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13 January 2017

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Abstract

In late June 2013, the city of Louisville, Kentucky, announced plans to provide restaurant health inspection data to Yelp.com for publication on their popular online consumer-review forum. These data were already publicly available on the city's website. I utilize this partnership to test whether an increase in the salience of disclosed quality information on a particular product attribute, induces sellers to improve product quality along that dimension. Consumers use Yelp to gather information on many characteristics of a restaurant's product. Consumers depend less on Yelp to learn about chain-affiliated restaurants, because much of this information is conveyed through the chain's reputation. Using data from over 11,000 Louisville restaurant health inspections, I compare health inspection performance for independent and chain-affiliated restaurants, before and after the announcement of the partnership. Controlling for a variety of factors, I estimate that this increased salience caused substantial improvement in independent restaurant hygiene. The average treatment effect is estimated to be a 12-14% decrease in health score point deductions, and a 29-37% decrease in critical violations (those deemed to be the greatest public health risk), per inspection. The effect of the Louisville-Yelp partnership on health score point deductions is entirely evident in restaurants' first inspections following its announcement, where the estimated effect is a 14-16% relative decrease.

JEL: L15, I18, K32
Keywords: cost of information acquisition, salience, mandatory disclosure, product quality, restaurant hygiene

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1 Introduction

Foodborne illness is a persistent public health issue in the United States. In 2011, the Centers for Disease Control and Prevention (CDC) estimated that foodborne illness makes 48 million Americans (about 1 in every 6) sick every year, resulting in roughly 128,000 hospitalizations, and 3,000 deaths.[1] Moreover, the CDC estimates that in 2013, restaurants accounted for 60 percent of the foodborne illness outbreaks in the US that had a single known food preparation source.[2]

Jin and Leslie (2003) find that the display of hygiene grade cards in restaurant windows, which was required by Los Angeles County in 1998, corresponded with a 5.3 percent increase in restaurant inspection scores, suggesting that restaurants improved hygiene quality in response to the policy change. Restaurant hygiene is an example of a product attribute for which a mandatory disclosure policy should motivate sellers to improve quality. All else the same, consumers likely prefer restaurants with better hygiene, but substantial information asymmetries exist. Save for extremes, variation in hygiene across restaurants is typically imperceptible to consumers, both before and after purchase. By reducing these information asymmetries, mandatory disclosure of hygiene information should result in consumers substituting toward cleaner restaurants. In anticipation of (or reaction to) this consumer response, restaurants with poorer hygiene should invest in improving hygiene quality. Also, in light of consumers being better informed of hygiene quality, cleaner restaurants should attempt to at least maintain their existing levels of cleanliness. Moreover, cleaner restaurants with anything less than a perfect hygiene rating may expect that mandatory disclosure increases the marginal benefit of improving hygiene, and also invest in doing so.

In light of the aforementioned statistics, and because foodborne illness due to improper food handling/preparation/storage can be prevented, the Jin and Leslie (2003) result makes mandatory disclosure policies an understandably attractive regulatory tool. If effective in

[1] See `http://www.cdc.gov/foodsafety/foodborne-germs.html`.

[2] See Centers for Disease Control and Prevention (2013), or `http://www.cdc.gov/features/foodborne-diseases-data/`.

inducing this salutary seller response, mandatory disclosure policies would seem a relatively inexpensive method for improving the quality of certain product attributes (like, *e.g.*, safety) in a variety of industries.[3] However, unlike the salutary seller response found by Jin and Leslie (2003), Ho (2012) finds that similar policies in San Diego and New York had no effect on restaurant hygiene or the incidence of foodborne illness, making the evidence regarding the effectiveness of such policies mixed. It is important to remember that these mandatory disclosure policies, and the regulatory regimes implementing them, are not identical. Moreover, seller response will depend on the extent to which a given disclosure policy reduces the existing information asymmetries. Thus, seller response to mandatory disclosure may depend on many aspects of a given policy, especially the manner in which the disclosed information is presented to the public.

In this paper, I exploit a partnership between Yelp.com, a popular online consumer-review forum, and the city of Louisville, Kentucky, to test the impact of information salience (*i.e.*, the prominence/visibility to consumers of disclosed information when they make decisions) on the provision of product quality by sellers. Disclosed product quality information may not factor in consumer decisions if it is relatively costly to acquire or difficult to process,[4] and information salience has been found to affect consumer choices in a variety of settings (see *e.g.*, Chetty et al. (2009), Bollinger et al. (2011), or Luca and Smith (2013)). The desired seller response to mandatory disclosure will be diminished or absent if sellers suspect that consumers will remain uninformed even after product quality information has been disclosed. As such, information salience may be an important consideration in the design of mandatory disclosure policies, and the effectiveness of existing disclosure policies may be improved with modifications aimed at increasing the salience of already-disclosed information.

In late June of 2013, the city of Louisville, Kentucky, announced plans to provide restau-

[3]Presumably, this is relatively less expensive than measures which would require the employment of additional inspectors, like increasing the frequency or duration of routine inspections.

[4]This information may be costly to acquire if consumers must go inside the establishment, or search city/county websites to learn about a restaurant's most recent health inspection. The information may be difficult to process if the scale or criteria for scoring are unclear, or if there is little variation in scores across restaurants.

rant health inspection data to Yelp.com for publication on their website. At that time, the information was already publicly available on the city's website, and had been for several years. Thus, the partnership between Louisville and Yelp did not change the extent of restaurant hygiene information available to consumers. Rather, it increased the salience of this information for consumers using Yelp when deciding where to eat. Many such consumers would, as a result of the partnership, become informed of restaurants' hygiene despite visiting Yelp with no intention of acquiring such information.

I use the partnership between Louisville and Yelp to test how sellers of a multi-attribute good (food service), respond to the increased salience of information regarding a particular attribute of their product (hygiene). Variation in information salience results from the fact that, with regard to collecting information on restaurants, consumer use of Yelp has been shown to focus predominately on "independent" restaurants (those not affiliated with a chain).[5] In other words, the increased salience of hygiene information is greater for independent restaurants, because consumers are less likely to look up, for example, an Olive Garden or T.G.I. Friday's on Yelp.

Consumers use Yelp to gather information on multiple characteristics of a restaurant's product, such as food quality, types of dishes, prices, and so on. The restaurant chain however, by conferring the reputation of a brand upon member establishments, predates Yelp as a mechanism for conveying such information. Therefore, Yelp's primary benefit to consumers (the provision of product quality information) is diminished with regard to chain-affiliated restaurants, and consumer use of Yelp to collect restaurant information should focus mostly on independent establishments, which do not share the reputation of a national or regional chain. Thus, compared to chain-affiliated restaurants, revenue for independent restaurants will be more sensitive to information published on Yelp, all else the same. Luca (2016) empirically documents this by showing that although revenue for independent restaurants in Seattle, Washington, is very sensitive to their Yelp consumer ratings, revenue for

[5]See Luca (2016).

chain restaurants is effectively unresponsive to changes in their Yelp rating.[6] So while the Louisville-Yelp partnership may increase the salience of hygiene information for all Louisville restaurants, the increase should be largest for independent restaurants. Similarly, while this policy change may increase the sensitivity of revenue to health inspection performance for all Louisville restaurants, the increase in sensitivity will be greater for independent restaurants than for those with chain affiliations.

Empirically, I collect detailed data from more than 11,000 Louisville Metro Department of Health and Wellness (DHW hereafter) restaurant inspections, which span January 2011 to January 2016.[7] I estimate the effect of the increased information salience on restaurant hygiene using a difference-in-differences approach. I compare the health inspection performances of independent and chain-affiliated restaurants, before and after the announcement of the Louisville-Yelp partnership (LYP hereafter), and find that the increased information salience led to substantial hygiene improvements. Controlling for a variety of restaurant and inspection-specific factors such as the age of the restaurant, the day of the week, and the inspector conducting the inspection, I estimate that the increased salience caused about a 12 to 14 percent relative decrease in point deductions (from a 100 point inspection score) among independent restaurants. The effect on deducted points is largest in restaurants' first inspections following the announcement of the LYP, where there is a relative decrease among independent restaurants of anywhere from 14 to 16 percent, and after which there are only slight fluctuations.

I also assess the effect of the LYP on "critical" violations of the Louisville DHW health code, because these are the violations that the DHW deems most likely to cause foodborne illness. Using the same estimation approach employed with deducted points, I estimate that over the course of July 2013 to January 2016, the LYP led to a 29 to 37 percent relative

[6] By exploiting discontinuities created by Yelp's rounding of average ratings to the nearest half-star, Luca estimates that a one-star increase in Yelp rating causes a 5 to 9 percent relative increase in revenue for independent restaurants in Seattle. However, a one-star change in Yelp rating has a statistically insignificant and very small effect on revenue for chain-affiliated restaurants.

[7] This the effective span of the data on restaurant inspections. There are, however, 9 observations which come from 2007 to 2010.

decrease in critical violations per inspection among independent restaurants. Given that critical violations carry the highest probability of causing foodborne illness, these results are especially striking.

In the space that follows, I review the announcement and nature of the LYP, and the data used in this paper. This is proceeded by a discussion of my estimation strategy and tests of the assumptions that underly it. I then present the main results from estimation, and conclude with several checks of the robustness of my main results.

2 Overview of the Louisville-Yelp Partnership

On June 26, 2013, the Louisville Mayor's office issued a press release announcing that Louisville was partnering with Yelp to incorporate restaurant health inspection scores into their popular consumer-review site.[8] At the time of the announcement, the plan was to begin incorporating these scores later that same summer, and this was well underway by August of 2013.[9] The Louisville Metro DHW conducts unannounced health inspections of restaurants and other non-restaurant establishments which handle food (*e.g.* grocery stores or hospital cafeterias). Inspectors record any detected violations of the health code, and restaurants are then given a corresponding inspection score out of 100.

For the purposes of this paper, an important aspect of the LYP is that it did not change the type or extent of hygiene quality information available to the public. The data provided to Yelp by the Louisville DHW has been available online at the city's open data portal since 2011, and on the city's website prior to that.[10] Because health inspection histories for restaurants were already publicly available, the LYP did not increase the provision of restaurant hygiene information. Rather, it increased the salience of this information for

[8] The press release from the city of Louisville is found at `http://www.gotolouisville.com/media/news-releases/news-details/index.aspx?nid=978`.

[9] See `http://louisville.eater.com/2013`.

[10] The city of Louisville open data portal is found online at `http://portal.louisvilleky.gov/service/data`. Prior to the launch of the open data portal, restaurant inspection scores could be found at `http://portal.louisvilleky.gov/applications/RestaurantInspectionScores`.

consumers who use Yelp when deciding where to eat.

Yelp publishes a Louisville restaurant's most recent health inspection score on the top page of an establishment's review profile. This means that the most recent health inspection score is prominently displayed, and visible when consumers first land on an establishment's Yelp profile. As seen in Figure 1, the most recent health inspection score is found in a box on the right side of the profile's top page. The restaurant's hours of operation, price range, and a link to their menu are found in this same box. Immediately to the right of the most recent score is a hyper-link labeled "Health inspection". Clicking on this hyper-link takes consumers to a page like the one displayed in Figure 2. There, the date and type of the establishment's most recent health inspection are provided, along with a description of any detected violations. Below that, the restaurant's "Health Inspections" page gives a table with similar information from their prior inspections.

It is worth emphasizing that it is a restaurant's most recent inspection score as opposed to an average score, that is posted on their Yelp profile, and that visitors must navigate to a separate page to view a restaurant's health inspection history. This means that regardless of whether a restaurant's health inspection history is good or poor, any future changes in the hygiene quality information displayed atop their Yelp profile will be determined only by their performance on their next inspection. Thus, for restaurants whose revenue is sensitive to information on Yelp, the LYP should increase the expected cost of performing poorly on their next health inspection, regardless of whether their health inspection history is good or poor. This is because it will be the most recent score that most influences perceived hygiene among visitors to a Yelp profile.

3 Data Collection and Sample Construction

The data used in this paper are collected from the city of Louisville's online open data portal.[11] I merge information from the city's datasets titled "health inspections", "estab-

[11]The Louisville Metro Open Data Portal is referenced as Louisville Metro Government (2016).

lishments", and "inspection violations" to form my initial raw dataset of 36,821 total observations on 5,649 unique establishments. Each observation is an inspection conducted by the Louisville DHW. Observations include the date of the inspection, the name of the establishment inspected, an identification number for the establishment, and the name, address, opening year, number of seats, and type of the establishment. Observations also include the number of violations detected, the restaurant's overall inspection score (out of 100), and an identification number for the DHW employee who conducted the inspection.

I clean and parse the raw data over several steps to arrive at the sample used in estimation. First, I keep observations from regular/routine inspections only, and drop all observations from follow-up or other unconventional inspection types. This leaves data on 33,954 inspections conducted by the DHW on 5,442 different establishments. The raw data from the city go back as early as 2006. However, observations on restaurants effectively begin in 2011.[12] I keep only observations from establishments that had at least two inspections before the announcement of the LYP, and at least one inspection after. I mark the post-announcement period as beginning July 1, 2013.[13] This leaves 26,087 inspections conducted on 3,159 establishments.

Within the remaining sample, there are a total of 11,424 observations on 1,259 different restaurants. There are also 14,672 observations on 1,900 different non-restaurant establishments. These non-restaurant observations are from establishments such as retail food stores, hospital cafeterias, food processing plants, charitable food kitchens, *et cetera.* The primary sample used in estimation consists of observations on restaurants only. As a robustness check, estimates are repeated with observations from some of the non-restaurant establishments included to create alternative comparison groups.

In Louisville, food service establishments are supposed to receive routine or "regular" inspections every 180 days, approximately. Naturally, restaurant inspections within the sample

[12] There are 9 observations on restaurants prior to 2011: 2 in 2007, 1 in 2008, 3 in 2009, and 3 in 2010.

[13] Although the city's statement was released Wednesday June 26, 2013, I mark the post-announcement period as beginning the following Monday, to allow for this information to spread.

often occur at intervals substantially shorter or longer than 180 days, presumably, to prevent restaurants from anticipating when their next inspection will occur. Among 10,158 observations on restaurants, the average elapsed time between inspections is 191.24 days, with a standard deviation of 55.29 days.[14] "Follow-up" inspections occur after a restaurant fails a routine inspection. They are conducted at the request of the restaurant, and are supposed to occur within 10 business days (14 days total) of the request for a follow-up inspection. A routine inspection is failed if a restaurant has committed a critical violation or receives an overall inspection score below 85 (out of 100).

Among the remaining 11,424 inspections of restaurants, I identify 25 observations which appear to have been follow-up inspections that were miscoded as regular inspections. Among the 10,158 observations where this information is available, there are only 26 inspections which occurred within 16 days of the restaurants' previous inspections, 25 of which followed failed inspections. That is, the inspections preceding these 26 observations were failed at a frequency of 0.9615. Among all 10,158 observations, inspections are failed at a frequency of 0.0668. In light of that severe contrast, and because they meet the Louisville DHW definition of follow-up inspections, I exclude the 25 inspections which occurred within 16 days of failed inspections.[15] The exclusion of these observations leaves a final sample of 11,399 restaurant inspections.

For each observation, my data include the number of detected violations, as well as an overall inspection score. Violations are categorized as critical and non-critical, with critical violations being those deemed to pose more serious health risks. The inspection score is a function of the number critical and non-critical violations detected. No detected violations of any type results in a maximum score of 100. Each non-critical violation results in a 1 or 2 point deduction, and each critical violation results in a 4 or 5 point deduction. This relationship between critical violations, non-critical violations, and overall inspection score

[14]For restaurants' initial observations in the sample, the time elapsed because their prior inspections is unobserved, hence the 10,158 observations.

[15]Note also, that 16 days elapsed because previous inspection lies about 3.17 standard deviations away from the mean, and 99.74 percent of the 10,158 observations on days elapsed were greater than 16 days.

is presented in Figure 3. It is important to note that for a given violation of the health code, there is a prescribed point deduction. Thus, for a given set of detected violations, the inspector has no discretion over the score assigned to the restaurant.

The inspection score, because it weights different violations according to the health risk they pose, is a more informative measure of restaurant hygiene than a simple count of detected violations. Inspection score is bounded from above at 100. However, this is not the result of truncation or censorship. Rather, an inspection score of 100 results from an observation of 0 violations, and thus, 0 points deducted from a score of 100. For this reason, I use deducted points as the primary dependent variable in my empirical analyses. Figure 4 shows the distribution of deducted points among the final sample.

Among the final sample of restaurants, I use establishment names to account for which restaurants are chain-affiliated and which are independent. A complete list of the establishment names sorted as chain-affiliated is provided in Tables A9 and A10 of the Appendix. The final sample includes 4,992 observations on 534 chain-affiliated restaurants, and 6,407 observations on 725 independent restaurants. Summary statistics are provided in Table 1.

4 Empirical Strategy

4.1 Identifying Seller Response to Changes in Information Salience

To identify the effect of information salience on restaurant hygiene, I compare the health inspection performances of independent and chain-affiliated restaurants, before and after the announcement of the LYP. This exploits the underlying difference in the salience of information on Yelp between independent and chain-affiliated restaurants.

My initial outcome variable, $DeductedPts_{i,t}$, denotes the number of points deducted (from 100) for restaurant i during their t^{th} inspection of the sample. I begin by estimating the effect of the LYP on restaurant hygiene with simple difference-in-differences. These estimates of deducted points per inspection, before and after the LYP announcement, are provided in

Table 2. They show that, even before accounting for any other restaurant or inspection-specific characteristics which might affect inspection scores, the LYP is estimated to cause an 11.12 percent relative decrease in deducted points among independent restaurants.

To control for a variety of characteristics which may affect deducted points, I specify the following linear model:

$$DeductedPts_{i,t} = \beta_1(Post_{i,t} \times IND_i) + \beta_2 Post_{i,t} + \beta_3 t_{i,t} + \boldsymbol{X_{i,t}}'\boldsymbol{\beta} + b_i + \epsilon_{i,t}. \tag{1}$$

IND_i is an indicator variable equal to 1 if restaurant i is independent (*i.e.* not affiliated with a chain), and equal to 0 if restaurant i is chain-affiliated. $Post_{i,t}$ is an indicator equal to 1 if the t^{th} inspection for restaurant i occurs after the LYP announcement, and equal to 0 otherwise. The variable $t_{i,t}$ is a linear trend equal to t in the t^{th} inspection of the sample for restaurant i. The vector $\boldsymbol{X_{i,t}}$ includes several restaurant and inspection-specific controls.

Under an initial specification, the restaurant-specific controls in $\boldsymbol{X_{i,t}}$ are IND_i, the establishment's logged number of seats, and fixed effects for the year in which the establishment opened, and the restaurant's zip code.[16] The inspection-specific controls included in the initial specification are the logged age of the restaurant at the time of the inspection,[17] and indicators for the day of the week in which the inspection occurred, and the inspector who conducted the inspection. Recall that t denotes a restaurant's t^{th} inspection in the sample. However, my data include many restaurants which opened before the start of the sample. Because these restaurants' first inspections in the sample are likely not their first inspections ever, I include logged age to account for changes in $DeductedPts_{i,t}$ over time that are associated with a restaurant's experience, and thus, not accounted for by $t_{i,t}$. Under this initial specification, which does not include restaurant fixed effects, $\boldsymbol{X_{i,t}}$ includes an intercept term.

Under my preferred specification for equation (1), I replace all time-invariant controls in

[16] In my data, the number of seats is time invariant for all restaurants. Thus, it is only a restaurant-specific, as opposed to an inspection-specific, characteristic.

[17] Age is measured in years and starts at 1. That is, when a restaurant opens, and is in their first year of operation, their age is counted as 1.

$\boldsymbol{X_{i,t}}$ with restaurant fixed effects. I also estimate equation (1) under a third specification in which two additional controls are added. One, $DiffInspector_{i,t}$, is an indicator equal to 1 if the inspector conducting the t^{th} inspection for restaurant i, is different than the inspector who conducted the restaurant's $(t-1)^{th}$ inspection. I include $DiffInspector_{i,t}$ because Jin and Lee (2014a) and Jin and Lee (2014b), which study restaurant inspections in Florida, find evidence that inspectors who did not conduct a restaurant's previous inspection, detect more violations. The other control included in this third specification is the logged value of the number of days elapsed since a restaurant's last inspection. A drawback to this specification is that for all observations where $t = 1$, the values of both of these additional controls are unknown, and these observations must be dropped in estimation.[18] Thus, the second specification discussed is the preferred specification. However, this third specification produces similar estimates for the parameter of interest, β_1.

Finally, because $DeductedPts_{i,t}$ is discrete and non-negative, I also estimate these specifications under a Poisson model. Both the linear and Poisson models produce very similar results. Before proceeding to these results, I provide evidence supporting the "parallel trends" assumption that underlies this identification strategy.

4.2 Testing Underlying Assumptions

An assumption underlying my empirical approach is that, in the absence of the LYP, deducted points among independent and chain-affiliated restaurants would have maintained a common pre-existing trend after June of 2013 (when the LYP was announced). To assess the validity of this assumption, I test whether deducted points among independent and chain-affiliated restaurants followed similar trends in the inspections leading up to the announcement of the LYP. Specifically, I provide several pieces of graphical and regression-based evidence supporting the parallel trends assumption: that deducted points among independent and chain-affiliated restaurants followed parallel trends before the LYP announcement,

[18] Even for restaurants whose first inspection in the sample is not their first inspection ever, the values of both controls are still unknown.

and would have maintained these parallel trends had the LYP not been implemented.

First, I present graphical evidence that deducted points among these two groups followed stable and similar trends prior to the LYP announcement. In Figure 5, I plot the average deducted points for independent and chain-affiliated restaurants in inspections around the LYP announcement. On the horizontal axis, the value 0 represents a restaurant's last inspection prior to the announcement, -1 represents a restaurant's second-to-last inspection prior to the announcement, and so on. The value 1 represents a restaurant's first inspection after the announcement, 2 represents a restaurant's second inspection after the announcement, and so on. Notice that even before controlling for other restaurant or inspection-specific characteristics, the average deducted points for independent and chain-affiliated restaurants follow stable pre-announcement paths that appear fairly similar. However, because these simple averages omit many variables that might affect deducted points, I assess the trends in deducted points for independent and chain-affiliated restaurants after controlling for several restaurant and inspection-specific characteristics.

I regress $DeductedPts_{i,t}$ on several controls. The restaurant-specific controls are the establishment's logged number of seats, and indicators for the year in which the restaurant opened. Inspection-specific controls are the logged age of the restaurant at the time of the inspection, and indicators for the day of the week, and the inspector conducting the inspection. Figure 6 compares the residuals of this regression, averaged by inspections around the LYP announcement, for independent and chain-affiliated restaurants. Notice that the residuals for both independent and chain-affiliated restaurants are on very stable and similar trends prior to the announcement.

Figures 5 and 6 provide initial support for the parallel trends assumption, however, statistical tests of this assumption are also desirable. To test for the existence of different pre-announcement trends, I generate a variable, $T_{i,t}$, which is a trend variable defined using the LYP announcement as a reference point (as opposed to $t_{i,t}$, where a restaurant's first inspection in the sample is the reference point). $T_{i,t}$ equals 1 in a restaurant's fifth inspection prior to the LYP announcement, and equals $1+n$ in a restaurant's n^{th} inspection after that. Thus, for all restaurants in the sample, $T_{i,t}$ equals 5 in their last inspection before the LYP announcement, 6 in their first inspection after the LYP announcement, and so on. Using observations from the pre-announcement period only, I estimate the following equation:

$$DeductedPts_{i,t} = \alpha_1(T_{i,t} \times IND_{i,t}) + \alpha_2 T_{i,t} + \boldsymbol{X_{i,t}}'\boldsymbol{\alpha} + a_i + u_{i,t}. \tag{2}$$

Under the null hypothesis that deducted points for independent and chain-affiliated restaurants followed parallel trends prior to the LYP announcement, $\alpha_1 = 0$. I test for violations of this assumption by estimating equation (2) under the same three specifications discussed in section 4.1. I also estimate this equation under a simple specification where $\boldsymbol{X_{i,t}}$ is dropped entirely.

Estimates of equation (2) are presented in Table 3. Notice that under all specifications, the pre-announcement trend for independent restaurants is not significantly different from the pre-announcement trend among chain-affiliated restaurants. Therefore, all four specifications fail to reject the null hypothesis that deducted points for independent and chain-affiliated restaurants followed parallel trends prior to the LYP announcement.

Although the evidence just presented supports the existence of parallel pre-announcement trends across inspections, I also test whether differential quarter-year or half-year trends might have existed between independent and chain-affiliated restaurants in the pre-announcement period. Let $Q_{i,t}$ denote the quarter-year in which the t^{th} inspection of restaurant i occurred. I augment equation (2) as follows:

$$DeductedPts_{i,t} = \alpha_1 Q_{i,t} + \alpha_2(Q_{i,t} \times IND_{i,t}) + \boldsymbol{X_{i,t}}'\boldsymbol{\alpha} + a_i + u_{i,t}. \tag{3}$$

Using pre-announcement observations only, I estimate equation (3) under the same four specifications as equation (2). These estimates are reported in Table A1 of the Appendix, and all fail to reject the null hypothesis of parallel pre-announcement trends. I also estimate equation (3) under the same four specifications, with $Half_{i,t}$ replacing $Q_{i,t}$. $Half_{i,t}$ denotes the half-year in which the t^{th} inspection of restaurant i occurred. These results are provided in Table A2 of the Appendix. Again, there is no evidence of differential trends prior to the announcement of the LYP. Given that none of these specifications are able to reject the parallel trends hypothesis, I am confident that my identification strategy, laid out in equation (1), will not be confounded by different pre-announcement trends between independent and chain-affiliated restaurants.

Recall that the parallel trends assumption is that, in the absence of the LYP, deducted points among independent and chain-affiliated restaurants would have maintained a common pre-existing trend in the post-announcement period. The preceding evidence suggests that a common pre-announcement trend existed between independent and chain-affiliated restaurants. To provide further evidence supporting the parallel trends assumption, I examine whether deducted points among the chain-affiliated restaurants maintained their pre-announcement trend in the post-announcement period. I do so by estimating the following equation using both pre-announcement and post-announcement observations from chain-affiliated restaurants only:

$$DeductedPts_{i,t} = \alpha_1(T_{i,t} \times Post_{i,t}) + \alpha_2 T_{i,t} + \boldsymbol{X_{i,t}}'\boldsymbol{\alpha} + a_i + u_{i,t}. \tag{4}$$

Under the null hypothesis that the pre-announcement trend among chain-affiliated restaurants was maintained in the post-announcement period, $\alpha_1 = 0$.

I estimate equation (4) under the same four specifications used for equation (2). These estimates are reported in Table 4. Notice that across all four specifications, the coefficients on $(T_{i,t} \times Post_{i,t})$ are small and statistically insignificant. These estimates fail to reject the null hypothesis that the pre-announcement trend in deducted points among chain-affiliated restaurants was maintained in the post-announcement period. These results lend further support to the parallel trends assumption.

Finally, I provide an additional piece of evidence supporting my empirical approach, in the form of a specification check. Does the distinction between independent and chain-affiliated restaurants capture an underlying difference in the salience of information on Yelp? That is, do independent and chain-affiliated restaurants form good "treatment" and "control" groups for estimating the effect of the LYP? To evaluate this question, I regress $DeductedPts_{i,t}$ on indicators for the day of the week in which an inspection occurred, the inspector conducting the inspection, and the restaurant being inspected. In Figure 7, I plot residuals from this regression averaged by the age of the restaurant at the time of an inspection, within four groups. The upper panel of Figure 7 shows residuals among chain-affiliated restaurants, and the lower panel shows residuals among independent restaurants. Within each panel, residuals are then grouped by whether the restaurant was a given age before or after the LYP announcement, and then averaged by age within those subgroups.

Notice from the upper panel of Figure 7 that among chain-affiliated restaurants, across the different age groups, there is no discernible pattern to the difference in residuals before and after the announcement, and in many age groups, the two averaged residuals are very close to each other. However, notice from the lower panel that in every age group among independent restaurants, the average pre-announcement residual is greater than the average post-announcement residual. This shows that a distinction between the pre-announcement and post-announcement periods identifies a stark difference in hygiene (in the expected direction) among independent restaurants only. This supports the underlying assumption that the LYP increased the salience of hygiene information among independent restaurants, but that chain-affiliated restaurants are largely unaffected by, and thus largely unresponsive to, information published on Yelp. Given all the evidence supporting my empirical approach, I now proceed to my estimation results.

5 Results

5.1 The Effect of Information Salience on Deducted Points

Table 5 presents linear model estimates of equation (1) under the three specifications discussed in section 4.1. Standard errors are clustered at the restaurant level, and reported in parentheses. Notice that the estimated average treatment effect of the LYP is statistically significant, and similar in magnitude across all three specifications. Under the full specification, given in column (2), the average treatment effect is estimated to be a reduction in deducted points per inspection of 0.6706, which is substantial (recall that a non-critical violation results in a 1 or 2 point deduction). Estimates under this specification project a pre-announcement average of 4.9037 deducted points among independent restaurants, suggesting that the LYP led to a 13.68 percent relative decrease in deducted points per inspection.

Notice that under the specification reported in column (3), facing an inspector who did not conduct the restaurant's preceding inspection, is associated with a significant and substantial increase in point deductions. Specifically, an inspector who is different from the one who last inspected a restaurant, is projected to deduct 11.12 percent more points than an inspector on a repeat visit to an establishment. The sign, significance, and magnitude of this result is very consistent with the findings of Jin and Lee (2014a) and Jin and Lee (2014b). Jin and Lee (2014b) find that inspectors who are new to a restaurant detect 12.7 to 17.5 percent more violations than inspectors in their first repeat inspections of restaurants. They attribute this result to "fresh eyes" better detecting violations.

To provide a slightly different frame of reference for interpreting these results, I estimate equation (1) under the preferred specification, with the number of violations per inspection replacing deducted points as the dependent variable. This regression produces a coefficient on ($Post_{i,t} \times IND_i$) of -0.3114 (nearly one third of a violation), which is statistically significant at the 99 percent significance level. This represents a 9.89 percent relative decrease in violations per inspection among independent restaurants.

Table A3 in the Appendix presents Poisson model estimates of equation (1). Standard errors are robust to violations of the Poisson model's equidispersion assumption, and reported in parentheses. Again, estimates of the average treatment effect are statistically significant and very similar in magnitude across all three specifications. These estimates are also very similar to their corresponding linear model estimates in sign, significance, and magnitude.

These initial results suggest that the increased salience of hygiene information brought about by the LYP, had a substantial effect on the average provision of hygiene quality by independent restaurants. After accounting for pre-announcement hygiene differences between independent and chain-affiliated restaurants, the average treatment effect on deducted points appears to be anywhere from a 12.34 to 13.68 percent relative decrease. Next, I assess the effect of the LYP specifically on health code violations which are very likely to cause foodborne illness.

5.2 The Effect of Information Salience on Critical Violations. Did the Partnership Reduce Serious Violations?

The initial estimates show that the LYP resulted in better overall inspection scores among independent restaurants due to fewer health code violations. A related question then, is what types of violations were detected at lower frequencies? Presumably, the goal of city and state health codes and regular inspection of restaurants is to reduce the likelihood that diners will contract foodborne illness in restaurants. Recall that $DeductedPts_{i,t}$ accounts for both critical and non-critical violations of the Louisville health code, and weights those violations according to severity (1 to 2 deducted points for non-critical violations, and 4 to 5 deducted points for critical violations). Critical violations of the Louisville DHW health code are those which pose high public health risks, and include: spoiled food, food stored at improper temperatures, improper disposal of sewage and waste, improper dish and equipment washing, and personnel with infections not barred from working, among others.[19] Because these critical violations are more likely to result in foodborne illnesses, the effect of information salience on these more severe violations, is of particular interest.

To assess the effect of the LYP on high-risk restaurant hygiene practices, I estimate equation (1) with the number of detected critical violations (per inspection) replacing $DeductedPts_{i,t}$ as the dependent variable.[20] These estimates under the linear model are presented in Table 6.[21] Across all three specifications the estimated average treatment effect is statistically significant. Under the preferred specification reported in column (2), the average treatment effect is estimated to be a reduction of 0.0357 critical violations per inspection. Among all restaurants, there were an average of 0.1056 critical violations per inspection during the pre-announcement period, which makes the estimated average treatment effect quite substantial. Estimates from the specification in column (2) project a pre-announcement average of 0.0955 critical violations per inspection among independent restaurants, suggesting that the LYP led to a 37.38% relative decrease in critical violations per inspection.

This very large reduction in critical violations suggests that there may have been substantial public health benefits associated with the LYP. Not only did independent restaurants respond to the increased salience of hygiene information by improving health inspection scores overall, they did so in part, by reducing some of the most serious health code violations. These results suggest that the LYP led to hygiene improvements among independent restaurants that likely reduced the probability that diners would contract foodborne illness, in a meaningful way.

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[19] A complete list of critical violations can found at `https://louisvilleky.gov/government/health-wellness/about-restaurant-establishment-scores`.

[20] A battery of parallel trends tests on critical violations, identical to those covered in Section 4.2, were conducted. All tests fail to reject the null hypothesis that critical violations among independent and chain-affiliated restaurants were on different trends prior to the announcement of the LYP. The results of these tests are found in Tables A4, A5, and A6 in the Appendix.

[21] Poisson model estimates are provided in Table A7 of the Appendix. They are very similar to the corresponding linear model estimates in sign, significance, and magnitude.

5.3 The Effect of Information Salience Over Time

The initial results put forward in section 5.1 address the average treatment effect of the LYP from July 1, 2013, through to January 8, 2016. In this subsection, I evaluate how the effect of the LYP evolved over the course of the post-announcement period. There are two reasons for examining the dynamics of the estimated treatment effect. First, a pertinent question is whether the effect of the LYP on restaurant hygiene is more likely permanent or temporary. If, after several post-announcement inspections, independent restaurants suspect that their revenue is no more sensitive to health inspection scores than before, independent restaurant hygiene may return to pre-announcement levels. Examining the evolution of the estimated treatment effect may reveal whether this is occurring. For instance, if deducted points among independent restaurants begin rising over later post-announcement inspections, it might indicate that the LYP's effect is only temporary.

Second, a natural concern regarding my initial results is that they may be due to some unobserved change which occurred within the post-announcement period. To the best of my knowledge there were no other changes in the post-announcement period which would have affected Louisville restaurant hygiene. Also note that, given the quasi-experimental design of my empirical approach, for an unobserved coincident change to cause the initial results, it would have to be something that affected independent restaurants *only*. Examining whether the estimated effect of the LYP was immediate, gradual, delayed, or intermittent, can further address this concern.

Recall that some of the critical violations listed earlier were food stored at incorrect temperatures, improper disposal of waste, or improper dish washing. Other violations include improper re-serving of food, bare-hand contact with ready-to-eat food, or food from an unapproved source. I list such violations to highlight that they result from practices which restaurants should be able to remedy quickly, if motivated to do so. Thus, if the estimates presented in Table 5 indeed capture the causal effect of the LYP on restaurant hygiene, we should expect to observe some effect in inspections immediately following the LYP announcement. Whereas, if the estimated effect develops intermittently, or is not evident until the later inspections of the post-announcement period, it would raise concerns that the initial results may be due to some unobserved factor.

To allow for a time-variant effects, I augment equation (1) by including lags of $Post_{i,t}$ as follows:

$$DeductedPts_{i,t} = \left(\sum_{h=0}^{4} \left[\alpha_h \left(Post_{i,t-h} \times IND_i \right) + \beta_h Post_{i,t-h} \right] \right) + \gamma_1 t_{i,t} + \boldsymbol{X_{i,t}}' \boldsymbol{\gamma} + c_i + \epsilon_{i,t}. \quad (5)$$

This specification breaks the treatment effect down by each successive post-announcement inspection. The parameter α_0 is the change in expected $DeductedPts_{i,t}$ for independent restaurants going from the pre-announcement period to their first post-announcement inspection, minus the analogous change in expected $DeductedPts_{i,t}$ for chain-affiliated restaurants. Each successive parameter $\alpha_1, \ldots, \alpha_3$, represents the change in expected $DeductedPts_{i,t}$ for independent restaurants going from their h^{th} post-announcement inspection to their $(h+1)^{th}$, minus the analogous change in expected $DeductedPts_{i,t}$ for chain-affiliated restaurants. The parameter α_4 represents the change in expected $DeductedPts_{i,t}$ for independent restaurants going from their fourth post-announcement inspection to any subsequent post-announcement inspections, minus the analogous change in expected $DeductedPts_{i,t}$ for chain-affiliated restaurants.[22]

Linear model estimates of equation (5) are presented in Table 7, and suggest a substantial immediate decrease in point deductions among independent restaurants.[23] Recall that under the preferred specification, the estimated average treatment effect reported in Table 5 was a decrease in point deductions of 0.6706 (13.68 percent). Now, notice that this entire effect is more than evident in independent restaurants' first post-announcement inspections.

[22]Of the 1,259 restaurants in the sample, 940 (498 independent and 442 chain-affiliated) had a fifth post-announcement inspection in the sample, but only 122 (46 independent and 76 chain-affiliated) had a sixth post-announcement inspection. Because there are so few observations of a sixth post-announcement inspection, α_4 is defined as explained above.

[23]Poisson model estimates of equation (5) are presented in table A8 of the Appendix. All estimates are similar to corresponding linear model estimates in sign, significance, and magnitude.

Under the preferred specification reported in column (2) of Table 7, there is a statistically significant estimated decrease in deducted points of 0.7774 among independent restaurants in their first post-announcement inspections. These estimates project a pre-announcement average of 4.9009 deducted points among independent restaurants, suggesting that the increased salience of hygiene quality information caused an immediate 15.86 percent relative decrease in deducted points among independent restaurants. Following that immediate improvement in inspection scores, deducted points among independent restaurants fluctuates slightly from one inspection to the next, but none of these changes are significantly different from zero.

Regarding the longevity of the treatment effect, the estimates presented in Table 7 provide no indication that the effect is temporary, and within the observed post-announcement period, the effect is mostly permanent. Moreover, the stark improvement in independent restaurant hygiene immediately following the announcement suggests that this effect is very likely caused by the LYP, which provides further credibility to the initial average treatment effect estimates.[24]

6 Robustness Checks

6.1 Robustness to Alternative Comparison Groups

Recall that my initial raw data include observations on non-restaurant establishments. To test the robustness of my main results to alternative comparison groups, I now include observations from the following establishment types: child care facilities that serve food, nursing home cafeterias, hospital cafeterias, office commissaries, hotels that serve food,[25]

[24]I also estimated equation (5) under the same three specifications, with the number of critical violations per inspection replacing $DeductedPts_{i,t}$ as the dependent variable. Under all specifications the average treatment effect in the first post-announcement inspection is negative and relatively large, but none are significantly differerent from zero at conventional significance levels.

[25]These are hotels that serve food directly to their guests. Restaurants within hotels were included in the primary sample.

retail food stores, and school cafeterias. Two aspects of these establishment types make them a valid comparison group for independent restaurants. First, Yelp presently reports health inspection results for Louisville restaurants only. These other establishment types, if they have a Yelp profile at all, do not have any health inspection results published on their profiles. Second, many of these other establishments don't have Yelp profiles at all.

I begin testing the robustness of my main results to the inclusion of these additional establishment types by estimating equation (1) under the preferred specification, with the sample expanded to include these additional observations. Thus, chain-affiliated restaurants together with these additional establishment types form the comparison group. I then repeat that step with critical violations replacing deducted points as the dependent variable.

Next, I augment equation (1) as follows:

$$\begin{aligned} DeductedPts_{i,t} = \beta_1(Post_{i,t} \times IND_i) + \beta_2(Post_{i,t} \times ChainRest_i) \\ + \beta_3 Post_{i,t} + \beta_4 t_{i,t} + \boldsymbol{X_{i,t}}'\boldsymbol{\beta} + b_i + \epsilon_{i,t}. \end{aligned} \tag{6}$$

Above, $ChainRest_i$ is an indicator equal to 1 if establishment i is a chain-affiliated restaurant, and equal to 0 otherwise. Under this specification, the non-restaurant establishments form a comparison group for both chain-affiliated restaurants, and independent restaurants. I estimate this equation under the preferred specification, and then re-estimate the equation with critical violations replacing deducted points as the dependent variable. These estimates, along with those discussed in the preceding paragraph are presented in Table 8. Notice that across all four specifications, the average treatment effect estimates for independent restaurants are similar in sign, significance, and magnitude to corresponding estimates from the original sample.

6.2 Robustness to the Inclusion of Separate Trends

A further test of the parallel trends assumption and its validity, is to check whether the estimated treatment effects are robust to the inclusion of separate trend variables for independent and chain-affiliated restaurants. This will account for any pre-existing difference in trends which might confound treatment effect estimates. However, if the LYP is effective in improving hygiene among independent restaurants, as my previous estimates suggest, the resulting post-announcement observations will cause estimates of β_3 to overstate any pre-announcement difference in trends between independent and chain-affiliated restaurants. This issue can be remedied by allowing for dynamic treatment effects as done in equation (5). I augment equation (5) as follows:

$$\begin{aligned} DeductedPts_{i,t} = \sum_{h=0}^{4} \left[\alpha_h \left(Post_{i,t-h} \times IND_i \right) + \beta_h Post_{i,t-h} \right] \\ + \gamma_1 \left(IND_{i,t} \times t_{i,t} \right) + \gamma_2 t_{i,t} + \boldsymbol{X_{i,t}}' \boldsymbol{\gamma} + c_i + \epsilon_{i,t}. \end{aligned} \tag{7}$$

Estimates of equation (7) under the preferred specification and using the restaurants-only sample, are reported in Table 9. Column (1) reports estimates of equation (7) as shown above. Columns (2) and (3) report estimates of equation (7) with the trend variable $t_{i,t}$ replaced by a quarter-year trend, $Q_{i,t}$, and a half-year trend, $Half_{i,t}$, respectively. Across all three specifications, estimates of the average treatment effect remain statistically significant and similar in magnitude to estimates without the inclusion of separate trends. Moreover, on the trend variables that are specific to independent restaurants, none of the coefficients are significantly different from zero. This provides further evidence that the average treatment effect estimates provided in Tables 5 and 7 do not the result of differences in pre-announcement trends between independent and chain-affiliated restaurants.

6.3 Placebo Tests Using Lead Indicators of the LYP Announcement

As a final check on the underlying parallel trends assumption, as well as the robustness of my main results, I augment equation (1) by including leads of $Post_{i,t}$ as follows:

$$DeductedPts_{i,t} = \left(\sum_{h=0}^{m} [\alpha_h (Post_{i,t+h} \times IND_i) + \beta_h Post_{i,t+h}] \right) + \gamma_3 t_{i,t} + \boldsymbol{X_{i,t}}' \boldsymbol{\gamma} + d_i + \epsilon_{i,t}. \quad (8)$$

I estimate equation (8) under the preferred specification four separate times with $m = 1, \ldots, 4$. If coefficients on any of the leads of $(Post \times IND)$ are significantly different from zero, it would suggest that at some point in the pre-announcement period, the paths of $DeductedPts$ among independent and chain-affiliated restaurants diverged. This would call into question whether deducted points among chain-affiliated restaurants provide a reasonable counter-factual estimate for independent restaurants in the post-announcement period.

Estimates of equation (8) are presented in Table 10. All four columns report estimates under the preferred specification. Notice that across all four columns, the estimated average treatment effect remains statistically significant and fairly close in magnitude to, albeit slightly less than, the estimate reported in column (2) of Table 5. Notice also that across all specifications, none of the estimated coefficients on any of the leads of $(Post \times IND)$ are significantly different from zero. These results further support the parallel trends assumption, and also suggest that the average treatment effect estimates reported in Table 5 identify the effect of the LYP on independent restaurant hygiene, and do not result from a pre-announcement divergence in the paths of deducted points among independent and chain-affiliated restaurants.

I also estimate equation (8) with critical violations per inspection replacing deducted points as the dependent variable. These estimates are presented in Table 11. Again, all four columns report estimates under the preferred specification. Across all four columns, all estimates of the average treatment effect are very similar in magnitude to the estimate reported in column (2) of Table 6, but none of these estimates are significantly different from zero at traditional significance levels. However, notice once again that across all four specifications, none of the estimated coefficients on any of the leads of $(Post \times IND)$ are significantly different from zero. This provides further evidence that the average treatment effect estimates reported in Table 6 identify the effect the LYP on independent restaurant hygiene, and do not result from a pre-announcement divergence in the paths of deducted points among independent and chain-affiliated restaurants.

6.4 Addressing Inspector Assignment

Recall that the estimates in column (3) of Table 5 suggest that point deductions increase significantly when restaurants face a different inspector than in their previous inspection. Changes over time in how inspectors are assigned to restaurants could potentially confound my treatment effect estimates. If, for whatever reason, independent restaurants faced different inspectors at a significantly lower frequency in the post-announcement period, then some of the observed decreases in deducted points and critical violations over that period might result from independent restaurants facing repeat inspectors more often, rather than hygiene improvements.

I address these concerns by testing whether the probability of facing a different inspector (than in the previous inspection), conditional on being an independent restaurant, decreased in the post-announcement period. To do this, I specify the following linear model:

$$\mathit{DiffInspector}_{i,t} = \alpha_1(Post_{i,t} \times IND_i) + \alpha_2 Post_{i,t} + \boldsymbol{X_{i,t}}'\boldsymbol{\alpha} + a_i + \epsilon_{i,t}. \tag{9}$$

Under the null hypothesis that the probability of facing different inspector, conditional on being an independent restaurant, decreases in the post-announcement period, $\alpha_1 < 0$. I estimate equation (9) under three specifications. The first specification is simple difference-in-differences. The second includes $t_{i,t}$, logged number of seats, logged age of the restaurant, logged days elapsed, and fixed effects for zip code, opening year of the restaurant, day of the week, and the inspector conducting the inspection. The third specification replaces all time-invariant controls with restaurant fixed effects.

Estimates of equation (9) are presented in Table 12. Notice that all three specifications reject the null hypothesis at the 99 percent significance level. This evidence suggests that, among independent restaurants, the observed decreases in point deductions and critical violations in the post-announcement period are not the result of a coincident decrease in the frequency with which independent restaurants were assigned different inspectors (than in their immediately preceding inspections). In fact, independent restaurants faced different inspectors at a significantly greater frequency in the post-announcement period.

7 Concluding Remarks

Economic theory suggests a variety of conditions in which the reduction of information asymmetries regarding product quality will induce sellers to increase the provision of product quality. In practice, policies mandating the disclosure of product quality information have become a popular tool for trying to induce such a salutary seller response. This seller response will depend on the extent to which existing information asymmetries are reduced, which might explain the existing mixed results regarding the effectiveness of mandatory disclosure policies in inducing sellers to improve product quality.[26] In light of evidence that information salience affects consumer decisions in many settings,[27] a natural question is whether seller response to mandatory disclosure policies is affected by the salience of the disclosed information. This question is especially pertinent as it relates to the product quality of restaurant hygiene. Recall that foodborne illness, despite being largely preventable, is a persistent public health concern in the United States. An estimated 48 million Americans are made sick by foodborne illness annually, and restaurants are estimated to account for 60

[26] Jin and Leslie (2003) and Ho (2012).

[27] For instance, Chetty et al. (2009) , Bollinger et al. (2011), and Luca and Smith (2013).

percent of all foodborne illness outbreaks in the US that have a single known food preparation source.

Utilizing a partnership between the city of Louisville and Yelp.com, this paper demonstrates that the salience of disclosed information can substantially impact the response of sellers to mandatory disclosure policies. In 2013, the city of Louisville began providing restaurant health inspection data to the consumer-review forum Yelp.com, for publication on their website. Because the data were already publicly available on the city's website, the partnership had no effect on the extent of restaurant hygiene information available to consumers, but did increase the salience of this information for consumers who utilize Yelp in deciding where to eat. Between independent and chain-affiliated restaurants, there is an underlying disparity in the salience of information on Yelp. As demonstrated in Luca (2016), consumer use of Yelp as a means for collecting restaurant information focuses mostly on independent restaurants, because information about chain-affiliated restaurants is largely conveyed through their chain's reputation. I exploit this disparity in information salience and find that the partnership resulted in significant and substantial hygiene improvements.

Among independent restaurants, I estimate that the partnership led to a 12 to 14 percent decrease in inspection score point deductions, relative to pre-announcement levels. These hygiene improvements occurred in restaurants' first inspections following announcement of the partnership, and were persistent throughout the post-announcement period. I also find that the reduction in point deductions was partly driven by substantial (27 to 34 percent) decreases in critical health code violations, which are the violations deemed the most hazardous to diner health.

The estimated effects of the Louisville-Yelp partnership on independent restaurant hygiene show that increases in the salience of product quality information can induce sellers to significantly improve product quality, even when this information has already been publicly disclosed. From the perspective of sellers, it would appear that the simple disclosure of product quality information on a government website or in an arbitrary public area is viewed very differently from the prominent display of such information in places where consumers make purchase decisions.[28] With regard to inducing quality improvement from sellers, my findings demonstrate that information salience can have a substantial impact on the effectiveness of mandatory disclosure policies. As such, information salience should be a major consideration in the design of disclosure policies, and also appears to be an effective tool for improving existing disclosure policies.

My results are particularly promising for local health departments seeing as the provision health inspection data to Yelp is quite inexpensive. This is especially true for cities which already collect and post this data on their own websites, and also when compared with the costs of employing additional inspectors as a means of improving restaurant hygiene quality. Since the adoption of the LYP, several other cities have entered into similar partnerships with Yelp, and at present, a total of sixteen municipalities provide health inspection information to Yelp through data feeds. The Louisville partnership is empirically advantageous among these because the data were publicly available online well before the announcement of the partnership with Yelp.[29] My findings suggest that further adoption of such partnerships between cities and Yelp could yield substantial public health benefits.

[28] This is not to say that the former has no effect on sellers, but rather that the latter can have a significant additional effect the provision of product quality by sellers.

[29] Thus, the LYP provides a sufficient pre-announcement period to estimate the partnership's effect, and it also enables a test of the effect of information salience alone because the provision of information was unchanged.

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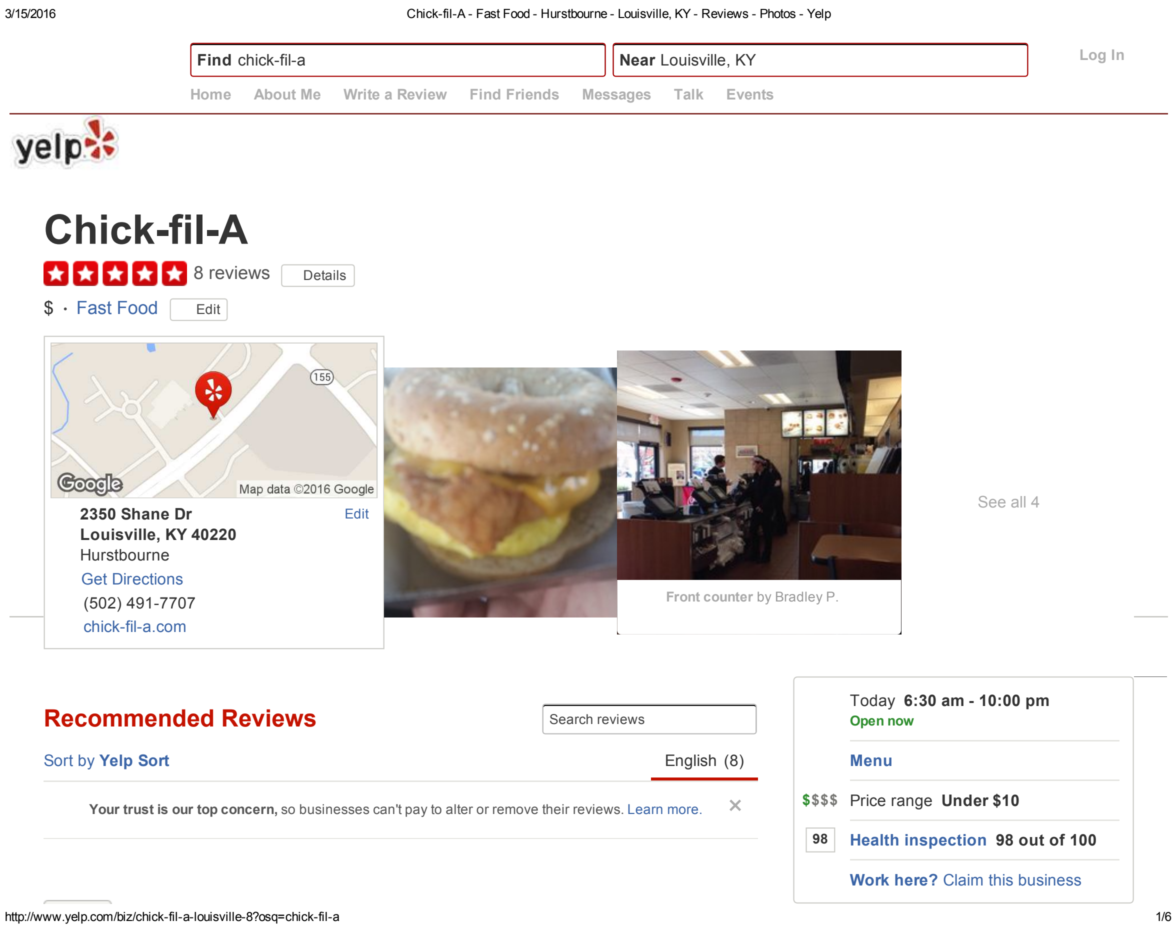
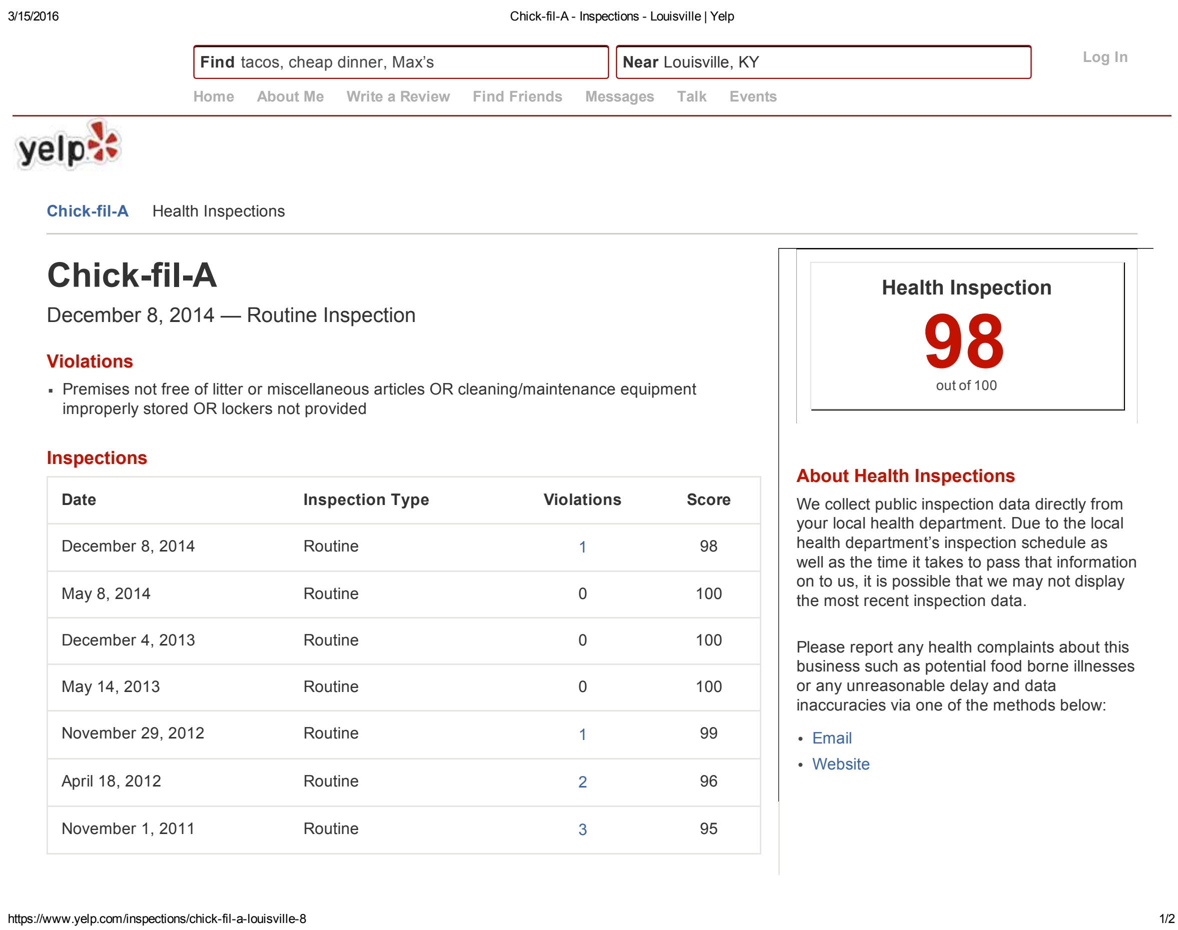


Figure 1: Top Page of an Establishment's Yelp Profile

Notice that the establishment's most recent health inspection score is found in the box at the lower right corner of this figure. This screenshot was taken on March 15, 2016, and collected online at `http://www.yelp.com/biz/chickfilalouisville8?osq=chickfila`.



3/15/2016 Chick-fil-A - Inspections - Louisville | Yelp

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yelp

Chick-fil-A Health Inspections

Chick-fil-A

December 8, 2014 — Routine Inspection

Violations

- Premises not free of litter or miscellaneous articles OR cleaning/maintenance equipment improperly stored OR lockers not provided

Inspections

Date	Inspection Type	Violations	Score
December 8, 2014	Routine	1	98
May 8, 2014	Routine	0	100
December 4, 2013	Routine	0	100
May 14, 2013	Routine	0	100
November 29, 2012	Routine	1	99
April 18, 2012	Routine	2	96
November 1, 2011	Routine	3	95

Health Inspection

98

out of 100

About Health Inspections

We collect public inspection data directly from your local health department. Due to the local health department's inspection schedule as well as the time it takes to pass that information on to us, it is possible that we may not display the most recent inspection data.

Please report any health complaints about this business such as potential food borne illnesses or any unreasonable delay and data inaccuracies via one of the methods below:

- Email
- Website

https://www.yelp.com/inspections/chick-fil-a-louisville-8 1/2

Figure 2: An Establishment's Health Inspections Page

Visitors who click on the "Health inspection" hyperlink seen in Figure 1 are directed to this page. This screenshot was taken on March 15, 2016, and was collected online at `https://www.yelp.com/inspections/chickfilalouisville8`.

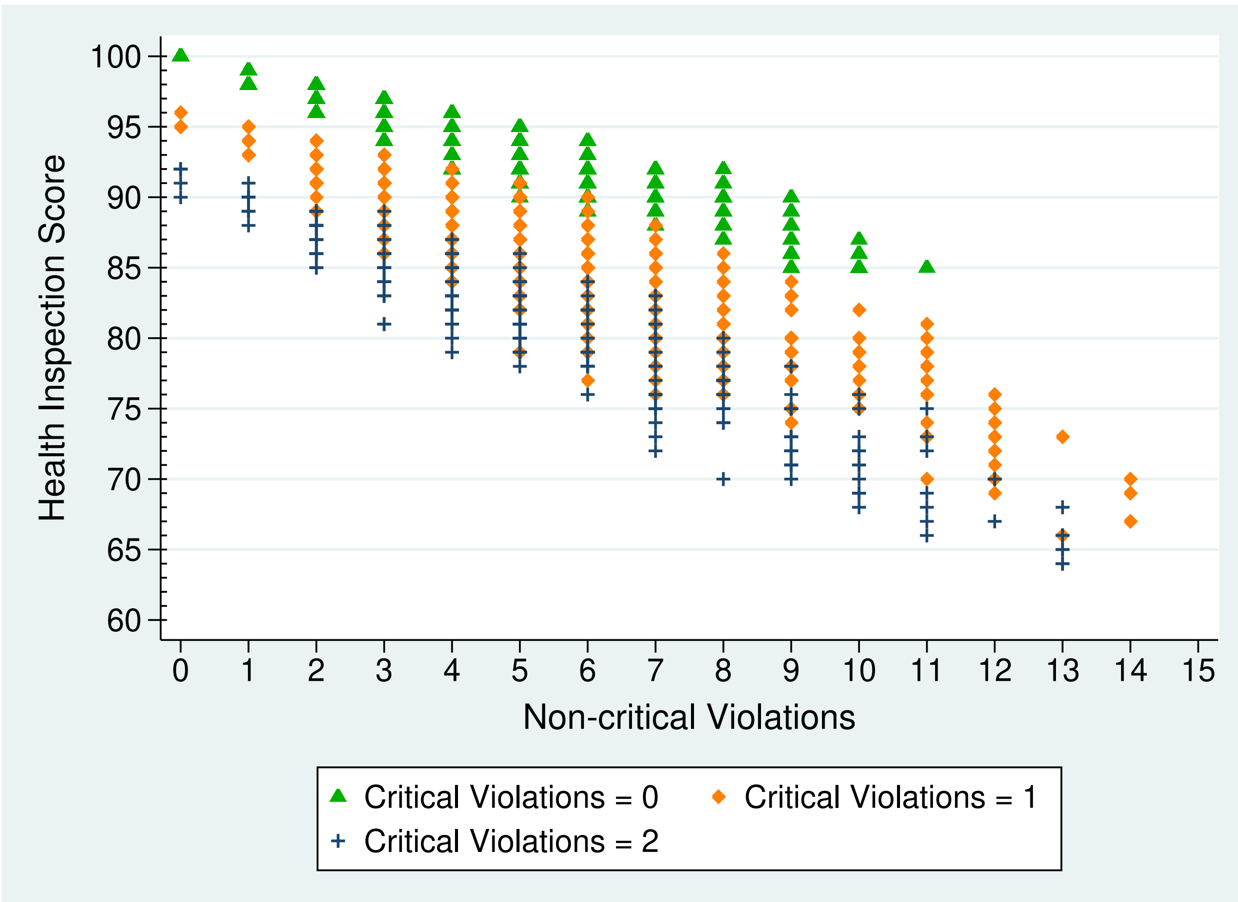

Figure 3: Overall Health Inspection Score given Critical and Non-critical Violations

Plot is from 11,399 inspections of 1,259 Louisville restuarants, effectively spanning January 2011 to January 2016. Green triangles mark inspections in which 0 critical violations were detected. Orange diamonds mark inspections in which 1 critical violation was detected. Navy crosses mark inspections in which 2 critical violations were detected. No inspections in the sample resulted in more than 2 critical violations.

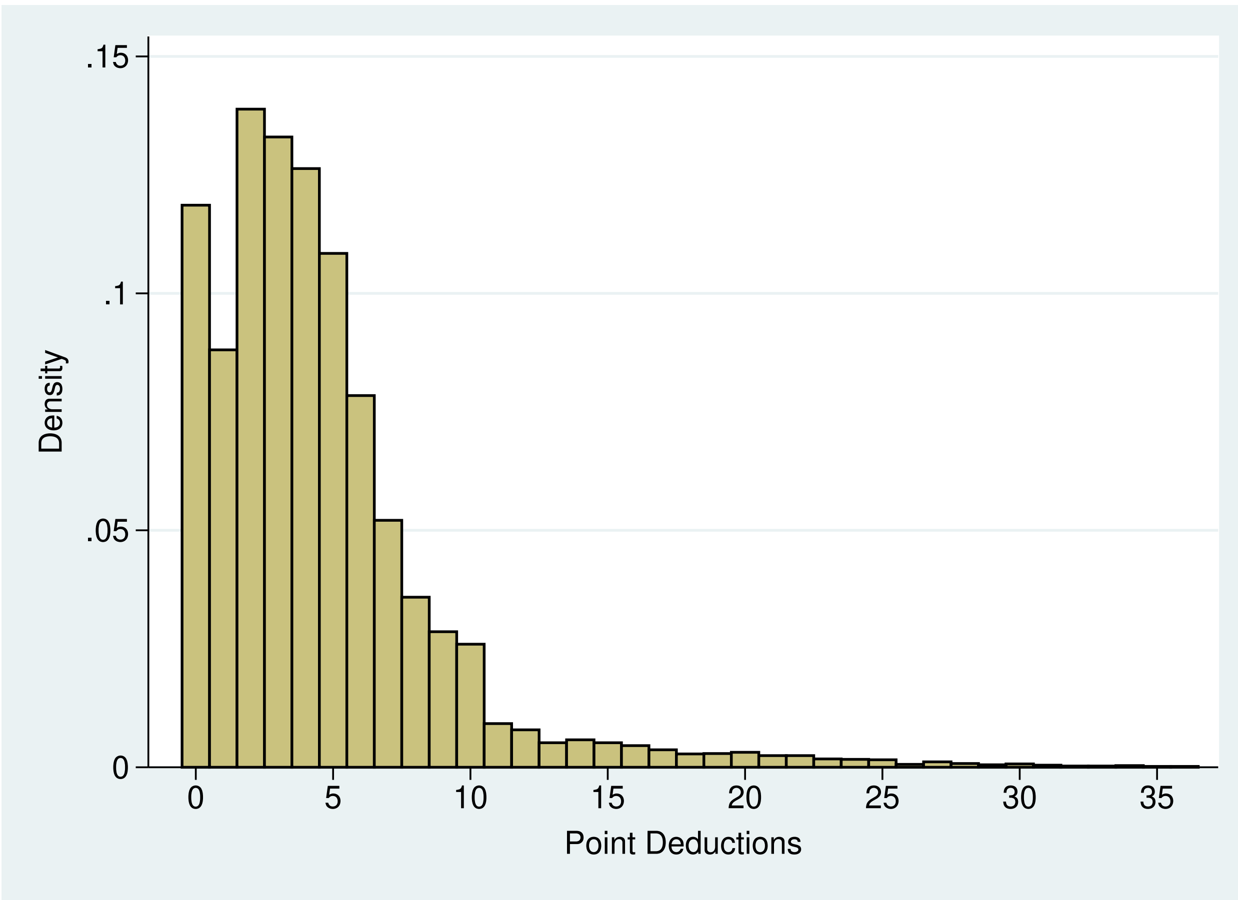

Figure 4: Distribution of Restaurant Health Inspection Scores

Plot is from 11,399 inspections of 1,259 Louisville restuarants, effectively spanning January 2011 to January 2016. Point deductions are from a maximum possible score of 100.

Table 1: Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Deducted Points (per inspection)					
All restaurants	11,399	4.5638	(4.3728)	0	36
Chain restaurants	4,992	4.1228	(4.1681)	0	36
Independent restaurants	6,407	4.9075	(4.4963)	0	36
Violations (per inspection)					
All restaurants	11,399	2.9532	(2.2401)	0	15
Chain restaurants	4,992	2.6280	(2.1148)	0	15
Independent restaurants	6,407	3.2067	(2.3015)	0	15
Critical Violations (per inspection)					
All restaurants	11,399	0.0888	(0.3530)	0	2
Chain restaurants	4,992	0.0857	(0.3430)	0	2
Independent restaurants	6,407	0.0912	(0.3606)	0	2
Total Inspections (by establishment)					
All restaurants	1,259	9.0540	(1.3363)	3	17
Chain restaurants	534	9.3483	(1.2960)	4	17
Independent restaurants	725	8.8372	(1.3249)	3	12
Inspections Before (by establishment)					
All restaurants	1,259	4.2732	(1.0181)	2	11
Chain restaurants	534	4.4120	(1.0244)	2	11
Independent restaurants	725	4.1710	(1.0019)	2	7
Inspections After (by establishment)					
All restaurants	1,259	4.7808	(0.7317)	1	7
Chain restaurants	534	4.9363	(0.6567)	2	7
Independent restaurants	725	4.6662	(0.7628)	1	6
Number of Seats (by establishment)					
All restaurants	1,259	88.061	(77.900)	1	483
Chain restaurants	534	81.257	(74.572)	1	450
Independent restaurants	725	93.073	(79.943)	1	483

“Inspections Before” reports the number of inspections in the final sample that a restaurant had prior to the announcement of the LYP announcement. “Inspections After” reports the number of inspections in the final sample that a restaurant had after the LYP announcement.

Table 2: Mean Deducted Points: Before and After Announcement of Louisville-Yelp Partnership

	Restaurant Type		
	(1)	(2)	(3)
	Independent	Chain	Difference (Independent − Chain)
Mean Deducted Points Before	5.4101	4.3031	1.1070***
	(0.1268)	(0.1293)	(0.1812)
Mean Deducted Points After	4.4582	3.9617	0.4965***
	(0.1097)	(0.1244)	(0.1659)
Change in Mean Deducted Points	-0.9519***	-0.3414***	-0.6105***
	(0.1006)	(0.1117)	(0.1503)
R-squared			0.0152
N			11,399

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Observations are from 11,399 inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors clustered by restaurant are reported in parentheses.

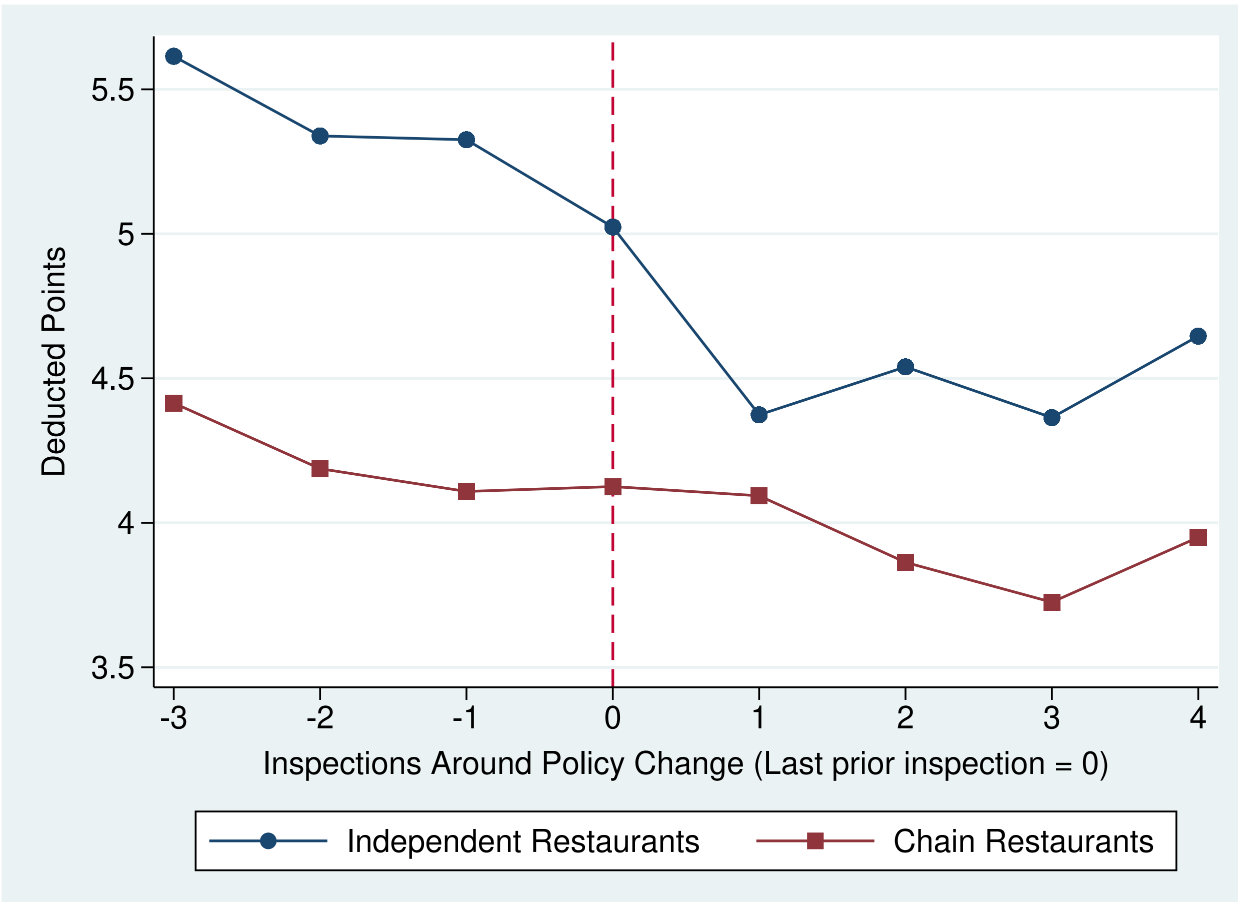

Figure 5: Deducted Points by Inspections Around the Policy Change

The horizontal axis represents the inspections around the announcment of the LYP, which is marked by the dashed line. The 0 value indicates a restaurant's last inspection before the announcement, -1 indicates the restaurant's second-to-last inspection before the anouncement, *etc.* The 1 value indicates a restaurant's first inspection after the announcement, 2 indicates a restaurant's second isnpection after the announcement, *etc.*

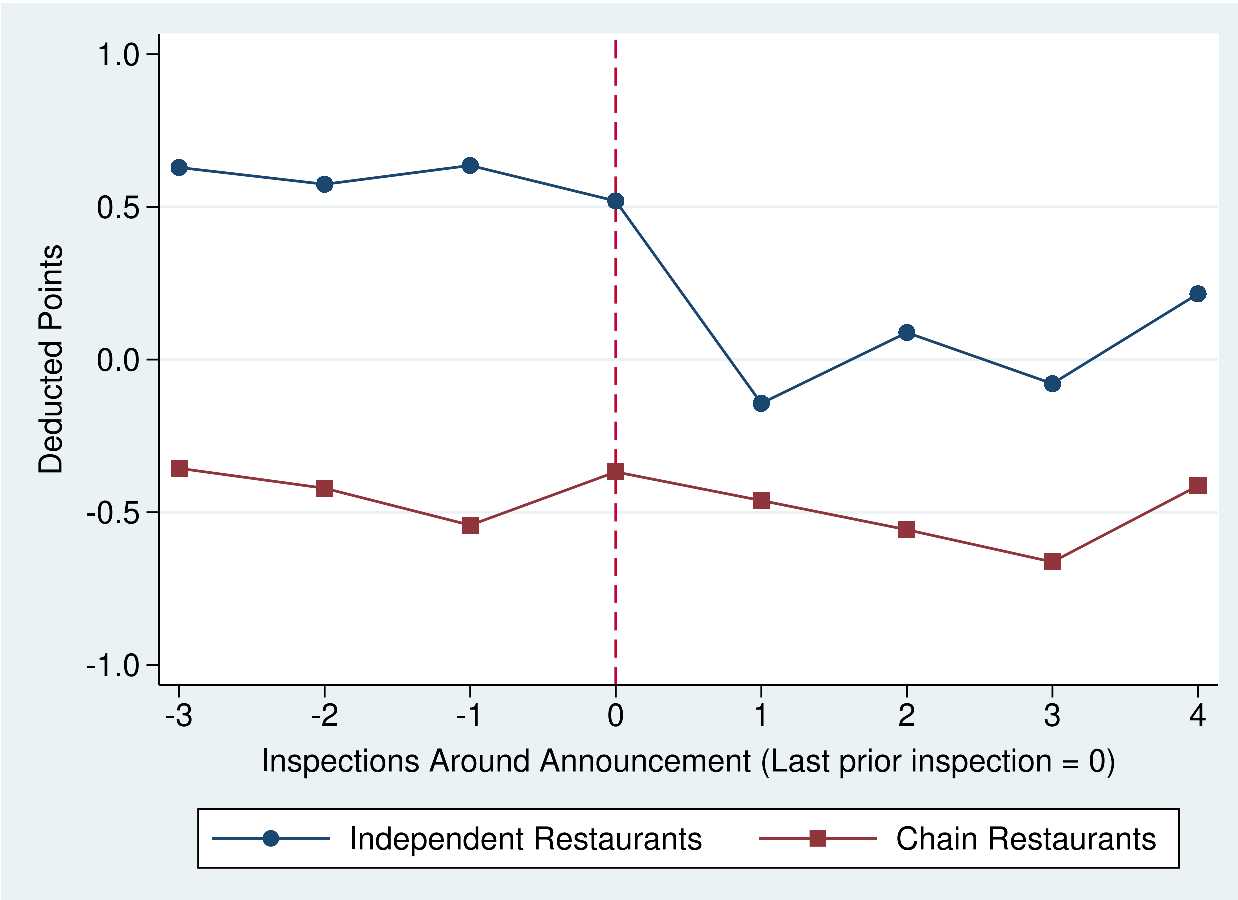

Figure 6: Residual Deducted Points by Inspections Around the Policy Change

Residuals are from OLS estimates. The dependent variable is the number of points deducted from a restaurant's score in an inspection. Restaurant-specific controls are the establishment's logged number of seats, and indicators for the year in which the establishment opened, and the restaurant's zip code. Inspection-specific controls are the logged age of the restaurant at the time of the inspection, and indicators for the day of the week, and the inspector conducting the inspection.

The horizontal axis represents the inspections around the announcment of the LYP, which is marked by the dashed line. The 0 value indicates a restaurant's last inspection before the announcement, -1 indicates the restaurant's second-to-last inspection before the anouncement, *etc.* The 1 value indicates a restaurant's first inspection after the announcement, 2 indicates a restaurant's second isnpection after the announcement, *etc.*

Table 3: Tests of Parallel Trends by Inspection

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points	(4) Deducted Points
$T \times$(Independent)	-0.0979	-0.0920	-0.0890	-0.0722
	(0.0879)	(0.0888)	(0.0940)	(0.1395)
T	-0.1392**	-0.2332***	-0.2473***	-0.2268*
	(0.0597)	(0.0684)	(0.0744)	(0.1180)
Independent	1.4686***	1.6198***	—	—
	(0.3596)	(0.3591)	—	—
Intercept	4.7202***	-3.0767**	2.2540***	3.4269
	(0.2390)	(1.5548)	(0.8457)	(2.5306)
ln(Seats)	N	Y	N	N
Zip Code FE	N	Y	N	N
Opening Year FE	N	Y	N	N
ln(Age)	N	Y	Y	Y
Restaurant FE	N	N	Y	Y
Day of Week FE	N	Y	Y	Y
Inspector FE	N	Y	Y	Y
DiffInspector	N	N	N	Y
ln(Days Elapsed)	N	N	N	Y
R-squared	0.0184	0.1180	0.5097	0.5591
N	5,284	5,284	5,284	4,113

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Observations are from pre-announcement inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

T equals: 1 in a restaurant's 5^{th}, 2 in their 4^{th}, 3 in their 3^{rd}, 4 in their 2^{nd}, and 5 in their last, inspections before the announcement.

$DiffInspector_{i,t}$ is an indicator variable equal to 1 if the inspector conducting a restaurant's t^{th} inspection is different than the inspector who conducted their $(t-1)^{th}$ inspection. Days Elapsed is the number of days that elapsed between a restaurant's t^{th} inspection, and their $(t-1)^{th}$ inspection.

Table 4: Tests for Change in Trend: Chain-affiliated Restaurants Only

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points	(4) Deducted Points
$T\times$(Post)	0.0201	0.0122	0.0146	-0.0072
	(0.0337)	(0.0352)	(0.0357)	(0.0413)
T	-0.0868*	-0.1409**	-0.1365**	-0.0814
	(0.0515)	(0.0575)	(0.0583)	(0.0776)
ln(Seats)	N	Y	N	N
Zip Code FE	N	Y	N	N
Opening Year FE	N	Y	N	N
ln(Age)	N	Y	Y	Y
Restaurant FE	N	N	Y	Y
Day of Week FE	N	Y	Y	Y
Inspector FE	N	Y	Y	Y
DiffInspector	N	N	N	Y
ln(Days Elapsed)	N	N	N	Y
R-squared	0.0016	0.1378	0.4095	0.4267
N	4,938	4,938	4,938	4,451

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Observations are from pre-announcement and post-announcement inspections conducted on 534 chain-affiliated restaurants that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

T equals: 1 in a restaurant's 5^{th} inspection before the announcement, and $1+n$ in their n^{th} inspection after that.

$DiffInspector_{i,t}$ is an indicator variable equal to 1 if the inspector conducting a restaurant's t^{th} inspection is different than the inspector who conducted their $(t-1)^{th}$ inspection. Days Elapsed is the number of days that elapsed between a restaurant's t^{th} inspection, and their $(t-1)^{th}$ inspection.

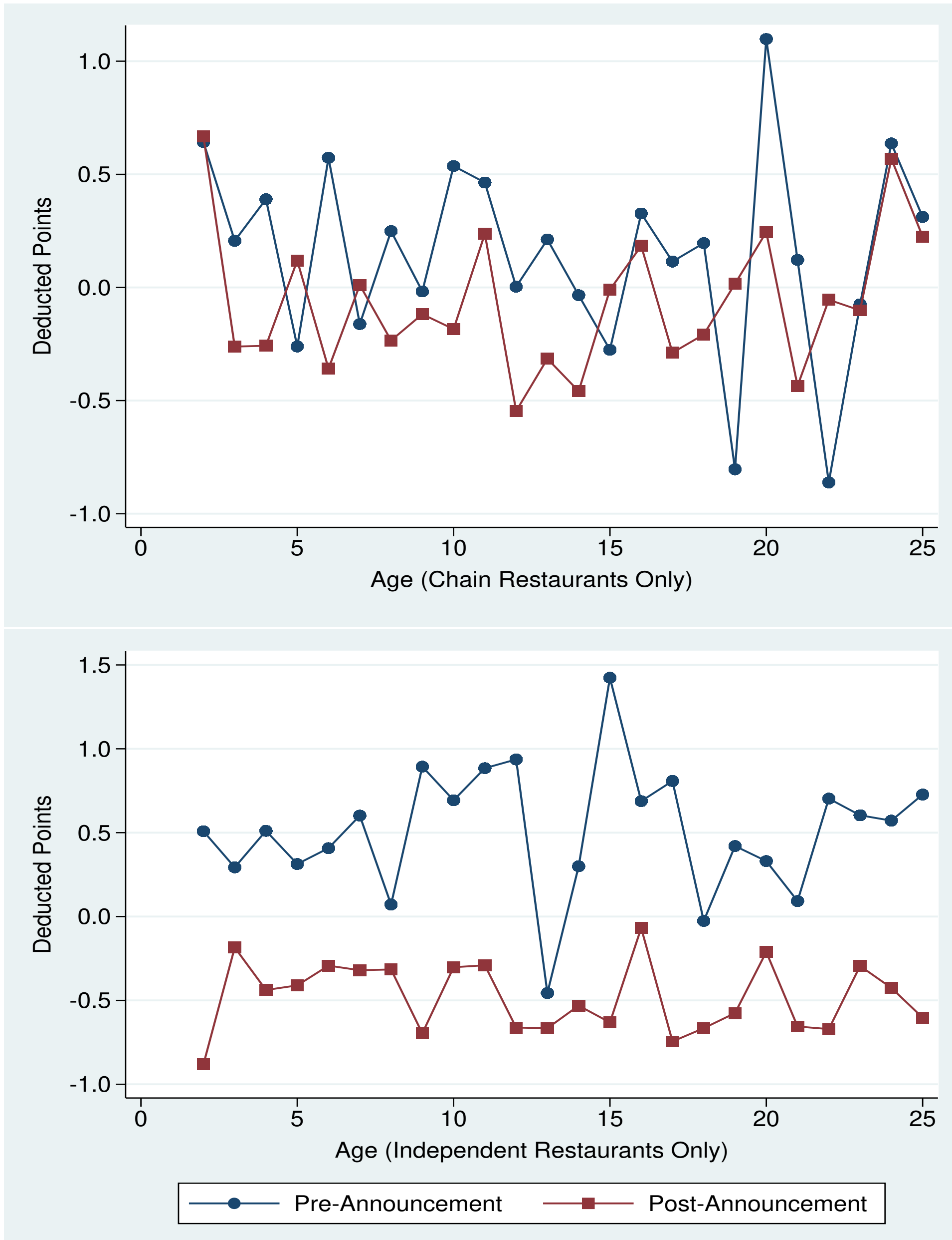

Figure 7: Residual Deducted Points by Age of the Restaurant

Residuals are from OLS estimates with fixed effects for inspector, day of the week, and restaurant included. The upper panel shows residuals among chain-affiliated restaurants only, and the lower panel shows residuals among independent restaurants only.

The residuals are averaged by the age of the restaurant at the time of the inspection, among two subgroups. The first subgroup, marked with navy circles, are restaurants that were the given age before the announcement. The second subgroup, marked with maroon squares, were the given age after the announcement.

Table 5: Treatment Effect Estimates on Deducted Points: Linear Model

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points
(Post)×(Independent)	-0.6717***	-0.6706***	-0.6037***
	(0.1529)	(0.1554)	(0.1637)
Post	-0.1541	0.0115	-0.1444
	(0.1666)	(0.1665)	(0.1744)
Independent	1.2264***	—	—
	(0.1847)	—	—
t	-0.0743**	-0.1167***	-0.0653*
	(0.0322)	(0.0323)	(0.0386)
DiffInspector	—	—	0.5405***
	—	—	(0.1083)
ln(Seats)	Y	N	N
Zip Code FE	Y	N	N
Opening Year FE	Y	N	N
ln(Age)	Y	Y	Y
Restaurant FE	N	Y	Y
Day of Week FE	Y	Y	Y
Inspector FE	Y	Y	Y
ln(Days Elapsed)	N	N	Y
R-squared	0.1032	0.4241	0.4370
N	11,399	11,399	10,140

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are OLS estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

Table 6: Treatment Effect Estimates on Critical Violations: Linear Model

Variable	(1) Critical Violations	(2) Critical Violations	(3) Critical Violations
(Post)×(Independent)	-0.0329**	-0.0357**	-0.0289*
	(0.0134)	(0.0140)	(0.0149)
Post	0.0018	0.0127	-0.0049
	(0.0141)	(0.0159)	(0.0164)
Independent	0.0327***	—	—
	(0.0120)	—	—
t	-0.0059**	-0.0089***	-0.0036
	(0.0024)	(0.0030)	(0.0034)
DiffInspector	—	—	0.0145
	—	—	(0.0102)
ln(Seats)	Y	N	N
Zip Code FE	Y	N	N
Opening Year FE	Y	N	N
ln(Age)	Y	Y	Y
Restaurant FE	N	Y	Y
Day of Week FE	Y	Y	Y
Inspector FE	Y	Y	Y
ln(Days Elapsed)	N	N	Y
R-squared	0.0261	0.1681	0.1795
N	11,399	11,399	10,140

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are OLS estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

Table 7: Treatment Effect Estimates on Deducted Points Over Time: Linear Model

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points
$Post_t \times IND$	-0.7748***	-0.7774***	-0.7030***
	(0.2283)	(0.2340)	(0.2390)
$Post_{t-1} \times IND$	0.3147	0.3284	0.3135
	(0.2644)	(0.2776)	(0.2790)
$Post_{t-2} \times IND$	-0.0872	-0.1061	-0.1286
	(0.2451)	(0.2558)	(0.2586)
$Post_{t-3} \times IND$	0.0081	-0.0119	0.0046
	(0.2677)	(0.2810)	(0.2834)
$Post_{t-4} \times IND$	-0.5353*	-0.4773	-0.4640
	(0.3146)	(0.3238)	(0.3261)
$Post_t$	-0.0483	0.2451	0.1838
	(0.2133)	(0.2166)	(0.2300)
$Post_{t-1}$	-0.1418	-0.0754	-0.0687
	(0.2045)	(0.2159)	(0.2229)
$Post_{t-2}$	-0.0280	0.1194	0.1376
	(0.1885)	(0.1949)	(0.2052)
$Post_{t-3}$	(0.2011)	0.3605*	0.4092*
	(0.2015)	(0.2096)	(0.2155)
$Post_{t-4}$	0.2756	0.4603*	0.4499*
	(0.2348)	(0.2499)	(0.2589)
ln(Seats)	Y	N	N
Zip Code FE	Y	N	N
Opening Year FE	Y	N	N
ln(Age)	Y	Y	Y
Restaurant FE	N	Y	Y
Day of Week FE	Y	Y	Y
Inspector FE	Y	Y	Y
ln(Days Elapsed)	N	N	Y
R-squared	0.1037	0.4253	0.4382
N	11,399	11,399	10,140

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are OLS estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

Table 8: Treatment Effect Estimates with Expanded Sample

Variable	(1) Deducted Points	(2) Crit. Violations	(3) Deducted Points	(4) Crit. Violations
$Post \times IND$	-0.5970***	-0.0299***	-0.5804***	-0.0286**
	(0.1256)	(0.0112)	(0.1328)	(0.0119)
$Post \times ChainRest$	—	—	0.0450	0.0036
	—	—	(0.1312)	(0.0120)
$Post$	-0.2565***	0.0019	-0.2749***	0.0005
	(0.0961)	(0.0091)	(0.1042)	(0.0099)
t	-0.0540***	-0.0064***	-0.0535***	-0.0064***
	(0.0192)	(0.0017)	(0.0193)	(0.0017)
R-squared	0.4618	0.1791	0.4618	0.1791
N	21,115	21,115	21,115	21,115

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are OLS estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) and 937 different non-restaurant establishments, that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

All four columns report estimates with the inclusion of $t_{i,t}$, and fixed effects for the restaurant being inspected, the day of the week in which the inspection occurred, and the inspector conducting the inspection.

Table 9: Treatment Effect Estimates with Separate Trends: Deducted Points

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points
$Post_t \times IND$	-0.7009**	-0.7637**	-0.7291**
	(0.3125)	(0.3056)	(0.3063)
$Post_{t-1} \times IND$	0.3567	0.3340	0.3369
	(0.2890)	(0.2866)	(0.2875)
$Post_{t-2} \times IND$	-0.0774	-0.1134	-0.0924
	(0.2686)	(0.2695)	(0.2692)
$Post_{t-3} \times IND$	0.0164	-0.0050	0.0167
	(0.2951)	(0.2930)	(0.2950)
$Post_{t-4} \times IND$	-0.4454	-0.4964	-0.4838
	(0.3351)	(0.3349)	(0.3327)
$Post_t$	0.2028	0.1650	0.1373
	(0.2389)	(0.2306)	(0.2318)
$Post_{t-1}$	-0.0910	-0.1050	-0.1265
	(0.2191)	(0.2172)	(0.2190)
$Post_{t-2}$	0.1041	0.0749	0.0703
	(0.1992)	(0.2172)	(0.2004)
$Post_{t-3}$	0.3448	0.3416	0.3311
	(0.2144)	(0.2149)	(0.2152)
$Post_{t-4}$	0.4428*	0.3878	0.3758
	(0.2517)	(0.2520)	(0.2505)
(Trend)$\times IND$	-0.0284	0.0024	-0.0074
	(0.0810)	(0.0377)	(0.0759)
Trend	-0.2022***	-0.0792***	-0.1721***
	(0.0570)	(0.0265)	(0.0559)
Trend Variable	t	Q	*Half*
R-squared	0.4253	0.4246	0.4248
N	11,399	11,399	11,399

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are OLS estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

All three columns report estimates with the inclusion of logged age, and fixed effects for the restaurant being inspected, the day of the week in which the inspection occurred, and the inspector conducting the inspection.

Table 10: Treatment Effect Estimates on Deducted Points with Leads of Post-announcement Indicator

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points	(4) Deducted Points
$Post_t \times IND$	-0.5449**	-0.5414**	-0.5373**	-0.5329**
	(0.2344)	(0.2345)	(0.2344)	(0.2344)
$Post_t$	0.0136	-0.0292	-0.0959	-0.1529
	(0.1916)	(0.1951)	(0.1974)	(0.1992)
$Post_{t+1} \times IND$	-0.1666	-0.3060	-0.3064	-0.3065
	(0.2358)	(0.2909)	(0.2909)	(0.2909)
$Post_{t+2} \times IND$	—	0.2039	0.2800	0.2823
	—	(0.2650)	(0.3108)	(0.3107)
$Post_{t+3} \times IND$	—	—	-0.1439	-0.0286
	—	—	(0.3146)	(0.3308)
$Post_{t+4} \times IND$	—	—	—	-0.3575
	—	—	—	(0.4347)
$Post_{t+1}$	-0.1661	-0.0167	-0.0429	-0.0593
	(0.1783)	(0.2025)	(0.2025)	(0.2025)
$Post_{t+2}$	—	-0.2666	-0.1722	-0.1942
	—	(0.2004)	(0.2306)	(0.2301)
$Post_{t+3}$	—	—	-0.2394	-0.1295
	—	—	(0.2369)	(0.2400)
$Post_{t+4}$	—	—	—	-0.3394
	—	—	—	(0.2948)
R-squared	0.4244	0.4245	0.4248	0.4253
N	11,399	11,399	11,399	11,399

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are OLS estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

All four columns report estimates with the inclusion of $t_{i,t}$, and fixed effects for the restaurant being inspected, the day of the week in which the inspection occurred, and the inspector conducting the inspection.

Table 11: Treatment Effect Estimates on Critical Violations with Leads of Post-announcement Indicator

Variable	(1) Critical Violations	(2) Critical Violations	(3) Critical Violations	(4) Critical Violations
$Post_t \times IND$	-0.0333	-0.0330	-0.0326	-0.0319
	(0.0230)	(0.0230)	(0.0230)	(0.0230)
$Post_t$	0.0164	0.0130	0.0060	-0.0031
	(0.0192)	(0.0195)	(0.0194)	(0.0195)
$Post_{t+1} \times IND$	-0.0032	-0.0193	-0.0193	-0.0193
	(0.0236)	(0.0287)	(0.0287)	(0.0287)
$Post_{t+2} \times IND$	—	0.0235	0.0462	0.0466
	—	(0.0254)	(0.0312)	(0.0312)
$Post_{t+3} \times IND$	—	—	-0.0409	-0.0286
	—	—	(0.0329)	(0.0350)
$Post_{t+4} \times IND$	—	—	—	-0.0413
	—	—	—	(0.0478)
$Post_{t+1}$	-0.0161	-0.0014	-0.0042	-0.0068
	(0.0175)	(0.0195)	(0.0196)	(0.0196)
$Post_{t+2}$	—	-0.0253	-0.0235	-0.0270
	—	(0.0181)	(0.0225)	(0.0225)
$Post_{t+3}$	—	—	-0.0112	0.0096
	—	—	(0.0253)	(0.0263)
$Post_{t+4}$	—	—	—	-0.0624*
	—	—	—	(0.0329)
R-squared	0.1682	0.1684	0.1690	0.1710
N	11,399	11,399	11,399	11,399

Results are OLS estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

All four columns report estimates with the inclusion of $t_{i,t}$, and fixed effects for the restaurant being inspected, the day of the week in which the inspection occurred, and the inspector conducting the inspection.

Table 12: Assignment of a Different Inspector: Linear Probability Estimates

Variable	(1) *DiffInspector*	(2) *DiffInspector*	(3) *DiffInspector*
(Post)×(Independent)	0.1085***	0.0553***	0.0507***
	(0.0223)	(0.0175)	(0.0191)
Post	0.0316*	0.0267	0.0452**
	(0.0170)	(0.0164)	(0.0182)
Independent	-0.0853***	-0.0730***	—
	(0.0198)	(0.0145)	—
Intercept	0.3546***	—	—
	(0.0153)	—	—
ln(Seats)	N	Y	Y
Zip Code FE	N	Y	Y
Opening Year FE	N	Y	Y
ln(Age)	N	Y	Y
Day of Week FE	N	Y	Y
Inspector FE	N	Y	Y
ln(Days Elapsed)	N	Y	Y
Restaurant FE	N	N	Y
R-squared	0.01240	0.3614	0.4806
N	10,140	10,140	10,140

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are OLS estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

A1 Appendix

Table A1: Tests of Parallel Trends by Quarter-year

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points	(4) Deducted Points
$Q\times$(Independent)	-0.0579	-0.0320	-0.0067	-0.0021
	(0.0398)	(0.0399)	(0.0422)	(0.0705)
Q	-0.0669**	-0.1242***	-0.1050***	-0.1310**
	(0.0283)	(0.0318)	(0.0344)	(0.0595)
Independent	2.4969**	2.0496**	—	—
	(0.9942)	(0.9916)	—	—
Intercept	5.9093***	-2.7167**	—	—
	(0.7015)	(1.2885)	—	—
ln(Seats)	N	Y	N	N
Zip Code FE	N	Y	N	N
Opening Year FE	N	Y	N	N
ln(Age)	N	Y	Y	Y
Restaurant FE	N	N	Y	Y
Day of Week FE	N	Y	Y	Y
Inspector FE	N	Y	Y	Y
DiffInspector	N	N	N	Y
ln(Days Elapsed)	N	N	N	Y
R-squared	0.0182	0.1178	0.5080	0.5596
N	5,371	5,371	5,371	4,114

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Observations are from pre-announcement inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. These observations begin in January 2011. Standard errors are clustered by restaurant, and given in parentheses.

$DiffInspector_{i,t}$ is an indicator variable equal to 1 if the inspector conducting a restaurant's t^{th} inspection is different than the inspector who conducted their $(t-1)^{th}$ inspection. Days Elapsed is the number of days that elapsed between a restaurant's t^{th} inspection, and their $(t-1)^{th}$ inspection.

Table A2: Tests of Parallel Trends by Half-year

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points	(4) Deducted Points
Half ×(Independent)	-0.0755	-0.0327	-0.0065	0.0059
	(0.0801)	(0.0808)	(0.0865)	(0.1403)
Half	-0.1396**	-0.2312***	-0.2118***	-0.2398**
	(0.0572)	(0.0646)	(0.0707)	(0.1199)
Independent	2.0314**	1.6816*		
	(1.0142)	(1.0159)		
Intercept	6.0129***	-2.4745*	—	—
	(0.7221)	(1.2980)	—	—
ln(Seats)	N	Y	N	N
Zip Code FE	N	Y	N	N
Opening Year FE	N	Y	N	N
ln(Age)	N	Y	Y	Y
Restaurant FE	N	N	Y	Y
Day of Week FE	N	Y	Y	Y
Inspector FE	N	Y	Y	Y
DiffInspector	N	N	N	Y
ln(Days Elapsed)	N	N	N	Y
R-squared	0.0174	0.1168	0.5078	0.5593
N	5,371	5,371	5,371	4,114

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Observations are from pre-announcement inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. These observations begin in January 2011. Standard errors are clustered by restaurant, and given in parentheses.

$DiffInspector_{i,t}$ is an indicator variable equal to 1 if the inspector conducting a restaurant's t^{th} inspection is different than the inspector who conducted their $(t-1)^{th}$ inspection. Days Elapsed is the number of days that elapsed between a restaurant's t^{th} inspection, and their $(t-1)^{th}$ inspection.

Table A3: Treatment Effect Estimates on Deducted Points: Poisson Model

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points
(Post)×(Independent)	-0.1241***	-0.1269***	-0.1189***
	(0.0350)	(0.0326)	(0.0342)
Post	-0.0445	-0.0029	-0.0330
	(0.0386)	(0.0357)	(0.0376)
Independent	0.2558***	—	—
	(0.0262)	—	—
t	-0.0143**	-0.0239***	-0.0141*
	(0.0065)	(0.0064)	(0.0077)
DiffInspector	—	—	0.1189***
	—	—	(0.0218)
ln(Seats)	Y	N	N
Zip Code FE	Y	N	N
Opening Year FE	Y	N	N
ln(Age)	Y	Y	Y
Restaurant FE	N	Y	Y
Day of Week FE	Y	Y	Y
Inspector FE	Y	Y	Y
ln(Days Elapsed)	N	N	Y
N	11,399	11,292	10,021

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are Poisson estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are robust to violation of the equidispersion assumption, and given in parentheses.

Table A4: Tests of Parallel Trends in Critical Violations by Inspection

Variable	(1) Crit. Violations	(2) Crit. Violations	(3) Crit. Violations	(4) Crit. Violations
$T \times$(Independent)	-0.0053	-0.0051	-0.0066	-0.0006
	(0.0082)	(0.0085)	(0.0096)	(0.0136)
T	-0.0112**	-0.0168**	-0.0151*	-0.0127
	(0.0056)	(0.0067)	(0.0078)	(0.0115)
Independent	0.0398	0.0587*	—	—
	(0.0308)	(0.0320)	—	—
Intercept	0.1278***	-0.2554*	—	—
	(0.0203)	(0.1323)	—	—
ln(Seats)	N	Y	N	N
Zip Code FE	N	Y	N	N
Opening Year FE	N	Y	N	N
ln(Age)	N	Y	Y	Y
Restaurant FE	N	N	Y	Y
Day of Week FE	N	Y	Y	Y
Inspector FE	N	Y	Y	Y
DiffInspector	N	N	N	Y
ln(Days Elapsed)	N	N	N	Y
R-squared	0.0032	0.03453	0.2832	0.3418
N	5,284	5,284	5,284	4,113

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Observations are from pre-announcement inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are clustered by restaurant, and given in parentheses.

PreT equals: 1 in a restaurant's 5^{th}, 2 in their 4^{th}, 3 in their 3^{rd}, 4 in their 2^{nd}, and 5 in their last, inspections before the announcement.

$DiffInspector_{i,t}$ is an indicator variable equal to 1 if the inspector conducting a restaurant's t^{th} inspection is different than the inspector who conducted their $(t-1)^{th}$ inspection. Days Elapsed is the number of days that elapsed between a restaurant's t^{th} inspection, and their $(t-1)^{th}$ inspection.

Table A5: Tests of Parallel Trends in Critical Violations by Quarter-year

Variable	(1) Crit. Violations	(2) Crit. Violations	(3) Crit. Violations	(4) Crit. Violations
$Q\times$(Independent)	0.0004	0.0014	0.0007	0.0041
	(0.0038)	(0.0040)	(0.0044)	(0.0071)
Q	-0.0068**	-0.0098***	-0.0067*	-0.0098
	(0.0027)	(0.0033)	(0.0037)	(0.0059)
Independent	0.0094	0.0055	—	—
	(0.0947)	(0.0984)	—	—
Intercept	0.2565***	-0.0330	—	—
	(0.0665)	(0.1148)	—	—
ln(Seats)	N	Y	N	N
Zip Code FE	N	Y	N	N
Opening Year FE	N	Y	N	N
ln(Age)	N	Y	Y	Y
Restaurant FE	N	N	Y	Y
Day of Week FE	N	Y	Y	Y
Inspector FE	N	Y	Y	Y
DiffInspector	N	N	N	Y
ln(Days Elapsed)	N	N	N	Y
R-squared	0.0028	0.0344	0.2799	0.3419
N	5,371	5,371	5,371	4,114

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Observations are from pre-announcement inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. These observations begin in January 2011. Standard errors are clustered by restaurant, and given in parentheses.

$DiffInspector_{i,t}$ is an indicator variable equal to 1 if the inspector conducting a restaurant's t^{th} inspection is different than the inspector who conducted their $(t-1)^{th}$ inspection. Days Elapsed is the number of days that elapsed between a restaurant's t^{th} inspection, and their $(t-1)^{th}$ inspection.

Table A6: Tests of Parallel Trends in Critical Violations by Half-year

Variable	(1) Crit. Violations	(2) Crit. Violations	(3) Crit. Violations	(4) Crit. Violations
Half ×(Independent)	0.0025	0.0042	0.0013	0.0081
	(0.0077)	(0.0080)	(0.0092)	(0.0142)
Half	-0.0131**	-0.0180***	-0.0136*	-0.0159
	(0.0056)	(0.0067)	(0.0076)	(0.0120)
Independent	-0.0107	-0.0136	—	—
	(0.0966)	(0.1005)	—	—
Intercept	0.2550***	-0.0187	—	—
	(0.0688)	(0.1163)	—	—
ln(Seats)	N	Y	N	N
Zip Code FE	N	Y	N	N
Opening Year FE	N	Y	N	N
ln(Age)	N	Y	Y	Y
Restaurant FE	N	N	Y	Y
Day of Week FE	N	Y	Y	Y
Inspector FE	N	Y	Y	Y
DiffInspector	N	N	N	Y
ln(Days Elapsed)	N	N	N	Y
R-squared	0.0023	0.0338	0.2799	0.3415
N	5,371	5,371	5,371	4,114

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Observations are from pre-announcement inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. These observations begin in January 2011. Standard errors are clustered by restaurant, and given in parentheses.

$DiffInspector_{i,t}$ is an indicator variable equal to 1 if the inspector conducting a restaurant's t^{th} inspection is different than the inspector who conducted their $(t-1)^{th}$ inspection. Days Elapsed is the number of days that elapsed between a restaurant's t^{th} inspection, and their $(t-1)^{th}$ inspection.

Table A7: Treatment Effect Estimates on Critical Violations: Poisson Model

Variable	(1) Critical Violations	(2) Critical Violations	(3) Critical Violations
(Post)×(Independent)	-0.3445**	-0.4244***	-0.3849**
	(0.1478)	(0.1516)	(0.1608)
Post	0.0250	0.1515	-0.0130
	(0.1581)	(0.1703)	(0.1828)
Independent	0.3343***	—	—
	(0.1051)	—	—
t	-0.0526**	-0.0962***	-0.0472
	(0.0259)	(0.0303)	(0.0378)
DiffInspector	—	—	0.1521
	—	—	(0.1128)
ln(Seats)	Y	N	N
Zip Code FE	Y	N	N
Opening Year FE	Y	N	N
ln(Age)	N	Y	Y
Restaurant FE	N	Y	Y
Day of Week FE	Y	Y	Y
Inspector FE	Y	Y	Y
ln(Days Elapsed)	N	N	Y
N	11,399	4,614	3,806

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are Poisson estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are robust to violation of the Poisson model's equidispersion assumption, and given in parentheses.

Table A8: Treatment Effect Estimates on Deducted Points Over Time: Poisson Model

Variable	(1) Deducted Points	(2) Deducted Points	(3) Deducted Points
$Post_t \times IND$	-0.1530**	-0.1529***	-0.1429***
	(0.0605)	(0.0511)	(0.0519)
$Post_{t-1} \times IND$	0.0779	0.0792	0.0727
	(0.0768)	(0.0623)	(0.0620)
$Post_{t-2} \times IND$	-0.0134	-0.0127	-0.0143
	(0.0746)	(0.0593)	(0.0592)
$Post_{t-3} \times IND$	-0.0029	-0.0162	-0.0130
	(0.0770)	(0.0637)	(0.0636)
$Post_{t-4} \times IND$	-0.1276	-0.1246*	-0.1194*
	(0.0819)	(0.0715)	(0.0712)
$Post_t$	-0.0188	0.0406	0.0274
	(0.0533)	(0.0475)	(0.0497)
$Post_{t-1}$	-0.0391	-0.0282	-0.0212
	(0.0629)	(0.0503)	(0.0512)
$Post_{t-2}$	-0.0162	0.0086	0.0072
	(0.0595)	(0.0479)	(0.0488)
$Post_{t-3}$	0.0578	0.0848*	0.0929*
	(0.0597)	(0.0505)	(0.0511)
$Post_{t-4}$	0.0645	0.1034*	0.1032*
	(0.0625)	(0.0567)	(0.0576)
ln(Seats)	Y	N	N
Zip Code FE	Y	N	N
Opening Year FE	Y	N	N
ln(Age)	Y	Y	Y
Restaurant FE	N	Y	Y
Day of Week FE	Y	Y	Y
Inspector FE	Y	Y	Y
ln(Days Elapsed)	N	N	Y
N	11,399	11,292	10,021

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Results are Poisson estimates from inspections conducted on 1,259 different restaurants (725 independent and 534 chain-affiliated) that had at least two inspections before the announcement, and at least one inspection after the announcement. Standard errors are robust to violation of the Poisson model's equidispersion assumption, and given in parentheses.

Table A9: Chain-Affiliated Restaurants in Sample: Part 1

A & W ROOT BEER -LONG JOHN SILVERS	DAIRY QUEEN #097	KFC
ARBY'S	DAIRY QUEEN #310	KFC #Y052-034
ARBY'S #1400	DAIRY QUEEN #311	KFC #Y317002
ARBY'S #194	DAIRY QUEEN GRILL & CHILL	KFC - Y052-020
ARBY'S #263	DAIRY QUEEN GRILL AND CHILL	KFC / Y052-042
ARBY'S #325	DENNY'S	KFC Y052 004
ARBY'S #5412	DENNY'S RESTAURANT	KFC Y052-016
ARBY'S #5430	DOMINO'S	KFC Y052-023
ARBY'S #714	DOMINO'S PIZZA #1421	KFC Y052-032
ARBY'S #7204	DOMINO'S PIZZA #1422	KFC/TACO BELL
ARBY'S #7349	DOMINO'S PIZZA #1423	KRISPY KREME
ARBY'S #773	DOMINO'S PIZZA #1424	KRISPY KREME DOUGHNUT
ARBY'S #7810	DOMINO'S PIZZA #1425	LITTLE CAESAR'S
ARBY'S #7879	DOMINO'S PIZZA #1426	LITTLE CAESAR'S PIZZA
AUNTIE ANNE'S	DOMINO'S PIZZA #1427	LITTLE CAESARS
BACKYARD BURGERS	DOMINO'S PIZZA #1428	LOGAN'S ROADHOUSE
BASKIN ROBBINS	DOMINO'S PIZZA #1429	LOGANS ROADHOUSE
BEEF O'BRADY'S	DOMINO'S PIZZA #1431	LONG JOHN SILVERS
BOB EVANS	DOMINO'S PIZZA #1432	LONG JOHN SILVERS #14
BOB EVANS RESTAURANT #51	DOMINO'S PIZZA #1433	LONG JOHN SILVERS #15
BUCA DI BEPPO	DOMINO'S PIZZA #1434	LONG JOHN SILVERS #7253
BUFFALO WILD WINGS	DOMINO'S PIZZA #1435	LONGHORN STEAKHOUSE
BUFFALO WILD WINGS BAR & GRILL #18	DOMINO'S PIZZA #1436	LONGHORN STEAKHOUSE #287
BUFFALO WILD WINGS GRILL & BAR	DOMINO'S PIZZA #1464	MCALISTER'S DELI
BUFFALO WILD WINGS GRILL & BAR #35	DUNKIN DONUTS #349892	MCALISTER'S DELI # 1135
BURGER KING	EINSTEIN'S BAGELS	MCALISTER'S DELI # 1149
BURGER KING #12488	FAZOLI'S	MCALISTER'S DELI # 1258
BURGER KING #541	FIREHOUSE SUBS #486	MCALISTER'S DELI #1078
BURGER KING #542	FIVE GUYS BURGERS & FRIES	MCALISTER'S DELI #1079
BURGER KING #544	FRISCH'S BIG BOY #119	MCALLISTER'S DELI
BURGER KING #546	FRISCH'S BIG BOY #201	MCDONALD'S
BURGER KING #587	FRISCH'S BIG BOY #203	MCDONALD'S #29
BURGER KING #889	FRISCH'S BIG BOY - #153	MCDONALD'S #31
CALIFORNIA PIZZA KITCHEN	FRISCH'S BIG BOY - #154	MCDONALD'S #35
CAPTAIN D'S	FRISCH'S BRECKENRIDGE	MCDONALD'S #38
CAPTAIN D'S #3311	GOLDEN CORRAL	MCDONALD'S #4629
CAPTAIN D'S #3321	GRAETER'S	MCDONALD'S #4924
CAPTAIN D'S #3329	GRAETER'S ICE CREAM	MCDONALD'S #6809
CAPTAIN D'S #3517	GRAETER'S ICE CREAM #5	MCDONALD'S #6859
CAPTAIN D'S #3532	HARD ROCK CAFE	MCDONALD'S #6875
CAPTAIN D'S #3615	HARDEE'S	MCDONALD'S #6891
CARRABBA'S ITALIAN GRILL #6801	HONEY BAKED HAM COMPANY	MCDONALD'S #6895
CHARLEY'S GRILLED SUB	IHOP	MCDONALD'S #6899
CHARLEY'S GRILLED SUBS	JASON'S DELI	MCDONALD'S #7536
CHEDDAR'S	JERSEY MIKE'S SUBS	MCDONALD'S RESTAURANT
CHEESECAKE FACTORY	JERSEY MIKE'S SUBS #2	MCDONALD'S RESTAURANT #1
CHICK-FIL-A	JET'S PIZZA	MCDONALD'S RESTAURANT #15
CHILI'S	JIMMY JOHN'S	MCDONALD'S RESTAURANT #16
CHILI'S BAR & GRILL	JIMMY JOHN'S #1081	MCDONALD'S RESTAURANT #4620
CHILI'S GRILL AND BAR	JIMMY JOHN'S GOURMET SANDWICHE	MCDONALD'S RESTAURANT #6828
CHUCK E CHEESE'S #111	JIMMY JOHNS	MCDONALD'S RESTAURANT #6834
CHUY'S #22	JOE MUGGS	MCDONALD'S RESTAURANT #6835
CULVER'S	JOE'S CRAB SHACK	MCDONALD'S RESTAURANT #6839
CULVERS OF LOUISVILLE	JOHNNY BRUSCO'S PIZZA	MCDONALD'S RESTAURANT #6849
DAIRY QUEEN	KAMILIA LLC DBA COLD STONE CREAMERY	MCDONALD'S RESTAURANT #6877

Table A10: Chain-Affiliated Restaurants in Sample: Part 2

MCDONALD'S RESTAURANT #7940	PIZZA HUT #013422	STARBUCKS COFFEE #2561	WENDY'S
MELLOW MUSHROOM	PIZZA HUT #013425	STARBUCKS T0780	WENDY'S #170232
MELTING POT	PIZZA HUT #013426	STEAK & SHAKE #702	WENDY'S #170234
MIMI'S CAFE	PIZZA HUT #013427	STEAK N SHAKE #701	WENDY'S #170283
MOBY DICK	PIZZA HUT #013428	STEAK N SHAKE #703	WENDY'S #21
MOBY DICK INDIAN TRAIL	PIZZA HUT #013429	STEAK N SHAKE #707	WENDY'S #23
MOBY DICK RESTAURANT	PIZZA HUT #013430	STEAK N SHAKE #708	WENDY'S #310
MOBY DICK SEAFOOD RESTAURANT	PIZZA HUT #014321	SUBWAY	WENDY'S RESTAURANT
MOBY DICK WINKLER	PIZZA HUT#013423	SUBWAY #11140	WHITE CASTLE
MOBY DICK-CANE RUN	PIZZA HUT/WING STREET	SUBWAY #11525	WHITE CASTLE #10
MOE'S SOUTHWEST GRILL	POPEYE'S	SUBWAY #12335	WHITE CASTLE #11
O'CHARLEY'S	POTBELLY SANDWICH SHOP	SUBWAY #1715	WHITE CASTLE #13
OLIVE GARDEN	QDOBA	SUBWAY #21299	WHITE CASTLE #15
OLIVE GARDEN # 1703	QDOBA # 2546	SUBWAY #21369	WHITE CASTLE #17
OLIVE GARDEN ITALIAN #1327	QDOBA #2632	SUBWAY #24964	WHITE CASTLE #19
OUTBACK STEAKHOUSE	QDOBA MEXICAN GRILL	SUBWAY #2824	WHITE CASTLE #28
OUTBACK STEAKHOUSE #1815	QDOBA MEXICAN GRILL #2029	SUBWAY #28497	WHITE CASTLE #29
P.F. CHANG'S	QUIZNO'S	SUBWAY #2945	WHITE CASTLE #30
PANERA BREAD	RALLY'S	SUBWAY #34164	WHITE CASTLE #31
PANERA BREAD #1669	RALLY'S #103	SUBWAY #34858	WHITE CASTLE #33
PANERA BREAD #826	RALLY'S #106	SUBWAY #35147	WHITE CASTLE #36
PANERA BREAD #904	RALLY'S #112	SUBWAY #4260	WHITE CASTLE #7
PAPA JOHN'S	RALLY'S #114	SUBWAY #43919	ZAXBY'S
PAPA JOHN'S #008	RALLY'S #118	SUBWAY #6322	ZAXBYS
PAPA JOHN'S #11	RALLY'S #121	SUBWAY #6345	ZOE'S KITCHEN
PAPA JOHN'S #22 / BROADBENT ARENA	RALLY'S #123	SUBWAY - 10519	ZOES KITCHEN
PAPA JOHN'S PIZZA #12	RALLY'S #126	SUBWAY SANDWICH SHOP	
PAPA JOHN'S PIZZA #16	RED ROBIN	SUBWAY SANDWICHES	
PAPA JOHN'S PIZZA #17	RED ROBIN GOURMET BURGERS	SUBWAY SANDWICHES & SALAD	
PAPA JOHN'S PIZZA #20	ROMANO'S MACARONI GRILL	TACO BELL	
PAPA JOHN'S PIZZA #200	RUBY TUESDAY #4520	TACO BELL #19726	
PAPA JOHN'S PIZZA #21	RUTH'S CHRIS STEAK HOUSE	TACO BELL #20133	
PAPA JOHN'S PIZZA #36	RYANS FAMILY STEAKHOUSE	TACO BELL #22578	
PAPA JOHN'S PIZZA #4	SCHLOTZSKY'S	TACO BELL #2412	
PAPA JOHN'S PIZZA #50	SHONEY'S #1772	TACO BELL #2477	
PAPA JOHN'S PIZZA #7	SKYLINE CHILI #1	TACO BELL #3362	
PAPA JOHN'S PIZZA #81	SKYLINE CHILI #2	TACO BELL #3376	
PAPA JOHN'S PIZZA #9	SKYLINE CHILI #3	TACO BELL #3450	
PAPA JOHN'S PIZZA 1450	SKYLINE CHILI #4	TACO BELL #3677	
PAPA JOHN'S PIZZA 2000	SMOOTHIE KING	TACO BELL #3871	
PAPA JOHN'S PIZZA 25	SONIC	TACO BELL/KFC EXPRESS	
PAPA JOHN'S PIZZA 44	SONIC DRIVE IN	TACO BELL/PIZZA HUT EXPRESS #2511	
PAPA MURPHY'S	SONIC DRIVE-IN	TEXAS ROADHOUSE	
PAPA MURPHY'S PIZZA	STARBUCKS	TGI FRIDAY'S	
PENN STATION	STARBUCKS #10454	WAFFLE HOUSE	
PENN STATION #5	STARBUCKS #10637	WAFFLE HOUSE #1001	
PENN STATION #8	STARBUCKS #2466	WAFFLE HOUSE #1069	
PENN STATION EAST COAST SUBS	STARBUCKS #2472	WAFFLE HOUSE #1398	
PITAPIT	STARBUCKS #2487	WAFFLE HOUSE #1444	
PIZZA HUT	STARBUCKS #2562	WAFFLE HOUSE #1568	
PIZZA HUT #013414	STARBUCKS #2633	WAFFLE HOUSE #179	
PIZZA HUT #013415	STARBUCKS COFFEE	WAFFLE HOUSE #221	
PIZZA HUT #013416	STARBUCKS COFFEE #10559	WAFFLE HOUSE #353	
PIZZA HUT #013419	STARBUCKS COFFEE #11798	WAFFLE HOUSE #932	
PIZZA HUT #013420	STARBUCKS COFFEE #2541	WAFFLE HOUSE# 1111	