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# Good-Looking Prices

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## Abstract

We design a field experiment to test for price discrimination at seemingly highly competitive Israeli produce markets. We trained 90 buyers and sent them to produce markets across Israel. After verifying a product's posted price, they asked for a discount on a one-kilogram or one-unit purchase. Vendors employ third-degree price discrimination: women are offered larger and more frequent discounts than men, and the more attractive the female buyer, the larger and more frequent the discount offered. Male buyers do not benefit from this beauty discount. No other buyer characteristic is a significant predictor of the likelihood or size of a discount. To understand our findings, we provide a more nuanced view of these markets that includes search costs and considerable vendor price-setting discretion.

Keywords: experimental economics, beauty, price discrimination, negotiation, price discounts, search costs.

*JEL* classification: C91, D01.

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## 1. Introduction

A Middle Eastern marketplace (*bazaar* in Persian, *souk* in Arabic and *shuk* in Hebrew) bears many hallmarks of a perfectly competitive market. Row upon row of small-scale, often side-by-side, vendors sell identical tomatoes, cucumbers, eggplant, oranges and spices with their prices clearly displayed. These features make comparison shopping easy for buyers, thus constraining both the prices set by myriad vendors and buyers' scope for negotiation.

We conduct a field experiment on these seemingly highly competitive Israeli produce markets to investigate the possibility of price discrimination based on buyers' gender and attractiveness. We trained 90 buyers and sent them to produce markets across Israel. At each vendor, they select a produce item, verify the posted price and then ask for a discount on a one-kilogram or one-unit purchase.<sup>1</sup> Vendors employ third-degree price discrimination: women are offered larger and more frequent discounts than men, and the more attractive the female buyer, the larger and more frequent the discount offered. Male buyers do not benefit from this beauty discount. No other perceived buyer characteristic influences the likelihood of obtaining a price discount: neither the buyer's perceived wealth, kindness, intelligence nor ethnicity are significant predictors of the tendency to offer a discount or its magnitude.

Although comparison shopping of posted prices is straightforward, we argue that it is not costless, particularly when it comes to ascertaining final prices. The near absence of price-information sharing among buyers in these markets permits vendors to price at a markup and to grant individual requests for a discount without fear of inviting an onslaught of additional takers. The finding that the mostly male vendors in our sample willingly lower their posted prices in response to so frivolous a quality as the buyer's good looks attests to this markup and their willingness to employ it at their discretion.

## 2. Literature Review

A number of audit studies provide evidence of discrimination against customers based on ethnicity or gender (see, e.g., List 2004; Castillo et al. 2013; Grosskopf and Pearce 2015).

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<sup>1</sup> Section 17 of Israel's Consumer Protection Law mandates for bulk fresh vegetables and fruits the "display [of] their price by placing a sign on or above the commodity or by attaching a label to the shelf below the commodity and indicating the price for one kilogram." Consumer Protection and Fair Trade Authority (1991).

None of these studies consider attractiveness. Mujcic and Frijters (2013) sent testers to bus stops to ask the driver for a free ride on the basis of a faulty bus pass. White testers were allowed to embark 72% of the time, Asians 73%, Indians 51% compared to just 36% for Blacks. The testers' attractiveness was measured, but not a significant predictor.

Solnick and Schweitzer (1999) conduct laboratory ultimatum games in which undergraduate participants are shown photographs of their counterparts. Attractive Responders, males and females alike, are offered larger amounts. A transaction between a buyer and seller can be likened to an ultimatum game in which the transaction price determines the surplus split between the buyer and seller.

Dugar and Bhattacharya (2019) conduct an audit study in which buyers either request or do not request a 10-Rupee discount on a kilogram of Rohu fish in a Kolkata fish market. In either case and regardless of whether a discount is granted, the buyer purchases one kilogram of the fish. The authors find that sellers cheat buyers in quantity by 28 grams on average when no discount is requested, by 37 grams when a discount is requested but not granted and by 85 grams when a discount is requested and granted.

### **3. Experimental Design**

#### **3.1 Field Experiment**

Ninety unpaid student buyers (44 males and 46 females) from Ruppin Academic Center in Israel took part in the experiment as part of a research methods course.<sup>2</sup> Buyers were told nothing of the purpose of this research. Each buyer was asked to visit a marketplace of their choice and to avoid the busy closing hours of the market when either the seller may be unresponsive to the request for a discount or all too willing to get rid of day-old produce at a reduced price. They could also approach the seller stalls of their choice. They were asked to wear casual, day-to-day clothing to the market and to avoid extensive makeup, wearing anything too revealing or that could signal wealth. The average buyer requested a discount on 14.5 distinct products (median = 9, s.d. = 16.5).

In asking for a discount, buyers followed a strict protocol involving these steps: each buyer approached the vendor's stall alone. Buyers were asked to ensure that the item about

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<sup>2</sup> This division between male and female buyers matches our impression of the roughly equal distribution of male and female buyers at produce markets in Israel.

which they were to inquire displayed a sign with the price per kilogram (kg) or unit clearly shown. To confirm that the displayed price was indeed the correct one, the buyer then asked the vendor the price per kg/unit. Upon hearing the price, the buyer replied, “the price is too expensive; can you offer a discount?” If the seller refused to lower the price, the buyer left the stall. If the seller agreed to reduce the price, the buyer confirmed the discounted price and responded, “no, thank you”. In either case, upon leaving the stall, the seller may have offered a (further) discount in an attempt to entice the buyer to return. The buyer was asked to record the magnitude of this (additional) discount along with all other relevant information about the product, its price and the seller on a printout of a table provided to each buyer.

### **3.2 Photo Ratings**

We recruited  $N = 577$  students to rate the buyers’ photographs (54% women, 46% men, mean age = 25.1, s.d. = 4.4). The photos were anonymous with no identifying information displayed. Each subject  $i$  rated a subset  $T_i$  consisting of three to six photos of men and three to six photos of women, out of a total of  $T = 90$  buyers’ photos. To minimize the possibility that those rating the buyers’ photographs did not personally know the photographed students from Ruppin Academic Center, we recruited the photo raters from three different and distant academic institutions (Sapir College, Ariel University and the Open University) and asked them to refrain from rating the photographs of anyone they knew. The student raters were asked to rate on a nine-point scale their perception of the photographed person’s attractiveness, kindness, intelligence, wealth and ethnicity.<sup>3</sup>

## **4. Empirical Results**

### **4.1 Dataset**

Ninety student buyers negotiated 1,324 prices on product categories that include vegetables (47.7%), fruits (44.2%), nuts and seeds (3.3%) and herbs and spices (3.3%)<sup>4</sup> in 23 different

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<sup>3</sup> Fershtman and Gneezy (2001), Malul et al. (2010), Rubinstein and Brenner (2013) have all observed discrimination against Jews of North African and Middle Eastern origin (i.e., Sephardic Jews) relative to Jews of European origin (i.e., Ashkenazi Jews). Our nine-point scale for ethnicity corresponds to 1 for definitely Ashkenazi, 5 for uncertain and 9 for definitely Sephardic.

<sup>4</sup> Anecdotally, the distribution of product categories in our sample roughly matches that available for sale in the typical Israeli “fruit and vegetable market”, as they are referred to in Hebrew.

Israeli markets on every day of the week except Saturday when the markets are closed for the Jewish Sabbath. We also have data on each buyer's perceived characteristics (attractiveness, kindness, intelligence, wealth and ethnicity), the seller's gender, whether the seller agreed to a discount and the magnitude of the discount. Table 1 provides the summary statistics for these buyer variables. For each trait  $j$  rated on the basis of each buyer  $i$ 's photo, we report the mean rating over all  $T$  buyers. The two right-most columns also do this separately for male and female buyers.

**Table 1: Summary Statistics**

Variable	Overall	Men	Women
	Mean (Std. Dev.)	Mean (Std. Dev.)	Mean (Std. Dev.)
Attractiveness	5.29 (1.14)	4.81 (0.99)	5.75 (1.09)
Intelligence	5.80 (0.81)	5.66 (0.77)	5.93 (0.84)
Kindness	5.69 (0.95)	5.50 (1.00)	5.87 (0.88)
Wealth	5.52 (0.72)	5.38 (0.79)	5.65 (0.64)
Ethnicity	4.87 (1.63)	5.21 (1.70)	4.54 (1.51)
Male Seller	0.957 (0.203)	0.953 (0.211)	0.961 (0.194)
Posted Price (in NIS)	10.37 (9.24)	10.59 (9.91)	10.17 (8.62)
Discount Frequency	0.336 (0.473)	0.262 (0.440)	0.401 (0.490)
% Discount	3.84 (3.89)	2.45 (2.78)	5.18 (4.33)
Obs.	90	44	46

*Notes:* Because buyers were rated by different, randomly determined numbers of raters and completed different numbers of negotiations, we first calculated a buyer-specific mean for each variable. The entries report the mean of these means overall and separately for male and female buyers.

Consistent with previous beauty research (e.g., Hamermesh 2011, Ruffle and Shtudiner 2015, Li et al. 2018), we find that women on average are rated as significantly more attractive than men ( $p = .01$  from non-parametric Wilcoxon-Mann-Whitney test). Women are also rated more favorably than men for the two other character traits: they are perceived as more intelligent ( $p = .06$ ) and kinder ( $p = .03$ ), while men and women

buyers' perceived wealth levels are not significantly different from one another at conventional levels ( $p = .17$ ).

For each buyer and each characteristic (perceived beauty, intelligence, kindness, wealth and ethnicity), we computed the mean standardized rating. Explicitly, for each characteristic  $j$ , we calculated each photo rater  $n$ 's mean rating and standard deviation over all photos this person rated. We then took rater  $n$ 's specific rating of buyer  $i$ 's photo for trait  $j$  and subtracted off the above mean trait  $j$  rating and divided by its standard deviation. Finally, we computed the mean such rating over all  $N$  raters for this buyer  $i$  and trait  $j$ .

## 4.2 Results

We investigate the relationship between a buyer's gender, attractiveness and the likelihood of obtaining discount as well as the magnitude of the discount. The third-to-last row of Table 1 shows that overall buyers are granted a discount on 34% of their requests. Broken down by gender, male buyers obtain on average a discount on 26% of their requests compared to 40% of female buyers' requests. The second-to-last row reveals that the mean percentage discount (zeros included) obtained by female buyers is 5.18% compared to 2.45% for male buyers.<sup>5</sup>

Are the larger discounts that female buyers negotiate a pure gender effect or can the buyer's attractiveness explain the variation in discounts? Figure 1 plots separately for male and female buyers the mean percentage discount offered as a function of the buyer's mean standardized beauty rating. The fitted regression line points to a positive relationship between female buyers' attractiveness and the mean discount offered to them, whereas no such relationship is observed among male buyers. The scatterplot also reveals that only 4% (2/46) of female buyers are never offered a discount compared to 25% (11/44) of males. Moreover, among those offered at least one discount, the mean percentage discount to females substantially exceeds that to males. For example, 35% (16/46) of women are offered an average discount of 5% or more compared to only 14% (6/44) of men.<sup>6</sup>

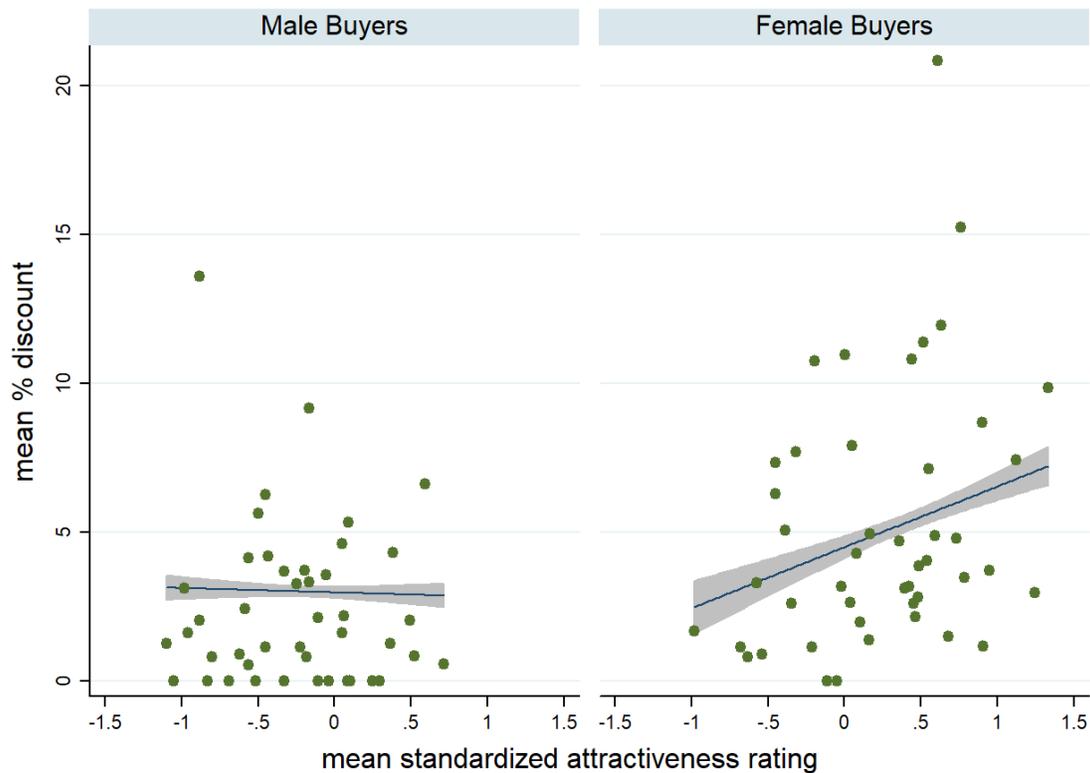
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<sup>5</sup> For both the discount frequency and magnitude in this table and all subsequent uses of these measures, we also include any (additional) discount offered by the seller as the buyer walked away. Because a discount while walking away was offered in less than 1% of negotiations (13/1324), their inclusion or exclusion makes no difference to our findings.

<sup>6</sup> Both this male-female difference and the previously reported difference in the proportion of buyers never offered a discount are highly significant ( $p = .02$  and  $p = .01$ , respectively, chi-square test of proportions).

Regressions (1) – (3) in Table 2 report the estimates from a linear probability model on whether an individual seller agreed to buyer  $i$ 's request for a discount on their product.<sup>7</sup> Regressions (4) – (6) report the results from equivalent OLS specifications on the magnitude of the percentage discount (median = 0, mean = 4.24, s.d. = 7.23). All the regressions include day-of-the-week, product-category and market-location fixed effects. The standard errors are clustered by individual buyer.

**Figure 1: Scatterplot of mean percentage discount offered by buyer**



*Notes:* For each buyer according to his or her mean standardized attractiveness rating, we plot the average discount offered on all products negotiated. Each figure also displays a fitted linear regression with a 95% confidence interval.

The estimate of 0.142 on the Female Buyer indicator in regression (1) indicates that women are 14 percentage points (p.p.) more likely to be offered a price discount than men. According to regression (4), the mean discount offered to a female buyer exceeds that offered to a male buyer by 2.88 p.p. Both differences are highly significant ( $p < .01$ ).

<sup>7</sup> Probit regressions leave unchanged the marginal effects and their significance in (1) – (3). We report the linear model for ease of interpretation.

**Table 2 – Regression results**

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Female Buyer	0.142*** (0.040)	0.085** (0.042)	0.095** (0.040)	2.88*** (0.64)	1.76*** (0.69)	1.85*** (0.67)
Attractive	_____	0.013 (0.051)	-0.015 (0.065)	_____	1.19 (0.83)	0.93 (1.02)
Attractive * Female	_____	0.118* (0.062)	0.115* (0.062)	_____	1.05 (1.01)	0.95 (1.05)
Intelligence	_____	_____	-0.028 (0.067)	_____	_____	0.01 (1.20)
Kindness	_____	_____	-0.025 (0.044)	_____	_____	-1.01 (0.86)
Wealth	_____	_____	0.082 (0.059)	_____	_____	1.16 (0.91)
Ethnicity	_____	_____	-0.008 (0.045)	_____	_____	-0.45 (0.78)
Posted Price	0.005** (0.002)	0.005** (0.002)	0.005*** (0.002)	0.015 (0.029)	0.02 (0.03)	0.02 (0.03)
Constant	0.076 (0.060)	0.057 (0.062)	0.053 (0.062)	-0.94 (1.05)	-0.95 (0.99)	-1.15 (1.12)
Observations	1324	1324	1324	1324	1324	1324
R <sup>2</sup>	.094	.100	.102	.142	.151	.156
Attractive + Attractive*Female	_____	0.131*** (0.042)	0.100** (0.046)	_____	2.21*** (0.72)	1.88*** (0.73)

Notes: 1. Dependent variable: Regressions (1)-(3): a binary variable for whether a discount was offered; Regressions (4)-(6): the percentage discount offered.

2. Regressors: The individual product's posted price, an indicator variable for female buyers, the mean standardized ratings for attractiveness, intelligence, kindness, wealth and ethnicity, as well as interaction term between female buyer and her mean standardized attractiveness rating.

3. Standard errors clustered on individual buyer in parentheses.

4. Last row reports the estimate and significance level from the combined coefficients on attractiveness and female attractiveness.

5. Coefficient significantly different from 0 at the 1% level \*\*\*, at the 5% level \*\*, at the 10% level \*.

The buyer's mean standardized attractiveness rating along with this rating interacted with an indicator variable for female buyers are included in regressions (2) and (5). Female buyers are now 8.5 p.p. more likely to be offered a discount than their male counterparts and the magnitude of the mean discount to women is 1.8 p.p. higher than that to men. The estimate of 0.013 on the mean standardized attractiveness rating is a precisely estimated zero ( $p = .79$ ), implying that the attractiveness of male buyers is not a significant predictor of the likelihood of a discount. The non-significant estimate of 1.19 in (5) suggests that male-buyer attractiveness is also not a significant predictor of the magnitude of the discount

offered to males. By contrast, an additional one point in a female buyer's mean standardized attractiveness score is associated with a 13 p.p. increase in the likelihood that she is offered a discount and a 2.2 p.p. larger discount, as seen in the last row of column (5).<sup>8</sup>

Regressions (3) and (6) also include the buyer's mean standardized rating for kindness, intelligence, wealth and ethnicity. The discount to female buyers and the additional discount the more attractive the female buyer is both remain highly significant and of similar magnitudes after including these other characteristics. Interestingly, none of these other traits differs significantly from zero.<sup>9</sup>

## 5. Discussion

Our field experiment reveals that female buyers are about nine p.p. more likely to be offered a discount than males and the average discount offered to females is about two p.p. larger than that to males. Moreover, while the buyer's attractiveness is not a significant predictor of the likelihood or magnitude of a price discount for males, more attractive females are more likely to be offered a discount and one of a larger magnitude.

A starting point for the source of these findings is the observation that 96% of sellers in this marketplace are males. The anonymous and likely non-repeat nature of transactions in these competitive markets suggests that male vendors obtain some psychological utility from serving (attractive) female customers that compensates them for the lower price they are willing to accept from these buyers.<sup>10,11</sup> Our findings are potentially relevant to any

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<sup>8</sup> Interestingly, these face-to-face interactions yield a different result from those obtained in Schweitzer and Solnick (1999) who communicate attractiveness through a photograph. These authors find that Responders set higher minimum acceptable offers for attractive Proposers, suggesting that the male vendors in our setting ought to be less – not more – willing to concede a discount to an attractive female buyer.

<sup>9</sup> The lack of significance of buyers' other traits does not appear to follow from their imprecise measurement. With the exception of ethnicity, the standard deviations of these traits are lower than that of attractiveness (see Table 1), implying wider agreement across photo raters on these traits than on attractiveness.

<sup>10</sup> Barokas and Sherman (2019) provide another recent example of transaction-benefit-enabled seller discounts. They find that when the buyer conveys a happiness signal (through either a smiley emoji or a sticker that reads "I am a happy person"), the vendor responds with a significantly lower price for a used bicycle, a used cellphone or cellphone repair than to these same buyers in the absence of the happiness signal. "Happy" males and "happy" females benefitted from similarly large discounts.

<sup>11</sup> It could also be that women are viewed as savvier buyers of produce. Thus, an unwillingness to meet their request for a discount sends them shopping elsewhere. Contrast this with the mixed evidence on higher prices that women are quoted when negotiating a new car (Ayres and Siegelman 1995; Goldberg 1996) or the 7% higher mean prices in New York City for women's products compared to similar men's products (DeBlasio

industry in which prices are negotiable and discussed face-to-face vis-à-vis individual sellers. Lawyers' fees and many skilled trades that are traditionally the domain of men such as plumbers, electricians, home and auto repairs are particularly susceptible to the price discrimination found herein.

Aside from finding that specific populations obtain discounts, the very existence of discounts violates competitive conditions. The implication is that pricing in Middle Eastern bazaars is more complex than the view, prevalent among anthropologists and some economists, that they constitute "the nearest real world institution to the purely competitive market of neoclassical economics" (Geertz 1978, p. 28). A possible explanation for the absence of competitiveness is that although buyer search costs are unquestionably low at these bazaars, they are non-zero. Geertz (1978, p. 29) claims that "in the bazaar, information is poor, scarce, maldistributed, inefficiently communicated, and intensely valued."<sup>12</sup> Buyers in these Israeli produce markets must incur non-trivial costs to learn even a portion of the price distribution for goods they desire because vendors are too small to bear the fixed costs of advertising their location, available produce or prices. And so learning even an adjacent seller's (bottom-line) price involves approaching the seller and engaging in the negotiating process once more.<sup>13</sup> It is precisely the existence of such search costs that permits price markups. Yet unlike online or brick-and-mortar retailers, the bazaar vendor need not apply one price fits all. When a price-sensitive buyer requests a discount, the vendor – who is also typically the owner – has the discretion to offer an individualized discount, without concern that other buyers will get word of the price acquiescence and demand a similar concession. Even if the buyer told a friend of their success in negotiating a discount, the buyer would be hard-pressed to describe accurately the vendor's precise location within the maze of tightly packed, non-descript stalls.

What would it take to render these markets perfectly competitive and eliminate the price discrimination observed herein? A digital board at each point of entry to the market

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and Menin 2015). Note well that this savvy-buyer explanation does not account for the attractiveness-discount we observe.

<sup>12</sup> McMillan (2002, pp. 42-45) also provides a lively discussion of search costs in Middle Eastern bazaars.

<sup>13</sup> Compare the bazaar to the internet and the use of price-comparison websites, apps and, most recently, automated price-comparison browser extensions that eliminate the search altogether.

or an online app directing buyers to the seller with the lowest-priced tomatoes, cucumbers, eggplant, oranges and spices on that day would likely do the trick.

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