Online Appendix for "Price Transparency, Media, and Informative Advertising" by Ater and Rigbi

1 Additional results

- Table 1.1 – reports regression results for the effect of price transparency on price levels using the five pairs of comparable products, where each pair consists of one product from the ICC basket and another close substitute product from the treatment group
- Table 1.2 – reports regression results for the effect of price transparency on prices in drugstores, where prices became transparent on July 1, 2017
- Table 1.3 – reports regression results of price transparency using promotional prices as dependent variable
- Table 1.4 – reports regression results for the differential effects of price transparency on prices at each of the five supermarket chains
- Table 1.5 – presents regression results that examine how the effect of transparency depends on the nature of local competition
- Table 1.6 – presents regression result for the effect of transparency on price dispersion using a third measure of price dispersion, the percentage price range of a product.
- Table 1.7 – shows chain-specific effects of transparency on price dispersion
- Table 1.8 – presents results for the effect of transparency on inter-chain price dispersion
- Table 1.9 – presents results for the effect of transparency on price dispersion using alternative sampling frequencies
- Table 1.10 – presents results for the effect of transparency on prices using alternative implementation dates of the regulation
- Table 1.11 – presents results for the effect of transparency on prices considering the distance of supermarket from nearby drugstores

- Figure 1.1 shows the locations of the 61 stores from which the treatment price data were collected, and chain affiliation
- Figures 1.2 and 1.3 list the products used in the treatment and in the control groups
- Figure 1.4 shows a version of Figure 4 in the main text using the coefficient of variation instead of the number of unique prices
- Figure 1.5 shows the relationship between monthly average basket price and the spending on media-based advertising
- Figure 1.6 shows pre-transparency monthly effects for the treatment group and the different control groups
- In Section 2 we present additional regression results using a larger set of products and stores which are available only in the post-transparency period.

Table 1.1: The effect of price transparency on prices of comparable items

	(1) log(Price)	(2) log(Price)	(3) log(Price)	(4) log(Price)
After*Treatment	-0.051	-0.052	-0.040	-0.036
	(0.008)	(0.005)	(0.014)	(0.010)
Store + Item + Date F.E.	✓	✓	✓	✓
Control Group	Online	ICC	Drugstores	ICC Comparable
R^2	0.94	0.96	0.91	0.97
N	186810	278228	58358	27063

Notes : The unit of observation is item i in store j on date t. Errors are clustered by store. The table replicates Table 2 in the main text and adds a fourth column that uses prices of the 5 pairs of comparable products included in the treatment group and in the ICC control group. To create the five pairs of products, we use the following criteria: two same-pair products are in the same sub-product category, and are produced by the same manufacturer or have the same size/quantity. The pairs are shown in Figures 1.2 and 1.3 in the Online Appendix.

Table 1.2: The effect of transparency on prices in drugstores

	(1) # Unique Price	(2) Standard Deviation/Avg.	(3) Perc. Range	(4) log(Price)
After*Treatment	-2.861	-0.030	-12.880	-0.069
	(1.226)	(0.048)	(8.845)	(0.013)
Item + Date F.E.	✓	✓	✓	✓
Control Group	Non-Pres. Drugs	Non-Pres. Drugs	Non-Pres. Drugs	Non-Pres. Drugs
DV Average Value	8.00	0.17	41.59	
R^2	0.91	0.85	0.82	0.73
N	157	157	157	7867

Notes : The unit of observation in Columns (1)-(3) is item i in month t in treatment/control group. The unit of observation in Column (4) is item i in store j in month t. The panel consists of five monthly observations – 10/16, 02/17, 04/17, 07/17, and 08/17. Errors are clustered by product in Columns (1)-(3) and by store in Column (4). We also include a linear item-specific time trend.
The table includes the results from a supplementary analysis that exploits a follow up transparency regulation (effective on July 1, 2017) which also required drugstores to post their prices online. We use the prices of non-prescription drugs, which were not subject to the regulation, as control. The price data for all the items during the period before July 1, 2017 and for the non-prescription drugs after July 1, 2017 were collected by RAs. After July 1, 2017, we use a price-comparison website to obtain the prices for other products sold in drugstores. The results suggest that following the price transparency regulation, price dispersion and price levels decrease.

Table 1.3: The effect of price transparency using promotional prices

	(1) log(Promotional Price)	(2) log(Promotional Price)	(3) log(Promotional Price)
After*Treatment	-0.061	-0.044	-0.048
	(0.007)	(0.006)	(0.014)
Store + Item + Date F.E.	✓	✓	✓
Control Group	Online	ICC	Drugstores
R^2	0.93	0.95	0.90
N	186810	278228	58358

Notes : The unit of observation is item i in store j on date t. Time period covered 7/2014-6/2016. Errors are clustered by store. The table replicates Table 2 in the main text but uses the (log) of promotional price rather than the (log) of list price as the dependent variable. These promotional prices refer to various promotions, such as quantity discounts or offers that are available only to club members. The table reveals similar qualitative result – a price reduction of 4.3-6.1%, depending on the control group being used.

Table 1.4: Retail-specific effect of price transparency on prices

	(1) log(Price)	(2) log(Price)	(3) log(Price)
Mega: After*Treatment	-0.084	-0.047	-0.060
	(0.008)	(0.005)	(0.014)
Shufersal: After*Treatment	-0.048	-0.053	-0.035
	(0.008)	(0.006)	(0.015)
Victory: After*Treatment	-0.062	-0.044	-0.052
	(0.020)	(0.007)	(0.026)
Yeinot Bitan: After*Treatment	-0.025	-0.048	-0.006
	(0.014)	(0.006)	(0.016)
Rami Levi: After*Treatment	-0.009	-0.002	0.021
	(0.008)	(0.006)	(0.015)
Store + Item + Date F.E.	✓	✓	✓
Control Group	Online	ICC	Drugstores
R^2	0.94	0.96	0.91
N	186810	274669	57734

Notes : The unit of observation is item i in store j on date t. Time period covered 7/2014-6/2016. Errors are clustered by store. The table presents the regression results of a version of Equation (1) in which the post-transparency indicator is interacted with each supermarket chain dummy. The results suggest that drop in prices is concentrated among the large, premium chains (i.e., Mega and Shufersal) and have not changed for the heavy discount chain (i.e., Rami Levy).

Table 1.5: The Effect of Price Transparency on Prices, by Degree of Competition

	(1) log(Price)	(2) log(Price)
After*Treatment - Low Comp.	-0.059	
	(0.006)	
After*Treatment - High Comp.	-0.044	
	(0.006)	
After*Treatment		-0.039
		(0.007)
After*Treatment*Concentration		-0.040
		(0.015)
Store + Item + Date F.E.	✓	✓
Control Group	ICC	ICC
P-Val: Low Comp = High Comp	.00	
R^2	0.96	0.96
N	259557	259557

Notes : Concentration ranges form 0 to 1, with 0 being perfect competition and 1 being monopoly. The 10th, 50th and 90th percentiles of concentration are 0.13, 0.32 and 0.45, respectively. The unit of observation is item i in store j on date t. Time period covered 7/2014-6/2016. Errors are clustered by store. The table presents regression results of a version of Equation (1), in which we interact the post-transparency indicator with a measure of local competition faced by each store. In Column (1), the local competition measure is a binary variable for high or low competition, and in Column (2) we use a continuous measure of local competition. The methodology to define the level of local competition can be found at https://www.gov.il/he/departments/publications/reports/foodlawmethodology. The analysis uses only the ICC control group since we want to compare price changes across stores that belong to the same chain but face different local competition. The results suggest that prices in stores facing weaker local competition declined more than stores facing stronger local competition.

Table 1.6: The Effect of Price Transparency on Price Dispersion

Panel A: Price Dispersion	Percentage Range ($100 * \frac{P_{max}-P_{min}}{P_{max}}$)			
	(1)	(2)	(3)	(4)
After*Treatment	-27.40	-12.48	-32.96	-9.41
	(1.68)	(2.44)	(6.30)	(3.77)
Control Group	Online	ICC	Drugstores	Grocery stores
DV Mean Value	55.01	55.64	57.74	38.85
R^2	0.5	0.7	0.6	0.8
N	9636	6176	1525	400

Panel B: Intra-chain price dispersion	Percentage Range ($100 * \frac{P_{max}-P_{min}}{P_{max}}$)		
	(1)	(2)	(3)
After*Treatment	-25.23	-13.40	-26.49
	(1.11)	(1.76)	(4.28)
Control Group	Online	ICC	Drugstores
DV Mean Value	31.44	29.93	32.06
R^2	0.5	0.5	0.6
N	37685	25978	6120

Notes : Panel A: The unit of observation in Columns (1), (3) and (4) is item i on date t in treatment/control group. The unit of observation in Column (2) is item i on date t.
Panel B: The unit of observation in Columns (1) and (3) is item i on date t in treatment/control group. The unit of observation in Column (2) is item i on date t. We do not use the grocery store control group since we do not have a chain identifier in the CBS data. Time period covered is 7/2014-6/2016. In the regressions we include item, time, and chain fixed effects and add a linear item-specific time trend. Errors are clustered by product. The table presents the estimation results for Equation (2). Panel A focuses on price dispersion and Panel B on intra-chain price dispersion. The results suggest that price dispersion fell after prices became transparent and that chains adopt uniform pricing.

Table 1.7: Retailer-specific effect of price transparency on the number of unique prices

	(1) # Unique Prices	(2) # Unique Prices	(3) # Unique Prices
Mega: After*Treatment	-3.244	-1.667	-5.644
	(0.124)	(0.183)	(1.183)
Shufersal: After*Treatment	-3.949	-1.975	-7.905
	(0.169)	(0.189)	(1.232)
Victory: After*Treatment	-1.935	-1.132	-2.780
	(0.102)	(0.198)	(1.249)
Yeinot Bitan: After*Treatment	-2.192	-1.305	-3.085
	(0.096)	(0.189)	(1.252)
Rami Levi: After*Treatment	-2.669	-1.881	-4.198
	(0.095)	(0.198)	(1.266)
Item + Date F.E.	✓	✓	✓
Control Group	Online	ICC	Drugstores
R^2	0.59	0.60	0.79
N	37685	25978	6120

The unit of observation in Columns (1) and (2) is item i on date t in chain c in treatment/control group. The unit of observation in Column (3) is item i on date t in chain c. Time period covered 7/2014-6/2016. Errors are clustered by product. The table presents regression results of Equation (2) in the main text, where each column corresponds to a different control group. To account for the size heterogeneity between retailers, each regression controls also for the number of observations that the dependent variable is based on. The results suggest that the reduction in the number of unique prices occurred in all chains.

Table 1.8: The effect of transparency on inter-chain price dispersion

	Standard Deviation/Avg.			Percentage Range ($100 * \frac{P_{max}-P_{min}}{P_{max}}$)		
	(1)	(2)	(3)	(4)	(5)	(6)
After*Treatment	-0.018	-0.002	-0.013	-4.135	-2.338	-5.965
	(0.008)	(0.002)	(0.012)	(1.351)	(0.378)	(2.167)
Item + Date F.E.	✓	✓	✓	✓	✓	✓
Control Group	Online	ICC	Drugstores	Online	ICC	Drugstores
DV Average Value	0.14	0.14	0.14	25.5	32.2	30.3
R^2	0.48	0.66	0.62	0.43	0.62	0.71
N	2578	2034	539	2657	2056	539

Notes : The unit of observation in Columns (1), (3), (4), and (6) is item i on date t in treatment/control group. The unit of observation in Columns (2) and (5) is item i on date t. Time period covered 7/2014-6/2016. Errors are clustered by product. The table presents the regression results that examines the effect of transparency on the inter-chain price dispersion. To focus attention on the inter-chain price dispersion, in this analysis we use the monthly median price of each item sold in each chain. The estimates suggest that inter-chain price dispersion has also fallen after the transparency regulation.

1.1 Different sampling frequencies

A potential concern with our results is that they might have been affected by changes in the sources of data that we use. One implication of using different data sources concerns the frequencies and timing that different data were collected. For instance, in the pre-transparency period, prices of the items in the ICC control group were collected in the same month, though not necessarily always on the same day. By contrast, in the post-transparency period, these data were collected on the same day. This difference may mechanically lead to a higher number of unique prices in the pre-transparency period for the ICC group compared with the number of unique prices in the post-transparency period. To address this concern, we simulate the post-transparency period to also be at the monthly level. For instance, for the post-transparency period we used price data for the treatment group only from the last week of the month. The results for several such specifications, and for three different measures of price dispersion, are shown in Table 1.9. The results are unchanged in all specifications.

Table 1.9: The effect of transparency on price dispersion, using similar sampling frequencies

	# Unique Prices			Standard Deviation/Avg.			Percentage Range ($100 * \frac{P_{max}-P_{min}}{P_{max}}$)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
After*Treatment	-10.871	-8.035	-7.977	-0.151	-0.051	-0.049	-37.600	-11.523	-11.384
	(0.621)	(0.868)	(0.826)	(0.023)	(0.013)	(0.012)	(3.027)	(2.598)	(2.504)
Item + Date F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Control Group	Online	ICC 1	ICC 2	Online	ICC 1	ICC 2	Online	ICC 1	ICC 2
DV Average Value	16.27	17.32	17.32	0.21	0.21	0.21	55.01	55.64	55.64
R^2	0.83	0.83	0.82	0.46	0.62	0.61	0.64	0.76	0.75
N	2657	2070	2066	2568	2042	2042	2657	2070	2066

Notes : ICC 1 refers to taking a single random week within month in the ICC-after period, but this week is the same for all stores. ICC 2 refers to taking a single random week within month in the ICC-after period, but this week may differ across stores. Time period covered 7/2014-6/2016. To account for the different sampling frequencies in the different data sources, keep a single observation for each item-treatment-month tripplet. For the treatment-after, and online before and after keep the last obs. per month. For the ICC after keep a single week chosen at random. Errors are clustered by product. The table presents several specifications that investigate the robustness of our findings on the impact of transparency on price dispersion. These specifications address the concern that the sources of our pre- and post- data are different and that may drive our results. The results of these additional checks support our analysis in the main text implying that price transparency led to reduced price dispersion.

1.2 Placebo tests

A potential threat to identification when using a differences-in-differences research design is the possibility that the estimated effects are not driven by the treatment, but rather by other unobserved factors. To address this concern, we conducted a placebo test by considering a sample that started in July 2014 and ended in July 2015. We then re-estimated the regression in which (log) price level is used as the dependent variable (Equation 1), defining a fictitious date for the "effective" date of the transparency regulation. Since the treatment group was sampled eight times in the (actual) pre-transparency period, and given that we want the placebo pre-regulation period and the placebo post-regulation period to incorporate at least two data pulls each, we are left with at most five possible points in time at which to set the fictitious regulation dates. We conducted the test for both the online and the ICC control groups. The regression results presented in Table 1.10, show no significant effect of the fictitious regulation, and therefore mitigate the concern that another event that occurred prior to the implementation of the regulation drives our findings.

Table 1.10: Placebo tests for the effect of price transparency on prices

	(1) log(Price)	(2) log(Price)	(3) log(Price)	(4) log(Price)	(5) log(Price)	(6) log(Price)	(7) log(Price)	(8) log(Price)	(9) log(Price)	(10) log(Price)
After*Treatment	0.024	0.003	0.010	0.021	0.028	0.000	0.001	-0.005	-0.008	0.011
	(0.013)	(0.018)	(0.021)	(0.023)	(0.035)	(0.008)	(0.007)	(0.008)	(0.016)	(0.007)
Placebo Date	15/9/14	15/10/14	15/12/14	15/2/15	15/3/15	15/9/14	15/10/14	15/12/14	15/2/15	15/3/15
Store + Iem + Date F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Control Group	Online	Online	Online	Online	Online	ICC	ICC	ICC	ICC	ICC
R^2	0.87	0.87	0.87	0.87	0.87	0.93	0.93	0.93	0.93	0.93
N	34417	34417	34417	34417	34417	42186	42186	42186	42186	42186

Notes : The unit of observation is item i in store j on date t. Time period covered 7/2014 - 7/2015. Errors are clustered by store. Five different placebo dates are used.

1.3 Strategic responses of prices in the control groups

Another potential concern with the interpretation of our findings is that prices of items in the control groups may have reacted to the transparency regulation. For instance, if prices set by Super-Pharm (control group 3) or in chains' online channel declined as a response to the decline in prices in brick-and-mortar stores, then our results might be biased. Note, however, that this would imply that our estimates using these control groups are a lower bound to the actual impact of transparency.

If, however, following the transparency regulation Super-Pharm stores decided to target price-insensitive consumers by raising prices, then our results may overstate the impact of the regulation. While we believe that it is unlikely that Super-Pharm would raise its prices in the wake of a regulation enabling consumers to more easily compare prices across different retailers, it is not theoretically impossible. To address this concern, we classified Super-Pharm stores in our sample as "close" or "far", according to their proximity to a supermarket store. We then checked whether the price changes in "close" Super-Pharm stores differed from price changes in "far" stores. Arguably, if the above concern holds, we should expect prices in "close" stores to rise more than prices in "far" stores. The estimation results, presented in Table 1.11, provide no evidence for such relationship.

Table 1.11: The effect of price transparency considering a strategic response by Drugstores

	(1) log(price)	(2) log(price)	(3) log(price)
04/15	0.011	0.014	0.013
	(0.010)	(0.017)	(0.013)
10/15	-0.036	-0.028	-0.038
	(0.010)	(0.016)	(0.014)
04/16	-0.049	-0.041	-0.048
	(0.011)	(0.016)	(0.016)
04/15 * Close Competitor Indicator		-0.005	
		(0.020)	
10/15 * Close Competitor Indicator		-0.014	
		(0.020)	
04/16 * Close Competitor Indicator		-0.012	
		(0.020)	
10/15 * Distance (meter)			-0.000
			(0.000)
04/15 * Distance (meter)			0.000
			(0.000)
10/16 * Distance (meter)			-0.000
			(0.000)
Store+ Item + Date F.E.	✓	✓	✓
R^2	0.89	0.89	0.89
N	2386	2386	2386

Notes : The unit of observation is item i in drugstore j in month t. Data were collected in four months: 10/14, 04/15, 10/15 and 04/16. Errors are clustered by store. Close competitor indicator = 1 if the closest supermerket is located less than 204 meter, which is the median distance.The table examines the extent to which Super-Pharm pricing is affected by the proximity to competing supermarkets. The analysis is based on price data from Super-Pharm's stores before and after the transparency regulation took effect in May 2015.For each drugstore, we measure the distance to the closest supermarket. The regression presented in Column (1) abstracts from strategic response, while the regressions presented in Columns (2) and (3) allow the month F.E. to depend on the distance from the closest supermarket. In Column (2) the distinction is between stores that are below or above the median distance from the closest supermarket. In Column (3) the effect of the distance on the month F.E. is assumed to be linear in the distance. The table demonstrates that while prices decreased over time, this price reduction is not correlated with the distance from the closest supermarket.

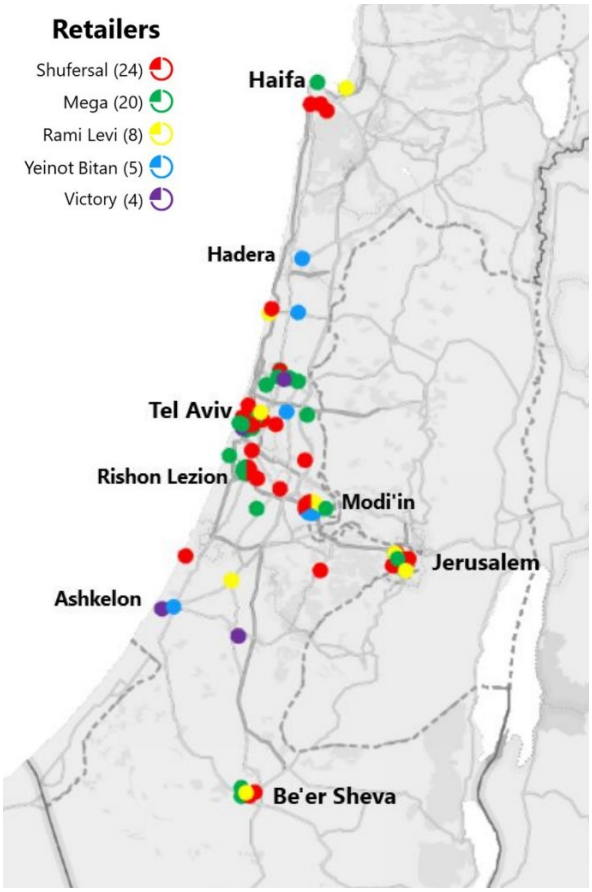


Figure 1.1: Map of store locations

The figure shows the locations and chain affiliations of the 61 stores from which the price data for the treatment group were collected. The stores are located in 27 different cities.

Product name	Producer/Brand
H&S shampoo & classic formula (600 ml)	P&G
roll-on deodorant original (50 ml)	Dove
mouthwash (500 ml)	Aquafresh
laundry detergent (112, 4.5 liters)	Ariel
nourishing body wash (750 ml)	Dove
toothpaste rapid relief (75ml)	Sensodyne
chocolate chip and cereal bars (18x8 g)	Thelma
organic ketchup (750 grams)	Harduf
trash bags (60, 65x54)	Sano
trash bags with string (64x52, 60)	Nicol
aluminum foil (30cm)	Nicol
aluminum foil (30cm)	Diamond
dishwashing liquid classic (750 ml)	Palmolive
fabric softener blue (4 liters)	Badin
razor blades mach3 (4)	Gillette
sensitive skin shave gel (200 ml)	Gillette
sensitive skin shave gel (200 ml)	Edge
deodorant gel blue for men, 24/7 (85g)	Speedstick
classic snack timeout (45 grams)	Elite
deodorant gel clear sound wave (70 ml)	Gillette
toothpaste gel (100ml)	Colgate
mouthwash (400 ml)	Meridol
insecticide k300 (630 ml)	Sano
dry hair conditioner (700 ml)	Hawaii
body wash passion fruit (750 ml)	Crema
classic corn flakes champions (750 g)	Thelma
instant coffee kroning (200g)	Jacobs
dishwashing liquid classic (750 ml)	Fairy
decaffeinated diet coke (1.5 liter)	Coca cola
green tea (25)	Vysotsky
ketchup (700ml)	Heinz
bbq-flavored potato chips (169 g)	Pringles
chocolate milk 2% (2 liters)	Yotvata
heineken beer (330x6 ml)	Heineken
actimel (100x8 ml)	Danone
aluminum foil (30cm)	Sano
aluminum foil (30cm)	Private label
burekas cheese (frozen, 16 pieces - 800 g)	Zoglowek
canned corn (550g)	Yakhin
chicken flavor base soup (mehadrin, 400g)	Knorr
chicken sausages (1kg)	Zoglowek
chicken schnitzel (frozen, 700g)	Of tov
chocolate milk 2% (225x8 ml)	Yotvata

Product name	Producer/Brand
chocolate powder (500g)	Elite Strauss
chocolate powder (500g)	Private label
chocolate wafers (1 kg)	Elite Strauss
classis corn flakes (750 g)	Kellogg's
cornflakes (750g)	Private label
dry dog food (3 kg)	Bonzo
fresh yeast (50 g)	Shimrit
healthy tofu (300g)	Kafri Baree
instant coffee (200g)	Private label
ketchup (700ml)	Private label
mayonnaise (394ml)	Helman's
mayonnaise (430ml)	Heinz
mayonnaise (500ml)	Thelma
mayonnaise (500ml)	Private label
trash bags (65x52, 60)	Private label
pastrami tabor 1% fat (330 grams)	Zoglowek
red cabbage salad (400g)	Tzabar
sliced mushrooms (400g)	Willifood
squeezed orange juice (1 liter)	Primor
thousand island dressing (290 ml)	Osem
trash bags with string (60, 65x52)	Glillonit
whole wheat crackers with bran (230 g)	Osem
whole wheat spaghetti	Barilla
whole wheat spaghetti (500g)	Osem
coke (1.5x6 liter)	Coca cola

Figure 1.2: List of products in treatment group

The figure presents the list of products in the treatment and in the online control groups. Items in red are also used in the drugstores control group, and underlined text items are used in the analysis of the comparable group of items. In figure 1.3 we present the items in the ICC control group.

ICC items	Producer/Brand
cottage cheese (5% 250g)	Tnuva
green olives without beads (560g)	Bet Hashita
instant coffee (200g)	Elite
milky chocolate puding (170 ml)	Strauss
preapred cake (400g)	Osem
advance plus baby formula (step 1, 900g)	Similac
bio white yoghurt (3%, 200g)	Yoplait
canned corn (550g)	Pri hagalil
canola oil (1 liter)	Etz Hazait
chicken breast (1200g)	Of oz
chicken breast (500g)	Tevaof
chocolate bar para (100g)	Elite
chocolate spread (500g)	Hashachar
corn schnitzel (frozen, 750g)	Tivol
cucumbers in vinegar (medium, 560g)	Bet Hashita
hummus (500g)	Strauss
mineral water (1.5x6 liter)	Neviot
moisturizing shampoo for dry hair (700ml)	Hawaii
orange soft drink (1.5 liters)	Spring
rice (1kg)	Sugat
sliced semi-hard cheese (28%, 200g)	Emek Tnuva
sour cream, Ski (250g)	Strauss
toilet paper (48)	Molett
turkish coffee (100g)	Elite
whole wheat spaghetti (500g)	Osem
ketchup (700ml)	Osem
taster's choice instant coffee (200g)	Nescafe
classic dishwashing liquid (750 ml)	Sod
coke (1.5 liters)	Coca-cola
tea classic (100)	Vysotsky
natural ruffles tapuchips (50g)	Elite
bamba peanut snack (80g)	Osem
bisli flavored snack grill (200g)	Osem
bulgarian cheese (5%, 250g)	Piraeus
selected merlot wine (750 ml)	Carmel
white sugar (1 kg)	Sugat
lemons (1kg)	
rice (1kg)	Private label
chicken breast	Private label
canned corn	Private label
apples (1kg)	
onions (1kg)	
tomatoes (1kg)	
potatoes (1kg)	
carrots (1kg)	

Figure 1.3: List of products in the ICC control group

The figure presents the list of 45 products in the ICC control group. Items in underlined text are also used in the analysis of comparable products discussed in the main text.

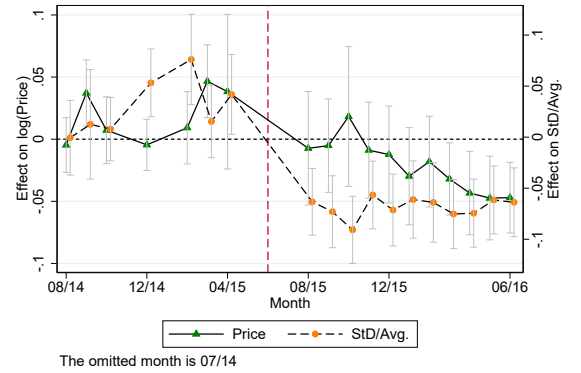


Figure 1.4: Monthly Effect on Price Level and Coefficient of Variation

Notes: The figure shows the monthly fixed effects from estimating variants of Equations 1 (price levels) and 2 (coefficient of variation). The red dashed vertical line denotes the date on which the transparency regulation came into effect. The figure shows that the change in price dispersion (in orange) occurred shortly after the regulation became effective, and that the change in price levels (in green) materialized later, at the beginning of 2016.

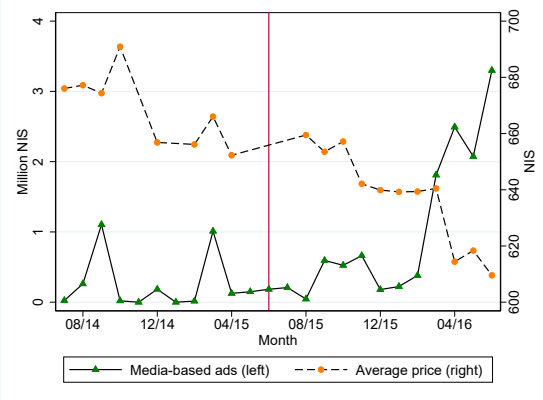


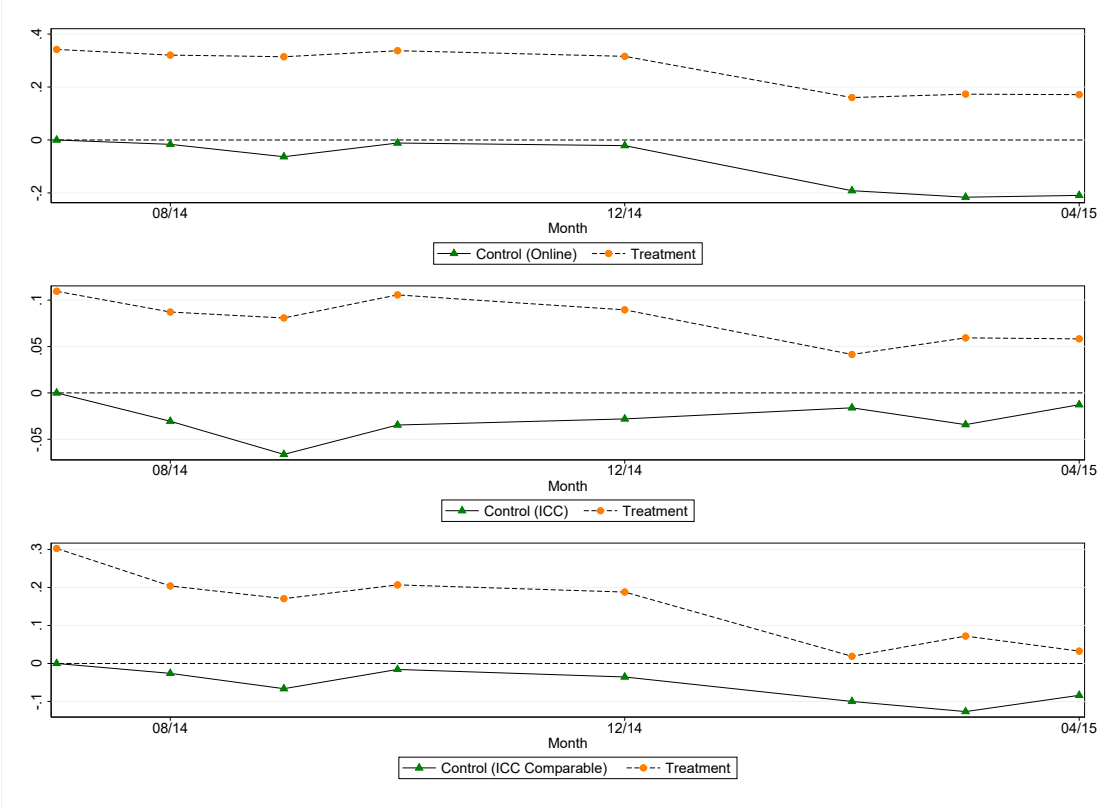
Figure 1.5: Basket price and spending on media-based ads

Notes: The figure shows the monthly average price of the basket of items in the treatment group (orange, right vertical axis) and spending by the hard-discount chain on media-based ads (green, left vertical axis). The red dashed vertical line denotes the date on which the transparency regulation came into effect. After the transparency regulation came into effect, prices fell as spending on media-based ads increased. This figure complements Figure 6 in the main text which shows that as spending on media-based ads increased the estimated effect of transparency on prices became more negative.

1.4 Parallel time trends

To demonstrate that the control groups shares a similar time trend with the treatment group, we estimated specifications using log(price) as the dependent variables and also add month-specific effects for each specification (treatment group vs. control group).

Figure 1.6: The parallel time trend assumption



Notes: Each figure presents pre-transparency period group specific monthly effects estimated in regressions using log(price) as the dependent variable. The panels are distinguished by the control group used in each of them. The upper panel is based on the online control, the middle panel uses the ICC control group, and in the lower panel we use data from the ICC comparable basket. The top and the bottom panels suggest that prices follow similar trends.

2 The Effect of Transparency in Post-transparency Period

In this section we report additional results using a larger set of products and stores which are available only in the post-transparency period. To undertake this analysis we use weekly price data on 355 products from 589 stores. We further rely on our finding that the change in price levels became significant only in the beginning of 2016, few months after prices became transparent. We exploit this finding to carry out a series of differences-in-differences analyses. In these analyses, the comparisons are made between the prices of products sold in traditional stores (the treatment group) and the prices of the same products sold online by the same chain (as a control group).

We also note that while we think that these additional results offer insights on the effect of the transparency policy, we are aware of the limitations of relying on post-transparency data and therefore cautiously interpret the results from this analysis.

In the first analysis, we evaluate the overall extent to which price levels dropped in 2016. We obtain similar results to the results reported in Table 2. That is, among traditional stores, the price difference between the January-August, 2016 period and the August-December, 2015 period was 3.2% lower compared to the corresponding price difference of the same items sold through the online channel. This finding is shown in Column 1 of Table 2.12. Next, we examine how the observed price reductions correlate with product popularity. To this end, we assign each product a popularity score which is based on a list of the top 500 selling items at `Mysupermarket.co.il`.[1] We then interact this measure of popularity with a dummy variable indicating whether the item's price corresponds to the period before or after January 2016 and add this interaction variable to the estimated specification. The regression results are shown in column 2 of Table 2.12. The results suggest that the prices of more popular products declined less than the prices of less-frequently-bought products. We now turn to evaluating whether price changes varied between private-label and branded products in the same category. To capture this difference, we estimate an equation similar to Equation 1 and also include two interaction terms. One term is an interaction between an indicator for the post-January-2016 period and an indicator for a private-label product. The second term is an interaction between an indicator for the post-January-2016 period and a branded-product indicator. In this specification the sample of products consists only of the 12 categories that contain private-label products. The results, presented in column 3, indicate that the prices of branded products dropped significantly more than the prices of private-label products. These findings may suggest that following the transparency regulation, consumers found it easier to compare the prices of branded products than to compare the prices of private-label products, which differ across chains.

[1] Because more than half of the products in our sample are not included in the top 500 products, we cannot directly match the list with each product. Instead we use a more coarse classification for popularity. The results are robust to different classifications.

Table 2.12: The Effect of Price Transparency on Prices of Different Types of Products

	Baseline	Popularity	Private Label
	(1)	(2)	(3)
After*Treatment	-0.032		
	(0.009)		
After*Treatment (property turned off)		-0.046	-0.030
		(0.009)	(0.010)
After*Treatment (property turned on)		-0.003	-0.010
		(0.009)	(0.010)
Store + Item + Date F.E.	✓	✓	✓
R^2	0.98	0.98	0.98
N	4981472	4981472	1005062

Notes : The unit of observation is item i in store j on date t. Time period covered is 8/2015-6/2016. Errors are clustered by store. Data set is based on 355 items and 589 stores. The table presents regression results using only data from the post-transparency period, focusing on the changes in the prices of 355 items sold in 589 stores affiliated with the five supermarket chains used in the main analysis. In this analysis, the control group comprises from the same items sold through the online channel of each the chains. The post-transparency period begins in January 2016. In Column (1), we estimate Equation (1) and find results qualitatively similar to the ones shown in Table 2. In Column (2), we examine the change in prices of items that are classified based on their popularity. In Column (3) we examine the change in prices of private label and branded products including only categories with private label products.