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Norms, moods, and free lunch: Longitudinal evidence on payments from a Pay-What-You-Want restaurant

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ABSTRACT

We study the distribution and evolution of payments in a Pay-What-You-Want restaurant. Despite missing price tags and despite the option to pay nothing at all, we observe that the vast majority of guests makes strictly positive payments. Over the two years covered by our data, average payments decline slightly, converging at a positive level. At the same time, the number of daily guests increases steadily, resulting in a considerable increase in total revenues. We discuss one possible interpretation of the long-term trend in payments in terms of social norms. We further show that short-term fluctuations in average payments are partly explained by exogenous weather changes. We provide evidence that – in line with work in psychology – weather-induced changes in mood affect payments.

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1. Introduction

Prices are a fundamental concept in economics. They serve as a powerful device to allocate resources and there is a long tradition of studying price formation and pricing strategies in (more or less) competitive markets. Yet, economists know little about a pricing scheme that has recently gained considerable attention: Pay-What-You-Want pricing (henceforth PWYW). Anecdotal evidence indicates a steady dispersion of PWYW schemes in quite different markets.[1] Among the most prominent cases was the release of a PWYW album by the band Radiohead in 2007. In total, the album was downloaded approximately two million times. According to comScore, 40% of those who downloaded paid for it, at an average of $6 each.[2] Hence, despite missing price tags, (some) consumers pay positive prices. This point is confirmed in the recent field experiment by Gneezy et al. (2010). During eight days, they offered visitors at Disneyland a souvenir photo. In one treatment, the photos were sold at a fixed price, in another treatment, people could pay what they wanted. The authors identify a positive effect of PWYW on photo revenues.[3] While their evidence convincingly documents a substantial amount of positive payments in a one-shot setting, it remains unclear to which extent we would observe positive payments over a longer period – in particular, in a market where consumers can self-select into a PWYW institution and repeatedly face a PWYW scheme with the same 'seller'.

The main contribution of this paper is to provide systematic evidence on the evolution of payments and revenues in a PWYW restaurant in Vienna, where consumers can pay what they want for food. We observe more than 80,000 individual payments over two years. None of the customers is pivotal to the existence of the restaurant and no customer is excluded from visiting again, independent of past payments. Consequently, individuals who are solely driven by monetary self interest should pay nothing. In line with other evidence, we clearly reject this prediction. Only 0.5% of all payments are zero. In the first six months after the restaurant's opening, the average payment was € 5.65. In the following two years, payments steadily declined, but only by 12% to an average of € 5. Making use of the micro data, we find that the decline occurred basically in all deciles of the payment distribution, but the decline

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[1] See the literature discussed below, in particular, Kim et al. (2009). Stephen Dubner's *NY Times* blog offers further anecdotes on various PWYW business models.

[2] Wired Magazine, No. 16/01, accessible online at http://www.wired.com/entertainment/music/magazine/16-01/ff_yorke.

[3] Gneezy et al. (2010) interact the fixed-price versus PWYW – treatment with a charity treatment, where half of the photo revenues went to a patient-support foundation. It turns out that the positive effect of PWYW on revenues is particularly strong in the interaction with the charity treatment.

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was substantially stronger at the top quartile of the payment distribution as compared to the lower quartile. The data further reveal that the decline in payments slowed down over time, suggesting a convergence of payments. While our data do not allow us to identify the motives for positive PWYW payments, we note that the observed pattern is consistent with models of social norms and fits the concept of norm convergence (Azar, 2004, 2007; Mengel, 2008).

We further document that the number of daily guests increased by more than 50% during our observation period. Hence, PWYW seems to attract customers. Since payments declined only modestly, the restaurant experienced an increase in revenues from PWYW payments by nearly 40%. This underestimates the overall increase in revenues, as it does not include revenues from drinks (which are sold at fixed prices). Summarizing the first set of findings, we document that positive PWYW payments survive over time: despite the option to self-select into the restaurant and to pay nothing at all, nearly all people make strictly positive payments. As the positive payments are fairly stable, the sizable increase in customers translated into a considerable rise in PWYW revenues. This finding is the first contribution of our paper.

The second contribution is to highlight the role of moods in explaining short-term variation in payments. Moods affect people's behavior beyond more sophisticated and conscious decision strategies. This notion finds support by the experimental evidence from Loewenstein (2004) and Kirchsteiger et al. (2006). A solid body of psychological research further documents the impact of weather on moods (see, for instance, Keller et al., 2005). Motivated by this evidence, we consider weather-induced changes in moods and document their impact on individual PWYW payments. Controlling for temperature, our data reveal a significant influence of sunshine on payments. The effect differs between different seasons: during summer months, long sunny periods have a negative effect on PWYW payments, whereas there is a positive relationship in autumn. These results are in line with the findings by Keller et al. (2005), who observe seasonal specific effects on self reported mood variables.

As pointed out above, longitudinal evidence on payments in an 'open' PWYW institution – i.e., a market where consumers can self-select into PWYW – is scant. Kim et al. (2009) conducted three experiments, in which they temporarily (for up to two weeks) introduced PWYW at a 'conventional', posted-price restaurant, a cinema and a deli. They find significantly positive PWYW payments and, in two of the three experiments (deli and restaurant), an increase in short-run revenues. The rich design of their study also included a complementary survey, which indicates that payments are mainly driven by what consumers consider as a fair price. Results for a related pricing scheme is provided by Levitt (2006). For the period 1993–2001, he finds a modest decline of voluntary payments for bagels and donuts under an *honor system*. Under an honor system, however, there are usually explicitly posted prices (see, e.g., Pruckner and Sausgruber, 2009). In Levitt's case, these prices changed several times during the observation period, and the price increases indeed had a positive effect on voluntary payments. A recent paper by Regner and Barria (2009) studies voluntary payments at an online music label. Similar to Levitt's study – but in contrast to our case – payments are made without face-to-face communication. Moreover, the music label posted binding minimum prices. Gautier and van der Klaauw (2011) analyze voluntary payments for a hotel stay during a special promotional campaign. Again, their research design included explicitly posted prices. The absence of any prices or pre-existing payment recommendations – which may serve as reference points – is the key difference of all of these papers to the PWYW institution studied in our paper. Moreover, none of these contributions considers the role of moods or studies the evolution of PWYW revenues over a longer period.

Table 1
Mean payments and number of daily guests per half year (standard deviation in parenthesis).

	Payment	Guests per day	No. obs.
2005 1st half (first 3 days)	5.54 (2.11)	142.76 (7.77)	427
2005 2nd half	5.65 (1.97)	135.32 (37.67)	17,572
2006 1st half	5.38 (1.85)	149.47 (28.15)	20,917
2006 2nd half	5.13 (1.70)	175.61 (55.54)	19,724
2007 1st half	4.97 (1.85)	212.12 (43.36)	23,001
Total	5.26 (1.86)	170.36 (51.59)	81,641

The remainder of the paper proceeds as follows. Section 2 describes our data and offers a descriptive analysis of PWYW payments and revenues. Section 3 discusses a framework to understand the long-term evolution of as well as the short-term fluctuations in payments. We derive predictions which are then confronted with the data in Section 4. Section 5 concludes.

2. Data and descriptive analysis

Our data come from a PWYW restaurant ('*Wiener Deewan*') in the city center of Vienna. The restaurant offers self-service, buffet-style Pakistani food (lunch and dinner; opening hours are Monday to Saturday, 11 am to 11 pm) and is considered one of the best curry huts in the city. The drinks have fixed prices (at standard price levels), but guests may pay as they wish for the food. Before leaving the place, consumers pay their drinks plus the voluntary PWYW payment. The total amount is paid at the counter in a face-to-face interaction with restaurant staff. The staff records the voluntary payment in classes of 50 €-cents. Zero payments are possible and are recorded, too. If someone pays for $n \geq 2$ guests from a table, the average PWYW payment per person is recorded. Note that no single customer is pivotal to the existence of the restaurant and no customer is excluded from visiting again, independent of past payments. Let us further stress that the restaurant is operated on a self-service basis: service personnel only cleans up the table after guests leave. Hence, the tipping component in PWYW payments can be treated as negligible.[4] Finally, note that the restaurant has no air conditioning, like the vast majority of places in Vienna.

2.1. PWYW payments

Table 1 shows summary statistics on payments and the number of guests for the first two years after the opening of the restaurant in June 2005. The sample period covers 81,641 individual payments. Overall, an average of 170 daily guests were served at the restaurant's 19 tables. The average PWYW payment was € 5.26. Over time, payments declined from € 5.64 in the second half of 2005 to € 4.97 in the first half of 2007.[5] At the same time, the number of daily guests increased steadily.[6]

[4] If people were – despite the missing service component – guided by tipping norms (Azar, 2004, 2007) – one should note that Austria has no 'percentage' tipping norm as it is common in North America. Austrians simply bring the amount up to a round sum. For a regularly priced coke at € 2.10, a guest might then pay € 2.50. Compliance with the Austrian tipping norm might therefore explain some positive PWYW payments, but it certainly does not account for payments with a median of € 5. Recall further that guests pay the total amount for the drinks *plus* the PWYW payment. Hence, a PWYW norm of € 5 does in general not assure paying a round sum.

[5] To put these number into perspective, note that the average price for a set lunch at a comparable restaurant in this part of Vienna was approximately € 7.50 during our sample period.

[6] A considerable fraction of these guests visited the restaurant repeatedly. Data from a survey conducted in June 2007 indicate that 81% (50%) of the guests eat at least once (twice) per month at the restaurant (Riener, 2010).

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