Journal of Cultural Economics manuscript No.
(will be inserted by the editor)

Fairness as a Constraint on Profit Seeking: Evidence from the German Club Concert Industry

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Received: date / Accepted: date

Abstract Unlike Kahneman et al.'s (1986) iconic snow shovel, live music is a performance good that fans attach a particular value to. Hence, artist's pricing decision might differ from standard rent seeking behavior. In this paper I propose a model that incorporates fairness concerns into the pricing decision for concert tickets. The hypotheses derived from this model are tested on data from the German club concert industry. The results are consistent with the model: Although (i) price dispersion is the dominant pricing strategy in the club concert industry and artists prefer to perform on a Friday or Saturday, (ii) artists do not set higher prices on the weekend. These results are consistent with fairness constraints, but are difficult to explain within a standard profit maximization framework. As a third result, (iii) the data reveals that ticket prices are positively correlated with a city's number of inhabitants.

Keywords Fairness · Behavioral pricing · Live Music Performance · Kinked Demand
JEL Classification: D42, L11, L12, Z11

1 Introduction

The understanding of people's fairness attitude towards the suppliers' pricing decisions is a well studied phenomena in behavioral economics. Starting with the seminal work of Kahneman et al (1986), there is a large body of literature on behavioral pricing that provides evidence for human preferences for fair behavior and reciprocity that constitute constraints on firms' pure profit-maximizing pricing behavior. Further empirical support is, among others, provided by Frey and Pommerehne (1993), Piron and Fernandez (1995), Maxwell (2002), Raux et al (2009), Courty and Pagliero (2010), Wu et al (2012), Englmaier et al (2012) and

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Vulkan and Shem-Tov (2015). Theoretical analyses of fair pricing models are to be found in Rotemberg (2011) and Okada (2014). The basic idea of the fair pricing approach is that when suppliers anticipate customers' negative reactions to prices perceived as unfair, they have an incentive not to exploit their market power (at least to some extend) and keep prices rigid.

This paper studies the existence of fair pricing in the field using data from the German club concert industry. The concert industry is an appealing candidate as artists typically face strong incentives for optimal pricing decisions, and prices, among other variables, are transparent and easy to observe.[1] As the suppliers of live music act in a market best described as monopolistic competition with differentiated products and pricing power, classic economic theory would predict price discrimination where it is possible. In fact, there is empirical evidence for price discriminating behavior, also known as multi-tier pricing, in the concert industry (Connolly and Krueger (2006), Eckard and Smith (2012), Courty and Pagliero (2012)). In general, price discriminating behavior can be subdivided into three broad categories depending on the amount of information available to the supplier (see, for example, Stole (2007)). Applied to the live music industry, second-degree price discrimination refers to price discrimination at the event level – usually characterized by different seat categories – , while third-degree price discrimination means to differentiate the ticket prices among the cities. The presence of second-degree price discrimination is proven by several contributions.[2] Connolly and Krueger (2006) use the rich US concert data set from Krueger (2005) and find that price differentiation in seat categories is increasingly used, but to a lesser extent than classic economic theory predicts. Courty and Pagliero (2012) provide strong arguments for the existence of second-degree price discrimination. Using several regression frameworks, the authors conclude that multi-tier pricing increases revenue about 5% within their sample. Eckard and Smith (2012) compare the actual revenue from price discrimination to the hypothetical revenue when setting an uniform price. Within a sample of 140 shows performed in an established US concert venue, they calculate a mean percentage gain of 4.2%. Finally, Courty and Pagliero (2014) uses a similar data set as Courty and Pagliero (2012) and find that the use of different seat categories is the dominant strategy within their sample, adopted in 75 percent of all concerts. However, they emphasize that there is a strong heterogeneity across artists concerning the concrete shape of second-degree price discrimination.

Meanwhile, the investigation of third-degree price discrimination in the live music industry is so far limited to Courty and Pagliero (2014). The authors find evidence for the existence of varying price strategies during a tour, i.e., a series of concerts performed by an artist, but – again – along with noticeable heterogeneity among artists. Among other explanations for this apparent differences in pricing strategies, they point to fairness concerns on both the supply and the demand side of the market. On the one hand, concert fans differ from the standard consumer in that they attach specific value to music (see, i.e., Levinson (2013)) and feel an emotional connection to the artists. For this reason, standard pricing behavior

[1] As a consequence of the so called "napster crisis" or "MP3 crisis" (starting in the late 1990s caused by the digitization of recorded music), revenue from live performances became a major source of artist's income. See, for example, Connolly and Krueger (2006), Hull et al (2011) or DiCola (2013).

[2] In addition, Rosen and Rosenfield (1997) provide an adequate analytical framework.

might create a dissonance and rejection. On the other hand, musicians perceive themselves as creatives in the art sector, where the profit motive is still under suspicion, at least externally. Hence, artists' pricing behavior might differ from standard rent seeking behavior.

The aim of this paper is to contribute further in this direction, that is to understand fairness considerations as a constraint on profit-seeking pricing behavior in the concert industry. First, I set up a model that helps to explain the pricing behavior of artists faced with concert-goers who have a concept of a fair price.[3] This incorporation of fairness establishes a kinked demand curve and explains price rigidity in the presence of demand shocks. The predictions of the model are then tested on a unique data set from the German club concert industry covering 1,490 events performed by 226 artists in 549 venues (= clubs) located in 234 different German cities and some venues in neighboring countries. Club concerts differ from those in large venues such as sports stadiums or arenas in that there is no seat categorization and hence no second-price discrimination. Visitors usually do not seat, but if so, there is a "one for all" price. This characteristic introduces a difference to the aforementioned contributions that build upon a data set collected from "multi-million dollar operations" and performances by *The Rolling Stone Encyclopedia* musicians (Krueger 2005; Connolly and Krueger 2006) or *top 100* artists (Courty and Pagliero 2012, 2014). The restriction to club concerts also ensures that artists are roughly on the same level of popularity that excludes superstars. Furthermore, this type of live event allows to directly identify a unit tour price policy, since there exists only one ticket price per show.
The estimation results are consistent with the theoretical conclusions. Although (i) price dispersion is the dominant pricing strategy in the club concert industry and artists prefer to perform on a Friday or Saturday, (ii) artists do not set higher prices on the weekend. These results are consistent with fairness constraints, but are difficult to explain within a standard profit maximization framework. As a third result, (iii) the data reveals that ticket prices are positively correlated with a city's number of inhabitants.

The remainder of this article is structured as follows. Next, Section II presents a model that incorporates fairness concerns into the pricing decision for concert tickets. Section III presents the data set and the empirical analysis. Finally, Section IV concludes with a discussion.

2 The theoretical model

This section's aim is to analyze how fairness considerations on the demand side affects pricing decisions in the live music market. I keep the model simple to highlight the impact of variances in the two main variables, that is demand and costs. For this reason the model does not include the bargaining process of artist, promoter or booking agent and event manager, and leaves the price decision to the musician alone.[4] This procedure does not compromise the analysis because the

[3] Actually, the concert price is determined by a bargaining process between the artist, the artist's management or booking agent and the local promoter. I will discuss this issue below.

[4] See Connolly and Krueger (2006) or Courty and Pagliero (2012) for a description of the players involved in this process.

stakeholders' objectives are homogeneous when it comes to revenues from ticket sales.

2.1 The supply side

Musicians typically play a series of concerts – a tour – and announce ticket prices for each venue in advance. The good that is sold can be best described as a perishable good whose value can be determined only after the event.[5] Hence, consumers a priori value each stage performance the same. In addition, it is reasonable to assume the market structure to be a monopolistic competition due to the heterogeneity in goods and the existence of market frictions like travel costs (for the concert attendees).

In line with Throsby (1994), I presume that the production of live performances includes high fixed costs C (like rents, promotion, security etc., including opportunity costs) and zero marginal costs.[6] Hence, the artist's profits are defined by

$$\Pi = p \cdot D\left(p\right) - C, \tag{1}$$

where p is the ticket price and and $D\left(p\right)$ denotes the demand for a certain event. If a concert is a normal good, the graph of $D\left(p\right)$ is down-sloping and rising the price causes a trade off between a higher marginal return and a decrease in overall demand. Finally, the venue capacity, as an upper bound of $D\left(p\right)$, is denoted by S.

2.2 The demand side

On the demand side, fans have a concept of a *fair price* p_F that refers to a scenario in which the artist does not exploit his or her market power. For simplicity, this goes together with zero economic profits in case of a sell out ($D\left(p\right) = S$), where the price equals average costs:

$$p_F = \frac{C}{S}. \tag{2}$$

Now utility derived from a given concert for individual i equals

$$u_i = \omega \cdot \theta_i - \max\left[\alpha \cdot \left(p - p_F\right)\ , 0\right], \tag{3}$$

where θ_i, the direct utility, varies across the population (of size 1) according to a (non-degenerate) distribution $F\left(\theta\right)$ with continuous density $f(\theta)$. This ensures a down-sloping demand for each event. The second term reflects the consumer's anger when $p > p_F$, with $\alpha > 0$ being a sensitivity parameter.[7] For $\alpha = 0$, the

[5] Or, as Marburger (1997) points out, it is rather the entry to the event that is sold.

[6] Eckard and Smith (2012) find empirical support for this assumption. In detail, they prove that selling one more ticket does not have any statistically significant influence on total costs. Seliger (2012) gives an overview of the parameters that commonly determines the ticket price.

[7] This definition originates from Fehr and Schmidt (1999).

consumer utility function is quite standard. Finally, $\omega \geq 1$ accounts for differences in consumption value.
Ignoring ω (which equates with holding $\omega = 1$), the marginal consumer who derives zero net utility from buying is found at

$$\hat{\theta} \coloneqq p + \max\left[\alpha \cdot (p - p_F)\ , 0\right], \tag{4}$$

and demand equals

$$D\left(p\right) = 1 - F\left(\hat{\theta}\right). \tag{5}$$

It follows that demand is more elastic for prices $p > p_F$, so the curve is continuous but kinked at this very point.
Next, according to (1) and (5), marginal revenue is given by

$$MR = \begin{cases} \left[1 - F\left((1+\alpha)\cdot p - \alpha \cdot p_F\right)\right] - p \cdot f\left((1+\alpha)\cdot p - \alpha \cdot p_F\right)\cdot(1+\alpha) & \text{if } p > p_F \\ \left[1 - F\left(p\right)\right] - p \cdot f\left(p\right) & \text{if } p \leq p_F \end{cases}. \tag{6}$$

As $\lim\limits_{p \to p_{F-}} MR\left(p\right) > \lim\limits_{p \to p_{F+}} MR\left(p\right)$ for $\alpha > 0$ and $f(p_F) \neq 0$, the marginal revenue function exhibits a discontinuity at point $p = p_F$.

2.3 Profit maximization with fairness constraints

As Fig. 1 illustrates, equations (5) and (6) imply that the artist faces a demand curve that is kinked at the fair price $p = p_F$. Increasing the price at this point will lead to a more elastic market demand caused by the fans' fairness preferences. Moreover, the kinked demand curve leads to a marginal revenue curve that has a gap between points A and B directly below the kink (the discontinuity). Now if the horizontal axis (as the zero marginal cost line) is located within the gap, the equilibrium price $p^* = p_F$ is rigid with respect to sufficient small changes in demand.
Formally, this is the case if the following assumption holds:

$$\begin{aligned} \lim_{p \to p_{F+}} MR\left(p\right) \quad & < 0 \quad < \lim_{p \to p_{F-}} MR\left(p\right) \\ \Leftrightarrow\ p_F \cdot f\left(p_F\right) & < 1 - F\left(p_F\right) < p_F \cdot (1+\alpha) \cdot f\left(p_F\right) \end{aligned} \tag{7}$$

Since the RHS of (7) increases in the sensitivity parameter α, rigid prices are more likely in a market with strong aversion of unfair prices on the demand side.

Comparative statics
In the next step, I consider the supplier's reaction to demand shocks. For example, these shocks might be caused by a sudden rise in the artist's popularity, like a music chart entry, or different consumption values depending on the weekday. In detail, it is reasonable to assume that consumers attach a higher value on concerts that take place on a Friday or Saturday as the typical "party nights". Classic economic theory (with $\alpha = 0$) would therefore predict higher prices on weekends due to

the higher demand, like peak-load pricing in public goods such as public urban transportation (see, e.g., Miravete (2008)). However, if $\omega > 1$ for events followed by a day off, (4) changes to

$$\frac{\hat{\theta}}{\omega} = \frac{p}{\omega} + \max\left[\frac{\alpha \cdot (p - p_F)}{\omega}, 0\right] \tag{8}$$

with $\hat{\theta} > \frac{\hat{\theta}}{\omega}$. Hence, the demand curve as well as the marginal revenue curve are shifted to the right. If the shift is only moderate, i.e. ω is small, the gap still surrounds the horizontal axis, so that the optimal price remains at $p^* = p_F$. This case is depicted in Fig. 2, where the new gap starts from C and ends at D.

Proposition 1. *If fans' fairness preferences lead to a kinked demand curve, the artist has an incentive to not react to positive demand shocks with an increase in concert prices. This is the case if assumption (7) remains valid.*

Finally, I analyze an increase in fixed costs. As (2) indicates, the fair price increases in C. The intuition is that fans simply allow the artist to cover the expenses but become annoyed if the price goes beyond that line.
Fig. 3 shows that a higher value of p_F results in a shift of the kink more to the left and an optimal price higher than the initial fair price.[8]

Proposition 2. *As a change in costs triggers an adjustment of the fair price, the ticket price responds to supply shocks.*

An illustrative example
Let θ be uniformly distributed on $[0, 1]$. Then (5) changes to

$$D(p) = 1 - F\left(\hat{\theta}\right) = \begin{cases} 1 - \frac{(1+\alpha)\cdot p - \alpha \cdot p_F}{\omega} & \text{if } p > p_F \\ 1 - \frac{p}{\omega} & \text{if } p \leq p_F \end{cases} \tag{9}$$

and (6) changes to

$$MR = \begin{cases} 1 - 2p \cdot \frac{1+\alpha}{\omega} + \frac{\alpha \cdot p_F}{\omega} & \text{if } p > p_F \\ 1 - 2\frac{p}{\omega} & \text{if } p \leq p_F \end{cases}. \tag{10}$$

Now $p^* = p_F$ if

i) $\lim\limits_{p \to p_{F^-}} MR(p) > 0 \Leftrightarrow \frac{\omega}{2} > p_F$ and

ii) $\lim\limits_{p \to p_{F^+}} MR(p) < 0 \Leftrightarrow p_F > \frac{\omega}{2+\alpha}$,

which requires $\alpha > 0$ as a *necessary* condition.
Thus, if ω_0 is the initial value of ω and $p_F < \frac{\omega_0}{2}$ holds, small variations in ω will leave $p^* = p_F$ untouched for all ω around ω_0 .

Summarized, the model predicts that price discrimination exists in the concert industry, but might be limited to an adaption to differences in costs. These results correspond precisely with the results of Kahneman et al (1986), who find that respondents consider a price increase as a reaction to a positive demand shock to be unfair (like a higher price for snow shovels after a blizzard), while they consider an adjustment to an increase in input prices as fair. I test this prediction in the empirical part of this paper with data from the German club concert industry.

[8] Note that the capacity constraint S does not substantially affect results. The main difference is that $\forall p$ such that $D(p) \geq S$, $MR = S$.

3 Empirical evidence

3.1 Data and descriptive statistics

The data originates from *eventim.de*, which is the European leader in live entertainment ticketing.[9] I accessed the website in June 2015 and collected every entry in the category "club concerts", overall 1,490 events from July 2015 to November 2016 performed by 226 artists in 549 venues (= clubs) located in 234 different German cities and some venues in neighbouring countries. Figure 4 shows the number of events for cities which exhibits at least 15 events. It becomes apparent that events are highly concentrated in big cities, so that Berlin, Cologne, Munich and Hamburg account for 31.21 percent of all concerts in the sample.

In addition, I determined the artist's genre with the help of *allmusic.com*. Table 1 shows that the dominant genre is Pop/Rock: 141 artists can be attributed to this genre. The data on nationality and gender (of the main artist) was collected from the artist's facebook page or wikipedia site. An overview is presented in Table 2.

Prices

Next, summary statistics of prices can be found in Table 3. With a mean of 22.83 EUR, the average ticket price is quite moderate and demands about 1.33 percent of a household's disposable income.[10] Moreover, a kernel density estimation reveals two peaks around the perceptual price points of 20 EUR and 30 EUR, see Fig. 5. Table 3 also shows that an artist's concert series ranges from 2 to 26 within the sample, with a mean of 6.59. It is interesting to note that the tour length of foreign artists (mean: 4.69) differs significantly from that of national performers (mean: 8.30).

Concerning the pricing strategy, the data set reveals that a uniform price is set by 20 artists, a fraction of only 8.85 percent within the whole sample. It is apparent that these musicians exhibit small numbers of observations, ranging from 2 to 5. This suggests that at least some of these observations are taken from the end of a tour, and price dispensation cannot be ruled out regarding the whole tour. I therefore conclude that *price dispersion is the dominant pricing strategy in the club concert industry*. As an example, Fig. 6 illustrates the pricing behavior of the Austrian pop group "Wanda".[11]

What drives the observed price dispersion?

Table 4 reveals that *concerts* (45.91 percent) *take place significantly more often on the weekend*, i.e. on Friday or Saturday as the typical "party nights" (one-sided Student's t -test, p-value = 0.0000). Hence, it seems to be a strategic decision to schedule live appearances for Friday or Saturday. Interestingly, the fraction of weekends is significantly lower if a concert takes place in one of the five biggest

[9] See the *Investor Relations* site on http://www.eventim.de/.

[10] According to the Federal Statistical Office of Germany, the monthly average household net-adjusted disposable income per capita in Germany is 1,710.09 Euro (*taken from* https://www.destatis.de).

[11] Regression analysis also shows that the concert price tends to be higher for foreign artists (at 10% significance level), which is consistent with Decrop and Derbaix (2014).

cities (with more than a million inhabitants) within the sample (one-sided Student's t -test, p-value = 0.0001).
Now classic economic theory would assume profit maximizing behavior and therefore predict significantly higher prices on the weekend due to a higher expected demand for club concerts on a Friday or Saturday night. In contrast, the model presented in section 2 would highlight the role of fairness considerations and allow for rigid prices when the demand increases. I test this predictions within a regression framework in the next section.

3.2 Econometric method and results

I estimate an artist fixed effects model of the price dispersion given by

$$PD_{it} = \gamma_0 + \gamma_1 WEEKEND + \gamma_2 CITY + \gamma_3 (WEEKEND \times CITY) + \gamma_4 X + \gamma_i + \epsilon_i, \tag{11}$$

where PD_i is the deviation from the mean of ticket prices set by each artist i, γ_i an artist fixed effect, $WEEKEND$ and $CITY$ are dummy variables, X is a vector of further concert characteristics and ϵ_i is the error term which includes all other effects that influences PD. So γ_0 (the constant), γ_1, γ_2, γ_3 and γ_4 are unknown parameters to be estimated using ordinary least squares (OLS). Note that the independent variable $CITY$ takes the value 1 if the event is located in a city with more than one million inhabitants, and 0 if otherwise. In a second specification, $CITY$ is replaced by a city's population, expressed in natural logarithm.

Table 6 shows the regression results. Unlike conventional economic theory would predict, the estimated coefficient of the dummy variable $WEEKEND$ is not significantly different from zero in any of the specifications. Hence, there is reason to conclude that *artists do not set higher prices on the weekend.*
In line with the theoretical model presented in section 2, a reasonable explanation for this finding is that artists concern about the concert-goers' fairness expectations. More precisely, if an artist uses noticeable third-degree price discrimination, he or she risks to be punished by his or her fans.[12][13]

A second result from Table 6 is that concert prices are significantly above the tour mean when the event takes place in a metropolis (see columns (1) to (3)). This result is robust to an alternative specification with $CITY = 1$ if the event is located in one of the cities with the highest rents.[14] Moreover, the ticket price increases with the number of inhabitants (see columns (4) to (6)). Thus, *prices are positively correlated with a city's number of inhabitants.* Again, this result is

[12] In two personal interviews, one with a professional booking manager from the German alternative music journal *VISIONS* and one with an agent from a well-established German booking agency, I was informed that event managers of a band's club tour receive an uniform ticket price proposal. It is open to the local event manager to declare, for instance, higher costs, but in general they do not deviate. The booking manager explains this procedure with the artist's concern about the fairness expectations of his or her fans.

[13] Interestingly, this result holds for all genres except for "comedy/cabaret", which hence serves as a control.

[14] Technically, this means to include Düsseldorf, Stuttgart and Frankfurt.

consistent with the model proposed in section 2 and can be explained with higher costs in a metropolis, such as rents or wages for local employees.[15]

4 Discussion

This paper has studied the effect of fairness concerns into the pricing decision for concert tickets. Unlike the iconic snow shovel (Kahneman et al 1986), live music is a good that triggers fans' emotions. If concert attendees have a concept of fairness regarding ticket pricing, the theoretical results indicate that artists have an incentive to refrain from taking advantage of positive demand shocks. This is the case when the increase in price per ticket does not overcompensate the loss in demand due to fans' disappointment. If, however, the ticket price simply adjusts to higher costs and consumers likewise adopt their expectations of a fair price, price discrimination takes place. This approach differs significantly from existing explanations for price rigidity in association with performance goods as in Becker (1991), De Serpa and Faith (1996) or Eichhorn and Sahm (2010), which are mainly driven by positive externalities, regarding the attendance as an additional input factor. Or in Marburger (1997), who emphasizes the role of concession.

Using data from the German club concert industry, I provide evidence for these hypotheses. First, although price dispersion is the dominant pricing strategy in the club concert industry and artists prefer to perform on a Friday or Saturday, artists do not set higher prices on the weekend. These results are consistent with fairness constraints, but are difficult to explain within a standard profit maximization framework. Second, data reveals that ticket prices are positively correlated with a city's number of inhabitants and cost of living. This finding likewise can be explained by the proposed fairness model and confirms Kahneman et al (1986).

Again, it is important to emphasize that the restriction to club concerts ensures a shorter distance between the musicians and their fans, literally and from a psychological point of view. If there are fairness concerns among fans, they probably become most apparent in musical niches associated with a certain subculture, where members regard themselves as equals and profit seeking is scorned. Artists in these scenes, like the hardcore punk music scene or the independent music scene, rather perform in clubs than in arenas.

Finally, two restrictions should be mentioned. First, the data set does not contain any information on attendance. As Courty and Pagliero (2014) remark, artists have strong incentives to sell out for reasons of reputation, sharing of revenues from the bar and the sale of complementary goods such as merchandise or physical copies of music. Although it ts clear that this implies a second dampening effect on ticket prices, it may be desirable to examine it empirically. Second, I do not have any informations about the club size, which might affect a concert's fixed costs. It is, however, unlikely that the club size varies considerably during a tour.

Acknowledgements I would like to thank Joachim Grosser for helpful comments.

[15] Note that the result is mainly driven by national artists and does not hold for foreign artists alone. As a possible explanation, tours of foreign artists include less concerts than national artists (see section 3.1) but are more focused on metropolises (a share of 31.36 percent vs. a share of 17.28 percent). Hence, one would expect the deviation from the mean to be rather small.

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Tables

Table 1 Genres.

Genre	*Frequencies*
Comedy/Cabaret	25
Electronic	11
Jazz	6
Other	7
Pop/Rock	141
Rap	8
Reggae	3
Tribute	21
Vocal	4

Table 2 Artists' gender and nationality.

	Nationality		
Gender	Foreign	National	Total
Female	13	9	22
Male	81	96	177
Mixed	13	14	27
Total	107	119	226

Table 3 Summary statistics: prices and concert numbers.

				Percentiles			
	Mean	Std. Dev.	Min	0.25	0.50	0.75	Max
Concert price (Euro)	22.83	5.44	11	18.65	22.45	27.4	43.50
Tour (Concerts, n)	6.59	4.85	2	3	5	8	26

Notes: Statistic based on 1490 events, performed by 226 artists in 549 venues (= clubs).

Table 4 Distribution of concerts along the week.

Day	Frequencies	Percent
Monday	111	7.45
Tuesday	137	9.19
Wednesday	175	11.74
Thursday	247	16.58
Friday	345	23.15
Saturday	339	22.75
Sunday	136	9.13

Table 5 More concerts take place on the weekend.

	All Cities	City with > 1mio inhabitants	City with < 1mio inhabitants
Friday or Saturday	45.91	36.81	588
Total	*684*	*127*	*555*
Rest of the Week	54.09	63.19	48.65
Total	806	*218*	*557*

Table 6 Regression Results.

	(1)	(2)	(3)	(4)	(5)	(6)
Weekend	0.149	0.151	0.090	0.153	0.062	-3.096
	(0.117)	(0.147)	(0.162)	(0.126)	(0.152)	(2.000)
City	0.889**	1.112**	0.778**	-	-	-
	(0.142)	(0.175)	(0.297)	-	-	-
Concert Number	0.036**	0.049**	0.041*	0.049**	0.053**	0.096
	(0.125)	(0.018)	(0.019)	(0.013)	(0.019)	(0.204)
Weekend * City	-	-	0.271	-	-	-
	-	-	(0.343)	-	-	-
Num * City	-	-	0.039	-	-	-
	-	-	(0.037)	-	-	-
ln(Population)	-	-	-	0.352**	0.476**	0.401**
	-	-	-	(0.063)	(0.079)	(0.138)
Weekend * ln(Pop)	-	-	-	-	-	0.240
	-	-	-	-	-	(0.151)
Num * ln(Pop)	-	-	-	-	-	-0.003
	-	-	-	-	-	(0.151)
Constant	-0.465**	-0.593**	-0.511	-5.001**	-6.633**	-5.620**
	(0.115)	(0.143)	(0.154)	(0.849)	(1.053)	(1.837)
Artist fixed effects?	No	Yes	Yes	No	Yes	Yes
R^2	0.0309	0.0308	0.0328	0.0354	0.0344	0.0350
Number of observations	1424	1424	1424	1129	1129	1129

Notes: The table shows OLS estimates. Standard errors are in parentheses. * indicates significance at 5% level and ** indicates significance at 1% level.

Figures

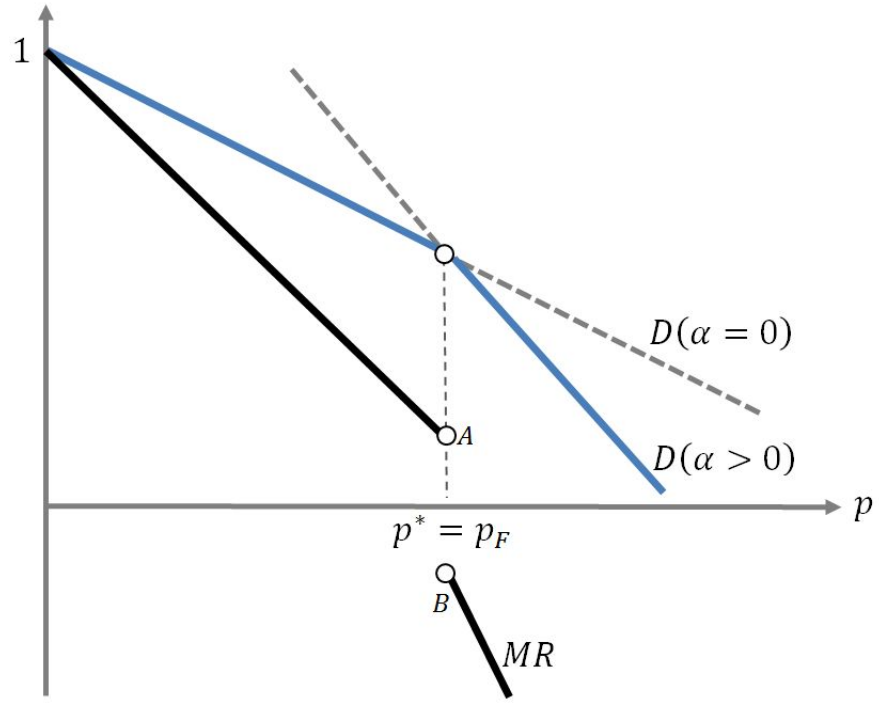

Fig. 1 Demand for concert tickets.

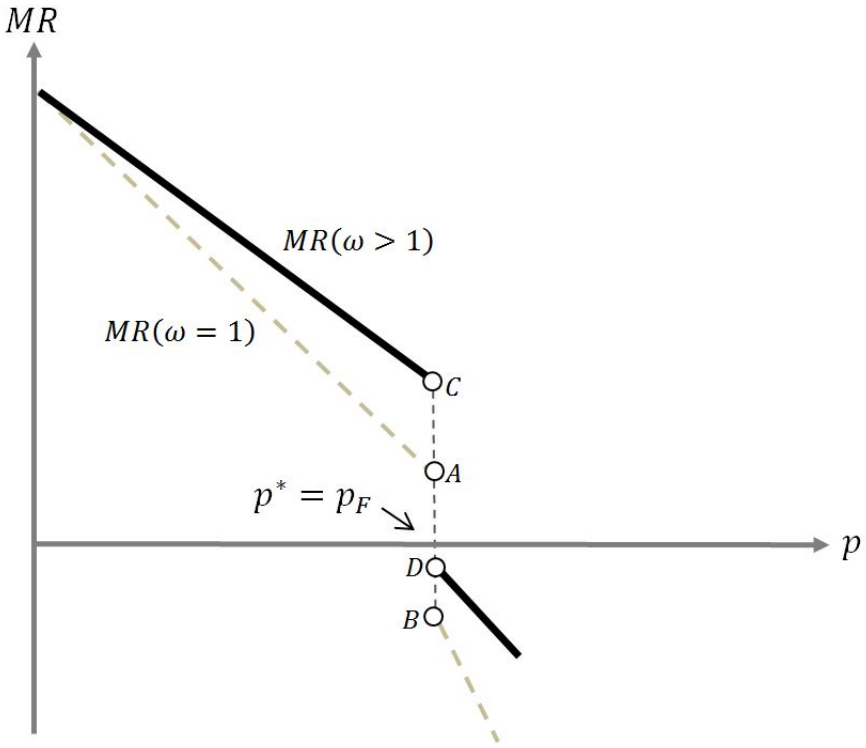

Fig. 2 A positive demand shock.

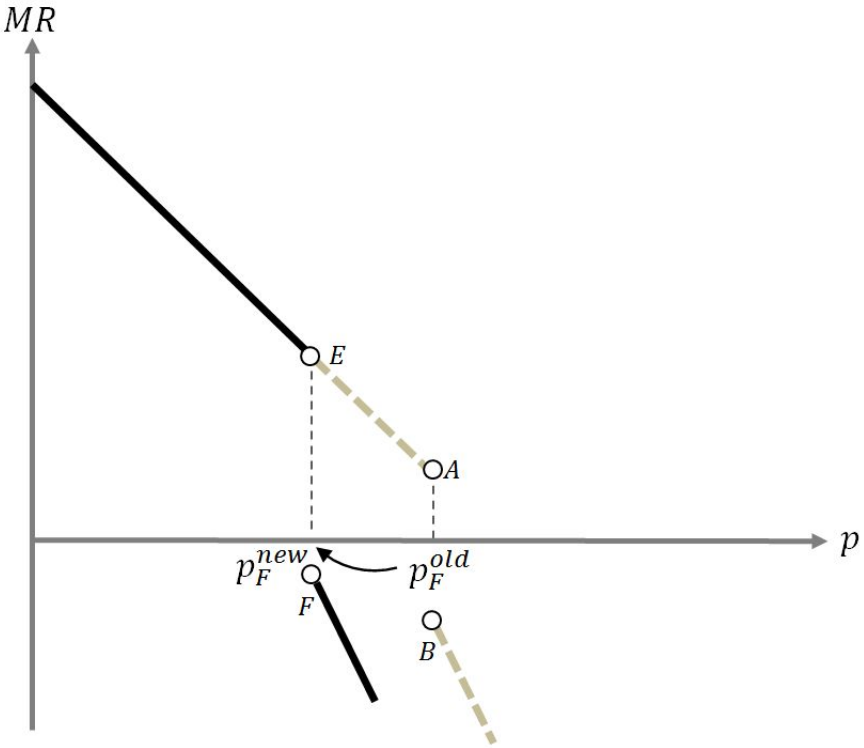

Fig. 3 An increase in fixed costs.

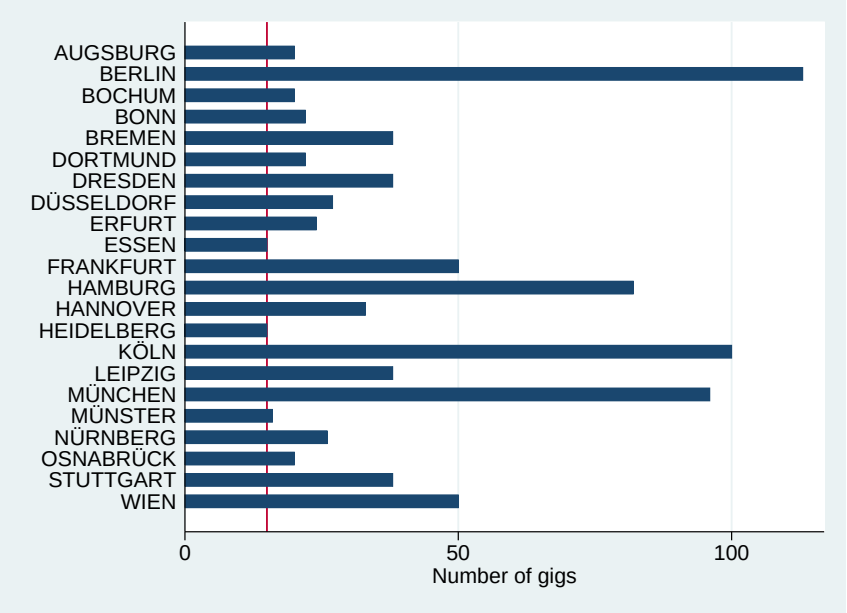

Fig. 4 Number of concerts for cities with at least 15 Events.

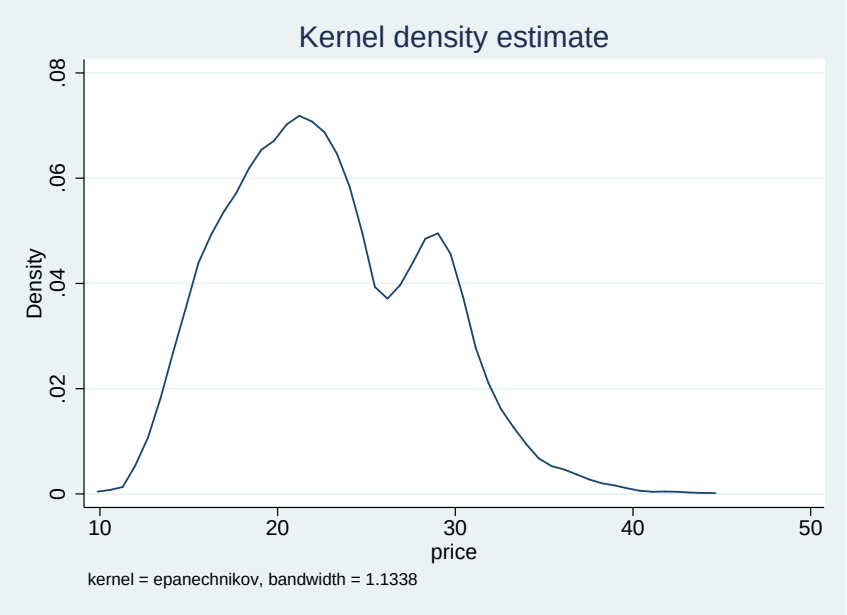

Fig. 5 Kernel density estimation of the ticket prices.

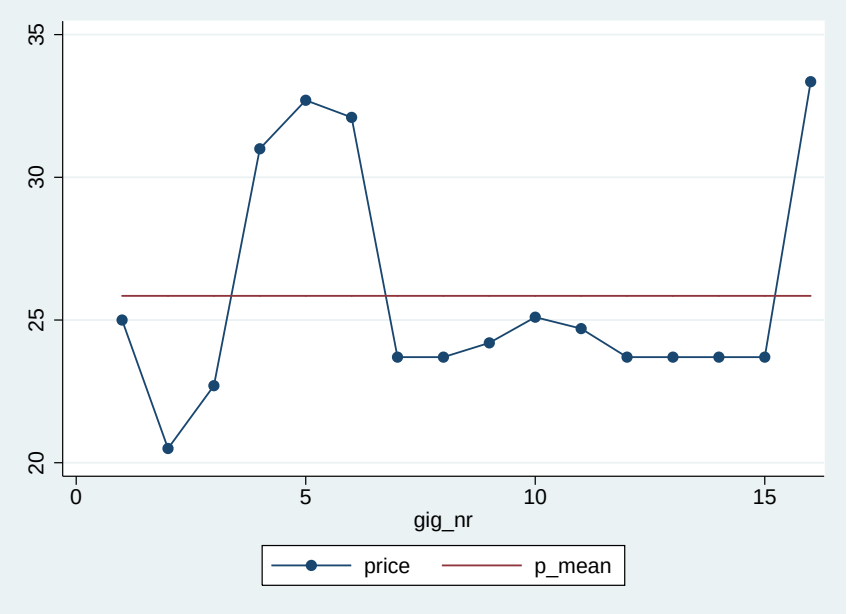

Fig. 6 Ticket prices set by Austrian pop group "Wanda" from August 2015 to July 2016.