

Pay-What-You-Want, Identity and Self-Signaling in Markets

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Classification: Social Sciences, Economic Sciences

Abstract

We investigate the role of identity and self-image consideration under Pay-What-You-Want pricing. Results from three field experiments show that often, when granted the opportunity to name the price of a product, fewer consumers choose to buy it than when the price is fixed and low. We show that this opt-out behavior is largely driven by individuals' identity and self-image concerns: Individuals feel bad when they pay less than the "appropriate" price, causing them to pass on the opportunity to purchase the product altogether.

'body' 1. Introduction

Although social norms encourage non-selfish behavior (1-4), self-interest is clearly a powerful motive in markets. This raises two important questions with respect to the economic consequences of non-selfish behavior: is non-selfish behavior important in markets, and if so, how does it operate?

A new pricing scheme, called “Pay-What-You-Want” (PWYW), can help in answering both questions. First, non-selfish behavior in the form of PWYW definitely exists in markets. Perhaps the most famous case of PWYW is the release of *Radiohead*’s album, “In Rainbows,” in 2007. Fans were invited to download the album from the band’s website for any price they chose, including zero dollars. If fans could get the album for free, why would they pay? But they did. Hundreds of thousands of fans chose to pay for something they could have received for free, and *Radiohead* collected hundreds of thousands of dollars from its album sales. Other artists (e.g., Girl Talk) and video game companies (e.g., World of Goo) further had some level of success using PWYW. The continued use of PWYW by for-profit organizations (as opposed to e.g., museums or charities) allows the rejection of the straw-man model of pure selfishness in markets. Nevertheless, a closer look at these attempts raises the importance of the second question: What motivates people to behave non-selfishly in markets? Understanding the reasons for individuals’ non-selfish behavior can increase our understanding of how markets work as well as help us in designing institutions based on such behavior.

We report results from three field experiments (5-6) using PWYW to show that individuals’ non-selfish behavior is influenced, at least in part, by concerns related to self-image. The basic argument is that people want to maintain a sense of being good and fair. Namely, individuals derive utility from prosocial behavior as a signaling mechanism: when an individual behaves prosocially, she is judged more positively by others and *also* by herself. The evidence provided in this paper converges to support our proposition that self-image plays an important role in individuals’ payment decisions under PWYW.

The first piece of evidence is based on a recent field experiment conducted in collaboration with large amusement park, which involved selling photos taken during a ride at the park (7). We compared a regular PWYW pricing scheme with a PWYW variation in which half of the revenue went to charity (a well-known and well liked organization helps very ill children). The main finding emphasized in that report was that people pay *substantially more* when they learn that half of their payment would benefit charity, making PWYW profitable and socially beneficial. Importantly, here we emphasize a possibly even more notable result. Relative to the traditional PWYW treatment, when people learned that half of their payment was going to charity they were essentially offered superior product; an equally good photo, but also an opportunity to support a good cause. Nevertheless, they were dramatically *less* likely to buy the photo. This finding speaks strongly to our self-image account. Those who did buy the photo in the charity treatment paid on average 5 times more. This suggests that when people think that the “right” price is high, they simply prefer to forego the opportunity to buy the product (and benefit the charity) rather than appear cheap by paying too little. When someone simultaneously wants to pay little *as well as* maintain a positive self-image, the best option is to not buy at all.

The second piece of evidence comes from a field experiment showing that under some circumstances, PWYW will result in fewer purchases than a standard fixed price scheme. Rather than manipulating the variation of the PWYW price, we compared that treatment to treatments in which we manipulated fixed prices to be low

or high. Passengers on sightseeing tour boats were photographed before boarding and then had a chance to purchase the printed photo upon returning. (This is a good real-life example of the ultimatum game. The company has no value for the pictures, which end up in the trash if the passengers do not buy them. Yet this is a take-it-or-leave-it offer; the company representative is not allowed to negotiate the price with the potential buyer.) We manipulated the prices such that passengers on different tours could purchase the photo for either \$15 (the routine price), \$5 or at PWYW. All were told that the regular price was \$15. We measured sales and purchase prices. As expected, demand went up when the price went down from \$15 to \$5. However, in support of our self-image hypothesis, fewer people chose to buy the photo when they could choose how much to pay than when the price was \$5. This result is surprising since those in PWYW treatment could have also chosen to pay \$5. The fact that fewer people chose to buy under PWYW is consistent with the idea that people were managing self-image. If \$5 seems unfairly low, it is easier to maintain self-image by foregoing the purchase altogether. When the company sets the price at \$5, there is no ambiguity about fairness and self-image concerns disappear, and people are happy to pay. We argue that individuals who chose to not purchase under PWYW, were avoiding the possible negative consequences that paying too little may have had on their self-image.

The last field experiment was conducted in a buffet-style restaurant in Vienna. We manipulated whether payments were made privately (by putting money into a sealed envelope) or publicly (by paying the owner directly). This manipulation allows us to test the relationship between self-image and social-image considerations. It is plausible to assume that the two forces work in the same direction. Under this assumption, one would expect customers to pay more when they pay the owner than when they pay anonymously. Alternatively, it is at least as likely to predict that being monitored by the owner may crowd out the self-signaling strength, leaving the individual to believe she chose to pay the specific amount because she “had to” and not because she is a fair person. Under this account, the transaction carries relatively little self-signaling value, so the customer may end up paying less when monitored by the owner. Consistent with the latter hypothesis, diners paid more when asked to pay anonymously (by placing their payment in an envelope) than when observed.

In combination, these studies offer converging evidence that self-image plays an important role in individuals’ non-selfish behavior in markets. Specifically, people care about their self-image, and hence are willing to pay for products, or services, they can otherwise get for free.

This result is in line with Akerlof and Kranton (8-9), who use insights from sociology and psychology when introducing the concept of identity into economic modeling. In their model, identity influences agents’ utility function. If one’s behavior clashes with identity, their utility decreases. In contrast, identity-confirming choices enhance utility. In Benabou and Tirole’s model (10) individuals derive utility from prosocial behavior as a signaling mechanism: when an individual behaves prosocially, she is judged more positively by others and, importantly, by herself (11). In our discussion, we take this self-image concern as analogous to identity.

In a recent investigation regarding the role of self-image in prosocial behavior, researchers manipulated the interaction between extrinsic and image motivations, and found that monetary incentives in private settings were more effective in increasing charity donations than in public ones (12). Finally, the result that some people prefer to avoid situations that may harm their self-image is also consistent with two recent laboratory experiments (13-14). For example, Dana et al (13) show that people prefer

to take \$9 over playing a dictator game for \$10, arguably because making a \$1 offer compromises their self-image and makes them feel bad. Better to lose the \$1 than to lose a positive self-image.

2. Experiments

2.1 The Theme park experiment: Choosing not to buy under PWYW with charity

Design: The data in this section is largely based on a new analysis of Gneezy et al (7). We conducted a field study at a large amusement park. Participants rode a rollercoaster-like attraction, were photographed during the ride, and later chose whether to purchase a print of the photo.

Two of the four treatments reported in that paper featured a Pay-What-You-Want pricing scheme. In the first treatment, customers (n=28,263) could purchase a photo using a traditional PWYW. In the second treatment (n=25,968) customers could purchase the photo using PWYW, with the additional feature that half of their payment would go to a nationally recognized patient-support foundation (we termed this treatment “Shared Social Responsibility”). In essence, people in each treatment could pay what they wanted, but those in the Shared Social Responsibility had the added benefit of knowing that half of their payment was going to a good cause. Those people were simply offered a better product. Each of the two treatments was conducted over two full days.

Results: The most striking result here is that in the regular PWYW treatment, 8.39% of the riders chose to get their picture, while only 4.49% did so in the PWYW+charity treatment ($\chi^2=337.44$, $p<.001$). The average amounts paid were \$.92 and \$5.33, respectively, $t(3535)=43.24$, $p<.001$.

One interpretation of the substantial payment difference is that people thought that the “right” price for PWYW+charity was more than 5 times larger than in the regular PWYW. Our data supports the proposition that people prefer to avoid buying in the PWYW+charity treatment because they would rather forego the opportunity than risk paying too little and harming their prosocial self-image (8, 15-16).

We also conducted a PWYW+charity treatment in which the digital screen on the cashier was turned on, so people in the line behind the person paying were able to observe how much he/she paid. The hypothesis was that adding the public signal to the self-signaling would increase payment. Interestingly, there was no statistically significant difference between the two PWYW+charity treatments—indicating that in this case self-signaling was the driver of behavior.

2.2 The tour-boat experiment

Design: The boat tour company operates several ships, each with daily cruises seven days a week. On a typical day, each individual or group is photographed and is informed that they can purchase their photographs for \$15 upon return. While passengers are at sea, the photographer prints and hangs photos on a display board. Upon return, passengers walk past this board and can choose to buy their photos at the advertised price.

In our study we manipulated the price of a photo. In addition to the regular \$15 treatment, we added two treatments: one in which we reduced the photos price to \$5, and another in which we sold the photos using a PWYW pricing (we collected data for four other fixed prices on different days. None of those results are inconsistent with any claims made here. The complete data set is available upon

request). We studied 20 cruises in each payment scheme, with each cruise having at least 50 groups of passengers. We randomized the price for each cruise and observe the number of photos purchased and (for the PWYW treatment) the average price paid.

Results: Figure 1 presents the fraction of people who chose to pay each amount, and the total revenue collected for each amount, in the PWYW treatment. As can be seen from the figure, for a variety of exogenous factors (e.g., wind, waves), cruises substantially differed in the popularity of photo purchasing.

As expected, when the photo was offered for \$5, significantly more people (64%) bought it than when the price was \$15 (23%). For the test we use the lower end of each interval, with one observation per ship, resulting in 20 observations per treatment. A two-tail Mann-Whitney U-Test and a t test both are highly significant ($p < .0001$). In line with our hypothesis, more people bought the photo when the price was \$5 than when people could name their own price (55%) (U -Test $Z = 2.22$; $p < .026$; t -test $p < .016$). This result is surprising because passengers in the PWYW treatment could have chosen to pay any amount, including \$5, and hence the observation that *less* people bought the photo under PWYW implies that there is another difference between the treatments. We argue that this difference captures the additional signaling value that exists in the PWYW treatment, but not in the \$5 treatment. Note that in this experiment we were able to lower the fixed price enough such that the fixed price demand will be higher than the PWYW demand (in contrast with Experiment 1).

In terms of profitability, the \$15 treatment resulted in \$3.45 profit per picture taken, while under PWYW, 55% of the photos were purchased for an average price of \$6.43, and an average profit of \$3.50 ($55\% \times 6.43$) per photo. The difference in profits between the treatments is not statistically significant. When the photo was offered for \$5, however, the profit was lower than in the other two treatments (\$3.20 per photo).

2.3. Restaurant experiment

Set-up: The experiment was conducted in the Der Wiener Deewan restaurant located in a central Vienna district. The restaurant serves 140 to 160 customers per day between 11am to 11pm, and is open from Monday to Saturday.

Food is served buffet-style. People eat as much as they would like and pay as they leave. Customers pay a fixed amount for the drinks and a voluntary amount for the food (drinks are paid separately for tax reasons). To encourage payment, the staff usually phrases the PWYW as “zero plus” (translated from German). The owners introduced PWYW when the restaurant opened to attract new customers. Seeing that payments approximately matched fixed price expectations, they elected to retain it. Figure 2 presents two years of data (from July 2005 to July 2007; A detailed description of the time series can be found in (17)), showing variation in customer volume and average payment. Initially, the average payment ranged between €5.50 and €7.00 (similar to comparable restaurants in the area), and slowly declined over the observation period. Nevertheless, drops in average payment were matched by an increased number of customers, yielding slightly increasing revenue. Three months before the experiment, the median payment was €5 with a minimum of €0 (which was observed at most 3 to 4 times a day) and a maximum of €50.00, which was observed once. People paid individually. In the uncommon case when one person paid for the whole table, the owner divided the amount equally over the number of people for whom s/he paid. As an anecdote, the payment of €50 was made by a local

communication company manager from a nearby building. He paid for himself only, adding a (written) statement “That’s what one does here, if I am not mistaken” to the payment. This shows that PWYW can be sustained over a long time period, in an environment with meaningful marginal costs.

Design: We use a 2×2 factorial design to manipulate whether or not customers had information about the average price paid by others, and whether or not their own payment was made anonymously. To reduce day and time effects, the treatments were randomly assigned over tables.

Each customer completed a questionnaire (see translation in Appendix A) before paying. These questionnaires were coded with table numbers and time of handout to identify groups who sat together. The experiment was conducted in June 2007 during lunch and dinner times. A total of 257 customers (54.5% female) participated in our study. The mean group size in each table was 2.54, and the maximum number of customers at a table was 8. Most customers were students (62%) followed by customers working in the service sector. A majority of customers (53.7%) planned to attend the restaurant again within the next month.

In the “observed” treatment, customers filled out the questionnaire and returned it, along with their payment, to the person handling money and questionnaires at the counter. This person was instructed to treat all customers equally and to record the amount contributed on the questionnaire. Participants in the “anonymous” treatment also received a questionnaire to answer. With this questionnaire they received an envelope containing €20 in change, in order to allow them to pay the precise amount they wanted to pay, without needing to ask the staff for change.

Note that in this treatment, customers could pay even less than €0: they could have taken the change in the envelope ending up paying €-20 (notably, this never occurred). Before leaving, customers put their payment in the envelope, and dropped it, along with the questionnaire, into a box near the entrance.

The second dimension we varied was the information customers received about the payments of others. Some customers learned that on a previous day the average customer’s payment was €6 (which was the true average on a previous day, but was above the overall average), and some customers did not receive this information. When added, the information was inserted before the questionnaire.

Results: We first wanted to make sure that our experiment was relatively close to the typical behavior at the restaurant. The treatment in which customers were observed and had no information about the payment of others was closest to typical circumstances, so we compared payments in that treatment to payments received over the preceding week. People paid approximately the same amount in this control treatment (€4.66) as they did in the period prior to the experiment (€4.72), and this difference was not significant given t-tests and rank sum tests at conventional levels.

When customers were told about the others’ payments, anonymity had no influence on the amount paid ($p=0.38$), presumably because of the normative anchor it sets. Consistent with our postulation, when participants were uninformed about the behavior of others, customers paid more when they were anonymous, increasing average payments by € 0.71 over the control treatment, $p < 0.01$ (See Table 1).

The results of a multivariate analysis (Table 2) show a strong correlation between people’s beliefs about the owner’s payment expectations and actual payments (column 5). This suggests that customers are trying to pay a price that feels

fair. This analysis also reveals that age (likely to be a proxy for income) is strongly correlated with observed payment behavior. Introducing age into the analysis reduces the treatment effect when customers are not observed, yet it leaves the coefficient positive. We also measured some other factors, reported in Table 2. Note that customers who visit the restaurant for the first time seem to be most affected by the information treatment with owner interaction.

We can clearly reject the hypothesis that customers pay less when they are not observed. Rather, this result supports our proposition that people often pay to enhance their self-image. We want to emphasize that, like many other aspects of PWYW pricing, this result is sensitive to the parameters of implementation. Our result should not be viewed as “adding signaling to others always reduces payment.” Rather, it should be viewed as an existence demonstration of the sort “sometimes adding signaling to others reduces payment.”

3. Conclusion

What motivates pro-social behavior in markets? This paper provides evidence that identity and self-image concerns are potentially very important. Three field experiments involving PWYW pricing demonstrate that companies can sustain profitability with payments that rely entirely on social preferences. We argue that people choose to pay because they feel that it is the right thing to do—pay for a good or service they receive (2,3,17). Choosing to pay, consequently, serves to maintain individuals positive self-image.

Such fairness considerations may depend on social norms and are related to tipping behavior, in which people consider the tipping norm when they decide how much to give (18-20). As in tipping, people are interested in the social norm that is relevant to the situation they are in. For example, many tip 15%-20% at a restaurant in the United States, but tip much less in Germany, consistent with the local norm. Even in the United States, people do not tip the same everywhere. When eating at McDonald’s people do not leave a tip, at Starbucks they sometimes do, and at nicer restaurants, they typically do. When faced with PWYW pricing, people use their experience to choose how much to pay. Learning how much other people paid, as in our restaurant experiment, is then more effective for inexperienced customers than experienced ones—similar to tipping in familiar cultures versus new ones.

Clearly, such norms affect the behavior of people who face a PWYW pricing situation. As a result, choosing whether to purchase a product or service, and how much to pay for it has a self-signaling value. People feel bad when violating the norm, and hence would rather avoid the situation all together by choosing not to buy the product. If they do choose to purchase it, they often choose to pay a “fair” price that does not have a negative effect on their self-image.

Paying in PWYW may signal to others that I am a normative person. At the same time, however, such payment also serves as a self-signal (8-11). In the self-signaling model, a person is not certain about her true identity due to some form of imperfect recall, and uses her actions to update her beliefs regarding her “true” type.

In the theme park experiment, fewer participants chose to buy the photo when we added the charity component to it. In the boat experiment, more people bought the picture when the price was relatively low and fixed than under PWYW. Finally, customers in our restaurant study chose to pay more when they were not observed. These three observations provide a clear indication that image concerns are at work.

Importantly, the restaurant study results indicate that people are not simply signaling to others. If self-signaling and social signaling were simply additive, one

would expect that customers who were observed would pay more than those who are not, with the difference capturing the value of signaling to others. This hypothesis is rejected in an interesting way. Specifically, the data suggests that the signal to others crowds out the value of the self-signaling; when observed, the customer feels that the self-signal regarding how good of a person she is loses its hold. That is, she cannot use this signal to the same extent to update her beliefs regarding her type, presumably because she now also attributes her decision to pay in the PWYW to the fact she is being observed. This argument is similar to the one used to explain why paying people small amounts of money could backfire and reduce effort relative to no pay (21).

Similar evidence is all but absent when considering market results with for-profit companies. Social preferences in real markets are important, and should be taken seriously in economic modeling (22). On the practical level, when designing pricing mechanisms, companies can utilize social preferences to increase profits. For example, in the open-source software development (23), satisfied consumers may choose to pay more than required or invest more effort in order to reward such a company for its product, paying a fair price for the good.

Under PWYW, when people like a company they may pay a price that feels right rather than simply the lowest price possible. Despite allowing customers to pay nothing for the product, the companies in our investigation retained their profitability. Our results provide strong support for the PWYW mechanism in some very different market situations, by suggesting that this profitability can often be sustained in the long run. *Radiohead* benefited from being the first major musical artist to use this method, and probably enjoyed the resulting “Robin Hood” effect. This effect may only last as long as Robin Hoods remain unique in the music industry. In the boat tour study, very few passengers are returning customers. Hence, the surprise effect is present each and every time a passenger is offered to name her own price for her pictures. Yet, in the restaurant, many were repeat customers that faced this pricing scheme time and again along the years.

Acknowledgments: this project was supported by a research grant from the National Science Foundation (proposal #SES-1124610).

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Figure Legends

Figure 1

Passengers from 20 cruises were sold personal photos for \$5, passengers from 20 other cruises were offered to buy the photo for \$15, and passengers from 20 additional cruises could “pay what you want”. The tip panel reports financial data for the three treatments. The figure shows the distribution of prices and revenue for passengers in the PWYW treatment. All data was reported and analyzed at the level of boat.

	\$5 Price	\$15 Price	PWYW
Percentage Purchasing Photos	64%	23%	55%
Average Price Paid	(\$5)	(\$15)	\$6.43
Profit per Photo	\$3.2	\$3.45	\$3.50

Figure 2

Variation is customer volume, payment amounts, and revenue, over the two-year period preceding the experiment. Gaps in the graph are dates where the restaurant was closed. The top panel shows declining average payments, while the two graphs at the bottom show a clear upward trend of the number of customers and revenue over the observation period.