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Pricing in live music: an empirical analysis of the tribute band sector

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Abstract

The musical tribute band is a neglected topic in the field of economics. At first sight, it may seem to be a simple case of general copycatting which has been covered for other products and markets. We provide empirical exploration of the market in the form of a pricing equation using recent data for tribute concerts in Germany. This shows the importance of voluntary withdrawal by the copyright holders or involuntary withdrawal (death or prolonged illness) as ticket prices are statistically significantly higher when the original act, being tributed, no longer exists. We also find features of the act being tributed, such as a proxy for relevance based on the size of their Wikipedia entry, to be statistically significant determinants of ticket price.

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1 Introduction

This paper provides empirical work on a neglected area of cultural economics in the form of ticket pricing in the 'everyday' live popular music market i.e. where there is seldom excess demand and hence prices are not determined by any mechanism which tries to detect the highest bids of marginal buyers. The existing economics literature on live music has focused on two things:

(i) demand and pricing for superstar concerts and mega events such as music festivals which includes works on ticket bots and on scalping/touting (e.g., Krueger, 2005; Connolly and Krueger, 2006; Courty and Pagliero, 2014; Leslie and Sorensen, 2014; Courty, 2019)

(ii) the relationship between the growing use of digital platform music delivery and the popularity of live music as shown in attendance or self-reported attendance (discussed in Cameron (2015)).

In the case of (ii) we have substitution between live and recorded music influenced by their relative prices as for some consumers the price of recorded music drops by an extreme amount. The apparently perverse evidence on income effects for live music has been noted in marketing reports on the buoyancy of the music festival market in the face of major recession and price rises above general inflation in the UK (see Larsen and Hussels, 2011). There is a further literature on live music which is not by economists and more preoccupied with the immediate concerns of music (e.g., Frith, 2007).

The present paper looks at the set prices of gigs in the subsector of 'tribute acts' who tend to perform the work of exclusively one artist in a 'copycat' mode where they attempt to exactly replicate the work musically and also to look approximately like the act being copied (e.g., Homan, 2006).

It may be surprising that people enjoy tribute band concerts despite the fact that everybody knows that what is presented is just an 'open deception' or a 'simulacrum' (Bennett, 2006). Needless to say, these shows differ significantly from the way live music is typically perceived. However, there are virtues beyond the 'parrot factor' (Cameron, 2015) (which means the pleasure about the accuracy of imitation) that makes tribute shows attractive. First, it is the possibility to have access to products not available on the market. Acknowledging that it is in fact imperfect substitution, tribute acts represent the 'next best thing' yet. Or, like Gregory (2012, p.142) states, tribute shows give fans the opportunity of enjoying "icons such as Johns Lennon and Jimi Hendrix, portrayed by tribute artists at the height of their careers in all their youthful glory". Of course, this argument does not apply for all suppliers. Second, tribute concerts take place in smaller venues, which also allows playing in the province. As Gregory (2012) reports, the tribute act's audience values the more intimate atmosphere and the greater possibilities of participation. Finally, whereas the original acts could act 'moody' (remember, for instance, Amy Winehouse's Belgrade concert in 2011), tribute concerts offer a better guarantee of a reliably enjoyable performance.

The data used here essentially contains two types of tribute act which we might distinguish as those which simply perform 'gigs' (they use basic equipment to make accurate song copies and low-cost attempts to look like those copied) and those who perform 'shows'

which we will refer to as 'Extravaganza' tributes. Such tribute acts are not formerly what were called 'covers' acts who simply played the songs and did not attempt to emulate the performance style and appearance. A good example of this in the current data is the UK based 'David Bowie Experience' which has many costume changes and a costly light show which is an important economic factor.[1]

2 Data and descriptive statistics

This paper utilises data extracted from *eventim.de*, the European leader in live entertainment ticketing.[2] A self-written script accessed the website several times between 2016 and 2018 and collected every entry in the category 'concerts', excluding festivals. After the reduction to tribute acts and the elimination of 'bundles' (i.e. events with more than one artist) or performers who reproduce more than one artist (such as 'Falco Meets Mercury'), the data set covers 757 events during the years 2015 to 2019, performed by 155 acts in 333 venues, located in 251 different cities.[3] Tickets were sold at a 'one for all' price which clearly eases the econometric analysis.

Table I: The German tribute concert market (summary statistics).

Variable	Obs	Mean	Std. Dev.	Min	Max	Skew.	Kurt.
PRICE	757	25.032	9.163	10	62.5	1.564	5.475
CONCERTS PER ACT	155	4.884	7.469	1	47	2.624	10.907
WEEKEND	757	0.795		0	1		
FOREIGN (Tribute)	757	0.218		0	1		
FORMATION (Orig.)	757	1970.754	8.98	1953	2003	0.714	3.764
EXIST	757	0.458		0	1		
TOUR*	347	0.354		0	1		
SUPPLY1	757	41.888	31.921	1	107	0.907	2.844
SUPPLY2	757	6.127	5.276	1	19	1.183	3.503
NUMREC (Orig)	757	13.137	5.477	2	55	1.148	8.508
WIKI (Orig)	757	9469.273	3432.389	0	20736	0.022	2.844
GROUPSIZE (Trib)	757	5.534	2.185	1	16	0.590	2.891

The table reports summary statistics, including mean, standard deviation (Std. Dev.), Skewness (Skew.) and Kurtosis (Kurt.) of all non-categorical variables used in the regressions. *Sample restricted to EXIST = 1.

Table I presents the summary statistics for the tribute concert market. Tribute shows tend to be relatively low-priced (compared to a typical peak cinema ticket in a major city in the data set or a concert by a major original artist in such a city), with a mean of around

[1]Note also that Queen have a tribute act which is officially directed by Roger Taylor and Brian May (of the original Queen) which is actually called 'Queen Extravaganza'.

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

[3]Note that the events listed on the ticket provider's German website includes events in neighbouring countries such as Austria, Switzerland, and the Netherlands. However, only 4.49 percent of the observations refer to shows outside Germany. In addition, we control for regional differences in the regression framework.

25 Euros. In addition, these kinds of live performances are scheduled predominantly on a Friday or Saturday (79.52 percent).[4] It seems likely that sparsity of opportunity means there will be a 'weekend bias' for the timing of gigs due to the necessity of holding down unrelated jobs which constrain performance opportunities. In the case of the autonomous (i.e. not organised by an agency which simply hires members for a format) self-managing tribute band this can be due to simply one member having such constraints as the others will find it difficult to replace them easily for one-off transactions.[5]

Table I further reveals that we do have a significant proportion of concerts played by non-German tribute acts in the market, and that the majority of original bands began their careers between 1960 and 1980. A unique feature of this market is that the passage of time actually creates a growth in reputational capital due to the above factors. Tribute is a means of exploiting this value growth which can only be partially captured by the rights holders. In other words, the market for tribute live performances is a secondary market in the overall reputational capital growth sector. Since nostalgia is becoming less volatile or cyclical and is progressively more embedded in the age of social media, we may even expect spillover effects in the sense that still performing artists from the same era may increase demand for the removed acts rather than be a substitute for it. We use the FORMATION variable to operationalize the idea of growing reputational capital in our regression model.

Furthermore, we use two measures of supply. While SUPPLY 1 denote the number of tribute shows devoted to an original band, SUPPLY2 refer to the number of tribute acts per original band.[6] Finally, our main explanatory variables EXIST and TOUR are dummy variables which account for two different levels of market presence of the target performer. First, EXIST = 1 if the original band still formally exists. Second, TOUR = 1 if the original band was touring in Germany one year before or in the same year the tribute concert takes place.[7]

Regarding the event locations, we define three size categories related to the OECD classes (OCED, 2012): rural areas (with population small or equal 90,000), small and medium-sized urban areas (with population between 90,000 and 500,000) and metropolitan areas (with population above 500,000). Figure 1 then shows that tribute bands predominantly perform in venues located in areas outside the average sized or small cities / towns. This finding contrasts the impressions from the German club concert scene documented in Sonnabend (2016) where the proportion of events in metropolitan areas equals 44.41 percent. While high profile original artist acts such as Beyoncé and Ed Sheeran attract a wide audience and therefore are restricted to large capacity venues which are typically located in bigger cities, tribute acts can serve audiences in smaller sized urban areas as well.

Average prices for tributes do not tell the whole story given the heterogeneity of the supply chain. We might specifically expect that extravaganza versions and certain original

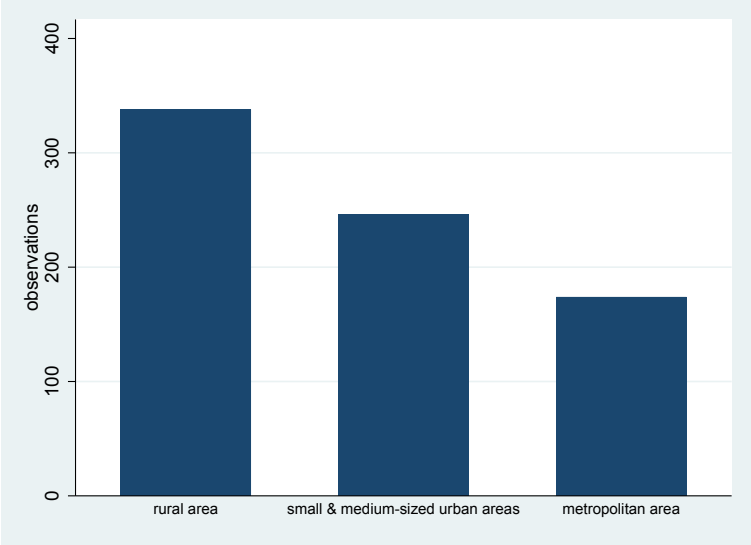
[4]Note that Sonnabend (2016) documents a share of 47.05 percent for Friday or Saturday night events in his sample of German club concerts.

[5]Herbst and Albrecht (2018) point out in their study of German musicians and their work patterns that the work in recording has progressively decreased thus forcing people into live work and teaching.

[6]Note that FORMATION and SUPPLY1 are negatively correlated (coefficient = -0.222, p-value = 0.000). The same applies to SUPPLY2 (coefficient = -0.158, p-value = 0.000).

[7]Note that we additionally use different time spans in the analysis as alternative measures to construct the TOUR variable.

Figure 1: Tribute concerts by area size.



artists might lead to a much higher price which is not to be explained by any qualitative variations in the skills and performance of the individual units as would be included in a hedonic pricing equation. To take a closer look at this, we have presented Tables II and III where we can see there are very profound differences.[8] The dominance of Bowie, Presley and Pink Floyd is notably marked. This is not to be seen in Marshallian terms of the theory of industry as it is unlikely the workers in the lower priced bands could easily transfer to producing rival Bowie/Presley/Floyds to drive down what might be seen as supernormal profits. In any case, given that there is an 'extravaganza' element for these acts it is not clear that net profits will be higher. Some individual extravaganza acts are highlighted in Table III again showing a mark-up above the average price of tributes.[9]

3 Empirical Analysis

We use a single equation specification for the determination of the ticket price. In a competitive market this would be seen as a reduced form of the supply and demand equations. Although the current market has many buyers and sellers it does not equate readily to the textbook model of a competitive process. Hence, we regard the estimated equations as supply-side administered pricing determined by a number of agents in the market. This can contain demand side elements in so far as these influence the idea of the price setting agents as to what the 'market can bear'. In detail, we estimate two models of a tribute act's ticket price given by

$$P_{it} = \alpha_0 + \alpha_1 EXIST_i + \alpha_2 X_i + \alpha_3 Y_i + \alpha_4 Z_t + \epsilon_{it} \tag{1}$$

and

[8] For obvious reason, there is a restriction to SUPPLY2 > 2.

[9] More specifically, for these bands, the ratio between the two means equals or exceeds 1.3 which is the 90th percentile of the distribution.

Table II: Distribution of prices by acts tributed.

Original band	SUPPLY2	SUPPLY1	Avg. price	SD (price)
AC/DC	19	65	21.68	5.64
Pink Floyd	12	107	33.07	11.27
Dire Straits	7	44	24.61	8.94
Queen	7	59	31.21	12.17
Beatles	6	23	25.36	7.58
The Doors	5	30	18.93	3.99
Elvis Presley	5	6	37.56	3.84
ABBA	5	6	25.70	4.51
U2	5	24	20.59	5.62
Led Zeppelin	5	40	21.60	5.99
Leonard Cohen	5	10	24.54	4.55
Depeche Mode	3	39	21.71	3.11
Udo Lindenberg	3	5	16.12	2.38
Eagles	3	6	21.49	3.35
David Bowie	3	8	43.81	15.83
Rolling Stones	3	11	21.15	4.55
Motörhead	3	4	19.70	3.58
Simon & Garfunkel	3	35	27.30	5.70

Table III: Distribution of prices by Extravaganza acts.

Artist	Original band	Avg. price (band)	Avg. price (original)
The Dire Straits Experience	Dire Straits	62.5	24.61
The Australian Pink Floyd Show	Pink Floyd	49.59	33.07
God Save The Queen	Queen	45.87	31.21
The Queen Night	Queen	40.50	31.21
bROTHERS in bAND	Dire Straits	40.30	24.61
Hempel's Beatles-Tour	Beatles	33.80	25.36
Letz Zep	Led Zeppelin	33.14	21.60
Waterloo	ABBA	31.80	25.70
The Doors Of Perception	The Doors	30.85	18.93
Hallelujah - in Memory of Leonard Cohen	Leonard Cohen	30.40	24.54
L.A.Vation	U2	28.99	20.58
Phil Rudd Band	AC/DC	28.93	21.68
Barock	AC/DC	27.97	21.68
Ultimate Eagles	Eagles	26	21.49

$$P_{it} = \gamma_0 + \gamma_1 TOUR_i + \gamma_2 X_i + \gamma_3 Y_i + \gamma_4 Z_t + \varepsilon_{it} \quad (2)$$

where P_{it} is the ticket price set by act i, and EXIST and TOUR are the focus variables which indicate the two different levels of market presence.[10] Equation (2) is used to estimate the effect of touring activities by the original band on the price of a tribute concert. Because existence is a necessary condition for touring, the sample is restricted to observations with $EXIST_i = 1$. Furthermore, X_i is a vector of controls that includes band specific variables (group size, gender, nationality), while Y_i is a vector of original specific variables (gender, overall number of records released, length of Wikipedia entries to proxy relevance, year of formation).[11] Z_i is a vector including concert specific variables (weekend (yes/no), season, federal state, population, year), and ϵ_{it} (ε_{it}) is the error term which captures all other effects that influences P_{it}. Coefficients are estimated with standard OLS under the classical assumptions about the disturbance term.

As there is no obvious choice for the functional form in this instance, we adopt the pragmatic strategy of using the linear pricing equation and the popular alternative of a semi-logarithmic equation.[12] In the linear equation we can interpret the results for dummy variables directly as monetary amounts. The magnitude of these can be gauged by comparing the point estimate to the mean of the price variable. For the semi-logarithmic form we can multiply the point estimate by 100 to give us percentage impacts of the factors represented in the dummies.[13]

Given that the dependent variable is in logarithms, the impact of all right-hand side variables will be interactive –a unit change in any individual variable will not be represented by the point estimate independently of the values of all the other variables.

Results The regression output in Tables IV and V shows the results. First note that we include our two measures of supply in the tribute band business, SUPPLY1 and SUPPLY2, as further controls within our regression framework to show the robustness of the results, but refrain from interpretation because of a potential endogeneity issue.

Although we have used four different specifications, there is broad consistency in the pattern of results across them. Coefficients on measures related to the tribute band itself are statistically significant, and of expected sign, in all cases.

Support for the supply effect is relatively weak. However, there is fairly strong support, in Table V, for the importance of reputational effects coming from measures pertaining to

[10] Basically, we might also consider the release of new music as a further kind of market presence. However, since the release of new music and touring activities are highly correlated in the music business (speaking generally and for our sample), we forgo to include music releases in our regression framework to avoid multicollinearity problems.

[11] The gender variable is categorized as either all-female (21 observations), all-male (499 observations), or mixed (meaning that the group consist of at least one male and one female member, 237 observations).

[12] Note that the Breusch-Pagan test (Breusch and Pagan, 1979) rejects the null hypotheses of homoscedasticity for both models. After using the logarithm of P_{it}, the Breusch-Pagan test still rejects the null for model (1) but not for model (2). We therefore estimate both models with robust standard errors clustered on artist level except for the semi-logarithmic form of model (2).

[13] It is well known (Halvorsen and Palmquist (1980), Giles (2011)) that this estimate will be subject to bias. The methods of adjusting for this are reviewed in Giles (2011). In this paper we offer corrected coefficients which results from the Stata command *logdummy* presented in Goldstein (1992) for our variables of interest in the table notes.

the original band tributed and the band which is performing the tribute to it.

Our first main result is that the price of a tribute act show decreases by around 11 to 15 percent if the original act still exists, taking all other things as equal (Table IV). This corresponds to the idea of providing a good which is no longer available at the market and indicates scarcity effects. Since we have controlled for the year of formation of the original bands, we can rule out that this finding can be explained by a more mature and hence probably less price sensitive audience.

Second, Table V reveals that for tribute musicians who mimic an act that still exists, ticket prices are, on average, higher in cases where the original act shows is actively involved in the market. Compared to the case of non-touring acts, touring activities increase the price of a tribute concert by around nine percent. A possible explanation is that tribute bands can freeride on marketing efforts in favour of the touring superstar and therefore benefit from additional demand. This is because with different venues and lower prices, tribute acts aim for a different segment of concert-goers. Yet, we cannot rule out that selection may also play a role in the sense that more popular groups are more likely to go on tour, so that their tribute acts likely face a larger demand which allows higher prices. We further assert that using a wider timespan between the concert of the original band and the tribute concert weakens the effect considerably: $\hat{\gamma}_1 = 0.0855$ for a two-year span (p-value $= 0.075$) and $\hat{\gamma}_1 = 0.0073$ for a three-year span (p-value $= 0.829$). We take this as a further argument for the importance of touring activities of the original band.

Moreover, both tables show that ticket prices are higher for groups than for solo acts. This observation was already discussed in Cameron (2015). As expected, the estimated coefficient of our proxy variable for popularity and relevance, the length of Wikipedia entries devoted to the original group, has a positive impact on tribute concert prices and is significantly different from zero.

Next, concerts performed by non-German acts tend to be more expensive (Table V). This observation might be best explained by self-selection, because travelling in foreign countries is probably to the advantage only for more popular acts. And, prices are lower for events scheduled on the weekend (Table IV). Following up the overall preference for weekend concerts discussed in Section 2, this result could be driven by a larger supply and thus a more intense competition between bands. As a further selection effect, more successful tribute acts with full-time musicians have an incentive to switch to weekdays. This does not apply to the restricted sample (Table V) where the estimated coefficient of WEEKEND is not significantly different from zero, while the share of weekend concerts is slightly higher (0.879).

Finally, notice that the estimated coefficient of FORMATION –despite being weakly negative for existing originals (Table V, column (4))– does not significantly differ from zero for the whole sample and for non-existing originals. While we hence cannot rule out that reputation capital might play a role, the results are not strong enough to draw any conclusions from them.

Table IV: Regression results of pricing equation (1) for tribute band concerts (whole sample).

	(1) Price	(2) Price	(3) ln(Price)	(4) ln(Price)
EXIST	-3.495**	-4.703***	-0.105**	-0.149***
	(1.426)	(1.444)	(0.0489)	(0.0496)
SUPPLY1	0.0551***		0.00194***	
	(0.0193)		(0.000631)	
SUPPLY2		0.121		0.00386
		(0.0741)		(0.00304)
WEEKEND	-3.836***	-3.874***	-0.129***	-0.130***
	(1.213)	(1.249)	(0.0420)	(0.0433)
GROUPSIZE (Trib)	1.681***	1.829***	0.0534***	0.0589***
	(0.362)	(0.415)	(0.0119)	(0.0132)
FOREIGN (Trib)	1.982	1.647	0.0489	0.0362
	(1.874)	(1.973)	(0.0593)	(0.0631)
NUMREC (Orig)	0.00551	0.0149	-0.00249	-0.00210
	(0.110)	(0.111)	(0.00372)	(0.00381)
WIKI (Orig)	0.000551***	0.000625***	0.0000223***	0.0000249***
	(0.000152)	(0.000163)	(0.00000524)	(0.00000566)
FORMATION (Orig)	0.0201	0.0454	-0.000237	0.000655
	(0.0803)	(0.0849)	(0.00269)	(0.00286)
Constant	-12.72	-62.53	3.694	1.940
	(159.8)	(169.5)	(5.379)	(5.721)
Observations	757	757	757	757
R^2	0.537	0.518	0.498	0.478
Further controls	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Season FE	✓	✓	✓	✓
Region FE	✓	✓	✓	✓

- Robust standard errors (clustered on artist level) are in parenthesis
- * p<0.1, ** p<0.05, *** p<0.01 (with two-sided tests for the coefficients)
- Further controls: gender, foreign (original), area type categories
- Adjusted coefficients for EXIST: -0.107 (column (3)) and -0.139 (column (4))
- Adjusted coefficients for WEEKEND: -0.122 (column (3)) and -0.123 (column (4))

Table V: Regression results of pricing equation (2) for tribute band concerts (EXIST = 1).

	(1) Price	(2) Price	(3) ln(Price)	(4) ln(Price)
TOUR	2.007**	2.053***	0.0885***	0.0893***
	(0.779)	(0.771)	(0.0281)	(0.0285)
SUPPLY1	0.0312		0.00127**	
	(0.0255)		(0.000593)	
SUPPLY2		0.0610		0.00201
		(0.0796)		(0.00175)
WEEKEND	-0.543	-0.469	-0.0344	-0.0308
	(0.875)	(0.865)	(0.0344)	(0.0345)
GROUPSIZE (Trib)	1.060***	1.061***	0.0403***	0.0404***
	(0.248)	(0.255)	(0.00800)	(0.00804)
FOREIGN (Trib)	3.344***	3.213***	0.135***	0.128***
	(0.898)	(0.878)	(0.0388)	(0.0390)
NUMREC (Orig)	-0.225**	-0.255***	-0.0110***	-0.0123***
	(0.0851)	(0.0957)	(0.00365)	(0.00360)
WIKI (Orig)	0.000332***	0.000352***	0.0000117**	0.0000124***
	(0.000112)	(0.000116)	(0.00000464)	(0.00000467)
FORMATION (Orig)	-0.0583	-0.0730	-0.00420	-0.00493*
	(0.0683)	(0.0721)	(0.00293)	(0.00292)
Constant	136.1	165.9	11.41*	12.89**
	(136.8)	(144.5)	(5.870)	(5.857)
Observations	347	347	347	347
R^2	0.546	0.541	0.483	0.477
Further controls	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Season FE	✓	✓	✓	✓
Region FE	✓	✓	✓	✓

- The sample is restricted to original bands that still exist (EXIST = 1)
- Standard errors are in parenthesis (robust SE clustered on artist level in (1) and (2))
- * p<0.1, ** p<0.05, *** p<0.01 (with two-sided tests for the coefficients)
- Further controls: gender, area type categories
- Adjusted coefficients for TOUR: -0.092 (column (3)) and -0.093 (column (4))
- Adjusted coefficients for WEEKEND: -0.034 (column (3)) and -0.031 (column (4))

4 Conclusion

This paper has shown that there is interesting potential for the exploration of the economics of product identity and its importance in markets and their evolution using the case of tribute acts in music as a vehicle. We have shown that it is not satisfactory to treat this market as a simple case of copycatting. Further, the expected approaches of versioning or franchising do not sufficiently explain the surprising development of this market niche.

Our empirical exploration of the market in the form of a pricing equation for tribute concerts shows the importance of characteristics of both the rights holder being paid tribute to and the performers paying tribute. Voluntary withdrawal by the copyright holders or their death or prolonged illness causes ticket prices to be statistically significantly higher when the original act no longer exists. This might be thought to be an incentive to enter the market leading to an increased supply of tribute acts. We may also expect that as more heritage acts die and/or retire that there will be further openings in the market. However, all such changes are subject to unexpected cultural factors. Given that such factors have to be inferred as accounting for the sudden flourishing of a market from decades of pure non-existence, we might want to be cautious that they could just as easily lead to a sudden evaporation.

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