THE NONPROFIT ADVANTAGE: PRODUCING QUALITY IN THICK AND THIN CHILD CARE MARKETS

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Abstract

Nonprofit child care centres are frequently observed to produce child care which is, on average, of higher quality than care provided in commercial child care centres, but there is also contrary evidence. Nonprofit centres may have an advantage in providing difficult-to-observe quality that benefits children, because they do not have incentive conflicts. However, where nonprofit and for-profit child care firms compete in the same local markets, we speculate that this advantage should only appear where demand is sufficiently "thick" to permit a quality differentiation strategy to be financially viable for nonprofits. Ignoring this issue, we estimate the effect of nonprofit status on quality, controlling for differences in staff and centre inputs, differences in financial resources available to the centre, and differences in the clientele served. In this conventional examination, nonprofit status has a moderately positive impact on quality, but statistically insignificant when all controls are included. However, when we account for the unobserved heterogeneity and separate markets into "thick" and "thin", a strong nonprofit advantage is found in thick markets.

I. INTRODUCTION

Since at least the late 1960s, women have been entering the labour force in ever growing numbers, and the most dramatic expansion has been among mothers with young children. Those children require both care and developmental stimulation while their parents work, and while some countries (France and Sweden, for example) have responded by producing child care through the public sector, many countries (including the United States and Canada) have relied upon the private sector to provide that care. In countries that rely upon the private sector, child care is generally produced by both for-profit and nonprofit organizations.

Since the well-being of children is a matter of great interest, this has led to concern about the potential differences between for-profit and nonprofit firms. Can we rely upon the profit-making motive to generate good quality child care, or will commercial firms have incentives and ability to dilute quality?

In a number of Canadian and American studies, there appear to be average differences in the level of classroom quality provided in nonprofit and commercial child care centres - differences that may be relevant for policy. The purpose of this paper is to assess whether and under what conditions nonprofit organizations operating child care centres have an advantage in producing child-development-enhancing quality.

There are good reasons for suspecting that nonprofit status might make a difference. First, there are the organizational distinctions between nonprofit and for-profit businesses. Nonprofit organizations do not have an owner or group of owners. By law, they must invest any surplus revenues back in the organization, rather than distributing it as profit to owners (and the accumulated capital value of the business

cannot be realized for private gain). The "profit motive" – the drive to increase the surplus of revenues over costs – therefore does not determine behaviour in nonprofit organizations. Second, nonprofit organizations must have a board of directors that makes decisions, rather than a group representing direct owners or shareholders. The board of directors will generally be chosen from amongst users of the service being produced (e.g., parents in a child care centre) or from community representatives and these board members will therefore generally represent some nonpecuniary social interest or objectives and may therefore make different decisions (about output, quality, price, employee compensation, etc.) than would be made by owners.

When the characteristics of the good or service being sold are easy for consumers to judge, these organizational distinctions may create a nonprofit *disadvantage*: they are likely to blunt the profit incentives which encourage cost-minimization, customer service, and product innovation in competitive markets. However, when product or service quality is desirable but difficult to judge, the most profitable strategy for commercial firms may be to provide superficial evidence of this costly quality but actually provide less than demanders want. This has led Hansmann, Ben-Ner and others to suggest that in some markets, nonprofit organizations will have an advantage because they can be trusted by consumers and governments to actually deliver desired quality. Logically, then, we should expect to observe markets for some goods and services to be completely dominated by nonprofit firms because of this advantage, and many other markets in which for-profit firms prevail.

This literature is suggestive but unsatisfactory in explaining the situation in child care markets in countries like the United States, Canada, Australia, the United Kingdom and the Netherlands. In these countries, both for-profit and nonprofit child care firms compete in the same local markets and co-exist in these markets; we need a theory which explains the roles of both.

Child care markets are unusual for several reasons. First, the quality of the service is difficult to judge, partly because children are the actual users rather than parents and their communication skills are imperfect, partly because the link between observed services and the process of child development is unclear to most parents. Second, the quality of the service is not purely an issue of consumer tastes; this quality is significant for child development in the early years, and there is both a parental and social interest in child development. Third, the annual cost of child care is high relative to parental incomes, so parents are under considerable pressure to get quality child care for the lowest price. Given the cost of quality, parents in different situations will make different choices. Fourth, the transportation costs of child care are extraordinarily high. Of course, the service is not typically brought to the child, but the other way round; parents have to transport the child to and from the service each and every day of the working week, presuming full-time care. Because "transport" costs are a very large fraction of total costs, effective markets are small. Fifth, even though entry barriers are low, the market for centre-based child care services is not classically competitive. Because parents of young children are a small fraction of the population, because the cost of centre child care is too high for many parents, and because effective markets are

geographically small, the effective demand in a local market for the services of a child care centre may be quite thin.

We speculate that the potential thinness of demand in local child care markets affects the behaviour of both nonprofit and for-profit firms. Thin markets will constrain firms who might wish to provide higher quality care (at a higher price). In effect, the preferences of the marginal consumer govern the quality level a firm will find it possible to provide, and in thin markets, this consumer is likely to want more affordable (and lower quality) care. Even nonprofit centre, unless differential subsidies permit, will not find it financially feasible to provide high quality care in thin markets. Only in markets in which demand is sufficiently thick to permit quality differentiation can the hypothesized nonprofit advantage appear.

Section II of this paper describes theories of the economic advantage enjoyed by nonprofit organizations in some markets, drawing out expected observations for child care markets. Section III summarizes empirical findings in recent U.S. and Canadian studies about the influence of nonprofit status on the quality of services in the child care sector. Section IV describes our model of quality determination, the role of nonprofit status, and the potential effects of thin and thick markets on the actions of nonprofit producers. Section V describes the empirical strategy employed. First, we estimate successive regressions of quality on nonprofit status and on a range of potential quality-affecting variables. Second, we estimate the same regressions on thin and thick markets separately. Section VI describes the data sets used and discusses the quality indexes which allow us to measure the effect of nonprofit status on quality of care.

Section VII provides and applies a rough metric for determining whether demand in a child care market is thick or thin. Section VIII provides a simple review of means, correlations and distributions in the data on quality, by for-profit and nonprofit status, and by thick and thin markets. Section IX presents and analyzes the fundamental empirical results of the paper. Theoretical and policy conclusions are provided in Section X.

II. THE LITERATURE: WHY DO NONPROFIT FIRMS EXIST?

With some limited exceptions (see Newhouse, 1970, and Nelson and Krashinsky, 1973), economists paid limited attention to nonprofit institutions prior to 1980. In competitive markets, competition eliminates opportunistic behaviour by producers. Naturally, producers would like to produce lower quality so as to increase profits (lower quality costs less to produce). But consumers can judge what they see in front of them, and will not purchase lower quality goods when other firms offer better quality. Firms cannot lower quality without losing sales, and competition eliminates any firms that try such a strategy. In such a simple world, consumers are getting the best possible output from for-profit firms, so there is no function for nonprofit institutions.

Following this logic, Henry Hansmann (1980) in his seminal article, argues that nonprofits develop when "contract failure" makes market production unattractive. By this Hansmann meant that a variety of problems might make it difficult for the consumers of a particular commodity to police the conduct of producers by normal contractual or market mechanisms. He restates his earlier theory in a 1987 paper as follows (p. 29):

> nonprofits of all types typically arise in situations in which ... consumers feel unable to evaluate accurately the quantity or quality of a service a firm produces for them. In such circumstances, a for-profit firm has both the incentive and the opportunity to take advantage of customers by providing less service to them than was promised and paid for. A nonprofit firm, in contrast, offers consumers the advantage that, owing to the nondistribution constraint, those who control the organization are constrained in their ability to benefit personally from providing low-quality services and thus have less incentive to take advantage of customers than do managers of a for-profit firm.

Hansmann suggests that there may be situations in which the nonprofit institution will dominate other alternatives. In particular, he focuses on situations in which buyers are separated from the recipients of the commodity, and on public goods. Hansmann's ideas are also developed by other writers, including Easley and O'Hara (1986), and Krashinsky (1986).

Ben-Ner, with his co-authors, emphasizes the efforts of consumers in establishing nonprofit organizations in order to maximize control over output in the face of informational asymmetries (see Ben-Ner and Van Hoomissen, 1992, Ben-Ner and Gui, 1993, and Ben-Ner, 1994). Ben-Ner's statement of the problem is entirely consistent with Hansmann's view. For example, Ben-Ner states:

> Goods and services with such difficult-to-verify attributes will be termed "trust goods." For-profit firms have an incentive to take advantage of demand-side stakeholders' limited information concerning trust goods by

> providing a service of inferior quality or by charging a higher-than-normal price. ... As in the case of collective goods, the market failure here stems from insufficient distribution of information through the market. In both cases, the problem cannot be resolved because demand-side stakeholders do not trust for-profit firms' motives. (Ben-Ner, 1994, 751-2)

Ben-Ner views nonprofit organizations as a type of "backward vertical integration by demand-side stakeholders." (Ben-Ner and Gui, 1993, 8) He views nonprofits subject to direct consumer control as "bona fide nonprofit organizations, to distinguish them from nonprofit organizations controlled by other parties." (Ben-Ner, 1994, 753)

The emphasis in all aspects of this literature on nonprofits has been on the abilities of the nonprofit form to provide for the needs of private individuals more effectively than alternative forms of organization. These individuals can be buyers purchasing commodities for other family members who have difficulty evaluating the quality of what they are consuming and communicating that evaluation to the purchaser (day care, nursing homes). They can be donors providing goods and services to needy recipients in ways that are difficult to monitor (charities, foreign aid agencies). Or they can be consumers of public goods whose demand is not met effectively by governments (education, social services).

Individuals are however not the only buyers. Governments themselves purchase goods and services from private organizations. Because governments are often purchasing services that are consumed by other parties, and are often involved in sectors in the first place because of the existence of public goods, they are frequently prone to the same kinds of information problems discussed above. This leads governments to turn to

nonprofit providers for the same kinds of reasons as private consumers, and is one of the reasons that governments are often an important source of funds for nonprofit institutions. Discussion of this kind of funding and its implications can be found in Salamon (1987) and Krashinsky (1990).

It is also important to consider the interests of those who manage nonprofit institutions, since the demand for nonprofit provision will be unsatisfied unless someone is prepared to set up and run these organizations. In Ben-Ner's view, those who control the nonprofit organizations often come from among the ranks of the consumers themselves, despite the obvious free-rider problems, or from among professional administrators who see demand for their services and the possibility for pursuing their own goals, and who form alliances with demand-side stakeholders (Ben-Ner and Gui, 1993, 8).

An alternative vision would suggest that nonprofit organizations are started by entrepreneurs who have a complex set of goals that do not usually include profit-maximization. Young (1981) identifies a range of motivations for managers - to make money, to be creative, to provide service, to achieve autonomy, and so on - and suggests that entrepreneurs will sort themselves into different fields and sectors of business accordingly (so that those primarily interested in money will not choose the nonprofit sector). In contrast, James (1987) suggests that religious groups will often start nonprofit organizations in order to reach out to those who come to the organization. James and Rose-Ackerman (1986) suggest that some nonprofits are started in order to engage in cross-subsidization (so that, for example, universities make money on undergraduate education to subsidize research and graduate education).

Even if nonprofit firms are more likely to deliver good quality services, the issue remains of whether nonprofit institutions act in an efficient manner - that is, whether they respond to consumer demand, minimize costs, and produce the optimal level of quality. Economic theory suggests that the absence of any clear ownership claim of the residual earnings (that is, the profits) of a for-profit firm will eliminate the incentive to produce efficiently (see Alchian and Demsetz, 1972). James and Rose-Ackerman (1986, 37-8) suggest that the absence of incentives may lead in the nonprofit world to "more bureaucratized control mechanisms, more shirking, and higher cost curves." Steinberg (1986) surveys the literature attempting to measure inefficiencies, but critiques the property rights approach by noting that the for-profit sector is itself not likely to act efficiently in the face of consumer uncertainty.

It is somewhat difficult to interpret the general literature on nonprofits into specific predictions about observed differences between commercial and nonprofit firms in the child care sector. Because various aspects of the quality of child care (e.g., health and safety, developmental benefits) are desired by both governments and parents, but are difficult to accurately observe and monitor, nonprofit child care centres should have an advantage in producing higher quality care. This advantage will derive from the mission of nonprofits to deliver on the quality contract, expressed in higher motivation of staff and managers to produce quality services. If nonprofit status were fully accepted as a guarantee of higher quality by parents and governments, and if child care markets were competitive, we would expect nonprofit child care centres to completely dominate provision of child care at higher quality levels.

III. SPECIFIC LITERATURE ON CHILD CARE AND NONPROFIT STATUS

The general literature on nonprofit status has focussed on the justifications for the existence of nonprofit enterprises. With some exceptions, the specific literature on child care and nonprofit status has been far more empirical, in most cases directly comparing the performance of for-profit and nonprofit child care centres.

One obvious exception is the early work of Nelson and Krashinsky (1973) that used child care as an interesting example of institutional choice. They suggested that while nonprofits would be more trustworthy and might produce higher quality, for-profits would respond more quickly to changes in consumer demand. Public regulations would be an important way to keep parents informed about quality, and mixed provision by various types of auspice might be efficient.

Much of the more recent work has purported to show that nonprofit centres are indeed producing higher quality than for-profit centres. Kagan and Newton (1989) find that although there are relatively few quality differences between unsubsidized for-profit and nonprofit centres in Connecticut, subsidized centres in the state produce higher levels of quality. Later, Kagan (1991) looks at four studies of nonprofit vs. for-profit child care and concludes that "incentives that support expansion of the private nonprofit sector should be fostered. Private nonprofits avoid the liabilities of other sectors: their costs are lower than government centers and their average quality is higher than for-profit centers."

Preston (1993) found more social externalities (i.e., production of more external benefits) in nonprofit centres that were not federally regulated. In federally regulated

centres, nonprofit centres produced higher quality, which Preston attributed to higher taste for quality among nonprofit entrepreneurs.

Researchers in other countries also suggest the nonprofit centres produce higher quality. For example, Mitchell (2002) suggests that for-profit centres in New Zealand hire staff with lower educational levels. Mill, Bartlett and White (1997) report on a survey of centres in Montreal, Quebec that showed that for-profits had higher fees and generally lower quality. The authors argue that this is due to for-profits diverting resources to profits. Lyon and Canning (1999) report on a sampling of centres in Canada's four Atlantic provinces in which they found consistently higher quality (measured by ECERS scores) among nonprofits. Prentice (1997) cites general findings in Canada that nonprofits supply better quality, and are more likely to meet regulatory standards. She suggests that the policy issue concerns more than just quality, since for-profit centres serve as a lobby group for lower regulatory standards.

Recent contradictory results for the U.S. are shown by Mocan (1997) and by Blau and Mocan (2002), using the Cost, Quality and Child Outcomes study that looked at detailed measures of quality in centres in four states. Both articles suggest that there is not much difference between for-profit and nonprofit centres. Mocan suggests that quality differences exist in North Carolina, but not in California, Colorado, or Connecticut. Blau and Mocan find that the relationship of quality to price seems to be very similar for the two types (which would suggest that nonprofits do not produce higher quality at any given cost level). But using the same data set, Morris and Helburn (2000) find that there are important differences within each type of centre, and that there is lower

quality in for-profit chains, and in community or church-run nonprofits, than other nonprofit centres.

Doherty, Friendly and Forer (2002) explore the differences between nonprofit and commercial child care centres using the same data set we use in this paper. They identify two broad explanations of observed quality differences: that nonprofit centres have greater access to government funding and donated resources, and that there are differences in goals, structures and characteristics between nonprofit and commercial centres. They only look at data from provinces and centres without differential government funding or differences in donated resources and still find important quality differences by nonprofit status. However, in a province with low average incomes and therefore uniformly low prices of child care (New Brunswick), quality rankings by nonprofit and commercial centres are very similar.

IV. A MODEL OF NONPROFIT STATUS AND QUALITY IN CHILD CARE

Demand

We can assume a simple structure for parental demand for child care services. Parents derive utility from the quality of centre-based child care (there must also be preferences over centre-based vs. non-centre-based forms of care, but we ignore this). Even base-level quality child care is valuable to parents because custodial care for children permits parents to work. Quality, which provides developmentally-stimulating experiences for the child, requires extra resources and is costly. Unless child care quality is fully subsidized by governments or private donations, higher quality implies higher parent fees.

Some parents will value quality very highly; others will value it much less highly. In addition, different families will have very different abilities to purchase quality. The implication is that the market demand for child care quality will be negatively sloped, with families, each of whom can be assumed to purchase one centre-based space (or none), being arrayed along the demand curve in descending order of willingness-to-pay based on tastes and income (with the availability of child care subsidy to individual low-income families reordering the array somewhat).

Costs

There is a production function for child care quality in which different quality-producing resources are substitutable for each other. These quality-producing resources include the child-staff ratio, education of staff, group sizes, combinations of staff, director/management characteristics, toys, learning materials and physical capital, but also include many less tangible resources such as leadership, motivation, enthusiasm, energy and personal staff characteristics. There is little opportunity to substitute capital for labour. The production function is affected by the characteristics and age of children served. None of the resources used to produce child care, with the possible exception of leadership, are particularly scarce or non-replicable. However, staff members may have substantial variation in normally unmeasured characteristics (motivation, enthusiasm, dedication to children) that will affect their ability to produce quality services. These unmeasured characteristics will form a major part of the error term in empirical analysis.

Commercial child care centres are established to provide child care services that are sold to parents in order to earn profits for the owners of the business[1]. Nonprofit child care centres are established to provide child care services on a cost-recovery basis, but with a social objective. Typically, this social objective is to provide a developmental experience for children at a price that families earning moderate incomes can afford. Nonprofit centres will survive in competition with commercial centres if nonprofit centres have an advantage; this advantage could be (a) acceptance of lower wages by workers as a compensating differential for the satisfaction of producing a social good[2], (b) greater effort and motivation by workers and directors in nonprofit centres in producing better quality, (c) the decision by some commercial centres to divert resources away from hard-to-observe aspects of quality, raising employer returns, and therefore lowering quality in commercial centres, (d) differential private donations and public subsidies to nonprofit child care centres, allowing them to achieve their social objective of delivering higher quality at moderate parental cost.

Market Equilibrium

Because there is effective demand for a range of different quality levels of child care, we might expect, in market equilibrium, to observe different commercial entrepreneurs in a competitive market offering care at different quality levels and corresponding prices. There are three problems, however. The first is that the kind of

[1] Actually, commercial child care centres are somewhat heterogeneous in origin. A minority of the single proprietorships operate more like nonprofits; they make little effort to earn profits and reflect the personal dedication of the owners to improve the welfare of children and families.

[2] In fact, it is well known that wages in nonprofit centres are considerably higher than those in commercial centres, so this first potential advantage can be ignored. This leaves us with three potential sources of nonprofit advantage: higher motivation by workers and directors, deliberate underprovision of quality by commercial centres, and differential private and public subsidies to nonprofits.

child care quality that leads to improved child development is difficult for parents to judge, and therefore all providers claim to provide child care of a very high quality.

The second problem is that the minimum efficient scale of a child care centre, while small relative to other firms, is too large to allow quality differentiation amongst centres when potential demand is very thin.

The third problem is that child care is a service with very high delivery costs (paid in parent time each day), so effective markets are geographically small. Only families living within a few kilometers of a centre are likely to purchase its services. As a result, potential demand for many centres is quite "thin". Amongst the population living in geographic proximity to any centre, there are only a small proportion of potential demanders who have children of the right age, and are willing and able to afford the relatively high annual cost. Unless the population of potential users in a market is fairly large, there will be little room for quality differentiation amongst firms (i.e., some serving high-end, others serving low-end).

All firms face a range of willingness to pay for quality; it is the willingness to pay of the marginal consumer who determines the quality offered in equilibrium by any particular child care centre. In a thin market, this marginal consumer will have a relatively low willingness to pay, making it difficult for any centre to sell high quality care.

However, if there is a considerable number of potential users in a local child care market (i.e., the market is thick), we expect to observe quality differentiation amongst firms (i.e., some centres will offer higher quality care at a higher price and some will offer lower quality care at a lower price). If the hypothesis about nonprofit advantage is

correct, we expect that nonprofit firms will have an edge in being able to credibly signal and produce high quality.

What are the predictions from this model?

(a) In a thick market, we expect there to be both high and low quality services supplied. Nonprofit suppliers have a natural advantage in supplying high quality services. We would expect most high quality provision to be nonprofit. This will be especially true if there is differential subsidization by auspice.

(b) Nonprofit suppliers have no natural advantage in supplying low quality services (at a low cost). In a thick market that allows for quality differentiation, we expect low quality services to be dominated by commercial providers. If nonprofit centres are differentially subsidized (by government or donations), nonprofits can also compete in the production of lower quality child care services. If there is no differential subsidization, we expect low quality services to be dominated by commercial providers.

(c) In a thin market, we expect all producers to produce relatively low quality care at a lower price. Commercial providers are likely to dominate. If nonprofit producers receive differential subsidization (through donations or government), nonprofits will be able to compete with commercial providers at the low price, or provide slightly higher quality at the low price.

What observed distribution of quality in child care would we then expect to observe across Canada? We would expect there to be some markets in which nearly all centres (both nonprofit and commercial) are low quality and other markets in which there is considerable quality differentiation, with nonprofits dominating at higher levels of

quality. In Canada-wide data, we expect to observe average quality to be higher in nonprofit centres than in for-profit centres.

We discuss more specific predictions in the next section.

V. EMPIRICAL STRATEGY

Nonprofit status is, as Table B-1 in Appendix B suggests, correlated with a host of observable variables that determine quality, and there are no doubt a series of unobserved determinants of quality with which nonprofit status is also correlated. This creates a problem in the interpretation of empirical regression results of the determinants of child care quality. Even if auspice is significant in a regression of measured quality on a set of presumed determinants of quality, this will presumably reflect the correlation between auspice and these unobservable determinants of quality. So, for instance, it could be that it is not auspice itself that affects quality, but the differential access to resources that auspice bestows (through government grants, or donated resources). Or, the effect of auspice could actually be due to the difference in clientele served by nonprofit vs. commercial centres (nonprofits tend to be located in downtown locations and serve more low-income families). Or, it could be that the organizations with which nonprofits are often affiliated (the sponsoring organization) provides leadership or monitoring which is an important input to quality child care. Or, it could be that nonprofits attract, hire and retain workers with unobservable (to the researcher) quality-producing characteristics, and that a significant coefficient on nonprofit status is due to these unobserved worker characteristics.

Our theoretical model predicts that nonprofit child care centres will have an advantage in the production of quality child care. To test this, we estimate what might loosely be called the production function for child care quality. Our strategy is to include successively, in a series of regressions, different categories of potential determinants of quality (observed and potentially unobserved), and to note the effects on the coefficient on nonprofit status. The three groups of variables we consider, along with nonprofit status, are (a) characteristics of teachers, the classroom, and the centre that are likely to affect quality, (b) financial resources available to the centre, and (c) clientele served by the centre.

Our objective is to decompose the nonprofit advantage in producing quality. For instance, it could be that the nonprofit advantage is made up of differences in the observable quality-producing inputs that nonprofits choose to use (this is presumably what is suggested in the notion that commercial operators will have incentives to "cheat" on producing promised quality). It could be that the nonprofit advantage is made up of unobservable quality-producing inputs that nonprofits purchase; we can proxy this by controlling for the differences in financial resources available to nonprofit and for-profit firms (differential private and public subsidies is a second hypothesized source of the nonprofit advantage). It could be that the nonprofit advantage is affected by the nature of the clientele served (serving more infants and toddlers, more subsidized children and more children with special needs might make it more difficult to produce quality in nonprofit centres). If nonprofit firms are still observed to have an advantage in producing child care quality after controlling for all these factors, it will be presumed that

the remaining advantage is due to higher motivation/better leadership of workers and directors in nonprofit organizations.

We perform this analysis first on the entire data set of child care centre classrooms across Canada. Then, we separate the sampled child care markets into those in which child care demand is apparently thick and those in which it is apparently thin. Our hypothesis is that the nonprofit advantage should be strong in thick markets and weak in thin markets.

VI. DATA SETS AND QUALITY INDEXES

"You Bet I Care!" (YBIC) is the collective name for a group of linked data sets investigating earnings, working conditions and observed quality in day care centers and licensed family homes in Canada in 1998. Data from staff, center and director questionnaires was collected in the larger Phase I sample; similar data plus on-site observations of child care quality were collected in the smaller Phase II sample. Phase II of YBIC includes data from 234 child care centers in 6 provinces and 1 territory (British Columbia, Alberta, Saskatchewan, Ontario, Quebec, New Brunswick, and the Yukon). 122 of these centers had an infant-toddler room (less than 30 months of age) and 227 had preschool rooms. A total of 325 classrooms had usable data on the dependent variable and key explanatory variables. Data on the quality in all these classrooms plus information on the "observed" staff member for each classroom, other staff members in the center, the director and center characteristics is available in the data set.

The two main measures of quality in this data set are the ITERS (Infant-Toddler Environment Rating Scale) and ECERS-R (Early Childhood Environment Rating Scale –

Revised) scores, which are global measures of the developmental potential in the classroom (the environment fostering quality interactions), and the Caregiver Interaction Scales (CIS) which focus on the nature of the interactions between the lead teacher and children in the room. Because we are interested in the production of overall classroom quality, we focus on the ITERS and ECERS measures.

There are seven subscales of the ITERS and ECERS scores, covering different aspects of classroom and centre quality. To simplify the analysis, we treat the 7-point ITERS and ECERS scales as equivalent measures of quality, so that we can pool together both infant/toddler and preschool classrooms. We treat the ITERS/ECERS score as one measure (and for convenience we express this score on a scale from 0 to 100, rather than from 1 to 7)[3].

ECERS-R consists of ratings of 43 aspects of the preschool classroom which are combined into 7 categories (space and furnishings, personal care routines, language-reasoning, activities, interaction, program structure, parents and staff) which are then combined into one overall measure. Each separate category is rated on a 7-point scale (1 to 7 not including zero) where 1 is considered "inadequate quality", 3 is "minimal quality", 5 is "good quality", and 7 is "excellent quality". The overall ECERS-R rating is on the same 7 point scale.

ITERS is a very similar rating system designed for infant-toddler classrooms (most or all children < 30 months of age). ITERS, like ECERS, assesses the structure,

[3] On a scale of 0 to 100, 33 is minimal quality, 67 is good, and 100 is excellent quality, corresponding to scores of 3, 5 and 7 on the original ITERS or ECERS scales. The ITERS and ECERS (and the subscales that compose them) are, by construction, treated as cardinal scales. The distance between inadequate and minimal , between minimal and good, and between good and excellent are considered equivalent distances.

resources, classroom organization and teacher-child interactions of a classroom. ITERS evaluates 35 aspects of the program which are combined into 7 categories (furnishings and display for children, personal care routines, listening and talking, learning activities, interaction, program structure, adult needs) which are then combined into one overall measure. ITERS uses the same 7-point scale as ECERS-R to tabulate its results. Scorings are based primarily on on-site observations (2-3 hours) plus answers to some questions for items not observed.

For the YBIC studies, researchers drew a stratified random sample of all child care centers in several urban and suburban areas in six selected provinces and one territory in Canada providing care for preschool children for at least 6 hours per day, as long as those centers had been in operation for at least 12 months, were not operated by a municipality (municipal centers are excluded), and those centers were not located on a native reserve. First, the Phase II centers were drawn from this pool and then the Phase I centers.

The Phase II data that we use in this paper is not therefore based on a purely random sample. First of all, the provinces/territory are not chosen randomly. As the study says "[i]n addition to providing geographic representation, these jurisdictions represent points along the continuum of government regulatory standards, government funding other than fee subsidization, and the relative proportion of non-profit and commercial centers within a jurisdiction." (Goelman et al., 2000, p. 20). Further, a group of cities and medium sized towns and surrounding areas were selected in the six provinces and one territory as being conveniently accessible to researchers for this intensive form of data collection (i.e., Abbotsford, Kelowna, and Vancouver and

surrounding areas in B.C.; Calgary, Edmonton, Medicine Hat, and Red Deer in Alberta; Moose Jaw, Prince Albert, Regina, and Saskatoon in Saskatchewan; the Brampton-Milton-Oakville triangle, Ottawa, and Thunder Bay in Ontario; Montreal and the south shore, Quebec City and surrounding areas in Quebec; Fredericton, Saint John and Moncton and surrounding areas in New Brunswick; Whitehorse and the immediate surrounding area in the Yukon Territory). From the population of all eligible child care centers and before choosing the Phase I sample, 50 centers in the target cities and towns and surrounding areas of each jurisdiction were chosen to be approached for Phase II. Twenty-five non-profits and twenty-five commercial centers were chosen on an arbitrary basis from the eligible centers in each province. In the Yukon Territory, all 14 centers were invited to participate in Phase II. These centers were reserved for Phase II and work proceeded on Phase I on the other randomly selected centers. In virtually all jurisdictions, some additional centers had to be added to the list of 50 centers in order to get the desired number of centers (the target was 40 centers in each province with half non-profit and half commercial in each province except Saskatchewan (where commercial centers are virtually nonexistent).

So, the provinces/territory were chosen to represent the range of different policy regimes and practices; the cities and towns were chosen for convenience in data collection. The centers within those cities and towns were stratified into profit and non-profit and 25 centers were chosen arbitrarily from each list (this amounts to oversampling commercial centers in the entire sample). In centers in which there were a number of preschool and infant-toddler classrooms with different teachers working in each, the

center director chose which classrooms and associated teachers would be observed by trained observers.

Some aspects of non-randomness are a common feature of almost all similar studies of process quality. For instance, the oft-quoted National Day Care Study (Ruopp et al, 1979) used a non-random sample of a small number (57) of day care centers. The U.S. National Child Care Staffing Study (Whitebook, Howes and Phillips, 1989) selected 5 cities non-randomly and took a stratified random sample within those cities, but its results have been interpreted as applying broadly across the U.S. The Cost, Quality and Child Outcomes Study (Helburn, 1995) chose four states as representative of the U.S. The YBIC sample has no parallel in Canada for the assessment of process quality in child care centers. The only other Canadian studies are much smaller, and exclusively regional or local. The report of Phase II's results (Goelman et al., 2000) provides extensive comparisons between common features of its sample and that of Phase I for the same jurisdictions. The authors conclude that the Phase II sample is very similar to that of Phase I.

Table B-1 in Appendix B shows the differences and similarities in the average values of key variables by for-profit or nonprofit status. These are variables likely to affect quality provided in the centre. Centres have chosen many of these variables deliberately; differences therefore reflect the different objectives of commercial and nonprofit directors and owners.

VII. THICK AND THIN MARKETS

Because of high transportation costs, demand for child care is very localized. Focusing on preschool child care, potential demanders must have a child 0-5 years of age. Since even base quality centre-based child care costs at least several thousand dollars per year, local markets with fewer middle and upper income families will have lower demand for centre care, especially care of higher developmental quality. Thick child care markets are ones in which the number of potential demanders of high-priced centre care for preschool children is relatively large; in thin markets, this potential demand is relatively small.

If we rank the markets from which data was collected in the YBIC survey according to the number of children 0-4 years of age in 2001, the larger cities and towns generally have 25,000 children or more. The smaller cities and towns have 15,000 children or fewer (in fact, all but two have fewer than 8,000 children). Since, typically about 10% - 20% of preschool children in any market use centre-based child care, the potential market in these smaller cities and towns is likely to be no larger than 3,000 children and usually closer to 800 children in the entire market area. We label those markets with at least 25,000 children in this age range as “thick” markets and those with fewer than 15,000 children as “thin” markets. By this criterion, Montreal, Vancouver, Calgary, Edmonton, Ottawa, Quebec City, and Brampton-Milton-Oakville (considered as one market) are all areas of thick child care demand. Saskatoon, Regina, Abbotsford, St. John, Thunder Bay, Kelowna, Red Deer, Medicine Hat, Moncton, Prince Albert, Fredericton, Moose Jaw and Whitehorse are all areas of thin child care demand.

An alternative indicator of market thickness could be the number of high income families with preschool children in the market. We do not have this data, but average earnings of employed persons in the market will be correlated with it. If we rank the markets in our survey by annual average earnings of employed persons in 2001, they range from about $40,000 down to about $26,000. Drawing a dividing line between thick markets at $31,500 and above and thin markets below gives nearly the same list of thick and thin markets. The only two differences would be that Whitehorse (in the Yukon Territory) would be considered a thick market because of its high average incomes, while Quebec City would be considered thin.

VIII. THE DISTRIBUTION OF QUALITY SCORES

Measuring the classroom quality score on a scale from 0 to 100, the combined ITERS/ECERS score across all 325 classrooms observed in YBIC is 60.1. Commercial classrooms scored an average of 55.4 and nonprofits an average of 62.0 (i.e., the difference in quality is 6.6 points; average quality is over 10% higher in the nonprofit classrooms). The difference is statistically significant ($t = 2.92$). The differences taking infants and toddlers separately were somewhat larger, and quality was lower; commercial centres scored 50.2 and nonprofits 59.0 ($t = 2.02$). Taking preschoolers separately, commercial centres rated at 57.2 and nonprofits at 63.8 ($t = 2.51$).

For comparison, we can look at the main subscale of the Caregiver Interaction Scale (called “Sensitivity”), which, for our purposes, can also be expressed on a scale from 0 to 100. On this scale, teachers in rooms in commercial centres score lower than teachers in

nonprofit centres on this measure of teacher empathy and interaction. The rating for commercial centres is 68.4 versus 78.1 for nonprofit centres ($t = 3.46$).

In other words, on average there appears to be a substantial difference in quality between commercial and nonprofit centres. This is not to say that every nonprofit has higher quality than every for-profit centre; what we have is two overlapping distributions of quality in these two types of centres. There are some poor quality nonprofits; there are some good quality commercial centres. However, commercial centres are disproportionately represented among the lower-quality classrooms and non-profits are disproportionately represented among the better-quality classrooms.

Table 1 gives a good sense of the comparison between the entire distributions of quality scores, rather than just the average value of those scores. This table is based on the ITERS/ECERS scores, and, in this case, we show the raw score rather than expressing it on a scale of 0 to 100. The ITERS or ECERS score ranges from 1 to 7, with 1 being regarded as inadequate, 3 being minimal, 5 being good and 7 being excellent. Any classroom which scored from 1 to 1.99 is shown as having a score of 1. Any classroom which scored from 2.0 to 2.99 is shown as having a score of 2. And so on.

TABLE 1
NUMBER OF CLASSROOMS AND PERCENT OF CLASSROOMS BY AUSPICE AT EACH QUALITY LEVEL

Quality Value of Classroom	Commercial	Nonprofit	Total
1 (Inadequate)	2 (40%)	3 (60%)	5 (100%)
2	9 (47.4%)	10 (52.6%)	19 (100%)
3 (Minimal)	25 (33.3%)	50 (66.6%)	75 (100%)
4	33 (32%)	70 (68%)	103 (100%)
5 (Good)	20 (21.5%)	73 (78.5%)	93 (100%)
6	4 (13.3%)	26 (86.7%)	30 (100%)
Total	93 (28.6%)	232 (71.4%)	325 (100%)

The table above shows, in the bottom row, that 28.6% of all classrooms observed in this study are in commercial centres, while 71.4% of classrooms are in nonprofits. If quality were randomly distributed across classrooms, we would anticipate about 29% of classrooms at each quality level (1 to 7) would be commercial and about 71% would be nonprofit. However, even though commercial centres span the range of quality levels from 1 to 6, and there are few in the two lowest categories, they are overrepresented in quality levels 1 through 4. Nonprofits span the range of quality levels too, from level 1 through to 6. However, the bulk of nonprofits are in the higher ranges (73% from 4-6 compared to 61% of for-profits), being overrepresented at quality levels 5 and 6.

Three statements are simultaneously true. First, the distribution of nonprofits shows a mean shift towards higher quality. Second, there is a considerable percentage of both

commercial and nonprofit centres offering good quality care (5 or better) – about 26% of commercial centres offer care at this level compared to about 43% of nonprofit classrooms. Third, there is a considerable percentage of both commercial and nonprofit centres offering relatively low quality care (3 or less) – about 39% of commercial classrooms and 27% of nonprofit classrooms.

IX. EMPIRICAL RESULTS AND INTERPRETATION

As discussed above, nonprofits will differ from commercial centres in a number of ways. First, nonprofits may make different input choices than commercial centres if they have a stronger orientation to the production of quality services. Second, nonprofit centres will attract more resources if they are perceived by sponsoring organizations and governments to be trustworthy and to be providing socially-needed services, and if parents are willing to pay for higher quality. This may make it easier for nonprofit centres to produce quality care than for commercial centres. Third, nonprofit centres will serve a somewhat different population of children presuming that they have a stronger mission to provide socially-needed services than do commercial centres. Finally, controlling for all these differences, nonprofit status may influence quality in ways not fully captured by these explicit variables.

The Nonprofit Advantage Across All Classrooms

The empirical results in Table 2 successively control for these differences in three regressions estimating the coefficients of a quality production function for child care

centre classrooms. In each case, the dependent variable is ITERS/ECERS transformed onto a scale running from 0 to 100, for ease in interpreting results.

The first regression estimates the gross value of the nonprofit advantage with dummy variable controls for each market location. Nonprofit status is associated with an increase of 7.79 points in quality (about 13% of the average quality score, or about half of a unit increase in quality on the original seven-point scale).

(TABLE 2 ABOUT HERE)

The second column shows a reduced nonprofit advantage, implying that a partial explanation of higher quality in nonprofit classrooms is their greater use of quality-enhancing teacher and director inputs. This regression adds a set of teacher and director characteristics variables that have been found in other studies to affect the quality of child care produced. The ratio of children to staff in the classroom has a negative effect on quality, statistically significant for infants and toddlers but not for preschool-age children (3-5 years) within the range of child-staff variation in the data set. The number of children in the classroom (group size), has a decreasing positive effect (within the range of group sizes observed in the data set) for infant-toddler classrooms, not quite significant for preschool classrooms. Education inputs have strong positive effects on quality (a college certificate or diploma and a university degree for the lead teacher in the classroom will increase quality by over 10 percentage points). Recent professional development training is likewise strongly positive. However, in this specification, the effects of director's educational background are not found to be significant. Our main

interest is the effect of nonprofit status. Adding controls for teacher and centre characteristics (which affect quality in both nonprofit and for-profit centres) reduces the pure nonprofit advantage to 6.37 percentage points.

The third regression reduces the pure nonprofit advantage substantially. The third column of results controls for differences amongst centres in the revenue available per full-time-equivalent child served and for differences in the child clientele served by the centre. Revenue per child is calculated as the sum of fee revenues charged (to either the parents or to the government for subsidized children) for all infants, toddlers, preschoolers and schoolaged children in each centre, adjusted upwards for the percent of revenues provided by government operating and wage grants, plus an upward adjustment for the deemed subsidy for those centres that have rent and/or utilities subsidized by a sponsoring organization.

The composition of children served may reflect the social mission of the nonprofit sector, and may make it more difficult to produce a high level of child care quality. We control for the number of full-time-equivalent children in the centre, the percent of children who are infants or toddlers, the percent of children receiving subsidy from government, and the percent of special needs children.

The amount of revenues per FTE child has a substantial positive effect on quality (about 10 percentage points at the mean value of revenues). The number of full-time-equivalent children in the centre - a control for centre size - has a positive effect on quality. Other child variables are not statistically significant. Most estimated coefficients for teacher and director characteristics are similar to the previous estimates. However, the education level of the director of the centre now is statistically significant at a 10

percent level – both college diploma and university degree have substantial positive effects. More important is that the coefficient on nonprofit status is considerably reduced (3.65 percentage points, smaller than the contribution of a number of other inputs) when revenues per FTE child are controlled, and no longer statistically significant.

The Nonprofit Advantage in Thin and Thick Markets

Tables 3 and 4 show the same three regressions for classrooms located in thin markets (40 for-profit and 112 nonprofit) and thick markets (53 for-profit and 120 nonprofit). The estimated results are dramatically different across these two groups of markets. The most striking and important result in Table 3 is that nonprofit status is neither large nor statistically significant, even in the initial regression before substantial controls are included. Child-staff ratios and group size – two key regulatable characteristics – are not significant in producing quality in thin markets. Early childhood education and training of staff and highest education level of the director are significant and substantial determinants of quality, however. Further, revenue per full-time-equivalent child matters a lot – 3 percentage points of quality for every $100 per month of centre revenue per child.

(Tables 3 and 4 around here)

Table 4 provides the same regression for thick markets and shows important differences in the pattern of the determinants of child care quality. Most noticeable and important from our point of view is the very substantial positive coefficient on nonprofit

status. The gross nonprofit advantage is estimated at 12.26 percentage points (an increase of 19 percent relative to the average quality in thick markets, or about a full unit increase in quality on the original seven-point ITERS/ECERS scales). A substantial component of this nonprofit advantage is made up of differences in teacher and director characteristics, reducing the estimated pure nonprofit advantage to just under 10 percentage points. Controlling for differences in revenue per child and in characteristics of the child clientele served reduces the pure nonprofit advantage to a substantial 8.95 percentage points, still strongly statistically significant.

In thick markets, both child-staff ratio for infants and toddlers and group size for infants and toddlers matter, as they did in the initial regressions on the pooled observations. Early childhood education and training of the staff, and recent professional development are also substantial positive determinants of quality. Contrary to the results in thin markets, director's education has no significant effect, and revenue per full-time-equivalent child has a smaller estimated coefficient and is not statistically significant in thick markets.

X. SUMMARY AND CONCLUSIONS

Hansmann and Ben-Ner suggest that nonprofit organizations will have an advantage producing services where quality is particularly difficult for consumers to judge. This would seem to apply well to child care services, where effects on children are intangible and the purchaser does not experience the service directly.

In child care centres in Canada, commercial centres are disproportionately represented amongst the lower quality classrooms and nonprofits are disproportionately

represented amongst the good quality classrooms. On average, the overall quality in nonprofit centres is about 13 percent higher (7.78 points higher), controlling for geographical market location. However, there is both poor quality and good quality care in nonprofit centres and in for-profit centres. Further, empirical studies of child care are not unanimous in finding a nonprofit advantage in producing child care quality.

Our empirical analysis finds that nonprofits choose different amounts of quality-enhancing inputs than commercial centres do - presumably a reflection of their social mission to produce higher quality care for children. Nonprofits are also able to attract greater amounts of financial resources than commercial centres. To some extent inclusion of this variable in our empirical work doublecounts the inputs already controlled. However, it is included to control for unobservable inputs (unobserved teacher quality, playground quality, amount of equipment, etc.) Donated resources and grants from government are disproportionately available to nonprofit centres, presumably on the grounds of trust and greater accountability. In our first set of regressions which pool the data from thin and thick markets, including controls for financial resources and for the characteristics of children served by the centre leaves a positive, but no longer statistically significant, pure nonprofit advantage in producing quality.

Our hypothesis is that nonprofit centres in thin markets are forced, by market pressures, to behave more similarly to for-profit centres. In thin markets, there will be no nonprofit advantage, except to the extent that nonprofit centres may receive extra financial resources through government grants and private donations. The results in Tables 3 and 4 confirm this analysis.

There is a substantial nonprofit advantage producing child care quality in thick markets, over and above the contribution of observable inputs and differential financial resources; there is no significant nonprofit advantage in thin markets. There are differences in the measured average quality of child care even in thin markets, as the descriptive statistics show. However, these are fully explained by differences in the teacher and director inputs used and by the extra revenues (largely grants and donations) that nonprofit classrooms in thin markets are able to attract.

Our results are important for several reasons. First, they remind us that the role of nonprofit organizations is strongly affected by market pressures. Nonprofit organizations may not suffer from incentive conflicts in serving the consumer interest in greater quality, but their ability to produce this quality may be constrained by the characteristics of consumer demand. Second, our work suggests an explanation for divergent empirical results when judging the role of nonprofit organizations in child care and other markets. Failure to account for heterogeneity in the market conditions faced by different nonprofit organizations is likely to deliver a verdict that nonprofit organizations have no advantage in producing quality. Third, there are potential policy implications here. Our results suggest that nonprofit organizations in thick markets are more readily able to develop a "corporate culture of quality" motivating staff and directors to produce quality beyond the normal contribution of observable inputs. However, nonprofit organizations in thin markets face greater challenges; if governments are using nonprofit agencies to deliver service quality, special programs or subsidies directed at quality improvement may be required for agencies in thin markets.

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APPENDIX A
Provincial/Territorial Grant Programs in 1998

British Columbia had a wage grant, known as the Child Care Compensation Contribution Program, designed to increase the wages of staff in both nonprofit and commercial centres and to assist with additional costs of infant and toddler care. Average percent of centre revenue from operating and wage grants = 8.9%. Average percent of centre revenue from low-income fee subsidies = 38.5%.

Alberta had operating grants available equally to nonprofit and commercial centres ranging from $17 per child per month for children over 4.5 years to $58 per child per month for children less than 1 year old (these grants had been considerably more generous but were gradually phased out between 1995 and 1999). Average percent of centre revenue from operating and wage grants = 7.5%. Average percent of centre revenue from low-income fee subsidies = 36.2%.

Saskatchewan has, in effect, no commercial centre-based child care; any commercial child care centre would have to have a parent advisory committee and would not be permitted to take low-income subsidized children. Saskatchewan had both an operating grant and a wage grant for which only nonprofit centres were eligible. The operating grant ranged from $30 per child per month for toddlers to $40 per child per month for infants. The wage grant totaled $225 per staff member per month. Average percent of centre revenue from operating and wage grants = 21.7%. Average percent of centre revenue from low-income fee subsidies = 35%.

Ontario had both an operating grant and a wage grant with nonprofit centres being differentially favoured. In 1998, eligible nonprofit centres received about $8,000 per staff member and eligible commercial centres received about $3,000 per staff member. Commercial centres had to be in operation before 1987 to be eligible for the direct operating grant component of the grant. Nonprofit centres had to be in operation prior to 1991 to be eligible for the wage grant component. Even eligible nonprofit centres receive wage assistance based on the number of staff employed in 1995. Commercial centres are not eligible for the wage grant. Average percent of centre revenue from operating and wage grants = 16.6%. Average percent of centre revenue from low-income fee subsidies = 34.1%.

Quebec had an operating grant, available only to nonprofit centres with a board of directors having a parent majority. There was also a grant designed to subsidize health and dental insurance for staff; this was available to both nonprofit and commercial centres. In 1997, Quebec began a major reform of child care financing and provision, with full-day kindergarten being available free of charge and full-day child care being available at $5 per day to parents with 4 year old children. Average percent of centre revenue from operating and wage grants = 33%. Average percent of centre revenue from low-income fee subsidies = 18.9%.

New Brunswick had no operating or wage enhancement grants to child care centres. Average percent of centre revenue from government grants = 1.9%. Average percent of centre revenue from low-income fee subsidies = 26.9%.

The **Yukon** Territory had operating grants available to both nonprofit and commercial child care centres, but only available to centres licensed before September 1995, or to centres replacing a closed centre. Average percent of centre revenue from operating and wage grants = n.a. Average percent of centre revenue from low-income fee subsidies = n.a.

APPENDIX B
TABLE B-1
AVERAGE VALUES OF KEY VARIABLES BY NONPROFIT STATUS

VARIABLES	COMMERCIAL (means)	NON-PROFIT (means)	SAMPLE MEANS
ITERS/ECERS score	55.4	62.0	60.1
Classroom Variables			
Child-staff ratio (0-2 years)	3.4	3.07	3.15
Child-staff ratio (3-5 years)	5.9	5.76	5.79
Group size (0-2 years)	6.1	7.02	6.82
Group size (3-5 years)	11.0	11.1	11.0
Square of group size	114.5	113.5	113.8
Teacher Variables			
Training of main classroom teacher: ECE - none or less than one year (proportion)	0.19	0.15	0.16
ECE – college	0.74	0.71	0.72
ECE – post-college cert.	0.05	0.07	0.07
ECE – university	0.01	0.07	0.05
Professional Development Training in last year	0.60	0.83	0.76
Centre Variables			
Director - high school graduation or less (proportion)	0.09	0.08	0.08
Director - one, two or three years college	0.69	0.55	0.59
Director - post-college certificate	0.02	0.08	0.06
Director - B.A. or more	0.20	0.28	0.26
Financial Resource Variables			
Estimated monthly revenue per full-time-equivalent child	$429.43	$581.13	$537.72
Child Variables			
Number of full-time-equivalent children in centre	39.9	43.1	42.1
Percent of infants and toddlers	26.9	38.8	35.4
Percent of children in centre receiving income-related subsidy	36.1	44.6	42.1
Percent of special needs children	5.6	6.1	6.0
Other Variables			
Gross wage per hour – lead teacher	$9.14	$11.92	$11.13

TABLE B-2
AVERAGE VALUES OF KEY VARIABLES IN THIN AND THICK MARKETS BY NONPROFIT STATUS

	THIN MARKETS		THICK MARKETS	
VARIABLES	**FOR-PROFIT (means)**	**NONPROFIT (means)**	**FOR-PROFIT (means)**	**NONPROFIT (means)**
ITERS/ECERS score (percent)	50.6	56.3	59.0	67.4
Classroom Variables				
Child-staff ratio (0-2 years)	3.5	2.5	3.4	3.75
Child-staff ratio (3-5 years)	5.3	5.7	6.3	5.8
Group size (0-2 years)	5.3	6.1	6.7	8.0
Group size (3-5 years)	10.2	11.0	11.6	11.1
Square of group size	99.8	105.2	125.7	121.1
Teacher Variables				
Training of main classroom teacher: ECE - none or less than one year (proportion)	0.20	0.18	0.19	0.12
ECE – college	0.78	0.68	0.72	0.74
ECE – post-college cert.	0.03	0.08	0.08	0.07
ECE – university	0.00	0.06	0.02	0.08
Professional Development Training in last year (proportion)	0.65	0.83	0.57	0.83
Centre Variables				
Director - high school graduation or less (proportion)	0.15	0.08	0.04	0.08
Director - one, two or three years college	0.60	0.46	0.75	0.63
Director - post-college certificate	0.05	0.06	0.00	0.10
Director - B.A. or more	0.20	0.39	0.21	0.18
Financial Resource Variables				
Estimated monthly revenue per full-time-equivalent child	$367.57	$520.87	$476.11	$637.38
Child Variables				
Number of full-time-equivalent children in centre	33.5	38.4	44.7	47.4
Percent of infants and toddlers	27.5	42.0	26.4	35.8
Percent of children in centre receiving income-related subsidy	27.6	51.5	42.2	38.1
Percent of special needs children	6.2	7.5	5.5	4.8
Other Variables				
Gross wage per hour – lead	$8.29	$10.71	$9.79	$13.05

teacher				
Percent of revenue supplied by government grants	2.55	11.67	7.27	24.24
Rent and/or utilities subsidized (proportion)	0.0	0.47	0.02	0.42
Monthly fee per full-time-equivalent child	$353.13	$421.09	$442.25	$472.43
Sample size	40	112	53	120

TABLE 2
THE EFFECT OF NONPROFIT STATUS ON CHILD CARE QUALITY
WITH POOLED DATA ON THIN AND THICK MARKETS

EXPLANATORY VARIABLES	**NONPROFIT STATUS AND LOCATION VARIABLES** **Coefficients (t-stats)**	**ADD TEACHER AND CENTRE INPUTS** **Coefficients (t-stats)**	**ADD FINANCIAL RESOURCES AND CHILD VARIABLES** **Coefficients (t-stats)**
Non-profit status of centre	7.79** (3.78)	6.37** (3.17)	3.65 (1.62)
Teacher and Centre Characteristics			
Child-staff ratio (0-2 years)		-2.96** (2.76)	-3.01** (2.82)
Child-staff ratio (3-5 years)		0.12 (0.22)	0.36 (0.07)
Group size (0-2 years)		2.20** (3.09)	1.73** (2.34)
Group size (3-5 years)		1.29 (1.63)	1.03 (1.26)
Square of group size		-0.06* (1.92)	-0.05* (1.76)
Lead teacher's training (No ECE is omitted category)			
ECE – college diploma		10.54** (4.50)	10.01** (4.28)
ECE – post-college cert.		5.16 (1.35)	5.41 (1.43)
ECE – university degree		12.08** (2.89)	12.04** (2.91)
Professional Development Training in last 12 months		5.13** (2.57)	3.87* (1.92)
Director's Education (high school or less omitted)			
College diploma or certificate		4.17 (1.32)	5.76* (1.78)
Post-college certificate		-0.06 (0.01)	1.33 (0.29)
University degree		4.80 (1.41)	6.72* (1.89)
Financial Resources			
Revenue per FTE child			0.02* (1.72)
Child Variables			
Number of FTE children in centre			0.09** (1.99)
Percent of infants/toddlers			-0.05 (1.17)
Percent of children with special needs			0.12 (0.96)
Percent of children subsidized			0.04 (1.17)
Constant	63.14** (23.07)	40.82** (6.50)	26.25** (3.29)
Number of observations	325	325	325
Explanatory variables	22	34	39
Adjusted R-squared	.364	.456	.467

Note: Each regression also includes dummy variables controlling for market location but these estimates are not shown. Full regressions available from the authors.

** significant at 5% level * significant at 10% level

TABLE 3
THE EFFECT OF NONPROFIT STATUS ON CHILD CARE QUALITY IN MARKETS WHERE DEMAND IS THIN

EXPLANATORY VARIABLES	**NONPROFIT STATUS AND LOCATION VARIABLES**		**ADD TEACHER AND CENTRE INPUTS**		**ADD FINANCIAL RESOURCES AND CHILD VARIABLES**	
	Coefficients	**(t-stats)**	**Coefficients**	**(t-stats)**	**Coefficients**	**(t-stats)**
Non-profit status of centre	1.53	(0.48)	2.08	(0.65)	-2.35	(0.65)
Teacher and Centre Characteristics						
Child-staff ratio (0-2 years)			-0.93	(0.50)	-1.55	(0.83)
Child-staff ratio (3-5 years)			0.08	(0.09)	-0.23	(0.27)
Group size (0-2 years)			1.07	(0.98)	0.52	(0.47)
Group size (3-5 years)			0.65	(0.52)	0.31	(0.25)
Square of group size			-0.03	(0.60)	-0.02	(0.47)
Lead teacher's training (No ECE is omitted category)						
ECE – college diploma			14.51**	(3.95)	13.09**	(3.54)
ECE – post-college cert.			8.90	(1.54)	10.45*	(1.79)
ECE – university degree			13.77**	(2.06)	14.99**	(2.25)
Professional Development Training in last 12 months			2.53	(0.77)	0.38	(0.11)
Director's Education (high school or less omitted)						
College diploma or certificate			7.76*	(1.74)	9.21**	(2.03)
Post-college certificate			4.05	(0.61)	1.48	(0.22)
University degree			8.43*	(1.86)	11.03**	(2.33)
Financial Resources						
Revenue per FTE child					0.03**	(2.27)
Child Variables						
Number of FTE children in centre					0.10	(1.33)
Percent of infants/toddlers					-0.06	(0.91)
Percent of children with special needs					0.28	(1.61)
Percent of children subsidized					0.01	(0.27)
Constant	39.67**	(4.88)	22.51**	(2.17)	24.67**	(2.01)
Number of observations	152		152		152	
Explanatory variables	14		26		39	
Adjusted R-squared	.412		.466		.481	

Note: Each regression also includes dummy variables controlling for market location but these estimates are not shown. Full regressions available from the authors.

** significant at 5% level * significant at 10% level

TABLE 4
THE EFFECT OF NONPROFIT STATUS ON CHILD CARE QUALITY IN MARKETS WHERE DEMAND IS THICK

EXPLANATORY VARIABLES	NONPROFIT STATUS AND LOCATION VARIABLES Coefficients (t-stats)	ADD TEACHER AND CENTRE INPUTS Coefficients (t-stats)	ADD FINANCIAL RESOURCES AND CHILD VARIABLES Coefficients (t-stats)
Non-profit status of centre	12.26** (4.63)	9.93** (3.76)	8.95** (2.91)
Teacher and Centre Characteristics			
Child-staff ratio (0-2 years)		-3.71** (2.72)	-3.68** (2.69)
Child-staff ratio (3-5 years)		0.15 (0.22)	0.13 (0.19)
Group size (0-2 years)		3.20** (3.15)	2.80** (2.64)
Group size (3-5 years)		2.19* (1.92)	1.90 (1.61)
Square of group size		-0.09** (2.21)	-0.09** (2.00)
Lead teacher's training (No ECE is omitted category)			
ECE – college diploma		7.94** (2.51)	8.08** (2.48)
ECE – post-college cert.		4.74 (0.88)	4.42 (0.82)
ECE – university degree		11.30** (2.07)	11.18** (2.03)
Professional Development Training in last 12 months		6.44** (2.51)	5.81** (2.23)
Director's Education (high school or less omitted)			
College diploma or certificate		-0.36 (0.08)	1.81 (0.37)
Post-college certificate		-6.92 (1.09)	-4.87 (0.73)
University degree		0.47 (0.09)	2.79 (0.50)
Financial Resources			
Revenue per FTE child			0.01 (1.28)
Child Variables			
Number of FTE children in centre			0.11* (1.81)
Percent of infants/toddlers			-0.08 (1.07)
Percent of children with special needs			-0.02 (0.09)
Percent of children subsidized			0.08 (1.62)
Constant	61.24** (22.04)	40.41** (4.47)	27.71** (2.43)
Number of observations	173	173	173
Explanatory variables	9	21	26
Adjusted R-squared	.228	.356	.360

Note: Each regression also includes dummy variables controlling for market location but these estimates are not shown. Full regressions available from the authors.

** significant at 5% level * significant at 10% level