

THE STATE AND EFFICIENCY OF MARKETING STRATEGIES IN UZBEKISTAN'S HOTEL INDUSTRY: A FRONTIER ANALYSIS OF WHAT HOTELS GET FOR WHAT THEY SPEND

O'ZBEKISTON MEHMONXONA SANOATIDA MARKETING STRATEGIYALARINING HOLATI VA SAMARADORLIGI: MARKETING XARAJATLARI NATIJADORLIGINING CHEGARAVIY TAHLILI

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Abstract Annotatsiya

Eng. - Assessments of hotel marketing in Uzbekistan usually focus on what hotels do and how much they spend, while this study examines how efficiently marketing expenditure is converted into revenue. Using data from 180 hotels in five cities in 2025, the analysis shows that marketing practices remain underdeveloped: only 43 per cent of hotels have a written marketing plan and 28 per cent measure performance against targets. Average efficiency is 0.736 under the variable-returns frontier and 0.769 under the free disposal hull, indicating that hotels achieve only about three quarters of the peer-adjusted revenue possible at their spending level. Efficiency is not higher among hotels that spend more, although higher-spending hotels generate substantially greater RevPAR. Planning and brand affiliation are positively associated with efficiency, while the number of marketing tools is only marginally significant. The elasticity of RevPAR with respect to marketing spending is 0.215. For hotels below the 75th percentile of efficiency, improving efficiency at unchanged spending yields an estimated USD 8.61 increase in RevPAR, compared with only USD 1.14 from a 10 per cent increase in marketing spending.

Uzb. - O'zbekistonda mehmonxona marketingiga oid baholashlar odatda mehmonxonalar qanday marketing faoliyatini amalga oshirishi va bunga qancha mablag' sarflashiga e'tibor qaratadi, mazkur tadqiqot esa marketing xarajatlarining daromadga aylantirilish samaradorligini o'rganadi. 2025-yilda beshta shahardagi 180 ta mehmonxona ma'lumotlari asosida o'tkazilgan tahlil marketing amaliyotlari yetarli darajada rivojlanmaganligini ko'rsatdi: mehmonxonalarning atigi 43 foizida yozma marketing rejasi mavjud, 28 foizi esa natijalarni belgilangan maqsadlar bilan solishtirib baholaydi. O'zgaruvchan qaytim chegarasi bo'yicha o'rtacha samaradorlik 0,736 ni, erkin tasarruf qilinadigan qobiq usuli bo'yicha esa 0,769 ni tashkil etdi, bu mehmonxonalar o'z xarajatlari darajasida erishish mumkin bo'lgan moslashtirilgan daromadning o'rtacha qariyb to'rt dan uch qismini olayotganini anglatadi. Marketing xarajatlari ko'proq bo'lgan mehmonxonalarda RevPAR sezilarli darajada yuqori bo'lsa-da, samaradorlik darajasi yuqori emas. Marketingni rejalashtirish va brendga mansublik samaradorlik bilan ijobiy bog'liq, marketing vositalari sonining statistik ahamiyati esa chegaraviy darajada. RevPARning marketing xarajatlarga nisbatan elastikligi 0,215 ni tashkil etdi. Samaradorlikning 75-persentilidan past bo'lgan mehmonxonalarda xarajatlarni oshirmagan holda samaradorlikni yaxshilash RevPARni taxminan 8,61 AQSh dollariga oshirishi mumkin, marketing xarajatlarni 10 foizga ko'paytirish esa atigi 1,14 AQSh dollari miqdoridagi o'sish bilan bog'liq.

Keywords:

Kalit so'zlar:

❖ *marketing efficiency, data envelopment analysis, free disposal hull, marketing productivity, RevPAR, hotel industry.*

❖ *marketing samaradorligi, ma'lumotlarni qamrab olish tahlili, erkin tasarruf qilinadigan qobiq, marketing mahsuldorligi, RevPAR, mehmonxona sanoati.*

Introduction.

Uzbekistan's hotel industry has been adding capacity faster than demand: between 2019 and 2025, beds grew by 11.2 per cent per year and guests by 7.5 per cent [12]. In such a market, the return on marketing matters more than the volume of spending, yet discussion of hotel marketing in the country remains descriptive. Reports count the hotels that have a website, a social-media page or a presence on a booking platform. They do not ask whether marketing expenditure generates revenue or how much revenue a hotel forgoes by converting that expenditure less efficiently than its peers.

This article addresses both questions. It first describes the state of marketing in 180 hotels: what they spend, whom they employ, which tools they use, whether they plan and whether they measure performance. It then measures efficiency, defined as the ratio of a hotel's revenue to the maximum revenue achieved by hotels at its level of marketing spending, with spending and revenue expressed relative to hotels of the same class in the same city.

Three constructs organise the analysis. The first is the peer-relative input and output, which place a two-star hotel in Fergana and a five-star hotel in Tashkent on a comparable scale. The second is the marketing-efficiency frontier, estimated without assuming a functional form, in two versions: a convex frontier with variable returns and a free disposal hull that requires no convexity. The third is the efficiency route, defined as the revenue a hotel could gain by converting its existing spending as efficiently as comparable hotels already do; this is set against the

spending route, defined as the revenue it could gain by spending more.

Three expectations were formed in advance. The first was that hotels that spend more on marketing convert that spending more efficiently because scale allows greater use of specialists and systems. The second was that brand-affiliated hotels are substantially more efficient. The third was that the efficiency gap is small because competition limits persistent inefficiency. The first is rejected: efficiency is flat across spending quartiles. The second is only weakly supported: the difference is 0.03 efficiency points and is only marginally significant. The third is rejected: the average hotel falls about one quarter short of what its peers achieve at the same spending level.

Literature Review.

The measurement of productive efficiency without assuming a production function begins with Farrell [1], who defined efficiency as the distance from a unit to a frontier constructed from the best observed practice. Charnes, Cooper and Rhodes [2] turned this into data envelopment analysis under constant returns to scale, and Banker, Charnes and Cooper [3] extended it to variable returns, which is appropriate when units of different size need not be comparable at a fixed ratio of output to input. Deprins, Simar and Tulkens [4] proposed the free disposal hull, which drops the assumption that combinations of observed units are themselves feasible and therefore gives a less demanding benchmark. Because these frontiers are deterministic, all deviation is attributed to inefficiency; stochastic frontier analysis, introduced by Aigner, Lovell and Schmidt [5], separates inefficiency from noise at the cost of assuming a distribution for each.

Efficiency methods have been applied widely in hospitality. Anderson, Fok and Scott [6] examined the efficiency of hotels with linear programming methods, and Assaf and Josiassen [7] reviewed frontier analysis in tourism and hospitality and documented the sensitivity of results to sample composition and to the choice of inputs and outputs. A standing methodological problem is the second stage, in which efficiency scores are regressed on explanatory variables: Simar and Wilson [8] showed that such regressions violate standard inference because the scores are bounded and serially correlated by construction, so that second-stage results are best read as descriptive associations unless a bootstrap procedure is used.

The productivity of marketing has its own literature. Rust, Lemon and Zeithaml [9] argued that marketing expenditures should be judged by their return, while Hanssens and Pauwels [10] reviewed how that return is measured and cautioned against confusing association with effect. In hospitality and tourism, effective marketing management encompasses planning, market targeting, distribution, promotion and performance evaluation, making managerial organisation an important complement to budget size [11].

The gap is that the state of hotel marketing in Uzbekistan has been described but not evaluated, and that no study has measured how efficiently hotels convert marketing spending into revenue or compared the gain available from better conversion with the gain from higher spending.

Research methodology.

1. Sample. The sample covers 180 hotels in Tashkent (48), Samarkand (47), Bukhara (30), Khiva (18) and Fergana (37), observed for 2025. By class, 60 are two-star, 48 three-star, 31 four-star and 41 five-star; 41 are affiliated with a national or international brand. Hotels are anonymised.

2. Measures. Marketing spending is measured as the annual marketing budget per available room, in US dollars. Marketing staff is measured as the number of full-time marketing employees per 100 rooms. The tools variable is the number of eight standard instruments in use: website booking engine, metasearch placement, CRM, e-mail campaigns, paid search, social advertising, review management and revenue management. Planning is recorded at two levels: the presence of a written marketing plan and the presence of a plan with measurable targets. The outcome is RevPAR (revenue per available room), in US dollars.

3. The frontier. Hotels are compared with peers: each hotel's spending and RevPAR are expressed as a percentage of the mean for hotels of the same class in the same city when the corresponding cell contains at least four hotels, and relative to hotels of the same class otherwise. Of the twenty class-by-city cells, seventeen meet the threshold. This normalisation matters: without it, the frontier is dominated by five-star hotels in the capital, and the resulting scores reflect hotel class rather than marketing efficiency.

Efficiency is output-oriented: a hotel's score is its peer-relative RevPAR divided by the highest peer-relative RevPAR attainable at its level of peer-relative spending. Two frontiers are used. The variable-returns frontier is the upper concave hull of the observed points [3]. The free disposal hull is the step function given by the best observed output among hotels spending no more [4]. Constant-returns scores are not reported, because with peer-normalised variables a ray through the origin has no economic interpretation.

4. Second stage and elasticity. Efficiency scores are regressed on the number of tools, planning, brand affiliation, class, the logarithm of spending and a capital-city dummy in three nested specifications. Following Simar and Wilson [8], these results are reported as descriptive associations rather than estimated causal effects. Separately, the elasticity of

RevPAR with respect to marketing spending is estimated in logarithms with controls, providing the spending route against which the efficiency route is compared.

5. Limitations. Four limitations bear on the results. The frontier is deterministic, so measurement error and random shocks are counted as inefficiency, and the level of the scores should be interpreted as a lower bound on efficiency [5]. The analysis uses one input and one output, which keeps the frontier

interpretable but omits other outcomes that marketing may generate, such as direct-booking share and guest loyalty. The data are cross-sectional, so the analysis does not identify causal effects of planning or affiliation. Frontier scores are also sensitive to sample composition [7]: with 180 hotels and five frontier units, the addition of one outstanding hotel could lower the scores of other hotels.

Analysis and Discussion of Results.

Table 1

Marketing inputs and outcomes, 2025

<i>Measure</i>	<i>All hotels</i>	<i>Affiliated (41)</i>	<i>Independent (139)</i>
<i>Marketing spend per available room, USD per year</i>	261	395	221
<i>Marketing staff per 100 rooms</i>	0.60	1.05	0.46
<i>Marketing tools in use, of eight</i>	2.5	3.5	2.2
<i>Written marketing plan</i>	43%	49%	41%
<i>Plan with measured targets</i>	28%	32%	27%
<i>RevPAR, USD</i>	52.9	75.5	46.2
<i>Direct booking share</i>	32.6%	43.4%	29.4%

Source: author's calculations.

The marketing function remains underdeveloped. The median hotel uses two of the eight tools, and 22 hotels use none. Fewer than half have a written plan, and only 28 per cent assess performance against targets, meaning that most hotels in the sample cannot systematically evaluate whether their marketing is effective. Marketing staffing is minimal: 0.6 full-time employees per 100 rooms, equivalent to 0.3 of a full-time position in a 50-room hotel.

Marketing spending is unevenly distributed. The 90th percentile spends seven times as much as the 10th percentile, and the Gini coefficient of spending per available room is 0.314. Affiliated hotels spend 79 per cent more per room, employ more than twice as many marketing staff and use 1.3 more tools than independent hotels.

Spending and performance move together, but this relationship should be interpreted with caution. The correlation

between marketing spending per available room and RevPAR is relatively strong at 0.716, indicating that hotels with higher marketing expenditure generally report higher room revenue. A similarly positive relationship is observed between the number of marketing tools used and the direct-booking share, with a correlation coefficient of 0.653. These results suggest that greater marketing activity is associated with stronger commercial performance and a larger share of bookings generated through direct channels. However, correlation alone does not demonstrate that higher marketing spending causes better performance or greater efficiency. Hotels differ substantially in class, location, scale, brand affiliation, market positioning and other operational characteristics, all of which may influence both marketing expenditure and revenue. Consequently, raw correlations may overstate the independent contribution of marketing budgets. For this reason, higher

spending should not automatically be interpreted as evidence of more efficient marketing; efficiency must instead be assessed

relative to comparable hotels and after accounting for relevant hotel-specific characteristics.

MOST HOTELS MARKET WITHOUT A PLAN AND WITHOUT MEASUREMENT



Figure 1. The state of marketing in affiliated and independent hotels

Table 2

Efficiency scores

Measure	Value
Mean efficiency, variable-returns frontier	0.736
Mean efficiency, free disposal hull	0.769
10th percentile, variable returns	0.585
Median	0.744
90th percentile	0.867
Hotels on the variable-returns frontier	5
Hotels efficient under free disposal	8

Source: author's calculations. $n = 180$.

The third expectation is rejected, indicating that the efficiency gap among hotels is considerably larger than initially anticipated. The average hotel achieves only 0.736 of the peer-adjusted revenue attained by comparable hotels operating at the same level of marketing spending, while the corresponding score under the less restrictive free disposal benchmark is 0.769. In practical terms, this means that the typical hotel is generating roughly three quarters of the revenue observed among its best-performing peers with similar marketing expenditure, leaving an average efficiency shortfall of approximately one quarter. Importantly, this gap reflects differences in

how effectively existing marketing resources are converted into revenue rather than differences in the absolute level of spending itself. The distribution of efficiency scores also reveals substantial heterogeneity across the sample. Hotels at the 10th percentile achieve an efficiency score of only 0.585, whereas those at the 90th percentile reach 0.867, implying a sizeable performance gap between relatively inefficient and highly efficient establishments. This dispersion suggests that there is meaningful scope for many hotels to improve revenue outcomes by adopting the practices of better-performing peers without necessarily increasing their marketing budgets. At the

same time, because the frontier is deterministic, these estimates should be interpreted as comparative efficiency

benchmarks rather than direct causal measures of managerial performance.

THE AVERAGE HOTEL REACHES THREE QUARTERS OF WHAT ITS SPENDING ALLOWS

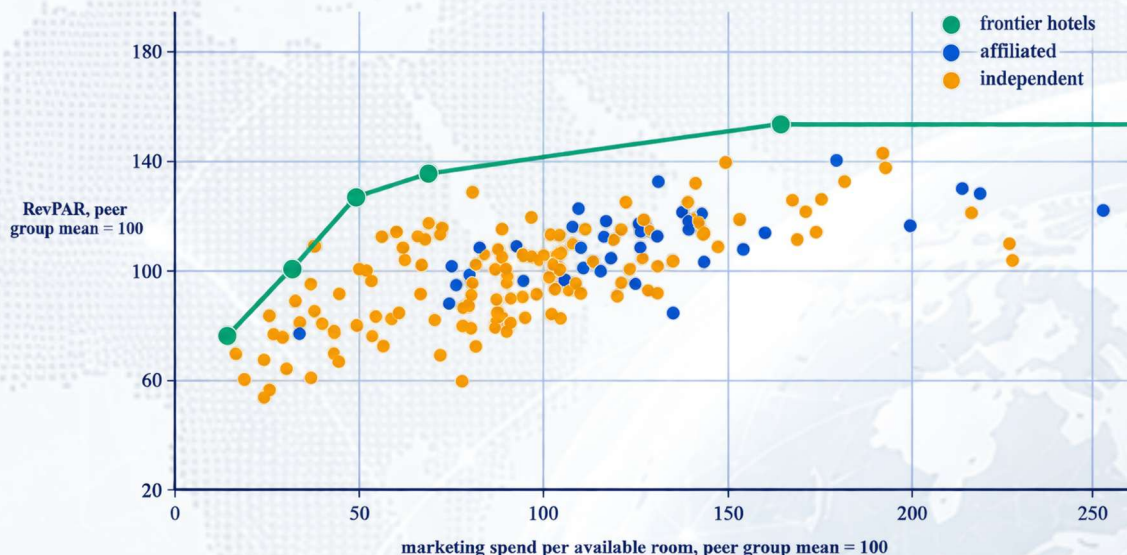


Figure 2. The marketing efficiency frontier in peer-relative terms

Table 3

Efficiency by quartile of marketing spending

Quartile	Hotels	Mean spend, USD	Mean RevPAR, USD	Mean efficiency
1, lowest	45	82	22.2	0.757
2	45	202	41.0	0.723
3	45	306	55.4	0.715
4, highest	45	454	92.9	0.749

Source: author's calculations.

The first expectation is rejected, as higher marketing expenditure is associated with substantially greater revenue but not with greater marketing efficiency. RevPAR increases sharply across spending quartiles, from approximately USD 22 in the lowest quartile to USD 93 in the highest, confirming that hotels with larger marketing budgets tend to generate higher room revenue. However, the corresponding efficiency scores show no systematic upward pattern: mean efficiency across the four quartiles ranges only from 0.715 to 0.757. The same conclusion emerges from the median split, where hotels spending below

the median record an average efficiency score of 0.740, compared with 0.732 among hotels spending above the median (Welch $t = -0.48$). Thus, a larger marketing budget appears to expand revenue without improving the rate at which marketing resources are converted into revenue. The highest-spending hotels earn more partly because they operate with larger budgets and may differ in scale, class, market positioning and location, rather than because each additional dollar of marketing expenditure is used more productively. This distinction is important from a managerial perspective: increasing expenditure may raise revenue in

absolute terms, but it does not necessarily address underlying inefficiencies in planning, targeting or resource allocation. The results therefore suggest that hotels should distinguish

between spending growth and efficiency improvement, as the latter depends more on how marketing resources are managed than on the size of the budget itself.

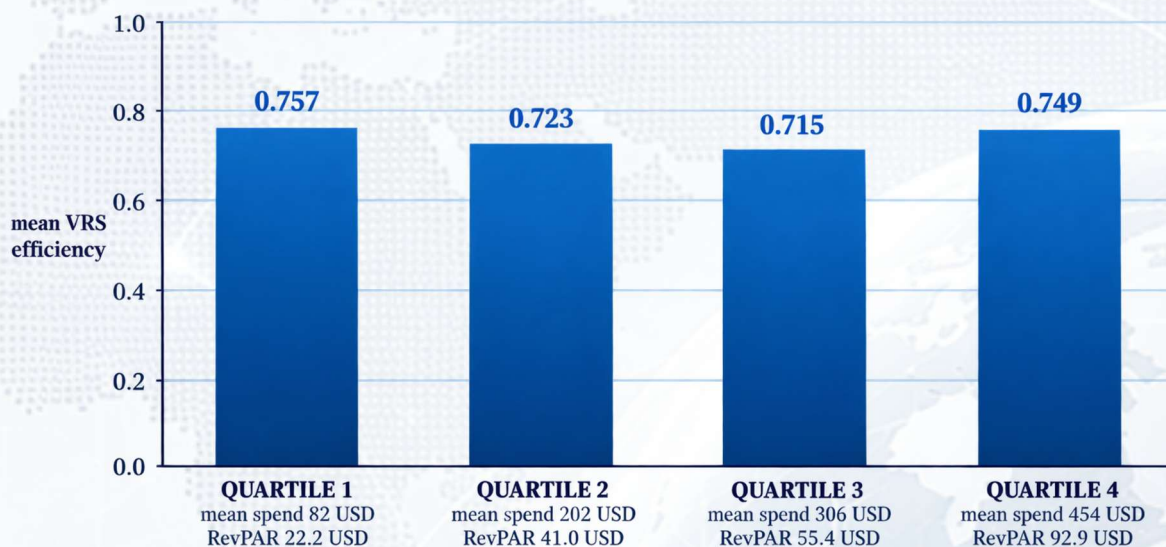


Figure 3. Revenue and efficiency by quartile of marketing spending

Table 4

Associations with efficiency (second stage)

Variable	E1	E2	E3
Tools in use	0.0067 (1.38)	0.0013 (0.27)	0.0106 (1.93)
Written plan		0.0831 (3.64)	0.0754 (3.43)
Measured targets		-0.0109 (-0.43)	0.0065 (0.26)
Brand affiliation			0.0440 (2.25)
Class, stars			-0.0233 (-2.76)
Log marketing spend			-0.0261 (-1.75)
Tashkent			0.0137 (0.80)
Adjusted R ²	0.005	0.106	0.191

Source: author's calculations. *t*-statistics are shown in parentheses; the critical value is 1.973. Following Simar and Wilson [8], the estimates are interpreted as descriptive associations.

Planning is the clearest characteristic distinguishing more efficient hotels from less efficient ones. A written marketing plan is associated with a 0.075-point higher efficiency score when hotel characteristics are held fixed, equivalent to about one quarter of the gap between the 10th and 90th percentiles. Measured targets are not independently associated with efficiency once the existence of a plan is controlled for, although hotels with measured targets have higher efficiency in the raw comparison, 0.776 versus 0.720 (Welch *t* = 3.47). The two variables overlap because

measured targets are concentrated among hotels with written plans.

The second expectation is only weakly supported. Affiliated hotels have a 0.044-point higher efficiency score in the regression (*t* = 2.25) and a 0.030-point higher score in the raw comparison, 0.759 versus 0.729. The latter difference is not statistically significant at the stated critical value (Welch *t* = 1.80). Any efficiency advantage associated with brand affiliation is therefore modest relative to the dispersion within each group.

Two further associations are worth noting. Higher-class hotels are associated with slightly lower efficiency (-0.023 per star), while the coefficient on the number of tools is only

marginally significant (0.011, $t = 1.93$). This distinction suggests that acquiring tools alone is less important than how they are managed.

Table 5

The efficiency route and the spending route

Route	Assumption	Gain in RevPAR, USD
Reach the 75th percentile of efficiency	no extra spending; 134 hotels below it	8.61
Reach the frontier	every hotel matches best practice at its spending	20.30
Spend ten per cent more	efficiency unchanged, elasticity 0.215	1.14

Source: author's calculations. The mean RevPAR of the sample is 52.9 USD.

The elasticity of RevPAR with respect to marketing spending is 0.725 without controls and 0.215 when class, city, affiliation, tools and planning are held fixed ($t = 8.73$). Higher spending is associated with higher revenue: a ten per cent increase in spending is associated with a 2.15 per cent increase in RevPAR, equivalent to USD 1.14 at the sample mean, compared with roughly USD 0.07 of additional daily marketing spending per available room. The association is positive but modest in absolute terms because the marketing budget itself is relatively small.

The efficiency route is larger. For the 134 hotels below the 75th percentile of efficiency,

reaching that percentile without increasing spending corresponds to an average RevPAR gain of USD 8.61, or 16.3 per cent of the sample mean and 7.6 times the gain associated with spending ten per cent more. Reaching the frontier itself would correspond to USD 20.30 of additional RevPAR per hotel, but this assumes that every hotel can match the best observed practice at its spending level, which a deterministic frontier cannot guarantee. The 75th-percentile target is more conservative because it is already achieved by one quarter of the sample.

THE CHEAPER ROUTE IS THE ONE NOBODY BUDGETS FOR

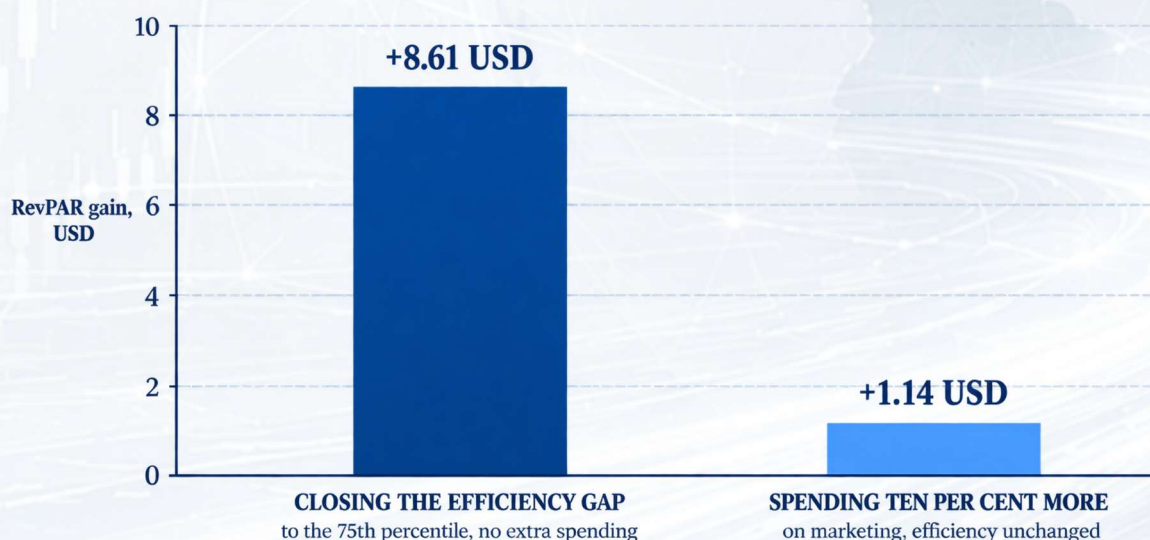


Figure 4. The gain from better conversion against the gain from higher spending

First, hotel marketing in Uzbekistan is characterised less by low budgets than by limited formal management practices. Most hotels have no written marketing plan and do not systematically measure results, while the marketing function often represents only a fraction of one full-time position. In this setting, planning emerges as the strongest observed correlate of efficiency.

Second, a common prescription - increasing marketing spending - addresses the smaller of the two estimated gains. Spending is associated with revenue but not with efficiency, and existing marketing expenditure is converted into revenue at about three quarters of the level achieved by the best comparable peers.

Third, the efficiency gap is not primarily explained by brand affiliation. Affiliated hotels spend more, employ more marketing staff and use more tools, but they are only modestly more efficient. This suggests that much of the efficiency gap may be associated with local management practices rather than access to a brand's systems, and therefore may also be addressable by independent hotels.

Conclusions and Recommendations.

This article described the state of marketing in 180 hotels in Uzbekistan and measured how efficiently they convert marketing spending into revenue.

Forty-three per cent of hotels have a written marketing plan and 28 per cent assess performance against targets; the median hotel uses two of eight tools and employs 0.6 marketing staff per 100 rooms, while spending varies sevenfold across the distribution. Mean efficiency relative to the peer-group frontier is 0.736 and 0.769 under free disposal. Efficiency does not increase with spending: it averages 0.740 below the median spending level and 0.732 above it. Planning is associated with a 0.075-point higher efficiency score and affiliation with a 0.044-point higher score. The

elasticity of RevPAR with respect to spending is 0.215, so the estimated gain from closing the efficiency gap to the 75th percentile is 7.6 times larger than the gain associated with a ten per cent budget increase.

Four recommendations follow, each limited to what the evidence supports.

First, hotels should write a marketing plan with measured targets before increasing the budget. Planning is the practice most strongly associated with efficiency, and it costs little.

Second, hotels should benchmark themselves against peers of the same class in the same city rather than against the industry. The frontier that matters to a three-star hotel in Fergana is defined by other three-star hotels in Fergana, and comparisons with the capital's five-star hotels are not informative about its own marketing.

Third, public and industry-association programmes should prioritise planning and performance measurement rather than subsidising marketing spending or tools. In these data, the coefficient on tool use is only marginally significant, whereas the association with having a written marketing plan is stronger.

Fourth, expectations about higher marketing budgets should be based on the adjusted elasticity estimate of 0.215 rather than the raw correlation of 0.716. The difference between these estimates reflects confounding differences between hotels that spend more on marketing and those that spend less.

A natural extension is to estimate a stochastic frontier using the same data, which would separate inefficiency from noise and provide an alternative efficiency benchmark. A further extension would be a panel that observes hotels before and after the introduction of marketing plans, allowing the association between planning and efficiency to be assessed more credibly as a potential causal effect.

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