ZACH'S GARAGE CASE STUDY: PRICE OPTIMISATION REPORT

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Introduction

Zach's Garage is an independent, community-oriented concert venue located in Chicago. It was founded by Zachary Lewis, a practicing accountant and long-time dark metal enthusiast. Motivated by his belief that aspiring musicians need more real-world opportunities to perform, Zach transformed a vacant warehouse into a DIY stage where new artists could showcase their talent. With no ticket sales, stage fees, and only a voluntary donation box at the door, Zach's Garage was envisioned as a cultural experiment in accessibility, giving artists and fans a space free from commercial barriers. The venue became a grassroots success in less than a year, amassing over 10,000 followers, regularly hosting packed shows, and fostering a tight-knit creative community.

However, its very popularity has now pushed the venue toward financial instability. Zach incurs a monthly operational loss of approximately $3,000, not including imminent capital expenditures for additional fire exits, upgraded audio-visual systems, and legal support for zoning and compliance. Despite the venue's loyal following, Zach cannot continue funding its operations from personal savings. He is now faced with a difficult decision: introduce a ticket price to generate revenue, or risk closing down the venue altogether. Yet Zach remains deeply committed to affordability and inclusion, especially for younger patrons such as students, who often lack the means to pay but form a vital part of the venue's identity and energy.

In response, Zach commissioned a pricing study using the Gabor-Granger method, conducted by a marketing consultant. Event attendees were asked how likely they would attend at six ticket price points: $1, $3, $5, $8, $12, and $20. Their responses, recorded on a 5-point likelihood scale, were then translated into probability values to estimate demand. Demographic data, including age and gender, was also collected to support deeper segmentation and strategy development.

Problem statement

Zach's Garage is at a crossroads. While the venue's rapid success has been a testament to the city's appetite for raw, live music and community engagement, it has also created a financial burden. Zach is losing $3,000 monthly and must make critical decisions to ensure the venue's survival. Introducing a ticket price is now essential, but finding the right one that balances revenue generation without alienating the audience the venue was built for is a sensitive and complex challenge.

A pricing survey was conducted using the Gabor-Granger method to support this decision. Respondents were asked about their likelihood of attending events at various ticket prices. This report analyses the survey data to determine a pricing strategy to ensure financial sustainability while maintaining the venue's inclusive spirit.

This analysis focuses on five critical business questions posed by the case:

- **What ticket price would maximize expected monthly revenue**, and would that revenue be sufficient to cover Zach's $3,000 monthly operating costs?

- **At what price would attendance drop by half**, reducing the average crowd from 250 to approximately 125 attendees?

- **What minimum ticket price is required to break even**, allowing Zach to fully cover his monthly costs without incurring losses?

- **If attendees aged 21 or younger were allowed free entry** (assuming they make up one-third of the audience), what would be the optimal price for the remaining adult segment, and how would that impact overall attendance and revenue?

- **If younger attendees were charged a discounted price instead of free entry**, what price point would maximize profit for this group, and how would that outcome compare to the other pricing strategies regarding revenue and attendance?

Methodology

This study adopted a data-driven approach using the **Gabor-Granger pricing technique to evaluate feasible pricing strategies for Zach's Garage**. This method is commonly used in pricing research to estimate demand curves by capturing respondents' willingness to pay across different price levels. A custom survey was conducted at Zach's events, where attendees were asked to indicate their likelihood of attending if the ticket price were set at $1, $3, $5, $8, $12, or $20. Each respondent's answer was recorded on a 5-point scale, which was later translated into attendance probabilities using a standard mapping scale.

The analysis was executed using the **Enginius Pricing Optimization module**, which allowed simulation of customer response to pricing changes. This included estimating demand, revenue, and profit at each price point. The total market size was defined as **3,000 attendees per month**, based on Zach's current schedule of **12 monthly events with an average of 250 attendees per event**. The model also incorporated Zach's **monthly fixed operating cost of $3,000**, ensuring revenue and profit estimates reflected real-world financial constraints.

Demographic variables, including **age and gender**, were included for price segmentation scenarios. In particular, the model explored the effect of charging different prices to adult versus youth segments, assuming **one-third of the audience is aged 21 or younger**. For segment-level analysis, the total market was adjusted accordingly (e.g., 2,000 adults and 1,000 youth).

Engines tested various functional forms to ensure model robustness and selected a **logit model** that included intercept, linear, and logarithmic price terms. The model chosen demonstrated strong statistical fit, with a **96% market ceiling** and reliable performance indicators such as **BIC, McFadden R^2**, and **RMSE**.

This methodology enabled the systematic comparison of five pricing scenarios: revenue maximization, attendance sensitivity, break-even pricing, youth-free entry, and youth-discounted entry. Each was modelled to assess its impact on financial performance and alignment with the venue's mission of accessibility.

Q1 **What ticket price would maximize expected monthly revenue**, and would that revenue be sufficient to cover Zach's $3,000 monthly operating costs?

Answer: The analysis identified **$3.31** as the optimal single ticket price to maximize revenue. At this price point, Zach's Garage is projected to attract approximately **1,439 monthly attendees**, with a **total revenue of $4,768.42**. After accounting for the fixed monthly cost of **$3,000, the net $1,768.42 1,768.42**.yielded by **his revenue level is sufficient to fully cover Zach's monthly operating expenses and generate surplus income.** Lower price points, such as $1 or $3, bring in more attendees but either fall short of break-even or produce smaller profits. Higher prices reduce attendance significantly and lead to a decline in revenue.

Q2 **At what price would attendance drop by half**, reducing the average crowd from 250 to approximately 125 attendees?

This question examines the ticket price at which Zach's average event attendance would decline from approximately **250 attendees** to **125 attendees**, representing a 50% drop in turnout. The analysis uses the predicted purchase likelihood curve derived from the Gabor-Granger model to assess this.

The curve illustrates a classic demand pattern: as prices increase, the likelihood of attendance decreases (see Exhibit 1.3). At the lowest price point of $1, attendance probability is high, with an estimated likelihood of 86.4%, translating to over 2,500 attendees across all events in a month. However, as the price increases to $3, attendance probability drops to around 52.7%, indicating that roughly half of the target audience would still be willing to attend. This aligns with an event-level attendance of approximately 125 people, down from the baseline of 250.

When the price increases slightly beyond $3, such as **$3.50**, the attendance likelihood falls to **45.3%**, suggesting that even small price hikes beyond this point lead to a significant decline in participation. This inflection point signals a shift in consumer behavior where the perceived value no longer justifies the cost for a large portion of the audience.

In essence, **$3 appears to be the threshold where demand begins to drop sharply**. Pricing beyond this point may limit access for more price-sensitive attendees, particularly students and younger guests — a core part of Zach's audience base. While higher prices may generate more revenue per ticket, they risk excluding the very community the venue was designed to serve. Therefore, setting the ticket price at or near **$3** would likely cause attendance to fall by half. This insight is critical in understanding the trade-off between maximizing revenue and preserving attendance. It highlights the importance of pricing decisions that reflect the company's goals and Zach's commitment to community accessibility.

Q3 What is the Minimum Ticket Price to Break Even?

This analysis aims to identify the minimum ticket price required for Zach's Garage to cover its fixed monthly operating cost of **$3,000** without generating a loss. This point, the **break-even threshold**, is where revenue equals cost and profit is zero.

Using the Gabor-Granger model, simulated revenues were assessed across ticket prices (see Exhibit 1.2 and Exhibit 1.3). At $1, the model predicts approximately 2,591 attendees, resulting in revenue of $2,591.37, which falls short of covering monthly costs and leads to a loss of $408.63. Increasing the price to $1.50 reduces expected attendance to 2,349, but raises total revenue to $3,523.03, yielding a modest profit of $523.03.

Based on these projections, Zach's break-even price lies **somewhere between $1.45 and $1.49**, though the exact point cannot be determined due to limitations in price increments used during the survey. Nevertheless, it is clear that **any price below $1.45 results in a loss**, while **$1.50 or higher generates a surplus**. In conclusion, Zach must set a minimum ticket price **below $1.5** to break even. This pricing floor is critical for financial sustainability pricing; even slightly below it would put the venue at continued risk of operating at a loss.

Q4 **If attendees aged 21 or younger were allowed free entry** (assuming they make up one-third of the audience), what would be the optimal price for the remaining adult segment, and how would that impact overall attendance and revenue?

This scenario explores a segmented pricing strategy where attendees aged 21 or younger are allowed free entry, while only customers aged 22 and above are charged a ticket price. According to the case, this younger group comprises roughly one-third of total attendees, so the model adjusts the paying market size from 3,000 to 2,000 adults per month. Using the Gabor-Granger pricing model applied exclusively to the 22+ age group (see Exhibit 2.1), the optimal ticket price for adult attendees is $3.57. At this price point:

- **Adult attendance** is projected at **1,024** (51.2% of 2,000)
- **Total attendance**, including free youth entries, reaches **2,024**
- **Monthly revenue** from adult tickets: **$3,659.21**
- **Profit** after covering fixed costs of $3,000: **$659.21**

While the total profit under this strategy is lower than the $1,768.42 profit from the flat pricing model at $3.31, this approach results in significantly higher overall attendance — maintaining Zach's mission of accessibility and community support, particularly for younger audiences From a strategic standpoint, this approach (see Exhibit 2.3 and Exhibit 2.4 for simulated profit and attendance impact) positions Zach's Garage as a community-first .brand that invests in long-term audience development. By removing price as a barrier for students and young concertgoers, a key future demographic, Zach strengthens loyalty and positive word-of-mouth while preserving ticket value perception among adult customers. Although short-term profits are lower, this model enhances brand equity, reduces churn among younger attendees, and potentially increases ancillary revenue opportunities (e.g., merchandise, sponsorships, donations). It also reinforces Zach's differentiation in a competitive entertainment market, not just as a music venue, but as a platform for accessible cultural experiences.

Q5 **If younger attendees were charged a discounted price instead of free entry**, what price point would maximize profit for this group, and how would that outcome compare to the other pricing strategies regarding revenue and attendance?

In this scenario, instead of offering free admission to attendees aged 21 or younger, Zach considers charging them a **discounted price** to recover some of the revenue from this group while maintaining affordability. The adult segment (aged 22+) remains priced at the optimal level identified in Question 4 (**$3.57**), which generates enough profit to cover the venue's fixed costs. Therefore, all additional revenue from the youth segment would contribute directly to profit. Modelling the younger demographic separately, assuming they make

up **one-third of the total audience** (i.e., 1,000 out of 3,000 attendees per month), the optimal discounted price for this segment is **$2.60**. At this price:

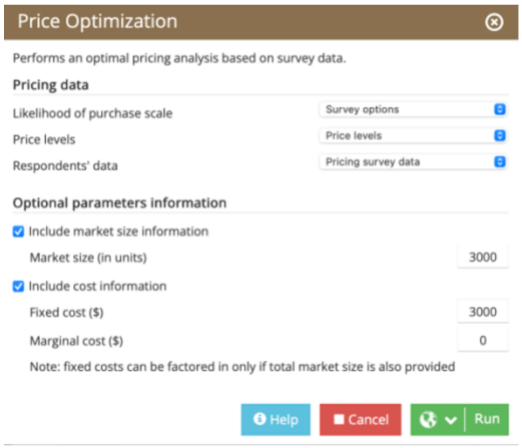
- **Youth attendance** is projected at **450 attendees** (45% of the youth market)
- **Revenue from youth segment**: **$1,167.18**
- **Combined profit** (youth + adult segment): **$1,826.39**
- **Total attendance**: **1,474** (1,024 adults + 450 youth)

Compared to the flat pricing strategy in Question 1 (which generated a profit of $1,768.42 with 1,439 attendees), this **segmented pricing model increases profit by $57.97** (+3.3%) and attracts **35 more people overall**. This approach combines financial efficiency with audience inclusion. By introducing a symbolic yet meaningful price point for the youth segment, Zach captures additional revenue while maintaining price sensitivity strategically, and it also avoids the risks of free-entry dilution, where zero pricing may lead to perceived lower value or over-capacity issues. The modest profit increase indicates that **price discrimination based on willingness to pay can improve overall performance** without harming community goodwill. This model reflects a **tiered pricing strategy** often used in event management and public services, balancing full-price contributions from higher-paying segments with subsidized access for priority groups. In Zach's case, it delivers the highest overall value regarding **financial return and audience reach.**

Recommendations:

1. **Adopt a Segmented Pricing Strategy with Discounted Youth Access:**
   Based on the analysis, the most financially effective strategy is to charge **$3.57 for adults (22+)** and **$2.60 for youth (≤21)**. This model produces the highest monthly profit (**$1,826.39**) while maintaining strong attendance (**1,474 attendees**). It allows Zach to cover his costs, grow the audience, and stay aligned with his mission of accessibility.
2. **Avoid Free Entry for the Youth Segment:**
   While offering free access to attendees aged 21 or younger preserves inclusivity, it sacrifices revenue that could otherwise be used to improve infrastructure or programming. Charging a modest, discounted fee retains 45% of the youth audience and contributes meaningfully to the bottom line without excluding price-sensitive attendees.
3. **Do Not Rely on a Flat Pricing Model Alone:**
   A uniform pricing strategy, such as $3.31, is profitable and straightforward but fails to account for meaningful differences in willingness to pay. The flat model also results in slightly lower total attendance compared to the segmented approach and leaves potential revenue from differentiated segments untapped.
4. **Reserve the Break-even Strategy for Worst-Case Scenarios:**
   A flat $1.50 ticket ensures Zach covers operating costs, but leaves no margin for reinvestment or unexpected expenses. This model should be used only if demand falls sharply or community expectations push for extreme affordability. Otherwise, it limits the venue's financial flexibility.

EXHIBITS



	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	1	86.4%	2 591	2 591.37	3 000.00	-408.63
Level 2	3	52.7%	1 580	4 740.94	3 000.00	1 740.94
Level 3	5	28.5%	856	4 277.76	3 000.00	1 277.76
Level 4	8	11.8%	353	2 822.33	3 000.00	-177.67
Level 5	12	4.2%	125	1 505.61	3 000.00	-1 494.39
Level 6	20	0.7%	22	449.91	3 000.00	-2 550.09
Max gross profit	3.31	48.0%	1 439	4 768.42	3 000.00	1 768.42
Max revenue	3.31	48.0%	1 439	4 768.42	3 000.00	1 768.42

Optimization results.

Exhibit 1.1 Exhibit 1.2

Exhibit 1.1 Enginius Pricing Optimization Tool Configuration

Exhibit 1.2: Revenue and Profit by Ticket Price (Flat Pricing)

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	1	86.4%	2 591	2 591.37	3 000.00	-408.63
Level 2	1.5	78.3%	2 349	3 523.03	3 000.00	523.03
Level 3	2	69.5%	2 086	4 171.23	3 000.00	1 171.23
Level 4	2.5	60.8%	1 825	4 561.76	3 000.00	1 561.76
Level 5	3	52.7%	1 580	4 740.94	3 000.00	1 740.94
Level 6	3.5	45.3%	1 360	4 759.85	3 000.00	1 759.85
Level 7	4	38.9%	1 166	4 665.03	3 000.00	1 665.03
Level 8	4.5	33.3%	999	4 494.62	3 000.00	1 494.62
Level 9	5	28.5%	856	4 277.76	3 000.00	1 277.76
Level 10	5.5	24.5%	734	4 035.64	3 000.00	1 035.64

Exhibit 1.3: Revenue and Profit Curves with Break-Even Threshold

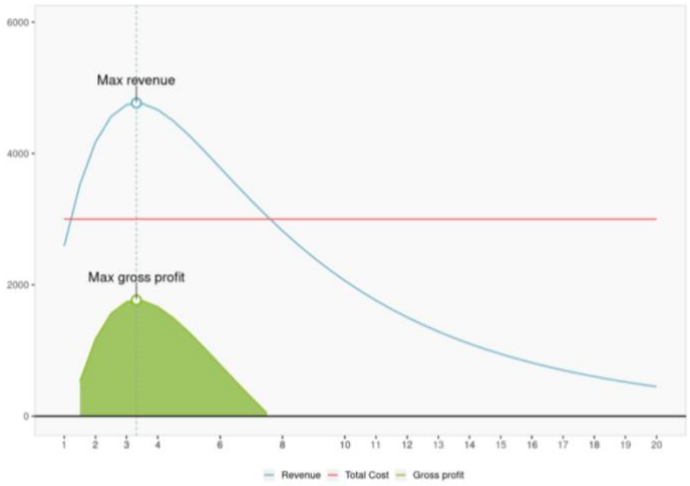


Exhibit 1.4: Pricing Strategy Simulation Output for Younger Segment.

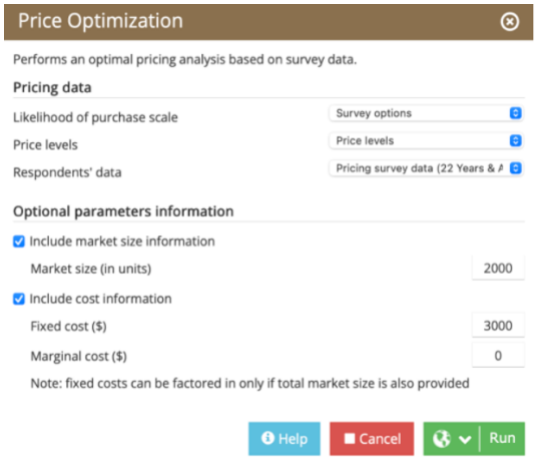


Exhibit 2.1

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	1	93.4%	1 867	1 867.38	3 000.00	-1 132.62
Level 2	3	60.0%	1 199	3 597.47	3 000.00	597.47
Level 3	5	34.2%	683	3 415.33	3 000.00	415.33
Level 4	8	14.8%	297	2 372.94	3 000.00	-627.06
Level 5	12	5.2%	105	1 259.01	3 000.00	-1 740.99
Level 6	20	0.8%	15	303.65	3 000.00	-2 696.35
Max gross profit	3.57	51.2%	1 024	3 659.21	3 000.00	659.21
Max revenue	3.57	51.2%	1 024	3 659.21	3 000.00	659.21

Optimization results.

Exhibit 2.2

Exhibit 2.1: Enginius Tool Configuration – Youth Segment Simulation

Exhibit 2.2: Revenue and Profit Table – Pricing Impact for Attendees Aged ≤21

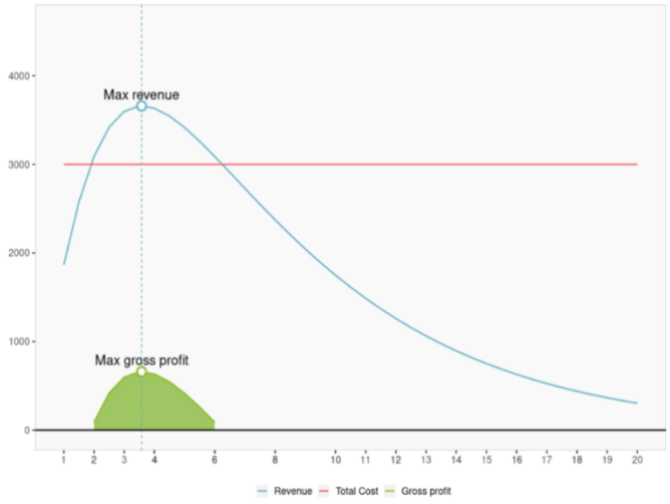


Exhibit 2.3: Revenue and Gross Profit Curves with Break-Even Overlay (Youth Segment)

	Prices	Predicted likelihood	Units sold	Revenue	Cost	Gross profit
Level 1	1	93.4%	1 867	1 867.38	3 000.00	-1 132.62
Level 2	1.5	85.9%	1 717	2 575.87	3 000.00	-424.13
Level 3	2	77.2%	1 544	3 088.40	3 000.00	88.4
Level 4	2.5	68.4%	1 368	3 418.82	3 000.00	418.82
Level 5	3	60.0%	1 199	3 597.47	3 000.00	597.47
Level 6	3.5	52.3%	1 045	3 658.27	3 000.00	658.27
Level 7	4	45.4%	908	3 632.14	3 000.00	632.14
Level 8	4.5	39.4%	788	3 544.54	3 000.00	544.54
Level 9	5	34.2%	683	3 415.33	3 000.00	415.33
Level 10	5.5	29.6%	593	3 259.44	3 000.00	259.44

Exhibit 2.4: Predicted Likelihood, Revenue, and Attendance Breakdown by Price (Youth Segment)

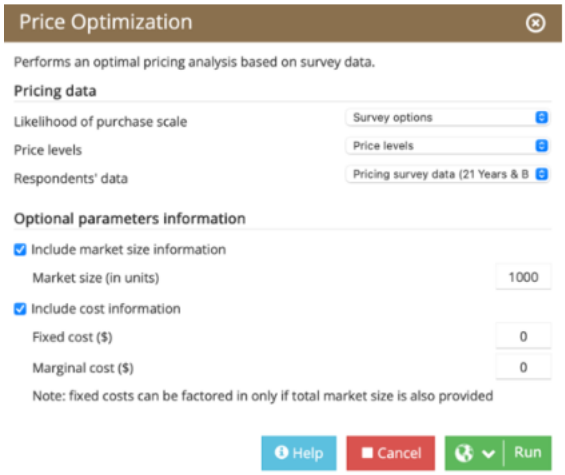


Exhibit 3.1

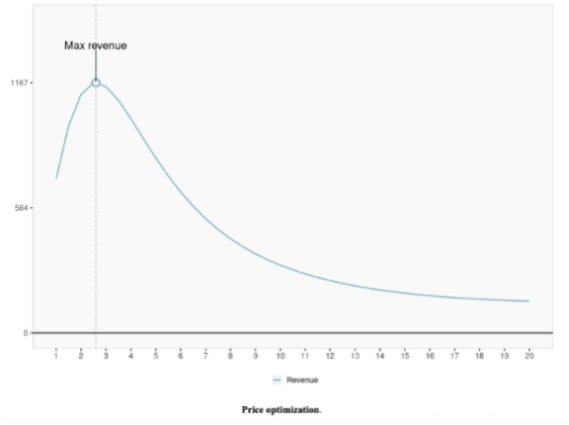
	Prices	Predicted likelihood	Revenue per market unit	Units sold	Revenue
Level 1	1	71.8%	0.72	718	718.43
Level 2	3	38.3%	1.15	383	1 147.85
Level 3	5	16.3%	0.82	163	816.03
Level 4	8	5.5%	0.44	55	439.48
Level 5	12	2.0%	0.24	20	243.81
Level 6	20	0.7%	0.15	7	148.69
Max revenue	2.6	45.0%	1.17	450	1 167.18

Optimization results.

Exhibit 3.2

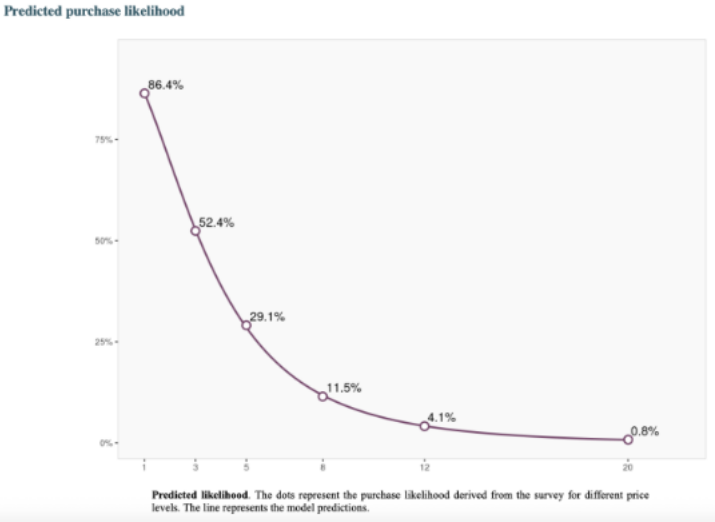
Exhibit 3.1: Enginius Tool Configuration – Senior Segment Simulation

Exhibit 3.2: Revenue and Profit Table Pricing Outcomes for Attendees Aged 60+



Price optimization.

Exhibit 3.3: Gross Profit Curve Across Price Points – Senior Segment



Predicted likelihood. The dots represent the purchase likelihood derived from the survey for different price levels. The line represents the model predictions.

Exhibit 3.4: Predicted Purchase Likelihood Curve – Senior Segment