

# Appendices

*(Hyunjin Kim, “The Value of Competitor Information: Evidence from a Field Experiment”)*

## A Experiment details

This appendix provides additional details on the experiment. Figure A.1 displays the standard marketing materials that all firms received, including those assigned to the control condition. Figure A.2 shows the distribution of messages shown on treatment postcards, as well as the distribution of control firms that would have been shown each message if they had been assigned to treatment. Figure A.3 shows the scripts used to train canvassers. Figure A.4 shows a map of all firms in the eligible set across each of the four cities, and Figure A.5 shows the subset of firms in the experimental sample. Figure A.6 shows the timeline of data collection and experimental interventions. Figure A.7 categorizes notes recorded by canvassers at the time of the treatment, which capture how firms responded to the informational intervention. These notes were categorized by two research assistants, and sent to a third research assistant in the case of conflicts.

Table A.1 shows compliance and attrition across experimental conditions.

Figure A.1: Brochure and postcard provided to all firms

**Consumers are 33% more likely to upgrade their negative review when a business owner or manager responds within 24 hours.**

**Download the free business owner's app to take Yelp for Business Owners on the go.**

**Get the most from your free business page.**  
Three ways to drive conversions and engage customers without spending a dime.

**Business pages with complete profiles see 4X more user views and 5X more customer leads per month.**

**Complete Your Profile**  
COMPLETE YOUR BUSINESS INFORMATION AT [biz.yelp.com](http://biz.yelp.com)  
Add or update your hours, contact information, and address on your business page so consumers searching Yelp know how to get in touch.

**ADD PHOTOS**  
People who visit their favorite businesses with at least one photo receive an average of 12x the customer leads on Yelp as a business with no photos.

**MANAGE YOUR MESSAGING REQUESTS**  
Depending on your business category users may see a prompt to contact your business. Responding quickly to messaging requests can lead to higher conversions!

**ADD SPECIALTIES**  
What sets your business apart from your competitors? Use the specialties section of your business page to showcase the types of goods or services you offer!

**ADD SPECIAL HOURS**  
Yelp's Special Hours tool allows you to adjust your hours for special occasions or holidays. If you're opening early for holiday shopping or taking a weekday off, let your customers know.

**ADD BUSINESS HISTORY**  
Everyone loves a good story, and Business History is the place to tell yours! Whether you run a family business or you built from the ground up, share your story with users looking to shop!

**Respond To Your Reviews**  
Use Yelp's free suite of business owner tools to respond privately or publicly to reviews. Engaging with reviewers increases average star ratings by 30%. Here's how to use responses to your advantage:

**CRITICAL REVIEW**

- The user has rated negative content.
  - Respond Publicly: Address their concerns and explain changes you will make or invite them to come back.
  - Direct Message: Direct Message the user and publicly present your side of the story.
  - Respond Publicly: Clearly state your business policies and clarify any misconceptions.
- It needs like a rest or to take.
  - Direct Message: Direct Message the user and publicly present your side of the story.

**POSITIVE REVIEW**

- You can add to the user's review.
  - Respond Publicly: Add color to a user's review or deliver a warm thank you.
- You can't add to the user's review.
  - Direct Message: Simply thank the user via direct message.

**Upload Photos**  
Post Photos  
Uploading photos to your business's page on Yelp is a snap, even if you're on mobile!

From [biz.yelp.com](http://biz.yelp.com):  
1) Go to the Photos & Videos ([biz.yelp.com/biz\\_photos](http://biz.yelp.com/biz_photos)) section of "Yelp for Business owners."  
2) ... and click "Upload Photos". Done!

If you're using the **Yelp For Business Owners app**...  
1) Tap the Activity icon at the bottom of the screen.  
2) Tap Photos & Videos.  
3) Tap the Camera icon to Add Photos!  
4) You can take a new photo from your phone or use one from your camera roll.  
5) You'll also see a preview. Tap Next if everything looks good!  
6) Add a caption and tap Save to finish. It'll be on your site in no time!

Actively manage your business page at [biz.yelp.com](http://biz.yelp.com).  
Check out [www.yelp.com/support](http://www.yelp.com/support) for more tips!

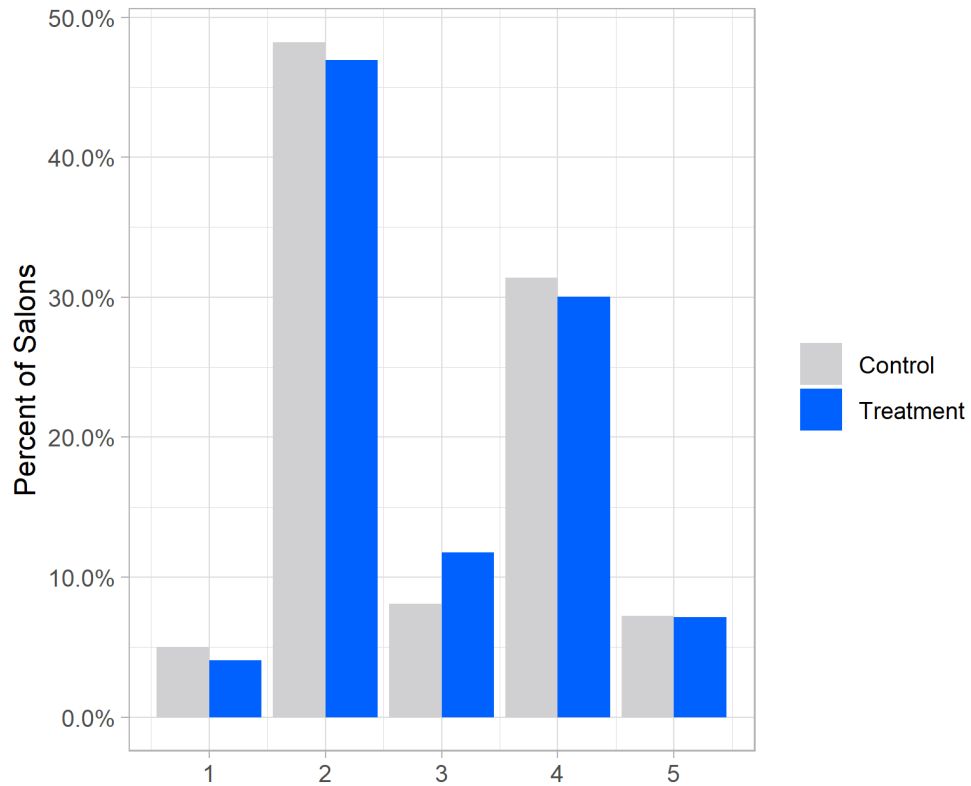
**Log in at [biz.yelp.com/ads](http://biz.yelp.com/ads) and use the promo code Q218LOCALBOOST at checkout to use your Yelp ads credit today. How it works:**

**Spend \$10/day, get \$600 over 6 months (\$100/mo)**  
**Spend \$15/day, get \$900 over 6 months (\$150/mo)**

**This offer expires at midnight on June 30, 2018.**

Notes: The top figure shows the brochure that Yelp canvassers provided to all businesses, which includes information on how to edit business details, add photos, and respond to reviews on Yelp's business page. The bottom figure shows a standard marketing postcard that Yelp additionally provided on their visits, which offers free Yelp advertising credits. The back of this postcard was blank for control businesses, and showed the competitor information treatment for treatment businesses.

Figure A.2: Distribution of treatment messages



category_rank	status
1	You charge the lowest price in the area
2	Most businesses nearby charge the same or higher prices as you
3	Most/All businesses nearby charge the same price as you
4	Most businesses nearby charge the same or lower prices as you
5	You charge the highest price in the area

Notes: This figure shows the distribution of treatment messages shown, compared with the counterfactual messages that applied to control firms (which were not provided).

Figure A.3: Canvassing script versions

### 1. Treatment Version: Price information canvassing

\*Walk up to the cashier with brochure and postcard for the business in hand\*

1. Hi, what's the price of your regular manicure? (*Record price.*)
2. Great! I'm from Yelp and I'm here to learn more about your salon and help you manage your free Yelp business page.
3. Are you the manager, or is there a manager I could chat with? (*Record whether they are the manager, owner, or someone else*)
4. *If they ask "what's Yelp?"* Explain that Yelp is the largest local search directory online platform where people go to find great local businesses. Basically the modern day Yellow pages (*Do a live search for their category of business to show them*).

If they say "OK!":

1. To get us started, can you tell me about what you think sets your salon apart from your competitors? (*Record answer*)
2. Who do you consider as your primary competitors? (*Record all names mentioned*)
3. And what do you think they are charging for a regular manicure? (*Record manicure price*)
4. Great. We've collected some information on the prices of nail salons that are located closest to you. (*Show them the price figure on the postcard*).
5. And we've found that [Give the one-line summary written on the postcard.]
6. Would you be interested in continuing to receive this information? (*Record answer*). Got it, thank you for your time!
7. If you have a few more minutes, we would love to help you make sure your free Yelp business page is up to date. Managing your page is free, and it is important to keep it up to date so your information is correct and potential customers can find you.
8. Depending on whether the page has been claimed:
  - A. [*If page has not been claimed*]: Great, is this the email you want to use to login? (*show them the email you have if you have one*). I'll make you a temporary password so you can log back in later and change it. (*proceed to sign up*)
  - B. [*If page has been claimed*]: Great, is this the email you have as your login? (*show them the email you have if you have one*). If you can log in, I can show you some of the new information options we have, and we can check that all of the information is up to date (*proceed to check the page*).
9. Check their page with them and make sure hours and other information is up to date.
10. Thank you, glad I could help. Have a good day – and feel free to call this 1-800 number with any questions! (*Point to phone # on back of pamphlet*)

If they are "not interested":

- Got it, just as a quick preview, [give the summary one-liner written on the postcard]
- I'll just leave the pricing information here with you (*hand over pamphlet and postcard*).
- "Thank you for your time, have a nice day" and exit the business.

## 2. Control Version: Standard Canvassing

\*Walk up to the cashier with brochure and postcard in hand\*

1. Hi my name is \_\_\_. I'm from Yelp and I'm here to learn more about your salon and help you manage your free Yelp business page.
2. Are you the manager, or is there a manager I could chat with? (*Record whether they are the manager, owner, or someone else*)
3. *If they ask "what's Yelp?"* Explain that Yelp is the largest local search directory online platform where people go to find great local businesses. Basically the modern day Yellow pages (*Do a live search for their category of business to show them*).

If they say "OK!":

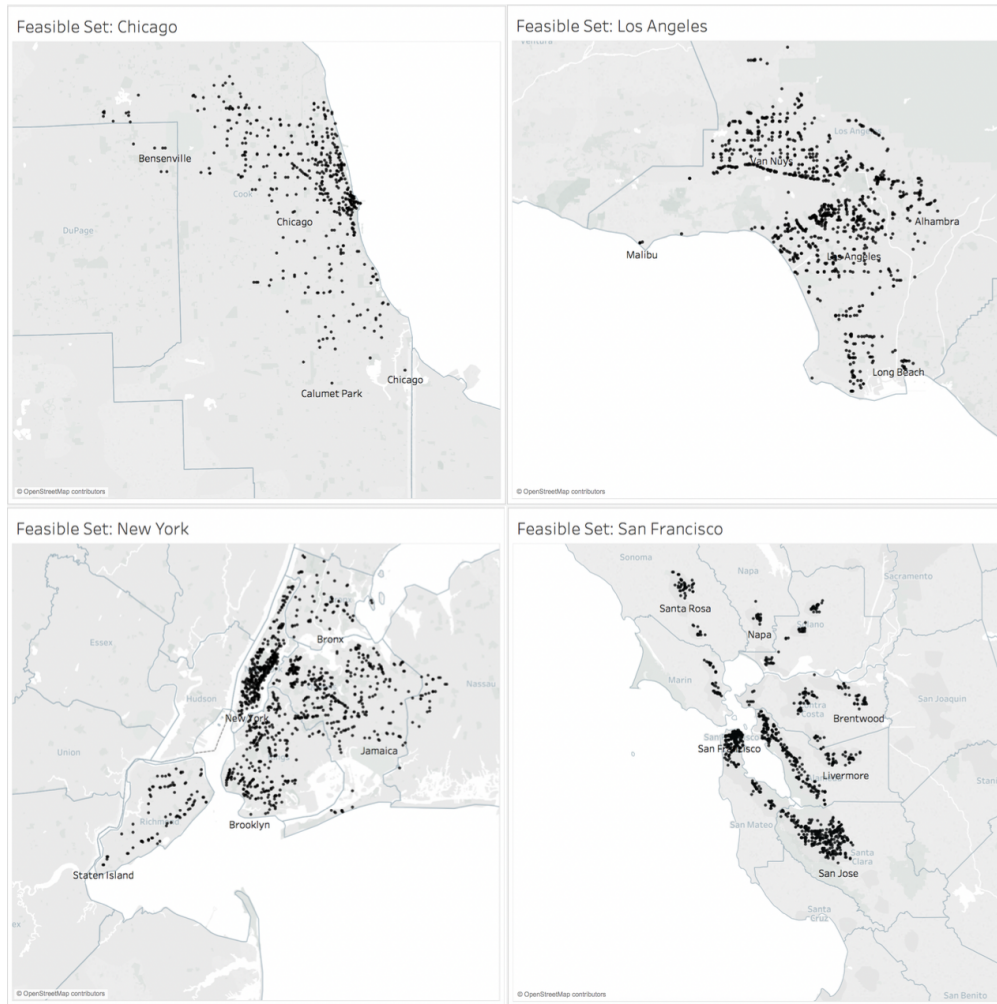
1. We would love to help you make sure your free Yelp business page is up to date. Managing your page is free, and it is important to keep it up to date so your information is correct and potential customers can find you.
2. Depending on whether the page has been claimed:
  - A. *[If page has not been claimed]:* Great, is this the email you want to use to login? (*show them the email you have if you have one*). I'll make you a temporary password so you can log back in later and change it. (*proceed to sign up*)
  - B. *[If page has been claimed]:* Great, is this the email you have as your login? (*show them the email you have if you have one*). If you can log in, I can show you some of the new information options we have, and we can check that all of the information is up to date (*proceed to check the page*).
3. Check their page with them and make sure hours and other information is up to date.
4. Thank you, glad I could help. Have a good day – and feel free to call this 1-800 number with any questions! (*Point to phone # on back of pamphlet*)

If they are "not interested":

- (*Hand over pamphlet and postcard*)
- "Thank you for your time, have a nice day" and exit the business.

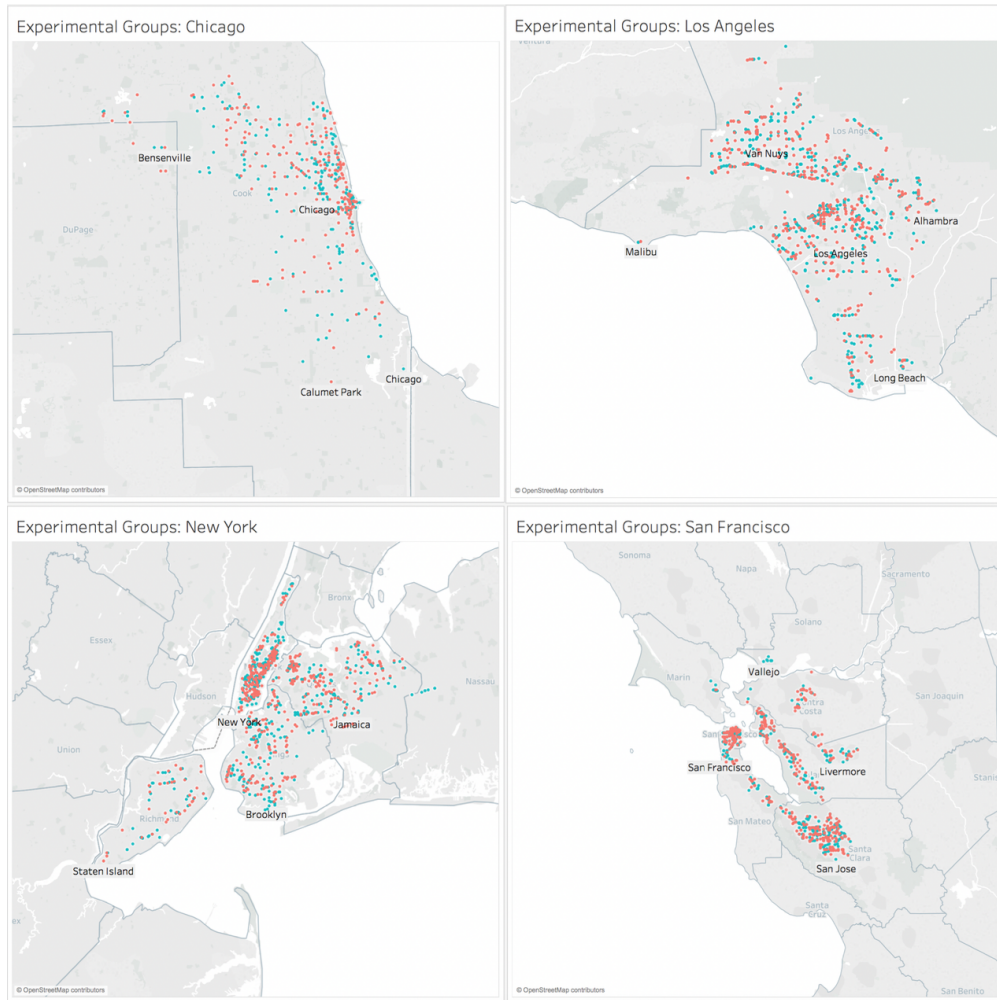
Notes: This shows the scripts that canvassers used in control and treatment conditions. One of the Yelp managers and I individually trained every canvasser by practicing the script with mock scenarios, and canvassing together for at least 3-5 hours. We checked in with every canvasser at the beginning and end of each daily shift, and were in constant communication with them throughout their shift via chat. Canvassers were not aware of the experiment.

Figure A.4: Map of firms in the eligible set



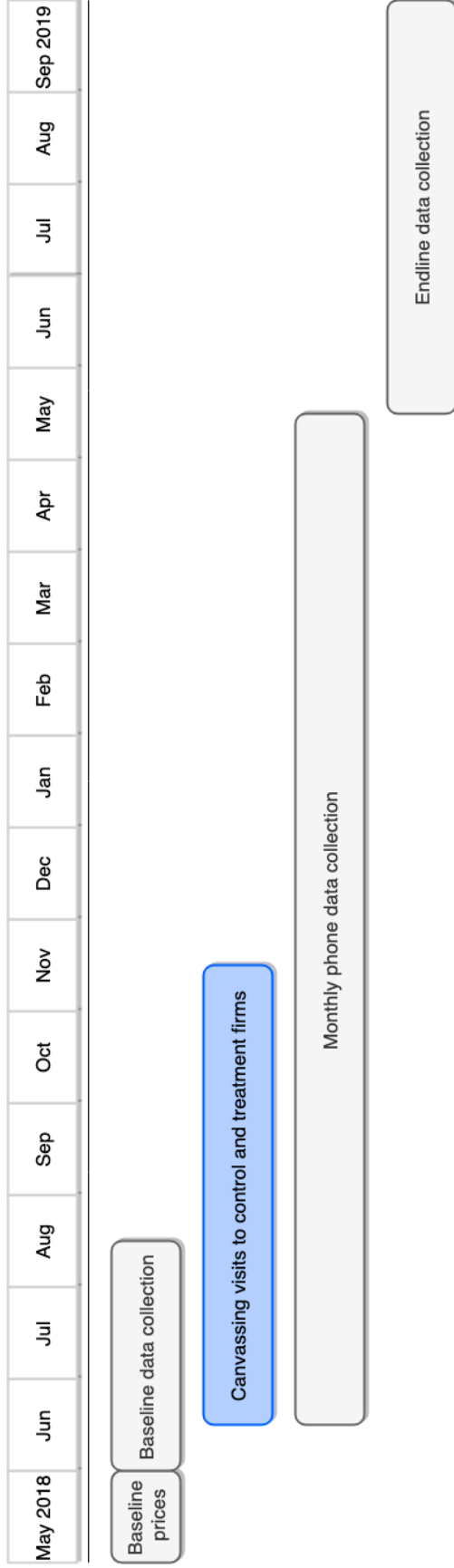
Notes: This map shows all firms in the eligible set across each of the four cities.

Figure A.5: Map of firms in the experimental sample



Notes: This map shows all firms in the experimental sample across each of the four cities. Control firms are in red, while treatment firms are in blue. Firms in the Bronx and outer Queens area are missing in New York, and firms in the outer North Bay area are missing for San Francisco, compared to the eligible set.

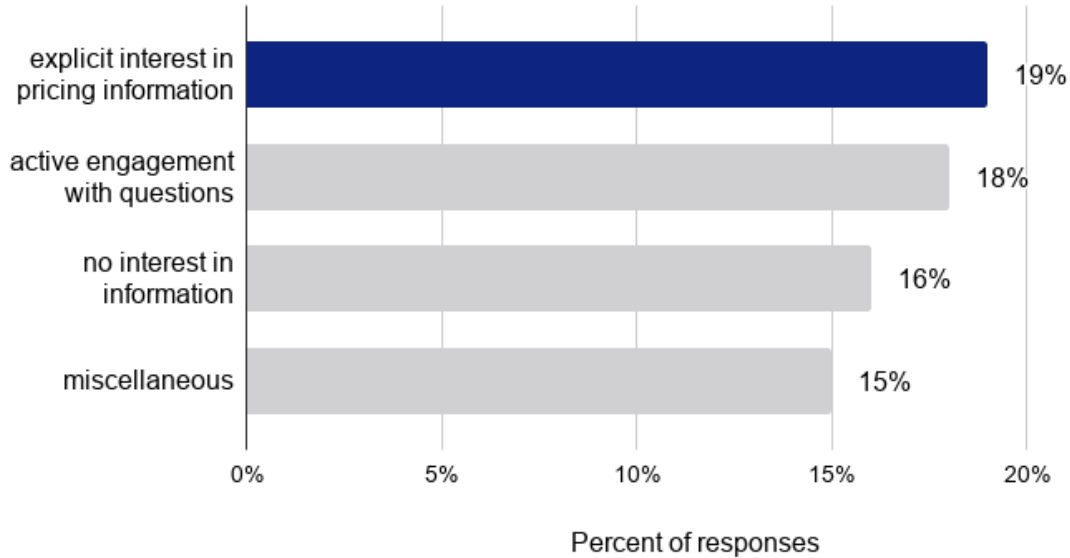
Figure A.6: Experimental timeline



Notes: This figure shows the experimental timeline. Baseline prices were collected in May 2018, and continued to be collected on a monthly basis until May 2019. Baseline quality data were collected between June - August 2018, where it was staggered by neighborhoods to ensure that data were collected before canvassing visits. Endline data were collected between June and September 2019.



Figure A.7: Comments by treatment firms at the time of treatment



Notes: This figure shows the categories of responses across treatment firms, which were noted by canvassers that delivered the informational treatment. Canvassers recorded comments as close to verbatim as possible. Two research assistants later coded these comments into categories, with any conflicts sent to a third research assistant. The remaining 32% of treatment firms did not make comments that were noted by canvassers. In these cases, canvassers simply noted that they were able to help the firm log in or claim their account (12%), or that they were busy (7%), friendly (6%), difficult to communicate with (4%), or answered questions quickly (3%).

Table A.1: Compliance and attrition across experimental conditions

	(1) Treatment <i>Number of Firms</i>	(2) Treatment <i>% of Firms</i>	(3) Control <i>Number of Firms</i>	(4) Control <i>% of Firms</i>	(5) p-value
Non-compliance	25	1.58	33	2.01	0.36
Closed	88	5.58	73	4.45	0.14
No price data	20	1.27	16	0.98	0.43
Observations	1578	1578	1640	1640	3218

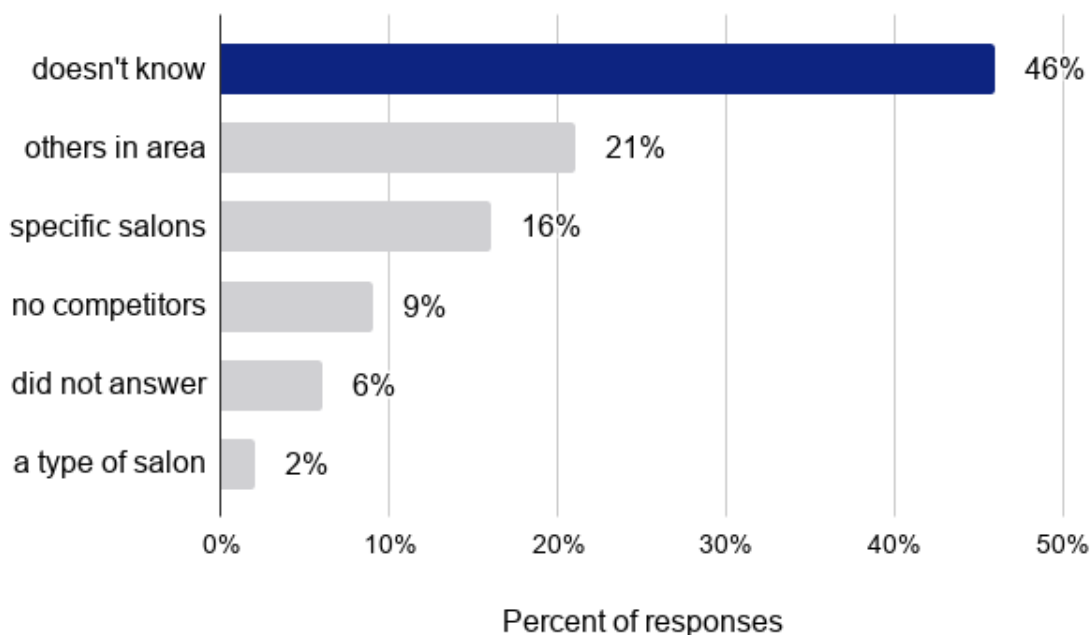
Notes: Non-compliance denotes firms that rejected any conversation with Yelp canvassers when they arrived. In these cases, the firm did not receive any information from the canvassers. “Closed” represents firms confirmed as closed or no longer offering nail services after the canvassing visit. “No price data” represents firms that were no longer reachable after the canvassing visit but not confirmed as closed or no longer offering nail services. Column 5 shows the p-value of the difference between treatment and control firms.

## **B Baseline knowledge of competitors**

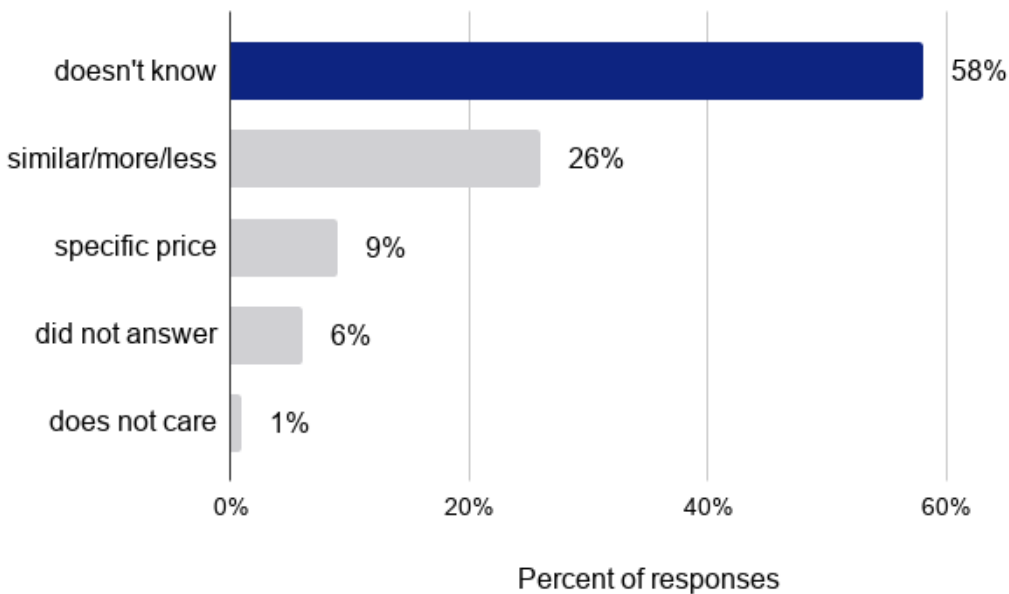
This appendix shows stated measures of baseline knowledge of competitors at treatment firms. Figure B.1 categorizes managers' responses to questions on their primary competitors. Figure B.2 further disaggregates responses in the category, "others in area". Figure B.3-4 analyze how the stated baseline knowledge of competitors varied by the level of competition faced, measured by the firm's distance from the nearest competitor and the baseline price dispersion across its 9 nearest competitors. Figures B.5-7 show how the stated baseline competitor knowledge varied by whether the firm charged higher- or lower-end prices, age, and size.

Figure B.1: Baseline knowledge of competitors

(a) Knowledge of primary competitors across managers at treatment firms

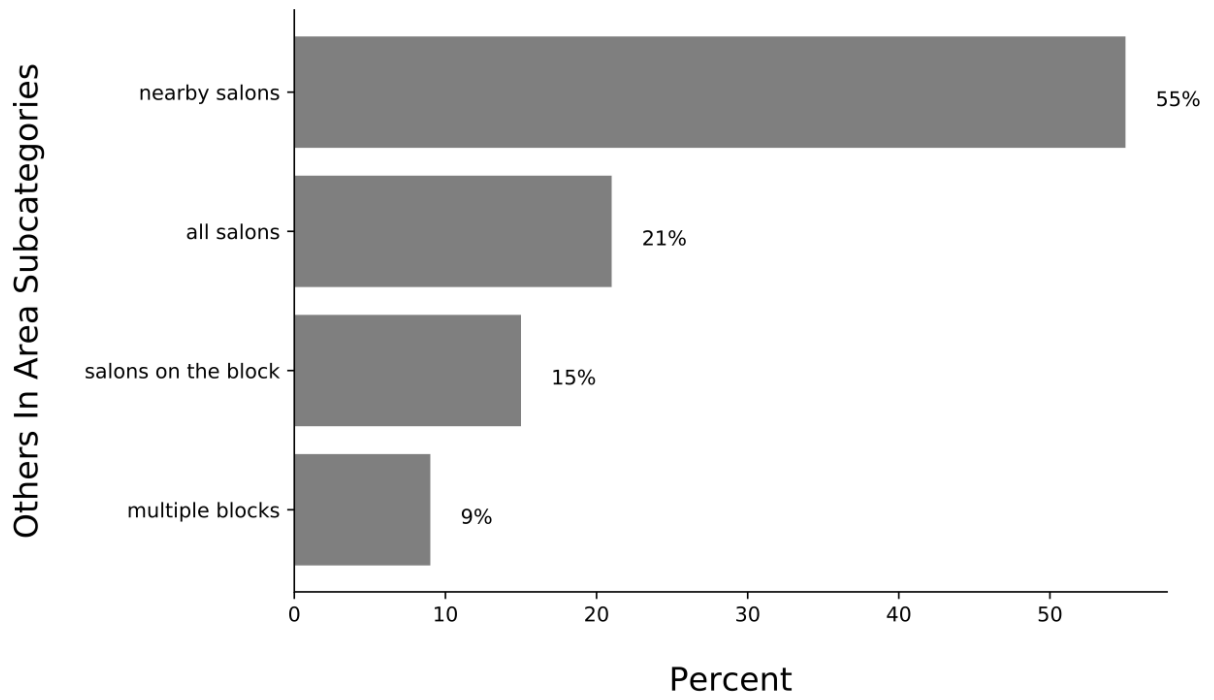


(b) Knowledge of competitor pricing across managers at treatment firms



Notes: Figure (a) shows the breakdown of manager responses to the question “who do you consider as your primary competitors?” across 1,383 (out of 1,578) treatment firms with whom Yelp canvassers were able to have a conversation to deliver pricing information. Any salons unwilling or too busy to answer the question, or disinterested in answering follow-up questions or continuing the conversation, were counted as “did not answer”. Figure (b) shows the breakdown of responses to the question “what do you think [your primary competitor(s)] charge for a regular manicure?” asked by Yelp canvassers to treatment firms.

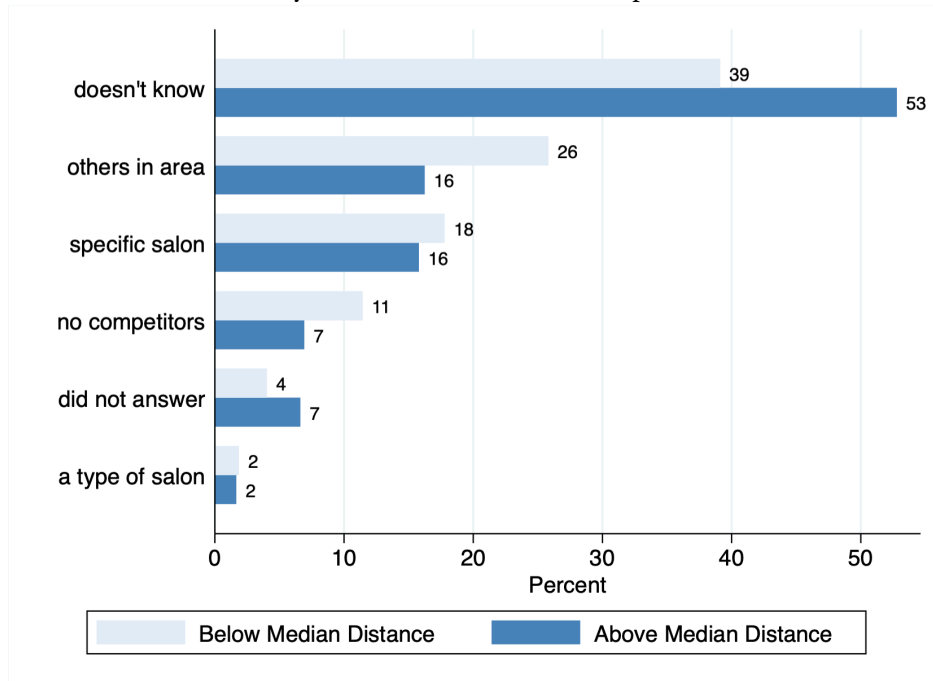
Figure B.2: Breakdown of responses categorized as “others in area” to describe competitors



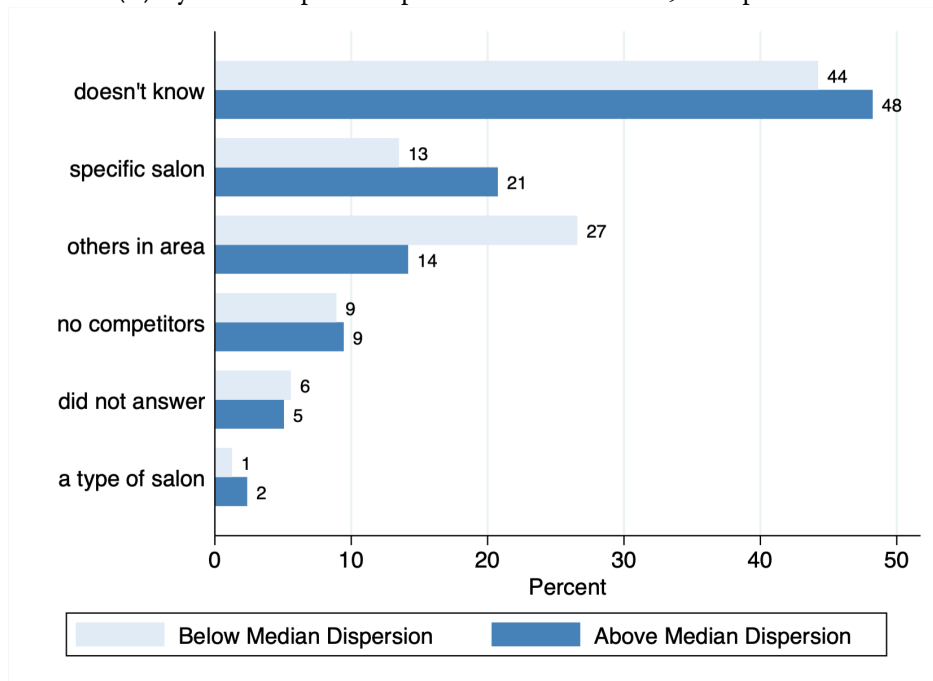
Notes: This figure shows the breakdown of 275 responses in “others in area”, based on the four types of phrasing used to describe other competitors in the area: all salons in the area, nearby salons, salons on the block, and multiple blocks.

Figure B.3: Knowledge of primary competitors by level of competition

(a) By distance from nearest competitor



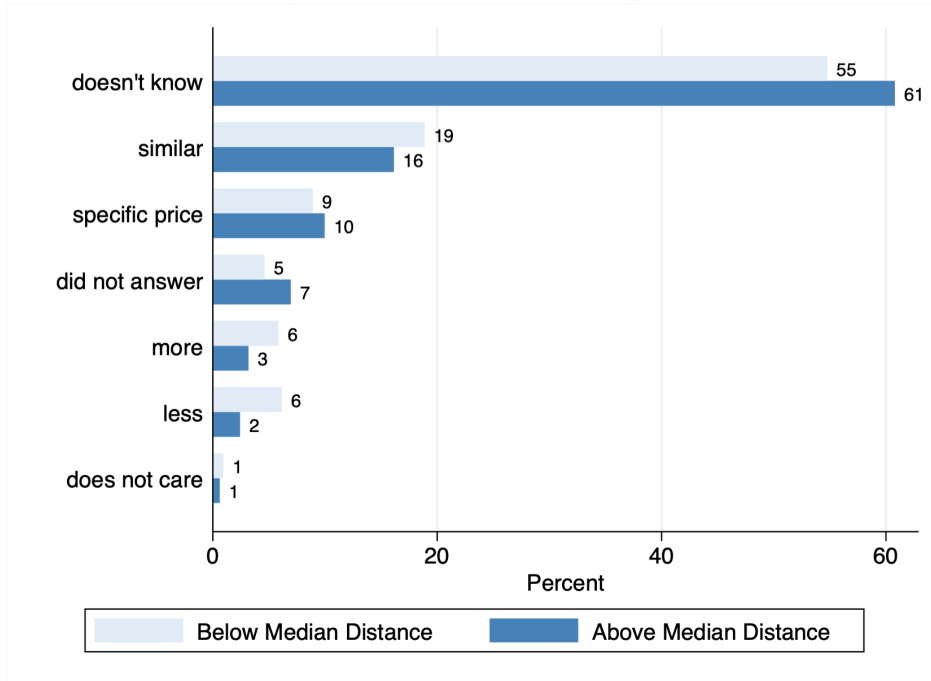
(b) By baseline price dispersion across nearest 9 competitors



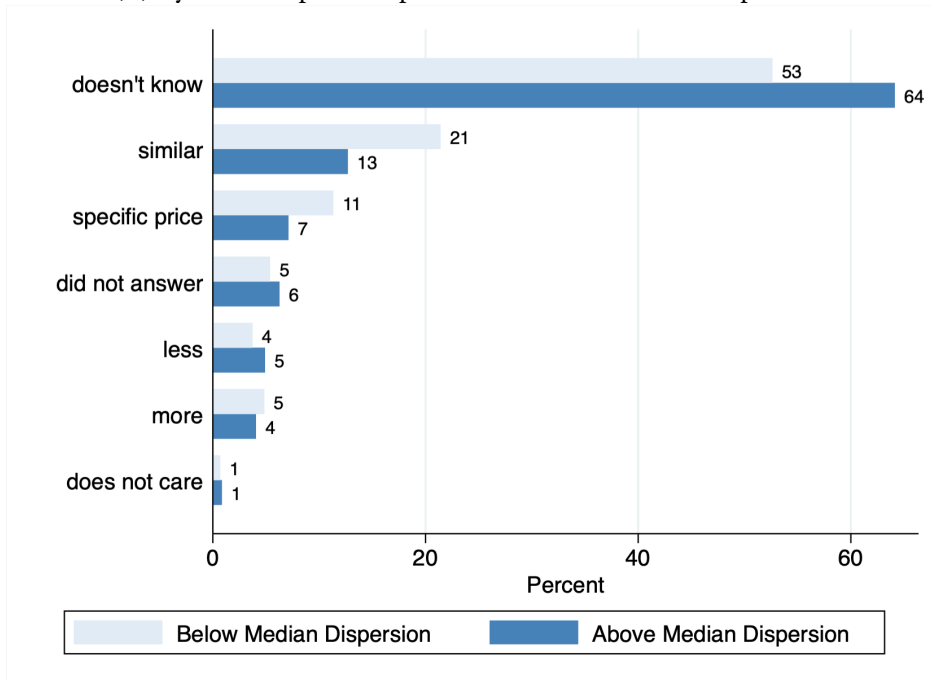
Notes: These figures break down managers' responses on their knowledge of competitors by two measures that proxy the level of competition. (a) uses the firm's distance from its nearest competitor as a measure of competition. (b) uses baseline price dispersion across its nearest 9 competitors as a measure of competition. For both of these measures, below median distance and dispersion map to higher levels of competition, as they suggest that competitors are closer and less dispersed in prices.

Figure B.4: Knowledge of competitor pricing by level of competition

(a) By distance from nearest competitor

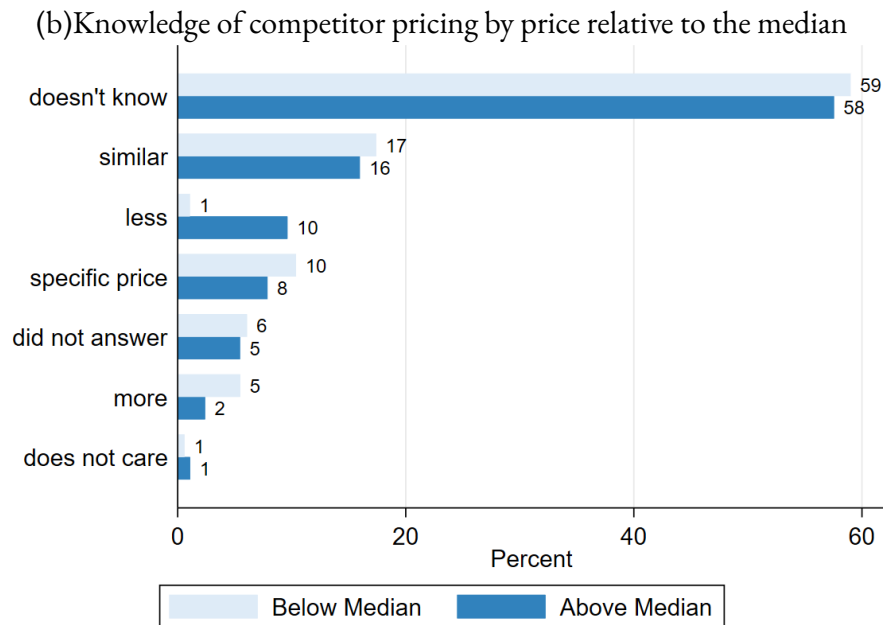
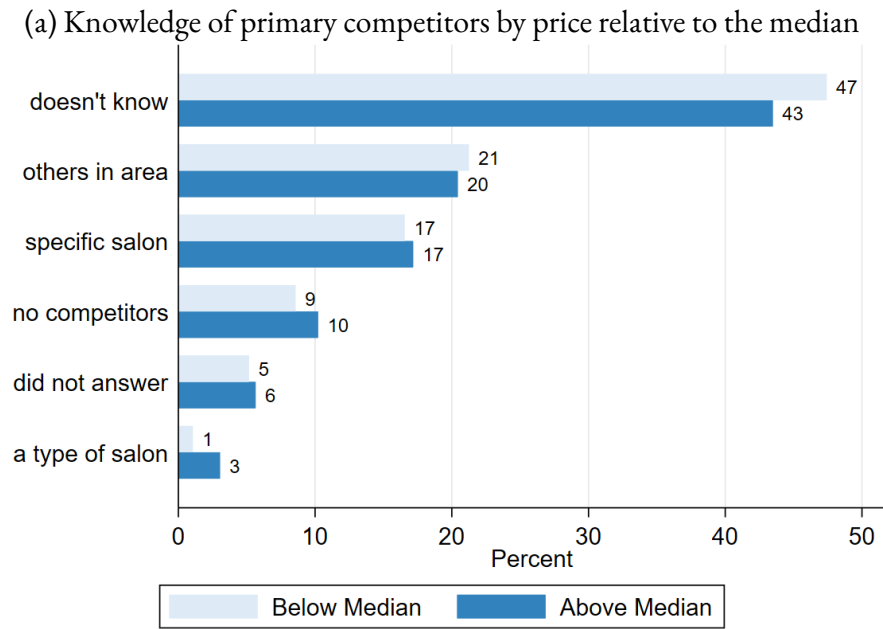


(b) By baseline price dispersion across nearest 9 competitors



Notes: These figures break down managers' responses on their knowledge of competitor prices by two measures that proxy the level of competition. (a) uses the firm's distance from its nearest competitor as a measure of competition. (b) uses baseline price dispersion across its nearest 9 competitors as a measure of competition. For both of these measures, below median distance and dispersion map to higher levels of competition, as they suggest that competitors are closer and less dispersed in prices.

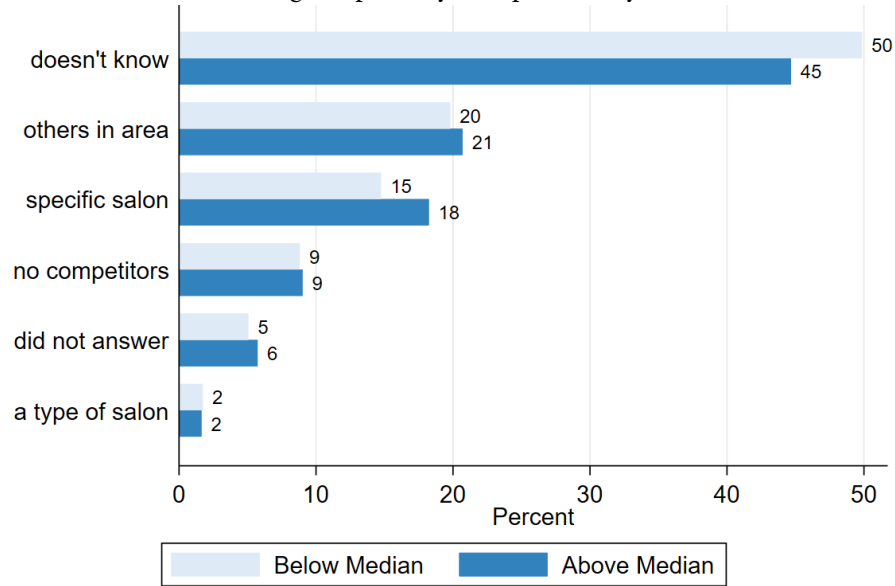
Figure B.5: Knowledge of competitors across higher- and lower-end firms (relative to median price in ZIP code)



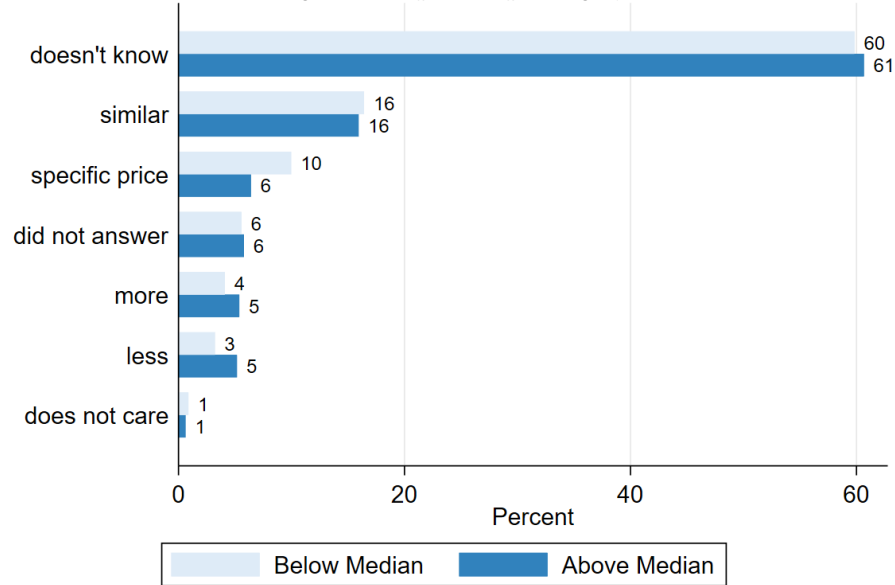
Notes: These figures break down managers' responses on their knowledge of competitors by whether the firm charged above- or below-median price in its ZIP code. (a) displays responses on primary competitors, and (b) displays responses on competitor prices.

Figure B.6: Knowledge of competitors by firm size

(a) Knowledge of primary competitors by firm size



(b) Knowledge of competitor pricing by firm size

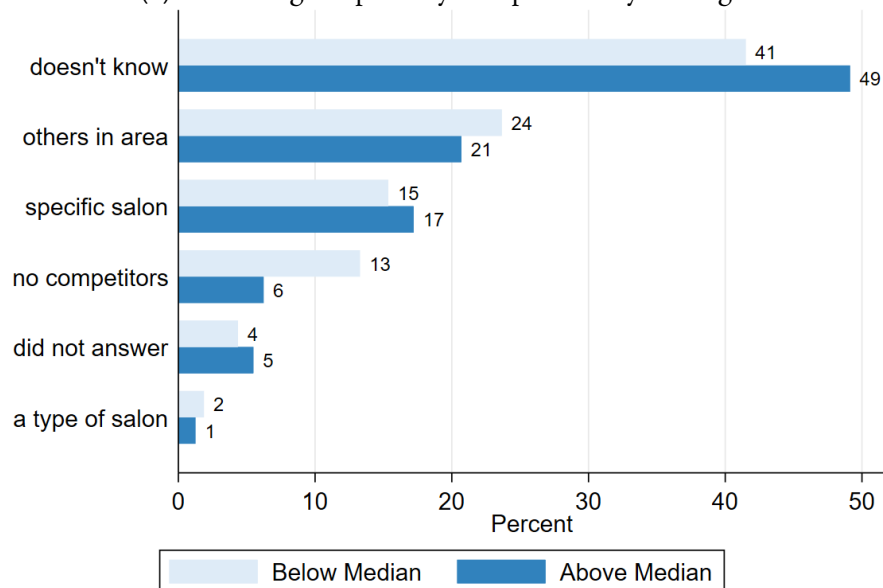


Notes: These figures break down managers' responses on their knowledge of competitors by the number of employees relative to the median size. (a) displays responses on primary competitors, and (b) displays responses on competitor prices.

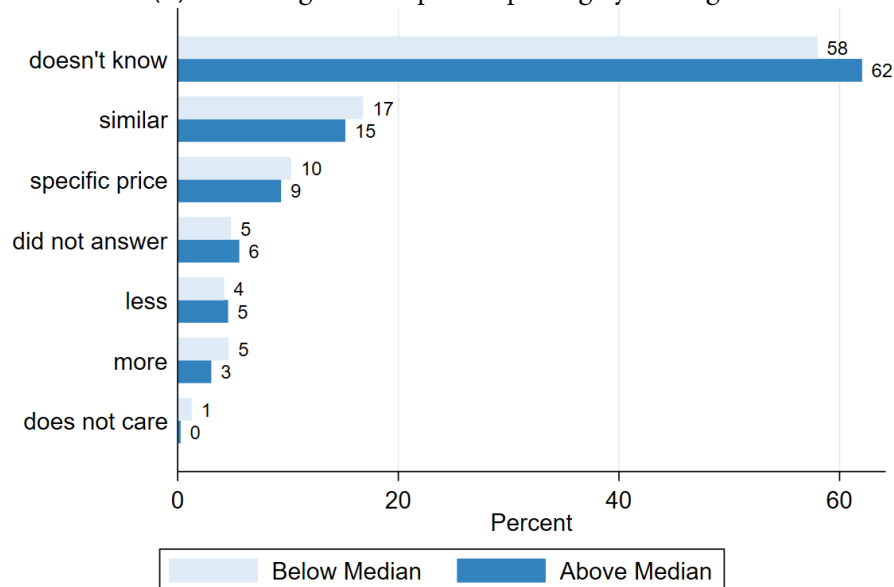


Figure B.7: Knowledge of competitors by firm age

(a) Knowledge of primary competitors by firm age



(b) Knowledge of competitor pricing by firm age



Notes: These figures break down managers' responses on their knowledge of competitors by the number of years they have been open relative to the median. (a) displays responses on primary competitors, and (b) displays responses on competitor prices.

## C Construction of pricing and quality measures

This appendix provides additional details on the construction of pricing and quality measures.

Pricing data were validated in two steps. The full list of salons was divided among data collectors, with a random subset (5%) additionally allocated to another data collector as a quality check. Once all data collectors submitted their data, any observations with a business closure, unreachable flag, conflict in prices across two data collectors, or a mismatch between the name and identifier were reassigned to data collectors. This step was repeated up to three times each month.

Quality data were collected as follows. For polish brands, data collectors were given a list of brands classified as low, medium, and high according to their retail price per bottle (below \$10; between \$10-\$20; more than \$20 respectively). They were instructed to select the highest level of polish brand they observed, as most firms used at least some lower-cost brands. They recorded any brands that were not present on this list, which were then coded ex-post using their retail prices.

For cleanliness and luxuriousness, data collectors were given a rubric of metrics to guide their coding, detailed in Appendix Table C.1.

To ensure accuracy on all quality measures, data collectors were required to take photos of the interior, polish brands, menu, and exterior, and 5% of photos were checked every week. Approximately 5% of firms were assigned to an additional independent data collector to validate quality measures.

Table C.1: Rubric to code cleanliness and luxuriousness

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**Instructions:** Please rate the salon’s cleanliness and luxuriousness, assigning the rating using the following guidelines. If you are in between categories and see any of what is listed for a lower rating, record the lower rating. If for any reason you cannot observe the salon interior, enter NA.

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Cleanliness

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1	Grime on countertops and/or nail clippings on floors, technicians are wearing their own outside clothing and no gloves, technicians are reusing tools after each customer, pedicure bath is reused after a customer finishes
2	General disarray or grime on countertops and floors, technicians are wearing their own outside clothing and no gloves, technicians are using some disinfection (e.g. UV lighting machine), pedicure bath is washed with water after a customer finishes
3	Generally clean countertops and floors, technicians are wearing some type of uniform but may not be wearing gloves, technicians are using liquid disinfection, pedicure bath appears to be disinfected after a customer finishes
4	The floor and surfaces are spotless, technicians are wearing neat clothing and gloves, tools are disposable and/or salon has an autoclave, pedicure area is being disinfected for at least 10min after a customer finishes

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Luxuriousness

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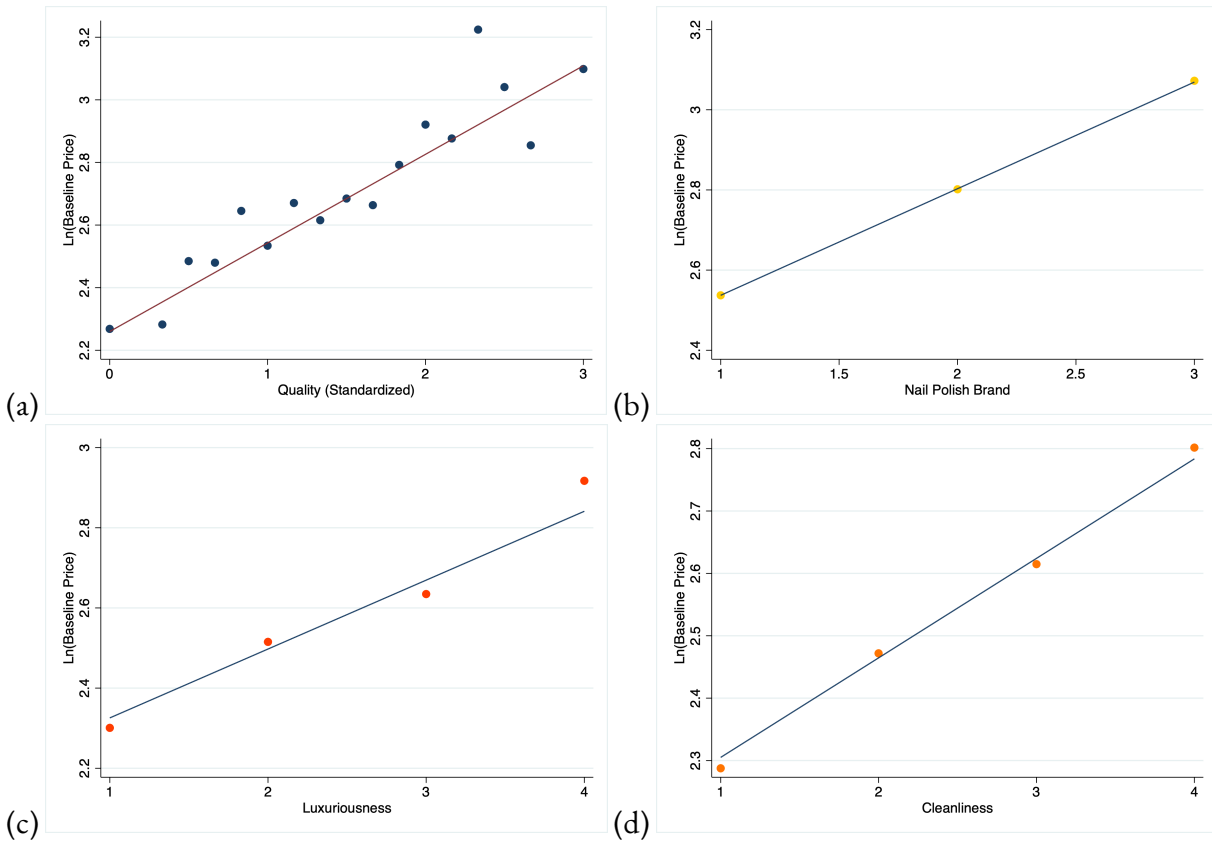
1	Small and cramped service area, no waiting area, no investment into decor (furniture, upholstery, or art) with stained walls and/or broken fixtures, no amenities provided
2	Small but comfortable service areas, some reception area even if small and not clearly separate from the rest of the salon, no broken fixtures or wall stains but little investment into decor, basic amenities (e.g. candy) may be provided
3	Spacious service area, small but separate reception area, some investment into decor (furniture, upholstery, or art), some amenities provided (e.g. water, disposable slippers, reading material)
4	Spacious and private or luxurious service area, security and/or spacious waiting area, high investment into decor (furniture, upholstery, or art), many amenities provided (e.g. drinks of choice, snacks, diversity of reading material, slippers/gowns)

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Notes: This table shows the rubric that data collectors used to code cleanliness and luxuriousness.

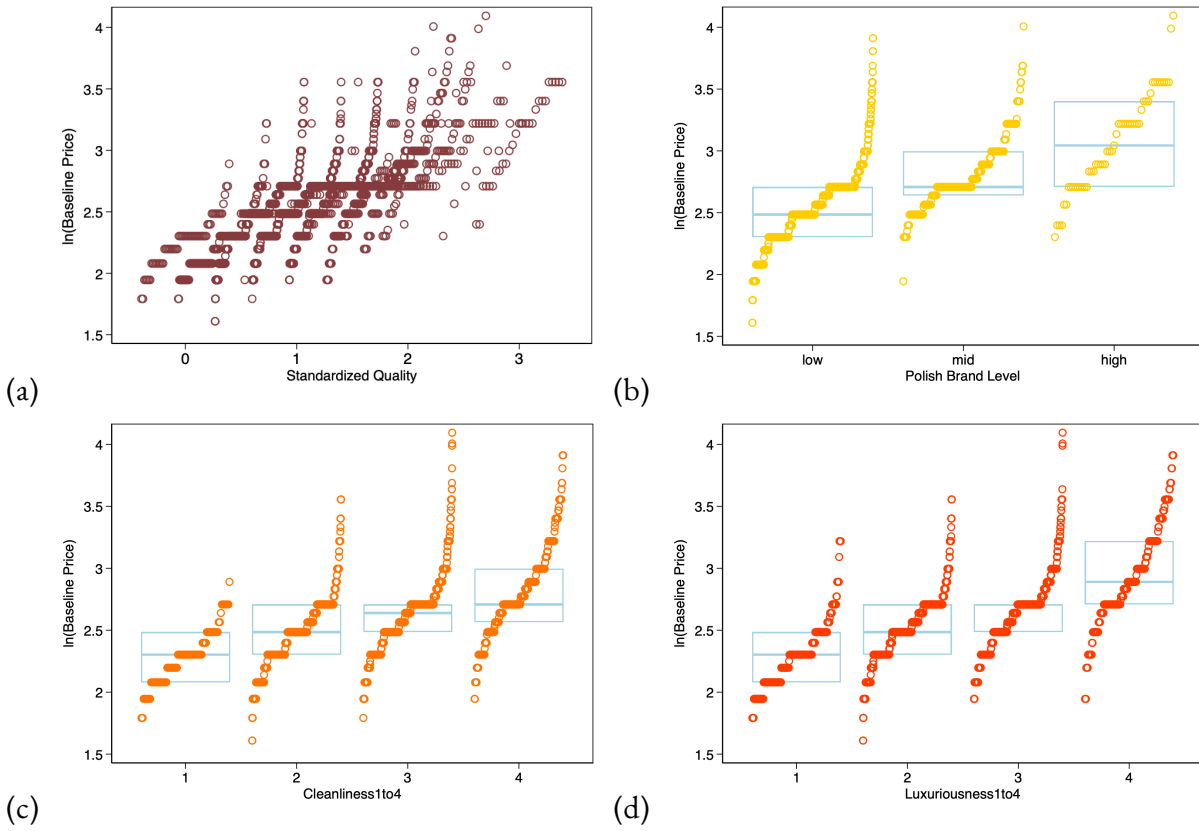
## D Baseline pricing and quality

Figure D.1: Average price across quality measures



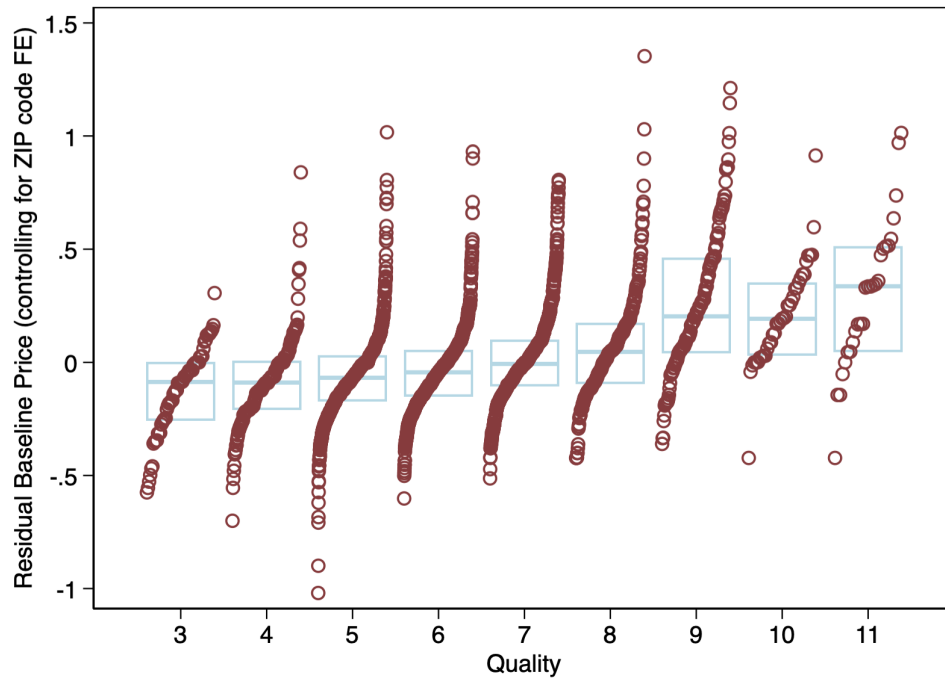
Notes: These figures plot the binscatter of logged baseline price on measures of baseline quality. (a) plots a standardized measure of baseline quality (a standardized sum of polish brands, cleanliness, and luxuriousness), and (b)-(d) plot each individual measure alone.

Figure D.2: Price dispersion across quality measures



Notes: These figures plot logged baseline price on measures of baseline quality, showing every firm observation (represented by a circle) within each quality level sorted by price, along with the interquartile range. (a) plots the standardized sum of polish brands, cleanliness, and luxuriousness, and (b)-(d) plot each individual measure alone.

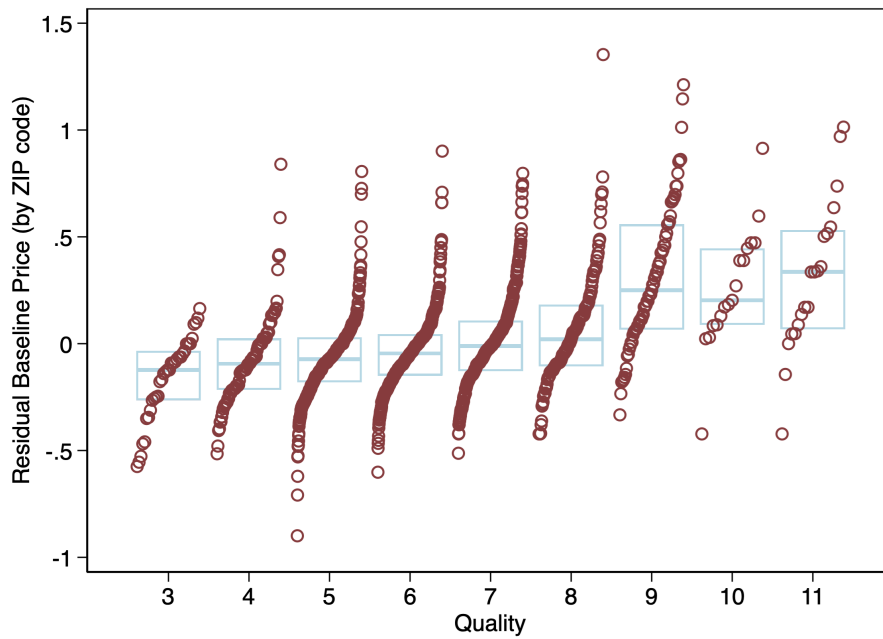
Figure D.3: Residual dispersion in firm pricing by quality level, controlling for ZIP code fixed effects



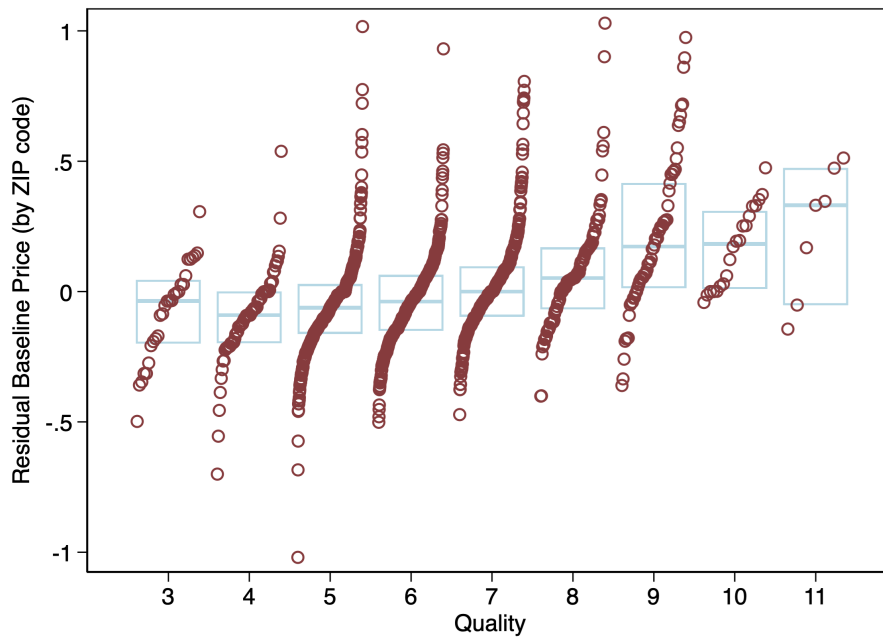
Notes: This figure plots a binscatter of residualized logged baseline price on baseline quality. Quality represents a sum of the firm's polish brand level, cleanliness, and luxuriousness, and ranges from 3 (lowest) to 11 (highest). This is robust to using a standardized sum of polish brands, cleanliness, and luxuriousness, as well as each individual measure alone.

Figure D.4: Dispersion in price-quality positions by level of competition

(a) Below median distance from nearest competitor

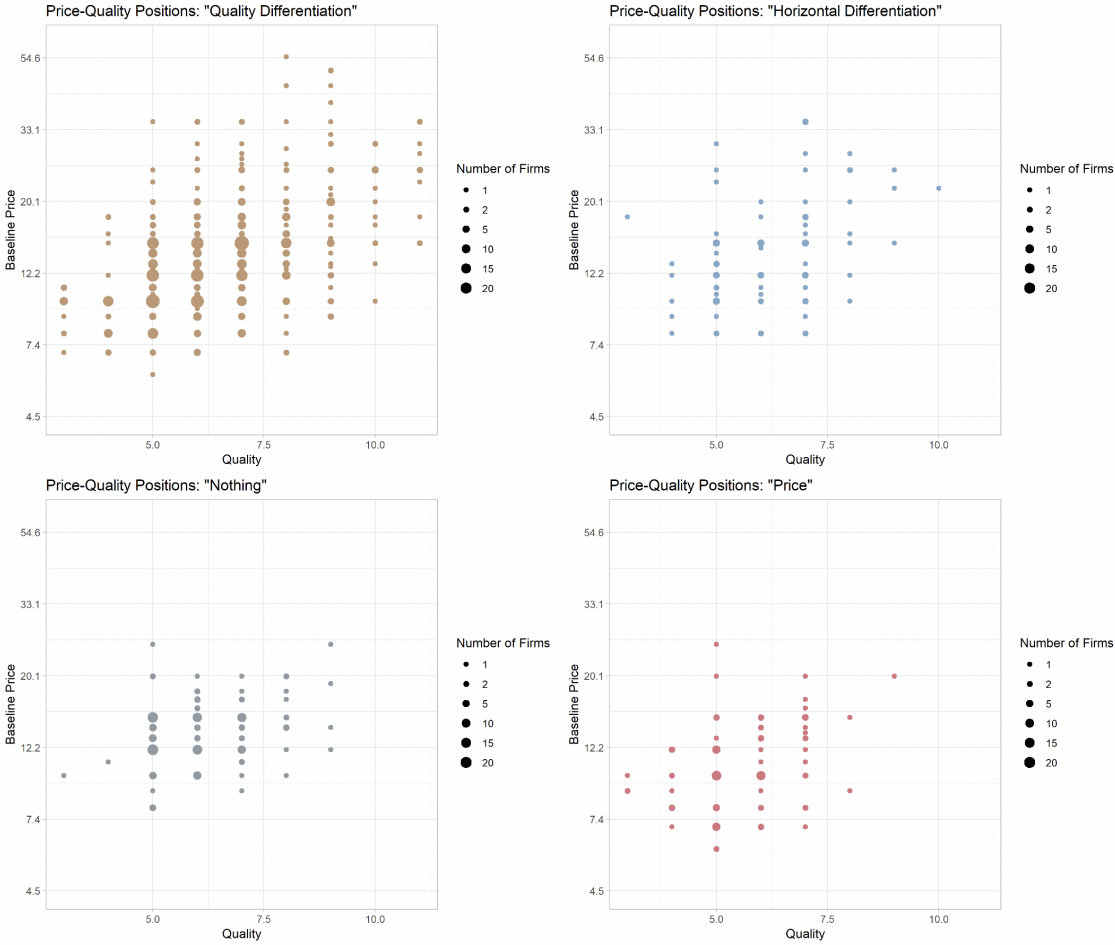


(b) Above median distance from nearest competitor



Notes: This figure separates Appendix Figure D.3 into below and above median distance from the nearest competitor to show the level of dispersion in price-quality positions by competition level.

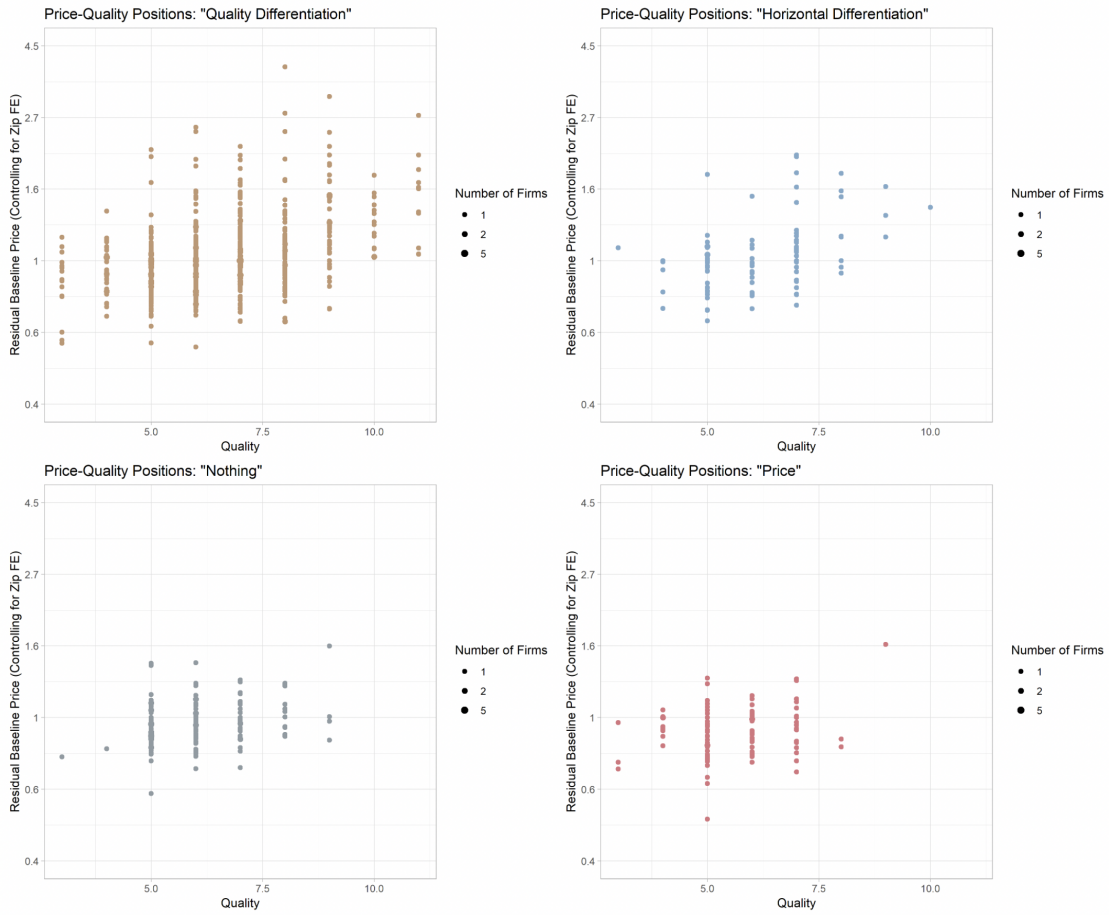
Figure D.5: Price-quality positions by self-descriptions of positioning



Notes: These figures plot firms by managers' stated positioning descriptions for the largest four response types (quality differentiation, variants of horizontal differentiation, nothing, price) and show their actual pricing and quality decisions. The size of the dot indicates the number of firms clustered at a given position.



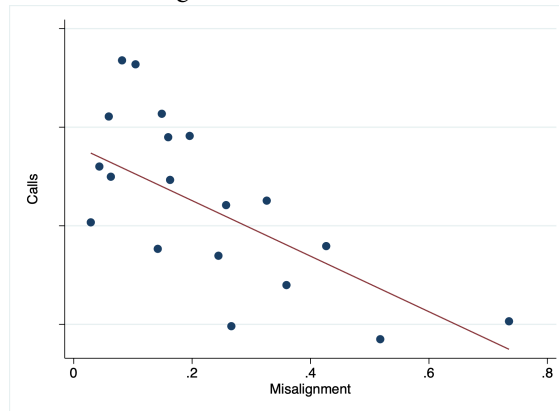
Figure D.6: Residual price-quality positions by self-descriptions of positioning



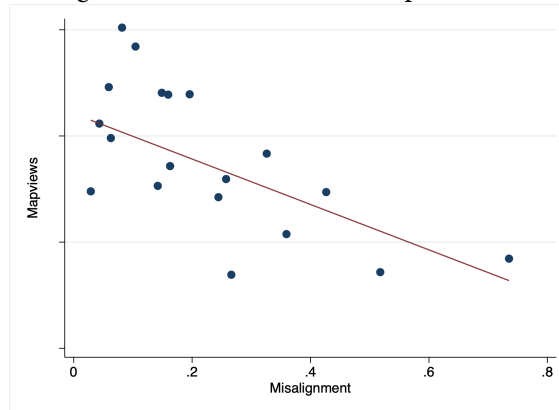
Notes: These figures plot firms by their stated positioning descriptions for the largest four response types (quality differentiation, variants of horizontal differentiation, nothing, price) and show their actual pricing and quality decisions. The y-axis plots residual baseline price, after controlling for ZIP code fixed effects. The size of the dot indicates the number of firms clustered at a given position.

Figure D.7: Misalignment and performance

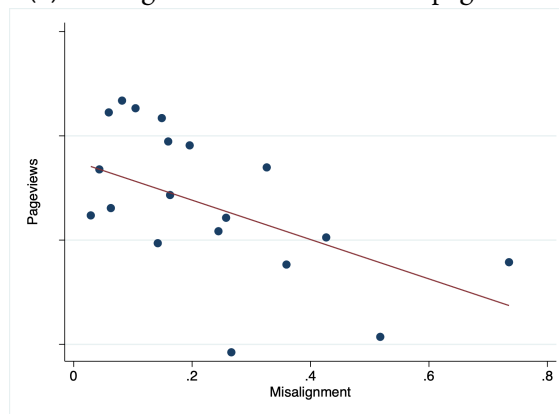
(a) Misalignment and number of calls



(b) Misalignment and number of map directions views



(c) Misalignment and number of pageviews



Notes: These figures plot the binscatter of baseline performance measures on baseline misalignment in pricing and quality, which is measured as the absolute error from the best-fit line regressing baseline price on quality and ZIP code fixed effects. (a)-(c) plot the natural log of the number of calls, map direction views, and page views on Yelp, respectively.

Table D.1: Relationship between price-quality misalignment and performance at baseline

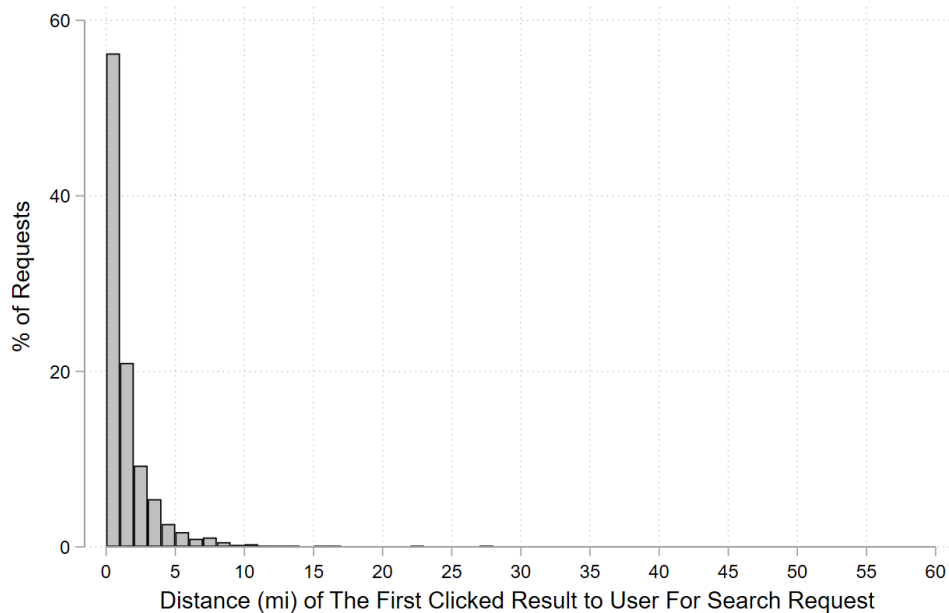
	(1)	(2)	(3)
	Calls	Pageviews	Map Directions Views
Misalignment	-0.714*** (0.226)	-0.588*** (0.171)	-0.501** (0.216)
Price	-0.010 (0.009)	0.014** (0.007)	-0.021** (0.009)
Rating on Yelp	0.529*** (0.068)	0.424*** (0.053)	0.772*** (0.066)
Number of Yelp Reviews	0.010*** (0.001)	0.009*** (0.001)	0.009*** (0.001)
Constant	-0.708 (0.564)	3.060*** (0.368)	-0.916 (0.597)
Zip Code FE	Yes	Yes	Yes
Year Opened FE	Yes	Yes	Yes
Observations	1965	1965	1965

Notes: This table reports regression results regressing baseline proxies of performance (natural logs of the number of calls, page views, and map direction views on Yelp) on baseline misalignment, price, Yelp rating, Yelp number of reviews, and fixed effects for ZIP code and year opened. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

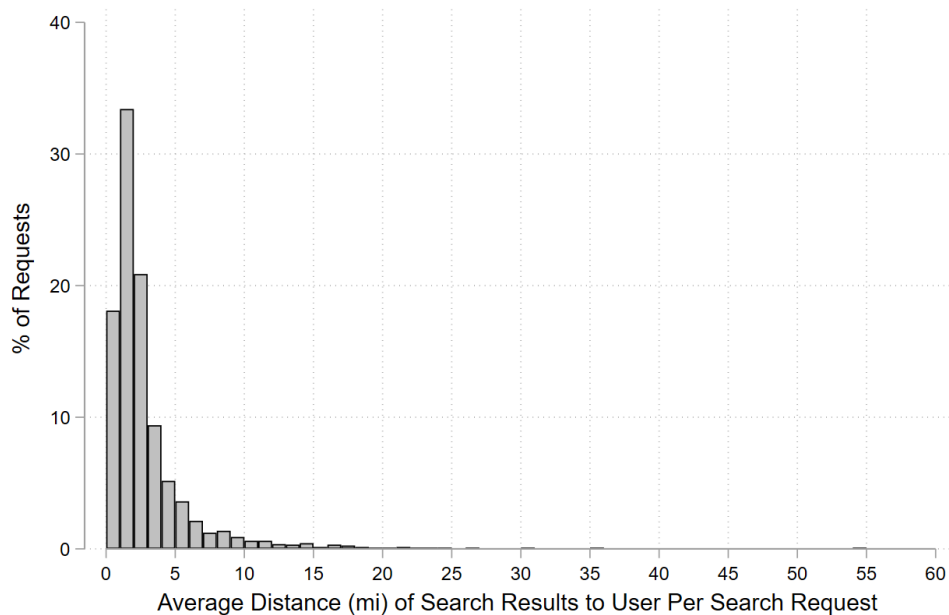
## E Consumer search on Yelp

Figure E.1: Customer distance to the first clicked business in Yelp search requests

(a) Customer distance to the first clicked business



(b) Average customer distance to businesses on first page of search results



Notes: These figures are based on data on all customer search requests for nail salons in a given week in the city of Los Angeles, which is the geographic market with the most geographically dispersed salons within this experiment. Figure (a) plots a histogram of the distance (in miles) to the business that the user clicks on first after conducting a Yelp search request. Figure (b) plots a histogram of the average distance (in miles) to businesses shown on the first page of Yelp search results, as a comparison point for (a) to better inform how distance features in consumer search behavior.

Figure E.2: Example of a Search Result Page on Yelp

(a) Example of a search result page

The screenshot shows the Yelp search results for 'nail salon' in 'Upper West Side, Manhattan, NY'. The search bar at the top contains 'nail salon' and the location 'Upper West Side, Manhattan, NY'. Below the search bar are navigation tabs for 'Restaurants', 'Home Services', 'Auto Services', and 'More'. On the left side, there are filters for 'Beauty & Spas', 'Hair Salons', 'Features', 'Neighborhoods', and 'Distance'. The main content area displays three search results:

- 2. MASA.KANAI**: (917) 409-2432, 570 Columbus Ave, Upper West Side. Rating: 4.5 stars (87 reviews). Price: \$\$ - Hair Salons, Nail Salons, Day Spas. Review snippet: "never felt or looked better. We get facials, and **pedicures**, massages and **manicures**. Why not show our scalps some love too? I will definitely be back for more! One tip I have: bring..."
- 3. Susie's Nail Salon**: (212) 496-8874, 252 W 72nd St, Upper West Side. Rating: 4.5 stars (191 reviews). Price: \$\$ - Nail Salons. Review snippet: "I love Susie's nails. I have been here for many gel **manicures** and **pedicures** and they do such a great time every time. I have had multiple different technicians and they're all..."
- 4. Q TEN NAIL&SPA**: (917) 261-7666, 2020 Broadway, Upper West Side. Rating: 4.5 stars (79 reviews). Price: \$\$ - Nail Salons, Massage, Waxing. Review snippet: "Pretty and clean nail salon. They offer great special packages. For example, you can get a **manicure** with a 15 minute massage for \$32. Great price for this area. The staff here is..."

At the bottom of the results, there is a 'Request an Appointment' button and a note that it 'Responds in about 1 day'.

(b) Example of a search result highlighting business prices

The screenshot shows a specific search result for '9. Mochi Nail & Spa' in Cobble Hill. The business is highlighted with a 'Verified License' badge and icons for 'Budget friendly' and 'Certified professionals'. The review snippet highlights pricing: "\$45 dollars for a gel **manicure** is high for the area. Especially for a mediocre gel **manicure**. The gel removal was the most aggressive I have ever had, top part of my nail was scraped..."

Notes: These figures display an example of search results pages on Yelp. Figure (a) shows an example of a search result page, as conducted using a search for a nail salon in New York in April 2020. Figure (b) highlights a specific search result from this search result page that highlights pricing details.

Figure E.3: Example of a business page on Yelp

(a) Sample business page

The screenshot shows a Yelp business page for 'A6 Nail'. At the top, there are three images: the interior of the salon, a hand holding a nail, and a hand holding a nail polish bottle. The business name 'A6 Nail' is displayed with a 4.5-star rating and 161 reviews. It is marked as 'Claimed', '\$\$', and categorized as 'Nail Salons'. The hours are listed as 'Closed 11:00 AM - 8:30 PM' and 'Hours updated 1 month ago'. A 'See 241 photos' button is visible.

Below the images are buttons for 'Write a Review', 'Add Photo', 'Share', and 'Save'. The 'COVID-19 Updates' section includes 'Health & Safety Measures' such as 'Hand sanitizer provided', 'Masks required', and 'Contactless payments'. The 'Services' section features a 'Website menu' button. The 'Services Offered' section lists various services like 'Callus Removal', 'Classic Manicure', 'Classic Pedicure', 'Eyebrow Services', 'Foot Massage', 'Gel Nail Removal', and 'Nail Art', with a 'See 2 More' button.

The 'Review Highlights' section shows three snippets of customer reviews with accompanying photos. The 'Location & Hours' section includes a map of the location in South Village, New York, and a table of hours: Monday 11:00 AM - 8:30 PM and Tuesday 11:00 AM - 8:30 PM.

On the right side, there is a 'Request an Appointment' section showing a response time of 20 minutes and a 95% response rate, with a 'Request an Appointment' button and a note that 89 locals recently requested an appointment. Below this is contact information for 'a6nail.com', the phone number '(646) 398-9110', and 'Get Directions' to 128 Thompson St, New York, NY 10012.

The 'You Might Also Consider' section features two sponsored listings: 'Enjoy Nail & Spa II' with a 4.5-star rating and 161 reviews, and 'Union Nails' with a 5-star rating and 128 reviews. Each listing includes a small image and a snippet of a review.

(b) Example of a Q&A section on the business page

---

**How much is a gel mani + regular pedi? Do you have any discounts/deals going on right now?**



Hailey W. of A6 Nail  
Business Owner

Hi, Michelle. We currently offer 10% off any mani+pedi combo! Our gel manicure is \$48; regular pedicure is \$45. Thank you!

1 year ago

[View question details](#)

---

**Do you guys do acrylics? If yes, how much?**



Hailey W. of A6 Nail  
Business Owner

Hi, Emily. We do not do acrylic nails. Thank you.

1 year ago

[View question details](#)

---

**How much is a mani/pedi?**



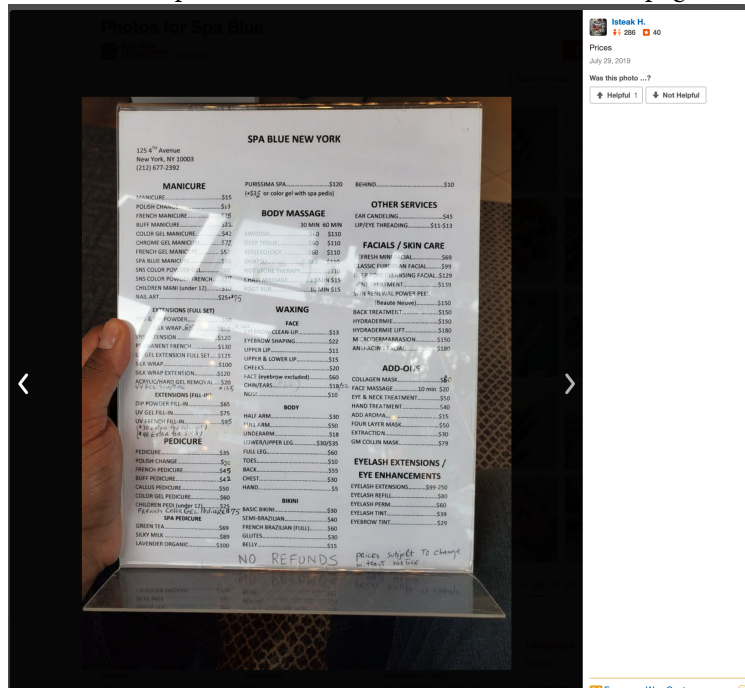
Hailey W. of A6 Nail  
Business Owner

Our classic manicure is \$25; classic pedicure is \$45; gel manicure is \$48; gel pedicure is \$68.

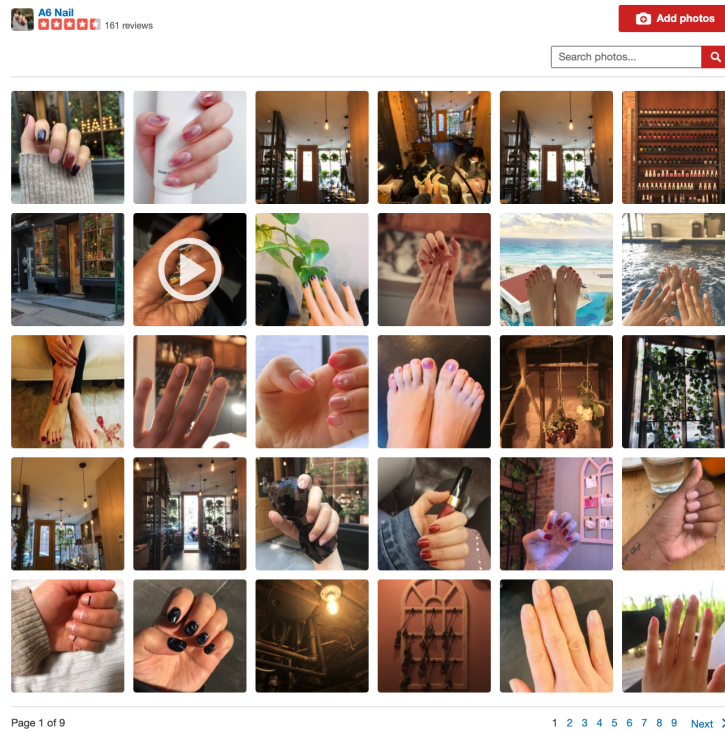
1 year ago

[View question details](#)

(c) Example of a Photos section on the business page



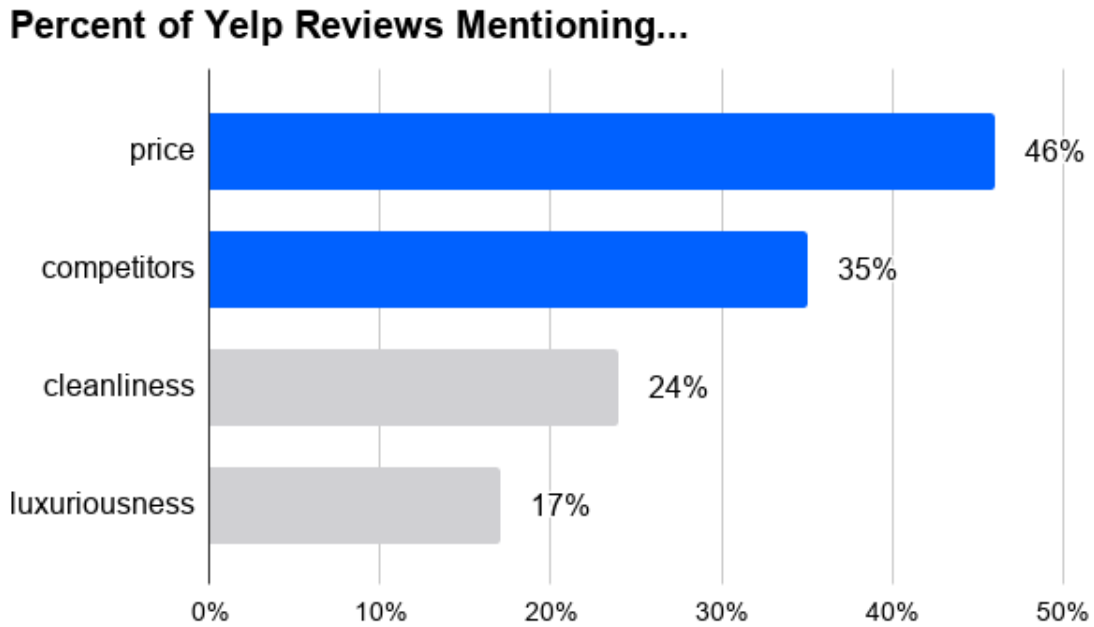
Photos for A6 Nail



Notes: These figures display examples of business pages on Yelp. Figure (a) shows the top of a sample business page, of a nail salon in New York (screenshot taken in April 2020). Figure (b) displays a specific section of the business page that shows questions and answers about the business that often highlight specific services and prices. Figure (c) shows examples of photos uploaded by consumers to the business page, showing (1) the menu of services and prices of the business, and (2) examples of service quality, including the decor and interior of the salon, as well as nail polish brands used.



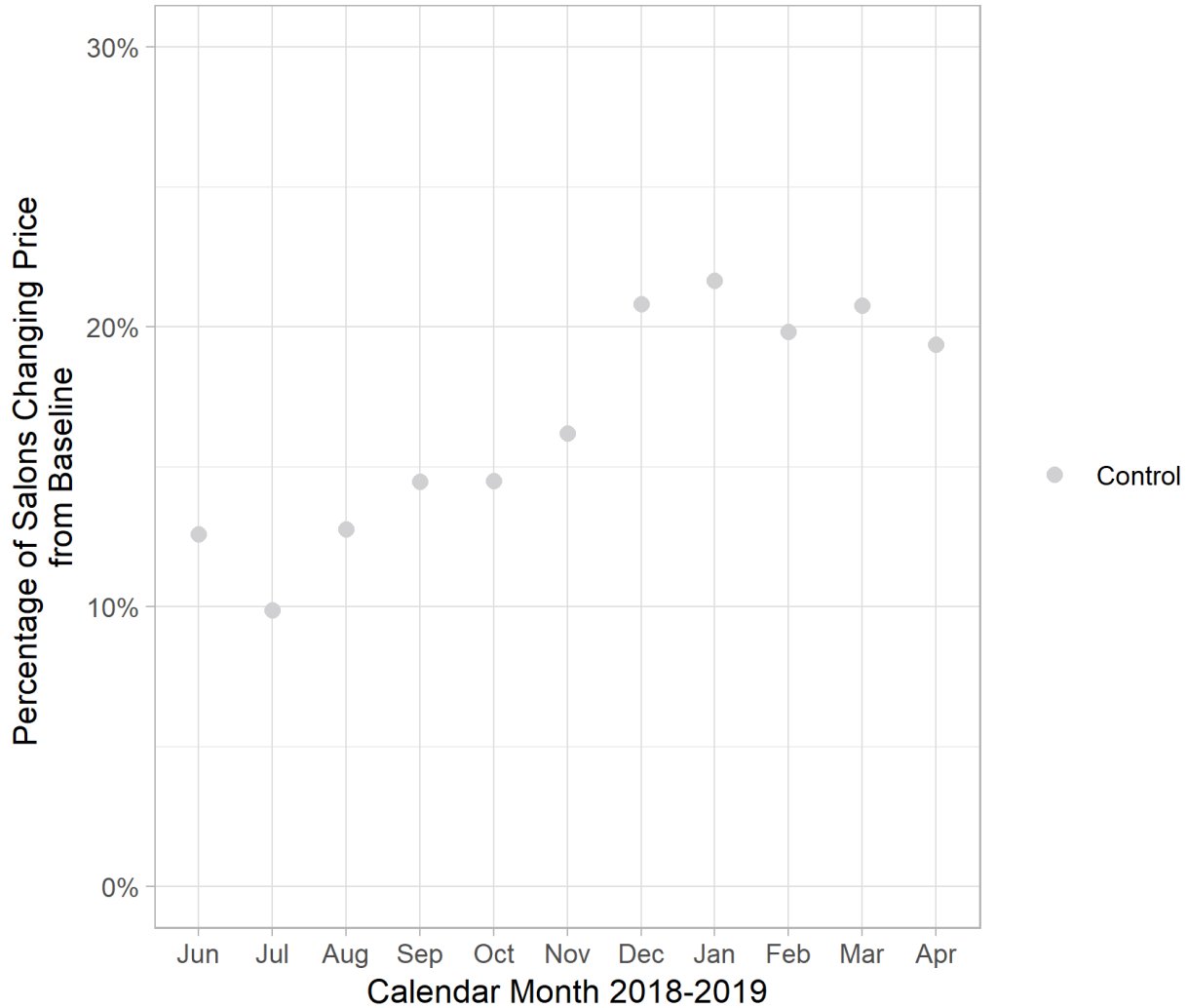
Figure E.4: Review text analysis on Yelp prior to the experiment



Notes: This figure displays a breakdown of topics mentioned in Yelp reviews across all nail salons in the sample prior to running the experiment. A model called word2vec was used to identify topic categories, which uses a neural network to learn word associations from text. All reviews were combined as a string and subsequently tokenized using NLTK (Natural Language Toolkit in python), stop words were removed, and words lemmatized. word2vec was used to create a model with words with a minimum frequency of 50000, a dimensionality of word vectors of 300, a window of 4, a learning rate alpha of 0.03, based on a skip-gram training algorithm. Lastly, the 'wv.most\_similar' function was run on the seed words to identify the most similar words to a set of seed words within the reviews data. The resulting output was reviewed by a research assistant to cull any words that did not fit into the category. The seed words used for the categories were as follows, where words in brackets were jointly applied to the function. Price: price, tip, expensive, pay, affordable, charge, money, card, cash, (price, tip, pay, expensive, charge). Competition: place, different, business, back, (competition, place, other, than, back, different). Cleanliness: dirty, sterilization, sterilized, clean, cleanliness, hygiene, sanitary. Luxuriousness: atmosphere, decor, music, relax(ing), luxurious(ness), extra(s), (iced)/(bottle of) water, vibe, modern, deluxe.

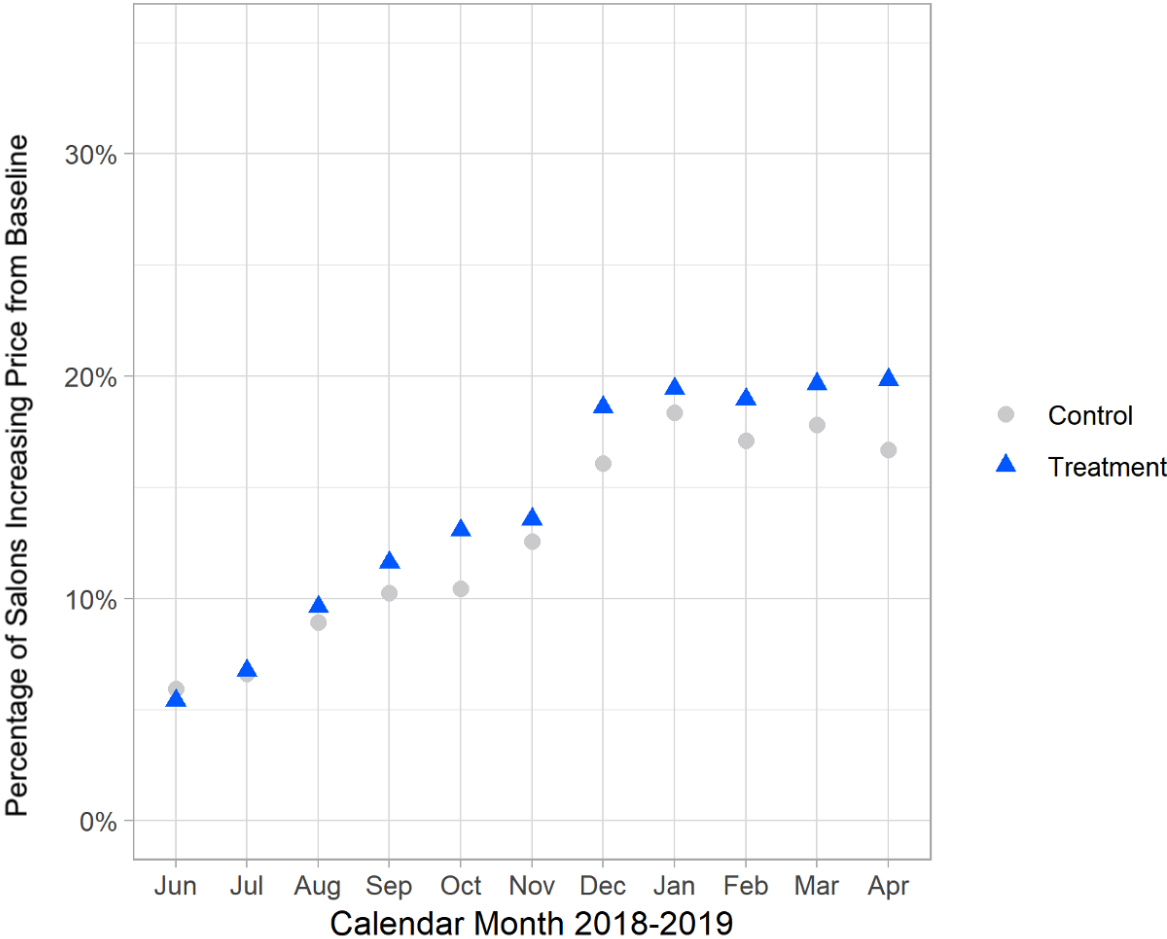
## F Timing of price changes

Figure F.1: Seasonality in price changes



Notes: This figure plots the percentage of control firms with a different regular manicure price from their baseline price by calendar month. Firms appear to display seasonality in when they change prices, using more promotions in slower months (fall and winter) and changing menu prices at the end of the year. These patterns are consistent with those documented in industry magazines and confirmed by salon managers and owners.

Figure F.2: Treatment effects across calendar months

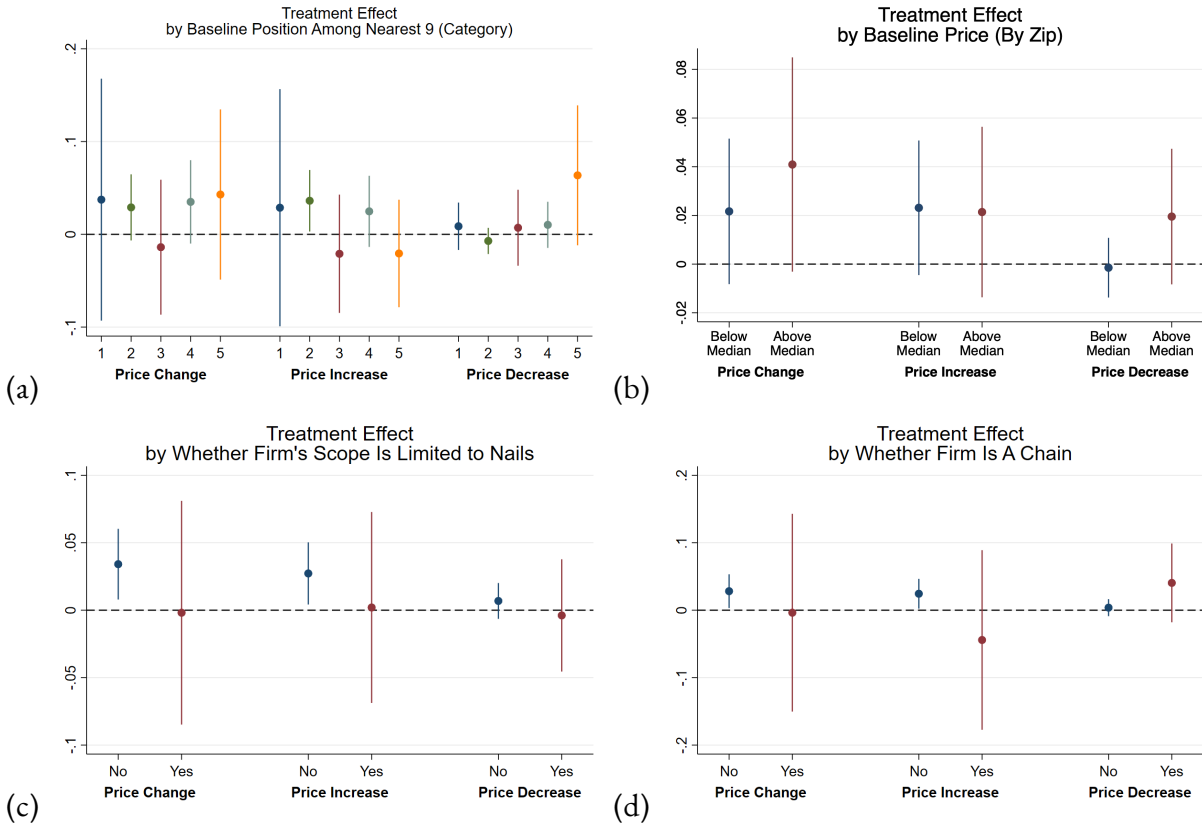


Notes: This figure plots the percentage of control and treatment firms with a different regular manicure price from their baseline price by calendar month. Both firms assigned to control and treatment are more likely to change their prices in December (between December 15 and January 15 given the data collection cycle).

## G Heterogeneous treatment effects on price change

This appendix provides additional exploratory analyses on heterogeneous treatment effects, and reports the regression results in table form for the main dimensions in the paper.

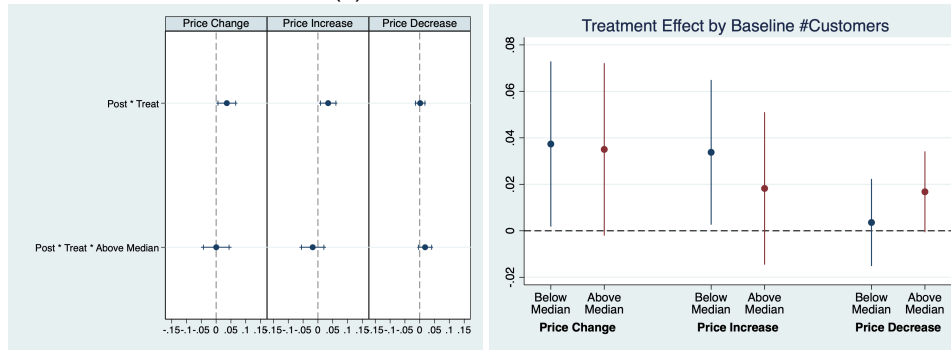
Figure G.1: Treatment effects across pricing, scope, and chain status



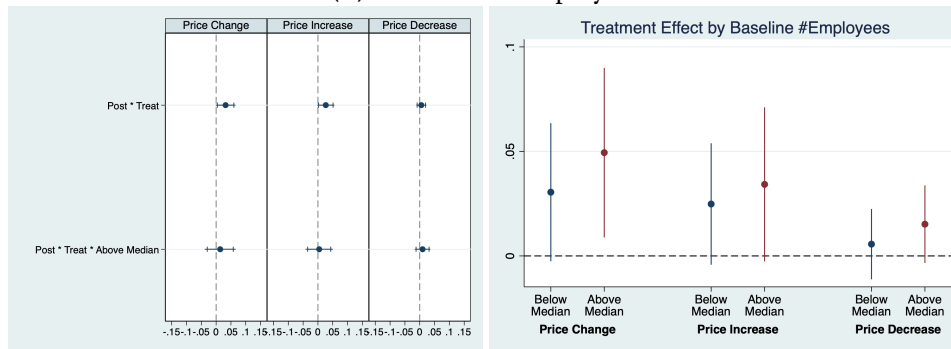
Notes: These figures plot estimates of treatment effects on price change, increase, and decrease, respectively (with 95% confidence intervals), by subsamples. Figure (a) examines subsamples by summary descriptions shown at the top of the firm's postcard, which were algorithmically generated. 1 represents "You charge the lowest price in the area," 2 represents "Most businesses nearby charge higher prices than you," 3 represents "Most/All businesses nearby charge the same prices as you," 4 represents "Most businesses nearby charge lower prices than you," and 5 represents "You charge the highest price in the area." For all regressions, observations are at the firm-month level, and control for any pre-visit differences between control and treatment groups, an indicator for months post-cavasser visits, and fixed effects for the week of the cavasser visit. Standard errors are clustered at the firm level.

Figure G.2: Heterogeneous treatment effects by baseline performance and age

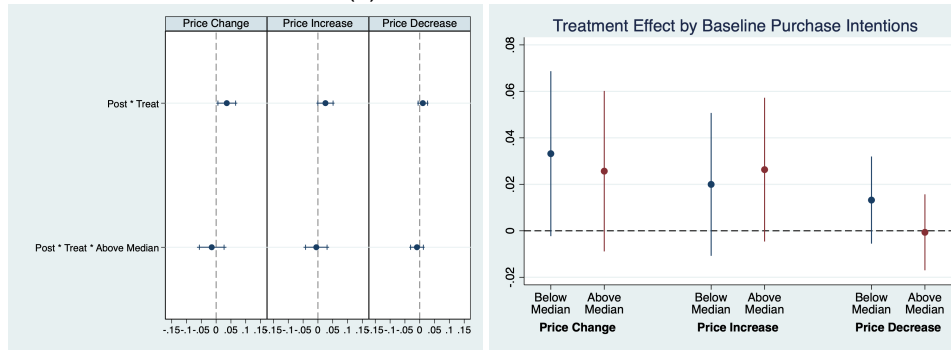
(a) Number of customers



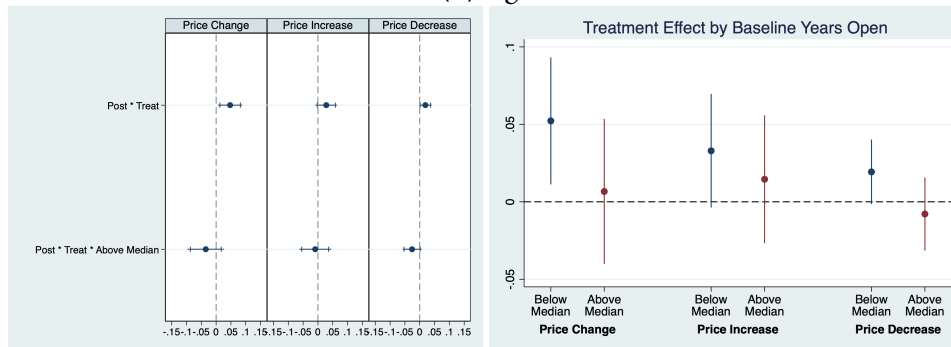
(b) Number of employees



(c) Purchase intentions

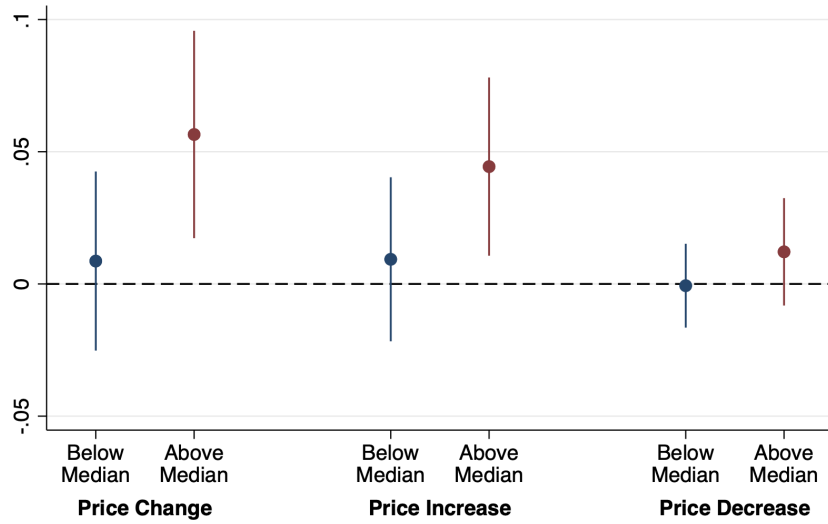


(d) Age



Notes: The figures on the left plot estimates of heterogeneous treatment effects on price change, increase, and decrease, respectively (with 95% confidence intervals), by interacting the  $Post * Treat$  indicator with the baseline attribute. The coefficient on  $Post * Treat$  identifies the effect of treatment, and the coefficient on  $Post * Treat * Above Median$  identifies the differential effect of treatment for firms with above-median baseline performance or age. The figures on the right plot treatment effect estimates by subgroups. For all regressions, observations are at the firm-month level, and control<sup>37</sup> for any pre-visit differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit. Standard errors are clustered at the firm level.

Figure G.3: Price change by baseline misalignment



Notes: This figure shows estimates of treatment effects on price change, increase, and decrease by subsamples based on firms' baseline degree of misalignment in pricing and quality (measured by the absolute error from the best-fit line regressing baseline price on quality and ZIP code fixed effects). Observations are at the firm-month level, and all regressions control for any pre-visit differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit. Standard errors are clustered at the firm level.

Table G.1: Price change by baseline price position from nearest competitor

	Price Change			Price Increase			Price Decrease		
	(1) Lower	(2) Same	(3) Higher	(4) Lower	(5) Same	(6) Higher	(7) Lower	(8) Same	(9) Higher
Post * Treat	0.056** (0.022)	-0.002 (0.023)	0.022 (0.021)	0.058*** (0.021)	0.004 (0.021)	-0.003 (0.016)	-0.001 (0.008)	-0.006 (0.009)	0.025* (0.013)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Visit Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1118	7302	11132	11118	7302	11132	11118	7302	11132
Mean (control)	0.177	0.159	0.178	0.158	0.141	0.114	0.019	0.017	0.064
SD (control)	0.382	0.365	0.382	0.365	0.348	0.318	0.136	0.130	0.245

Panel B: By triple interaction

	Price Change		Price Increase		Price Decrease	
	(1)	(2)	(2)	(3)	(3)	(3)
Post * Treat	-0.005 (0.022)	0.000 (0.021)	0.000 (0.021)	-0.005 (0.009)	-0.005 (0.009)	-0.005 (0.009)
Post * Treat * Lower	0.066** (0.031)	0.063** (0.029)	0.063** (0.029)	0.003 (0.012)	0.003 (0.012)	0.003 (0.012)
Post * Treat * Higher	0.027 (0.031)	-0.001 (0.027)	-0.001 (0.027)	0.028* (0.016)	0.028* (0.016)	0.028* (0.016)
Visit Week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	30142	30142	30142	30142	30142	30142
Mean (control - smaller than competitor)	0.177	0.158	0.158	0.019	0.019	0.019
Mean (control - same as competitor)	0.159	0.141	0.141	0.017	0.017	0.017
Mean (control - greater than competitor)	0.178	0.114	0.114	0.064	0.064	0.064

Notes: Panel A shows treatment effect estimates by subsamples based on firms' baseline price positioning compared to their nearest competitor (whether the firm charged lower, same, or higher prices compared to its nearest competitor). The dependent variable for columns (1)-(3) is price change, a binary indicator of whether the firm's regular manicure price in a given month is different from its baseline price. The dependent variable for columns (4)-(6) is price increase, and for columns (7)-(9) is price decrease – which are binary indicators of whether the firm's regular manicure price in a given month is higher or lower than its baseline price. Panel B shows treatment effect estimates by triple interaction (where Post\*Treat indicates the estimate for firms that charged the same price as the nearest competitor at baseline). For both panels, observations are at the firm-month level. All regressions control for any pre-visit differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit. The last rows show the means of the dependent variable for control firms across post-canvasser visit months. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

Table G.2: Price change by baseline misalignment

	Price Change			Price Increase			Price Decrease		
	(1) Low Misalign	(2) High Misalign	(3) Low Misalign	(4) High Misalign	(5) Low Misalign	(6) High Misalign			
Post * Treat	0.009 (0.017) Yes	0.057*** (0.020) Yes	0.009 (0.016) Yes	0.044*** (0.017) Yes	-0.001 (0.008) Yes	0.012 (0.010) Yes			
Controls	Yes	Yes	Yes	Yes	Yes	Yes			
Visit Week FE	Yes	Yes	Yes	Yes	Yes	Yes			
Observations	14015	13663	14015	13663	14015	13663			
Mean (control)	0.157	0.181	0.131	0.137	0.027	0.043			
SD (control)	0.364	0.385	0.337	0.344	0.161	0.203			

Panel B: By triple interaction

	(1)	(2)	(3)
	Price Change	Price Increase	Price Decrease
Post x Treat	-0.005 (0.018)	0.006 (0.016)	-0.011 (0.009)
Post x Treat x Misalignment	0.081*** (0.026)	0.045* (0.023)	0.036*** (0.014)
Visit Week FE	Yes	Yes	Yes
Observations	27678	27678	27678

Notes: Panel A shows treatment effect estimates by subsamples based on firms' baseline misalignment in pricing and quality (measured by the absolute error from the best-fit line regressing baseline price on quality and ZIP code fixed effects). The dependent variable for columns (1)-(2) is price change, a binary indicator of whether the firm's regular manicure price in a given month is different from its baseline price. The dependent variable for columns (3)-(4) is price increase, and for columns (5)-(6) is price decrease – which are binary indicators of whether the firm's regular manicure price in a given month is higher or lower than its baseline price. The last two rows show the mean and standard deviation of the dependent variable for control firms across post-canvasser visit months. Panel B shows treatment effect estimates by triple interaction, where Post \* Treat indicates the estimate for firms with below-median misalignment at baseline, and Post \* Treat \* Misalignment indicates the differential estimate for firms with above-median misalignment at baseline. For both panels, observations are at the firm-month level. All regressions control for any pre-visit differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit. Standard errors are clustered at the firm level. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.



Table G.3: Price change across control and treatment firms by distance from nearest competitor

	Price Change	
	(1) Below Median Distance	(2) Above Median Distance
Post * Treat	0.045** (0.018)	0.011 (0.018)
Controls	Yes	Yes
Visit Week FE	Yes	Yes
Observations	15050	15092
Mean (control in months after visit)	0.172	0.174
SD (control in months after visit)	0.377	0.379

Notes: This table shows treatment effect estimates by subsamples based on firms' distance from their nearest competitor as a proxy of the level of competition it faces (below median distance represents higher levels of competition). Observations are at the firm-month level. The dependent variable is price change, a binary indicator of whether the firm's regular manicure price in a given month is different from its baseline price. All regressions control for any pre-visit differences between control and treatment groups, an indicator for months post-cavasser visits, and fixed effects for the week of the cavasser visit. The last two rows show the mean and standard deviation of the dependent variable for control firms in the subsample across post-cavasser visit months. Standard errors are clustered at the firm level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table G.4: Price change across control and treatment firms by baseline use of promotions

	Price Change from Baseline	
	(1) No Promotions	(2) Used Promotions
Post * Treat	0.032** (0.013)	-0.002 (0.045)
Controls	Yes	Yes
Visit Week FE	Yes	Yes
Observations	27010	3132
Mean (control in months after visit)	0.170	0.191
SD (control in months after visit)	0.376	0.394

Notes: This table shows treatment effect estimates by subsamples based on firms' baseline use of demand-based promotions as a proxy of their pricing capabilities. Observations are at the firm-month level. The dependent variable is price change, a binary indicator of whether the firm's regular manicure price in a given month is different from its baseline price. All regressions control for any pre-visit differences between control and treatment groups, an indicator for months post-cavasser visits, and fixed effects for the week of the cavasser visit. The last two rows show the mean and standard deviation of the dependent variable for control firms in the subsample across post-cavasser visit months. Standard errors are clustered at the firm level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## H Treatment effects on quality decisions

Table H.1: Change in quality across control and treatment firms

	(1)	(2)	(3)
	Quality Change	Quality Increase	Quality Decrease
Treatment	0.040** (0.019)	0.024 (0.017)	0.017 (0.014)
Constant	0.572*** (0.030)	0.343*** (0.029)	0.229*** (0.026)
Visit Week FE	Yes	Yes	Yes
Observations	3218	3218	3218

Notes: This table shows the treatment effect on binary indicators of quality change, quality increase, and quality decrease.

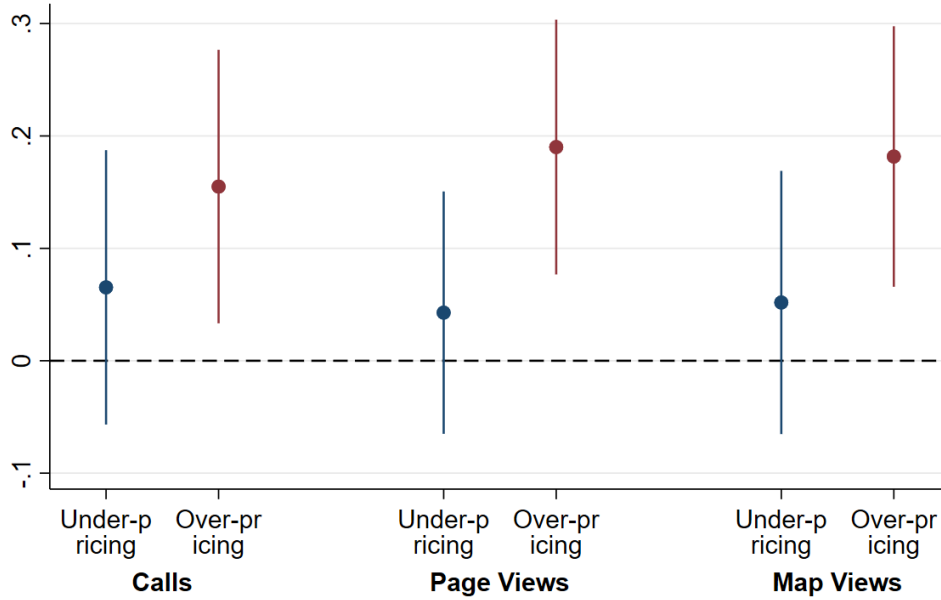
Table H.2: Change in quality across control and treatment firms by baseline pricing

	(1)	(2)	(3)
	Quality Change	Quality Increase	Quality Decrease
Treatment	0.063* (0.036)	0.044 (0.032)	0.019 (0.027)
Treat * Higher	-0.051 (0.045)	-0.024 (0.040)	-0.027 (0.033)
Treat * Lower	-0.007 (0.045)	-0.028 (0.041)	0.021 (0.034)
Constant	0.539*** (0.037)	0.313*** (0.035)	0.226*** (0.030)
Visit Week FE	Yes	Yes	Yes
Observations	3218	3218	3218

Notes: This table shows heterogeneous treatment effects by baseline pricing on binary indicators of quality change, quality increase, and quality decrease.

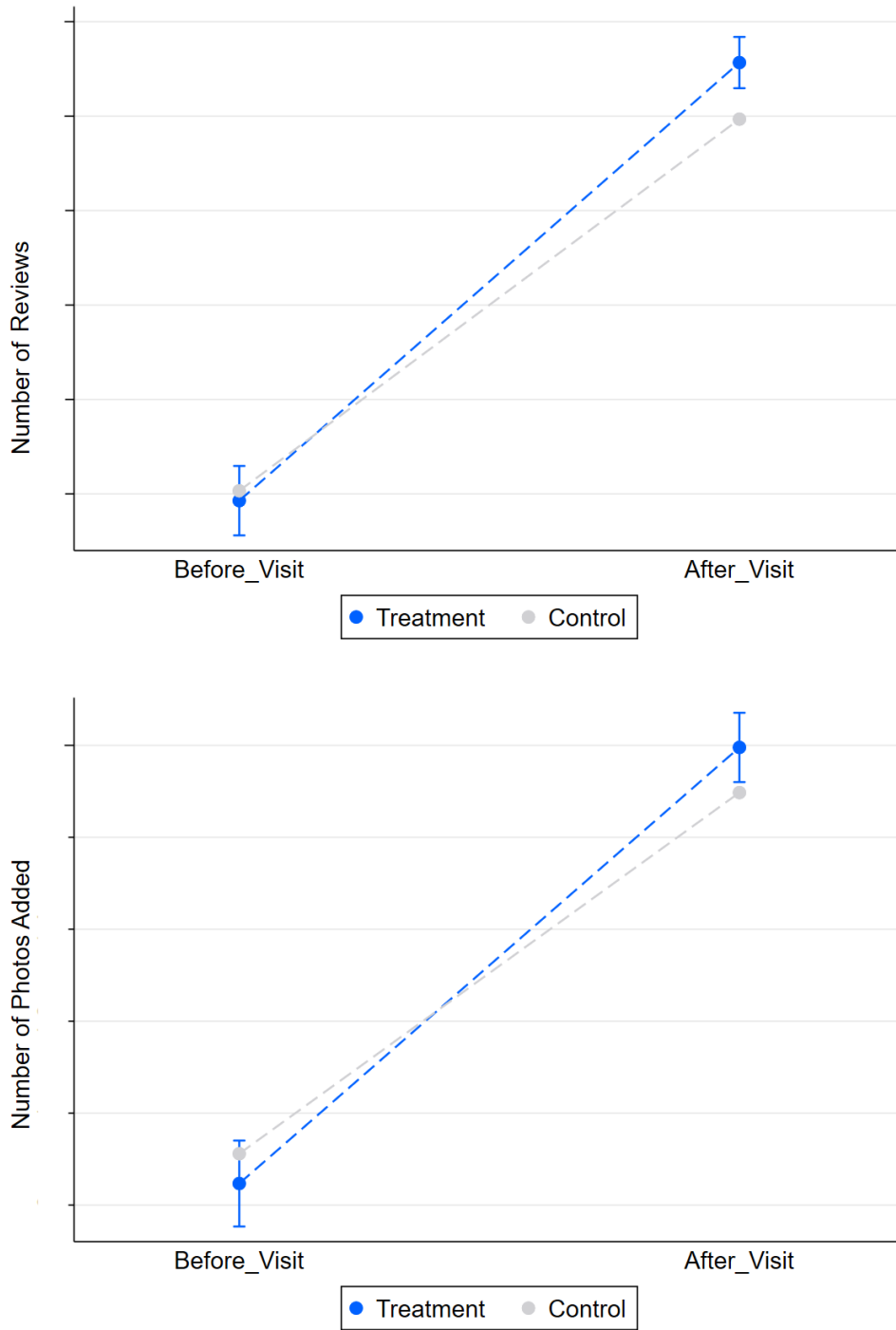
# I Treatment effects on performance measures

Figure I.1: Performance effect by baseline over- or under-pricing



Notes: This figure plots estimates of treatment effects on logged calls, page views, and map directions views, respectively (with 95% confidence intervals), by subgroups of whether the firm was over-pricing at baseline. Over-pricing was coded as a binary indicator based on whether the firm was above the average price for its quality level.

Figure I.2: The number of Yelp reviews and photos across control and treatment firms



Notes: These figures plot (the natural log of) the number of reviews and photos uploaded to Yelp by users by experimental condition. They show that treatment firms see 6.6% more customer reviews and 5.9% more photos uploaded to Yelp by endline compared to control firms, respectively. Raw numbers are redacted due to the data sharing agreement.

Table I.1: Estimated Revenue Across Control and Treatment Firms

	(1)	(2)	(3)
	ln(Revenue Calls)	ln(Revenue Pageviews)	ln(Revenue Map Views)
Post * Treat	0.191*** (0.070)	0.162*** (0.046)	0.182*** (0.068)
Controls	Yes	Yes	Yes
Visit Week FE	Yes	Yes	Yes
Observations	30142	30142	30142

Notes: This table shows ITT estimates on estimated revenues based on Yelp purchase intentions (as a form of back-of-the-envelope calculations), in order to explore the concern that firms may observe lower revenues even with higher purchase intentions, especially if they are decreasing prices. As dependent variables, I construct proxies of revenues using the price that firms charge each month and the number of purchase intentions (calls, pageviews, or map direction views) observed. Interpreting these measures as revenues requires the assumption that (1) each purchase intention is independent and leads to a sale—which likely overestimates the effect, and (2) that every customer purchases a regular manicure and not any other services—which likely underestimates the effect. Therefore, these estimates are useful as a directional test rather than to evaluate the magnitude of effects. Observations are at the firm-month level. All regressions control for any baseline differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit. Standard errors are clustered at the firm level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table I.2: Performance across control and treatment firms by baseline price position from nearest competitor

	In(Calls)			In(Pageviews)			In(Map Directions Views)		
	(1) Lower	(2) Same	(3) Higher	(4) Lower	(5) Same	(6) Higher	(7) Lower	(8) Same	(9) Higher
Post * Treat	0.154** (0.061)	-0.016 (0.065)	0.113* (0.059)	0.112** (0.047)	0.079 (0.053)	0.175*** (0.052)	0.163*** (0.058)	-0.012 (0.063)	0.151*** (0.057)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Visit Week FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12859	8437	13266	12859	8437	13266	12859	8437	13266

Note: This table shows estimates of treatment effects on performance by subsamples based on firms' baseline relative price positioning compared to their nearest competitor (whether the firm charged lower, same, or higher prices compared to its nearest competitor). Observations are at the firm-month level. All regressions control for any pre-visit differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit. Standard errors are clustered at the firm level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table I.3: Performance across control and treatment firms by baseline misalignment

	ln(Calls)		ln(Pageviews)		ln(Map Directions Views)	
	(1) Low Misalign	(2) High Misalign	(3) Low Misalign	(4) High Misalign	(5) Low Misalign	(6) High Misalign
Post * Treat	0.155** (0.061)	0.085 (0.064)	0.174*** (0.054)	0.086 (0.060)	0.136** (0.058)	0.109* (0.062)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Visit Week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15972	16005	15972	16005	15972	16005

Note: This table shows estimates of treatment effects on performance by subsamples based on firms' baseline alignment in pricing and quality (measured by the absolute error from the best-fit line regressing baseline price on quality and ZIP code fixed effects). Observations are at the firm-month level. All regressions control for any pre-visit differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit. Standard errors are clustered at the firm level. \* p<0.10, \*\* p<0.05, \*\*\* p<0.01.

Table I.4: Performance across control and treatment firms by baseline distance from nearest competitor

	In(Calls)		In(Pageviews)		In(Map Directions Views)	
	(1) Below Median	(2) Above Median	(3) Below Median	(4) Above Median	(5) Below Median	(6) Above Median
Post * Treat	0.235*** (0.061)	0.055 (0.057)	0.225*** (0.056)	0.067 (0.051)	0.239*** (0.059)	0.046 (0.054)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Visit Week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	17699	17699	17699	17699	17699	17699

Note: This table shows estimates of treatment effects on performance by subsamples based on firms' distance from their nearest competitor as a proxy of the level of competition it faced. "Below median" distance represents higher levels of competition, and "Above median" distance represents lower levels of competition. Observations are at the firm-month level. All regressions control for any pre-visit differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit. Standard errors are clustered at the firm level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .



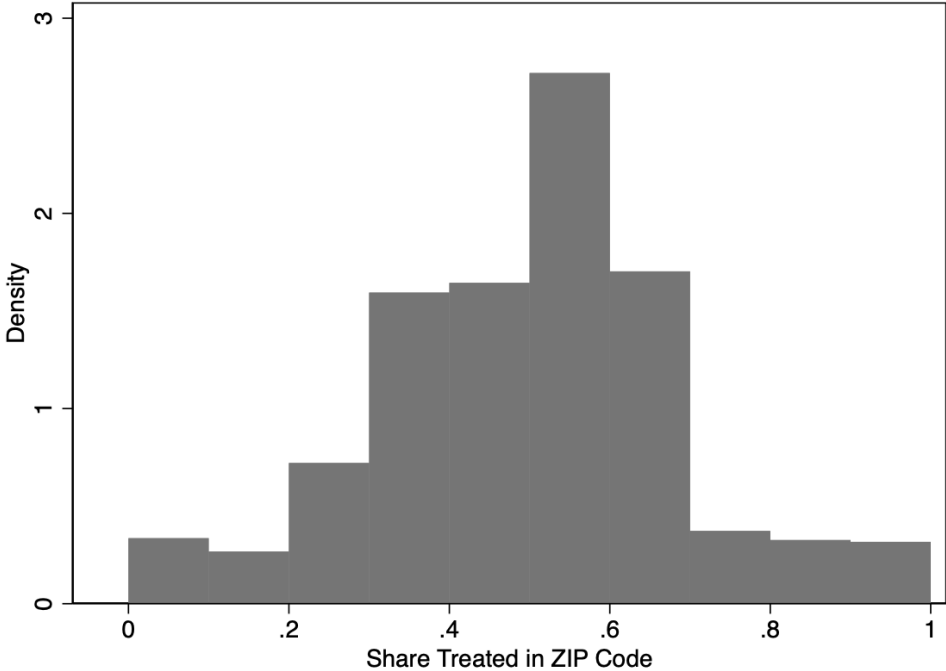
Table I.5: Performance across control and treatment firms by baseline use of promotions

	ln(Calls)		ln(Pageviews)		ln(Map Directions Views)	
	(1) No Promotions	(2) Used Promotions	(3) No Promotions	(4) Used Promotions	(5) No Promotions	(6) Used Promotions
Post * Treat	0.170*** (0.044)	-0.147 (0.111)	0.179*** (0.041)	-0.209** (0.090)	0.168*** (0.042)	-0.129 (0.107)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Visit Week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	31812	3586	31812	3586	31812	3586

Note: This table shows estimates of treatment effects on performance by subsamples based on firms' baseline use of demand-based promotions as a proxy of their pricing capabilities. Observations are at the firm-month level. All regressions control for any pre-visit differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit. Standard errors are clustered at the firm level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

# J Spillover effects

Figure J.1: Variation in share treated across markets



Notes: This figure plots a histogram of the share of treated firms within each ZIP code.

Table J.1: Control salons' awareness of treatment

Response Type	Count	Percent
No	1385	70.56
Yes heard from another salon	28	1.43
Yes heard something about postcards	72	3.67
Closed or could not reach	478	24.35
Observations	1963	100.00

Notes: This table shows the breakdown of answers by control firms when asked by data collectors after endline (September 2019) if they heard anything about Yelp providing information on salon prices the previous summer. "Yes heard from another salon" include responses where the control salon stated that they had heard about informational postcards from Yelp from another salon, even if they had not seen the information. "Yes heard something about postcards" includes all responses where the control salon stated that it sounded familiar but were not aware of what they were. "Closed or could not reach" include businesses that were closed, or could not be reached for a conversation.

Table J.2: Price change across control firms by the share of treated firms in ZIP code

	Price Change from Baseline	
	(1) Continuous	(2) Binary
Post * Share Treated	-0.004 (0.050)	
Post * Above Median Share Treated		-0.009 (0.018)
Visit Week FE	Yes	Yes
Observations	15394	15394

Notes: All regressions are run across control firms only, and estimates whether the likelihood of price change from baseline differs depending on the share of treated firms in its ZIP code. Model (1) explores this using a continuous variable of the share of treated firms ("Share Treated"), while Model (2) constructs a binary variable indicating whether the share of treated firms is above or below the median ("Above Median Share Treated"). Post is a binary indicator that equals 1 for firms starting the month they are visited by a Yelp canvasser until the end of the study and 0 otherwise. All regressions include the full set of interaction terms between Post and Share Treated / Above Median Share Treated, and cluster standard errors at the firm level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

Table J.3: Performance across control firms by the share of treated firms in ZIP code

	Number of Calls (1)	Number of Page views (2)	Number of Map Directions (3)	Views (4)	Views (5)	Views (6)
Post * Share Treated	0.229 (0.182)	-0.051 (0.162)	0.106 (0.170)			
Post * Above Median Share Treated	0.057 (0.071)	-0.002 (0.065)	0.024 (0.066)			
Visit Week FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	18040	18040	18040	18040	18040	18040

All regressions are run across control firms only, and estimates how proxies of firm performance vary depending on the share of treated firms in its ZIP code. Columns (1), (3), and (5) explore this using a continuous variable of the share of treated firms (“Share Treated”), while Columns (2), (4), and (6) construct a binary variable indicating whether the share of treated firms is above or below the median (“Above Median Percent Treated”). Post is a binary indicator that equals 1 for firms in either control or treatment starting the month they are visited by a Yelp canvasser until the end of the study and 0 otherwise. All regressions include the full set of interaction terms between Post and Share Treated / Above Median Share Treated, and cluster standard errors at the firm level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

## K Pre-registration differences

This study was pre-registered in the AEA Randomized Controlled Trials registry with a pre-analysis plan. The key differences between the paper and the pre-registration are:

- The pre-analysis plan specifies the same econometric specification as the paper, but without canvasser visit week fixed effects. I observed that the timing of canvassing visits were delayed among treatment firms by 1.4 weeks, and thus controlled for this in all specifications in the paper.
  - The pre-analysis plan additionally specifies exploring robustness across a model that adds ZIP code fixed effects. I did not run any specifications with ZIP code fixed effects, because I realized that this substantially reduced the sample and also introduced challenges in interpreting treatment effects due to differential percentages of treated businesses across ZIP codes. Instead, I explored robustness across a model that added randomization strata fixed effects.
- The pre-analysis plan describes all possible primary and secondary outcomes, some of which I noted at the time as potentially not being available due to partner and budget constraints. I was indeed not able to obtain some of the outcomes. I also report effects on three outcomes that were not available at pre-registration, do not report effects on two of the outcomes, and transform one of the pre-registered variables:
  - I pre-specified a sales outcome measuring the annual taxable gross receipts for the business as recorded in city tax records. I had discussed access to this data with one of the city governments prior to the experiment, but this did not materialize due to challenges with the COVID-19 pandemic in 2020 when this data was planned to become available.
  - I obtained additional variables to measure business engagement with the Yelp platform. I pre-registered account claim and account activity (referred to as “logins” in the paper), and additionally was able to obtain data on whether businesses purchased advertising, whether they responded to inbound consumer messages, and whether they commented on consumer reviews – which I was not aware were available and accessible at the time of pre-registration. I included these results as these variables provide more insight into how businesses interacted with the Yelp platform.
  - I pre-specified additional variables to measure changes in pricing, which I do not report in this paper: total number of price changes and size of price changes. I found that at least a quarter of the businesses use promotions and typically appear to change menu prices once (or not at all) in the experimental period, so the number of changes mostly captured noise from promotions or measurement error.
  - I take a natural log of price, as raw price was right-skewed.
- I added a dimension for heterogeneity in treatment effects that was not pre-registered: baseline misalignment in pricing and quality. This misalignment in pricing and quality decisions only became apparent to me once I began analyzing the data, and appeared to be an important dimension that could provide insight into how firms changed prices.

Other than these differences, all aspects of the experimental sample, design, location, outcomes, and analyses that were described in the pre-registration were implemented in the paper without deviation.

## L Robustness of main treatment effects

Table L.1: Price changes across control and treatment firms with canvasser fixed effects

	(1)	(2)	(3)	(4)
	Price Change	Price Change	Price Change	Price Change
Post * Treat	0.028** (0.013)	0.028** (0.013)	0.031** (0.013)	0.030** (0.013)
Controls	Yes	Yes	Yes	Yes
Visit Week FE	Yes	Yes	Yes	Yes
Month FE	No	Yes	No	Yes
Strata FE	No	No	Yes	Yes
Canvasser FE	Yes	Yes	Yes	Yes
Observations	27056	27056	26501	26501
Mean (control in months after visit)	0.173			
SD (control in months after visit)	0.378			

Notes: This table shows ITT estimates of the competitor information treatment on a binary indicator of whether the firm's regular manicure price in a given month is different from its baseline price. All regressions control for any baseline differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit and the assigned canvasser. Standard errors are clustered at the firm level.

Table L.2: Directions of price change with canvasser fixed effects

	(1)	(2)	(3)
	Price Decrease	Price Increase	ln(Price)
Post * Treat	0.007 (0.007)	0.021* (0.011)	0.002 (0.007)
Controls	Yes	Yes	Yes
Visit Week FE	Yes	Yes	Yes
Canvasser FE	Yes	Yes	Yes
Observations	27056	27056	27056
Mean (control in months after visit)	0.036	0.137	2.580
SD (control in months after visit)	0.185	0.344	0.304

Notes: This table shows ITT estimates of competitor information on a binary indicator of whether the firm's regular manicure price is lower or higher than its baseline price, (columns 1-2) and logged price (column 3). Observations are at the firm-month level. All regressions control for any baseline differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit and the assigned canvasser. Standard errors are clustered at the firm level.

Table L.3: The effect of reevaluating competitor knowledge on demand for information

	(1)
	Competitor Information Signup
Signup Asked Last	0.036* (0.022)
Constant	0.201*** (0.068)
Canvasser FE	Yes
Observations	1405

Notes: This table shows results from the follow-up experiment among control firms that tested whether having managers re-evaluate their knowledge of competitors impacted their demand for free competitor information. The dependent variable is a binary variable indicating whether the firm signed up to receive free competitor information. The treatment, “Signup Asked Last,” is relative to a control group where firms were first asked whether they were interested in signing up to receive competitor information, before being asked questions to re-evaluate their knowledge. Observations are at the firm level, and includes all control firms who were available for a conversation. Standard errors are clustered at the firm level. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

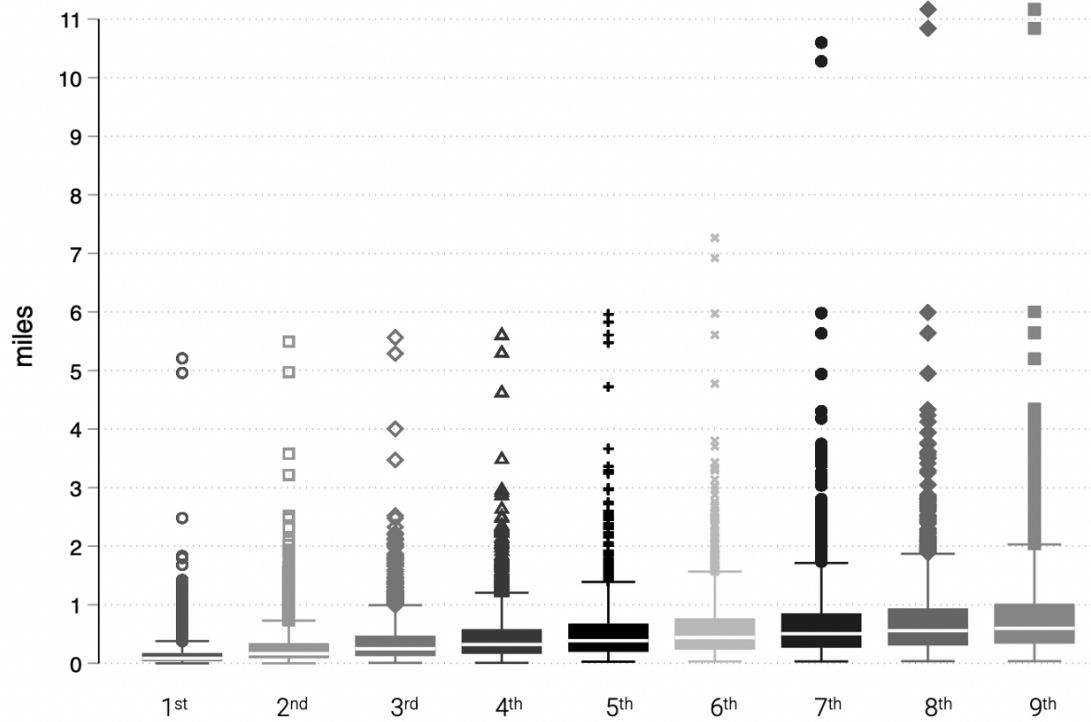
Table L.4: Direction of price change with strata fixed effects

	(1)	(2)	(3)
	Price Decrease	Price Increase	ln(Price)
Post * Treat	0.007 (0.006)	0.023** (0.011)	0.016** (0.007)
Controls	Yes	Yes	Yes
Visit Week FE	Yes	Yes	Yes
Strata FE	Yes	Yes	Yes
Observations	29552	29552	29552
Mean (control in months after visit)	0.036	0.137	2.580
SD (control in months after visit)	0.185	0.344	0.304

Notes: This table shows ITT estimates of competitor information on a binary indicator of whether the firm’s regular manicure price is lower or higher than its baseline price, (columns 1-2) and logged price (column 3). Observations are at the firm-month level. All regressions control for any baseline differences between control and treatment groups, an indicator for months post-canvasser visits, and fixed effects for the week of the canvasser visit and the randomization strata. Standard errors are clustered at the firm level.

## M Mechanisms driving treatment effects

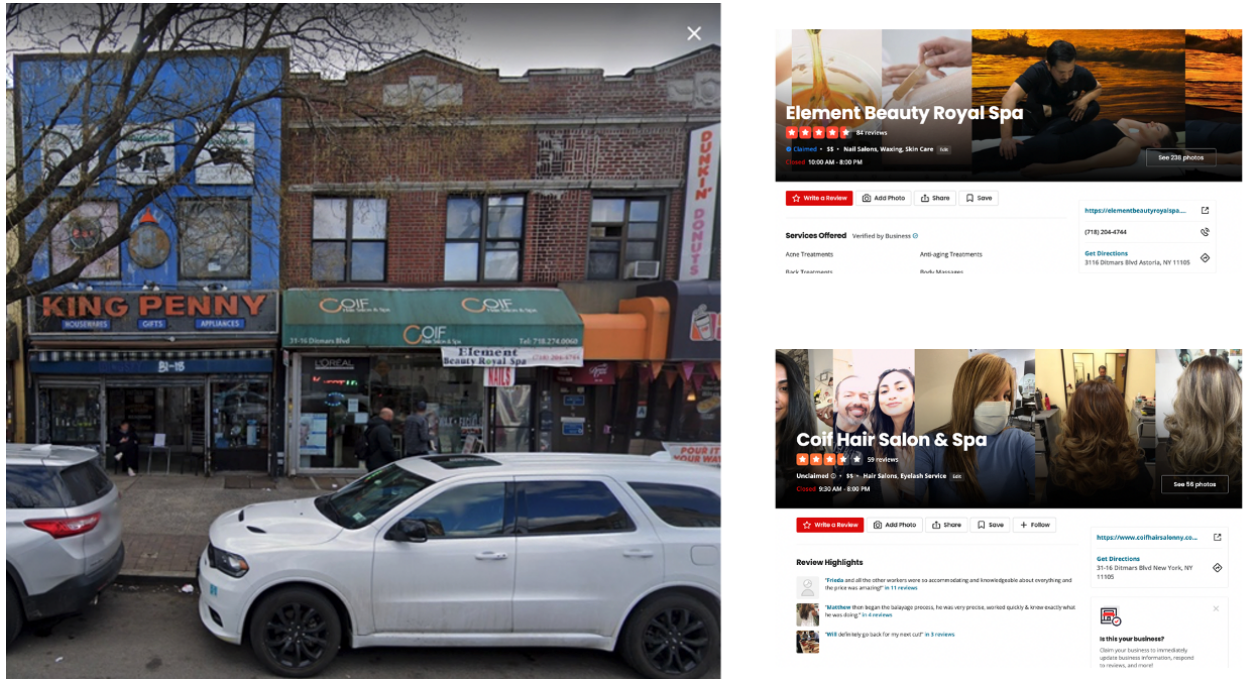
Figure M.1: Distribution of distance from the nearest 9 competitors



Notes: This figure plots the distribution of the distance from competitors for firms in the experimental sample, with the x-axis identifying whether the plot is for the 1st-9th nearest competitor.

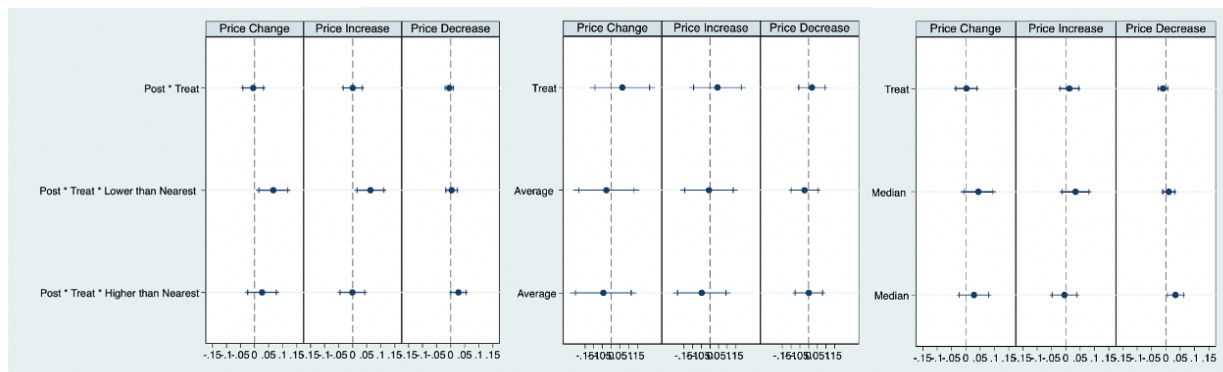


Figure M.2: An example of business colocation



Notes: This figure shows an example of how close the nearest competitors can be, whose decisions may be most salient: Element Beauty Royal Spa is located upstairs from Coif Hair Salon & Spa.

Figure M.3: How firms change prices relative to their nearest, average, and median competitors



Notes: This figure compares treatment effects in terms of whether and when treated firms change their decisions relative to the nearest competitor at baseline, compared to their average or median competitor. The first panel interacts the post-treatment indicator with whether it was lower or higher than the nearest competitor; the second panel with whether it was lower or higher than the average competitor; and the third panel with whether it was lower or higher than the median competitor.

Table M.I: Manager responses to competitor information treatment

**Competition-related responses**

Fri Aug 17 2018 - she was surprised that her salon charges the lowest price in the area. she was thinking to raise their price up to match others  
Wed Aug 08 2018 - she is thinking to change their price since her salon is the cheapest.  
Wed Jul 11 2018 - He did not know about his place was the cheapest price.  
Wed Aug 01 2018 - she has supposed that her salon charges the cheapest price!!  
Thu Aug 23 2018 - she was very surprised that her salon charged the lowest. she is thinking to raise her price up  
Fri Jun 29 2018 - They want to change the price since they are so cheap [compared to] other nail salons.  
Wed Jul 11 2018 - was surprised that their nail salon was the cheapest price they charge for the regular manicure.  
Mon Aug 20 2018 - she realized that the competitor salon charged less than them.  
Mon Aug 13 2018 - she was surprised that they charge more than other salons in this area.  
Fri Oct 12 2018 - liked info and thought it was interesting she could see other competitors and what they charge.  
Tue Oct 30 2018 - liked seeing where she compared to others  
Wed Sep 05 2018 - manager says they could use more information on competition price

**Demand-related responses**

Thu Aug 23 2018 - since this area's nail salons charge very low, she can't raise her price. she knew about her competitor's price.  
Mon Oct 01 2018 - left with DM, she thought they were very good price for area.  
Mon Aug 27 2018 - owner doesn't believe they really have any competition but would still like info on pricing  
Wed Aug 29 2018 - interested in future pricing info, feels they don't have competition

Notes: This table shows notes taken by Yelp canvassers on manager responses to the competitor information treatment that relate to competition or demand.

## N Follow-up experiment details and endline questions

Table N.1: Number of firms reached by condition in follow-up mechanism experiment

	(1)	(2)	(3)	(4)	(5)
	Ask First	Ask First	Ask Last	Ask Last	Difference
	<i># of Firms</i>	<i>% of Firms</i>	<i># of Firms</i>	<i>% of Firms</i>	<i>p-value</i>
Reached	703	71.15	702	71.27	0.95
Closed	83	8.39	71	7.19	0.32
Not Available	205	20.73	214	21.68	0.60
Observations	989	989	987	987	1976

Notes: This table shows the number of firms reached and thus included in the followup experiment.

Table N.2: Balance of baseline variables across reached firms in follow-up experiment

	Ask First Mean	Ask Last Mean	Difference	p-value
Baseline Price	13.80	13.87	-0.07	0.80
Baseline Number Of Employees	4.25	4.38	-0.13	0.42
Baseline Number Of Customers	3.65	3.95	-0.30	0.13
Baseline Total Hours Open Weekly	62.51	61.48	1.03	0.08
Baseline Cleanliness <sub>to4</sub>	2.63	2.67	-0.04	0.38
Baseline Luxuriousness <sub>to4</sub>	2.36	2.43	-0.07	0.09
Baseline Polish Brand Level	1.11	1.10	0.01	0.67
Baseline Number of Services (Scope)	2.17	2.06	0.11	0.12
Baseline Yelp Rating	3.88	3.89	-0.00	0.89
Baseline Number of Yelp Reviews	71.51	74.60	-3.09	0.55
Baseline Availability Next Day 4-5pm	0.76	0.75	0.00	0.89
Baseline Average Daily Opening Hour	09:44	09:44	0:00	0.85
Baseline Average Daily Closing Hour	19:15	19:12	0:03	0.40
Yelp Canvass Week	33.00	32.71	0.30	0.36

Notes: This table shows the balance of variables at baseline between firms asked first and firms asked last, across the sample of firms that were reached by data collectors.

Table N.3: Attrition in endline guesses across control and treatment firms in the main experiment

	(1)	(2)	(3)	(4)	(5)
	Treatment	Treatment	Control	Control	Difference
	# of Firms	% of Firms	# of Firms	% of Firms	p-value
Closed	90	5.70	100	6.10	0.64
Did Not Answer Any Questions	18	1.14	16	0.98	0.65
<i>Did Not Answer Question (1)</i>	370	23.45	280	17.07	<0.01
<i>Did Not Answer Question (2)</i>	626	39.67	650	39.63	0.98
<i>Did Not Answer Question (3)</i>	125	7.92	57	3.48	<0.01
Observations	1578	1578	1640	1640	3218

Notes: This table shows attrition rates by question for endline questions that were asked to all firms in the main experimental sample to explore the extent to which treatment firms learned to pay attention to competitors: (1) “what salon is located closest to you?” (2) “what do you think they are charging for a regular manicure?” (3) “How do you think your price compares to your two nearest nail salons?”. Firms assigned to the Control group were randomly assigned to be asked these questions first or last (“Ask First / Last”) as part of the follow-up experiment. Treatment firms were not part of this follow-up experiment, as they had already received this information previously as part of the main experiment. This table shows higher attrition among treatment firms, which may in part be due to the follow-up experiment among control firms.

Table N.4: Correct answers on competitor prices across control and treatment firms

	(1)	(2)	(3)
	Competitor Name	Competitor Price	Relative Price to 2 Nearest Competitors
Treatment	0.032* (0.019)	0.070*** (0.022)	-0.015 (0.018)
Constant	0.289*** (0.013)	0.368*** (0.015)	0.393*** (0.013)
Observations	2384	1908	2869

Notes: This table shows the share of correct answers at endline across control and treatment firms in the main experiment for three questions: (1) Column 1: “what salon is located closest to you?” (2) Column 2: “what do you think they are charging for a regular manicure?” (3) Column 3: “How do you think your price compares to your two nearest nail salons?”. Dependent variables are binary variables indicating whether the firm’s answer was correct. Observations are at the firm level, and includes all firms who were available for a conversation and answered the question. Robust standard errors are reported. This provides some speculative evidence that treatment firms may have learned to pay attention, as they were more likely to correctly guess their nearest competitors and their prices approximately 12 months after treatment (5-8 months after most price changes occurred). However, these estimates must be interpreted with some caution, as estimates for columns (1) and (3) may be biased due to differential attrition as shown in Appendix Table N.3.