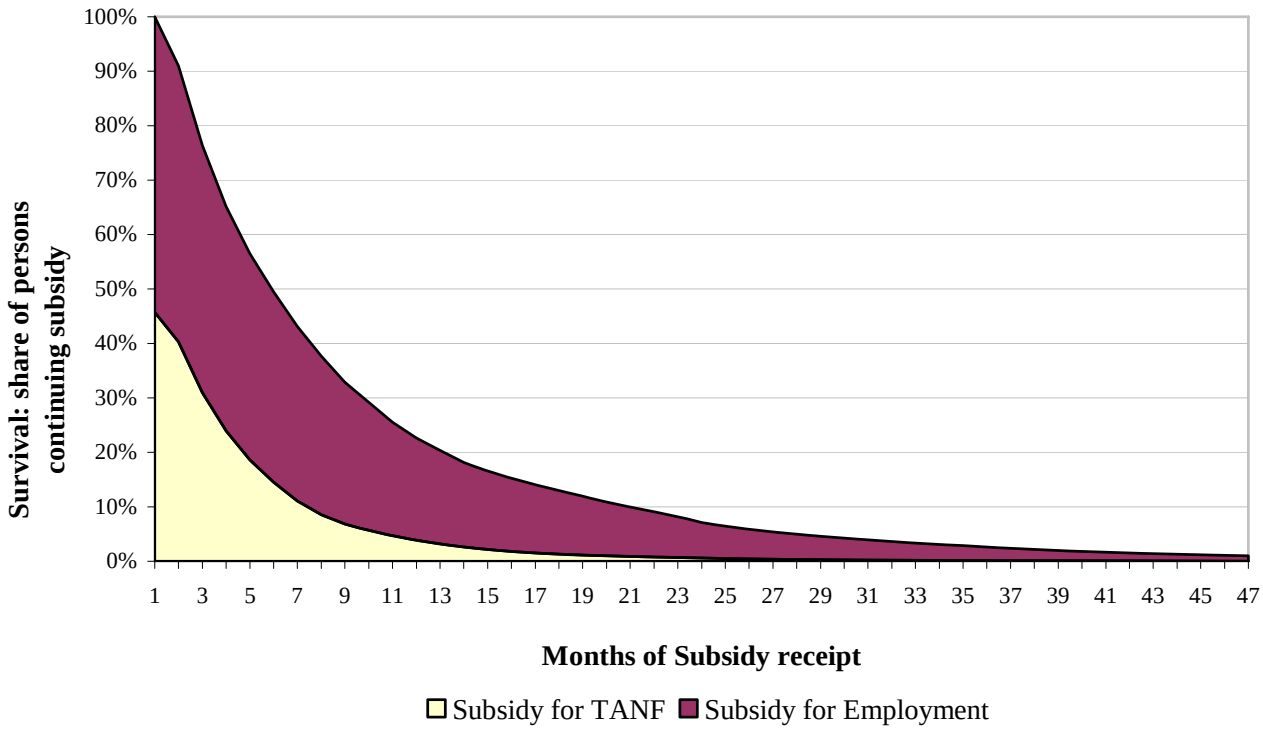
Earlier research has shown that the length of subsidy spells varies by a family's reason for using a child care subsidy (Meyers, 2006). TANF recipients participating in the Choices program first use subsidies for job search and/or job training purposes prior to using subsidies for employment if successful in finding a job. Income eligible recipients, however, typically only use subsidies to maintain employment. Because of the different subsidy lengths for these two groups and the fact that TANF users have priority for subsidies across all areas in Texas, the two groups are analyzed separately throughout this report.

Overall Length of Subsidy Spells

Figure 2 shows the survival rates over time both for TANF families and those families using subsidies only for employment purposes. Survival rate charts are a concise way of illustrating the results of spell duration analysis. The horizontal axis represents the length of time the spell has continued, and the vertical axis indicates the survival rate, or the percent of the original spells that 'survived' to that point. As shown in the survival chart, the

families in this study who used subsidies for employment purposes had longer subsidy spells than TANF users. This difference in spell length was expected and replicates findings from earlier research.

Figure 2. Length of Subsidy Spells by Eligibility Type



Next, the overall median length of new subsidy spells beginning after devolution was estimated using accelerated failure time regression models similar to the methods used in the earlier 5-state study cited above (Meyers, 2006). For all spells beginning after October 1999, the overall median spell length was 6.2 months. As expected, the median spell length varied greatly after the sample was divided between those spells that began as TANF/Choices spells and those that began for employment purposes. The median length of child care subsidy spells used for employment was 7.5 months, compared to only 5.0 months for subsidy spells that began as TANF/Choices spells.

Variation in Subsidy Duration Over Time

Next, two proportional hazards regressions were run to test for the effect of time on the length of new subsidy spells, one for subsidy use that began for employment purposes and a second for TANF/Choices spells. Time was modeled in these regressions by including

a set of dummy variables covering the last five of six state fiscal years (SFYs, the omitted level is SFY 1998). Controlling variables were included when the reason for care (i.e., TANF/Choices or employment) changed over the period of the subsidy. Results of the two regressions examining subsidy durations over time are presented in Table 6. Values listed in the table are hazard ratios, which indicate the likelihood of exit from subsidy in comparison to those observations in the omitted group, fiscal year 1998. Ratios greater than one mean that the odds of exiting are greater than in FY 1998 and that the length of subsidy spells are shorter, while ratios less than one indicate smaller odds of exiting and longer subsidy spells. As shown below, the length of new employment-related spells decreased to a minimum around FY 2001, coinciding with the beginning of an economic recession, then rebounded afterwards (Federal Reserve Bank of Dallas, 2002). Conversely, the length of new spells for persons in the Choices program increased to a maximum in FY 2001 then became shorter in the last two years of the study.

Table 6. Regressions Predicting Subsidy Duration over Time

	Spells beginning as employment-related		Spells beginning as TANF/Choices	
	N=151,132		N=121,850	
Variable description				
Fiscal year 1999	1.04	**	.97	*
Fiscal year 2000	1.05	**	.92	**
Fiscal year 2001	1.08	**	.87	**
Fiscal year 2002	1.04	**	.92	**
Fiscal year 2003	.98		.94	**
Employment-related care			.63	**
TANF-related care	1.06	**		

Note: Statistical significance, *=p<.05, **=p<.01.

Relationship of Local Child Care Policies to Subsidy Duration

The final set of regressions used in this analysis measure the relationship of the local policy choices following devolution to changes in the length of child care subsidy spells. As with the other analyses, different regressions were run for those spells that began as TANF/Choices spells and those that began for employment purposes.

The regression results in Table 7 show that, after controlling for the non-policy factors listed above, almost all of the new policy combinations that local boards used after devolution were associated with longer spells of subsidized child care than the baseline policies. In general, the new policy combinations produced stronger effects for employment related spells than for TANF spells. For families that began using subsidies to support their employment, the longest subsidy spells were observed when local boards increased family co-payments, which reduced the odds of ending a spell to .73. This means that, after controlling for other factors, subsidy duration was 1.37 times longer for families under this policy environment than under the baseline policies.[7] Other policies with very strong effects were those that increased both the income eligibility limit and family co-payments (.76 odds of ending subsidy) and those that only increased the income eligibility limit (.78 odds of ending subsidy). The only policy that didn't significantly change the spell length for employment-related subsidy use was merely increasing provider reimbursement rates in the absence of any other policy change.

All non-baseline local board policies were associated with longer subsidy use for TANF families who participated in the Choices program. However, the strength of the effects was not as strong for this group as was true for families who began using child care for employment purposes. The policy cluster with the strongest association to subsidy spell length was increasing both the eligibility limits and family co-payments, which reduced the odds of ending a subsidy spell to .87. Thus, after controlling for other factors, subsidy duration was 1.15 times longer under this policy than the baseline policies.

A number of non-policy factors were also associated with longer subsidy use. These include: families with more than one child who received subsidies, whose youngest child was at least two years old or were Black; care that was full-time, used for employment purposes or was provided by a tiered reimbursement provider; or care located in medium or small workforce board areas. While analysis of these non-policy factors are not the primary focus of this report, these findings are largely consistent with research findings from other studies.

[7] The length of a subsidy spell is equivalent to the inverse of the odds of exiting a spell.

Table 7. Regression Results of Factors Associated with Length of Subsidy Use

	Spells starting as employment related		Spells starting as TANF related	
	N=104,613		N=99,452	
Local child care policy				
Moderate reimbursement rate	1.00		0.95	**
Moderate reimbursement and increased income eligibility limit	0.94	**	0.95	*
Increased co-payment	0.73	**	0.90	**
Increased income eligibility limit	0.78	**	0.91	**
Increased income eligibility limit and increased co-payment	0.76	**	0.87	**
Increased income eligibility limit and reduced co-payment	0.97	*	0.93	**
Family demographics				
Youngest child age 2 years or younger	1.61	**	1.41	**
Youngest child age 5 through 11 years	0.93	**	0.99	
Youngest child age 12 years and up	0.97		1.01	
Casehead Black	0.93	**	0.86	**
Casehead Hispanic	1.03	**	0.91	**
Male case head	1.05	**	1.14	**
Married	1.25	**	1.05	**
Widowed, separated, or divorced	0.99		0.85	**
Two children	0.69	**	0.80	**
Three children	0.59	**	0.71	**
Four or more children	0.53	**	0.65	**
Family situation				
Only part-time care	1.97	**	1.84	**
Eligibility group: Employment-related care	0.97		0.63	**
Provider / care				
Family Home facility	0.99		1.07	**
Care is self-arranged	1.05	**	0.99	
Tiered reimbursement provider	0.92	**	0.96	**
Economy & geography				
Unemployment rate	1.02	**	1.01	**
Employment growth rate	0.98	**	1.00	**
Median family income ($1000)	1.00		1.00	**
Small Workforce Board	0.95	**	0.95	**
Medium Workforce Board	0.84	**	0.90	**
Small metro area county	0.96		0.99	
Micropolitan county	0.94	**	1.04	
Rural county	1.02		1.05	

Note: Statistical significance, *=p<.05, **=p<.01.

Although it is a relatively straightforward task to identify the associations between local subsidy policies and subsidy duration, interpreting the meaning of these results is a bit more challenging. It is not difficult to imagine why policies expanding access to care

through increasing income eligibility limits would be associated with reduced odds of exiting. However, the findings for policies that increase the cost of this care by raising co-payments require a bit more thought. One possible explanation for this phenomenon may be that families place a greater value on things that they must pay for. Another may be that families understand that, even with a co-pay, they are eligible for more expensive — and presumably higher-quality — types of child care with a subsidy than they could afford if they were paying the full cost of care without a subsidy. Reasons for these findings would best be explored by qualitative research with the families who use child care subsidies to delve more deeply into the values that they place on child care subsidies, even with increased co-payments.

Summary

This analysis verified findings from earlier research that those families who begin using subsidies for employment purposes experience longer subsidy spells than TANF families who begin using subsidies for job search. This pattern held true even after child care policies were devolved from the state to the local board level.

The length of new employment-related spells decreased in the first several years after devolution but began increasing in FY2002 prior to increasing substantially in the final year of the study (FY 2003). Conversely, the length of new spells for persons in the Choices program increased through FY2001 then became shorter in the last two years of the study. Because of the priority that Texas gives to Choices recipients and the flattening of new funding for subsidies after FY2001, these patterns probably reflect the adoption of tighter rules for child care subsidy use by Choices recipients toward the end of the study period.

Almost all of the policy changes from the baseline policies were related to longer subsidy duration. Local policy variables had stronger effects on subsidy spells that began for employment purposes than for TANF Choices job search. Increasing co-payments and income eligibility limits were associated with the longest spells of subsidy receipt for families who used subsidies for employment.

Chapter 5: Employment Duration of Subsidy Recipients

This chapter identifies those policy combinations used by local boards that are associated with longer employment duration for families that are receiving child care subsidies. As in the previous chapter, a short review of the literature on this topic is presented, followed by a description of the data set and methods used to analyze this research question. Descriptive statistics on employment duration for subsidy users during the study period are then presented. Finally, statistical associations between the policy combinations used by local boards and employment duration for subsidy users are presented and discussed.

Prior Research on Employment Duration by Subsidy Recipients

Much prior research has explored the links between child care and employment. Because child care can affect one's ability to remain employed and employment affects one's ability to afford child care, the relationship between these two variables is difficult to unravel.

In early research, Ribar used both a reduced form (1992) and a structural model (1995) to estimate the labor supply effects of child care costs, and found a strong relationship in one (1992) and a weak relationship in the other (1995). However, his exclusive focus on married women limits the usefulness of this analysis for present purposes. Kimmel (1995) used simulations based on the 1987 and 1988 Survey of Income and Program Participation, and unlike Ribar, focused exclusively on single mothers. She found greater labor force participation due to subsidy among Whites than among Blacks. Graafland (1999) used a general equilibrium model of the Dutch labor market to study the impacts of child care subsidies on the labor force participation of married women in the Netherlands. Findings indicated that increasing the subsidies is more effective at increasing labor supply than is tax reduction, and has the added benefit of increasing human capital.

Other researchers tried to use sophisticated methods to crack the employment/child care nut. Although Blau and Tekin (2002) found that subsidies led to increased employment, their use of county of residence as an instrumental variable to control for the endogeneity of subsidy receipt casts doubt on this. More detailed analysis using multinomial logit equations

suggested that subsidies tend to increase employment and related activities of welfare recipients but have little effect on non-recipients. Tekin (2004) reached a similar conclusion when using 1999 NSAF data to estimate effects of subsidies on standard work decisions (traditional 8-6, M-F jobs) of single mothers, both on and off welfare. Across all single mothers, receipt of subsidy was associated with a 6 percentage point increase in probability of working standard hours; but when broken out by welfare status, welfare recipients receiving subsidy were 14 percentage points more likely to be engaged in standard work, while non-welfare subsidy recipients were only 1 percentage point more likely. Similarly, an Australian study (Schofield & Polette, 1996) used micro-simulation techniques to determine the effectiveness of both subsidy programs and cash rebates at reducing barriers to work. They found the programs resulted in the greatest proportional increase in after-tax incomes of sole parents and those with low-income.

Still other researchers used carefully selected comparison groups to serve as a counterfactual to estimate the effects of receiving subsidy. Bainbridge, Meyers, and Waldfogel (2003) used data from the Current Population Survey to estimate the relationship between the expansion of child care subsidies from 1991-1996 and employment rates of single mothers. They estimated impacts of policy changes by comparing effects of policies on single women with and without children under 13. In contrast to the patterns shown above, results indicated that when child care spending is disaggregated into that for "welfare" and "working poor" recipients, increased funding to the working poor was found to make substantial contributions to longer employment rates, greater than that of welfare policies but lesser than that of the Earned Income Tax Credit tax policies.

Berger and Black (1992) compared the labor supply decisions of single mothers receiving subsidies to those on a waiting list for subsidies in Kentucky. They estimated employment by evaluating a probit model at the mean of the covariates, and found increased employment of about 12 percentage points among those receiving subsidies, compared to those waiting for subsidies, but no differences in the hours worked. Brooks (2002) compared those receiving subsidies against those on waiting lists in Georgia, and found that those receiving subsidies were more likely to be employed (98% vs. 80%), even though employment was a condition for entry to the wait list. Subsidy recipients were also much less likely to be poor.

While the bulk of these studies attempted in one way or another to correct for the simultaneity of subsidy receipt and employment, the current research questions are more focused on the dynamics that underlie this relationship. More recent work has combined child care subsidy administrative data with UI earnings data, sometimes in combination with survey data, to explore the relationship between subsidies and employment in greater detail. As part of a study investigating outcomes for families exiting TANF in 1999 and 2000, Schexnayder and Schroeder combined administrative and survey data into regression equations to identify the factors associated with Texas TANF exits, employment and TANF recidivism (Schexnayder et al., 2002). This study revealed that subsidies provided to TANF recipients for job search purposes were linked to higher employment rates after they left TANF, but also associated with higher rates of return to TANF. A 3-state study of TANF recipients in Illinois, Maryland and Massachusetts found that subsidy use was strongly correlated with employment retention for TANF recipients and leavers (Lee, 2004). Finally, a Minnesota study that explored the employment patterns of subsidy recipients found that women who received child care subsidies were more likely to be employed in retail and service industries, particularly those related to health care (Jeffreys and Davis, 2004).

A few of these studies explored employment characteristics for at least a subset of subsidy recipients. However, none of them attempted to relate the overall employment duration of subsidy recipients to the specific policy choices available to state child care administrators, which is the focus of the current study. The randomized experiments currently underway in Illinois and Washington in the Child Care Bureau-funded study, *Evaluation of Child Care Subsidy Strategies*, will address this question more directly by utilizing a randomized design. However, it should be noted that the overall policy context for those studies (in particular, the lack of client waiting lists and lack of priority for TANF recipients) differs from the overall policy and funding context in this study. Thus, the findings from those studies may not be directly applicable to states with environments more similar to those present in Texas at the time of the devolution study.

Specific Methods and Data Used To Measure Employment Duration

The equations in this chapter measure employment duration for families receiving child care subsidies and identify the factors associated with varying length of employment duration. To analyze this question, researchers used a sample from the available data set described in Chapter 2 that encompassed all Texas families using child care subsidies that started new spells of employment from the fourth quarter of 1997 through the third quarter of 2003. For the regression analysis, the sample was further restricted to new employment spells from the fourth quarter of 1999 through the third quarter of 2003.

First, descriptive statistics were computed to illustrate the duration of new employment spells by reason for subsidy use (e.g., for employment vs. job search), similar to those described in Chapter 4. For this analysis, employment was defined as receiving at least $100 in earnings during a calendar quarter in employment covered by the Unemployment Insurance (UI) system.

Then, two Cox proportional hazards regressions with time-varying covariates, in which each observation was an employment spell, were used to identify those factors statistically associated with longer employment spells. One equation was run for persons who began using subsidies for employment while focused on persons who began using subsidies for TANF-related job search. Dependent variables in both regressions measured the length of the employment spell and included only those employment spells that began *during* a spell of child care subsidy receipt.[8] Because this analysis is focused on employment spells, employed adults were followed if their associated subsidy spell ended prior to the end of their employment spell. Independent variables in the models reflected variables relevant to the employment of low-wage workers. In addition to the local policy indicators of interest, control variables in the models included family demographic variables, the latest recorded type of child care characteristics, whether a child care subsidy was received during the quarter, numerous board context variables based on geography, and industry of employment variables that could be expected to account for much variation in employment duration. The primary industry of employment was defined as the industry of the employer who paid the

[8] This includes both employment spells that begin after a subsidy receipt spell begins, as well as those that begin in the same quarter. Of the latter group, it was not possible to distinguish which spell started first because Unemployment Insurance (UI) wage data are measured quarterly instead of monthly.

highest total earnings to an employee in a given quarter. Industry categories specific to this population of subsidized child care recipients were obtained from the Census Bureau's North American Industry Classification System (NAICS), with the omitted level of industry including both unknown industries and a small number of industries not categorized in this system. Brief definitions of the predictors used in these regressions and descriptive statistics are listed in appendix Tables A-3 and A-5.

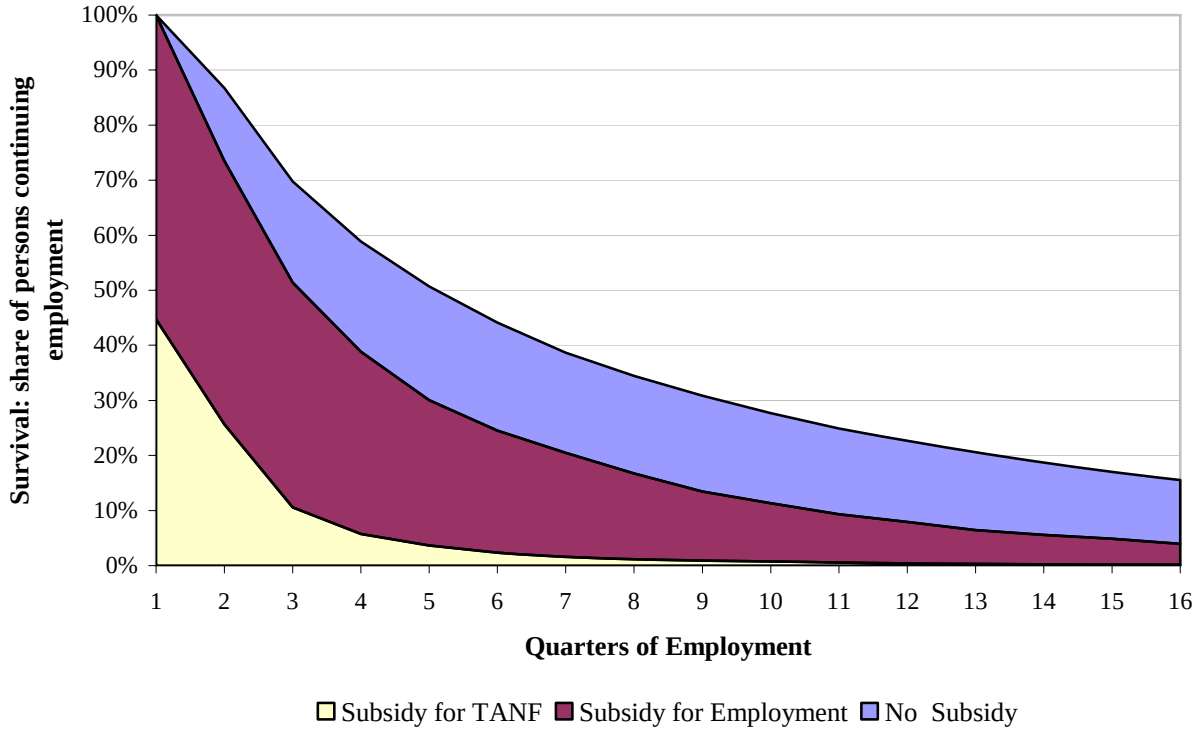
Research Results

Overall Employment Duration

Figure 3 shows the distribution of employment spells for persons who began employment in the same quarter that they were also receiving subsidized child care. As mentioned above, for persons using subsidies for employment, it is impossible to distinguish whether employment or subsidy use started first — or whether they started simultaneously — due to the quarterly nature of UI wage data. However, one can assume that persons who began using subsidies due to employment were either already employed or had offers of employment in order to meet the subsidy eligibility requirements. TANF Choices recipients most likely began the new spells of employment after already using child care subsidies for job search purposes.

As shown in Figure 3, the TANF Choices program subsidized new employment spells for relatively short durations. Most of those jobs either ended by around six calendar quarters, or became employment-subsidized or unsubsidized employment spells. Subsidies for employment purposes appeared to persist much longer. As shown in the 'no subsidy' section of the graph, many employment spells that began as subsidized continued successfully without a subsidy.

Figure 3. Employment Spells Begun While Receiving Subsidy



Using accelerated failure time regression models, the median length of new employment spells for all adults in the sample were estimated at 6.0 calendar quarters. As with the overall length of subsidy use, the median length of employment was longer for persons who began using subsidies to support their employment than for those who started using subsidies while on TANF. Median employment for the first group was 7.6 calendar quarters compared to only 5.2 quarters for persons who had begun using subsidized care while in the Choices program. Thus, the shorter subsidy duration measured for TANF/Choices families in Chapter 4 was not only due to a portion of the time spent in subsidized care being used for job search but also because the length of employment for Choices families *after beginning employment* was shorter than it was for families who began using subsidies for employment purposes.

Relationship of Local Policies to Employment Duration

Results from the regression models that measured the relationship of explanatory variables to employment duration are shown in Table 8. After accounting for family

demographics, features of child care arrangements, and economic and geographic features, few local child care policies were linked to the length of employment duration. For families with employment-related subsidy use, only one policy cluster — increasing both income eligibility limits and co-payments — was associated with longer employment spells. The most logical explanation for this association is that changing these policies allowed more stable families to utilize the child care subsidies and that, for unmeasured reasons, they were able to maintain more stable employment.

Conversely, raising the provider reimbursement rate without making any other policy changes was associated with shorter employment spells. In the limited financial environment in which Texas child care programs operate, raising reimbursement rates often meant that the total number of child care slots was reduced. Although it could not measured directly by the variables available in this limited statistical model, this statistical association could reflect restrictions that some local boards may have placed on the length of time or the rules that employed families needed to follow in order to continue receiving subsidies.

None of the policy variables were significantly linked to employment duration for families who began their spells as Choices recipients except for one weak statistical association in local board areas that increased their family co-payments. Given the policy exemption of Choices families from co-payments for their child care subsidies and the statistical weakness of this findings, this is probably a spurious statistical result that should not be interpreted as meaningful.

The non-policy variables in these regressions were far more strongly associated with the total length of employment than any of the local policy variables. In both regressions, longer employment spells were measured for adults whose youngest child was school-aged, who were White, who used full-time care or continued using care for employment purposes. Adults who continued to use subsidies and those using family care homes instead of centers were also employed for longer spells. Jobs in the health care and nursing and residential care industries were associated with the most stable employment. As was true with the non-policy associations on subsidy duration, these findings correspond with earlier literature that measured factors associated with longer employment for low-income workers.

Table 8. Regression Results for Factors Associated with Length of Employment

	Spells starting as employment related	Spells starting as TANF related
	N=21,440	N=34,965
Local child care policy		
Moderate reimbursement rate	1.14 **	1.02
Moderate reimbursement and increased income eligibility limit	1.03	1.04
Increased co-payment	1.05	0.95 *
Increased income eligibility limit	1.04	0.99
Increased income eligibility limit and increased co-payment	0.82 **	0.95
Increased income eligibility limit and reduced co-payment	0.99	0.98
Family demographics		
Youngest child age 2 years or younger	1.08 **	0.97 *
Youngest child age 5 through 11 years	0.86 **	0.87 **
Youngest child age 12 years and up	0.82	0.82
Casehead Black	1.41 **	1.49 **
Casehead Hispanic	1.40 **	1.50 **
Male case head	1.27 **	1.20 **
Married	1.06	0.92 **
Widowed, separated, or divorced	1.01	0.95 *
Two children	0.98	1.00
Three children	1.06 *	1.02
Four or more children	1.09	1.10 **
Family situation		
Only part-time care	1.14 **	1.24 **
Eligibility group: Employment-related care	0.72 **	0.70 **
Provider / care		
Receiving CC subsidy	0.67 **	0.75 **
Family home facility	0.93 **	0.95 **
Care is self-arranged	1.05	0.89 **
Tiered reimbursement provider	1.03	0.97
Economy & geography		
Unemployment rate	1.00	0.99 **
Employment growth rate	0.99 *	0.98 **
Median family income ($1000)	1.01 *	1.00
Small Workforce Board	0.95	0.93 *
Medium Workforce Board	0.96	0.94 *
Small metro area county	1.09	1.06
Micropolitan county	1.07	1.11 *
Rural county	1.10	1.11
Employer industry		
NAICS5613: Employment Services	1.47 **	1.34 **
NAICS561: Other Administrative and Support Services	1.26 **	1.27 **
NAICS5: Other Information industries	0.97	0.92 **
NAICS7222: Limited-Service Eating Places	1.38 **	1.23 **
NAICS722: Other Food Services and Drinking Places	1.46 **	1.22 **
NAICS621: Ambulatory Health Care Services	0.83 **	0.85 **
NAICS623: Nursing and Residential Care Facilities	0.89 *	0.90 **
NAICS62: Other Health Care and Social Assistance	0.85 **	0.86 **
NAICS452: General Merchandise Stores	1.37 **	1.12 **
NAICS44: Retail Trade	1.20 **	1.12 **

The one finding that varied between the two regressions was the variable measuring self-arranged care. While this variable was associated with longer employment duration for Choices families, it was not statistically significant for non-Choices families. The economic and geographic variables were either marginally significant or not significant in both equations, suggesting that these employment patterns held regardless of the variations among local board areas.

Summary

New spells of employment for families receiving child care subsidies after devolution lasted approximately 6 months longer for those families who began using subsidies for employment purposes than for TANF families who began using subsidies for job search, even after restricting the TANF sample only to those who obtained jobs. Median employment for the first group was 7.6 calendar quarters compared to only 5.2 quarters for persons who began using subsidized care while in the Choices program.

Only one of the local subsidy policy changes — increasing both income eligibility limits and co-payments — was associated with longer employment duration than the baseline policies and one other policy — raising reimbursement rates to moderate levels — with shorter employment duration for families who initially received child care subsidies for employment. None of the policy variables had much of an effect on employment duration for TANF Choices recipients. Non-policy variables explained more of the variation in employment length than local policy variables did.

Chapter 6: Turnover Among Child Care Facilities

The final research question addressed in this report seeks to identify whether changes in local board policies affected turnover of child care facilities. Excessive turnover among child care arrangements can prevent children from building lasting bonds with their caregivers, which can have negative implications for their healthy development. Although the turnover among providers *within* facilities is certainly of both practical and theoretical interest, it was not possible to measure teacher turnover within centers with the data available for this analysis.[9]

This chapter measures the turnover in child care arrangements that occurs because providers quit the business of child care. First, the literature on this topic is briefly presented, followed by a description of the data set and methods used to analyze this research question. After presenting descriptive statistics about the facilities in the sample and facility turnover rates during the study period, separate regression results for child care centers and family home providers are presented and discussed.

Prior Research on Turnover Among Child Care Facilities

Relatively little prior research has been reported with the primary outcome measure focused on some aspect of the overall child care market, but some of the broader studies touch upon the subject. The State and Community Substudy of the National Study of Child Care for Low-Income Families examined numerous aspects of the child care market for low-income families (Collins, et al., 2000). This study focused on a large sample of poor families, both with and without subsidies, as well as their associated providers. A small sample of their findings provides context for study of the Texas child care market:

- Among states studied, Texas was second highest in proportion of center-based care, consisting of about 80% of the care provided in 1999. The average across states for that period was closer to 50%.

[9] This distinction only applies to centers. For family home facilities, there is typically one provider, so the distinction between facility and provider turnover is meaningless.

- Texas' reliance on wait lists to ration subsidies to the working poor was a fairly common practice among states. Waiting lists for child care subsidies existed in 12 of the 17 states surveyed.

At least one study used micro-simulation methods to look at influences of the subsidy system on the overall market. Mueser and Weagley (1998) found that the substantial growth in the total funding available for subsidies in Missouri from 1991 to 1993 was associated with increased fees (on the order of 4% to 6%) for both subsidized and non-subsidized clients. The authors concluded that with expansion of the subsidy program, the price gap between subsidized clients and non-subsidized clients declined.

Studies that compared maximum reimbursement rates to distributions of market rates found enormous differences across states in the share of the market that is accessible to those with a subsidy. For example, California was quite generous in reimbursing subsidized care up to the 85th percentile of the market rate for private care (Marrufo et al, 2003). Conversely, Grobe found that subsidies in Oregon covered as little as 21% of the market rate for care in 2004 (Grobe, 2004). A recent study of market rate surveys across the U.S. found that one third of states set their reimbursement rates at or above the 75th percentile based on the most recently completed market rate survey for at least some areas of care and that 2only one fourth of all states calculated the percent of the market to which families with subsidies have access (Weber, 2007).

None of the prior literature has attempted to link child care subsidy policies to the overall lifetime of facilities in the formal child care market. Thus, this study will contribute to the existing research literature through an initial exploration of that question.

Specific Methods and Data Used to Measure Facility Turnover

The population used in this analysis includes all child care facilities in Texas that were actively registered with the state licensing agency, the Texas Department of Family Protective Services (TDFPS), at some time after January 1, 1998. Family homes are not required to register unless they regularly care for four or more children. All homes are required to be "listed" with the agency, but those not required to register were excluded from

this analysis unless they registered voluntarily. All facilities, regardless of status, pay an annual renewal fee. The primary data source used to measure child care facility registration was the registry database maintained by TDFPS. Typical "lifetimes" of child care facilities were estimated using registration (or licensing) and de-registration dates in this state provider registry.

As in prior sections of this study, a Cox proportional hazards regression model was used to determine factors associated with provider turnover in the post-devolution period. In addition to the inclusion of time-varying covariates needed to model the policy effects of interest, this technique makes no assumptions about the functional form of the underlying survival curve. Thus, it is uniquely equipped to handle survival functions — like those presented below — that would be difficult to describe mathematically, and can control for the slightly uneven pattern of facility "anniversary" dates so that they don't erroneously affect the findings of interest. In the following regressions, a registration anniversary dummy variable was included to account for the annual nature of facility registration information.

Separate regressions were conducted for child care centers and family home facilities to identify factors associated with facility lifetimes.[10] Predictor variables in these regressions included the local policy indicators of interest, plus other indicators to ensure that the results for the policy cluster indicators could not be accounted for by other measurable factors. Control variables in the models below included features of the child care facility (primarily its tenure and the dummy variable to control for anniversary date), other factors that could influence demand for child care— including the presence of other child care options, the share of single parents in the area and the overall share of subsidized care within the total child care market — and numerous board context variables based on geography as described earlier in this report. The statistical approach used in this chapter measures the extent to which local child care subsidy policies are associated with outcomes for *all* facilities in the region (not only those facilities serving subsidized children). Definitions of the variables are included in appendix Table A-3 and descriptive statistics for the predictors used in these regressions are summarized in appendix Table A-6.

[10] There were insufficient numbers of *licensed* home facilities to compute a separate regression for this group. Thus, they were combined with the more numerous *registered* family homes into one regression.

The Formal Texas Child Care Market

The formal Texas child care market consists of licensed child care centers and both licensed and registered family homes in which providers care for 4-12 children. As of April 2003, the earliest date for which detailed data on registered providers were available, the number of licensed child care centers across the state totaled 7,419, compared to 1,530 licensed family homes and 7,434 registered family homes. A total capacity of approximately 700,000 children could be served in licensed centers at any one time. The total capacity of licensed and registered homes is more difficult to interpret, as the listed capacity for virtually all of them was the legal limit of 12 despite the fact that most homes could not serve this many children. With this caveat in mind, the potential capacities of licensed homes totaled a maximum of about 18,000 slots, and registered homes approximately 89,000 slots. According to the Texas market rate survey conducted in 2003, the overwhelming majority of child care facilities were located in the urban areas of the state. Formal providers offered part-time, infant and school-aged care less frequently than other types of care (University of Texas, 2004).

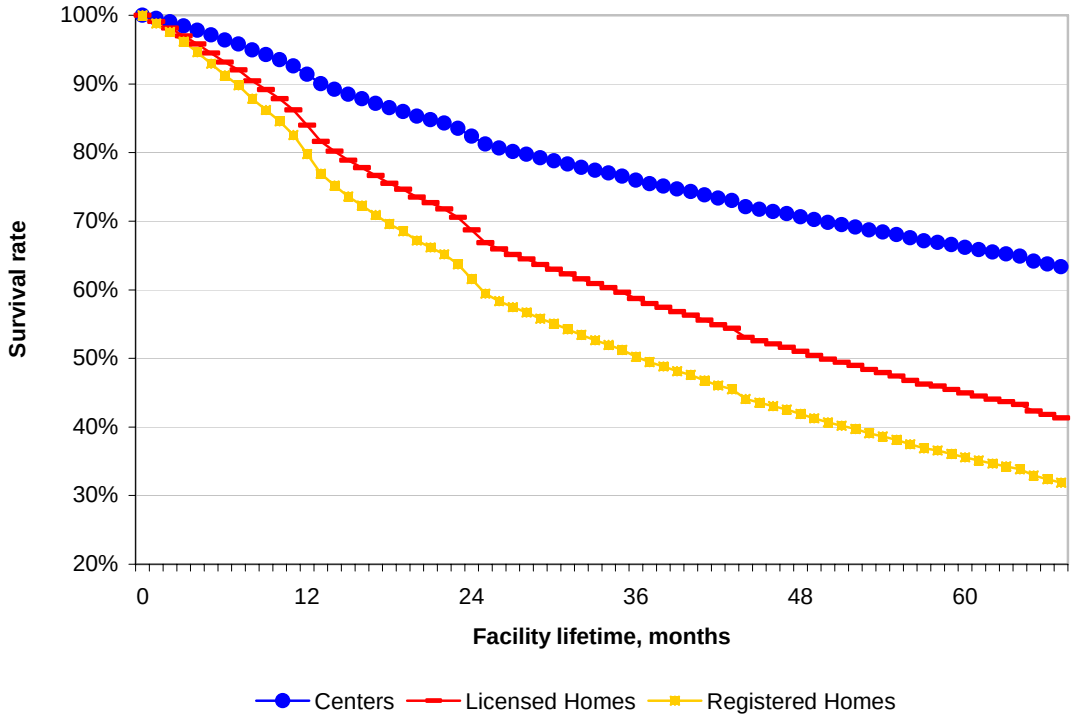
Variations in the Lifetimes of Child Care Facilities

Figure 4 illustrates the survival curves (facility lifetimes) of child care centers, licensed family homes and group family homes. Two findings are immediately obvious from this figure. First, centers had the highest survival rates and registered homes the lowest, meaning that centers had the longest durations as businesses and registered homes the shortest. As can be seen in Figure 4, 80% of child care centers were still in operation 36 months after their initial registration dates compared to only 50% of registered homes.

Second, the survival curves do not appear to be as smooth as those observed in prior chapters of this document. All three types of facilities demonstrate slight dips in their survival functions at approximate one-year intervals, with the dips being most pronounced at 12 and 24 months since registration. The dips also appear to be slightly more pronounced for both types of family home facilities, as compared to centers. Given the annual renewal fees required for all facilities to maintain their registration, the slight dips in the survival functions are probably due to some fraction of facilities simply failing to renew their registrations or

licenses at their one-year anniversary dates. Such failures-to-renew are clustered around the 12-month and 24-month "anniversaries" of the facilities' registration dates. Luckily, the smooth survival curves at times other than the anniversary dates suggest that most exits from the child care business are in fact measured accurately and *can* be reasonably modeled using registration and de-registration dates by using dummy variables as described above.[11]

Figure 4. Survival Rates for Facilities by Facility Type



Relationship of Local Child Care Policies to Facility Turnover

Results from the regression models measuring the relationship of local policies to the turnover among both child care centers and family homes (both licensed and registered) are listed in Table 9. Although the actual turnover rates among facilities varied by facility type, two local policy clusters were statistically associated with facility lifetimes regardless of facility type. Increasing both the maximum reimbursement rates to the moderate level and

[11] To see that this is true, consider what Figure 4 would look like if exits only occurred due to failures to renew licenses. In this case the survival functions would appear in the shape of stair-steps, with flat 'runs' lasting for one year, interspersed with steep drops as all facilities that quit the business during that year became de-registered from the database around the same time.

the income eligibility limits reduced the odds that either centers or family homes would exit the child care business. Increasing the reimbursement rate without changing the eligibility limits also reduced the odds of leaving the child care business for both types of providers, but the effects for that policy choice were not quite as strong. Increasing payments to subsidized providers could affect the overall market in two ways: actually increasing the funds that those providers receive for caring for low-income children and gaining access to a portion of the child care market for families with more stable jobs and income. Thus, these associations are quite logical.

The findings for two other policy clusters varied by type of child care facility. For centers, increasing the income eligibility limits was associated with longer facility durations, presumably because the new families using child care centers under the new income limits had more stable employment. However, this same policy had no effect on family homes. Another policy combination, both increasing income eligibility *and* reducing co-payments, was associated with longer facility lifetimes for family homes but not centers. This suggests that some combination of the following is occurring: the employment of families who used family homes was not as stable as the employment of families using centers, the family homes themselves were not as stable businesses as centers, or family homes served a higher share of subsidized clients and were not collecting co-payments from subsidized families. Neither of the policy options that increased family co-payments from the baseline policies had any effect on facility turnover.

Although they were only included in this regression as controls, a few of the remaining measures bear interesting relationships to facility turnover. Among the child care facility measures, the provider tenure measure indicates that, as expected, the longer providers were in business, the less likely they were to quit. The anniversary date indicator also performed as expected, indicating an elevated risk of exiting the business around the registration renewal date. This tendency was substantially greater among family home facilities, though the much smaller effect for centers is still significant. Also as expected, family home facilities showed greater rates of turnover than centers. Among family homes, licensed facilities were less likely to leave the business than homes that had only registered.

Table 9. Facility Turnover Regressions by Facility Type

Variable description	Centers	Family home facilities
	N=9,675	N=18,394
Local Child Care Policy		
Moderate reimbursement rate	0.81 **	0.86 **
Moderate reimbursement and increased income eligibility limit	0.73 *	0.75 **
Increased co-payment	1.07	0.96
Increased income eligibility limit	0.71 *	0.95
Increased income eligibility limit and increased co-payment	0.87	1.00
Increased income eligibility limit and reduced co-payment	0.80	0.83 **
Economy and Geography		
Unemployment rate	1.02 *	1.02 **
Employment growth rate	0.99	1.02 **
Median family income ($1000)	1.01	0.99
Small Workforce Board	1.26 **	1.30 **
Medium Workforce Board	0.97	1.05
Small metro area county	1.09	0.90
Micropolitan county	0.93	0.85 *
Rural county	1.01	0.92
Child care facility		
Provider tenure	0.73 **	0.83 **
Anniversary of license issue date	1.16 **	2.14 **
Licensed home facility		0.71 **
Other care options / demand factors		
PreK participation	1.00	0.99 *
Head Start participation	0.96 **	1.00
Single teen pregnancy	1.03 *	1.02 *
Subsidy saturation	0.989 *	1.00

Note: Statistical significance, *=p<.05, **=p<.01.

For every one percent increase in the saturation of a child care market by subsidies, there was a one percent reduction in the odds of centers in that market going out of business. Also, the presence of Head Start programs was associated with more stable duration of child care centers. No such relationship for either of those variables was found for family homes. Finally, both child care centers and family homes in small workforce board areas experienced greater turnover than facilities in larger workforce board areas. All of the 16 small boards

(defined as those receiving less than $8 million in average annual child care subsidy allocations) were located in the less populated areas of the state. This suggests that client proximity and/or availability of transportation in these less active economic regions could be important factors in the longevity of child care businesses.

Summary

The overall duration of child care facilities varied by facility type. Child care centers were the most stable, with 65% of facilities remaining in business over all years of the study. While staff turnover within these child care centers may have occurred at higher rates, the facilities themselves were relatively stable. Conversely, registered family homes were the least stable of all types of facilities in the formal Texas child care market. Only one third of the registered homes present at the beginning of the study period were still in operation five years later.

Two local policy clusters — increasing both the maximum reimbursement rates and the income eligibility limits, as well as increasing only the maximum reimbursement rates — were statistically associated with reducing the odds that either centers or family homes would leave the child care business. For centers only, increasing the income eligibility limits was also associated with longer facility durations. A different policy combination — both increasing income eligibility *and* reducing co-payments — was associated with longer facility lifetimes for family homes but not centers. Among non-policy factors, both newer facilities and those located in small workforce board areas were less likely to stay in business than other facilities.

Chapter 7: Conclusions and Policy Implications

By analyzing the factors associated with the overall length of child care subsidy use, employment duration for families using subsidies and the longevity of child care providers, this paper has addressed three different research questions that are rarely all tackled within one study. This study has advanced the current state of the research literature on child care subsidies by measuring the extent to which various policies available to child care subsidy administrators are associated with positive outcomes in each of these topic areas. Conclusions and policy implications that can be drawn from these analyses are discussed below, including some that apply across all three topics. The chapter concludes by identifying future research needed.

Conclusions

The following conclusions can be drawn from this analysis:

1. **All policy changes from the baseline policies resulted in longer subsidy duration than the baseline policies.** Research cited earlier in this report suggests that subsidies are linked to more stable child care arrangements, which in turn are linked to better child development. The finding that all of the policy changes following devolution were linked to longer subsidy duration suggests that the local boards that experimented with their new policy authority understood the relationship between their policy choices and subsidy use well enough to make decisions that enhanced the duration of subsidized child care for those families using subsidies.
2. **Local policy variables had stronger effects on employment-related subsidy spells than TANF-related subsidy spells.** Although all of the new policy combinations increased the length of subsidy spells both for families whose subsidies began for employment purposes and those who started their subsidy use while participating in the TANF Choices program, the strength of the effects were consistently stronger for the employment-related spells. This makes sense because some of the policies (e.g., family co-payments, income eligibility limits) did not apply to Choices participants until after they left that program. Among all of the policy combinations used by the

local boards, increasing family co-payments and income eligibility limits were the most strongly associated with longer periods of subsidy use.

3. **In general, fewer child care subsidy policies had any effects on employment duration than on subsidy duration. Furthermore, effects were found only for non-Choices families.** Only one policy combination — higher income eligibility limits and increased family co-payments — was linked to longer employment spells for families who started using subsidies for employment purposes. Another — increasing reimbursement rates — was linked to shorter employment for these same families. Non-policy factors explained far more of the variation in length of employment than policy factors.
4. **Child care centers were found to be more stable businesses than family home providers**. Although this finding is not surprising, it is useful to mention here because facility stability is related to families' ability to obtain reliable care while working. The overall cost of care was highest in centers but the flexibility of hours offered by family homes is often more compatible with the types of jobs available to low-income families who use subsidies. Among family homes, licensed homes were more stable than those that merely registered with the state.
5. **The combination of increasing provider reimbursement rates *and* income eligibility limits were linked to more stable facilities, regardless of facility type**. Increasing only the income eligibility limits was associated with longer facility durations for centers, while increasing income eligibility *and* reducing co-payments increased facility lifetimes for family homes but not centers.

Policy Implications

The variation in size, complexity and characteristics of local boards are comparable to the diversity faced by states in selecting combinations of subsidy policies. However, before discussing the policy implications of these findings, it is important to note that the overall policy and funding context within which this study was conducted varies considerably from a number of other states in the U.S. Specifically, this study was conducted within a statewide policy environment that did not guarantee child care subsidies to all eligible applicants and

that gave priority for limited subsidy dollars to TANF Choices recipients. As a result of these policy decisions and available funding, families in some regions of the state who requested child care subsidies to support employment were sometimes placed on waiting lists for services. Thus, the findings from this study are most applicable to those states with similar policy environments.

Given these caveats, this study fills a gap in literature by identifying which policy combinations within the child care subsidy program are associated with longer subsidy and employment durations for families already receiving subsidies and less turnover of child care facilities in communities that offer subsidized care. Some policy decisions (e.g., increasing income eligibility limits, both alone and in combination with other policies) are linked to longer subsidy duration, longer employment and less facility turnover. While these all seem to be positive and desirable findings, within Texas' limited funding environment, deciding to increase income eligibility limits would increase the pool of eligible applicants, which could mean that more applicants for employment-related care would end up on a waiting list for subsidized care.

Other policy decisions, such as increasing provider reimbursement rates to a level that enables providers to access a larger share of the child care market, seem to positively affect the longevity of all types of formal child care providers within a community. However, this policy choice is not related to increasing either the length of time that families use subsidies or the length of employment for families with subsidies. Thus, unless additional funds are allocated to support such a decision, policy makers who choose to raise reimbursement rates are also choosing to serve fewer families with subsidies.

Future Research Needed

This study adds to the literature by suggesting policy combinations within the subsidy program that are more likely to improve outcomes both for families served by the subsidy program and for child care providers. However, the reduced-form regression methods used in this analysis could only measure those relationships for families already receiving subsidies and child care providers who were already in business. More sophisticated models and the use of additional data sources not available for this study would be needed to measure why

families choose to begin using a subsidy in the first place or why someone decides to start a new child care business. Prior studies that have addressed those questions have not typically included the level of policy details used in this study. Additional research incorporating the level of detailed policy information available in this study with the more sophisticated models and data sets used in some other studies would be needed to address such questions.

A growing body of literature has linked subsidy use for employment purposes to more successful employment outcomes. While this research adds to that literature and also identifies specific subsidy policy choices associated with more successful employment outcomes, it is important to remember the limitations of the statistical models used in these studies. Given the complex relationship between employment, child care and the use of subsidies, it is very difficult to determine which decision causes another action to occur. Random assignment studies would be needed to determine causality. Although two such studies are currently underway in Illinois and Washington, the environment in which those studies are being conducted vary greatly from the overall policy environment in Texas and many other states that do not guarantee child care subsidies for everyone who applies. Findings from this study point to possible policy combinations that should be included in future random assignment studies in those types of policy environments.

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Appendix A: Research Data Set and Regression Details

This appendix includes additional information on the data sources used to construct research data sets, the variables constructed from those data sources, and contents of the regressions discussed in chapters 4-6.

Data Sources and Variables

Data from a number of different sources were collected over a six-year period from October 1997 to September 2003. The primary data sources, categories of variables created from these data sources and time period of availability are listed in Table A-1.

Table A-1. Data Sources for Categories of Variables Described Below

Categories of Variables	Data Source	Time Periods Available
Child Care Subsidy		
Policy variables	State plans; Correspondence with workforce board child care staff members; Child care subsidy individual-level longitudinal administrative data files	SFYs 1999-2003 Monthly files: October 1998 – September 2003
Program participation Family demographics Characteristics of care	Child care subsidy individual-level longitudinal administrative data files	Monthly files: October 1998 – September 2003
TANF		
Choices program participation	Child care subsidy individual-level longitudinal administrative data files	Monthly files: October 1998 – September 2003
Employment and Earnings		
Employment duration	TX Unemployment Insurance wage record files	Quarterly files: 1997-2003
Industry of employment	TX Unemployment Insurance employer characteristics files	Quarterly files 1997-2003
Economic and Geographic Variables		
Size and structure of Local boards	Census Bureau; interviews with local boards	2000; Spring 2002, Spring 2003
County economic data	Bureau of Labor Statistics; Census Bureau	1997-2003
Head Start, Prekindergarten	Texas Kids Count Project	1999-2003
Child Care Market		
Provider information (formal market only)	TX Department of Family and Protective Services	SFYs 1999-2003
Market rate data	U.T. Market Rate Survey data files	Annual (or biennial) 1998-2003

Major Categories of Variables

Information from the available data sources was used to create the following categories of variables for use in some or all of the regression equations. Variables listed in this section may serve as control variables for some analyses and as outcomes for others.

Child Care Subsidy

Policy

As a group, local boards gained the authority to set selected subsidy policies beginning in September 1999. The few boards that were not yet certified at this point began setting child care policies soon afterwards, once they had completed this process. Major policy variables of interest for this analysis are: income eligibility rules for working families, maximum reimbursement rates and family co-payment rules.

The monthly individual-level subsidy files include variables that describe the payment for each unit of subsidized care provided during that month. Child care policy variables derived from this data source included actual reimbursement rates and actual co-payment rates.

Under Texas state law, persons enrolled in the TANF Choices program are given priority for subsidized child care services over working families not enrolled in TANF.[12] These TANF families, along with families in the Food Stamps Employment and Training program and those receiving child protective services, are also exempt from paying a co-payment for child care subsidies. Although local boards did have the power to set maximum reimbursement rates early in the study period, the Texas Workforce Commission froze these rates beginning in the summer of 2002. This freeze continued through the rest of the study period.

Statewide policies applied to all geographic areas before September 1999. All local policy changes subsequent to that time have been recorded for each local board, covering the period through September 2003.

[12] Choices is the name of Texas' workforce development program for TANF recipients and is the successor to the Texas JOBS program.

Program Participation

These variables, which were derived from administrative data from the child care subsidy system, describe a number of features of participation in the subsidy program. Specific variables for each child and family include: types of care, numbers and types of providers, units of service, lengths of individual subsidy spells and total subsidy duration. This data source was also used to determine the relative shares of Choices/non-Choices care, self-arranged care, and the reason for receiving the subsidy (e.g., for work or training). Variables were available on a monthly basis for the entire six-year study period.

Family Demographics

Demographic characteristics describing both the children and families receiving subsidies were derived from subsidy system administrative data. The key child variables include: age and race/ethnicity. Additional family variables of interest include numbers of children and their age ranges, and caretaker marital status, age, and race/ethnicity. These characteristics are recorded at the time that families apply for child care subsidies, and typically updated whenever their case is recertified. Because birth dates are included in this file, all ages were computed in a time-varying manner.

TANF Choices Policies and Participation

TANF clients in the Choices program receive priority for child care services. During periods of restricted funding, Choices families received care both for job search and while working but non-TANF families in need of child care may have been placed on a waiting list. During the six years of this study, a number of changes occurred in the Texas TANF program that influenced the relative size of the Choices population needing child care. This in turn influenced the availability of child care subsidies to other low-income families.

From the beginning of this project through March 2002, the state of Texas operated its TANF program under a waiver from PRWORA. While it is beyond the scope of this document to chronicle all TANF changes occurring during this time period, two key changes with particular relevance to the child care subsidy system are mentioned here:

- TANF recipients with young children at home are typically exempted from participating in Choices. The age of youngest child cutoff for this exemption was

changed from age 5 to 4 in January 1997, to age 3 in January 2000, to age 2 in September 2000 and finally to age 1 in September 2001. Each of these reductions increased the number of Choices clients eligible for subsidized child care services.

- Until the end of the TANF waiver in the spring of 2002, only the 134 most populous of Texas' 254 counties offered Choices services because the remaining counties had been deemed too geographically remote to realistically place TANF recipients in jobs. When the waiver expired, Choices services (and thus the priority for child care) became available on a statewide basis.

Employment and Earnings

Unemployment Insurance wage records are maintained for all Texas employees who work in covered employment in the state (approximately 97 % of all employment). These quarterly earnings records, along with their companion files describing employer characteristics, were used to create variables that measure: employment in a calendar quarter, employment duration, quarterly or annual earnings, and industry code of employer, using codes from the North American Industry Classification System (NAICS) developed by the U.S. Department of Commerce.

Because of the large number of industry codes available (using 4-digit NAICS codes), it was necessary to devise an aggregation scheme to represent the thousands of industry codes in a reasonable number of categories for regression purposes. Industry categories specific to this population of subsidized child care recipients were formed through a strictly empirical process by:

1. Selecting all four-digit NAICS codes that accounted for 5% or more of the person-quarters of employment among the child care subsidy;
2. Removing these and selecting all three-digit NAICS codes accounting for 5% or more of the total population;
3. Repeating this process for 2-digit and 1-digit NAICS codes; and
4. Grouping the remaining lower-frequency codes into an "other" category, along with those for which industry codes were unavailable.

The resulting scheme includes ten categories of industry plus "unknown/other." Table A-3 lists the industry categories used in the employment regressions. The information sector

(first three categories) accounted for the largest share of employment among child care subsidy recipients. Substantial shares were also accounted for by sub-sectors in food service, health care, and retail. These primary industry category variables were entered into the regressions as time-varying covariates. The omitted level of industry includes industry unknown, including those who were never employed according to UI wage records, and the remaining industries not categorized by this scheme.

Economic and Geographic Variables

The 28 local areas governed by local boards vary greatly in size and composition, ranging from the Gulf Coast (Houston) area, with a child population larger than that of 35 states, to very small boards in sparsely populated rural areas. The low-income families served by workforce programs in these areas also vary greatly in their cultural backgrounds, experience with the cash welfare system and child care preferences.

Texas Kids Count data was used to determine the shares of participation in the state's pre-kindergarten, Head Start and other programs of interest in each local workforce area. These data, which are available for each Texas county, were grouped to the workforce area level when necessary. Median family income at the county level was also derived from this source, with years after 2001 being extrapolated from earlier values.

Additional information that is available at the county level that was used to create economic descriptions of counties. Employment and unemployment data from the Bureau of Labor Statistics were used to compute county unemployment rates and employment growth rates over time.

Another source of county data is the 2000 Census of Population. The primary measures constructed from Census data files were the number and population share of adults and children in poverty. Since the share of people in poverty is not likely to change quickly, the use of data from a single point in time should not be problematic.

Much of the variation between counties was accounted for by the judicious use of dummy variables, using the taxonomy of Texas counties shown below. The Metropolitan Statistical Area (MSA) and Micropolitan Statistical Area (MCSA) designations referred to in the figure are based on definitions promulgated by the Office of Management and Budget.

Using this categorization, the number of counties in each group and the population in each group are summarized in Table 2. These county groupings were used in the statistical procedures when appropriate to control for the sizes of both the county and local board populations.

Table A-2: Groupings of Texas Counties and Number of Counties in Each Group

Category	Description		
Big Metro	Counties in the following MSAs: Houston, Dallas, Fort Worth, San Antonio, El Paso, and Austin (the "big six" MSAs)		
Small Metro	Counties in all MSAs excluding the big six.		
Micropolitan	All counties in MCSAs		
Rural	All counties without MCSA or MSA assignment		
	Number of Counties	**Population**	**Percent of State**
Big Metro	36	13,518,039	65%
Small Metro	41	4,426,509	22%
Micropolitan	44	1,489,577	7%
Rural	133	1,417,695	7%
Total	254	20,851,820	100%

Child Care Provider and Market

Provider Information

Variables describing providers in the formal child care market were constructed from the Texas Department of Family and Protective Services (DFPS) database of registered and licensed child care providers. Measures include number and types of providers by CCMS region/LDWA over time, which can be calculated from the date that the state granted the facility a license, and if applicable, the date that the facility closed. Capacities of facilities are also included, but are not likely to be useful for home-based facilities because their capacities are always set to twelve.

Market Rates

The University of Texas conducts the Texas Child Care Market Rate Survey under contract with the TWC each year. As calculated by the survey, market rates for child care vary from year to year. The 75th percentiles, means and standard deviations were extracted from the Market Rate Survey database for the following categories of child care:

- Toddler full-time in Centers
- Toddler full-time in Registered Child Care Homes
- Pre-schooler, full-time in Centers
- Pre-schooler, full-time in Registered Child Care Homes

These facility types and age groups are the most common. Thus their market rates typically have the largest sample sizes, and therefore the greatest precision. These data were available at the board level from 1996 to 2003. Early in the study period, half of the state was covered by each annual survey. In the later years of the study, statewide surveys were conducted annually.

Specific Variables Used in Regressions

Table A-3 gives definitions of the specific variables used in any of the regressions in chapters 4-6. The remaining tables, Tables A-4 through A-6, provide descriptive statistics about the contents of each regression. These tables include the means and standard deviations for all variables included in each regression, including omitted variables to which other variables were compared. Most of the predictors in these proportional hazards regressions are time-varying. In the case of time-varying predictors, descriptive statistics are given for the first month of the spell.

Table A-3: Definitions of Predictors Used in Regressions

Variable Name	Variable Definition
Local child care policy	
Moderate reimbursement rate	Local policy: moderate reimbursement rate
Moderate reimbursement and increased income eligibility limit	Local policy: moderate reimbursement and increased income eligibility limit
Increased co-payment	Local policy: increased co-payment
Increased income eligibility limit	Local policy: increased income eligibility limit
Increased income eligibility limit and increased co-payment	Local policy: increased income eligibility limit and increased co-payment
Increased income eligibility limit and reduced co-payment	Local policy: increased income eligibility limit and reduced co-payment
Family demographics	
Youngest child 2 or younger	Youngest child age 2 years or younger
Youngest child 5 through 11	Youngest child age 5 through 11 years
Youngest child 12 and up	Youngest child age 12 years and up
Black	Casehead Black, most recent subsidy case
Hispanic	Casehead Hispanic, most recent subsidy case
Male case head	Male case head, most recent subsidy case
Married	Casehead married, most recent subsidy case
Widowed, separated, or divorced	Casehead widowed, separated, or divorced, most recent subsidy case
Two children	Two children in family receiving subsidized care, most recent subsidy case
Three children	Three children in family receiving subsidized care, most recent subsidy case
Four or more children	Four or more children in family receiving subsidized care, most recent subsidy case
Family situation	
Only part-time care	Subsidized care received consists only of part-time care
Eligibility group: Employment-related care	Eligibility for child care subsidy based on employment, current or most recent
Provider / care	
Receiving CC subsidy	Receiving child care subsidy, any receipt in quarter
Family home facility	Primary care arrangement in family home facility, current or most recent
Care is self-arranged	Primary care is self-arranged, current or most recent
Tiered reimbursement provider	Primary care arrangement in tiered reimbursement provider (Rising Star), current or most recent
Economy & geography	
Unemployment rate	County unemployment rate, percent
Employment growth rate	County employment growth rate, percent
Median family income ($1000)	County median family income, units of $1000
Small Workforce Board	Workforce Board with average initial allocations < $8M/year
Medium Workforce Board	Workforce Board with $8M/year < average initial allocations < $35M/year
Small metro area county	County with metro area population between 10,000 and 1,000,000
Micropolitan county	County having urban core with population of at least 10,000
Rural county	County with no urban core of at least 10,000 population

Table A-3: Continued

Employer industry	
Employment Services	Industry code of primary employer - NAICS5613: Employment Services
Other Administrative and Support Services	Industry code of primary employer - NAICS561: Other Administrative and Support Services
Other Information industries	Industry code of primary employer - NAICS5: Other Information industries
Limited-Service Eating Places	Industry code of primary employer - NAICS7222: Limited-Service Eating Places
Other Food Services and Drinking Places	Industry code of primary employer - NAICS722: Other Food Services and Drinking Places
Ambulatory Health Care Services	Industry code of primary employer - NAICS621: Ambulatory Health Care Services
Nursing and Residential Care Facilities	Industry code of primary employer - NAICS623: Nursing and Residential Care Facilities
Other Health Care and Social Assistance	Industry code of primary employer - NAICS62: Other Health Care and Social Assistance
General Merchandise Stores	Industry code of primary employer - NAICS452: General Merchandise Stores
Retail Trade	Industry code of primary employer - NAICS44: Retail Trade
Child care facility	
Provider tenure	Months provider in business, log
Anniversary of license issue date	Anniversary of license issue date, either in same calendar month or month before license was issued
Licensed home facility	Licensed home facility
Other care options / demand factors	
PreK participation	County PreK participation rate, children ages three and four
Head Start participation	County Head Start participation rate, children ages three and four
Single teen pregnancy	County Single teen pregnancy rate, unmarried females aged 13 through 19
Subsidy saturation	County percent of children subsidized

Table A-4: Descriptive Statistics on Predictors Used in Subsidy Regressions

	Employment Related		TANF Related	
	Mean	S.D.*	Mean	S.D.*
	N=104,613		N=99,452	
Local child care policy				
Baseline policy	48%	0.5	49%	0.50
Moderate reimbursement rate	8%	0.28	9%	0.28
Moderate reimbursement and increased income eligibility limit	7%	0.26	4%	0.20
Increased co-payment	12%	0.32	16%	0.36
Increased income eligibility limit	3%	0.17	3%	0.17
Increased income eligibility limit and increased co-payment	8%	0.27	8%	0.28
Increased income eligibility limit and reduced co-payment	13%	0.34	11%	0.31
Family demographics				
Youngest child 2 or younger	33%	0.47	44%	0.50
Youngest child 2 to 5	42%	0.49	38%	0.49
Youngest child 5 through 11	24%	0.43	17%	0.38
Youngest child 12 and up	0.50%	0.07	.2%	0.05
Black	25%	0.43	35%	0.48
Hispanic	47%	0.5	39%	0.49
White or other race	28%	0.45	26%	0.44
Male	4%	0.2	3%	0.17
Female	96%	0.2	97%	0.17
Married	15%	0.36	7%	0.25
Widowed, separated, or divorced	23%	0.42	9%	0.29
Single, never married	63%	0.48	84%	0.36
One child	56%	0.5	46%	0.50
Two children	30%	0.46	33%	0.47
Three children	11%	0.31	15%	0.36
Four or more children	3%	0.18	6%	0.24
Family situation				
Part-time care	17%	0.35	12%	0.29
Full-time care	80%	0.4	83%	0.37
Eligibility group: TANF-related care	0%	0	100%	0.00
Eligibility group: Employment-related care	100%	0	0%	0.00
Provider / care				
Family Home facility	21%	0.41	25%	0.43
Center facility	78%	0.41	75%	0.43
Care is self-arranged	10%	0.3	11%	0.31
Care arranged through listed provider	89%	0.31	89%	0.31
Tiered reimbursement provider	27%	0.44	24%	0.43
Non-tiered reimbursement provider	73%	0.44	75%	0.43
Economy & geography				
Unemployment rate	6.3	3.31	6.4	3.19
Employment growth rate	1.1	2.63	1.0	2.52
Median family income ($1000)	$38	8.23	$39	8.11
Small Workforce Board	29%	0.45	24%	0.43
Medium Workforce Board	40%	0.49	37%	0.48
Large Workforce Board	31%	0.46	39%	0.49
Small metro area county	36%	0.48	29%	0.46
Micropolitan county	10%	0.29	8%	0.28
Rural county	5%	0.22	5%	0.21
Large metro area county	50%	0.5	58%	0.49

* Standard Deviation

Table A-5: Descriptive Statistics on Predictors Used in Employment Regressions

	Employment Related		TANF Related	
	Mean	S.D.*	Mean	S.D.*
	N=21,440		N=34,965	
Local child care policy				
Baseline policy	46%	0.5	49%	0.5
Moderate reimbursement rate	9%	0.29	8%	0.28
Moderate reimbursement and increased income eligibility limit	7%	0.25	4%	0.19
Increased co-payment	16%	0.37	15%	0.36
Increased income eligibility limit	3%	0.17	3%	0.16
Increased income eligibility limit and increased co-payment	6%	0.24	8%	0.27
Increased income eligibility limit and reduced co-payment	13%	0.33	13%	0.34
Family demographics				
Youngest child 2 or younger	44%	0.5	53%	0.5
Youngest child 2 to 5	40%	0.49	34%	0.47
Youngest child 5 through 11	16%	0.36	12%	0.33
Youngest child 12 and up	0.10%	0.04	0.10%	0.03
Black	18%	0.38	20%	0.4
Hispanic	20%	0.4	22%	0.41
White or other race	61%	0.49	58%	0.49
Male case head	1%	0.12	1%	0.1
Female	99%	0.12	99%	0.1
Married	14%	0.34	6%	0.24
Widowed, separated, or divorced	20%	0.4	9%	0.28
Single, never married	67%	0.47	85%	0.35
One child	53%	0.5	43%	0.5
Two children	30%	0.46	33%	0.47
Three children	12%	0.33	17%	0.37
Four or more children	5%	0.22	8%	0.27
Family situation				
Only part-time care	8%	0.26	5%	0.2
Full-time care	91%	0.29	93%	0.26
Eligibility group: TANF-related care	%	0	100%	0
Eligibility group: Employment-related care	100%	0	%	0
Provider / care				
Receiving CC subsidy	100%	0	100%	0
Not receiving CC subsidy	%	0	%	0
Family home facility	21%	0.4	26%	0.44
Center facility	78%	0.41	73%	0.44
Care is self-arranged	10%	0.3	12%	0.32
Care arranged through listed provider	89%	0.31	88%	0.33
Tiered reimbursement provider	30%	0.45	26%	0.43
Non-tiered reimbursement provider	69%	0.46	73%	0.44
Economy & geography				
Unemployment rate	6.2	3.19	6.3	3.13
Employment growth rate	1.1	2.39	1	2.39
Median family income ($1000)	$38	8.28	$39	8.05
Small Workforce Board	29%	0.45	22%	0.42
Medium Workforce Board	37%	0.48	38%	0.49
Large Workforce Board	34%	0.47	39%	0.49
Small metro area county	36%	0.48	30%	0.46
Micropolitan county	9%	0.29	8%	0.27

*Standard Deviation

Table A-5: Continued

	Employment Related		TANF Related	
	Mean	S.D.*	Mean	S.D.*
	N=21,440		N=34,965	
Employer industry				
Employment Services	9%	0.28	12%	0.32
Other Administrative and Support Services	6%	0.24	8%	0.27
Other Information industries	10%	0.29	8%	0.27
Limited-Service Eating Places	9%	0.29	12%	0.33
Other Food Services and Drinking Places	5%	0.21	5%	0.21
Ambulatory Health Care Services	8%	0.28	8%	0.27
Nursing and Residential Care Facilities	5%	0.21	6%	0.24
Other Health Care and Social Assistance	12%	0.32	9%	0.28
General Merchandise Stores	4%	0.20	6%	0.24
Retail Trade	10%	0.29	9%	0.29
Other industry, or unknown	22%	0.42	18%	0.38

*Standard Deviation

Table A-6: Descriptive Statistics on Predictors Used in Provider Regressions

	Centers		Family Homes	
	Mean	S.D.*	Mean	S.D.*
	N=9,675		N=18,374	
Local Child Care Policy				
Baseline policy	84.40%	0.36	81.60%	0.39
Moderate reimbursement rate	3.30%	0.18	4.10%	0.2
Moderate reimbursement and increased income eligibility limit	1.30%	0.12	1.50%	0.12
Increased co-payment	5.70%	0.23	6.80%	0.25
Increased income eligibility limit	1.00%	0.1	1.40%	0.12
Increased income eligibility limit and increased co-payment	2.30%	0.15	2.90%	0.17
Increased income eligibility limit and reduced co-payment	1.90%	0.14	1.70%	0.13
Child care facility				
Provider tenure	2.39	2.15	1.71	1.99
Anniversary of license issue date	14.50%	0.35	7.30%	0.26
Licensed home facility			13.70%	0.34
Registered home facility			86.30%	0.34
Other care options / demand factors				
PreK participation	19.90%	0.05	19.80%	0.05
Head Start participation	9.10%	0.05	8.90%	0.04
Single teen pregnancy	11.00%	0.02	10.70%	0.02
Subsidy saturation	3.20%	0.05	3.10%	0.05
Economy and Geography				
Unemployment rate	5.4%	0.03	5.40%	0.04
Employment growth rate	2.3%	0.02	2.10%	0.02
Median family income ($1000)	39.0	7.03	39.4	7.3
Small Workforce Board	23.2%	0.42	23.30%	0.42
Medium Workforce Board	33.2%	0.47	33.10%	0.47
Large Workforce Board	43.7%	0.50	43.60%	0.5
Large metro area county	66.6%	0.47	68.10%	0.47
Small metro area county	21.9%	0.41	21.40%	0.41
Micropolitan county	6.1%	0.24	5.00%	0.22
Rural county	5.4%	0.23	5.60%	0.23

*Standard Deviation