Child Care
Price Dynamics
in California

• • •

Grecia Marrufo
Margaret O'Brien-Strain
Helen Oliver

2003

PUBLIC POLICY INSTITUTE OF CALIFORNIA

PPIC does not take or support positions on any ballot measure or on
any local, state, or federal legislation, nor does it endorse, support, or
oppose any political parties or candidates for public office.

Research publications reflect the views of the authors and do not
necessarily reflect the views of the staff, officers, or Board of
Directors of the Public Policy Institute of California.

Foreword

One consequence of welfare reform has been the need for more child care as greater numbers of women enter the labor market. State-subsidized child care vouchers have supported this entry into the workforce, and California's vouchers are among the most generous in the country. Welfare rolls have declined, and with time limits pushing more recipients toward reduced or no benefits, the waiting list for these vouchers, which does not include welfare recipients, is nearly as large as the number currently receiving that subsidy.

As Grecia Marrufo, Margaret O'Brien-Strain, and Helen Oliver report, the rapid growth of the voucher program has put upward pressure on child care prices for all families, including poor families not currently receiving assistance. This finding follows the tenets of basic economics—if the demand for a service increases dramatically without a corresponding increase in supply, the price of the service will rise. The authors note, however, that price pressures in the future will depend heavily on such policy levers as eligibility rules, benefit levels, and the availability of alternatives to child care, such as universal preschool. Policy options now under consideration may lessen or increase pressure on child care prices depending on the exact design of the programs. In a related PPIC report, *Arranging and Paying for Child Care*, Margaret O'Brien-Strain, Laura Moyé, and Freya Lund Sonenstein investigate the issues facing the designers of child care programs for California families. Here the authors simply note that future proposals to modify welfare or other child support programs should consider price effects and their potential to mitigate or wipe away desired benefits.

This report was the joint effort of PPIC and The SPHERE Institute, with support provided to SPHERE by the Child Care Bureau of the U.S. Department of Health and Human Services. The early involvement of the California Child Care Resource and Referral Network also helped

bring the project to fruition. It is our collective hope that its findings will usefully inform the next stages of welfare and child care reform in California.

David W. Lyon
President and CEO
Public Policy Institute of California

Summary

Available, affordable child care is a critical support for working families. Between 1988 and 1998, mothers of children under age 6 entered the labor force in record numbers, with labor force participation rising from 58.2 percent to 65.2 percent. For these families, child care can be a substantial expense. The average family with a young child spends almost 9 percent of its income on child care; the average family in poverty spends 34 percent of its income on child care. For these families, the cost of child care can make the difference between work and welfare.

Linked with welfare reform, public spending on child care support rose dramatically in the 1990s. Between 1992–93 and 2000–01, expenditures on child care subsidies in California soared from $125 million to $1.5 billion. Adjusted for inflation and the number of young children in the state, this translates to a change from the equivalent of $46 per California child under age 5 to $375 per child. Yet despite this enormous increase in expenditures, the 300,000 children served through this program represent only a fraction of eligible children. Estimates put the waiting list at over 200,000 children, and many more families are eligible but not aware that they qualify for assistance.

Child care subsidies are provided as vouchers to current and former welfare recipients and other low-income families. Under California's subsidy program (known as the Alternative Payment or AP program), families using these vouchers can choose a child care provider and the provider is reimbursed for the cost of care as long as the price is below a reimbursement rate ceiling. Before October 2003, that ceiling was set at 1.5 standard deviations above the average market price in a region, ensuring that about 93 percent of all child care slots offered in each region were priced below the reimbursement ceiling. Given this structure, the number of families that can be served, especially low-income families who have never received welfare, depends in part on the prices in the private child care market.

Nevertheless, relatively little is known about the dynamics of child care prices and the role of recent policy changes—including welfare reform and the associated increase in state and federal subsidies—in the private market for child care. To address this gap, this report combines data from nearly a decade of market rate surveys conducted in California to establish reimbursement rate ceilings for child care subsidies with county information on employment, housing costs, income, child care earnings, licensed child care supply, welfare caseloads, and subsidy expenditures. We explore four interrelated questions:

1. What has been the trend in prices for licensed child care over the last decade?
2. What have been the trends in other aspects of the child care market, such as wages in the child care industry and the supply of child care?
3. How are price changes related to local economic conditions?
4. Did welfare reform or child care subsidy increases affect the trends in prices?

Examining data from 1991 through 2000, we find significant price increases across the 1990s, with average child care prices rising 14 percent in real terms over this period. The sharpest increases, especially in licensed family day care, occurred after 1996. By 2000, the average weekly price for preschool center care was $121, although there are significant regional differences. The Bay Area faces the highest prices for child care, averaging $149 per week for preschool care in child care centers.

The price increases might have been higher but for substantial growth in the supply of child care. In 2000, there were sufficient licensed slots for 23 percent of all children ages 0–5 for every licensed slot in the state—a 20 percent improvement over 1996. (Of course, not all parents work, and many of those who do rely on unlicensed care.) However, the ratio of slots to children varies dramatically from county to county, ranging from enough for only 15 percent of children in San Diego County to enough for 56 percent of children in Siskiyou County.

As capacity rose, so did the need for child care teachers, helping boost earnings in the child care industry. During the 1990s, earnings for

child care employees grew 19 percent, a bit faster than child care prices. However, these earnings only kept pace with earnings in other industries. By 2000, child care earnings relative to earnings averaged across all industries stood at 42 percent—the same ratio that held in 1991.

Exploiting differences across California's 58 counties over time, we use multivariate regression analysis to help disentangle the effects of the robust economy, demographic trends, child care wages, welfare caseload declines, and subsidy increases on the growth in child care prices. Table S.1 shows how the regression results translate into price changes in a typical county. The first column shows how much each explanatory factor changed in the county, and the next two columns report the implied price increases resulting from this change. For example, median county income rose 9 percent in real terms between 1998 and 2000. Higher income resulted in a 5.1 percent increase in prices in child care centers and a 1.6 percent increase in prices in family day care homes.

This county had the median increase in preschool center prices between 1998 and 2000—around 10 percent. The results are generally consistent with economic theory. From the demand side, higher employment levels and higher income are both associated with greater

Table S.1

Effect of Economic, Demographic, and Policy Changes on Child Care Prices, Median County, 1998–00

	% Change, 1998–00	% Effect on Prices	
		Centers	Family Day Care
Economic and demographic conditions			
Income	9*	5.1*	1.6*
Fair market rent	4*	1.0*	1.4*
Employment	5*	1.4*	1.2*
Share of population of preschool age	−3*	−0.5*	0.2
Child care market			
Child care earnings	13*	1.6*	1.4*
Preschool center enrollment	15*	−3.4*	0.0
Preschool family day care enrollment	21*	0.5	−0.2
Welfare participation of preschool-age children	−23*	−2.4*	0.4
Total child care subsidies per child age 0–5	289*	8.1*	4.5*

*Indicates significance at the 95 percent level.

price increases, although income has a greater effect on child care center prices than on family day care center prices. From the cost side, rising housing costs and the earnings of child care employees are also associated with greater price increases.

The rapid decline in welfare caseloads before 1997 appears to have created demand pressures on the child care market, increasing family day care prices by 4.4 percent and center prices by more than 2 percent. The role of welfare declines in the 1998–00 period is much less clear, with no discernable effect on family day care and a small decrease in center prices.

Finally, the expansion of child care subsidies is correlated with price increases in both the pre- and post-1997 periods. Rough calculations suggest that the child care subsidies provided through vouchers represent as much as one-fifth of the gross receipts in the private child care market, so it is not surprising that this policy would have an effect on the market. Although the estimated effects appear small, the magnitude of the subsidy increases leads to dramatic implied increases in prices—an 8 percent increase in center prices since 1998 and a 4 percent increase in family day care prices.

This analysis does not track changes in child care quality over time, so it is difficult to conclude whether consumers of child care are better or worse off than they were in 1991. Nevertheless, our findings suggest that the enormous growth in child care subsidies may have driven up prices for all families, including poor families not currently receiving assistance.

The 2003–04 budget cuts spending on vouchers by an estimated $155 million, removing $57 million in funding set-aside for former CalWORKs recipients (based on lower enrollment assumptions), cutting $16 million by no longer subsidizing care for children age 13, lowering the reimbursement rate ceilings, and reducing the maximum market price that the vouchers will reimburse from 1.5 standard deviations above the mean price to the 85th percentile price—a cut of $82 million. These cuts could be viewed as reducing pressures on child care prices. In the current economic climate, however, it is probable that subsidies are now acting to support a child care market otherwise facing declining enrollments.

More important, this analysis points to the ongoing need to consider the effects that child care policies will have on the larger child care

market. One debate under welfare reauthorization is the magnitude of additional spending on child care subsidies, in light of increased work requirements. Current reauthorization bills, such as H.R. 4 passed by the House, increase child care funding only 7 percent—too modest to place noticeable pressure on the child care market. In contrast, universal preschool proposals—with a potential price tag of $5 billion or more (three to four times the size of the voucher program)—could have substantial effect on the private market for care. Both the magnitude and the direction of the effect are very sensitive to the way universal preschool is implemented. That is, decisions about whether the program is school-based or private, the eligibility rules, the hours of care, and the credentialing and other care standards could all have significant influence on whether prices rise or fall (and whether quality improves) for children not served by the program, either because they are younger than the target group or because their families' income exceeds some cutoff. Such concerns need not be a roadblock for important policy changes but should be part of the calculations.

Contents

Figures

Tables

Acknowledgments

1. Introduction

Between 1988 and 1998, mothers of children under age 6 entered the workforce in record numbers, with labor force participation rising from 58.2 percent to 65.2 percent (Costello and Stone, 2001). For these families, child care can be a substantial expense. The average family with a young child spends almost 9 percent of its income on child care; the average family in poverty spends 34 percent of its income on child care (U.S. Census Bureau, 2003). For these families, the cost of child care can make the difference between work and welfare.

As welfare reform brought many more mothers into the workforce, public spending to help families pay for child care rose dramatically. Between 1992–93 and 2000–01, expenditures on child care subsidies for low-income families in California soared from $125 million to $1.5 billion. These subsidies, provided through CalWORKs (California's welfare program) or through the Alternative Payment (AP) program, reimbursed child care for around 300,000 California children in 2000–01 (California Budget Project, 2001b).

These child care subsidies are provided as vouchers to current and former welfare recipients and other low-income families and are paid for by a mixture of funding from the state general fund and the federal Temporary Assistance for Needy Families (TANF) and Child Care Development Fund (CCDF) block grants. Using these vouchers, families can select the child care provider of their choice, and the provider is reimbursed for the cost of care as long as the price of that care is below a reimbursement rate ceiling. California vouchers are among the most generous in the country: The state has one of the highest income eligibility thresholds, a very low copayment requirement, and the highest reimbursement rate ceiling in the country.

The tradeoff inherent in offering a generous program with limited funds is that for virtually every child currently receiving a voucher, there is another child on the waiting list for assistance. Although exact

numbers are not available, estimates put the waiting list for subsidies in California between 200,000 and 300,000 children (California Budget Project, 2001a). The size of the waiting list probably underestimates the need for care, as many eligible families do not know they qualify for assistance (Children's Defense Fund, 1998).

After years of increased funding, the 2003–04 California state budget reduces state spending on child care programs by approximately $384 million, including three changes in the AP program that are projected to save $155 million in expected expenditures. First, $57 million was removed from funding set aside for former CalWORKs recipients, as a result of lower enrollment assumptions. Second, $16 million was cut from vouchers subsidizing care for 13-year-olds. Finally, the reimbursement rate ceilings were cut, reducing the maximum market price that the vouchers will reimburse from 1.5 standard deviations above the mean price to the 85th percentile price—a cut of $82 million.[1]

Although these budget cuts reduce the funding for child care in California, far more dramatic changes in the voucher program were held off. A 2001 analysis conducted for Governor Davis considered a number of options to restructure the subsidy system, reducing eligibility for some families, and in some plans, reducing the maximum reimbursement rates and increasing family copayments (California State and Consumer Services Agency, 2001). The governor's budget proposal in January 2003 called for a shifting of responsibility for the AP program and other non-CalWORKs subsidies to the counties—a proposal strongly opposed by much of the child development advocacy community.[2] Given the ongoing budget problems in the state, however, it is possible that additional cuts or program restructuring will occur next year or even in midyear budget revisions.

From a budget perspective, the number of children served with the existing voucher funds is highly dependent not only on the eligibility rules and the takeup rates but also on the market price for child care.

----

[1]Even after this reduction, California's reimbursement rate ceiling remains the highest in the country and the only one that exceeds the prewelfare reform national ceiling of the 75th percentile of private prices for child care.

[2]See, for example, testimony by the Child Care Law Center (2003).

Economic theory predicts that increased demand relative to supply will put upward pressure on prices. As early as 1997, less than a year after welfare reform was signed into law, the General Accounting Office sounded warnings about possible shortages in child care. Government analysts estimated that the number of child care centers grew by about 19 percent between 1991 and 2000 (Committee on Ways and Means, 2000) but found no increase in the number of family day care providers, at least through 1997 (U.S. Census Bureau, 1995, 2000). Studies in Illinois, Maryland, Florida, and Massachusetts have found evidence of increased demand but relatively little change in supply.[3]

In turn, the magnitude of the subsidy expenditures may distort the price of care in the market. The economics of vouchers would predict a price effect from subsidies, unless the supply of child care is perfectly elastic. By lowering the price of care for some consumers, vouchers increase the total demand for care (unless the additional demand by subsidized families is entirely offset by reduced demand by families paying for the subsidies). The effect of the subsidies on the market price, as well as on the supply of care, depends on the income and price elasticities of child care purchasers and on the price elasticity of supply (Bradford and Shaviro, 1999). Put in more simple terms, how high prices rise depends on the degree to which a price increase will discourage child care use by nonsubsidized families and on how many new providers will enter the market as the price rises. The Council of Economic Advisors (1997) concluded that the historically slow increase in child care prices indicated that supply would easily meet demand without much change in the price of care.

Despite the predictions of the Council of Economic Advisors, the enormous increase in subsidies could increase prices by increasing the demand for care among families who otherwise could not afford to place their children in licensed care settings as well as by reducing the price sensitivity of subsidized parents to increasing prices. Finally, although the reimbursement ceilings are not widely publicized, there is some

---

[3]See, for example, Abt Associates, Inc. (2000); Kreader et al. (2000); Witt, Queralt and Witte (2000); and Queralt, Witte, and Griesinger (2000).

concern that the providers may interpret the ceilings as a target price of care, inducing lower-priced providers to increase their rates.[4]

As the state's fiscal crisis puts pressure on child care subsidies, it is critical that we better understand price trends in the child care market, how they change over the economic cycle, and how policy changes translate into price increases or decreases—not just for government provision of care but also for the remaining hundreds of thousands of California families that purchase child care in the private market.

This report combines data from nearly a decade of market rate surveys on child care prices to address four interrelated questions:

1. What has been the trend in prices for licensed child care over the last decade?
2. What has been the trend in other aspects of the child care market such as wages in the child care industry and the supply of child care?
3. How are price changes related to local economic conditions?
4. Did welfare reform or child care subsidy increases affect the trends in prices?

The next chapter describes the price data constructed for this study. Chapter 3 addresses the first research question, reviewing trends in child care prices between 1991 and 2000, by type of care, age of children, and region of the state. Chapter 4 describes the changes in welfare caseloads and the accompanying increase in child care subsidies. Chapter 5 examines trends in the supply of licensed child care, as well as in wages for child care workers. In Chapter 6, we combine the findings from Chapters 3 and 4 with data on welfare participation, demographics, employment rates, and housing costs, using regression analysis to address the last two research questions posed above. We offer conclusions in Chapter 7.

----

[4]To keep the voucher rates in line with the market rate for care, the "75% rule" allows providers to be reimbursed at the ceiling rate only if subsidized children represent no more than 75 percent of children served and they charge the nonsubsidized children the ceiling rate (or higher).

2. Market Rate Survey Data

This study relies on a unique dataset created from the Regional Market Rate (RMR) surveys, which are used to set the reimbursement rate ceilings for child care subsidies. Our analysis links price data from these surveys to other information to create longitudinal data for each county in California for the 1990s. This chapter describes the providers included in the Regional Market Rate surveys, the scope and characteristics of the surveys, and our method for adjusting the data to meet the analytical goals.

Licensed Child Care

Our data capture detailed information on prices for licensed care in child care centers and family day care homes—two distinct categories of licensed care with different regulations for each type. Child care centers, including nursery schools and preschool programs, may be either for-profit or not-for-profit and can be operated independently or by a church or other organization. Among other requirements, licensing regulations require varying levels of early childhood education (ECE) credentials for teachers and staff. Those who serve preschool-age children (ages 3 to kindergarten enrollment) must have at least one fully trained teacher per 24 children and at least one adult (teacher or aide) for every eight children. For toddlers (ages 18–36 months), these ratios are one teacher for every 16 children and at least one adult for every four children, and for infants (birth to 18 months), they are one teacher for every 18 children but one adult for every three children. These licensing rules determine the maximum number of children that can be cared for in a center. The required staff ratios also mean that younger children require more staff, making care more expensive for younger children.

Family day care homes provide care for up to 14 children in the provider's home. Providers can be licensed either for a small day care home—allowing up to eight children, depending on the ages of the

children—or for a large day care home—allowing up to 14 children, depending on the ages of the children and requiring an assistant. No more than four infants may be cared for at any time in a family day care home. Family day care home providers do not need to be trained in early childhood education, but they do have to be trained in basic child health and first aid.

Licensed child care represents only a segment of the child care arrangements used by parents in California and elsewhere. Many families rely on unlicensed providers, including care relatives, nannies, and babysitters. Providers offering care in their home to only one family (other than their own) are also exempt from licensing requirements. Because household surveys do not distinguish between licensed and unlicensed centers and family day care homes, estimates of the number of children in licensed care are not available. However, we can infer the importance of the unlicensed market by examining care in settings other than family day care homes and centers. For example, among California children between the ages of two and five who are in some child care setting, 32 percent are cared for only by relatives, nannies, or babysitters; 45 percent are cared for only in child care centers or family day care homes; and 23 percent spend time in both.[1]

Despite the importance of these settings to the overall supply of child care, we exclude them from our analysis. Price data, as described below, are not collected for these settings.[2] A more serious limitation is the absence of direct measures of the size or characteristics of unlicensed providers over time and across localities. Clearly, the availability and cost of unlicensed care will affect the willingness of parents to pay for licensed care, and caregivers may move between being licensed and being

---

[1]Younger children are much more likely to be cared for by relatives or other unlicensed providers. Of children under age 2 in care in California, only 31 percent are cared for in centers or family day care homes. Statistics on child care settings are based on authors' calculations using the 1997 and 1999 panels of the National Survey of America's Families. Details about these data can be found in O'Brien-Strain, Sonenstein, and Moyé (2003).

[2]Nor is there a real concept of a market price in the case of family, friend, and neighbor care, which is not offered to the general public.

unlicensed. Both of these effects are likely to influence the equilibrium price of care among licensed providers.

The Regional Market Rate Survey

Since the late 1980s, the California Child Care Resource and Referral Network has conducted RMR surveys to determine market prices for licensed child care across the state—an approach adopted as a national strategy following the Family Support Act of 1988. This survey provides detailed data on child care fees charged by licensed child care centers and family day care providers in California. We have combined annual RMR data for each year from 1991 through 2000, except for 1997 when the survey was not administered.

The fall 2000 survey, the largest sample year included in our analysis, demonstrates the depth of the RMR surveys. This statewide telephone survey interviewed 4,302 child care centers and 10,769 family child care homes out of a population of 38,458 active, licensed centers and homes listed with the state-funded child care resource and referral agencies. The total number of completed interviews represents approximately 39 percent of this statewide population.

An unusual feature of this survey is its coverage of all 58 counties in California. The sampling plan is based on the number of providers in each county. The sample includes all child care centers and family child care homes in the 31 counties with fewer than 200 providers ("census counties"), all child care centers and a random sample of family child care homes in the 26 larger counties ("sample counties"), and a random sample of both child care centers and family child care homes in Los Angeles County.

The survey collects data on full-time and part-time rates for three age groups: infant (ages 0–1), preschool (ages 2–5), and school age (ages 6–13). Within each of these categories, providers are asked how many children they served within each rate category, the number of hours per week the typical child within the rate category is in care, and the rate charged per unit of time.

Data on Child Care Prices in California Counties

Using the RMR surveys, our analysis focuses on the price of full-time care for children ages 0–5, especially children ages 2–5. Thus, we limit the data to centers and homes that care for infants or preschoolers full-time (at least 35 hours) during the week.[3] Since providers are permitted to report rates as hourly, daily, weekly or monthly rates, we convert all prices to weekly rates. Weekly rates are the most common overall and in most counties for family day care homes and infants in child care centers, whereas monthly rates are slightly more common in preschool centers.[4]

For our analyses of prices on the state or regional level, we create weights to adjust for the sampling strategy of the RMR survey. Although the RMR data are representative of each county, aggregating the sample is not representative of the state because, effectively, small counties are oversampled. To correct for this, we calculate for each county and for each mode of care the ratio of providers of that type in the county to providers who responded to the survey in a given year. We weight the response of each provider by this ratio and calculate state- and regionwide statistics on this weighted price.

Since we are interested in the prices that parents face in the market, we generate statistics on the price of a child care *slot* rather than the price of an average provider. Thus, for calculations at all levels (county, region, and state), we multiply each provider's price by the number of children in care, before sample weighting if necessary. This method ensures that the prices of large providers have more of an effect on our

_____

[3]The California Child Care Resource and Referral Network, which directs the RMR surveys, changed the definition of full-time care from 30 hours to 35 hours in 1996. Sensitivity tests indicate that this change does not affect our results.

[4]This procedure may introduce error or bias into our estimates—for example, if providers who charge daily rates tend to have higher prices for a whole month of care, or if certain counties have a disproportionately large share of providers charging nonweekly rates. However, for two reasons it is preferable to including only those providers who use a given type of rate. First, it decreases the number of counties with so few observations that a mean rate or the distribution of rates is missing or unstable (this is still a problem for some categories of care, particularly at infant centers). Second, it reduces the bias that occurs from the fact that some rate units are more popular in some counties than others. Although converting these rates is imprecise, it is better than eliminating them all together. Clearly, our rate measure will be more accurate the fewer the rates that need to be converted.

analysis than the prices of small ones. The same methodology is used to calculate reimbursement rate ceilings.

Counties are the main geographical unit for our analysis. Although child care markets can be considerably more local, we chose this unit of analysis for two main reasons. First, subsidy reimbursement rates are typically determined for each county according to the prices quoted by providers surveyed in the county. Thus, our definition of "market" parallels the definition in subsidy policy. Second, although we can calculate child care prices on a city or zip code level, the supplementary data that we use—described below—are often available only for the counties as a whole. Therefore, for this statewide analysis of the dynamics of child care prices, we focus on variations among California's 58 counties.

Finally, it is important to note one key limitation of the RMR data. These surveys provide a rich resource for tracking prices, but they do not include any information on the quality of care beyond licensing. For this reason, we cannot observe the effect of changes in child care quality on the price of care.

3. Child Care Prices in California

If child care prices had been stable over time or had merely risen with inflation, there would be little reason to be concerned about the effect of such policy changes as welfare reform and subsidies on the cost of care for families generally. However, little analysis has been done to document price changes over time, even though the RMR survey is used each year to determine the mean price of child care and the reimbursement rate ceilings. For example, when results from the RMR survey were published in June 2001, the California Child Care Resource and Referral Network reported one-year price increases in seven example counties, finding an average 5 percent increase in weekly rates for child care centers and homes—an increase well above the rate of inflation. In this chapter, we explore the basic trends in child care prices to understand whether this price change was typical for the state overall and for other years. We first examine the average price of different child care arrangements in the state and look at how these prices have evolved over the past 10 years. We then investigate differences between regions within the state, since the variation across different parts of the state will be vital to distinguishing the role of different factors in determining the price of care.

Statewide Prices

In 2000, the average price for a preschool slot in a child care center in California was $121 per week (Table 3.1). A slot in a family day care home was slightly less expensive, at $117 per week. A number of factors could contribute to a price differential between these two modes of care. First, child care centers may have facilities and administrative overhead costs that family day care providers do not face or do not factor into their

Table 3.1

Average Weekly Prices for Child Care in California

Preschool age	Centers	$121
	Family day care homes	$117
Infants and toddlers	Centers	$177
	Family day care homes	$125

fees.[1] Second, child care center staff are more credentialed on average than family day care proprietors or their assistants (Whitebook et al., 2003), thus they command higher wages. Finally, child care centers are often perceived, rightly or wrongly, to offer higher-quality care than day care homes, thus increasing parents' willingness to pay higher prices. Given these differences, it is perhaps surprising that the average price of the two modes of care is so similar.

The gap between center and family day care prices increased and then decreased during the 1990s (Figure 3.1). Between 1991 and 2000, the cost of full-time licensed care for preschool-age children rose 14 percent in real terms in both centers and family day care. The average prices we observe in 2000 reflect considerable increases statewide in the late 1990s. The price of preschool center care grew fairly steadily throughout the decade, with an additional up-tick in the last year of our study period. Family day care prices, on the other hand, were essentially constant before 1996, resulting in an 8 percent differential between centers and family day care in 1996. After 1996, however, family day care prices rose rapidly.

Infant care, on the other hand, is much more expensive when provided in a center rather than in a home. The average weekly price for an infant slot in a family day care home in 2000 was $125—higher than the price of a preschool slot but not drastically so. In a center, however,

_____

[1]On the other hand, some centers receive free rent from a church or school, whereas nearly all family day care providers pay rent or a mortgage for their space. Family day care homes vary tremendously in the sophistication of their business plan, so that some providers incorporate all implicit costs (such as time spent shopping or dealing with parents) into their fee structure, whereas others do not. For more information on providers' price-setting strategies, see Moyé and O'Brien-Strain (2003).
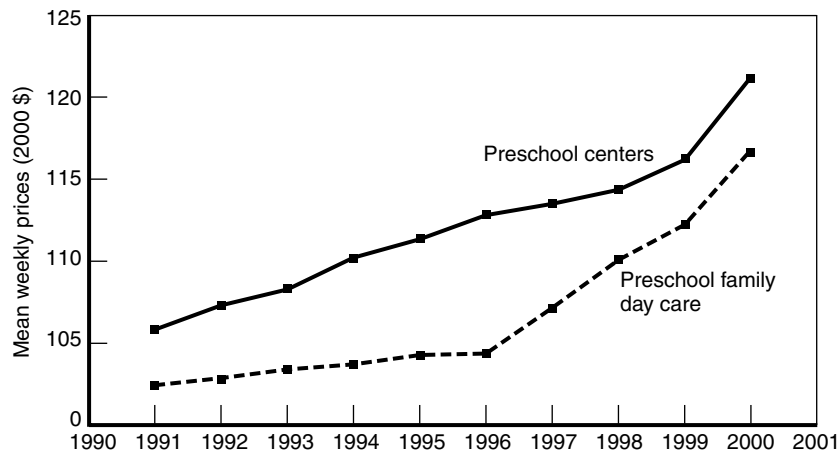
Figure 3.1—Mean Weekly Prices for Preschool Child Care

the average price was $177—over $50 more. Again, there are several reasons for this observed difference between both infant and preschool center care and infant care in centers and homes. As discussed in Chapter 2, centers that care for infants and toddlers must have at least twice as many adults to look after groups of young children than for groups of preschoolers, including more fully trained teachers. Thus, labor costs for this age group are substantially higher. Licensing regulations also restrict the number of infants that family day care providers can care for and permit fewer total children in homes where infants are in care. The trend in infant family care closely parallels that in preschool family care—flat before 1996, a jump between 1996 and 1998, with further growth after that (Figure 3.2). The price of infant center care was remarkably constant up until 1998, in contrast to what happened to the price of preschool center care, but it started increasing after 1998 and rose steeply between 1999 and 2000.

The jump in prices since 1998 is even clearer when we look at the average annual growth rates of each of these categories of care. Table 3.2 depicts these growth rates for three time periods: 1991–96, 1996–98, and 1998–00. Between 1998 and 2000, the price of care for preschoolers in both settings grew at a 3 percent annual rate—more
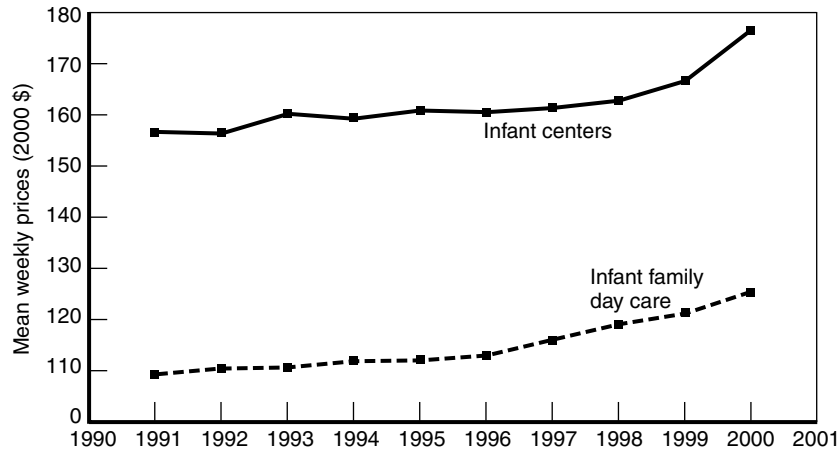
Figure 3.2—Mean Weekly Prices for Infant Child Care

Table 3.2

Average Annual Percentage Growth in Real Prices

		1991–96	1996–98	1998–00
Preschool age	Centers	1.3	0.3	3.0
	Family day care homes	0.4	1.4	3.0
Infants and toddlers	Centers	0.5	0.3	4.4
	Family day care homes	0.6	1.4	2.6

than twice as fast as in the prior two-year period. The price of infant center care increased nearly 9 percent, or 4.4 percent per year. The different growth patterns in center care and family day care are very evident between 1996 and 1998, when family day care prices increased nearly 1.5 percent per year but growth in center care prices was the slowest of the decade. In the five-year period before 1996, only the price of preschool center care grew more than 1 percent per year, whereas growth in other categories hovered around 0.5 percent. In fact, the price increases before 1996 are very close to the average annual price increases reported in Hofferth (1996) for the 1975 to 1990 period and noticeably lower than those she reports for national-level price increases between 1990 and 1993, perhaps because of California's deeper recession during

that period.[2] The regression analysis in Chapter 6 examines the contribution of different factors to the annual price increases in the 1990–96 and 1998–00 periods. (Because data were not collected for 1997, the middle period is not included in the regression analysis.)

The remainder of the analysis will focus on preschool prices rather than infant prices for a number of reasons. First, the licensed providers in the RMR data represent a much larger share of the preschool child care market than of the infant care market. Similarly, within the licensed care sector, many more providers serve preschoolers than serve infants. In our sample, 91 percent of providers cared for preschoolers and 63 percent cared for infants, predominantly family day care providers. In terms of slots, 84 percent of all child care slots went to preschoolers. Hence, the price data for preschool care draw on a larger sample of providers, reducing the instability of the results, especially in small counties. Finally, despite the higher prices for infant care, the trends in prices are more or less parallel between the two age groups.

Regional Prices

The statewide price trends, of course, hide tremendous differences across the state. The variation in prices and price changes is immediately evident when we look at maps of California and its counties. Figures 3.3 and 3.4 show the weekly price of care in 2000 for a preschool slot in a child care center and in a family day care home, respectively. In both maps, the Bay Area stands out with the highest prices. The average price for center care was above $125 per week in every Bay Area county and above $155 per week in Santa Clara, San Francisco, and Marin Counties. Every other county in the state had average center prices below $125, and 25 counties, largely rural, had rates below $100 per week. The Southern California coastal counties are moderately priced, as are a slice of counties in the middle of the state just south of the Bay Area. Several rural counties in Northern California and along the mountains have moderate average prices, which likely reflects the fact that centers are scarce in these areas.

---

[2]Hofferth's estimates are based on parents' reports on the cost of care from household surveys.

Prices (2000 $)
☐ < 100
▦ 100–125
▨ 126–150
■ > 150
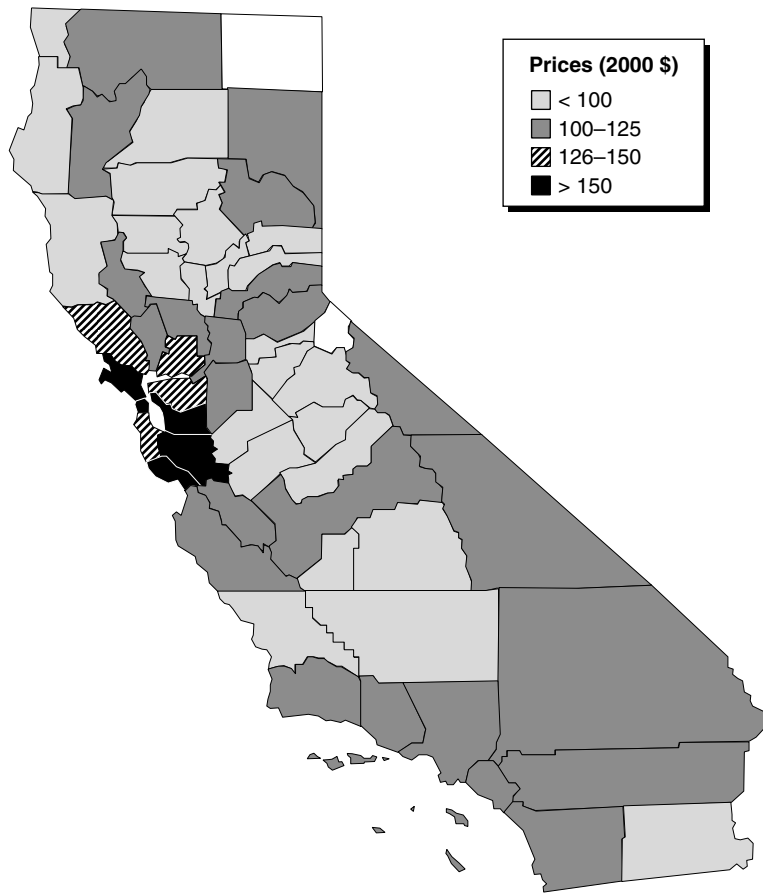
Figure 3.3—Average Weekly Prices in Preschool Centers, 2000

Regional clusters show up more clearly in the map of family day care prices (Figure 3.4). In this category, there is an obvious contrast between coastal and inland prices (aside from the "Central Sierra" near Sacramento), even though several of the coastal counties are rural. The relatively high prices in two counties along the Nevada border probably result because there are very few providers there. Overall, we see that the regional patterns in center care and family day care prices are similar, but variation in center care prices is more difficult to classify. This
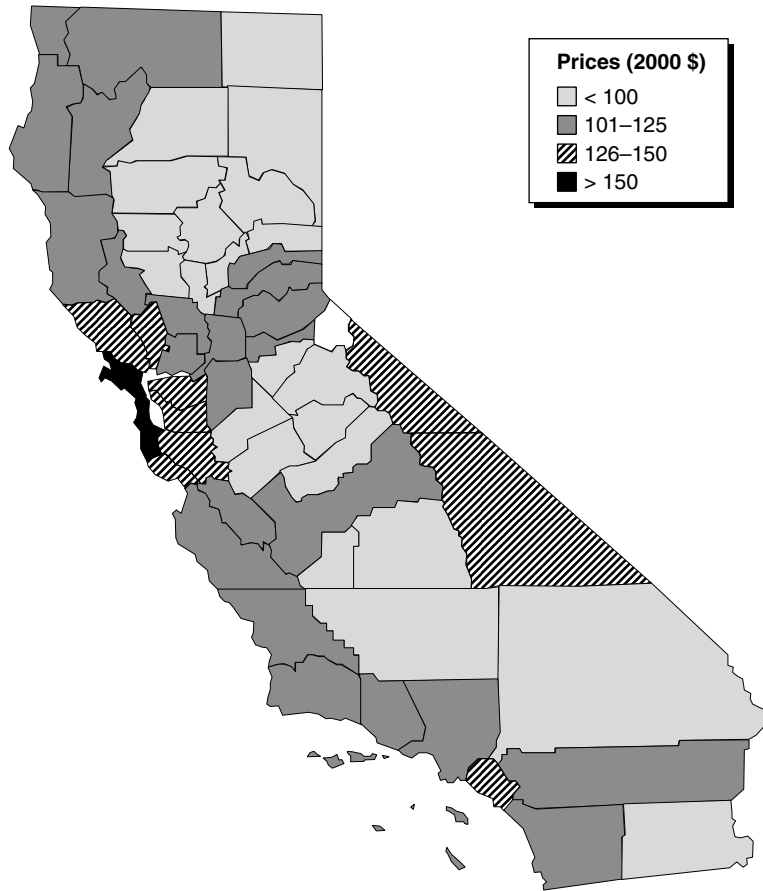
Figure 3.4—Average Weekly Prices in Preschool Family Day Care, 2000

observation is consistent with the smaller number of child care centers and the greater dispersion in their prices than in family day care homes.

Looking at the change in prices between 1998 and 2000, we found that counties throughout the Bay Area saw the price of their center slots increase between 10 and 20 percent (Figure 3.5). Increases throughout the rest of the state were less consistent, with care in some counties actually becoming cheaper while in other counties it jumped over 30 percent. However, in rural counties with few child care centers, the
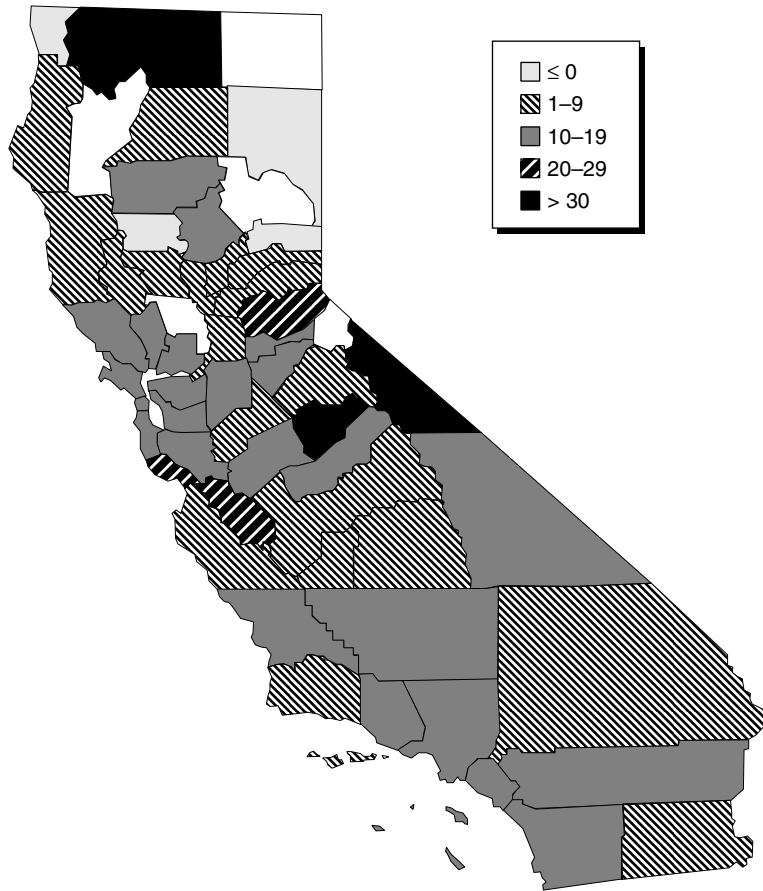
Figure 3.5—Percentage Change in Average Weekly Prices for Preschool Children in Centers, 1998–00

change in average price is very sensitive to the regularity with which centers respond to the survey. For example, in a county with only four centers (such as Mono), if one center fails to answer the survey in one of the years, the average price of the remaining three centers will likely be very different from the average price for the four centers that was calculated in the previous year. Thus, the extreme price variation in some

of the smaller counties is likely exaggerated.[3] Price changes in family day care homes were more consistent across the state, with most counties seeing increases of 10 to 20 percent; prices changed by over 30 percent in only two counties—one increasing and one decreasing (Figure 3.6).
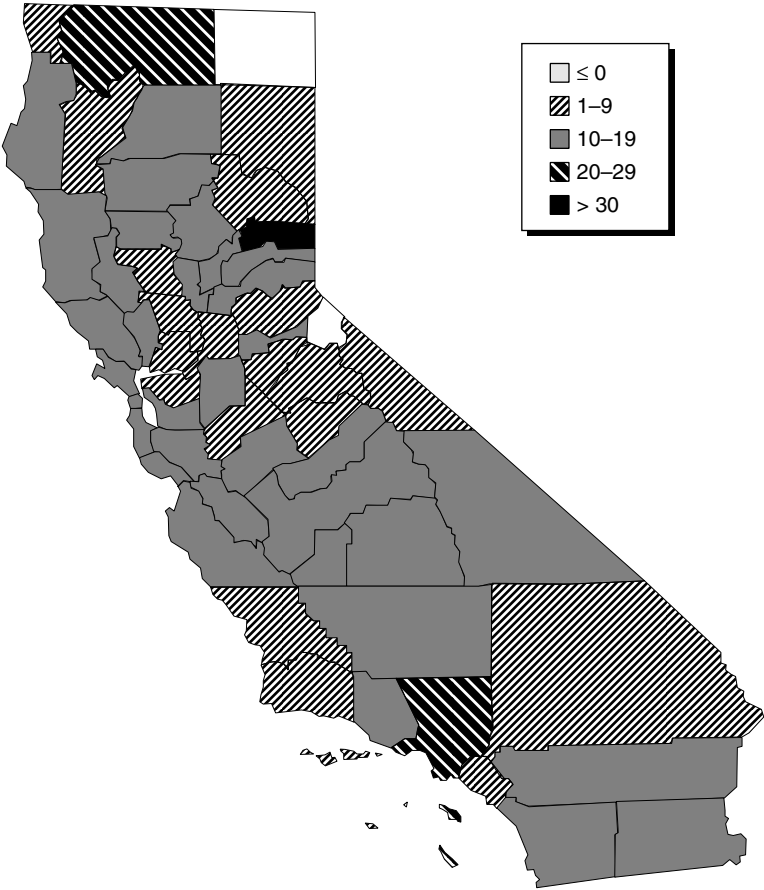
Figure 3.6—Percentage Change in Average Weekly Prices for Preschool Children in Family Care, 1998–00

_____

[3]Of course, average prices also may change dramatically because providers enter or exit the market, in which case the swing in observed prices would be genuine. The price dynamics of individual providers in the market (stayers, entrants, and exiters) is an issue we plan to explore in future research.

In Southern California, Los Angeles County stands out on the map as having comparatively rapid growth, but in fact its growth rate was exactly 20 percent—at the lower bound of the higher category.

As these maps show, variation in prices and price changes can sometimes but not always be readily classified by regions of the state. The Bay Area is an obvious region, with prices in its ten counties usually being similar yet distinct from the rest of the state. Southern California is less unified, and although Los Angeles sometimes stands out, this is not always the case. The prices for counties surrounding Sacramento also group together, although the small populations of some of them make changes in their prices less consistent. The California Child Care Resource and Referral Network has used six regions to describe the different experiences around the state (Figure 3.7).[4]

Figures 3.8 and 3.9 show the trends in center care and family day care prices for preschoolers in each of the six regions. Again, prices were substantially higher in the Bay Area throughout the decade. In 2000, the average price for a center slot in the Bay Area was $149 per week, and for a family slot, it was $140. The other five regions cluster into two groups: the "non–Bay Area Urban" regions—Southern California and Central Sierra—are substantially cheaper than the Bay Area, but the largely rural regions—Northern California, Central California, and the Mother Lode—are at the bottom of the spectrum. The average prices in Southern California and Central Sierra in 2000 were similar to those in the state as a whole. For center care, they were $114 and $118, respectively, and for family day care they were $114 and $109. There was more variation among the other three regions, at least for center care, where prices in 2000 ranged from $89 to $100 per week. For family care, average prices in all three regions were around $96 per week. Over the entire period, the clustering of regions was more apparent in the family day care prices.

In general, the price trends in each of the six regions are similar to the statewide trends for each type of care. Growth in center prices in the Bay Area was faster and steadier than in the other areas, and price trends in the rural regions were less inconsistent. Prices in Southern California

_____

[4]Appendix Table A.7 lists the names of the counties included in each region.
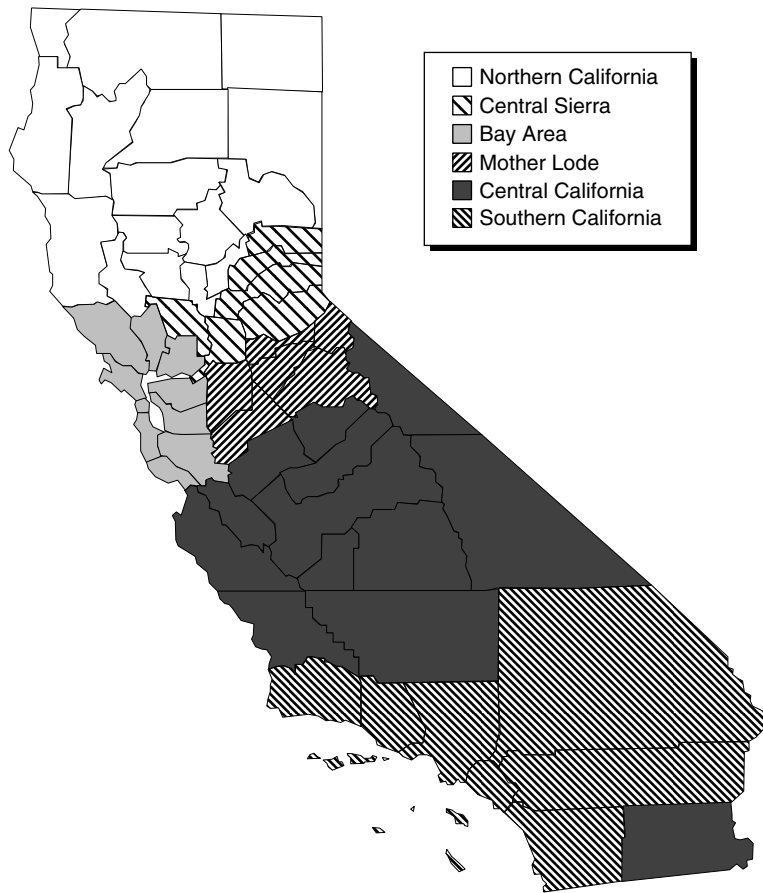
Figure 3.7—Definition of Six Regions

were relatively flat until 1999 when they ticked up noticeably, and similar up-ticks are evident in the Bay Area, the Mother Lode, and Northern California. Family day care prices were essentially flat in all the regions before 1995, but the late 1990s growth began in different years and was of varying magnitudes in each region. Once again, the Bay Area stands out for its large jump between 1996 and 1998 and again between 1999 and 2000.
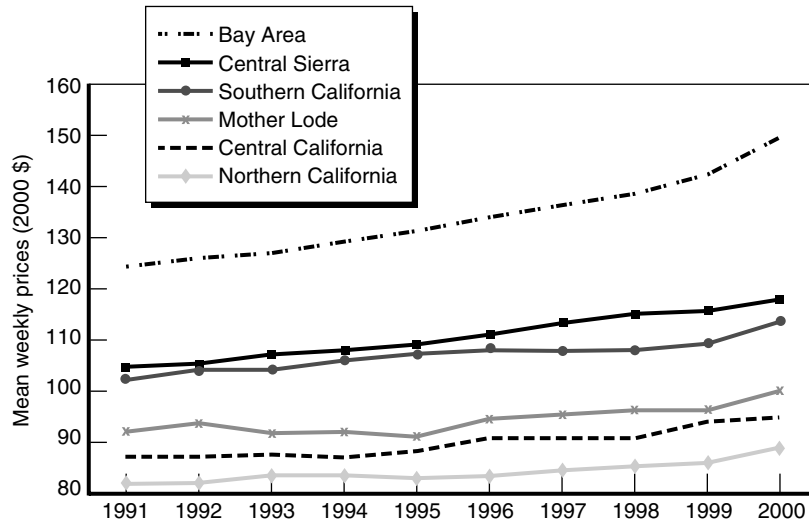
Figure 3.8—Mean Weekly Prices for Preschool Child Care in Centers, by Region, 1991–00
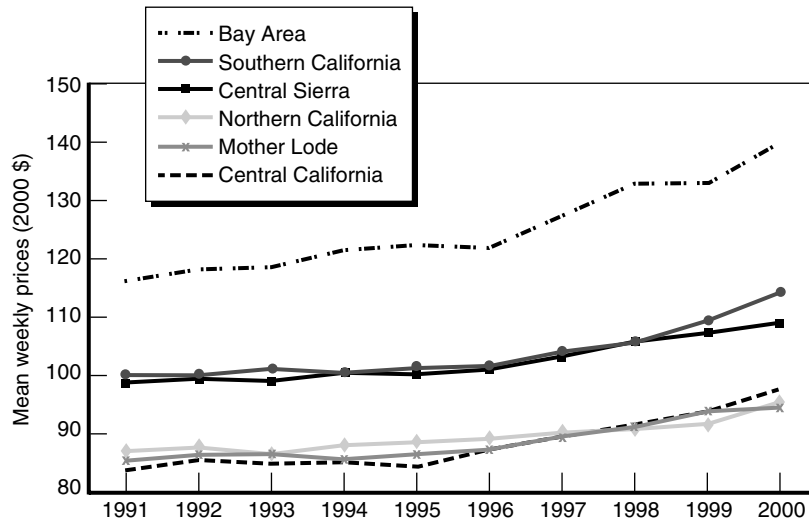
Figure 3.9—Mean Weekly Prices for Preschool Child Care in Family Day Care, by Region, 1991–00

Finally, Figure 3.10 focuses on the annual average percentage change in real preschool prices between 1996 and 2000 in each of the six regions (combining the last two periods shown in Table 3.2). Consistent with previous observations, growth in center care prices was generally moderate (most under 1.5 percent per year), except in the Bay Area where prices rose nearly 3 percent per year. Family day care prices grew faster during this period, especially in Southern and Central California where price increases rivaled those in the Bay Area and were twice as high as increases in center care prices in those regions. Within the 1996–00 time period, the Bay Area experienced most of its price increases between 1996 and 1998 (4.5 percent annually), whereas Southern California experienced faster growth in the 1998–00 period (4.1 percent annually).
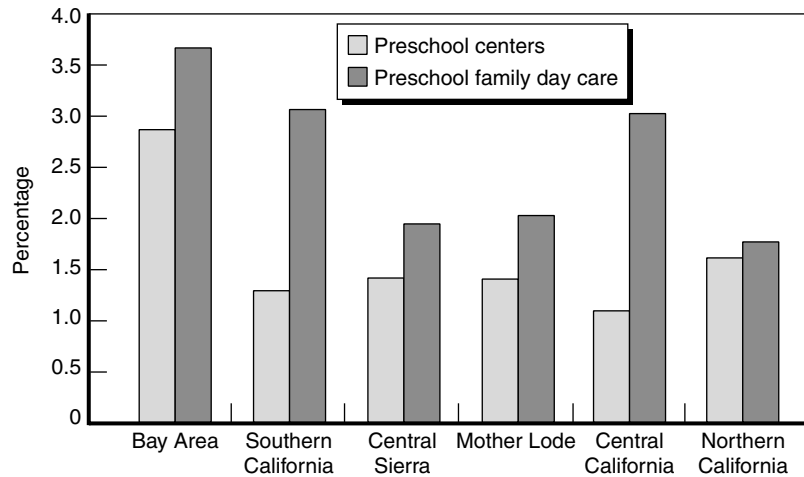
Figure 3.10—Annual Percentage Increase in Child Care Prices, by Region, 1996–00

Summary of Child Care Prices

In 2000, the average price of preschool care in a child care center in California was $121 per week, up 14 percent in real terms since 1991. Prices in family day care homes were only slightly lower, at $117 per week. Although the overall price increases were similar between settings, most of the family day care price increases occurred after 1996. Prices

varied significantly across different regions of the state, with the Bay Area the most expensive, at $149 per week for center preschool care, followed by other urban areas (Southern California and the Sacramento region or "Central Sierra"). The largest increases in Bay Area prices occurred between 1996 and 1998; Southern California prices grew more between 1998 and 2000.

4. Child Care Vouchers

Child care assistance is available to low-income families, which usually qualify for child care vouchers through welfare-to-work programs. Indeed, welfare reform was the most important catalyst for increased investments in child care subsidies. This chapter reviews the welfare caseload trends, the eligibility rules for child care vouchers, and how resources devoted to vouchers increased during the 1990s. Finally, we demonstrate that estimates of the size of the child care market suggest that the magnitude of the voucher program is large enough to have an effect on the private child care market.

Welfare Caseloads

Families with young children disproportionately participate in welfare. This, of course, is not surprising, because families with children are more likely to be poor, only families with children can qualify for welfare, and the birth of a child is often the event that precipitates a welfare spell. In the recession of the early 1990s, more than one-third of California children between ages 2 and 5 were in families that received welfare for at least one month during the year (Figure 4.1). The rate of welfare participation for young children has dropped about 12 percent per year in every year from its peak in 1992, so that by 2000, less than 10 percent of preschoolers lived in families that received welfare at some time during the year—a decline of 74 percent across the period.

The change in caseloads was particularly dramatic in the rural parts of the state, as shown in Figure 4.2. In the Central California, Northern California, and Mother Lode regions, as many as half of preschool children spent some time on aid in 1992, falling to between 11 and 15 percent by 2000. In percentage terms, however, the largest decline occurred in the Bay Area, which brought its relatively low participation rate of 26 percent in 1992 down to less than 5 percent in 2000.
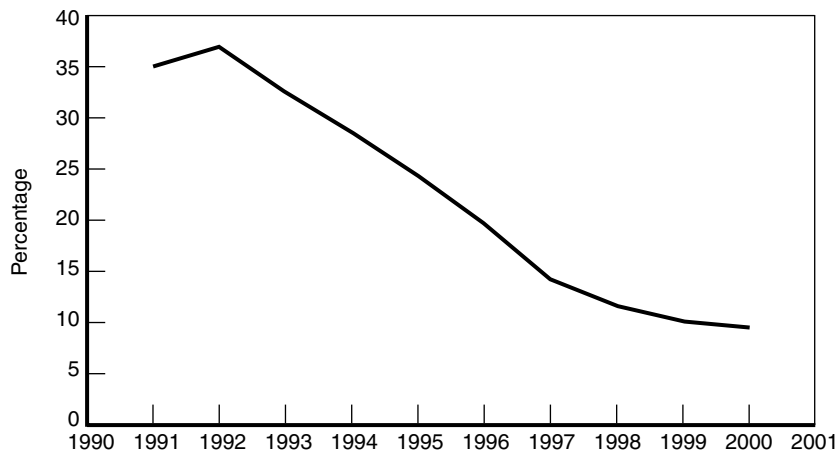
Figure 4.1—Percentage of Preschool Children Whose Families Received Welfare
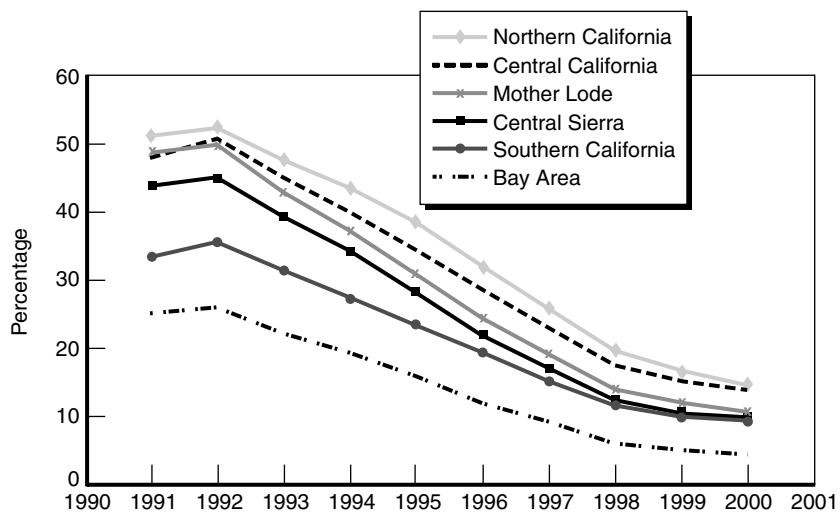
Figure 4.2—Percentage of Preschool Children Whose Families Received Welfare, by Region

As we describe below, most subsidy payments go to current and former welfare families, but it is also important to note two aspects of caseload trends that may lead welfare caseloads to have an effect on child

care prices—through demand pressures—separate from that created by subsidies themselves. First, the dramatic caseload declines preceded passage of welfare reform and the subsequent jump in subsidy dollars. Second, many current and former welfare recipients with children enter the workplace but do not take up child care subsidies, often because they are not aware of their availability (Acs and Loprest, 2001; MaCurdy, Marrufo, and O'Brien-Strain, 2003).

Eligibility for Child Care Vouchers

Low-income families can qualify through the CalWORKs or AP voucher programs for assistance with child care needed to enable parents to work, attend school, or complete employment training. In addition to needing child care for work activities, families must also have income below 75 percent of the state median income (SMI), a threshold of about $39,000 a year for a family of four.

For CalWORKs families, child care assistance is essentially an entitlement. "Stage 1" child care, funded through the Department of Social Services (DSS) and administered by county welfare departments, provides vouchers for approximately six months. Families then move onto "Stage 2" funding, which is administered by the California Department of Education (CDE) through contracts with agencies that administer the AP program. Between Stage 1 and Stage 2, working CalWORKs recipients can receive child care assistance for up to two years after they leave aid. Although there is no entitlement to child care assistance beyond this two-year transition period, additional funding has been set aside every year since the enactment of the CalWORKs program to continue assistance for former CalWORKs families, called the "Stage 3" set-aside.

A much smaller pool of resources is available for other low-income working families who need child care. Families may apply through AP agencies for vouchers based on income and other needs. These families are placed on a waiting list; placement on the list is ranked by income, so families with the lowest income have the highest ranking on the waiting

list.[1] Because waiting lists are held by individual counties or by agencies within counties, an accurate count of families on the waiting lists is not available, but the Urban Institute estimated that 200,000 California children were on waiting lists for child care subsidies in 1998, with waits of one year or more to receive assistance (Urban Institute, 1999).

Out of the 350,000 children served with child care vouchers each year between 1999 and 2002, about 300,000 were served with CalWORKs-related vouchers, compared to only 50,000 or so served through the AP program (Table 4.1). As families have moved off the welfare rolls, the share of children served through CalWORKs Stage 2 and Stage 3 has risen.   At the same time, the number of families served through the AP program has fallen. Because the CalWORKs-related vouchers are administered through both the Department of Social Services and the California Department of Education, the funding split between the two agencies does not reflect the division between CalWORKs and non-CalWORKs families.

Table 4.1

Number of Children Served in Child Care Voucher Programs, 1999–02

Voucher Program	Agency	1999–00	2000–01	2001–02
CalWORKs				
Stage 1	DSS	102,033	90,944	80,199
Stage 2	CDE	143,418[a]	158,544	164,620
Stage 3	CDE	42,728[a]	44,350	63,078
Total[b]		288,179	293,838	307,897
Alternative payment	CDE	51,323	51,200	47,556

[a]Federal Stage 2 and Stage 3 were not broken out for 1999–00. The children served using federal dollars in these two programs were allocated in the same proportion as reported for 2000–01.

[b]CDE numbers are reported as unduplicated counts of children served. However, there is likely to be duplication between Stage 1 and later stages, given separate reporting by DSS and CDE.

---

[1]Counties are moving toward centralized eligibility lists (CEL) shared across AP agencies serving that county. However, for counties without a CEL, each AP agency may maintain a separate waiting list and take families off the waiting list depending on the availability of resources through its own contract. Regardless of income, families needing child care for children at risk of abuse and neglect are first served off the waiting lists.

With a few restrictions, families can use child care vouchers to pay the provider of their choice. First, a parent can choose a license-exempt provider, including friends and relatives, as long as the provider passes a fingerprint background check to ensure that they have no criminal convictions or substantiated reports of child abuse. Second, if the family's income is above 50 percent of the SMI (around $26,000), the family must pay a copayment for the child care. The maximum copayment is $10.50 per day for full-time care; the copayment is the same no matter how many children are in care. Third, the vouchers pay providers their market rate for care as long as that rate does not exceed the reimbursement rate ceiling, which until October 2003 was set at 1.5 standard deviations above the mean price in the county.[2] For centers surveyed in fall 2000, this ceiling ranged from a high of $974 per month (about $225 a week) for preschool care in Santa Clara to $361 per month (about $83 a week) in Tulare. The ceiling is typically lower for family child care homes, and the maximum for a license-exempt provider is set at 90 percent of the family child care home ceiling. Families can select more expensive care, but they are expected to pay the difference between the reimbursement rate ceiling and the provider's fees in addition to any copayments.

Parents choose whether to select licensed or license-exempt providers. Just over half of all voucher families use licensed care, although this proportion varies across the different programs. When they first take up child care vouchers, CalWORKs families are most likely to choose license-exempt care, but as Figure 4.3 demonstrates, the longer CalWORKs families have participated in the voucher system (that is, the later the "stage" of child care assistance), the more likely they are to use licensed care. Families participating in the AP program predominately use licensed care, although families who prefer licensed care may be the most likely to seek out assistance.

_____

[2]Some small counties are aggregated to establish the regional market rate ceiling. In addition, a few areas, such as Yolo County, are divided into more than one region to account for substantial within-county differences.
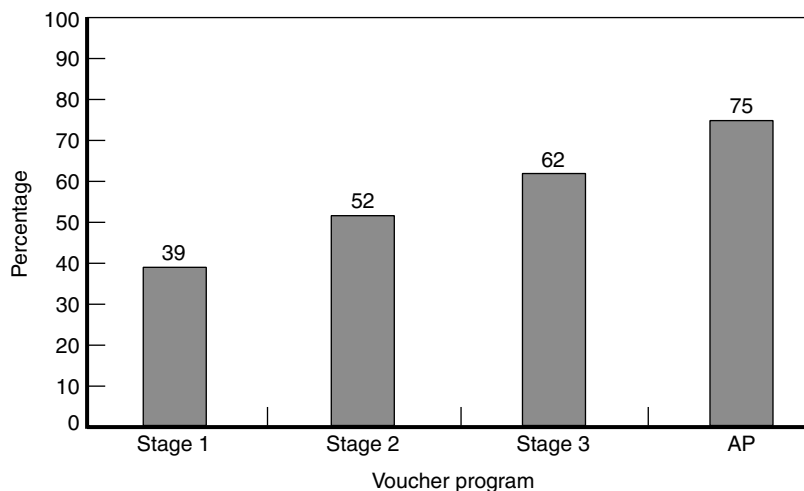
SOURCES: Data for Stage 1 calculated from DSS Child Care Monthly report—CalWORKs Families (CW115) for October 1999. Data for Stage 2, Stage 3, and AP programs calculated from CDE survey on statewide participation in subsidized child care, July 1999–June 2000, Table 14.

Figure 4.3—Percentage of Children in Licensed Care, by Voucher Program, 1999

Funding for Child Care Vouchers

As noted above, child care vouchers are administered through DSS and CDE, with funding from the CCDF, the TANF block grant, and state general fund resources. Because the CalWORKs program ensures that all qualified participants are entitled to Stage 1 assistance, voucher expenditures through DSS are determined by the takeup of child care subsidies among CalWORKs recipients and to a lesser extent by the timing of their shift from Stage 1 to Stage 2 (based on child care "becoming stabilized" and the availability of Stage 2 funds). From 1993 on, DSS has provided a breakdown of expenditures on child care subsidies by county. The CDE-administered subsidies combine federal and state funding for those transitioning off welfare (Stage 2 and Stage 3 set-aside) and for other low-income working families (through the Federal and General Alternative Payment Programs, FAPP and GAPP). Stage 2 and Stage 3 set-aside funding for former welfare recipients has

been a guaranteed support for eligible families, whereas FAPP and GAPP subsidies are capped according to their budget allocations.

In nominal terms, child care subsidy dollars rose from $125 million in fiscal year 1992–93 to nearly $1.5 billion in 2000–01, a 15-fold increase in DSS funding and a 10-fold increase in CDE funding (Figure 4.4). The dramatic increase in funding reflects the commitment of state and federal governments to increasing access to child care as a work support and as early childhood education, especially in connection with welfare reform. Although welfare reform passed in 1996, the most significant increases in spending did not occur until after the implementation of the CalWORKs program in 1998.

To understand the value of these subsidies, Figure 4.5 presents the subsidy dollars divided by the population of children ages 0–5.[3] The value of subsidies available rose from about $46 per child age 0–5 to $375. The value per participant depends on the parents' choice of child care provider and share of time in care. The California Budget Project
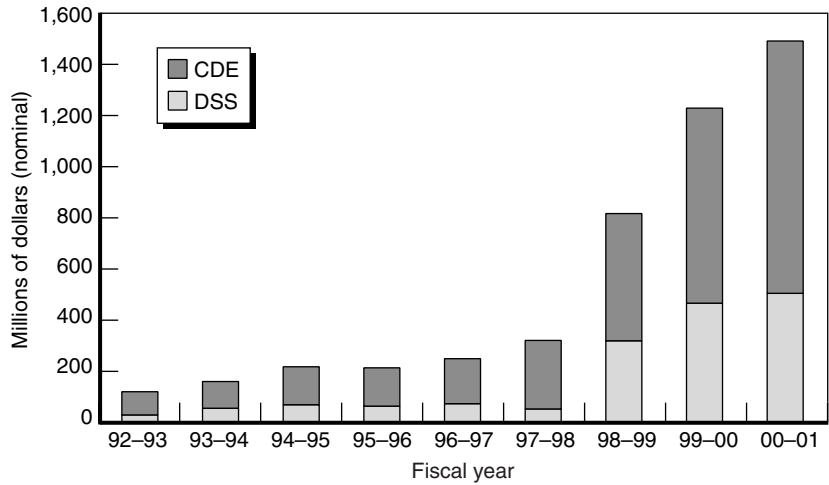
Figure 4.4—Total Statewide Spending on Child Care Subsidies

_____

[3]Children up through age 13 are eligible for AP subsidies. However, children ages 0–5 represent the majority of subsidized children and the significant majority of subsidy spending (California Department of Education, 2002).
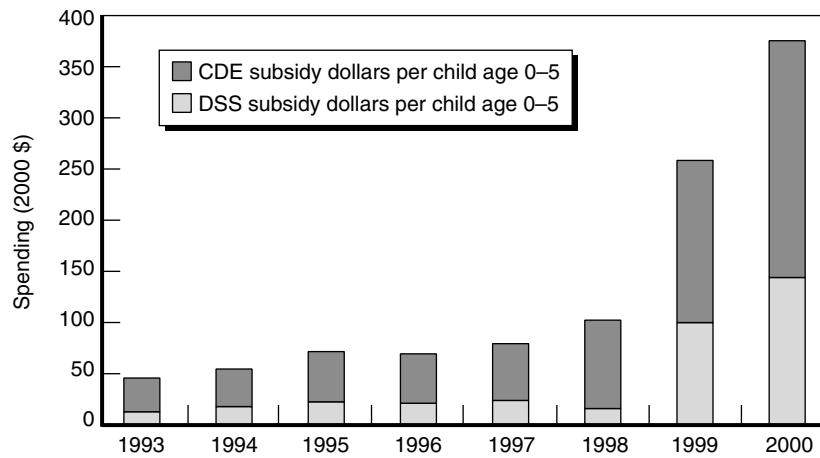
Figure 4.5—Statewide Spending on Child Care Subsidies per Child Age 0–5

(2001b) estimates the average annual subsidy per participant to be approximately $5,500.

Breaking down the total subsidy dollars into dollars spent per county is relatively difficult. DSS gave us a breakdown of expenditures on child care subsidies by county from1993 on. An accurate accounting of the CDE subsidies is more problematic. These subsidies are provided through contracts with public and private child care agencies that are responsible for the local administration of the subsidy programs. In any given county, several agencies may be contracted to administer AP subsidies out of separate allocations, and any given agency may also serve a number of counties.[4] There is no administrative dataset linking the subsidy contracts with the counties of residence for children served. Therefore, our data on CDE reflect the allocations by the county location of the contracted AP agencies. Within this, we were able to determine exact allocations by agency-county for 1999 and 2000 only; earlier allocations are calculated based on the recent shares and the total allocations across all counties.

_____

[4]The contracted allocations are based in large part on the requests made by the AP agencies administering the program, rather than on a formula reflecting the demand or need for child care in a local area.

There are regional differences in subsidy dollars (Figure 4.6). The spending per child appears to be relatively independent of the price of care, as the higher-priced regions, such as the Bay Area and Southern California, receive relatively fewer subsidy dollars. These regional differences, however, are subject to error because of the presence of agencies serving a number of counties across different regions.[5]
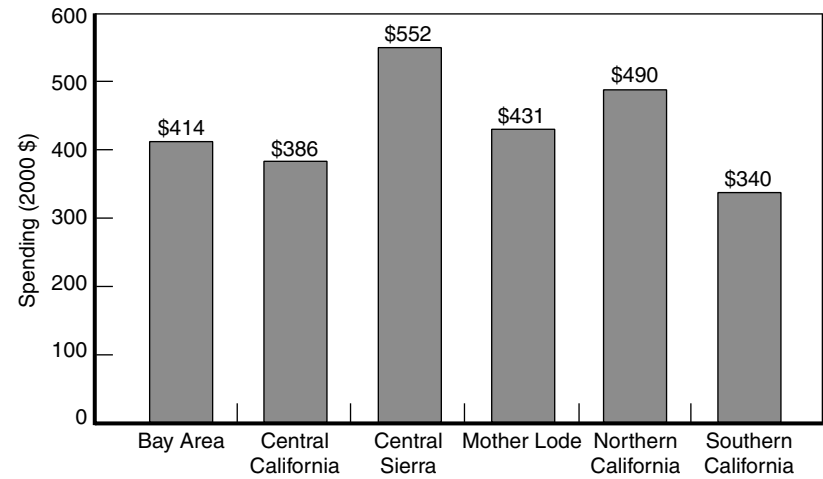
Figure 4.6—Regional Spending on Child Care Subsidies per Child Age 0–5

Importance of Child Care Subsidies in the Child Care Market

Despite the dramatic increase in child care subsidies during the late 1990s, the effect of these subsidies on prices for child care depends on the magnitude of the subsidies relative to the size of the entire child care market. We have one reference point against which to judge this: The National Economic Development and Law Center's (NEDLC) 2001 report *The Economic Impact of the Child Care Industry in California* includes two estimates of the gross receipts for licensed child care in 1999. The first estimate relies on RMR data to calculate gross receipts

[5]For example, one San Francisco-based agency serves 25 counties out of offices in San Francisco and Fresno.

based on enrollment and average cost per child. The second estimate uses a slightly different enrollment measure based on licensed capacity and vacancy rates, again multiplied by market rates to determine gross receipts. These rough approaches yield estimates of $3.25 billion and $3.91 billion in gross receipts, respectively.[6]

Before estimating the share of gross receipts made up by subsidies in the sector covered by the RMR surveys, we have to scale down the subsidy expenditures to reflect the fact that substantial shares of these expenditures pay for license-exempt care. For the DSS subsidies, the CW115 reports provide monthly measures of both the enrollments in and the share of expenditures on license-exempt care. For CDE, the survey of participation in subsidized child care provides a breakdown of enrollments but not expenditures. As a back-of-the-envelope estimate, we assume that the ratio of expenditures in license-exempt placements relative to expenditures in licensed placements under CDE programs is the same as the ratio in DSS programs.

As a very rough estimate, we calculate that about 20 percent of the gross receipts in the licensed sector covered by the RMR surveys were paid for with vouchers, assuming that licensed care accounted for approximately 44 percent of the $472 million in DSS subsidies and 65 percent of the $757 million in CDE subsidies spent in 1999–00. That is, out of gross receipts for the entire sector of $3.25 billion to $3.91 billion in 1999, $697 million came from vouchers. Although this is only a rough estimate, the general result reinforces the idea that the size of the subsidy is sufficient to have an effect on the market for child care in California, especially in the late 1990s.

Summary

During the 1990s, the share of preschool children whose families participated in welfare dropped 74 percent statewide, falling in some regions of the state from nearly half of all children to around 10 percent

---

[6]In each case, NEDLC adds $1.466 billion in Head Start and state-funded programs, accounting for the licensed child care market not included in the RMR surveys. Its estimates of the total gross receipts for licensed child care are $4.7 billion to $5.4 billion annually.

in 2000. At the same time, the spending per child on child care vouchers rose almost eightfold in real terms, from $46 per child age 0–5 in the state up to $375 per child. In 2000, the $1.5 billion in child care vouchers served around 350,000 children, with six out of seven of these children qualifying through their parents' current or former receipt of CalWORKs. Just over half of the children were placed in licensed care settings, with use of licensed care rising as families move further from CalWORKs. By 1999, the voucher program accounted for a significant share of the private licensed care market: By our rough estimate, as much as 20 percent of the gross receipts collected by private child care providers statewide were drawn from voucher payments.

5. Child Care Supply

A critical aspect of the child care market to consider in parallel with prices is the child care supply. Increases in the demand for child care, such as an increase in the employment of mothers, will put upward pressure on child care prices, unless there is excess supply or supply can easily expand. In this chapter, we examine the trends in two different concepts of supply: enrollment and licensed capacity.

Licensed Capacity

Child care centers and family day care homes in California are subject to licensing by the Community Care Licensing Division of the California Department of Social Services.[1] For centers, these licenses specify a maximum capacity, based on the physical features of the center, the ages of children served, and the number of available staff. For family day care homes, the licenses specify whether the provider is large (serving no more than 14 children) or small (serving no more than eight children). It does not specify the age of children served. Licensed capacity is clearly an upper bound on the actual available capacity in the state. Separate from their ability to fill slots, providers may choose to operate below maximum capacity and therefore may not maintain sufficient staffing to meet licensed capacity. Nevertheless, licensing data indicate the number of slots available (by age group for centers), without expenditures for additional classroom space.

The best data on licensed child care capacity by county in California are those compiled by the California Child Care Resource and Referral Network, for the years 1996, 1998, and 2000. For these three years, the network has combined licensing data for all active centers from each of

---

[1]The main categories of center care exempt from licensing are "public recreation programs" and school-operated programs providing before- and after-school care typically for school-age children only and for fewer than 16 hours per week. Family day care homes are exempt if they care for the children of only one other family.

the state's resource and referral agencies (R&Rs), which track provider closings more closely than the licensing files (as licenses need be updated only every three years). The licensed capacity tracked by the network, as with that for the state licensing agency, captures *all* licensed providers, regardless of auspice. That is, state-contracted centers, Head Start programs, and state preschools are all counted in the licensed capacity.[2] Many of these slots are available only for part-day programs, serving nonworking as well as working parents. Therefore, the licensed capacity data cover a much broader picture of the market than is included in the market price surveys. Table 5.1 presents an overview of the 2000 data on the number of licensed slots per 100 children ages 0–5 in California counties. The licensed slots are the sum of licensed family day care slots (which are not distinguished by age), licensed preschool center slots, and licensed infant center slots. Center slots for school-age children are not included.[3]

Table 5.1

Licensed Child Care Capacity, 2000

| | Slots per 100 Children Ages 0–5 | | |
	Total	Family Day Care	Center
Statewide mean	23	9	13
By county			
Median county	31	12	19
Minimum	15	5	10
Maximum (excluding Alpine)	56	39	17
Alpine County	103	13	91

NOTE: Totals may not sum because of rounding.

---

[2]In addition to the voucher program, California pays for slots directly through contracts with centers and family day care homes. The reimbursement rate for these slots is set by the state; in 2000, this rate was $26.62 per day, equivalent to $133 per week. Standards for these providers exceed those for licensing. Eligibility for these slots is the same as for the voucher program, but families typically must be on a waiting list for the specific provider.

[3]This calculation differs from the network's calculation in three ways: It excludes center slots for school-age children from the count of slots, it excludes children ages 6–13 from the count, and it does not correct for the share of parents working.

Statewide, there were 23 slots per 100 children ages 0–5 in 2000, or enough to serve 23 percent of all young children (many of whom do not need nonparental care). About 40 percent of this capacity is in family day care homes and about 60 percent in child care centers. (Because some of the family day care capacity is filled by school-age children, this probably understates the share of the available capacity in centers.) Statewide, capacity grew 21 percent between 1996 and 2000. In fact, the capacity growth was faster than employment growth during this period, which averaged 13 percent statewide.

By county, the slot-child ratio ranges from around 15 in Placer and San Diego Counties to around 55 in Siskyou and Riverside Counties. In other words, in San Diego County, there are almost seven young children for every licensed child care slot, but in Riverside County, there are only 1.8 young children for every licensed slot. Alpine County is an outlier for this measure, being the only county with a licensed capacity that exceeds the population of young children living in that county.

Figure 5.1 shows the breakdown in average capacity for each of the six regions of the state in 1996, 1998, and 2000, as well as for the state as a whole. Southern and Central California have the lowest capacity per child, although Central California experienced substantial growth in
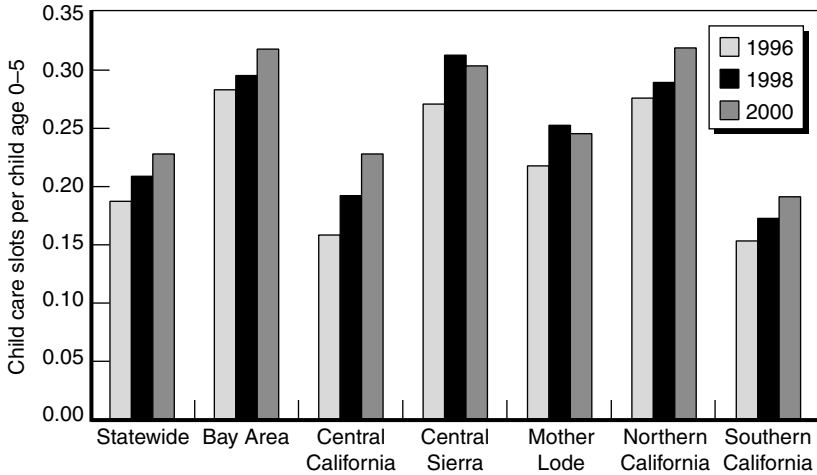
Figure 5.1—Licensed Child Care Capacity for Children Ages 0–5

capacity between 1996 and 2000—43 percent over four years. Controlling for population growth, the number of center slots and family day care slots in Central California both grew much faster than the statewide average (Figure 5.2). The Mother Lode region, on the other hand, lost center capacity in this period, offsetting its average growth in the number of family day care home slots.
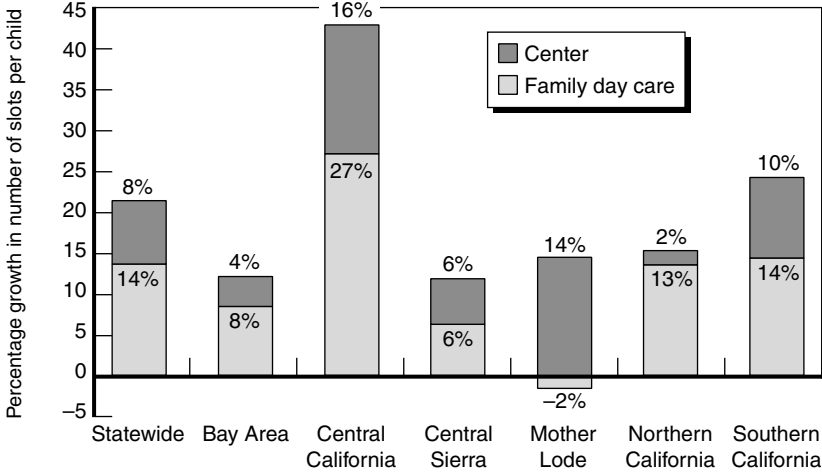
Figure 5.2—Components of Growth in Licensed Child Care Capacity, 1996–00

Enrollment

So far, we have used licensed capacity as our measure of supply. This capacity gives us a picture of the growth in the child care supply that occurred during the late 1990s, as child care prices were rising in California. As prices rise, additional private sector providers may choose to enter the child care market, or the existing providers may choose to expand enrollment. This supply response tempers potential price increases. The growth in licensed capacity may also reflect additional supply provided through the public sector. Unfortunately, we cannot disentangle these two effects in the licensed capacity. However, we can get a sense of the role of the private sector supply during this time period.

Table 5.2 details enrollment growth between 1996 and 2000 in the child care market covered by the regional market rate surveys, based on the enrollment reported by survey respondents, weighted to represent the entire population rather than just the survey sample. As before, this measure is presented as a share of the child population to account for differential population growth by region over time.

The enrollment growth over this period is roughly proportional to the growth in the licensed capacity statewide, although the regional changes show different patterns. For example, Central California saw the slowest growth in private sector enrollment, whereas it had the fastest growth in overall capacity. This suggests that the dramatic growth in that region was led by additional public capacity. On the other hand, Northern California saw private enrollment grow faster than overall capacity, suggesting that fewer new public investments were made in this region.

Table 5.2

Estimated Enrollment in Child Care Settings Reported in RMR Surveys per 100 Preschool Children, 1996–00

	1996	1998	2000	% Growth, 1996–00
Statewide Mean	10	12	12	19
Bay Area	9	10	11	16
Central California	13	14	15	12
Central Sierra	9	10	10	18
Mother Lode	10	12	12	17
Northern California	11	13	15	30
Southern California	11	11	13	17

Child Care Wages

One of the biggest challenges to increasing child care enrollment is the availability of qualified staff. Child care directors, especially in the Bay Area, cited this as one of their biggest concerns in the late 1990s, when other employment opportunities were growing rapidly. Studies estimate that the annual rate of turnover in child care jobs is around 30 percent annually, and some Bay Area centers faced 100 percent turnover between 1999 and 2000 (Whitebook and Bellm, 1999; Whitebook et al.,

2001). Since wages represent 70 percent or more of the cost of child care, wage increases could be the most important component of any cost increases that drive up prices.[4]

To measure child care wages, we use the average annual earnings in the child care industry, collected by the County Business Patterns survey. This measure has a number of serious limitations. First, it aggregates the wages of center directors, company administrators, and teaching staff. Second, it excludes wages for workers in industries other than child care, such as child care teachers at facilities operated by another organization, including schools, churches, and such community organizations as the YMCA.   It also excludes child care providers who are not incorporated as businesses, such as small family day care homes. Third, the County Business Patterns survey does not include data for 11 of the smallest counties in California. Fourth, it reports annual earnings rather than average hourly wages. Unfortunately, occupational data or other more appropriate measures of wages are available only at the substate level for a handful of years and for an even more limited number of counties.

The industry data indicate that the average annual earnings of child care employees were $17,328 in 2000. Real earnings rose 18.8 percent across the 1990s (Figure 5.3), which translates to only 2.1 percent annually. Still, the earnings growth outstripped the overall price increases in child care, which experienced 14 percent growth over the period. Comparing earnings at the beginning and end of the decade, however, we find that child care earnings just kept up with overall earnings trends in California, remaining about 42 percent of the average annual earnings across all industries. The real growth in child care earnings was steady over the period. In contrast, the average for all industries fell slightly in real terms as employment grew in the period after the recession of the early 1990s. However, wages in other industries grew 17.8 percent between 1996 and 2000, when child care earnings rose only 11 percent. Hence, the gap narrowed slightly between 1995 and 1997 before falling back to its previous level.

---

[4]See Helburn and Howes (1996) for a detailed breakdown of cost components at child care centers.
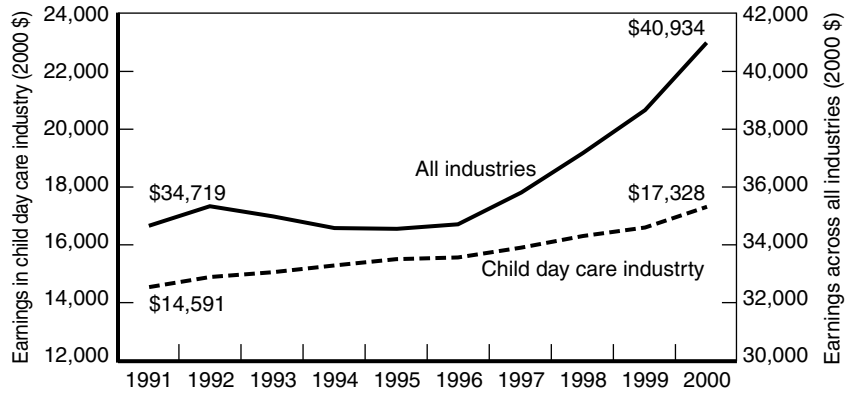
Figure 5.3—Comparison of Average Annual Earnings in the Child Care Industry and All Industries

Wages in our six regions are portrayed in Figure 5.4. Wage trends over time were fairly similar across regions. Not surprisingly, wages are highest in the Bay Area. More surprising is the relatively high wages in the Mother Lode counties, where prices are fairly low. This may reflect
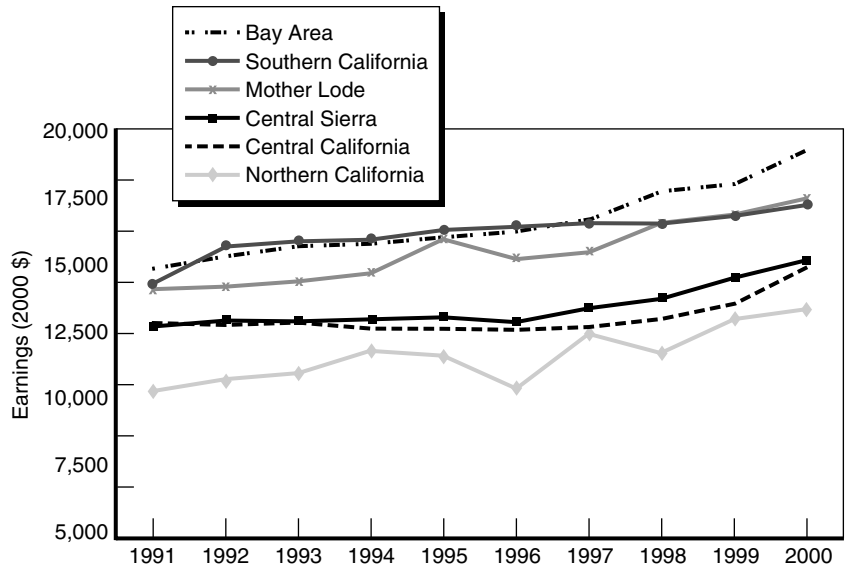
Figure 5.4—Average Annual Earnings in the Child Care Industry, by Region

the relative importance of state-subsidized centers, which are not included in the price data, in this region. Despite the fact that child care wages are highest in the Bay Area, child care employees in this region earned the least relative to regional average wages—34 percent of the average, as shown in Figure 5.5.
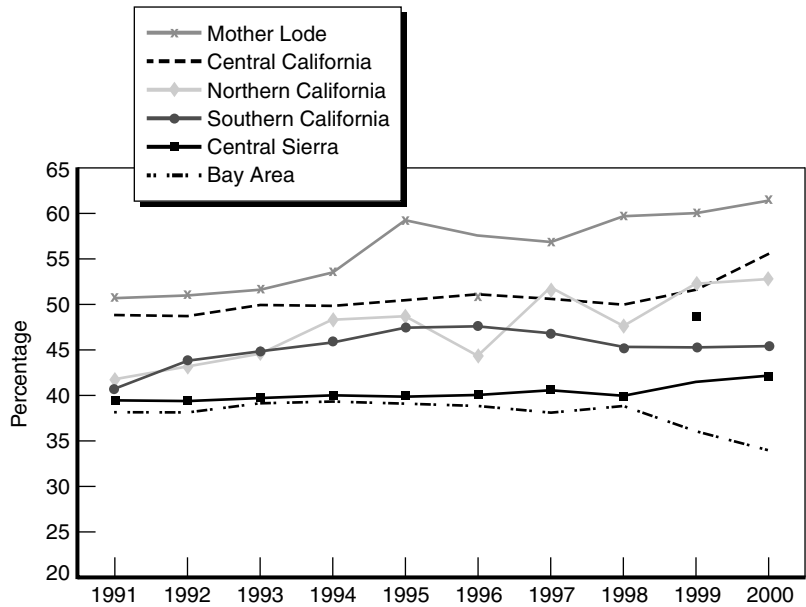
Figure 5.5—Child Care Earnings Relative to Average Earnings in All Industries, by Region

Summary

Even as prices rose across the 1990s, the capacity to serve children in licensed care also grew. The legally licensed capacity per young child in the state rose 21 percent between 1996 and 2000, although there were wide differences between regions of the state. This licensed capacity includes settings not covered in the regional market rate survey, such as Head Start, state preschools, and centers serving low-income children through direct contracts with the California Department of Education. Among those providers covered in the RMR surveys, enrollment (the number of children actually served rather than the maximum allowed)

over this period rose 20 percent. To facilitate these enrollment increases, additional child care teachers were required, encouraging wage gains. However, the 6 percent wage growth between 1998 and 2000 was substantially slower than that in other industries during these years, and the 19 percent wage growth across the entire decade only just kept pace with the wage gains across all industries in the 1990s.

6. Have Child Care Subsidies Increased the Price of Child Care?

In this chapter, we turn to the last two research questions posed in the introduction: (1) How are the price increases we saw in Chapter 3 related to local economic and demographic conditions? (2) Did the huge jump in subsidies or the reductions in welfare caseloads drive up market prices? We saw that prices grew more quickly in the Bay Area between 1996 and 2000 than in other parts of the state. Clearly, the economic boom of the late 1990s may explain some of these differences, increasing both the demand for child care and facility and labor costs. At the same time, welfare caseloads fell dramatically, and those remaining on welfare significantly increased work participation, presumably driving up the demand for child care (MaCurdy, Mancuso, and O'Brien-Strain, 2002). Finally, we have seen the enormous increase in spending on subsidies, which could create additional demand or simply permit providers to charge higher prices.

To disentangle these possible effects, we use regression analysis to investigate the relationship between child care price changes and economic, demographic, and policy changes. We start by describing the data used in the regression and our analytical framework and then report findings for preschool centers and preschool family day care.

Analytical Framework

The dependent variables for our key regressions are mean child care prices for preschool center care and for preschool family day care,

each considered in separate regressions.[1] The RMR survey data provide a panel dataset with observations on child care prices by setting and age group for each California county in each year from 1991 through 1996 (before welfare reform) and 1998 through 2000 (after welfare reform). We have linked to this dataset with county observations on economic, demographic, and child care market variables. Hence, we can regress prices on characteristics of the child care market, welfare participation, and child care subsidies, as well as a set of control variables to account for economic and demographic conditions. This approach allows us to identify how child care prices are correlated with subsidy expenditures, controlling for the economic and demographic trends that occurred at the same time. Each variable, identified with italics, is described below.

We have two measures of the characteristics of the child care market. As a measure of the cost of care, we include *average annual earnings for child care industry employees*, as described in Chapter 5. We expect higher child care earnings to translate into higher prices. We also measure *the number of RMR-surveyed center preschool slots as a share of the preschool population* and *the number of RMR-surveyed family day care home preschool slots as a share of the preschool population*. These measures capture enrollment, and only in the part of the market covered by the regional market rate surveys, rather than available supply. We rely on these measures instead of licensed capacity because the licensed capacity data are available only for three years.   Given that supply constraints may limit the degree to which enrollments can grow with the demand for care, we expect this variable to capture the ability of supply to respond to increased demand.   Greater expansions in enrollment, controlling for other measures of demand, should reduce the upward pressure on prices. The direction of the correlation between enrollments and prices, therefore, depends on how well our other measures capture demand.

Our two main policy variables are welfare caseloads and child care subsidy dollars. We measure subsidies as the county *child care subsidy dollars per child* age 0–5, with variations that include DSS subsidies,

_____

[1]The appendix includes the regression results for mean prices in both preschool and infant care, as well as regressions on the 75th percentile and 93rd percentile prices. The results were similar across the age groups and price points.

CDE subsidies, and the combined total subsidies. As a measure of welfare participation, we use the *share of preschoolers who reside in welfare recipient families*, calculated as the number of preschoolers whose families ever received CalWORKs during the year divided by the total population of preschool-age children.

Finally, we include a set of control variables to account for economic and demographic conditions that may influence prices. To control for demand increases resulting from the economic boom, we include *employment rates* (the share of the population employed). We expect an increase in the employment rate to reflect rising labor force participation, including participation of mothers of young children, which would increase the demand for child care (and may also reduce the supply of informal care options). We would prefer a direct measure of the labor force participation of mothers, but we do not have a consistent estimate for all counties over time. However, we include a demographic measure to capture county differences in demand for child care: *number of preschool-age children as a share of the total population*. We expect increases in preschool-age children as a share of the population to increase the demand for child care and early childhood education.[2]

Increases in real estate costs are expected to drive up the cost of care, both through the cost of child care facilities, whether residential or commercial, and through cost of living increases in wages. To measure real estate costs, we use *fair market rent*—a measure developed by the U.S. Department of Housing and Urban Development estimating the 40th percentile cost of rental housing for recent movers. We also control for geography by distinguishing between rural and urban regions. Counties are counted as *rural* if they are part of the Northern California, Central California, or Mother Lode regions.

Although employment increases are likely to drive up the demand for child care, increases in income may independently increase the demand for licensed care by increasing the ability to pay for licensed

---

[2]We tested other demographic measures, such as the share of Hispanics, as other research suggests that Hispanic families are less likely to use child care than other families and more likely to use care by relatives when they do have child care (O'Brien-Strain, Sonenstein, and Moyé, 2003). However, none of our alternatives appeared to matter in our regression estimates, so we have not included them in this report.

instead of unlicensed care. Our measure is *county median income*, based on Franchise Tax Board data, thereby reflecting the median income of tax filers rather than of all households. However, because we are focused on changes in income, this difference should not be a serious issue. As a median rather than a mean, it is also not as strongly significantly influenced by huge capital gains and other unusually high income factors occurring in the late 1990s.

Because prices in each year are strongly correlated with the prices in the previous year, our regression framework requires continuous years of data. Therefore, because the RMR survey was not conducted in 1997, we are forced to estimate the pre- and post-1997 periods separately. Details on this approach as well as the full regression results are provided in the appendix.

Role of the Economy and Demographics

The strong economy of the late 1990s was clearly an important driver of child care prices in the post-1997 period. Table 6.1 presents the regression results for the effects of the demographic and economic

Table 6.1

Regression Results: Determinants of Price Increases

| | Estimated Percentage Increase in Prices | | | |
| | Post-1997 | | Pre-1997 | |
From a 10% Increase in	Centers	Family Day Care	Centers	Family Day Care
Income	6.0*	1.9*	3.2*	2.1*
Fair market rent	2.7*	3.7*	2.6*	2.0*
Employment	2.7*	2.2*	4.0*	3.6*
Share of population of preschool-age children	1.6*	–0.7	1.4*	–1.0
Child care earnings	1.2*	1.1*	0.4	0.6*
Preschool center enrollment	–0.2*	0.03	–0.2*	–0.03
Preschool family day care enrollment	0.2	–0.1	0.1	–0.2
Welfare participation of preschool-age children	1.0*	–0.2	–0.5*	–1.0*
Total child care subsidies per child age 0–5	0.3*	0.2*	0.6*	0.3*

*Indicates significance at the 95 percent level.

variables on preschool prices between 1998 and 2000, for both centers and family day care. For centers, median income has the greatest effect on prices, with a 6 percent increase in child care prices for a 10 percent increase in median income. The effect of income on family day care prices is also positive but significantly lower. This suggests that as incomes rise, there is a stronger preference for more expensive center care. Such care could be more expensive because it is higher quality, or because it is offered for more hours—a support that might be needed to maintain higher incomes. (Although all prices are for full-time care.)

As predicted, an increase in housing prices also drives up the price of child care, with a slightly larger effect on family day care, which could reflect the close link between residential rents and the price of family day care. An increase in employment also has the predicted effect of increasing prices. These economic factors have qualitatively similar effects in the pre-1997 period, but the magnitude of the effect of income on center prices is smaller, whereas the effect of employment is larger in the earlier period.

The share of preschool-age children in the population has a significant effect on prices for center care in the post-1997 period. The greater that share, the more prices increase, consistent with a view of this as a measure of the demand for child care. The same effect holds for centers in the pre-1997 period.

This factor appears to have the opposite effect on prices for family day care, although the effect is only significant in the pre-1997 period, where we see that a larger share of preschool-age children decreases the price of family day care. One possible hypothesis to explain this unexpected result is that the negative price effect for family day care could reflect the relative preference for center care, given that preschool-age children are more likely than younger children to be placed in center care (see O'Brien-Strain, Sonenstein, and Moyé, 2003).[3]

_____

[3]This hypothesis would suggest that the price of infant family day care would rise with the share of children who were infants, which we do observe as a significant effect in the pre-1997 period.

Figures 6.1 and 6.2 give concrete examples of how these regression results translate into real price changes for an example county. For our example, we have chosen the county that had the median percentage
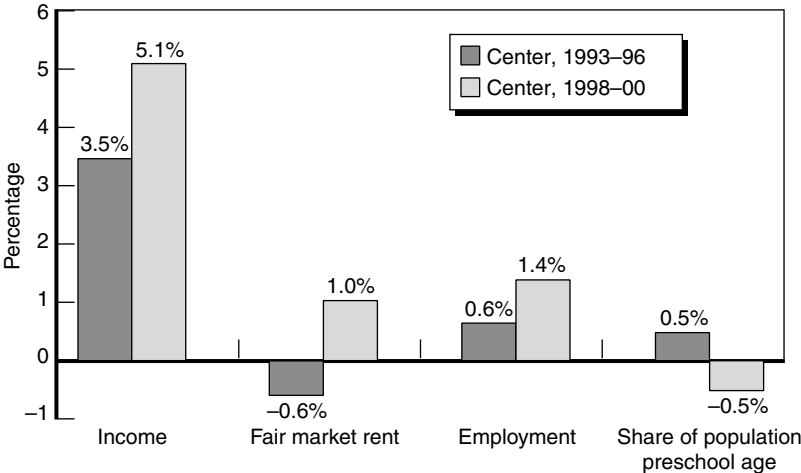
Figure 6.1—Percentage Increases in Preschool Center Prices Attributable to Demographic and Economic Changes, Median County
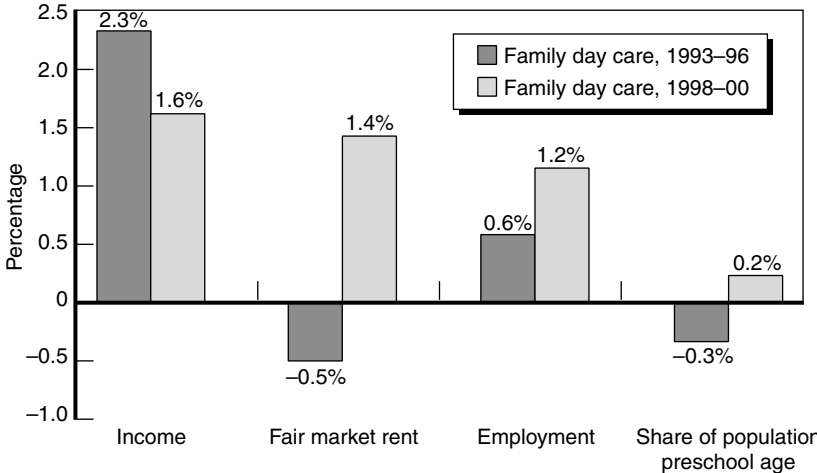
Figure 6.2—Percentage Increases in Preschool Family Day Care Prices Attributable to Demographic and Economic Changes, Median County

52

increase in child care center prices between 1998 and 2000, just under 10 percent. This "median county"—Ventura County in Southern California—had a somewhat higher than average increase in family day care prices during this period.

The regression results reported in Figure 6.1 estimate that our median county's 9 percent increase in median income contributed 5 percent to increased preschool center prices between 1998 and 2000. Although income increased more between 1993 and 1996, the contribution of this income rise to higher prices was less than 4 percent. The fair market rent in this county rose 4 percent in the post-1997 period, contributing 1 percent to higher center prices, but rents had actually fallen in real terms between 1993 and 1996.   Higher rates of employment, rising 5 percent in the late 1990s compared to 2 percent in the earlier period, also had small positive effects on the price of care in preschool centers. Finally, the share of children who were preschool age fell 3 percent between 1998 and 2000, which had a small role in tempering the price increases, offsetting the 3 percent rise in preschool population in the 1993–96 period.

Figure 6.2 shows the effects of the same economic and demographic trends on family day care home prices for preschool children in our example county. In the 1998–00 period, income, rents, and employment growth all had similar contributions to the increased price of care in the county, between 1 and 2 percent each.

Together, these findings mean that, in the absence of changes in enrollments, subsidies, or welfare reform, economic and demographic factors alone would have significantly increased the price of preschool child care, especially in center programs in the late 1990s. For the median county, the economy and population changes account for a 7 percent increase in prices in centers and a 4.4 percent increase in family day care homes between 1998 and 2000. These pressures were less strong in the early part of the economic recovery, when the price increases attributable to these factors were about half as large as in the later period.

Role of Child Care Wages and Supply

Child care earnings do have the expected effect on prices, but the magnitude is surprisingly low, as shown in Table 6.1. The regression analysis estimates that for every 10 percent increase in wages, prices rise only about 1.2 percent, despite the large role of labor in the cost of child care. Since earnings on average rose 18.8 percent statewide, this suggests that the additional labor costs raised prices by only 2.3 percent statewide. Earnings in the median county, shown in Figure 6.3, grew less than the statewide average. At 13 percent, this earnings growth contributed only 1.6 percent to center prices between 1998 and 2000, and only 1.4 percent to family day care prices. The small role of wage increases could result because the demand effects captured in the other economic factors swamp the cost effect of earnings. It is also possible that the earnings in the "child care industry" included in this measure do not closely track with earnings in the broader child care market. The effect of child care earnings on center prices was not statistically significant pre-1997, and the effect on family day care prices was small.

As demand for child care rose, areas that had greater expansion in the number of slots available faced somewhat less pressure on prices. The
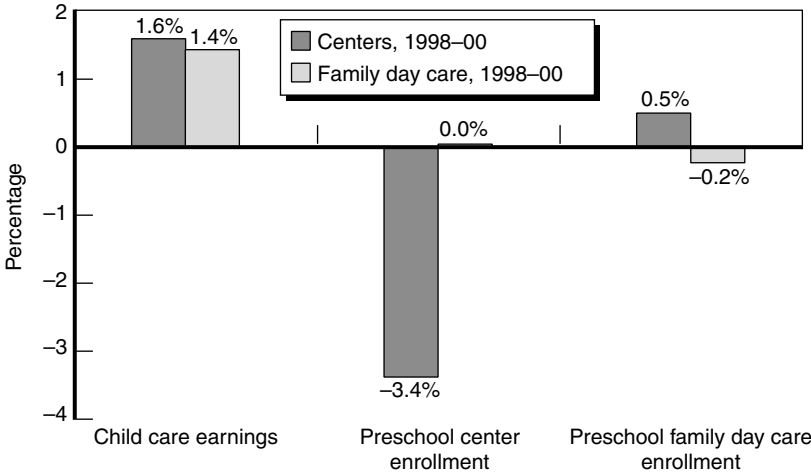
Figure 6.3—Percentage Increases in Preschool Prices Attributable to Changes in the Child Care Market, Median County, 1998–00

regression results suggest that enrollment growth of 10 percent offsets price increases by 2 percent. The enrollment in preschool centers covered by the RMR survey in the median county increased 15 percent between 1998 and 2000, lowering prices by 3.4 percent relative to what they would have been with no enrollment growth (Figure 6.3). Enrollment growth in family day care has no significant effect on the price of center care, although the positive sign suggests that growing preschool enrollment in the family day care sector is another signal of the growing demand for care. The pattern of enrollment effects on family day care prices is the same as for centers, but the effects are not significant.

Role of Welfare Declines and Child Care Subsidies

The last elements of our regression results allow us to answer the fourth research question, regarding the role of welfare reform and child care subsidies in increasing child care prices for all families. Between 1993 and 1996, the share of California preschool-age children whose families participated in welfare fell 40 percent. The regression results in Table 6.1 estimate that the additional demand created by these caseload reductions raised child care center prices by 2 percent and family day care prices by 4 percent statewide. (With caseloads falling, a negative sign on the price effect means that prices are rising.) Since caseload reductions in our median county (Ventura) were a bit lower than average for the state during this period, Figure 6.4 shows somewhat lower effects in our example county.

The effect on prices of further caseload declines after welfare reform is harder to interpret. In the post-1997 period, a 10 percent fall in welfare participation is associated with a 1 percent *decline* in center prices but has no significant effect on family day care prices (although the sign for family day care is still negative, suggesting that prices rise as welfare participation falls). Of course, the demand linked explicitly to the subsidies available to former welfare recipients should be picked up in our subsidy findings, described below, rather than in the welfare participation rate. It does not appear to be linked to later caseload declines in less-expensive regions, since the positive correlation between
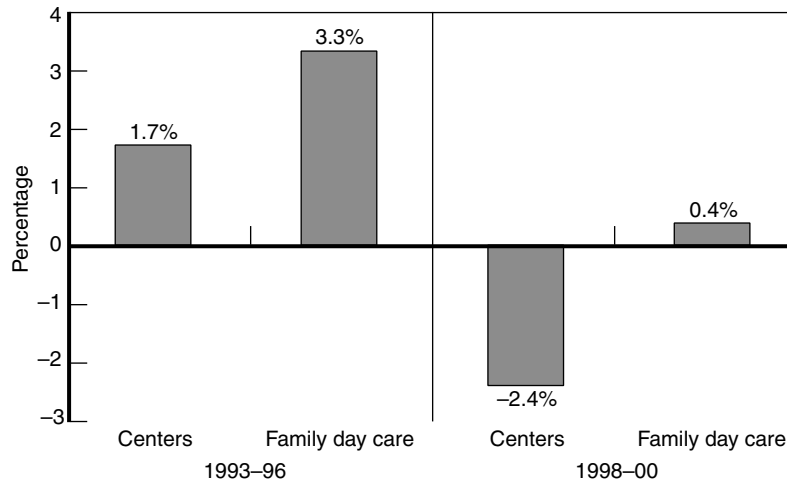
Figure 6.4—Percentage Increases in Preschool Prices Attributable to Changes in Welfare Participation, Median County

welfare participation and prices shows up as well in simple cross sections for 2000.[4]

Finally, we can use the regression analysis to distinguish the effects of subsidies on child care prices, controlling for all the other important trends that influenced the child care market in the 1990s (the last row of Table 6.1). In both the post- and pre-1997 periods, increases in per capita child care subsidies are indeed associated with increases in the price of child care. A 10 percent increase in the subsidies per child age 0–5 coming into a county increased the price of care for all children in the county by 0.3 percent in centers and 0.2 percent in family day care in the post-1997 period. However, the effect of a marginal increase in the subsidies was about twice as large in the pre-1997 period for both centers and family day care.

The small magnitude of the regression results in Table 6.1 may be deceptive, given the enormous increases in subsidies. As we see in Figure 6.5, subsidies had a larger net effect in the welfare reform period, because

_____

[4]However, we should not interpret this result to suggest that higher price increases slow welfare caseload reductions; regressing child care prices on welfare caseloads shows a negative but insignificant effect.
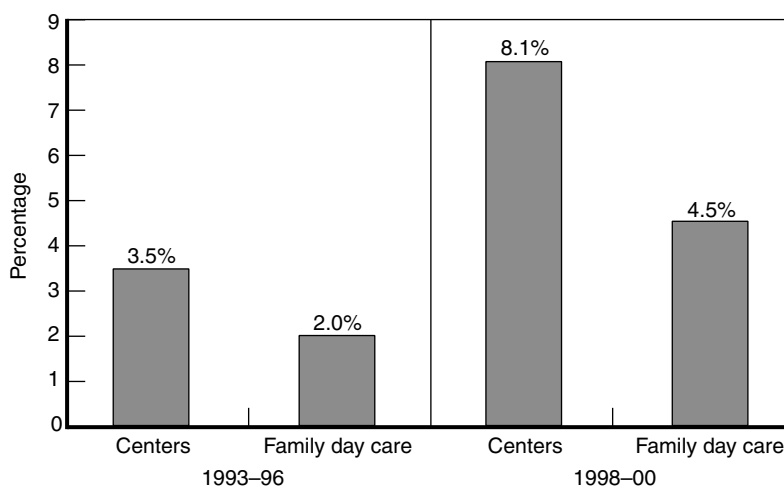
Figure 6.5—Percentage Increases in Preschool Prices Attributable to Increases in Child Care Subsidies, Median County

subsidies rose by 289 percent between 1998 and 2000 but only by 62 percent between 1993 and 1996. The results for our median county are close to the statewide average for the post-1997 period, when the average subsidy per child age 0–5 rose 265 percent statewide, implying an almost 8 percent increase in preschool center prices and an almost 4 percent increase in preschool family day care prices. The regression estimates are higher in the pre-1997 period, but because the growth in subsidies was much smaller in the earlier period, the price effect was much smaller: approximately 2.8 percent statewide for centers and less than 2 percent for family day care.

Summary of Determinants of Price Increases

Multivariate linear regression analysis shows that economics, demography, and policy all appear to play an important role in explaining child care price increases in the 1990s. From the demand side, higher employment levels and higher income are both associated with greater price increases, although income has a greater effect on child care centers than on family day care. From the cost side, higher housing costs and earnings are also associated with greater price increases. The

57

share of the population of preschool age has mixed effects, raising center prices but not family day care prices. This result suggests that the presence of more preschool-age children increases demand for center care, but family day care is not as highly demanded for preschool-age children.

The rapid decline in welfare caseloads before 1997 appears to have created demand pressures on the child care market, increasing family day care prices by 4.4 percent and center prices by more than 2 percent. The role of welfare declines in the 1998–00 period is much less clear, with no discernible effect on family day care and a small decrease in center prices.

Finally, the expansion of child care subsidies is correlated with price increases in both the pre- and post-1997 periods. Although the estimated effects appear small, subsidies rose by nearly 300 percent between 1998 and 2000 and represented as much as 20 percent of the private market for licensed care in 1999. The magnitude of these subsidy increases has led to an implied 8 percent increase in center prices and a 4 percent increase in family day care prices since 1998.

7. Conclusions

Much of the success of welfare reform in the late 1990s was the result of the remarkably strong job market (MaCurdy, Mancuso, and O'Brien-Strain, 2002). Although the rapid caseload declines that preceded the implementation of welfare reform created demand pressures on the price of child care, generous child care subsidies allowed working parents leaving CalWORKs to choose from all but the most expensive child care providers and to have the cost of their children's care largely or entirely reimbursed through vouchers. Unfortunately, given the other demand pressures on the child care market during the economic boom, the influx of more than $1 billion dollars in child care subsidies drove up the price of care for other families, including low-income families who qualified for child care subsidies but were left on the waiting list for the Alternative Payment vouchers. The marginal effect of the additional vouchers was small, but the almost 300 percent increase in vouchers contributed to 8 percent higher prices on average in California.

This finding adds credibility to Governor Davis's 2001 proposals to share the subsidies more equitably across families, although it is not clear that any of the particular proposals—including lower reimbursement ceilings, lower income eligibility thresholds, or higher copayments— would reduce the effect of the subsidies on the larger market. The reductions in total spending on vouchers in the 2003–04 budget will slightly reduce the effect of subsidies on the larger market, but in light of the drop in employment rates, it is probable that subsidies are now acting to support a child care market otherwise facing declining enrollments rather than adding additional pressure to an already overheated market.

More important, this analysis points to the ongoing need to consider the effects that child care policies will have in an environment where many low-income working families are not receiving subsidies. Such effects could occur even for policies aimed at features less closely related to access to child care. For example, policymakers have started to try to

address the low wages and resulting high turnover of child care teachers, because provider turnover has been linked to poorer outcomes for children in care (Shonkoff and Phillips, 2000). In response, the state has passed legislation offering limited incentives to encourage workers to enter and stay in the child care field (Assembly Bills 212 and 2811) and 44 counties have funded child care teacher retention initiatives (the CARES initiatives), most commonly funded through the Proposition 10 cigarette tax monies.[1] Although the effects of these efforts are too recent to be reflected in our data, the strategy of providing bonuses to teachers creates incentives to reduce turnover without creating price pressures.

Universal preschool, on the other hand, is a proposed policy that could have impacts on the market for child care that far outstrip those created by the voucher program. If fully universal, a half-day preschool program could bring $5 billion in public money into the child care market, although much of this might replace current private spending.[2] The price implications of such a program depend strongly on how it is implemented. For example, a program that fully covers low-income families but works through existing child care settings could reduce the capacity available for higher-income families, causing an increase in the cost of care for families not eligible for the program. On the other hand, a program instituted through the school system would increase capacity in the existing settings, as children shifted to the free programs, and reduce the cost of care for those remaining—depending, of course, on the availability of teachers in each setting and the potentially higher wages needed to attract teachers to private care. In this way, the settings, the requirements for preschool providers and teacher credentials, and the share of families covered could all influence the price of care for those families not served in the new system as well as the price for younger (and older) children not targeted by the new program.

Finally, there remain a number of important avenues for further research. First, the price data explored here extend through fall 2000, so

_____

[1]For information on these initiatives, see the California Child Care Workforce Resource Center, at http://www.caccwrc.org/cares.

[2]The $5 billion price estimate was developed by the California Department of Education (1998).

the effects of the economic downturn are not addressed. Second, accounting for child care quality, which is not observed in our data, may lead to a different understanding about the acceptability of price increases. Third, apart from considering the periods before and after welfare reform, we do not have a mechanism to explore the effects of alternative subsidy policies, such as changes in the reimbursement rate ceiling or in eligibility rules. Finally, counties in California are often extremely large, and child care markets are generally local. In future research, we hope to explore price effects within counties to understand how subsidies affect different neighborhoods or cities differently.

Appendix

Empirical Strategy

We exploit cross-county variation in per child DSS and CDE expenditures on child care to identify the price effect of government subsidies in the child care market. The identifying assumption is that the amount allocated in subsidies is determined by other factors in addition to aggregate child care demand. We believe that this is a reasonable assumption for several reasons. First, for the CDE resources, the ratio of served population to applicants is low and varies widely across counties. Applicants in turn represent a small and varying share of potentially eligible families. Although DSS subsidies are available to all eligible working CalWORKs families, the takeup rate is less than 100 percent and varies over time and by county. In addition, CalWORKs families represent a small share of the total population. Second, the allocations of CDE subsidies in particular are based on the applications of agencies administering the subsidies rather than on a formula for need or demand in the county.

In evaluating the effect of alternative measures of public funding, we also exploit cross-county variation in the size of potential beneficiaries of the program relative to the total number of children. To isolate the effect of these two subsidy measures on prices, we need to control for systematic shocks in child care prices that correlate with child care subsidies but are not caused by them. We apply several controls. First, we include rental prices and child care wages to control for cross-county differences in provider costs. Second, we include employment rates to control for cross-county differences in employment opportunities—a potential indicator of child care demand.[1] Third, we include number of young children relative to the total population. This captures elements of demand unrelated to employment, such as the demand for preschool

---

[1] We included overall employment rates instead of female employment rates to avoid simultaneity bias.

as early childhood education. Finally, we use median income to capture cross-county differences in ability to pay for child care.

The regression equation has the following form:

$$\ln P_{it} = a_1 \ln Emp_{it} + a_2 \ln rent_{it} + a_3 \ln MedInc_{it} + a_4 \ln W_{it} \quad (1)$$
$$+ a_5 \ln TS_{it} + a_6 \ln KIDS_{it} + a_7 \ln WKIDS_{it} + u_{it}$$

where

Emp is employment rate,

rent is the fair market rent (as defined by the U.S. Department of Housing and Urban Development),

MedInc is median income,

W is average annual earnings for child care employees,

TS is the amount of child care subsidies allocated in the county, normalized by the population of children ages 0–5; we also consider specifications breaking the CDE and DSS subsidies out separately,

KIDS is the ratio of young children to the overall population,

WKIDS is the ratio of young children receiving welfare to the total number of young children, and

i indexes counties and *t* indexes time.

We specify an AR(1) structure for the error term u_{it} to account for serial correlation in log prices. Finally, we assume that u_{it} has constant variance and time series correlation, ρ, across counties.

$$u_{it} = \rho u_{it-1} + e_{it} \text{ with } |\rho| < 1$$
$$e_{it} \sim N(0, \sigma_e)$$
$$u_{it} \sim N(0, \sigma_u)$$

All variables are expressed in logs; thus coefficients in Equation (1) measure the percentage change in prices due to a percentage change in the explanatory variable. We can test the effect of child care subsidies on prices by testing whether $a_5 > 0$ and $a_6 > 0$. In other words, if child care policy was not distortionary, then we would expect that the size of public funding would have no effect on prices once controlling for market conditions. The findings in the report focus on preschool settings; however, we examined these coefficients for four different markets:

infant center, infant family care, preschool center, and preschool family care.

The error structure of u_{it} imposes the following covariance and variance among log prices:

$$\text{Var}(\ln p_{it}) = \sigma_u^2 / (1 - \rho^2) = \sigma^2$$
$$\text{Cov}(\ln p_{it}, \ln p_{it-1}) = \rho\sigma^2$$
$$\text{Cov}(\ln p_{it}, \ln p_{jt}) = 0$$

Applying Ordinary Least Squares (OLS) to Equation (1) will yield biased estimates of the standard errors when there is time correlation.[2] Therefore, we estimate Equation (1) by Feasible Generalized Least Squares (FGLS)—a method that involves reweighting the variables in the analysis to account for differences in the covariance matrix of log prices from the diagonal form assumed in the classical regression model. As a result of the error structure specified above, FGLS in our analysis is equivalent to OLS estimation on the following transformed variables:

$$\ln p_{it}^* = \ln p_{it} - \rho \ln p_{it-1}$$
$$\ln x_{it}^* = \ln x_{it} - \rho \ln x_{it-1}$$

for x_{it} = *Emp, rent, MedInc, W, TS, KIDS,* and *WKIDS.*

This transformation shows that implementing FGLS requires continuous time series observations of the variables used in the analysis. Because the RMR survey was not conducted in 1997, we are forced to estimate two separate regressions for two different subsample periods: 1990–96 and 1998–00. The estimation results for mean prices in preschool centers and preschool family day care are shown in Tables A.1 through A.4. Table A.5 compares the results for the mean to parallel regressions at two other points in the distribution of prices: the 75th percentile and 1.5 standard deviations above the mean. Table A.6 compares results on preschool and infant care.

_____

[2]The expected value of the variance of OLS residuals is unbiased when the covariance matrix for log prices is not diagonal.

This modeling approach retains several important limitations. First, many of the variables included as regressors are endogenous—for example, employment growth is likely to predict welfare caseloads, enrollment growth is likely to predict provider wages, and so on. Child care prices could themselves be explanatory variables in these alternative models. Second, there is measurement error in the county-level subsidy expenditures from CDE, both because the allocations are made to agencies that do not match county borders and because, in the absence of more detailed information, CDE inferred allocations in earlier years based on proportions in the most recent allocations. Despite these limitations, the model appears to be robust to a number of alternative specifications, and the results are sizable and consistent with economic predictions.

Table A.1

Regression Results for Preschool Centers, Post-1997

	1	2	3	4	5	6	7	8	9
Income	0.661*	0.503*	0.599*	0.573*	0.595*	0.586*	0.605*	0.624*	0.598*
Fair market rent	0.151+	0.139+	0.203*	0.258*	0.244*	0.264*	0.257*	0.274*	0.268*
Employment	0.365*	0.217*	0.269*	0.276*	0.252*	0.236*	0.285*	0.308*	0.271*
Share of population of preschool age	0.186*	0.118*	0.122*	0.127*	0.060	0.054	0.151*	0.213*	0.164*
Rural	0.037	−0.029	−0.030	−0.038	−0.045	−0.047	−0.035	−0.055+	−0.048
Child care earnings		0.172*	0.192*	0.172*	0.164*	0.155*	0.141*	0.133*	0.123*
Welfare participation of preschool-age children			0.087*	0.116*	0.127*	0.134*	0.120*	0.122*	0.103*
DSS subsidies per child age 0–5				0.015*		0.009			
CDE subsidies per child age 0–5					0.012	0.006			
Total subsidies per child age 0–5							0.031*	0.031*	0.028*
Preschool center enrollment								−0.013*	−0.022*
Preschool family day care enrollment									0.023

NOTE: Because of the Wald statistic in each specification, we reject the hypothesis that all coefficients are equal to zero.

*Indicates significance at the 95 percent level.

+Indicates significance at the 90 percent level.

Table A.2

Regression Results for Preschool Centers, Pre-1997

	1	2	3	4	5	6	7	8	9
Income	0.412*	0.373*	0.296*	0.299*	0.346*	0.314*	0.290*	0.326*	0.315*
Fair market rent	0.242*	0.229*	0.210*	0.196*	0.048	0.110*	0.211*	0.267*	0.263*
Employment	0.494*	0.451*	0.413*	0.324*	0.501*	0.457*	0.407*	0.414*	0.397*
Share of population of preschool age	0.116*	0.079	0.079	0.085+	0.124*	0.106*	0.099*	0.168*	0.144*
Rural	0.015	0.005	0.002	−0.023	−0.037	−0.030	−0.012	−0.029	−0.028
Child care earnings		0.082*	0.074*	0.058+	0.035	0.065*	0.030	0.043	0.042
Welfare participation of preschool-age children			−0.058*	−0.062*	−0.082*	−0.064*	−0.063*	−0.048*	−0.052*
DSS subsidies per child age 0–5				0.049*		0.028*			
CDE subsidies per child age 0–5					0.037*	0.031*			
Total subsidies per child age 0–5							0.055*		
Preschool center enrollment								0.057*	0.056*
Preschool family day care enrollment								−0.015*	−0.022*
enrollment									0.012

NOTE: Because of the Wald statistic in each specification, we reject the hypothesis that all coefficients are equal to zero.

*Indicates significance at the 95 percent level.

+Indicates significance at the 90 percent level.

Table A.3

Regression Results for Preschool Family Day Care, Post-1997

	1	2	3	4	5	6	7	8	9
Income	0.356*	0.201*	0.142*	0.110+	0.186*	0.162+	0.156*	0.231*	0.190*
Fair market rent	0.425*	0.376*	0.367*	0.417*	0.325*	0.344*	0.379*	0.206*	0.372*
Employment	0.180	0.229*	0.207*	0.193*	0.312*	0.300*	0.211*	0.345*	0.228*
Share of population of preschool age	-0.076	-0.124*	-0.131*	-0.128*	-0.108*	-0.119*	-0.116*	-0.112	-0.074
Rural	0.069+	0.016	0.013	0.005	0.024	0.022	0.013	0.004	0.010
Child care earnings		0.148*	0.147*	0.133*	0.106*	0.116*	0.121*	0.053	0.110*
Welfare participation of preschool-age children			-0.029	-0.009	-0.024	-0.021	-0.020	-0.098	-0.018
DSS subsidies per child age 0–5				0.015*		0.001			
CDE subsidies per child age 0–5					0.021*	0.018+			
Total subsidies per child age 0–5							0.013*	0.032*	0.016*
Preschool center enrollment									0.003
Preschool family day care enrollment								-0.018	-0.011

NOTE: Because of the Wald statistic in each specification, we reject the hypothesis that all coefficients are equal to zero.

*Indicates significance at the 95 percent level.

+Indicates significance at the 90 percent level.

Table A.4

Regression Results for Preschool Family Day Care, Pre-1997

	1	2	3	4	5	6	7	8	9
Income	0.409*	0.381*	0.247*	0.177*	0.169*	0.157*	0.185*	0.190	0.212*
Fair market rent	0.274*	0.231*	0.211*	0.211*	0.185*	0.209*	0.188*	0.368*	0.203*
Employment	0.361*	0.368*	0.292*	0.240*	0.380*	0.322*	0.312*	0.242*	0.364*
Share of population of preschool age	−0.165*	−0.176*	−0.181*	−0.190*	−0.220*	−0.208*	−0.192*	−0.084	−0.097+
Rural		0.043+	0.040+	0.013	0.033	0.029	0.019	0.010	−0.001
Child care earnings		0.080*	0.067*	0.066*	0.069*	0.074*	0.046+	0.115*	0.058*
Welfare participation of preschool-age children			−0.101*	−0.097*	−0.129*	−0.116*	−0.111*	−0.015	−0.100*
DSS subsidies per child age 0–5				0.052*		0.037*			
CDE subsidies per child age 0–5					0.023*	0.016*			
Total subsidies per child age 0–5							0.029*	0.015	0.032*
Preschool center enrollment									−0.003
Preschool family day care enrollment								−0.007	−0.018

NOTE: Because of the Wald statistic in each specification, we reject the hypothesis that all coefficients are equal to zero.

*Indicates significance at the 95 percent level.

+Indicates significance at the 90 percent level.

70

Table A.5

Comparison of Regression Results on Different Price Points, Preschool

	Post-1997			Pre-1997		
	Mean	75th Percentile	1.5 Standard Deviations	Mean	75th Percentile	1.5 Standard Deviations
Preschool Centers						
Income	0.635*	0.969*	0.640*	0.302*	0.248+	0.219*
Fair market rent	0.263*	0.025	0.399*	0.222*	0.332*	0.398*
Employment	0.322*	0.243	0.459*	0.418*	0.375*	0.535*
Share of population of preschool age	0.169*	0.354*	0.274*	0.103*	0.126	0.155*
Child care earnings	0.129*	−0.010	0.101	0.031*	−0.036	0.066+
Welfare participation of preschool-age children	0.115*	−0.002	0.138*	−0.061*	−0.111*	−0.042
Total subsidies	0.030*	0.018*	0.048*	0.055*	0.040*	0.042*
Preschool Family Day Care						
Income	0.175*	0.150+	1.015*	0.162*	0.138+	0.128+
Fair market rent	0.351*	0.400*	−0.000	0.179*	0.212*	0.279*
Employment	0.206*	0.282*	0.241	0.292*	0.346*	0.380*
Share of population of preschool age	−0.117*	−0.123*	−0.156	−0.200*	−0.260*	−0.235*
Child care earnings	0.111*	0.100*	0.099	0.045+	0.070*	0.030
Welfare participation of preschool-age children	−0.022	0.001	0.025	−0.112*	−0.104*	−0.109*
Total subsidies	0.014*	0.017*	0.028	0.029*	0.029*	0.036*

*Indicates significance at the 95 percent level.

+Indicates significance at the 90 percent level.

71

Table A.6

Comparison of Regression Results on Different Age Groups, Mean Prices

	Preschool		Infant	
	Post-1997	Pre-1997	Post-1997	Pre-1997
Centers				
Income	0.635*	0.302*	0.579*	0.622*
Fair market rent	0.263*	0.222*	0.154	0.318*
Employment as share of population	0.322*	0.418*	0.564*	0.470*
Share of population of target-age children	0.169*	0.103*	0.419*	0.159*
Child care earnings	0.129*	0.031*	0.163*	0.040
Welfare participation of target-age children	0.115*	−0.061*	0.020	0.073*
Total subsidies	0.030*	0.055*	0.021+	0.060*
Family Day Care				
Income	0.175*	0.162*	0.412*	0.247*
Fair market rent	0.351*	0.179*	0.390*	0.220*
Employment as share of population	0.206*	0.292*	0.167+	0.419*
Share of population of target-age children	−0.117*	−0.200*	−0.027	0.153*
Child care earnings	0.111*	0.045*	0.037	0.044+
Welfare participation of target-age children	−0.022	−0.112*	0.026	−0.042*
Total subsidies	0.014*	0.029*	0.018+	0.027*

*Indicates significance at the 95 percent level.

+Indicates significance at the 90 percent level.

Table A.7

Region Definitions

Northern California	Central Sierra	Bay Area	Mother Lode	Central California	Southern California
Butte	El Dorado	Alameda	Alpine	Fresno	Los Angeles
Colusa	Nevada	Contra Costa	Amador	Imperial	Orange
Del Norte	Placer	Marin	Calaveras	Inyo	Riverside
Glenn	Sacramento	Napa	San Joaquin	Kern	San Bernardino
Humboldt	Sierra	San Francisco	Stanislaus	Kings	San Diego
Lake	Yolo	San Mateo	Tuolumne	Madera	Santa Barbara
Lassen		Santa Clara		Mariposa	Ventura
Mendocino		Santa Cruz		Merced	
Modoc		Solano		Mono	
Plumas		Sonoma		Monterey	
Shasta				San Benito	
Siskiyou				San Luis Obispo	
Sutter				Tulare	
Tehama					
Trinity					
Yuba					

73

Bibliography

Abt Associates, Inc., *National Study of Child Care for Low Income Families: State and Community Substudy Interim Report,* Prepared for the U.S. Department of Health and Human Services, Administration for Children and Families, November 2000.

Acs, Gregory, and Pamela Loprest, *Final Synthesis of Findings from ASPE's Leavers Grants,* The Urban Institute, Washington, D.C., 2001.

Blau, David M., "The Child Care Labor Market," *Journal of Human Resources,* Vol. 27, No. 1, 1992, pp. 9–39.

Blau, David M., "The Supply of Child Care Labor," *Journal of Labor Economics,* Vol. 11, No. 2, 1993, pp. 324–347.

Blau, David M., "The Production of Quality in Child Care Centers," *Journal of Human Resources,* Vol. 32, No. 2, 1997, pp. 354–387.

Blau, David M., "Child Care Subsidy Programs," National Bureau of Economic Research, Working Paper 7806, Cambridge, Massachusetts, July 2000, available at www.nber.org/papers/w7806.

Blau, David M., *The Child Care Problem: An Economic Analysis*, Russell Sage Foundation, New York, 2001.

Blau, David M., and H. Naci Mocan, "The Supply of Quality in Child Care Centers," *Review of Economics and Statistics*, Vol. 84, No. 3, August 2002, pp. 483–496.

Bradford, David F., and Daniel N. Shaviro, "The Economics of Vouchers," National Bureau of Economic Research, Working Paper 7092, Cambridge, Massachusetts, April 1999, available at www.nber.org/papers/w7092.

California Budget Project, *How Many Children Need Subsidized Child Care in California?* Sacramento, California, March 2001a, available at www.cbp.org.

California Budget Project, *Lasting Returns: Strengthening California's Child Care and Development System,* Sacramento, California, May 2001b, available at www.cbp.org.

California Budget Project, "How Will the Governor's 2003–04 Proposed Budget Affect California's Child Care and Development System?" Budget Brief, Sacramento, California, March 2003a.

California Budget Project , *Comparison of Key Provisions in TANF Reauthorization Proposals,* Sacramento, California, September 2003b, available at www.cbp.org.

California Child Care Resource and Referral Network, *The California Child Care Portfolio 2001,* San Francisco, California, 2001.

California Child Care Workforce Resource Center, available at http://www.caccwrc.org/cares, accessed April 3, 2003.

California Department of Education, CD 800, Child Care Annual Aggregate Reports, available at http://www.cde.ca.gov/cyfsbranch/ms/reports/cdd800data/cd800dataall.pdf.

California Department of Education, Child, Youth and Family Services Branch, "Child Development Division Subsidized Child Care Data: 2000 CDE Survey," 2002, available at http://www.cde.ca.gov/cyfsbranch/ms/msreports.htm, accessed April 3, 2003.

California Department of Education, Universal Preschool Task Force, *Ready to Learn: Quality Preschools for California in the 21st Century,* Sacramento, California, 1998.

California Department of Finance, *2003–2004 Governor's Budget Summary,* available at http://www.dof.ca.gov/HTML/Budgt03-04/BudgetSum03/03-04_BudSum.htm, January 2003.

California Department of Social Services, Research and Development Division, available at http://www.dss.cahwnet.gov/research/CalWORKsDa_399.htm. Released August 26, 2003.

California State and Consumer Services Agency, *Child Care Fiscal Policy Analysis: Analyzing Options to Focus the State's Existing Resources to*

Serve the State's Neediest Families, May 2001, available at http://www. scsa.ca.gov/childcare-report.htm.

Chaplin, Duncan D., Philip K. Robins, Sandra L. Hofferth, Douglas A. Wissoker, and Paul Fronstin, "The Price Elasticity of Child Care Demand: A Sensitivity Analysis," Working Paper, The Urban Institute, Washington, D.C., 1999.

Child Care Law Center, Testimony at the March 11, 2003 Joint Informational Hearing on Realignment in Human Services, California Legislature, March 2003, available at http://www.childcarelaw.org/ Publications/cclc.realignment%20testimony.pdf.

Children's Defense Fund, *California: Child Care Challenges*, Washington, D.C., May 1998.

Chipty, Tasneem, and Ann Dryden Witte, "Effects of Information Provision in a Vertically Differentiated Market," National Bureau of Economic Research, Working Paper 6493, Cambridge, Massachusetts, April 1998, available at www.nber.org/papers/w6493.

Committee on Ways and Means, U.S. House of Representatives, *2000 Green Book,* 2000, available at http://aspe.hhs.gov/2000gb.

Congressional Research Service, *Child Care: Funding and Spending Under Federal Block Grants,* Washington, D.C., 2002, available through the National Child Care Information Clearinghouse at http://nccic.org/pubs/crsreport/crsreport.pdf.

Costello, Cynthia B., and Anne J. Stone, *The American Woman 2001– 2002: Getting to the Top,* Women's Research and Education Institute, Washington, D.C., 2001, available at http://www.wrei.org/projects/ taw/aw8_figure4-12.pdf.

Council of Economic Advisors, *The Economics of Child Care,* Washington, D.C., December 1997, available at http://clinton3.nara.gov/WH/ EOP/CEA/html/childcare.html.

Ewing Marion Kauffman Foundation, *Financial Impact Survey Report: Accreditation Project*, August 1999, available at www.emkf.org.

General Accounting Office, *Welfare Reform: Implications of Increased Work Participation for Child Care,* Washington, D.C., May 1997.

Greenberg, Mark, Joan Lombardi, and Rachel Schumacher, *The Child Care and Development Fund: An Overview,* Center for Law and Social Policy, Washington, D.C., June 2002, available at http://www.clasp. org/pubs/childcare/FinalCCDFOverview.htm.

Helburn, Suzanne W., ed., *Cost, Quality and Child Outcomes in Child Care Centers, Technical Report,* Denver, Department of Economics, Center for Research in Economic and Social Policy, University of Colorado at Denver, 1995.

Helburn, Suzanne W., and Carollee Howes, "Child Care Cost and Quality," *The Future of Children, Financing Child Care,* Vol. 6, No. 2, 1996, pp. 62–82.

Helburn, Suzanne W., et al., "The Cost, Quality and Outcomes Study Theoretical Structure," in Suzanne Helburn, ed., *Cost, Quality and Child Outcomes in Child Care Centers, Technical Report,* Denver, Department of Economics, Center for Research in Economic and Social Policy, University of Colorado at Denver, 1995.

Hofferth, Sandra L., "Child Care in the United States Today," *The Future of Children, Financing Child Care,* Vol. 6, No. 2, 1996, pp. 41–61.

Hotz, V. Joseph, and M. Rebecca Kilburn, "Regulating Child Care: The Effects of State Regulation on Child Care Demand and Its Cost," RAND Labor and Population Program, Working Paper 95-03, Santa Monica, California, 1995.

Jacobson, Linda, "Are Child Care Options Expanding?" *PACE, Policy Brief,* Vol.1, No. 1, Berkeley, California, Summer 2000.

Karpilow, Kate, *Understanding Child Care: A Primer for Policy Makers*, Institute for Research on Women and Families, Sacramento, California, 1999.

Kilburn, M. Rebecca, and Lingxin Hao, "The Impact of Federal and State Policy Changes on Child Care in California," *The New Fiscal Federalism and the Social Safety Net: A View from California,* in James

R. Hosek and Robert A. Levine, eds., RAND, Santa Monica, California, 1996, available at http://www.rand.org/publications/ CF/CF123/.

King, Carlise, and Shelley Waters Boots, *2001 Regional Market Survey of California Child Care Providers,* California Child Care Resource and Referral Network, San Francisco, California, June 2001.

Kisker, Ellen E., Sandra Hofferth, Deborah Phillips, and Elizabeth Farquhar, *A Profile of Child Care Settings: Early Education and Care in 1990,* Vol. 1, Government Printing Office, Washington, D.C., 1991.

Kisker, Ellen E., Rebecca Maynard, Anne Gordon, and Margaret Strain, *The Child Care Challenge: What Parents Need and What Is Available in Three Metropolitan Areas,* Mathematica Policy Research, Washington, D.C., 1989.

Kreader, J. Lee, Jessica Brickman Piecyk, and Ann Collins, *Scant Increases After Welfare Reform: Regulated Child Care Supply in Illinois and Maryland, 1996–1998,* National Center for Children in Poverty Child Care Research Partnership, New York, June 2000.

MaCurdy, Thomas E., David C. Mancuso, and Margaret O'Brien-Strain, *Does California's Welfare Policy Explain Its Slower Caseload Decline?* Public Policy Institute of California, San Francisco, California, 2002.

MaCurdy, Thomas E., Grecia M. Marrufo, and Margaret O'Brien-Strain, *What Happens to Families When They Leave Welfare?* Public Policy Institute of California, San Francisco, California, 2003.

Magenheim, Ellen, "Information, Prices and Competition in the Child Care Market: What Role Should Government Play," in J. M. Pogodzinski, ed., *Readings in Public Policy,* Blackwell Publishers, Cambridge, Massachusetts, 1995.

Mocan, H. Naci, "Quality Adjusted Cost Functions for Child Care Centers," National Bureau of Economic Research, Working Paper 5040, Cambridge, Massachusetts, 1995.

Mocan, H. Naci, "Cost Functions, Efficiency and Quality in Day Care Centers," *Journal of Human Resources,* Vol. 32, No. 4, 1997, pp. 861–891.

Moye, Laura, and Margaret O'Brien-Strain, *Child Care Price Dynamics: Case Study of Licensed Providers in San Mateo and Kern Counties, California,* The SPHERE Institute, Burlingame, California, 2003.

Mueser, Peter R., and Robert O. Weagley, "Influence of Client-Based Subsidies on the Market for Child Care," *Journal of Consumer Affairs,* Vol. 32, No. 1, 1998, pp. 145–175.

The National Economic Development and Law Center, *The Economic Impact of the Child Care Industry in California,* Oakland, California, 2001.

O'Brien-Strain, Margaret, Freya Sonenstein, and Laura Moyé, *Arranging and Paying for Child Care,* Public Policy Institute of California, San Francisco, California, 2003.

Queralt, Magaly, and Ann Dryden Witte, "Influences on Neighborhood Supply of Child Care in Massachusetts," *Social Service Review,* Vol. 17-46, 1998.

Queralt, Magaly, Ann Dryden Witte, and Harriet Griesinger, "Championing Our Children: Changes in the Quality, Price, and Availability of Child Care in the Welfare Reform Era," Wellesley College Working Paper 2000-07, Wellesley, Massachusetts, 2000.

Shonkoff, Jack P., and Deborah Phillips, eds., *From Neurons to Neighborhoods: The Science of Early Childhood Development,* National Academy Press, Washington, D.C., 2000.

United States Association for Child Care, *Conducting Market Rate Surveys: How Does Your State Rate?* Lee's Summit, Missouri, March 2000.

U.S. Census Bureau, "What Does It Cost to Mind the Kids?" Statistical Brief, Washington, D.C., October 1990.

U.S. Census Bureau, *1992 Economic Census: Comparative Statistics for United States, 1987 SIC Basis: Service Industries,* Washington, D.C., 1995.

U.S. Census Bureau, *1997 Economic Census: Health and Social Assistance,* Washington, D.C., 2000.

U.S. Census Bureau, Survey of Income and Program Participation (SIPP), 1996 Panel, Wave 10, January 24, 2003, available at http://www.census.gov/population/socdemo/child/ppl-168/tab06.pdf.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research, "Fair Market Rents for the Section 8 Housing Assistance Payments Program," October 1995, available at http://www.huduser.org/datasets/fmr/fmrover.doc.

Urban Institute, "Child Care in California: A Short Report on Subsidies, Affordability and Supply," 1999, available at http://aspe. hhs.gov/hsp/Child-Care99/ca-rpt.pdf.

Whitebook, Marcy, and Dan Bellm, *Taking on Turnover: An Action Guide for Child Care Center Teachers and Directors,* Center for the Child Care Workforce, Washington, D.C., 1999.

Whitebook, Marcy, et al., *Then and Now: Changes in Child Care Staffing, 1994–2000,* Center for the Child Care Workforce, Washington, D.C., 2001.

Whitebook, Marcy, et al., *The California Child Care Workforce Study: 2001 Preliminary Results and Future Plans,* California Child Care Resource and Referral Network, San Francisco, California, 2003, available at http://www.rrnetwork.ezpublishing.com/rrnet/uploads/1062011290.pdf.

Witt, Robert, Magaly Queralt, and Ann Dryden Witte, "Changes in the Availability, Quality and Price of Child Care in Massachusetts Between 1997 and 1999," Wellesley College Working Paper 2000-12, Wellesley, Massachusetts, 2000.

About the Authors

GRECIA MARRUFO

Grecia Marrufo is a research associate at The SPHERE Institute and the Stanford Institute of Economic Policy Research. Her research has focused on financing social insurance programs and modeling the effect of labor regulations on such programs. She is also working on a U.S. Department of Agriculture project to evaluate alternative certification procedures in the Food Stamps program. She holds a Ph.D. in economics from the University of Chicago and a B.A. in economics from Instituto Tecnológico Autónomo de México.

MARGARET O'BRIEN-STRAIN

Margaret O'Brien-Strain is an adjunct fellow at the Public Policy Institute of California and Director of Social Policy at The SPHERE Institute. She is interested in a broad range of social services issues and has written about child care, home visitation programs, performance measurement, and welfare reform in California. She holds a Ph.D. in economics from Stanford and a B.A. in economics from Swarthmore College.

HELEN OLIVER

Helen Oliver, a former research analyst at The SPHERE Institute, is pursuing a master's degree in public policy at the University of California, Berkeley. Her research has focused on child care, welfare, and health care policies in California and the United States. She holds a B.A. in economics from Swarthmore College.

Related PPIC Publications

The Well-Being of California's Children
Frank F. Furstenberg, Maureen R. Waller, and Hongyu Wang

What Happens to Families When They Leave Welfare?
Thomas MaCurdy, Grecia Marrufo, and Margaret O'Brien-Strain

Expensive Children in Poor Families: The Intersection of Childhood Disabilities and Welfare
Marcia K. Meyers, Henry E. Brady, and Eva Y. Seto

Arranging and Paying for Child Care
Margaret O'Brien-Strain, Laura Moyé, and Freya Lund Sonenstein

"California's Young Children: Demographic, Social and Economic Conditions"
California Counts: Population Trends and Profiles
Volume 4, Number 2, November 2002
Deborah Reed and Amanda Bailey

A Portrait of Race and Ethnicity in California: An Assessment of Social and Economic Well-Being
Belinda I. Reyes (editor), Jennifer Cheng, Elliot Currie, Daniel Frakes, Hans P. Johnson, Elizabeth Bronwen Macro, Deborah Reed, Belinda I. Reyes, José Signoret, and Joanne Spetz (contributors)

Child Support and Low-Income Families: Perceptions, Practices, and Policy
Maureen Waller and Robert Plotnick

PPIC publications may be ordered by phone or from our website
(800) 232-5343 [mainland U.S.]
(415) 291-4400 [Canada, Hawaii, overseas]
www.ppic.org