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WHAT HAPPENS WHEN CHILD CARE INSPECTIONS
AND COMPLAINTS ARE MADE AVAILABLE ON THE INTERNET?

Ann Dryden Witte
Magaly Queralt

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ABSTRACT

We provide substantial evidence that placing child care provider inspection and complaint reports on the Internet changed the behavior of child care inspectors and improved the quality of child care received by low-income children. We believe that these results were forthcoming in part because: (1) the media widely reported the availability of this information on the Web, (2) the information was easy to locate and use and (3) the inspector's name and contact information appeared on the first page of the reports.

To be more specific, we find that, after child care provider inspection and complaint reports are made available on the Internet: (1) inspectors produce significantly more inspection reports and (2) inspectors become significantly more likely to provide mixed reviews of centers in the course of their routine inspections, finding that centers sometimes meet minimum standards and other times fail to do so.

Controlling for time trends and other unobserved policy and economic changes, we also find that, after inspection reports are made available on the Internet, there is a significant improvement in classroom environment and center management at centers serving low-income children with child care subsidies. While the magnitude of the improvement in terms of observational assessment scores (i.e., 2.82 points, or $\frac{1}{2}$ of a standard deviation) is moderate, it is comparable in size to improvements often achieved by more expensive approaches to improve classroom environment or the curriculum.

Ann Dryden Witte
Department of Economics
Wellesley College
106 Central Street
Wellesley, MA 02481
and NBER
awitte@wellesley.edu

Magaly Queralt
Wellesley Child Care Research Partnership
155 Ocean Lane Drive
Suite 812
Miami, FL 33149
mqueralt@wellesley.edu

1. Introduction

The large increases in the number of low-income children in child care as a result of welfare reform and the increased emphasis on ensuring that these children are ready to learn when they enter regular school have focused attention on the need to improve the quality of care received by low-income children. Common approaches to improving care include setting and enforcing minimum standards, paying higher prices to subsidized providers (i.e., higher provider reimbursement rates) for higher quality care, improving the curriculum used by child care providers, and providing parents with better information about providers. As far as we know, there has been no systematic study of the possible effects of providing better information about child care providers on the quality of care received by low-income children.

One of the oldest methods used to improve child care quality is the setting and enforcement of minimum standards. To date, however, there have been few investigations of the possible effects of minimum standards on the quality of child care and no systematic analysis of how *enforcement* of minimum standards might affect the quality of child care.

We believe that the dearth of research on the enforcement of minimum standards stems both from the difficulty of obtaining inspection reports, which only recently began to be computerized, and the fact that inspections are frequently carried out by agencies that are not primarily concerned with child care, such as human service departments or health departments. Due to the difficulty of accessing inspection reports, the public has made limited use of these reports to assess the quality of child care choices in their communities.

In this paper, we assess the changes in the quality of care received by children using child care subsidies associated with a major effort to make inspection reports more accessible and to increase their use by parents, providers, and advocates. We also examine a number of

other possible effects of making available child care inspection and complaint data on the Internet.

Our study area is Broward County, Florida's second largest county. In January 2001, the Broward County child care licensing and inspection office made inspection and complaint reports available on a user-friendly and readily accessible website. The agency issued a press release announcing the availability of the reports on the Internet and the local media, including radio, television and newspapers, widely reported the availability of this information.

To briefly preview our results, we find that placing the results of inspections of child care facilities on a readily accessible and widely advertised website: (1) significantly increases the number of inspections per year carried out by inspectors, (2) makes inspectors significantly less likely to consistently report that centers meet minimum standards and more likely to find that centers sometimes meet minimum standards and other times fail to do so and (3) improves the quality of care received by low-income children, as measured by various observational assessments.

Our paper is structured as follows. In the next section, we briefly describe the study area. Sections 3, 4, and 5 provide background information on Broward County's child care minimum standards and its complaint system, the county's CCDF-subsidized child care program and how inspection reports were made available on the web. Section 6 describes the data that we use to carry out our analyses and Section 7 discusses some economic models that help us to predict and understand likely effects of making child care inspection reports available on the Internet. Section 8 presents our findings. The final section contains our conclusions.

2. The Study Area

Broward County is the second largest metropolitan area in Florida, located between Miami-Dade and Palm Beach counties on South Florida's East Coast. In 2000, Broward had a

population of 1,623,018 spread over 30 municipalities, the largest being Ft. Lauderdale, Hollywood, Coral Springs and Pompano Beach. The Broward County population is overwhelmingly urban and predominantly white non-Hispanic (58%). Nearly 40% of the population belongs to minority groups, with blacks comprising 20%, Hispanics (of any race) 17% and Asians 2%. According to the 2000 Census, 256,836 children ages 11 and under reside in Broward County. Of these children, over 39,296 (15.3%) live in homes with incomes below the poverty level.

3. The Context: Broward County's Child Care

Minimum Standards and Complaint System

Unlike most other counties in Florida, Broward County is empowered to establish, administer, enforce, and regulate conditions in child care facilities in Broward through a licensing program and to set minimum standards for substantial compliance for facilities and arrangements not subject to (i.e., exempt from) licensure. Since 1981, a county agency, the Child Care Licensing and Enforcement Section of the Human Services Department, has inspected licensed as well as license-exempt child care facilities and arrangements to ensure that they comply with the county's minimum standards for child care. In most other counties in Florida (a total of 59 out of 67), child care licensing and enforcement programs are administered directly by Florida's Department of Children and Families (DCF).

Broward County Ordinance 94-2, pursuant to Chapter 402 of the Florida Statutes, sets forth the county's minimum standards for child care facilities. All child care facilities and arrangements in Broward with more than 5 children unrelated to the operator and that receive a payment for any of the children must be licensed. Religious affiliated facilities and non-public schools and their integral programs are exempt from licensure. Although license exempt, these facilities are regularly inspected and must comply with requirements for substantial compliance

set forth under Article II of Broward Ordinance 94-02. Public school programs are exempt from licensing and from substantial compliance inspections. Ordinance 96-42 governs family child care homes. All family child care homes with children from at least two unrelated families and which receive a payment must be licensed.

Discussion of specific child care minimum standards in Broward County is beyond the scope of this paper; however, it should be understood that, in order for a local area to have its own standards in Florida, its standards must be at least as stringent as the State's imposed standards. As of this writing, a draft of the current version of the Broward Ordinance governing child care facilities was available online at <http://www.broward.org/chi00603.pdf>.

Child care centers and child care homes in Broward are required to provide inspectors with access to the facility or home, staff, and records without notice (i.e., unannounced) during regular business hours to assure compliance with the provisions of the child care Ordinances. By Ordinance, all licensed child care facilities are to be inspected no less than three times per year. Any violation reported to the facility must be corrected within the time period specified. Chronic or more serious violations may result in license denial, suspension or revocation, imposition of an administrative fine, prosecution or imprisonment.

Broward County also has its own a standard operating procedure for handling complaints filed with the Child Care Enforcement and Licensing Section. Only complaints alleging violations of licensing standards can be investigated. If a caller reports child abuse or neglect, the caller is instructed to call directly to DCF Child Abuse Hotline. Complaints are assigned to Child Development Specialists or Supervisors and are required to be investigated on site within 72 hours of the initial report (excluding weekends). After investigation is completed a complaint report is written indicating whether each individual complaint is founded. If a

complaint is founded, a Notice of Violation may be issued. All founded complaints are posted on the agency's website. All complaint reports are public record.

4. The Context: Broward's CCDF-Subsidized Child Care Program

The child care coordinating (4C) agency in Broward County (Family Central, Inc.) contracts with licensed providers to provide subsidized care for children. Presently, about one-fourth of licensed providers in Broward are under contract. The 4C agency receives referrals from various sources, including its own Early Care and Education (ECE) Resource Developers who recruit potential providers. The recruitment begins by sending providers an information packet explaining the contractual process.

The ECE Recruiters follow a three-step process to recruit new providers. The first step is an initial visit. This includes a tour of the facility to assess compliance and to explain the benefits of subcontracting, the documentation necessary and DCF's required Child Care Assessment Tool. The second step is a follow-up visit to the facility. During the follow-up, necessary paperwork is collected and technical assistance is provided to ensure compliance with the DCF Program Assessment Tool. Technical assistance also provides help with programming, room arrangement, and inventory of equipment. The number of follow-up visits varies depending on how much technical assistance is needed to bring the facility into compliance with the DCF Child Care Assessment Tool. The final step in the contractual process is a walk through, which is done with an ECE Specialist to ensure the facility is ready for assessment and subcontracting.

All subcontracted providers are assessed at least once per year using the assessment tool, and all programs need to score a minimum of 80% overall on their assessment. Program Assessors call the providers in advance to notify them that their program will be assessed within the six week period following the notification. This is the only notification that

subcontracted providers receive before an assessment. In addition to the assessments, ECE Specialists conduct regular site visits to ensure that providers are in compliance with requirements. Through this evaluation process, they are able to identify providers in need of technical assistance in order to meet requirements and remain in the network of subcontracted providers.

5. The Context: Making Reports Available on the Web

The possible effects of making inspection and complaint reports available on the Internet will depend upon how accessible the Internet information is, how aware interested parties are that the information is available, and how much use they make of the reports. We briefly summarize how reports were made available on the Internet in Broward County, and we provide evidence that reports were used substantially more after they were placed on the web.

How Reports Were Made Available in Broward

In March 1999 inspectors at the licensing and enforcement agency in Broward began using laptop computers to record the results of their visits to child care facilities. The system was completely computerized by December 1999. Since January 2001, the licensing and enforcement agency has made available on the Internet all the computerized reports of inspectors' visits to child care facilities. Verified complaint reports were added in July 2001 (see <http://www.co.broward.fl.us/chi00601.htm>).

The process of making inspection and complaint reports available on the web involved multiple and carefully planned steps. Before placing the reports on the web, the Broward Child Care Licensing and Enforcement Section held meetings to explain to the child care industry how this would work. There were some initial fears expressed (especially from family child care providers, who thought there might be trouble if their addresses were published). The

providers were invited to write to the Director of the licensing and inspection agency concerning any problems. The Director received only one letter.

On January 23, 2001 the Broward County Human Services Department issued a press release announcing the web availability of this new information. The Department emphasized the importance of this information for parents in the press release and on the entry page for the website. For example, on the entry page to the website, the agency states: "To assist you in finding quality licensed or registered child care in Broward County, this site was designed for you to access information and inspection reports on various types of child care arrangements."

The local media was enlisted, including local newspapers, local radio stations and local television stations, and they widely reported the availability of these data. In addition, the licensing and enforcement section placed an ad on the official Broward County website (Broward.org), which is widely visited. They also advertised the new inspection website in all their licensing correspondence to the industry, asking providers to check out the website and to provide feedback. Ads were also placed in the Broward County Child Care Directory. In addition, the new website was discussed in a publication distributed by one of the local universities (Nova Southeastern), which serves as the department's Training Coordinating Agency, and it was mentioned in a survey of discounts from child care providers distributed by the Broward County benefits office to their 8,000+ employees. Also, the child care R&R agency in Broward, which is run by Family Central, routinely gives information to all parents who receive child care referrals regarding how to access monitoring reports and founded complaints on the licensing website.

Some states and local areas have run into difficulties with providers in their attempts to post inspection and complaint information on the Web. This was not the case in Broward. Several factors may have facilitated this accomplishment. The move to computerize the data

and to place it on the web started earlier than in many other places. Since 1981, the county has been setting its own regulatory standards and conducting its own inspections. The agency in charge of inspections has a philosophy of helping child care providers. Inspectors are known as Consultants, and they spend a good deal of their time teaching providers about developmentally appropriate practices, safety and health. The Child Care Licensing and Enforcement Section regularly sponsors sector meetings for providers to network and learn and for the inspection staff to listen and get feedback. Thus, they are more likely to be viewed as an integral part of the community than state regulators would be. Also, Broward's providers are not very well organized or politically active. At the time of this writing there were two family child care associations in the community and an active chapter of NAEYC. But, to the best of our knowledge, child care facility owners did not have their own association. Those who contracted with the child care coordinating (4C) agency to provide subsidized care (about 27%) met regularly, but this was done under the auspices and as required by the 4C agency.

Increased Use of Reports after the Internet

While both the reports of provider inspections and visits and substantiated complaint reports were public record prior to making them available on the Internet, placing these reports on the web greatly increased their accessibility and use. Prior to being placed on the Internet, inspection and complaint reports were available to the public only if interested individuals came in person to the Licensing and Inspection office in Fort Lauderdale. According to Shawn Lamarche, Director of the Broward Child Care Licensing and Enforcement Section, prior to placing inspection information on the web, on average, about one parent a day came to the licensing office to use inspection information.

Table 1 provides a monthly record of the number of times the website of the Department of Human Services' Children's Services Administration Division¹ was visited (or "hit,"

in computer jargon) between January 2000 and December 2002. The first thing to notice is the large increase in hits after the January 23, 2001 press release (from 39,731 hits in December 2000 to 56,260 in January 2001). The increase in visits to the website, beginning in January 2001, provides evidence that the work of child care licensing and enforcement inspectors became more visible after reports were placed on the Internet.

The easy accessibility of the website where reports are placed helps to facilitate their use. As a test, interested readers may try typing "Broward child care" into their Internet browser's address command line or into a standard search engine such as Google. When we searched using Google while writing this paper, the first item on the list of websites that appeared was a link to the Licensing and Enforcement Section's page that allows one to search for child care provider inspection and complaint reports.

The Internet site that holds the reports is also simple and easy to use. It allows searches by name of provider, city, zip code, street intersection and type of care. Once a provider is found, inspection reports are clearly visible, as well as other basic information about the provider such as whether it is accredited, child ages served, type of program and schedule. An interested person can also click on a button to obtain a map showing the exact location of each provider.

6. The Data

In October 2002 we received from the Broward Child Care Licensing and Enforcement Section a database containing information on all computerized child care inspections and complaints. The earliest inspection in the database was for March 19, 1999 and the latest was for June 27, 2002. The database contained the results of inspections of: (1) licensed child care centers (2) licensed before- and after-school programs, (3) licensed family child care homes

and (4) license-exempt substantial-compliance providers. Fifty-four percent of the 6,720 inspections in the database were for licensed child care centers.

This report analyzes the 3,641 inspection reports we found in the database for a total of 505 licensed center providers. Of these providers, 137 (27%) had at least one assessment score from the 4C agency, indicating that they were, at least at some point during the period of our study, participating in the CCDF-subsidized child care program. We decided to focus on this sector of the child care market because we had proportionately far more minimum-standards inspection data on centers and we had more observational quality assessments for the CCDF-subsidized centers than on any other type of child care provider in Broward. Using the same methodology we employed, we could have analyzed family child care providers. However, we have fewer assessment scores for family child care providers and fewer inspections for family child care providers. For example, there were 316 family child care providers in the Broward inspection database. These family providers had 1,129 regular inspections between January 2000 and July 2002 and 505 additional inspections for re-licensing. While there was a lot of information on family child care providers in the inspection database, very few (about 10%) were subcontracted for CCDF-subsidies. In fact, by the end of our study period, only 30 family providers were being observationally assessed by the subsidy management agency. In short, we had a very small set of family providers for whom we had matching minimum-standards inspection data and observational assessments of quality by the subsidy management agency.

Eighty-four percent of the licensed center inspections we studied were the routine inspections required by Broward County ordinance. Almost 4% of the inspections were carried out because of complaints. Ten percent were re-visits to check on more serious violations and 2% were for technical assistance. For most of the work reported in this paper, we use results for the routine inspections since these contain the most comparable, complete and consistent

information. Representative routine inspection reports are available at <http://gis.broward.org/website/child2/search.htm>.

During 2001 and 2002 (the two year for which we have full-year data), most licensed centers were routinely inspected an average of three times per year. However, some centers received fewer than three routine inspections per year, and some received more than three.

There were a total of 141 complaints about licensed centers in the database. In 2000, 8.9% of such centers had one or more complaints, including 9 centers with more than one complaint. In 2001, 9.8% of licensed centers had one or more complaints, including 11 centers receiving more than one complaint.

The database contained a total of 370 center re-visitation reports. Re-visits typically occur when a routine inspection uncovers a violation that requires follow-up. In 2000, 16.1% of the centers had one or more re-visits and 20 had two or more re-visits. In 2001, 26.1% of the centers had one or more re-visits and 36 had two or more re-visits.

Content of Reports of Routine Inspections

The following summarizes how the inspection reports for child care centers are structured in Broward. The first page contains basic information about the facility (i.e., name and address, name of Director, name of owner, and whether or not the facility is accredited), contact information for the inspector, including name, address and phone number, and summary information regarding the visit and results of the inspection.

The second page of the report has a summary of all findings and indicates any changes required to bring the facility into conformance with minimum standards regulations. The findings recorded are both positive (e.g., a comment that new equipment has been added to the playground) and negative (e.g., a comment that the torn, ripped and taped bedding needs to be replaced). All instances of failure to comply with minimum standards are listed in this

summary. The remaining pages of the report indicate the outcome for each item inspected. In inspection and complaint circles, these last pages are called the inspection “check list.”

7. Economic Models

There are a number of economic models that help us to understand the possible effects of placing inspection reports on the Internet. These include: (1) benevolent government models, (2) regulatory capture models, (3) private-empowerment models, (4) models of perception updating and information use and (5) public choice models.²

Under benevolent government models, inspectors would be considered to behave in the public interest. That is, under such models, child care facility inspectors would be seen as working to ensure that facilities meet minimum standards requirements. Placing inspection reports on the web might increase the diligence with which inspectors enforce minimum standards because their work would acquire greater visibility and potential impact.

Regulatory capture models indicate that regulated firms (those subject to minimum standards) will try to control inspectors and have them behave in ways that are beneficial to the firms. This behavior is referred to as regulatory capture. Such theories remind us that some child care providers might try to collude with inspectors to circumvent costly minimum standards requirements. Generally, the longer an inspector inspects a child care facility, the greater the danger that regulatory capture will occur. To try to prevent this potential problem, many regulatory agencies rotate inspectors on a regular basis. While we observe some rotation of inspectors in Broward County over the 2 ½ years of inspection data we studied, the majority of centers (54%) had a single inspector for the entire period.

Private empowerment models suggest that providing information to the public serves to empower them to be more effective monitors. Thus, under the assumptions of these models,

one would expect that placing inspection reports on the web should serve to increase the public monitoring of providers and inspectors and should limit the extent of regulatory capture.

Models of perceptual updating and information use suggest that people use information when they are ready to make choices. Thus, parents would likely make use of the information about providers on the web when they are ready to re-assess their child care choices. Families often make such decisions in the early fall, after summer programs and summer vacations. Otherwise, as long as parents are reasonably satisfied with the care they have chosen, they tend to leave their children with the same provider until the end of the academic year. Over the summer, however, children frequently have different child care arrangements due to programs closing for the summer, family vacations or the desire to place the children in summer camps. Consistent with information-processing models, Table 1 shows that the number of hits to the licensing and inspection website increased markedly, from 67,665 in August 2001 to 138,515 in September 2001, the fall after the inspections were placed on the web.

Two types of public choice models also have potential relevance to our work: (1) models of bureaucratic "shirking" and (2) models of local government. Under shirking models, minimum standards inspectors would be seen as inclined toward maximizing their well being by working as little as possible. Under models seeking to understand how local government operates, citizens who are dissatisfied are seen as having two main options: (1) to work to improve the situation by becoming more actively involved or (2) to "vote with their feet" by leaving the undesirable community. If citizens do vote with their feet, bad communities should experience a decline in population and revenue.

Parents who become aware of violations of minimum standards by their children's child care providers basically have the same two choices delineated above. They can either work to improve the care that their current provider offers, or they can vote with their feet and move

the child to another facility that more consistently meets minimum standards. Due to such things as low-income or location, some families may be less able to vote with their feet than others.

8. Findings

To assess the possible effects of Internet availability of inspection reports, we consider the record, before and after reports were placed on the Internet, on a large variety of measures such as number of inspectors and inspections, number of inspection passes and failures issued, violation notices, fines, re-visits, number of "findings," seriousness of violations, provider vacancy rates, accreditation and overall quality assessment scores received by providers participating in the child care subsidy program.

Number of Inspectors and Inspections

Because we only have full-year data for 2000 and 2001, we use data for these years to determine if there was any change in the number of inspectors or in the number of routine inspections completed. Based on the Broward County reports we examined, 9 inspectors completed routine inspections in 2000 and 12 inspectors completed routine inspections in 2001. During 2001 one inspector left the system and three new inspectors were hired.

The number of routine inspections increased from 969 in 2000 to 1,329 in 2001. In 2000, the mean number of routine inspection per center was 2.67, and in 2001 it was 3.18. A T-test indicates that the increase in the mean number of inspections between 2000 and 2001 was significant at any usual level of statistical significance (T-value=18.16; p-value=0.0000).

Part of the increase in the mean number of inspections during the period of our study was due to the net increase of 2 inspectors between 2000 and 2001.³ However, there was also a significant increase in the number of inspections carried out by inspectors who worked full-year in both 2000 and 2001. On average, there were 14 more routine inspections per inspector

in 2001 than in 2000. This increase was highly statistically significant (T-value=14.62; p-value=0.000).

Inspection Passes and Failures, Violation Notices, Fines and Re-Visits

We consider three summary measures from the inspection reports: (1) whether the center passes or fails the inspection, (2) whether the center receives a violation notice, which is an indication of a more-serious-than-usual violation and (3) whether the center receives an administrative fine, which is an indication of an even more serious violation. In addition, we consider re-visits. We examine whether or not there was a significant difference in these summary measures and in the number of re-visits after reports were placed on the Internet.

Using information on whether the centers passed or failed a routine inspection, we calculate the probability that a center would pass all inspections, pass some inspections or fail all inspections during the period before reports were placed on the Internet and in the period after reports were available on the Internet. Table 2 shows the results.

As can be seen in Table 2, centers were much more likely to always pass or always fail inspections before inspection reports were placed on the Internet than after. After reports were on the web, as compared to the period before, centers were more likely to pass some inspections and fail others. To be more precise, before reports were placed on the Internet, 5% of centers failed all routine inspections they received, 25% passed some and failed some and 70% passed all routine inspections. After reports were placed on the Internet, only 2% of centers failed all routine inspections, 39% passed some and failed other inspections and 59% passed all routine inspections. The difference in the various possible inspection outcomes before and after the Internet is statistically significant ($\chi^2 = 76.07$; p-value=0.00).

The summary measures indicating more serious violations show a similar pattern. To be more specific, centers were more likely to always receive fines or notices of violation or to never

receive them before placing inspection reports on the Internet than after. After reports were made available on the Internet, as compared to the period before, centers were more likely to receive fines or violation notices sometimes rather than always or never. For example, before reports were placed on the Internet, 1.5% of centers received fines as a result of all their routine inspections, 15% received fines on some inspections but not on other inspections and 83% did not receive a fine on any inspection. After reports were placed on the Internet, only .5% of centers received fines on all routine inspections, 25% received fines as a result of some inspections but did not receive fines as a result of other inspections and 75% never received a fine as a result of an inspection. The difference in the outcomes before and after the Internet is statistically significant for both fines ($\chi^2 = 44.04$; p-value=0.00) and violation notices ($\chi^2 = 30.67$; p-value=0.00). We are unable to discern whether the change in the probability of getting a fine or in the probability of receiving a violation notice after reports were placed on the Internet was the result of a change in inspector behavior, center behavior or a change in the behavior of both inspectors and centers.

Number of Findings and Seriousness of Violations

We next consider whether placing reports on the Internet affected (1) the number of “findings” (i.e., written comments, positive or negative) by the inspectors and (2) the seriousness of violations of minimum child care standards.

There were significantly fewer findings noted by the inspectors in 2001 (after reports were placed on the Internet) than in 2000 (before placement on the Internet) (T-Value=3.09; p-value=0.002). To be more specific, when findings were given, inspectors, on average, listed 6.8 findings per center in 2000 and 6.1 findings per center in 2001. In both years, 46% of routine inspections resulted in no findings.

We took two approaches to estimating the seriousness of violations. First, we considered the inspectors' level of concern about the situation at the center, as indicated by the decision to re-visit the facility after a routine inspection. Specifically, if inspectors feel that a violation is serious, normally they will indicate that they will re-visit the facility in a few days to check on progress toward compliance. Generally, the more quickly inspectors plan to re-visit a facility, the more serious one can infer the violation to be.

For our second approach to estimating the seriousness of violations, the Directors of the Broward County and Pinellas County licensing and inspection offices and the two authors of this paper independently ranked the relative seriousness of various types of violations of minimum child care standards on a scale from 1 (least severe) to 5 (most severe). We took the median of the four independent rankings as a measure of the seriousness of a violation and weighted all violations by their judged median seriousness.

We found no evidence that the seriousness of violations changed after reports were placed on the Internet. The mean number of days until an inspector re-visited a facility after a violation was first reported was 10.9 in 2000 (the period before placement of reports on the Internet) and 9.4 in 2001 (the period after reports were available on the Internet) (T-value=.97; p-value=.34). The average total seriousness rating of all center violations was 11.9 in 2000 (before the Internet) and 12.4 in 2001 (after the Internet). The difference between the two averages is not statistically significant (T-value=.81; p-value=.42).

Parents and Centers

As noted previously, public choice models indicate that parents can use inspection information to get involved and try to improve the situation at their children's centers, if some standards are not being met, or they may be able to vote with their feet and remove their children from a center where deficiencies are noted.

To discern if parents voted with their feet during our period of observation in Broward County, we used various quasi-experimental and regression strategies to see if centers that failed inspections after reports were made available on the Internet had lost enrollment or experienced increases in vacancy rates relative to centers that passed inspections. We did not have direct information on child care enrollments, but inspectors do record the number of children present at the time of their routine inspections. We use this information as a proxy for enrollments.

The regression and quasi-experimental strategies we used indicate that there was no significant change in enrollments related to: (1) whether a center passed or failed previous inspections and (2) whether or not inspection reports were available on the Internet.

Inspection reports contain no information on vacancies at centers, but Resource and Referral (R&R) data include both the number of vacancies that a provider has and the provider's licensed capacity. This R&R data provide an alternative way of discerning if parents are moving their children to providers with more positive inspection reports. We use the R&R measure of the number of vacancies and the R&R recorded capacity of the center to calculate vacancy rates, that is, vacancies as a fraction of capacity. We calculate the change in this vacancy rate across academic years. We restrict our work to academic years because many providers close for the summer or run different programs during the summer and because informational models indicate that parents are most likely to change their child care choices across academic years.

To be more precise, we calculate the change in the vacancy rate between Academic Year (AY) 1999-2000 and AY2000-2001 and between AY2000-2001 and AY2001-2002. If placing inspection reports on the Internet led parents to move their children from centers that failed inspections to those that passed, then we would expect an increase in the vacancy rates for centers that failed inspections prior to AY2001-2002.⁴

We do find a significant 10% increase in the vacancy rate for failing centers in AY2000-2001 relative to AY1999-2000 and in AY2001-2002 relative to AY2000-2001. But we also find an increase in the vacancy rate for centers that consistently passed inspections in AY2000-2001 relative to AY1999-2000 and in AY2001-2002 relative to AY2000-2001. Although the increase in vacancy rates observed for passing centers (8%) was lower than that for centers that failed some or all inspections, the difference between the two changes in vacancy rates was not significantly different from zero.

We also do not find significant evidence that parents were more likely to file complaints after inspections were placed on the Internet. The number of filed complaints does increase markedly after inspections are made available on the web. But relative to the total number of centers, the before-after increase in complaints is non-significant. To be more specific, prior to the time when inspections and complains were placed on the Internet, we observe 50 complaints against centers. After inspections were placed on the Internet, we observe 91 complaints. However, this almost doubling of complaints increased the complaint rate only from 3.69% to 3.99%. Such an increase is non-significant at normal levels of statistical significance ($\chi^2 = .21$; p-value=.65).

Private empowerment models would suggest that low-quality providers should be more likely to stop providing child care after inspection reports are made available on the Internet, given parents' and advocates' increased vigilance. While we find that center providers are significantly more likely to stop providing child care after they fail an inspection than if they pass it, we find no evidence that placing inspections on the Internet further increases the likelihood that centers that fail inspections cease to provide child care.

Quality of Child Care

The many possible quality ratings in the inspectors' reports are affected both by the actual quality of child care they observe and by any changes in the inspector's behavior or perception. Because we find evidence that inspectors significantly changed their behavior after inspection reports were placed on the Internet, we cannot use any quality measures derived from their inspections to discern if placing inspection reports on the Internet was associated with changes in the quality of child care.

In addition to inspection reports, we had two other administrative sources of data available to obtain measures of child care quality: (1) the Broward County R&R database, maintained by the Community Child Care Coordinating (4C) agency in Broward,⁵ which contains data on various structural measures of quality and (2) the 4C agency's observational measures of quality for providers contracted to provide subsidized child care. We use both of these sources to discern if there were any changes in the quality of child care associated with the placing of inspection and complaint records on the Internet.

We use accreditation information derived from the R&R database as a measure of provider quality. We consider whether the probability of being accredited increased after inspection reports made available on the Internet. These reports include information on the Florida Gold Seal accreditation status of the provider. (The Florida Gold Seal program awards accreditation status to providers accredited by 10 different approved national accrediting organizations, including NAEYC.) We find that the likelihood that a center would (1) be accredited by NAEYC, (2) have Florida Gold Seal accreditation or (3) have Broward County Gold Seal⁶ accreditation all increased after inspection reports were made available on the web, but only the likelihood of Broward Gold Seal accreditation increased significantly ($\chi^2_1 = 4.34$; p-value=.037).

Finally, we use the *overall* assessment scores received by providers participating in the child care subsidy program. The 4C agencies managing the child care subsidy program⁷ in Florida carry out a comprehensive assessment of participating providers. This generally occurs twice per year, unless the facility receives two consecutive scores of 95 or higher, which qualifies them, while the 95+ scores are maintained, for once-per-year inspections. Six different assessment tools are used to evaluate centers. A “generic” tool covers areas such as program management and staff development. The other five tools used are for each age group in care (i.e., infants, toddlers, two-year-olds, preschoolers, and school-age children) and cover things such as physical environment (indoor and outdoor), learning environment, staff/child interaction, developmental program, parent involvement, health and nutrition. (Copies of the assessment tools are included in the Appendix of Queralt, Witte & Griesinger, 2000). The overall assessment score that we use is the average of the scores that the provider receives for each age group in care combined with the provider’s rating on program management and staff development.

During the time period for which we have complete assessment information (the second half of 1999 through the first half 2002), on average, 28% of centers in Broward County had assessment scores (i.e., were participating in the CCDF-subsidized child care program). Assessment scores for these centers provide valuable information about the changes in the quality of care received by children in subsidized child care that are associated with the placement of inspections on the Internet. However, the results obtained using these scores only pertain to subsidized centers and may not be generalizable to centers that were not participants in the subsidized child care program.

On a possible scale of 100, the mean overall assessment score for Broward centers participating in the subsidized child care program was 89 before reports were placed on the

internet and 91 after. This difference in scores represents an improvement of .36 of a standard deviation⁸ and is significant at any normal level of statistical significance (T-value=3.80; p-value=.0002). The size of this observed difference is comparable to the size of before-and-after differences often observed in association with early care and education programs instituted to improve classroom environment or the curriculum.

We observe increases in mean overall assessment scores for each half-year period for which they were available. Specifically, mean scores went from 88.8 in the second half of 1999 (the first period for which data were available) to 91.5 in the first half of 2002.

The secular increase in mean overall assessment scores that we observe may have resulted from some trend (possibly one similar to grade inflation at universities) rather than as a result of placement of inspection reports on the Internet. To control for this possibility, we regressed assessment scores on a set of binary variables for each time period and a binary variable equal to one after reports were made available on the Internet and zero before. The time period binaries control for any underlying trend or other period-specific effects. Results indicate that, controlling for time period effects, mean overall assessment scores increased by 2.7 points after inspection reports were placed on the Internet. This increase is significant at any normal level of statistical significance (T-value=3.70; p-value=0.000).

It is possible that some change other than placing inspection reports on the Internet or a time related effect was responsible for the increase in assessment scores. To examine this additional possibility, we use overall assessment scores for providers participating in the subsidized child care program in the northern third of Miami-Dade County (MDC). MDC is adjacent to Broward County, and it is located directly south of it. The northern third of MDC has the same 4C subsidy management agency (Family Central, Inc.) as does Broward County.

However, child care provider inspections in MDC are carried out by the Florida Department of Children and Families (DCF).

Provider inspection reports for MDC are less directly accessible on the web and accessed considerably less frequently than the inspection reports in Broward.⁹ Unlike Broward County, which set its own child care standards and carries out its own inspections, MDC's child care standards are set by the State. The local office of the Florida Department of Children and Families (DCF) carries out inspections to enforce the State's minimum standards. For most of 2001, these inspection reports for MDC child care providers were only available to individuals coming in person to the local DCF office in downtown Miami. In July 2001, DCF began computerizing inspection reports and in late 2001 DCF began placing the reports on the Internet.

Using the combined assessment scores from Broward County and from the northern third of MDC, we carried out what is called in the economics literature a difference in differences analysis. Results are reported in Table 3. To carry out this analysis, we first calculated the difference in scores for both areas before and after inspection reports were placed on the web in Broward. As can be seen in Table 3, the mean assessment score in Broward increased by 1.55 points after Broward inspection reports were placed on the Internet. The mean assessment score in MDC decreased by 0.05 points after Broward inspection reports were placed on the Internet. Taking the difference between these two differences, we obtain the difference in differences estimate: an increase in assessment scores of 1.6 points following the placement of Broward inspections on the Internet. This estimate controls for any changes that may have affected both Broward and the northern part of MDC (e.g., change in the subsidy agency's policies, change in labor market conditions).¹⁰

Finally, we carry out a regression that uses (1) the comparison with the northern part of MDC to control for unobserved policy or economic differences between Broward and the northern part of MDC and (2) period binaries to control for time-varying effects. The regression indicates that, controlling for both unobserved differences in our two study areas and time-varying effects, the best estimate is that placing Broward inspections on the Internet increased mean assessment scores in Broward County by 2.82 points, that is, by about one-half of a standard deviation. This result is significant at any normal level of statistical significance (T-value=4.07; p-value=0.000).

9. Conclusions

We provide substantial evidence that placing child care inspection and complaint reports on the Internet in a ***readily located and accessible format, when combined with media coverage of availability***, is associated with changes in the behavior of child care inspectors and in the quality of child care available in the community. We suspect that displaying the inspectors' names and contact information prominently on the first page of the computerized reports contributed to the change in inspector behavior.

We found that inspectors perform more inspections and provide more mixed reviews of centers after inspection and complaint reports are made available on the Internet. In addition, the quality of child care received by subsidized children, as judged by observational measures of center management and classroom environment, increases significantly after inspection and complaint reports are placed on the Internet. While the magnitude of the increase in quality is moderate (i.e., an increase of about one-half of a standard deviation in observational assessment scores), it is comparable to improvements often achieved by more expensive approaches such as improvements of classroom environment or the curriculum.

There are increasing numbers of low-income children in child care as a result of welfare reform, and greater emphasis is being placed on their school readiness. The fact that we observe an increase in quality associated with the placement of inspection reports on the Internet in centers serving subsidized, low-income children is a matter of substantial public policy interest.

To be more specific, we find that, after placing inspection reports on the Internet: (1) inspectors significantly increase the number of inspections they perform; (2) inspectors are significantly more likely to give centers a mixture of passes and failures on routine inspections, rather than all passes or all failures and (3) inspectors are also significantly more likely to give some violation notices and some administrative fines, as opposed to always giving them or never giving them.

To measure the quality of care, we use data from comprehensive observational assessments of providers participating in the program to provide subsidized child care to eligible low-income children. Such assessments are generally carried out twice per year and cover both center management and classroom environment. After controlling for both time trends and other unobserved policy, economic or other differences between our two study areas, we estimate that the overall assessment scores received by centers providing subsidized child care in Broward County increased by 2.82 points (about one-half of a standard deviation) after inspection and complaint records were made available on the Internet. Because we only have observational measures of quality for the 28% of centers in Broward participating in the subsidized child care program, these results may not generalize to centers not participating in this program.

Independent of the inspection system, the only other quality information that we have available on *all* providers is accreditation information. We find that providers were more likely

to be accredited after inspection reports (containing information on the provider's Florida Gold Seal accreditation status) were made available on the Internet. However, only Broward Gold Seal accreditation increased significantly (significant at the .05 level) after placement on the Internet.

We can use economic theories to speculate as to why inspectors changed their behavior and how this change in inspector behavior affected the quality of child care. According to benevolent government theories, inspectors may be primarily interested in effectively enforcing minimum standards. Under bureaucratic shirking theories, they may be mainly interested in leading as easy and comfortable a life as possible. Our guess is that most inspectors, like most human beings, have a mixture of these two motivations. Regulatory capture theories also indicate that regulated firms (in this case, child care centers) will try to control inspectors and have them behave in ways that are beneficial to the firms.

We speculate that the significant decrease in the likelihood that centers would pass all routine inspections after reports were placed on the Internet could result either from lessened regulatory capture or from increased inspector effort and attention to enforce minimum standards as a result of the greater impact and visibility of their work. The significant decrease in the probability that centers would fail all routine inspections may well be the result of providers fearing the economic consequences of a string of failed inspection reports placed in plain public view.

Increases in the quality of care provided associated with the placement of inspection reports on the Internet have a number of potential explanations: (1) parents voted with their feet and left centers with low quality and such centers went out of business, (2) parents or advocates pressured failing centers to improve, (3) the changed behavior of inspectors pressured centers to improve or (4) inspectors had increased leverage to compel centers to

improve quality as a result of being able to make failures more widely and easily visible through the Internet.

In our short period of observation, we find no significant evidence that parents voted with their feet and removed their children from centers that failed inspections. We also find no significant evidence that parents placed increased pressure on failing centers to improve the quality of care they provide.¹¹ This leaves us with the explanation that the improved quality of child care that we observe was primarily the result of some combination of inspector's increased leverage or pressure on providers to improve quality or lessened regulatory capture.

References

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Table 1								
Broward County Children's Services Administration Division								
Monthly Hits - all web pages								
<u>2000</u>		<u>Hits</u>		<u>2001</u>	<u>Hits</u>		<u>2002</u>	<u>Hits</u>
Jan.		42728		Jan.	56260		Jan.	78545
Feb.		25783		Feb.	56543		Feb.	75879
Mar.		26785		Mar.	63108		Mar.	79628
Apr.		22937		Apr.	66888		Apr.	82834
May.		33068		May.	63532		May.	82823
Jun.		34629		Jun.	58198		Jun.	82823
Jul.		31258		Jul.	61276		Jul.	85446
Aug.		39024		Aug.	67665		Aug.	70384
Sep.		35949		Sep.	138515		Sep.	65837
Oct.		42933		Oct.	107364		Oct.	82028
Nov.		49233		Nov.	63924		Nov.	60792
Dec.		39731		Dec.	53627		Dec.	161290
Total per year		424058			856900			1008309
Avg. per month		35338.17			71408.33			84025.75

Table 2		
Outcomes Before and After Internet		
(Number of Inspections in Parenthesis)		
Outcome	Probability Before	Probability After
Fail All Inspections	5.42% (n=61)	2.02% (n=36)
Pass Some; Fail Some	24.69% (n=278)	38.59% (n=689)
Pass All Inspections	69.89% (n=787)	59.41% (n=1061)

Table 3			
Differences & Differences in the Differences			
(P-Values in Parentheses)			
	Mean Score	Mean Score	P(After)-
	Before	After	P(Before)
Broward	89.22	90.77	1.55
			0.00
North Dade	91.46	90.40	-0.05
			-0.06
Difference in the Differences			1.600
(Broward(After)-P(Before))-(North-DadeP(After)-P(Before))			(0.00)

Endnotes

¹ The Sections in the Division are: Contract Administration & Planning, Child Care Licensing & Enforcement and the Sexual Assault Treatment Center. Only the Child Care Licensing & Enforcement Section had a major change in Internet offerings between 1999 and 2002.

² See Mueller (1996) for a summary of these models and Beck, et al. (2003) for an assessment of the relative usefulness of these models for bank supervision.

³ The increase in the number of inspectors between 2000 and 2001 likely was related to the increase in the number of licensed facilities in Broward, from 501 in September 2000 to 522 in September 2001.

⁴ Our measure of failure is the failure rate for the center's inspections for the 7 months preceding the academic year under consideration.

⁵ Family Central is the Community Child Care Coordinating (4C) agency in charge of administering the subsidized child care program in Broward County and in the northern one-third of Miami-Dade County in Florida.

⁶ Child care providers are awarded Broward Gold Seal status on a yearly basis by the Broward County Child Care Licensing and Enforcement Section of the Bureau of Children's Services, Human Services Department. Selection depends on fulfillment of 9 different criteria, including passing four routine inspections meeting all criteria, having an average of 95% or higher percentage of children's records, and having no founded complaints. Approximately 25% of centers in Broward have the Broward Gold Seal designation.

⁷ It is important to note that the subsidy management agency in Broward County is completely independent of the inspection and complaint office.

⁸ The overall standard deviation of assessment scores is 5.5 points.

⁹ The computerized inspection reports for the 59 out of 67 Florida Counties in which DCF is responsible for carrying out child care provider inspections were placed by DCF in a centralized statewide website. At the time we accessed the web reports while writing this paper, the reports did not include the name, address or telephone number of the inspector or other contact information for DCF. We are not aware of any public notice or media coverage when the inspection reports were placed on web. Further, the DCF database is difficult to access directly, except through links provided by local organizations. In Miami-Dade, a link is provided under the category of "child care provider search" in the Teach More/Love More website funded by The Early Childhood Initiative Foundation. Typing "Miami-Dade child care" in the command line of an Internet Browser program is likely to elicit the Teach More/Love More website, which parents may or may not connect in their minds with accessing child care provider inspection reports. However, once parents looking for provider information arrive at the Teach More/Love More website, they are likely to click on "child care provider search" or on "How can I check out a child care provider?" If they click on "child care provider search," they arrive at the DCF inspection and complaint database. If they click on "How can I check out a child care provider?" they are given the phone number for the local licensing office of DCF, where records are kept on all licensed facilities. The hit counter for the Florida DCF website where the statewide inspection reports reside read 158,918 when we accessed it while writing this paper. Although the site contains inspection reports for 59 Florida counties, including Miami-Dade, which is the largest county in Florida, the site has been visited less over the year and a half year period since inception than the Broward site was visited in the month of December 2002 (see Table 1).

¹⁰ Discussions with representatives from the Broward County Child Care Licensing and Enforcement Office and from Family Central, Inc. did not reveal any child care policy changes (exclusively affecting Broward County and not North Dade) that were implemented around the time inspection reports were placed on the web in Broward. Quality and technical assistance funds were not segregated out until the 2002-2003 contract year; therefore, it was not possible at this time for Family Central to discern if there was a difference in their funding resulting in increased quality and technical assistance activity starting specifically around the time inspections were placed on the web in Broward, but such coincidence

is highly unlikely. The child care licensing and inspection staff and Family Central's staff in Broward County have a long history of consultation and coordination of activities, including occasional joint meetings and shared cellular telephones for emergencies. Additionally, Family Central in Broward often recruits guest speakers from the Licensing and Enforcement Office for their CDA classes to speak on ordinance issues and has linked electronically its database with the inspection databases. These established mechanisms enable the staff of the two agencies to share information and concerns. In the northern part of MDC, the subsidy administering agency works to help family child care providers to become licensed and sends complaints to DCF's licensing office when it notes violations or allegations of abuse/neglect. However, coordination between the subsidy administering agency and the licensing office in MDC on other matters traditionally has not been as close as the coordination between these two agencies in Broward County. This may be due, at least in part, to the fact that licensing and inspections is a local agency in Broward, while it is part of a large state bureaucracy in MDC.

¹¹ Many low-income parents with children receiving child care subsidies had limited access to the Internet in 2001. Thus, it is not likely that placing inspection reports on the web would significantly and directly affect their behavior. Our findings reinforce this view.