



When Popular Isn't Profitable: A Menu Engineering Analysis of an Indian Fine Dining Restaurant in Jakarta

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Abstract. *This study examines the classification and strategic positioning of main course menu items at Man Aur Tan Authentic Indian Cuisine Restaurant, an Indian specialty outlet on the 36th floor of Hotel Manhattan Jakarta. Using a quantitative descriptive design, the study applies the Kasavana and Smith menu engineering matrix to all 24 main course items, drawing on one month of secondary sales data to calculate contribution margin and menu mix percentage against category benchmarks. Results show only two items, Gosht Kofta and Rogan Josh Kashmiri, qualify as Stars, while thirteen items, 54.2 percent of the menu and 69.8 percent of volume, fall into the Plowhorse quadrant, generating a lower 62.9 percent share of contribution margin. Seven items, including Jheenga Jhalfezi and Jheenga Kalimirchi, are classified as Puzzles, carrying the highest per portion margins despite limited popularity, and two items are classified as Dogs. These findings indicate the restaurant's most ordered dishes are not its most profitable, pointing to unrealized margin on high volume items and untapped potential in high margin, low visibility dishes. The study recommends cost adjustments for Plowhorse items, promotional repositioning for Puzzle items, and a critical review of Dog items' place on the menu.*

Keywords: *Contribution Margin; Menu Analysis; Menu Engineering Matrix; Menu Popularity; Profitability*

1. INTRODUCTION

The hospitality industry, particularly the restaurant sector, continues to operate under intense competitive pressure, requiring managers to base pricing, promotion, and product mix decisions on objective sales and cost data rather than intuition alone. One analytical framework widely used to meet this need is menu engineering, which evaluates each menu item's profitability and popularity through two core indicators: contribution margin (CM) and menu mix percentage (MM%). By plotting these indicators against one another, menu items can be classified into four categories stars, plowhorses, puzzles, and dogs each implying a distinct managerial response, from maintaining recipe standards to cost renegotiation or menu removal (Kwong, 2005)

Studies applying this method across Indonesian restaurants and hotels consistently show that classification outcomes are highly context specific, depending not only on sales volume but also on price positioning, ingredient dependency, and menu book layout (Pratama et al., 2023). However, limited attention has been given to authentic ethnic fine dining restaurants operating within international hotel properties, where dependence on imported ingredients and strict flavor authenticity standards heighten the trade off between profitability and popularity (IPEK, 2024).

This study addresses that gap by focusing on Man Aur Tan Authentic Indian Cuisine Restaurant, located on the 36th floor of Hotel Manhattan Jakarta, an Indian specialty restaurant with an indoor capacity of approximately 70 guests, a sky bar, and two outdoor areas. Analysis of one month of main course sales data covering 24 menu items shows two items classified as stars (*Gosht Kofta*, *Rogan Josh Kashmiri*), thirteen as plowhorses (e.g., *Kadhai Murg*, *Murg Tikka Masala*, *Murg Makhani*, sold at 55 to 65 portions each but with contribution margins below the category average), seven as puzzles (e.g., *Jheenga Jhalfezi*, *Jheenga Kalimirchi*, *Tandoori Jheenga Masala*, carrying the highest margins on the menu at IDR 163,000–177,800 per portion despite low sales volume), and two as dogs (*Mushroom Muttar*, *Machi Masala*), the latter weak on both popularity and profitability. These patterns indicate that classification results alone are insufficient without category specific managerial follow up. Therefore, this study aims to classify the main course menu of Man Aur Tan Restaurant using the menu engineering matrix and to formulate quadrant specific managerial recommendations covering menu book design, portion and cost control, and promotional strategy.

2. REVIEW THEORY

Menu engineering was originally developed by (Kasavana & Smith, 1982) as a portfolio based analytical technique adapted from the Boston Consulting Group's growth share matrix, and is considered a refinement of earlier menu analysis model, which classified items only by popularity and food cost. Rather than relying on food cost percentage alone, Kasavana and Smith introduced contribution margin as the primary profitability measure, arguing that an item's absolute profit per sale is a more accurate indicator of financial value than its cost ratio (Noone & Cachia, 2020)

The framework rests on two indicators. Contribution margin (CM) reflects the profit earned from a menu item after food cost is deducted from its selling price, while menu mix percentage (MM%) reflects how frequently the item is purchased relative to total category sales. Each item's CM and MM% are then compared against two benchmarks calculated from the whole menu category: the average contribution margin (ACM) and the average menu mix (AMM%). An item performing above both benchmarks signals strong financial and customer demand performance, whereas an item falling below both benchmarks signals weak performance on both dimensions (İPEK, 2024)

Based on the position of each item relative to ACM and AMM%, menu items are classified into four categories. Items with high profitability and high popularity are labeled stars, representing the menu's strongest performers and candidates for continued promotion.

Items with high popularity but low profitability are labeled plowhorses (sometimes illustrated as "horses" in the classification matrix), indicating strong guest demand that is not yet matched by adequate margins (Goh & Sari, 2023). Items with high profitability but low popularity are labeled puzzles, suggesting untapped potential that requires improved visibility or sales emphasis. Items that are both low in profitability and low in popularity are labeled dogs, and are typically considered for reformulation, repricing, or removal (Kwong, 2005)

Subsequent scholarship has extended this original two variable framework. (Pavesic, 1983) proposed a cost margin model that incorporates food cost percentage alongside a weighted contribution margin, treating popularity as an indirect third variable rather than assuming cost percentage and contribution margin are mutually exclusive. More recent studies have combined menu engineering with multi criteria decision making techniques and time driven costing to improve analytical precision, while comparative analyses show that applying more than one matrix model to the same menu can reveal complementary insights that a single model may overlook (İPEK, 2024)

Empirically, menu engineering has been applied extensively across Indonesian restaurant and hotel settings to identify underperforming items, justify recipe or portion adjustments, and inform menu book redesign (Adinda Maulita Salsabilla, Aisyah Nurin Kamiliya, Mafisa Restami, 2025). These studies report that data driven classification improves managers' ability to prioritize limited promotional and operational resources, although classification outcomes remain highly dependent on menu composition, price positioning, and the specific dining segment being studied (Ferdinand & Saputra, 2024). Similarly, international studies emphasize that menu engineering should account for item substitution effects and category level placement strategy when translating classification results into pricing and design actions (Noone & Cachia, 2020)

Building on this framework, it is expected that classifying the main course menu of Man Aur Tan Restaurant will reveal a concentration of chicken based dishes in the star category, reflecting strong guest preference and favorable cost structure, while imported ingredient dependent seafood dishes are expected to cluster in the dog category, reflecting the combined effect of high food cost and limited demand typical of premium ethnic fine dining restaurants (Özgür Göde & Ekergül, 2025).

3. METHOD

This study uses a quantitative descriptive research design, intended to classify menu items objectively based on numerical sales and cost data rather than to test causal relationships between variables (Slater & Hasson, 2025). The unit of analysis is the main course category of Man Aur Tan Authentic Indian Cuisine Restaurant, Hotel Manhattan Jakarta.

The population of this study consists of all 24 main course menu items offered by the restaurant. Because the number of items is limited and fully accessible, this study applies total sampling, in which the entire population is used as the research sample. The observation period covers one month of sales transactions, during which each item's selling price and the number of portions sold were recorded.

Data were collected using a documentation technique, drawing on secondary data obtained from the restaurant's internal sales report, which includes the name, short description, selling price, and total units sold for each menu item. No primary survey or interview instrument was used, and consequently no validity or reliability testing of a research instrument was required; the accuracy of the analysis instead depends on the completeness and consistency of the restaurant's internal sales records (Wahyudi et al., 2024).

The data analysis tool used in this study is the menu engineering matrix. For each menu item, the contribution margin is obtained by subtracting the food cost from the selling price, representing the profit generated per unit sold (Munigar, 2024). The menu mix percentage is obtained by dividing the number of units sold for that item by the total number of units sold across all main course items, then multiplying the result by one hundred, representing the item's relative popularity within the category. From these two figures, the average contribution margin is calculated by dividing the total contribution margin generated by the entire main course category by the total number of units sold, and serves as the profitability benchmark. The average menu mix is calculated by dividing a base popularity share by the total number of items in the category, following the conventional Kasavana and Smith formulation, and serves as the popularity benchmark (Hendrawan et al., 2024).

Each menu item is then positioned on a two dimensional matrix, with profitability plotted against the average contribution margin on one axis and popularity plotted against the average menu mix on the other axis (Kasavana & Smith, 1982). Based on this position, every item is classified into one of four quadrants, as illustrated in Figure 1: items above both benchmarks are classified as stars, items above the popularity benchmark but below the profitability benchmark are classified as plowhorses (horses), items above the profitability

benchmark but below the popularity benchmark are classified as puzzles, and items below both benchmarks are classified as dogs (Abheek Pramanick, Dr. Sumant Sharma, 2025).

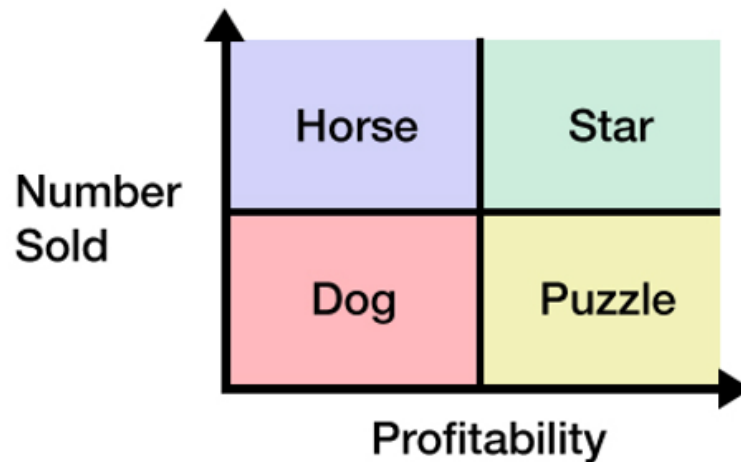


Figure 1. Menu Engineering Classification Matrix.

This classification procedure follows the conventional menu engineering approach validated across multiple hospitality studies (Kwong, 2005) and requires no additional statistical testing beyond the descriptive computation of CM, MM%, ACM, and AMM% described above. The resulting classification for each of the 24 main course items is presented and discussed in the Results and Discussion section.

4. RESULTS AND DISCUSSION

Recalculating Contribution Margin, Food Cost, and Menu Mix

The restaurant's original figures turned out to understate how much contribution margin varies from dish to dish, since every item within a given price bracket had been assigned the same margin regardless of its actual food cost. Once each item's real ingredient cost was factored in, the differences became substantial even among dishes priced identically. Within the IDR 148,800 price bracket, for instance, Paneer Saag carries a contribution margin of IDR 106,600, while Kadhai Paneer priced the same but costing more to make carries only IDR 98,700. Multiplied across hundreds of portions sold, a gap of that size is far from trivial. The full recalculated dataset appears in Table 1.

Tabel 1. Sales Volume, Selling Price, Food Cost, Contribution Margin, and Menu Mix for 24 Menu Items.

No.	Menu Item	Volume Sales	Selling Price (IDR)	Food Cost (IDR)	Food Cost (%)	Contribution Margin (IDR)	Menu Mix (%)
1	Paneer Saag	40	148,800	42,200	28.4%	106,600	5.62%
2	Muttar Paneer	35	148,800	48,100	32.2%	100,700	4.92%
3	Kadhai Paneer	30	148,800	50,100	33.7%	98,700	4.21%
4	Mushroom Muttar	20	118,800	38,000	32.0%	80,800	2.81%
5	Aloo Gobi	45	118,800	37,000	31.1%	81,800	6.32%
6	Subhzi Panchratan	35	118,800	42,500	35.8%	76,300	4.92%
7	Subhzi Kalimirchi	30	118,800	45,500	38.3%	73,300	4.21%
8	Methi Aloo	25	118,800	44,000	37.0%	74,800	3.51%
9	Hing Jeera Aloo	25	118,800	49,000	41.2%	69,800	3.51%
10	Murg Makhani	60	158,800	50,500	31.8%	108,300	8.43%
11	Kadhai Murg	55	158,800	50,200	31.6%	108,600	7.72%
12	Murg Tikka Masala	65	158,800	52,500	33.1%	106,300	9.13%
13	Murg Lababdar	30	158,800	50,000	31.5%	108,800	4.21%
14	Saag Murg	22	158,800	51,000	32.1%	107,800	3.09%
15	Gosht Kofta	25	188,800	55,000	29.1%	133,800	3.51%
16	Handhi Bhuna Gosht	20	188,800	66,000	35.0%	122,800	2.81%
17	Rogan Josh Kashmiri	25	188,800	56,100	29.7%	132,700	3.51%
18	Rarha Gosht	20	188,800	52,000	27.5%	136,800	2.81%
19	Saag Gosht	20	188,800	60,000	31.8%	128,800	2.81%
20	Tandoori Jheenga Masala	15	228,800	65,200	28.5%	163,600	2.11%
21	Jheenga Jhalfezi	15	228,800	51,000	22.3%	177,800	2.11%
22	Jheenga Kalimirchi	15	228,800	57,000	24.9%	171,800	2.11%
23	Machi Masala	20	168,800	59,000	35.0%	109,800	2.81%
24	South Indian Fish Curry	20	168,800	52,100	30.9%	116,700	2.81%

Combined contribution margin across the full menu for the observation period came to IDR 76,205,600, against a volume weighted average food cost of 31.76%. That figure sits comfortably within the 25 – 35% range typically cited as the benchmark for mid to upscale restaurant operations.

Quadrant Classification

Applying the two thresholds established above sorts all 24 items into the four quadrants shown in Figure 2 and summarized in Table 2.

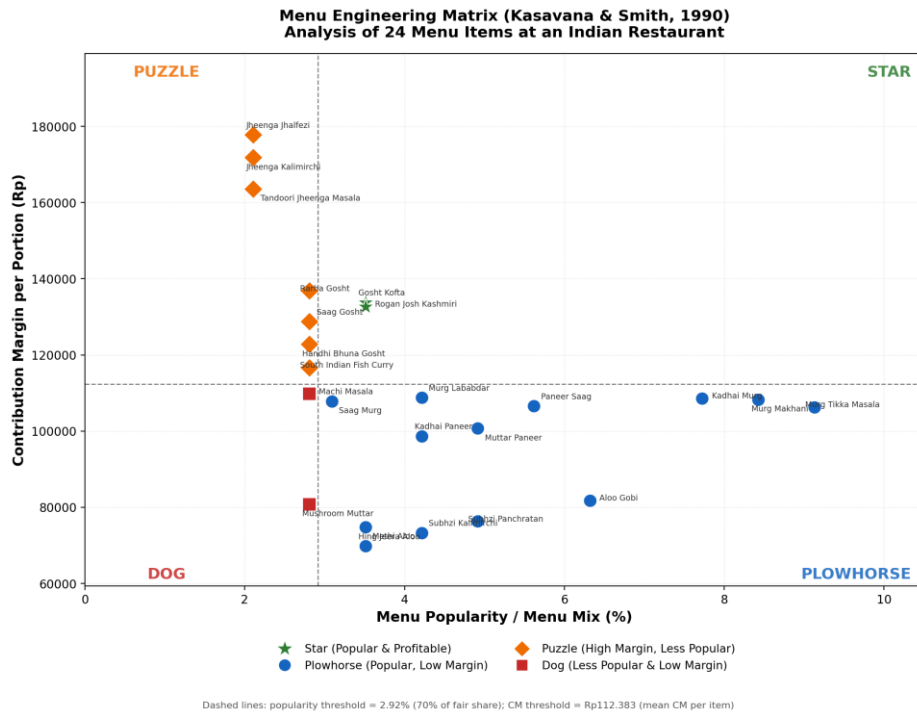


Figure 2. Menu Engineering Matrix for 24 Menu Items at an Indian Restaurant.

Table 2. Quadrant Summary.

Quadrant	Jumlah Menu	Total Volume Penjualan	Pangsa Volume (%)	Total Contribution Margin (IDR)	Pangsa Contribution Margin (%)
Star	2	50	7.02	IDR 6,662,500	8.74
Plowhorse	13	497	69.80	IDR 47,931,100	62.90
Puzzle	7	125	17.56	IDR 17,800,000	23.36
Dog	2	40	5.62	IDR 3,812,000	5.00
Total	24	712	100.00	IDR 76,205,600	100.00

A clear pattern emerges from this classification. The Plowhorse group dominates the menu structurally 13 items, or 54.2% of the total and accounts for 69.80% of all volume sold, yet it contributes only 62.90% of total contribution margin. In other words, the dishes guests order most often are not, as a group, the dishes generating the most profit, which suggests the restaurant is leaving margin on the table by not revisiting pricing on its most popular items.

The Puzzle group tells the opposite story: seven items (29.2%) account for just 17.56% of volume but 23.36% of total contribution margin. Jheenga Jhalfezi, the single highest margin dish on the entire menu at IDR 177,800 per portion, sits in this quadrant a strong candidate

for the kind of visibility push that could meaningfully lift overall profitability if its ordering rate can be raised.

Only two items—Gosht Kofta and Rogan Josh Kashmiri—land in the Star quadrant, the position every dish would ideally occupy. That scarcity suggests the restaurant has yet to find the sweet spot where a dish is both popular and highly profitable at the same time; it has either high margin items that guests order too rarely, or popular items whose margins haven't been pushed as far as they could go. The Dog quadrant, occupied by Mushroom Muttar and Machi Masala, contributes the least on both counts—5.62% of volume and 5.00% of margin—making these the clearest candidates for a hard look at whether they still belong on the menu.

Strategic Implications by Quadrant

Table 3. Recommended Strategy by Quadrant.

Quadrant	Defining Traits	Suggested Strategy
Star	Sells well and carries a healthy margin at the same time—the most valuable segment of the menu.	Keep the recipe, plating, and portioning exactly as they are; give these dishes visual prominence on the menu (bordering, photos, callouts) and in promotional material; resist the urge to raise prices sharply, since that could dampen demand for what is already working.
Plowhorse	Sells in high volume but the margin per plate lags behind—guests order it often, yet it is not doing much for the bottom line.	Re-examine portion sizes and ingredient sourcing to trim costs without a noticeable drop in quality; implement a modest, staged price increase, as customer demand for these items is already established; consider giving these items a slightly less prominent position on the menu than the Star items.
Puzzle	Carries a strong margin but does not move much volume—profitable on paper, but underperforming in practice.	Improve menu descriptions, relocate the items to a more visible menu position (e.g., upper-right or eye-level placement), encourage front-of-house staff to recommend these dishes proactively, or test a small price reduction to stimulate demand.
Dog	Weak on both fronts—low sales volume and low contribution margin.	Consider removing these items from the menu; alternatively, revise the recipe to reduce production costs or include them in bundled promotional offers before deciding on permanent elimination.

Taken together, these findings reinforce a point that is easy to overlook in day to day operations: sales volume and food cost percentage, examined separately, tell an incomplete story. Popularity and profitability need to be read together. Given how much of total volume the Plowhorse group represents, tightening its margins should be the priority, while giving the high margin Puzzle items more visibility offers a comparatively low risk way to lift profitability further.

5. CONCLUSION AND RECOMMENDATIONS

Three conclusions follow from this analysis. First, contribution margin has to be calculated dish by dish based on actual food cost averaging it across a price bracket, as the restaurant's original records did, introduces a bias substantial enough to distort any profitability judgment built on it. Second, the quadrant classification places 2 items (8.3%) in Star, 13 (54.2%) in Plowhorse, 7 (29.2%) in Puzzle, and 2 (8.3%) in Dog, with the Plowhorse group's share of volume running noticeably ahead of its share of margin. Third, the four quadrants warrant genuinely different treatment: protect what's working for Star items, tighten cost and nudge pricing for Plowhorse items, build visibility for Puzzle items, and seriously evaluate the case for keeping Dog items on the menu at all.

This study is limited by its scope a single restaurant observed over one period so the specific quadrant assignments should not be assumed to generalize to other restaurants or other time frames. Future work could track how items move between quadrants over successive periods, and could pair menu engineering with price elasticity data and direct measures of consumer preference to sharpen the pricing recommendations that come out of this kind of analysis.

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