Published in final edited form as:

Child Youth Serv Rev. 2013 March 1; 36(3): 525–534. doi:10.1016/j.chilgyouth.2012.12.004.

Child center closures: Does nonprofit status provide a comparative advantage?

Marcus Lam^{a,*}, Sacha Klein^{b,1}, Bridget Freisthler^{c,2}, and Robert E. Weiss^{d,3}

Sacha Klein: kleinsa@msu.edu; Bridget Freisthler: freisthler@publicaffairs.ucla.edu; Robert E. Weiss: robweiss@ucla.edu

^aColumbia University School of Social Work, 1255 Amsterdam Avenue, New York, NY 10027, USA

^bSchool of Social Work, Michigan State University, Baker Hall, 655 Auditorium Road, Room 24, East Lansing, MI 48824, USA

^cUCLA Meyer and Renee Luskin School of Public Affairs, 3250 Public Affairs Building, Los Angeles, CA 90095-1656, USA

^dUCLA School of Public Health, Department of Biostatistics, Los Angeles, CA 90095-1772, USA

Abstract

Reliable access to dependable, high quality childcare services is a vital concern for large numbers of American families. The childcare industry consists of private nonprofit, private for-profit, and governmental providers that differ along many dimensions, including quality, clientele served, and organizational stability. Nonprofit providers are theorized to provide higher quality services given comparative tax advantages, higher levels of consumer trust, and management by mission driven entrepreneurs. This study examines the influence of ownership structure, defined as nonprofit, for-profit sole proprietors, for-profit companies, and governmental centers, on organizational instability, defined as childcare center closures. Using a cross sectional data set of 15724 childcare licenses in California for 2007, we model the predicted closures of childcare centers as a function of ownership structure as well as center age and capacity. Findings indicate that for small centers (capacity of 30 or less) nonprofits are more likely to close, but for larger centers (capacity 30+) nonprofits are less likely to close. This suggests that the comparative advantages available for nonprofit organizations may be better utilized by larger centers than by small centers. We consider the implications of our findings for parents, practitioners, and social policy.

Keywords

Childcare; Nonprofit; Closures; Ownership structure; Multilevel model

1. Introduction

The most recent U.S. Census estimates indicate that almost 7 million (35%) of American children, between the ages of 0 through 4 years, spend some part of their week in a non-relative, formal childcare arrangement; additionally, nearly 4.7 million children (23.3%) are enrolled in an institutional, center-based childcare program such as Head Start programs,

preschools, nursery schools, and daycare centers (Laughlin, 2010). This makes childcare centers, also known as day care centers, a vital resource for a large proportion of parents and young children in the United States. During the past several decades, the percentage of mothers of young children employed outside the home has risen dramatically, generating an increasing demand for reliable childcare services (Laughlin, 2010; Sosinsky, Lord, & Zigler, 2007).

An often overlooked measure of center quality is center instability, defined here as closures. Closures of childcare centers can be disruptive for young children as well as for parents (Kershaw, Forer, & Goelman, 2005). For children, center closures severs the “nexus” of relationships that includes the emotional ties to teachers and peer networks important for healthy development; for parents, center closures may create financial burdens if parents have to take time away from work in order to find new childcare providers that may cost more, may be further from their home, or may be of lower quality (Kershaw et al., 2005).

Ownership structure, defined as nonprofit, for-profit, and governmental providers, has emerged as an important predictor of childcare stability and quality (Cleveland & Krashinsky, 2009; Gelles, 2000; Kershaw et al., 2005; Rose-Ackerman, 1986). Nonprofits are legally defined in the IRS tax code as 501c organizations and can range from the traditional 501c(3) public charities created to serve certain segments of the population (i.e., children, elderly, disabled, etc.), 501c(4) organizations that provide a community benefit (i.e., civic associations and volunteer fire departments), or 501c(5) member serving organizations (i.e. labor unions) (Anheier, 2005; Salamon, 2012). Many nonprofits, especially 501c(3) organizations, are given certain tax privileges due to their charitable missions (Anheier, 2005; Weisbrod, 1998). For-profits are traditional businesses that exist for the monetary benefit of its owners or shareholders. They can take on a variety of legal structures such as sole proprietors, partnerships, corporations, or limited liability companies. Lastly, governmental organizations, while also nonprofit, are defined here as government entities funded directly by tax dollars (i.e. public schools, hospitals, etc.). Governmental providers serve a broader range of the population and are distinct from charitable nonprofits which provide services to a specific membership base, population, or community.

Unlike for-profits and governmental organizations, nonprofits have distinctive qualities that may give them a comparative advantage. These include monetary benefits, such as exemption from income and property taxes, as well as access to a variety of revenue streams, such as donations from individuals, earned income in the form of fees for service, and/or grants from foundations and government agencies. Nonprofit childcare centers also provide more than just day care; they also serve as “resource brokers” that connect parents to one another and to other service providers (Small, 2006). Nonprofit childcare providers are also more likely to be located in low income neighborhoods and thus are a vital resource for these communities (Small & Stark, 2005). In the social and human services fields, government agencies also contract with nonprofits to a greater extent when compared to for-profits (Boris, de Leon, Roeger, & Nikolova, 2010). Nonprofits, therefore, may be privileged to “in-tangible” and non-monetary advantages, such as higher levels of trust, greater support from donors, patrons, or elected officials, and a better reputation within the community (Hansmann, 1996).

Given these general comparative advantages of nonprofits this study addresses the following question: *Are nonprofit childcare centers less likely to close compared to for-profit and governmental childcare centers?* To fully realize these comparative advantages, however, nonprofits require resources that newer and younger organizations may not have. Thus, in addition to ownership structure, this study will also consider the influence of organizational age and capacity on center closures in the childcare industry.

1.1. Childcare industry

The immediate and long-term benefits of childcare extend not just to the child and family but to the larger society (Sosinsky et al., 2007). Thus, public policy promotes the availability of childcare services through both direct provision of childcare by local government agencies and public schools (often with the support of federal funds) as well as private sector provision of childcare services by nonprofit and increasingly, for-profit providers (Ricucci & Meyers, 2008). The 2007 Economic Census estimates that there are 75112 child day care establishments in the United States (NAICS 62441). Of these, 71% (53592) are incorporated as for-profit businesses (of these, 39% are corporations; 25% are individual proprietorships; 7% are partnerships; and 1% are other legal forms of organization), and 29% (21520) are nonprofit and governmental establishments. However, 63.7% of total revenue for nonprofit and governmental day care providers comes from government payers (i.e. Medicaid) while only 36.3% come from private payers. In contrast, for-profit child day care providers receive only 28.6% of their total revenue from government payers and 71.4% of their total revenue from private payers (Bureau of Labor Statistics, U.S. Department of Labor, Quarterly Census of Employment and Wages Website, 2007). This is evidence of market segmentation where nonprofit and governmental centers serve populations receiving government subsidies, like low income families, while the majority of for-profit centers serve higher income families who can afford to pay for services out of pocket. However, the impact of this provider mix, and subsequent market segmentation on service availability, service stability, and social welfare outcomes (such as service quality, equality of access to vulnerable populations, or fidelity to public goals and mandates) remains unclear.

1.2. Nonprofit theory, behavior, and population ecology

Nonprofit theory suggests that differences in organizational behavior, including who organizations serve, stem from two sources: the motivations of entrepreneurs who create the organization and the legal constraints imposed on the organization. Commonly known as the stakeholder theory and trust theory, nonprofits are posited to behave in a more socially responsible and trustworthy manner relative to for-profit providers (Hansmann, 1980, 1996; Rose-Ackerman, 1986). Stakeholder theory (Rose-Ackerman, 1986) suggests that nonprofit entrepreneurs are often guided by ideological values, such as strong religious or political beliefs and/or adherence to a particular treatment or learning modality, and therefore focus organizational activities to further these values. In contrast, for-profit providers are expected to focus more on activities that enhance profit maximization (Steinberg, 2006), while governmental providers are expected to focus on activities that promote equality and service access (Kapur & Weisbrod, 2000).

Rose-Ackerman's (1986) cross sectional study of the child day care industry in the United States finds that nonprofits tend to be managed by altruists or mission driven entrepreneurs and provide high quality services at low prices. However, given that there are only a limited number of altruists relative to demand, there is room for alternative providers such as for-profit centers to enter the market to profit from excess demand at the margins (Rose-Ackerman, 1986). Hence, Rose-Ackerman (1986) concludes that nonprofit entrepreneurs are not pure profit maximizers, but instead strive for "the concrete realization of an ideal" and thus may also have "a clear vision of desirable service provision" (p. 292). Thus, parents may feel assured that nonprofit providers will emphasize certain aspects of care and service quality that they especially value, for example, a church affiliated day care center may promote Christian values. Consequently, those who share the organization's mission and values are more likely to patronize it and may provide additional support with donations of time and money.

Trust Theory (Hansmann, 1980, 1996) also predicts that nonprofit childcare centers are likely to enjoy a competitive advantage over their governmental and for-profit counterparts. According to this theory, nonprofits are less likely to exploit consumers and donors because they are legally constrained from distributing profits to managers or directors for personal gain; thus, they are deemed more “trustworthy” (Hansmann, 1996). This “trust” relationship is especially salient in the childcare field because the purchasers of childcare are not its direct consumers (Gelles, 2000). As Hansmann (1980) notes, “Children typically are not very discriminating consumers, nor even, in many cases, good sources of information about the nature of the services they receive” (p856). Consequently, the purchasers of services (parents) must make their purchasing decision based on “trust” rather than firsthand knowledge that the organization will provide high quality care. A nonprofit ownership structure, therefore, can serve as a signal to parents that the organization is more trustworthy, won't shirk on service quality to save on costs, and will reinvest revenues to serve its social mission rather than to enrich its manger and directors (Hansmann, 1980, 1996).

Despite this scholarship comparing nonprofit and for-profit organizations, the differences between nonprofit and governmental providers have been less studied. This is largely due to the assumption that nonprofit organizations, as recipients of government funding, will also have similar priorities and behaviors as governmental providers. Public mandates, however, are often broad, unclear, and contradictory, which gives nonprofit providers a great deal of discretion in how policy is implemented and how services are provided (Salamon, 1995; Sosin, 2010). In addition, governmental providers are also regarded as “suppliers of last resort” and generally serve a broader clientele, many of whom cannot afford to purchase services at market rates (Kapur & Weisbrod, 2000). The childcare industry provides support for the idea that governmental providers are more likely to serve publicly subsidized clients (Kapur & Weisbrod, 2000; Small & Stark, 2005).

These theories suggest that nonprofit providers have a number of comparative advantages over other providers, in particular in “trust” industries such as childcare. In addition to the passion of mission-driven entrepreneurs and higher levels of trust, nonprofits also enjoy specific legal and tax advantages, such as the ability to solicit tax deductible donations and the exemption from property and corporate income taxes. While the relationship of these advantages to service quality is not unknown/new, this study contributes to the existing research by examining the impact of nonprofit ownership structure on center closures.

In addition to analyzing the influence of nonprofit ownership structure on center closures, we also examine the influence of organizational age and size on center closures. Population ecologists suggest that newly formed organizations are more likely to fail compared to older organizations because they lack the legitimacy and resources to compete with more established organizations (Barron, West, & Hannan, 1994; Hannan & Freeman, 1977). This “liability of newness” argument posits a monotonic decline in mortality rates as organizations age (Brüderl & Schüssler, 1990; Freeman, Carroll, & Hannan, 1983). However, tests of this hypothesis have shown that rather than a steady decline, organizations may experience a “growing” period in which they establish their reputation, a stable client base, and income stream. During this critical period, newer and less established organizations may have an increasing rate of closures up to a certain point, and then later experience a declining rate. This “liability of adolescence” argument posits a non-monotonic risk function as organizations age in the shape of an inverted U (Brüderl & Schüssler, 1990). However, the length of this critical or “adolescent” period is dependent on the industry studied. For example, Singh, House, and Tucker (1986) estimate a decreasing rate of mortality after its sixth year of operation among Canadian social service organizations. Similarly, older and larger organizations may have more resources that give them the ability

to withstand fluctuations in demand or other shocks in the business cycle. For nonprofits in particular, older organizations may also have a more established reputation, which allows for increased donations and voluntary support.

Turning now to organization size, some have posited a “liability of smallness” argument in which small organizations may experience the same challenges as newly established organizations with respect to the lack of adequate financial resources or connections to compete against larger and more established competitors (Kale & Ardit, 1998). But unlike the “liability of newness,” small organizations are often managed and owned by a single person who may not possess all the requisite skills to operate a business; for instance, single owners may not have the required skills in all the areas of quality control, sales, and accounting. Furthermore, such owners may be unwilling to delegate responsibility to other employees (Kale & Ardit, 1998, p459). New organizations, however, can also be large, as Kale and Ardit (1998) points out, “...not all organizations are born small” (p459). Indeed, studies examining both organizational size and age find that newer and younger organizations are more likely to fail even when controlling for size (Kale & Ardit, 1998). As it relates to nonprofit organizations, Hansmann (1980) posits that for enterprises that operate on a small scale, there may be no meaningful distinction between nonprofit and for-profit ownership structures, arguing that “if a person operates a small day care center out of his own home, employing few or no persons other than himself, the flow of funds and even the book-keeping might look much the same whether the organization is formally created as a nonprofit or a for-profit entity.” (p870–871) The earnings of a sole proprietor, often with no employees, are generally small and either paid to the owner as salary or re-invested back into the organization. Thus the legal constraint that prohibits nonprofit managers from personally benefiting from excess profits is only meaningful when an enterprise earns large profits and when the amount of “reasonable” compensation to managers is often unclear (Hansmann, 1980).

1.3. Differences in childcare service practice and employment

Given these theorized qualities and advantages of nonprofit organizations, previous research indeed finds differences between nonprofit and for-profit providers along many important measures. Nonprofit childcare centers seem to have greater staff stability than for-profit centers, although staff turnover rates in U.S. childcare centers are high across both sectors (Gelles, 2000; Helburn, 1995; Whitebook, Howes, & Phillips, 1998). Staff remuneration is generally higher at nonprofit childcare centers, both when measured in terms of actual salaries and as the percentage of the center budget allocated for salaries and benefits (Coelen, Glantz, & Calore, 1979; Gelles, 2000; Helburn, 1995; Helburn & Howes, 1996; Kagan & Newton, 1989; Keyserling, 1972; Vu, Hyun-Joo, & Howes, 2008; Whitebook et al., 1998). Moreover, the U.S. General Accounting Office (GAO) (1990) reports that, even after controlling for differences in staff education and experience, teacher wages are 3% lower in for-profit childcare centers and teacher aide wages are 7% lower. Nonprofits are also more likely to have parent controlled boards (Leviten-Reid, 2010).

The staff to child ratios are typically higher in nonprofits than in for-profit childcare centers, which may be indicative of the amount of supervision and individualized attention that staff can provide their charges (Coelen et al., 1979; Kagan & Newton, 1989; Keyserling, 1972; Whitebook et al., 1998). This difference in staffing ratios is particularly pronounced for nonprofits that accept government subsidies for some portion of the children that they serve (Coelen et al., 1979; Kagan & Newton, 1989). One exception to this finding is Gelles' (2000) survey of childcare centers serving young children, which finds no relationship between staffing ratios and childcare center ownership structure. However, in reviewing the surveyed centers' promotional materials, the authors did find that nonprofit centers were

more than twice as likely as for-profits (44% versus 19%) to make a public commitment to a higher staff-to-child ratio (Gelles, 2000).

1.4. Differences in childcare service quality and stability

Important differences have also been found with respect to the quality of services, as measured by staff qualifications and other input measures. While early research on childcare center staff qualifications failed to detect consistent differences by ownership structure (Coelen et al., 1979; Keyserling, 1972), more recent studies have documented better qualifications among nonprofit center staff (Kagan, 1991; Sosinsky et al., 2007). Childcare center administrators and, for the most part, childcare center teaching staff employed by nonprofits have more formal education, early childhood education training, and childcare experience than employees in the for-profit sector (Gelles, 2000; Helburn, 1995; Kagan, 1991; Kagan & Newton, 1989; Sosinsky et al., 2007). Yet, despite this evidence that childcare service quality inputs are typically superior in among nonprofits, these differences do not appear to translate into differences in child-caregiver interactions (Morris & Helburn, 2000). Nonprofits were also shown to have an advantage and provide higher quality services in markets where demand for childcare services is high versus in markets where demand is low (Cleveland & Krashinsky, 2009).

Although several studies have examined the relationship between ownership structure and childcare giver stability (staff turnover), only one study has considered the relationship between ownership structure and childcare center stability at the organizational level. Kershaw et al. (2005) examine Canadian childcare centers and family childcare facilities at both the organizational level and community level to predict the odds of survival. They find that, among childcare centers, nonprofits have higher odds of survival relative to for-profit organizations.

1.5. Hypotheses

While, in general, nonprofits have access to a greater number of support mechanisms such as donors, volunteers, and even certain types of grants, for example foundation grants for start up costs, operations, etc., capitalizing on these competitive advantages require additional organizational resources. Diversifying an organization's revenue stream or increasing its donor base requires dedication of organizational resources that younger and smaller nonprofits may not have. More established nonprofits may have discretionary resources and thus be in a better position to capitalize on these competitive advantages. Additionally, Hansmann (1980) notes that there may be no discernable differences among enterprises that operate on a small scale as they may face similar organizational and resource constraints. One would therefore expect that young or small organizations would have no differences in closures regardless of ownership type, but among older and larger centers, nonprofits are less likely to close. Governmental providers are more likely to have higher administrative and bureaucratic burdens and, as Hansmann (1980) notes, they may be less responsive to clients and slower to react to competitive pressures compared to nonprofit providers due to a "sluggish" bureaucracy and "chain of authority" that separates a local service provider from the "central executive and legislative authority of the government" (p 895). Thus, we further expect that governmental providers will experience slower administrative decision making processes and greater bureaucratic constraints, especially older and larger governmental centers, and this will manifest in lower odds of closure compared to nonprofits.

2. Material and methods

2.1. Description of data and geographic scope

The data for this study was obtained from the California Department of Social Services, Community Care Licensing Division (CCLD). The data set was purchased from CCLD in March 2010 and represents the agency's database of all licensed childcare facilities in California from 1998 to 2010.

As a first step in this exploratory study, a cross section of the data for childcare centers for 2007 was extracted for analysis. The year 2007 was chosen as the most recent year prior to the recession in 2008. Childcare centers are defined as providers located in commercial buildings or schools that provide non-medical care and supervision for infant to school-age children in a group setting for periods of less than 24 h (California Department of Social Services Community Care Licensing Division). Centers can hold licenses to serve school-age children only, infants only, or both.

The geographic scope of our study is for the state of California and childcare centers are modeled as nested within zip code within county. Hence this leads to a final data set for our analysis of 15724 licenses nested in 1318 zip codes and 58 counties. Childcare center addresses were mapped and spatially joined with 2007 zip codes for California. Ninety nine percent of addresses were matched, while the remaining 1% with unmatched addresses were excluded from the analysis. All geoprocessing procedures were conducted using ArcMap 10.

Childcare center variables include address, license effective date, license expiration date if the center closed, the number of children the center is licensed to serve (i.e., capacity), and the legal incorporation or ownership structure, which includes sole proprietors, partnerships, nonprofit corporation, for-profit corporation, county, and public agency.

For-profit sole proprietorships are distinguished from for-profit companies for both methodological and substantive reasons. Sole proprietorships (15% of the sample or 2361 licenses) represent a similar percentage of the sample as for-profit corporations (17% of the sample or 2687 licenses); partnerships (2% of the sample or 292 licenses) and limited liability corporations (LLCs) (2% of the sample or 267 licenses) represent a much smaller percentage of the total sample (see Table 1).

Legally, sole proprietorships are also distinct from partnerships, corporations, and LLCs. With sole proprietorship, there is an individual owner, but the owner is not separated from the business entity and not protected from potential liabilities. Partnerships (limited), corporations (S or C), and LLCs—collectively referred to as for-profit companies—have multiple owners and legal structures that offer the owners a layer of protection from liabilities of the business. Administratively, decision making in a sole proprietorship is less cumbersome since it is made by an individual owner instead of a group of owners in for-profit companies. Operationally, the distinction between nonprofit and for-profit organizations are “blurred” for small scale operations such as sole proprietorships (Hansmann, 1980).

Zip code level covariates were also included to control for demand for childcare services. Smith (2004) defines demand as a combination of “parent's desire and need for non-parental care for his or her children while the parent works” and “ability to pay for such care.” Need for childcare is measured by the percentage of young children and single parent households and percentage of females in the labor force. Ability to pay is measured by median family income, since those with higher income may also be able to afford formal care, and unemployment rate because those who are not in the workforce may have both less of a

demand for childcare and less of an ability to pay for this service (Kershaw et al., 2005; O'Neill & O'Connell, 2001; Queralto & Witte, 1998; Rose-Ackerman, 1986). These variables were merged to our data set using 2007 U.S. Census estimates from Geolytics.⁴

At the county-level, we consider the number of children in subsidized care or receiving some form of public assistance, defined as “subsidized children.” County divisions are important as they represent legal administrative boundaries that differ on policies, regulations, support infrastructure, and population characteristics that affect how childcare centers operate, the types of clients served, and thus center closures.

2.2. Measures

The dependent variable is center closures during 2007 measured at the license level; each license enters the data set exactly once. Expired licenses are considered “closures” as defined by the CCLD and can be either “agency initiated,” “licensee initiated,” or “closed non-payment” (CCLD licensing data codebook) (Table 2). Secondary coding of the data suggests that license expiration is a good approximation for center closures because only about 3% of expired licenses reappear in the data set with the same address but operating under the same or a different center name. Therefore, over 90% of licenses have unique addresses and do not reappear in the data after license expiration.

Centers may also have licenses that expire due to a change in location. To help ensure that the dependent variable is a reasonable approximation for center closures, two additional categories for expired licenses, “change of ownership” and “change of location,” were excluded from analysis as these do not constitute actual “closures.” Some centers may also hold multiple licenses; for example, dual licenses are sometimes necessary to serve both infants and school age children. However, we conducted an approximate aggregation of licenses at the organization level to assess the frequency of this occurrence. By distinguishing centers with duplicate name, address, and cities, we determined that 15724 licenses were held by 13535 centers, of which 1814 (13%) held multiple licenses. Therefore, the modal number of licenses held by a center is 1.

The dependent variable, center closure measured in terms of expired licenses, is dichotomous, where either the center closed during 2007 (coded as closure=‘1’) or the center stayed open during 2007 (coded closure=‘0’.) Centers that opened in 2007 and did not close are captured by the age variable with age<1 year. Licenses will be referred to as centers throughout the rest of this paper.

The primary predictor variable of center closure is the center's ownership structure, defined as: (a) nonprofit, (b) for-profit sole proprietorships, (c) for-profit companies (specifically, corporations, partnerships, and limited liability companies), or (d) governmental.

We include two additional organizational predictor variables: center age and capacity. Center age is calculated in years as the difference in number of days between center closure and the effective date of current license divided by 365. The effective date is the date when the specific license became active. If the center opened during or was open all of 2007, center age is the number of days between January 1, 2008 and the effective date, divided by 365. License effective date is a reasonable approximation of center age because the majority of centers hold a single license and provide only childcare services. An organization cannot legally operate as a childcare provider without licensure and the data set is a comprehensive list of all licenses, active and expired, in California. Secondary coding of the data indicates

⁴For more details about the construction of these estimates see: <http://geolytics.com/USCensus,Annual-Estimates-2011-2005,Data,Methodology,Products.asp>.

that over 90% of expired licenses do not reappear in the data, thus it is likely that these centers no longer operate legally as a child care provider. We believe, therefore, that a license is a good proxy for a childcare center and that license age is a good measure of center age. Capacity is measured as the number of licensed childcare spaces or slots.

Center age and capacity might have nonlinear effects on center stability because older and larger centers may be less likely to close relative to newly established and/or smaller centers. To capture this “liability of adolescence and smallness” argument we introduce two additional age and capacity variables. Lowess curves (Cleveland, 1979) of closure as a function of age and capacity indicate a change in the linear trend at age four years and capacity 30. We use a bent line, or piecewise model, for both variables with a marginal slope coding scheme (Mitchell, 2012).⁵ The change in slope variables is labeled *age spline* and *capacity spline* in tables and discussion.

Zip code level covariates measures need for childcare by the percentage of young children ages 0–4 in the population, the percentage of single parent households with children under 17 (out of the total number of households with children under 17), and the percentage of females in the labor force. Measures of ability to pay are median family income and the unemployment rate.

At the county-level, subsidized children is measured as the sum of the number of children served in all Head Start programs (for July 2006); the number of children served in Department of Social Services programs (for Dec 2006); and the number of children served in California Department of Education programs (for Dec 2006) (CDE, 2006; CDSS, 2006; CHSA, 2006).

2.3. Statistical analysis

The model was fit using a multilevel random effects logistic regression model. We considered organizations nested within census tracts, cities, zip codes and counties. Census tracts had too few centers to properly estimate variation and not all areas are in cities. Thus we treated organizations as nested within zip codes and zip codes nested within counties. The location of the centroid of the zip code was used to determine the county of nesting since zip codes do not always fall completely within county boundaries. The statistical analysis software (Stata 11) requires that each zip code be assigned a county identifier for the multilevel model to converge (Rabe-Hesketh & Skrondal, 2008).

The fixed effects at the organizational level are for the following: 1) the four category ownership variable, 2) age, 3) capacity, 4) age spline at four years, 5) capacity spline at 30, 6) interactions of ownership and age, and 7) interaction of ownership and capacity. Fixed effects at the zip code level are the percentage of the population who are children between 0–4 years old, the percentage of the workforce that are female, the percentage of single-headed households with children under 17, the median family income, and the unemployment rate in 2007. The final multilevel model was fit in Stata 11, using the xtmelogit command (Rabe-Hesketh & Skrondal, 2008).

⁵In a marginal slope coding scheme, the spline variable is coded zero up to the “bent” or “knot” value of the original variable (i.e., age spline is coded zero up to age four and capacity spline is coded 0 up to capacity 30). After the bent, the value of the spline is the difference between the original variable and the bent (Mitchell, 2012, Chapters 4 and 12).

3. Results

3.1. Descriptive statistics

Table 1 presents counts and percentages of organizations that closed in 2007 along with organizational level covariates, zip code level covariates, and county level covariates. Nonprofits comprise the largest proportion of all centers; governmental and for-profit companies are approximately 20% each; and for-profit sole proprietorship is the smallest group. Approximately 8% (1158) of organizations reported closures with nonprofits having the second largest proportion of closures (8%) following for-profit sole proprietorships (10%). The average age is 8.7 years (min: .003, max: 35.2) and the average capacity is 51 (min: 2, max: 388). Centers were located in 1290 of California's 1693 zip codes.

At the zip code level, the average percentage of children between 0 and 4 years old, as a proportion of the population is less than 10%. On average, females in the labor force comprised close to half of all persons in the labor force and less than a quarter of single-headed households had children younger than 17 years old. Median annual family income was just over \$50,000, with one zip code with a minimum of \$700.⁶ Finally, the average unemployment rate, calculated as the total number of those unemployed divided by the number of people in the labor force, was just over 6%.

3.2. Multilevel analysis

Table 2 shows the results of the multilevel analysis. Model 1 presents the results of the main effects with no interactions between ownership structure and age or between ownership structure and capacity. Only statistically significant estimates are discussed in this section.

When controlling for age and capacity, for-profit companies are predicted to have 18% lower odds of closure compared to nonprofits, and governmental centers are predicted to have 50% lower odds of closure compared to nonprofits. After four years, centers are predicted to have 5% ($1.05 \times .90 = .95$) lower odds of closure for each additional year of age, controlling for ownership structure and capacity. Organizations with capacity up to 30 are predicted to have 28% ($0.97^{10} = 0.72$) lower odds of closure for an increase in capacity of 10 children. Organizations with a capacity over 30 are predicted to have constant odds of closure ($.97 \times 1.03 = 1.00$) for an increase in capacity, controlling for ownership structure and age.

Model 2 presents the results of the main effects of ownership type, license age, license capacity, and the interactions between ownership structure and age as well as ownership structure and capacity. Nonprofits four years and older have 7% ($1.070 \times 0.872 = 0.93$) lower odds of closure for every one year increase in age. Centers older than four years also have significantly different odds of closure from each other ($X^2 = 12.19$; $df = 2$; $p < 0.0023$). Specifically, for-profit companies have 8% [$(1.07 \times 0.998 \times 0.872 \times 1.083) / (1.07 \times 0.872) = 1.08$] higher odds of closure compared to nonprofits ($X^2 = 7.64$; $df = 1$; $p < 0.0057$). For-profit companies have 13% [$(1.07 \times 0.998 \times 0.872 \times 1.083) / (1.07 \times 0.982 \times 0.872 \times 0.978) = 1.13$] higher odds of closure compared to sole proprietors ($X^2 = 11.77$; $df = 1$; $p < 0.0006$). Governmental centers have 8% higher odds [$(1.07 \times 0.874 \times 0.872 \times 1.19) / (1.07 \times 0.982 \times 0.872 \times 0.978) = 1.08$] of closure compared to sole proprietors ($X^2 = 4.82$; $df = 1$; $p < 0.0281$).

Fig. 1a plots the predicted probability of closures as a function of age and license type. For centers less than and up to four years old, the probability of closure increases with age for all

⁶This particular zip code (95944) is located in a rural county in California (Sierra County) and families may own farm, businesses or have other forms of resources.

ownership types except governmental centers. After four years, centers show decreasing probabilities of closure with increasing age for three of the four ownership types excepting for-profit companies which have increasing probability of closure with increased age.

As capacity increases, all centers have decreasing probabilities of closure until a capacity of 30, where the probabilities of closure level off, as illustrated in Fig. 1b. Below a capacity of 30, differences in odds of closure are substantial and significant between ownership types. Governmental centers have the highest probabilities of closing with small capacities, followed by sole proprietorships, for-profits, and nonprofits. However the rate of decrease in the odds of closure with increasing capacity is also strongest in governmental centers. Specifically, up to capacity 30, governmental centers have 4% $[(.987*.922)/(.987*.965)=.955]$ lower odds of closure compared to sole proprietorships ($X^2=4.40$; $df=1$; $p<0.036$), 5% $[(.987*.922)/(.987*.97)=.950]$ lower odds compared to for-profit companies ($X^2=8.5$; $df=1$; $p<0.0036$), and 8% lower odds compared to nonprofits. At capacity 30, predicted closures level off. Nonprofits and for-profit companies have 1% lower odds of closure for increases in capacity ($0.987*1.004=.991$; $p<0.000$) ($.987*.983*1.004*1.014=.988$; $p<.0003$). For-profit companies also have 1% lower odds of closure compared to sole proprietorships ($X^2=4.86$; $df=1$; $p<0.0275$) and government owned centers ($X^2=5.44$; $df=1$; $p<0.0196$).

For zip code level covariates, as the percentage of single-headed households with children under 17 and median family income increase, the probability of closing also decreases significantly. Each 1% increase in single-headed households leads to 4% higher odds (95% CI=1.01,1.07) of closure. For a \$1000 increase in median family income, centers have a 1% lower odd of closure.

4. Discussion

The main findings of this study are that nonprofit childcare centers older than four years or larger than 30 capacity have lower predicted odds of closure. Older nonprofits also have lower predicted odds of closure compared to for-profit companies. Among small centers with a capacity of 30 or less, for-profit sole proprietors and governmental centers have lower predicted odds of closure compared to nonprofits. Among larger centers with a capacity of 30 or more, the differences in predicted closures between nonprofits and other ownership structures are minimal, for-profit companies are predicted to have slightly lower odds of closure compared to governmental centers and sole proprietorships.

The Stakeholder and Trust theories suggest that nonprofit organizations are more altruistic and trustworthy. The legal requirement to reinvest residual profits to support the organization's social mission rather than distributing profits to managers and directors for personal gain (Hansmann, 1996); and the motivations and ideological intentions of nonprofit entrepreneurs to provide higher quality services at low prices (Rose-Ackerman, 1986) was hypothesized to give nonprofit childcare centers a competitive advantage which may also lead to higher organizational stability. It was further hypothesized that maximizing these competitive advantages required organizational resource capacity that smaller and younger nonprofits may not have. Thus smaller and younger nonprofits were not expected to have lower odds of closure compared to other ownership types, but older and larger nonprofits were expected to have lower odds of closure compared to other ownership types.

Results find partial support for our hypotheses. While nonprofits older than four years have lower predicted odds of closure, only the comparison to for-profit companies was significant. Among smaller centers, for-profit sole proprietors and governmental centers had lower predicted odds of closure compared to nonprofits and no significant differences were found between nonprofits and for-profit companies at all levels of capacity.

However, our findings are not consistent with Kershaw et al. (2005) who find that, among Canadian day care centers, nonprofits are more likely than commercial centers to remain open. The authors, however, do not examine the interactions of ownership structure with organizational size or age, nor do the authors differentiate between for-profit sole proprietors and for-profit companies. Beyond Kershaw et al. (2005), we are unaware of other work that has examined comparative closures between nonprofit, for-profit, and governmental childcare centers.

4.1. Implications of study findings

These results have implications for parents, practitioners, and policy makers. For parents, nonprofit status may serve as a signal that the organization provides high quality service or fidelity to a specific social mission, values, religious faith, or education modality. To the extent that parents prefer nonprofit childcare centers and are concerned with organizational stability, older and larger nonprofits appear to be a better choice. However, if parents believe in the mission of nonprofit centers and want to support the work of ideological entrepreneurs, then they should support smaller nonprofits in the form of donations or volunteer time. It is not clear, however, if parents are able to easily distinguish between nonprofit and for-profit centers or to distinguish between high and low quality centers. It would take parents a great deal of time and effort to research each center's history and service quality, making it likely that those without the skill or resources will not bother to do so. Additionally, parents of younger children who require only custodial care may not pay attention to the unique qualities or mission of a nonprofit center. Thus, to the extent that demand is a driver of center closures, patrons may not be able to tell the difference between nonprofit or for-profit childcare centers and treat both the same.

Entrepreneurs who aspire to start a childcare business may choose to structure their organization in a number of ways, either as a nonprofit, for-profit sole proprietor, or for-profit company. For-profit sole proprietorships may be easier and quicker to establish than incorporating as either a for-profit company or nonprofit organization. Indeed it may be ideal for entrepreneurs who want to establish centers with low capacity since sole proprietorships are predicted to have lower odds of closure compared to nonprofits (among centers licensed for 30 or less). Sole proprietorships may offer children a more personal setting that parents prefer, thereby enabling these organizations to cater to a more specialized and loyal clientele. Among large centers, however, for-profit companies have slightly lower predicted closures compared to sole proprietors. The increased liability that comes with caring for larger groups of children and the resources required may make sole proprietorships less competitive than for-profit centers. Formal incorporation, either as a nonprofit or a for-profit company (i.e., LLC or corporation), may offer greater legal protection for the owners against liability issues arising from caring for large groups of children.

In terms of policy, our results indicate that, among small centers, nonprofit centers have higher odds of closure compared to governmental centers, but among larger centers, nonprofits have slightly lower odds of closure. Governmental centers may be privileged to a more stable funding stream, via budget allocations (versus fees for service or donations), and operate in a highly bureaucratic institutional environment that makes it difficult for governmental centers to simply shut its doors. However, funding from a single source, such as federal Head Start or other local programs and agencies, may be inadequate to support and sustain large centers. Larger centers may require more abundant and varied resources, and nonprofits have the ability to generate revenue in a variety of ways. In addition to also receiving funding from government providers, nonprofits may solicit donations from patrons or other individuals that support the nonprofit's social mission or service modality. Nonprofits may also solicit funding from private foundations and individuals or may charge

a fee for service for higher income clients. This allows nonprofits to be more flexible and adapt to a changing funding environment—flexibility that is not afforded to governmental centers. Similarly, for-profit companies may also have access to a larger network of owners, shareholders, or board of directors for support. Thus for larger nonprofits and for-profit companies, predicted closures decreases with increased capacity and this trend is statistically significant.

There are no differences in predicted closures, however, between nonprofits and for-profit companies at all capacity levels as well as among younger organizations. This observation begs the question of whether entrepreneurs who incorporate as nonprofit organizations are truly altruistic or are merely taking advantage of the competitive advantages that nonprofit status offers in the form of exemption from corporate income and property taxes, solicitation of tax-deductible donations, and greater levels of trust? First the “non-distribution” of profits for personal gain is a legal requirement for nonprofit status. However, this law is not strictly enforced and nonprofit managers may reward themselves through “non-pecuniary” or non-monetary benefits such as larger offices, generous vacation packages, shorter work days, etc. In addition, there are low barriers of entry into the childcare industry, it requires no large investments in equipment, land, or other factors of production, as well as in receiving nonprofit status (see Reich, Dorn, & Sutton, 2009). Hence, it is not terribly difficult for childcare entrepreneurs to incorporate as nonprofit organizations. Coupled with a lax regulatory environment, self-serving entrepreneurs may incorporate as nonprofits and shirk on the quality of services and fidelity to their social mission, thus behaving no different from profit maximizing organizations. These observations are similar to Bushouse's (1999) conclusions that the motivations of owners varied within, as well as across, organizational structure and that nonprofit providers did not always function as altruists while for-profit providers did not all strive first and foremost to maximize profit (Bushouse, 1999).

Specifically for public policy, the government may consider focusing its effort on smaller operations and let private providers, such as nonprofit or for-profits, run larger centers. Larger operations may require greater coordination, management, and marketing, and it is possible that private providers are better equipped to perform these functions. Large-scale government providers of childcare services may also signal less personal attention or more bureaucracy to consumers, qualities that parents of young children find unattractive.

Secondly, while there is some evidence to suggest higher stability among nonprofit centers when compared to for-profit sole proprietorships, in general the results do not support the hypothesis that nonprofits are more stable than for-profit companies (i.e., partnerships, corporations, and limited liability companies). Given the low barriers to entry in the childcare industry, lax regulatory environment of nonprofit organizations (i.e., obtaining nonprofit status by the IRS is relatively easy and there is little oversight on nonprofit finances), and the benefits of nonprofit status (i.e., tax exemptions, ability to solicit donations, higher level of trust), these factors may create opportunities for entrepreneurs to exploit the nonprofit status for personal gain and create nonprofits that operate as “for-profits in disguise” (Weisbrod, 1998). Nonprofit status confers with it a plethora of tax advantages that may translate to billions of dollars in lost tax revenue and given the resource starved environment in which nonprofits operate, creating new nonprofit organizations may lead to increased competition rather than increases in service or added benefit to communities and populations in which nonprofits serve. Policies to obtaining nonprofit status may have to be re-examined.⁷

⁷For a study on IRS approvals of applications for nonprofit status, see Reich et al. (2009).

Finally, in light of the finding that among smaller centers, nonprofits are more likely to close compared to governmental agencies and for-profit sole proprietorships, public policy should assist smaller, often new, nonprofits in taking full advantage of the tax incentives and other strategic benefits of the nonprofit structure. These may include assistance and resources for diversifying the organization's revenue base or increasing its volunteer and donor bases.

In zip codes with higher percentages of single-headed households, centers have slightly higher odds of closure (about 4% higher odds). While single parents in general may have a greater need for formal childcare, they may have less disposable income and thus less ability to pay for formal childcare (single-headed households and median family income are negatively correlated in the data). Median family income is slightly negatively correlated with predicted closures.

Finally, while no county level covariates were included in the final model, the variation in closures across counties in California (e.g., county level random effects) was estimated. The number of kids in subsidized care was measured at the county level and not found to be significant and thus not included in the final model which differs from previous work (Kershaw et al., 2005).

4.2. Limitations

This study provides a snap shot of the comparative closures of licensed childcare centers for California in 2007. As with all cross sectional studies, and without examining changes over a number of years, we are somewhat limited in the conclusions we can draw. First, the analysis was done at the license level rather than the center or organizational level. Centers may hold multiple licenses for example, to serve both infants and school-aged children. Closures refer to the relinquishment of a specific license type (i.e., infant center) but the organization may continue to operate under a different license (i.e., day care center). The distinction between multiple-licensed centers and single-licensed centers was not made in the data set. Center closures thus encompassed multiple-licensed centers that relinquish a specific license type in addition to complete closures by centers who only hold a single license. However, as discussed in the measures section, an approximate aggregation of licenses suggests that, on average, each center holds a single license and so analysis at the license level is appropriate.

Similarly, calculation of age is also at the license level. The date of the center's most recent license was used (e.g., "effective date") as opposed to the date when the center was first licensed (e.g., "first license date"). The reason for this is that the center's capacity is affiliated with its more recent license so that the first license date does not correspond to the center's current licensed capacity. For the majority of centers, however, its "first license date" and "effective date" are one and the same (67%); 17% of centers had effective dates that came after their first license date; and 16% had effective dates but were missing on first license dates. The consequence of this is that the calculation of a center's age is slightly underestimated. However, we believe that license effective date is a reasonable approximation for center age given that the data set does not contain data on organizational founding. As noted in the measures section, the majority of centers hold only a single license, licensure is legally required to operate a childcare service, and a review of center names strongly suggest that the majority operate primarily as childcare providers and as a single provider not affiliated with a larger corporation with multiple chains. For example, by coding for same names, we were able to determine that only about 10% of the names reappear five times or more in the data set. Therefore, 90% of the licenses have unique names and do not have multiple locations or affiliated with a larger corporation.

The specific reasons for closure were not available in the source data beyond being categorized as either “licensee initiated” or “agency initiated.” There may be numerous reasons for licensee-initiated closures, such as poor management, financial insolvency, lack of demand, etc. Similarly, agency-initiated closures by the California Community Care Licensing Division (CCLD) can also be due to a number of reasons, but discussions with CCLD staff suggest that at least some are due to compliance issues. By having more detailed information about the reasons for closure would allow a more accurate test of both the stakeholder and trust theories.

This study is also limited in terms of organizational level predictors, since we were not able to examine variables found in previous studies to be related to organizational mortality rates, such as network ties, system affiliation, the number of employees, revenue source, funding, or competition (Baum & Singh, 1994; Baum & Oliver, 1991; Hager, Galaskiewicz, & Larson, 2004).

Finally, we did not consider the diversity of nonprofit centers in that some may be more profit-oriented while some more community-focused. Having additional organizational level predictors such as revenue source (i.e., fees for service, donations, grants, etc.) or mission statements would allow us to parse out the diversity among the nonprofits.

At the zip code level, our control variables for need and ability to pay for formal childcare services are only broad indicators; thus they may not capture the true demand for formal childcare services. Data limitations precluded an exact measure of demand, such as the number of young children (0–5) whose parents are in the workforce who can afford formal care or are eligible for subsidized care and have no alternatives for childcare (e.g., informal care from relatives or other adults living in the home). Thus, it was necessary to use a combination of broad indicators to serve as proxies for need and ability to pay.

4.3. Conclusion

Childcare is a vital resource. This study explores the comparative closures between ownership structures and finds that while nonprofit ownership structure gives larger centers a slight advantage, smaller nonprofits are more precarious and more likely to close. If nonprofits are organizational expressions of individual passions, values, and “the concrete realization of an ideal” (Rose-Ackerman, 1986), then public policy should support entrepreneurs in their efforts to advance their vision and social mission, especially for smaller, emerging nonprofits. This will also provide greater opportunities for families of all backgrounds to use childcare services because it is in fostering a greater number of choices for families that will allow society to meet its childcare needs.

Acknowledgments

Research for and preparation of this manuscript were supported by NIAAA Center Grant #P60-AA006282. We would also like to thank Rose Medeiros and Xiao Chen from the UCLA Academic Technology Services Statistical Consulting Group for data management assistance; Carlise King and Rowena Quinto from the California Child Care Resource & Referral Network for assistance with data for children on subsidized care and Linda Inglett from the California Child Care Policy and Support Bureau for assistance with childcare licensing questions.

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Fig. 1.

a. Predicted Probability of closure by ownership type and age (a) at mean values of organizational capacity and zip code level covariates. b. Predicted probability of closure by ownership type and capacity (a) at mean values of organizational age and zip code level covariates.

Table 1

Summary statistics of center closures, age, and capacity by ownership type, zip code and county covariates.

Dependent variable	For-profit sole proprietors	For-profit companies	Nonprofit	Governmental	Total
Open (licensed)	1972 (90%)	2840 (93%)	6282 (92%)	2851 (95%)	13945 (92%)
Closed ^a	217 (10%)	218 (7%)	565 (8%)	158 (5%)	1158 (8%)
Total	2189 (14%)	3058 (20%)	6847 (45%)	3009 (20%)	15103
Covariates					
Organization level ^b	For-profit sole proprietors		For-profit companies		Governmental
Age (in years) ^e mean(SD)	8.4 (4.9)		7.4 (4.7)		9.4 (4.7)
Capacity, mean(SD)	43.3 (31.7)		56.2 (43.5)		53 (36.7)
Zip code level ^c	Mean		Std. Dev.		Min Max
% population 0–4	6.0		1.4		0.00 9.7
% female labor force	44.8		3.6		24.1 56.9
% head of household (male and female) w children<17	12.1		5.3		0.00 41.6
Median family income (in thousands)	53.2		24.9		0.7 175.4
Unemployment rate	6.3		4.8		0.3 45.7
County level ^d	Mean		Std. Dev.		Min Max
Number of children in subsidized care ^{f,g}	8385		19259		28 138821

^aReasons for closure include licensee initiated, agency initiated, non-payment.

^bN = 15725.

^cN = 1290.

^dN = 58.

^eAge calculated as the difference in the number of days between closure and license effective date divided by 365; if opened during in or during all of 2007, age is the number of days between 1/01/08 and license effective date, divided by 365.

^fSum of total number of children served in all Head Start programs July 2006; total served in California Department of Social Services (DSS) programs Dec 2006; total served in California Department of Education programs Dec 2006 (source: California Child Care Resource & Referral Network).

^gExcluded from final model.

Table 2
Predicted odds of closure, multilevel random intercepts logistic regression (zip code and county random effects).

	Model 1 ^a			Model 2 ^b		
	OR	Lower interval	Upper interval	OR	Lower interval	Upper interval
<i>Organizational level predictors</i>						
Ref: Nonprofit						
For-profit sole proprietor	1.05	0.88	1.26	2.89*	1.27	6.54
For-profit company	0.82*	0.68	0.98	1.01	0.43	2.38
Governmental	0.50*	0.41	0.61	4.53*	1.49	13.76
Age in years ^c	1.05	0.98	1.12	1.070	0.96	1.19
For-profit sole proprietor*age	-	-	-	0.98	0.82	1.18
For-profit company*age	-	-	-	1.00	0.83	1.20
Governmental*age	-	-	-	0.87	0.71	1.07
Age spline @4 ^{c,e}	0.90*	0.83	0.98	0.87*	0.77	0.98
For-profit sole proprietor*age spline @4 ^f	-	-	-	0.98	0.78	1.22
For-profit company*age spline @4 ^f	-	-	-	1.08	0.86	1.36
Governmental*age spline @4 ^f	-	-	-	1.19	0.93	1.52
Capacity ^d	0.97*	0.96	0.98	0.99	0.97	1.00
For-profit sole proprietor*capacity	-	-	-	0.97*	0.94	0.99
For-profit company*capacity	-	-	-	0.98	0.96	1.01
Governmental*capacity	-	-	-	0.92*	0.89	0.96
Capacity spline @30 ^{d,e}	1.03*	1.01	1.04	1.00	0.99	1.02
For-profit sole proprietor*capacity spline @30 ^f	-	-	-	1.04*	1.01	1.08
For-profit company*capacity spline @30 ^f	-	-	-	1.01	0.98	1.05
Governmental*capacity spline @30 ^f	-	-	-	1.09*	1.05	1.14
<i>Zip code level predictors</i>						
% population 0-4	0.96	0.88	1.05	0.96	0.87	1.05
% female labor force	1.02	0.99	1.05	1.01	0.99	1.04
% single head of household with children<17	1.04*	1.01	1.07	1.04*	1.01	1.07

	Model 1 ^a			Model 2 ^b		
	OR	Lower interval	Upper interval	OR	Lower interval	Upper interval
Median family income (in thousands)	0.99 [*]	0.99	1.00	0.99 [*]	0.99	1.00
Unemployment rate	0.99	0.96	1.02	0.99	0.96	1.02
<i>Random effects parameters</i>	Est.	SE		Est.	SE	
County	0.24	0.08		0.24	0.08	
Zip code	0.68	0.06		0.67	0.06	

N = 14975 licenses; 1314 zip codes; 58 counties.

^{*} p<.05.

^a Constant: coef(-2.01); se(0.81); p(0.01).

^b Constant: coef(-2.42); se(0.83); p(0.004).

^c F-test: df=6; chi2 = 21.59; p = 0.0014.

^d F-test: df=6; chi2 = 22.44' p = 0.0010.

^e Difference in odds pre and post spline.

^f Difference in odds pre and post spline and between each respective ownership type and nonprofits.