



A Diagnostic Analytics-Based Assessment of Sponsorship Challenges at the 2013 Formula 1 Indian Grand Prix in Greater Noida, India

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ABSTRACT :

The Formula 1 Indian Grand Prix took place at the Buddh International Circuit in Greater Noida from 2011 to 2013 before being discontinued. This study applies a diagnostic analytics method to examine, which sponsorship, financial, and regulatory challenges respondents associate with the 2013 event, their views on why it ended, and the significance of Formula 1 being classified as entertainment rather than a sport. A quantitative, descriptive, and diagnostic survey was conducted with 95 respondents (convenience sample) and analysed using percentages, Wilson confidence intervals, chi-square, and Fisher tests, an exact binomial test, and Spearman correlation, with Holm adjustment. Taxation and regulatory issues were most often cited as the main sponsorship challenge (58.9%; = 90.42, $p < 0.001$) and as the leading reason for discontinuation (64.5%; = 44.32, $p < 0.001$); together with hosting costs, these factors account for 90.3% of responses for the race's discontinuation. A further 83.2% believed that the entertainment classification raised the organisers' financial burden, far more than endorsed any market explanation (13.8% vs 21.3%). Respondents who blamed taxation were over five times as likely to believe the race could have been sustained (OR = 5.2, $p = 0.002$). Men were more likely than women to name taxation first (74.6% vs 33.3%), greater media literacy was positively related to interest in a return ($r = 0.36$, $p < 0.001$), and those familiar with diagnostic analytics were more likely to endorse its value (95.8% vs 58.3%). The race was That means undone, in respondents' view, less by weak marketing than by an unstable fiscal and regulatory environment.

Keywords: Formula 1; Indian Grand Prix; sponsorship challenges; entertainment tax; sport classification; discontinuation; diagnostic analytics; Buddh International Circuit.

1. Introduction

Sports sponsorship connects brands with audiences through association with sporting events, teams and athletes, and sporting properties rely heavily on sponsorship revenue to fund operations, infrastructure and long-term growth. Formula 1 is particularly suitable for sponsorship because it combines global media exposure, technology, entertainment, premium branding and international fan communities. However, sponsorship value depends not only on visibility but also on the financial sustainability, market environment, regulatory conditions and strategic fit of the event.

The Formula 1 Indian Grand Prix was held at the Buddh International Circuit in Greater Noida from 2011 to 2013 and was promoted by Jaypee Sports International; contemporary reporting identified Bharti Airtel as title sponsor. The promoter faced substantial hosting and licensing costs and regulatory and tax issues, including disputes over how the event should be classified for taxation, and the race was discontinued after three editions. This raises the question of whether the commercial and sponsorship model was ever fully sustainable.

Rather than asking only whether sponsorship succeeded, diagnostic analytics asks which factors contributed to the observed difficulty and how they are related. This study applies that approach to the 2013 edition, examining financial, regulatory, marketing, sponsorship, audience and event-performance factors together.

1.1 Background

The Indian GP was held at the Buddh International Circuit in Greater Noida between 2011 and 2013 and was promoted by Jaypee Sports International. Bharti Airtel was identified as its title sponsor by contemporary media. The press covering the race was critical at the time, claiming the race was plagued by issues like tax disputes; claiming Formula 1 had been viewed by the Indian government as an entertainment event rather than sport, which prevented the event from receiving sports exemptions and meant promoters, other industry bodies and ticket purchasers paid entertainment tax, and claiming that motorsport was still not widely accepted as a sport in India. The race has not been on the calendar since 2013, so the Indian GP has taken place for three seasons.

So the 'sport or entertainment' distinction is not a trivial detail: it determines the tax scheme, the magnitude of the promoters' fixed costs, the net profits left available to fund marketing and ticket prices and to secure benefits for sponsors. This article on the 2013 edition offers a perfect laboratory for diagnostic analytics, which considers not only whether the sponsorship worked, but what caused the difficulty and how.

1.2 Problem statement

Previous research has looked at the tax and sustainability of the Indian Grand Prix, sports marketing, city integration, sponsorship performance, and resource allocation and the financial worth of formula 1 sponsorship but usually separately. No integrated analysis of the financial, regulatory, marketing, audience, and media aspects of the 2013 race's sponsorship crisis exists.

1.3 Objectives of the Study

- O1 Ascertaining the key sponsorship issues raised at the 2013 Indian GP.
- O2 Ascertainment of the biggest reason for the discontinuance in the respondents' opinion.
- O3 Testing that the presumed effect of classifying Formula 1 as entertainment increases financial burden, based on market theories (hypothesis O3).
- O4 Exploring whether respondents who cited taxation and regulation as the underlying cause for discontinuation and those who believed the race could have been sustained are consistent in their perceptions, with no gender differences (hypothesis O4).
- O5 survey between the media literacy and diagnostic analytics knowledge and the degree of fandom and perception of the sponsorship issues (hypothesis O5).
- O6 on recommendations to revive sponsorship at future Indian GP and other national motor sport events.

1.4 Hypotheses of the Study

All 8 null hypotheses (H) are tested at the 5% level of significance; against each of these is an alternative hypothesis claiming that H is not true.

- H1 The five categories of challenges are equally likely to be ranked as the biggest sponsorship problem (O1).
- H2 The three factors are just as likely to be selected as the most influential reasoning for discontinuation (O2).
- H3 Respondents are equally likely to disagree or agree that Formula 1's classification increased the financial burden on the organisers (O3).
- H4 Most of the respondents who said the underlying cause of discontinuation was taxation and regulation do not believe addressing the issue would have resulted in a sustainable race (O4).
- H5 There is no correlation between feeling like the class placed extra pressure on the race and feeling like we could have pressed on successfully with the race (O3, O4).
- H6 it is unrelated to gender to choose taxation/regulation as the trigger of discontinuation (O4).
- H7 media-related familiarity is unrelated to the degree of interest to watch the race (O5).
- H8. Knowledge of diagnostic analytics is not dependent on acceptance that analytics can improve decisions in an organisation (O5).

2. Review of Literature

Maddox (2023) investigated the decline of the Indian Grand Prix and noted that high taxation and the financial burden of hosting pressured the promoter, highlighting the importance of government support, private investment, and a sustainable motorsport market; it offers no diagnostic assessment of sponsorship. Singh (2013) analysed the growth of sports marketing in India and argued that sponsorship is effective when an event attracts an appropriate audience and creates meaningful brand associations. Khan (2026) researched the urban integration of the Buddh International Circuit and identified taxation, government support connectivity community engagement, and long-term planning as determinants of a circuit's sustainability, factors that matter to sponsors through accessibility and a stable business environment. Hämäläinen (2025) found that the stock-market effects of Formula 1 team sponsorship are not consistent across firms, suggesting that sponsors need measurable returns rather than visibility alone.

Jensen and Chan (2017) found that the distribution of sponsorship resources in formula 1 is non-uniform and affected by both team performance and the nature of the sponsor. Cobbs (2022) outlined a cycle of sponsor resource flow where sponsorship resources help team success and greater success increases exposure and sponsor value. Jensen (2024) found that brand equity, sponsor team fit, clutter, and performance are driving sponsorship continuity and Albano and Tyler (2021) observed that sponsor price premiums are driven by brand equity and by nationality commonality, indicating sponsorships also have an economic aspect.

Research gap

As a collective, these studies demonstrate that sponsorship issues are multi-causal; though, they analyse taxation, urban sustainability, resource allocation, persistence/financial worth independently, and not in combination. None have explored a confluence of these, and diagnose the 2013 Indian Grand Prix sponsorship issues in Greater Noida using primary data. This research project endeavours to fill that space.

3. Research methodology

Research design

The study used a quantitative, descriptive, and diagnostic, cross-sectional survey design. The descriptive explains respondents' views about the predominant sponsorship factors; the diagnostic explores their variations across respondent groupings, and how they associate with perceived sponsorship sustainability. It draws out the association of these variables, at one point in time, not causality.

Sample and Instrument

The target population was people with reasonable awareness of Formula 1, the Indian Grand Prix or sports sponsorship. Because no sampling frame exists, non-probability convenience sampling was used, resulting in 95 valid responses to an anonymous, voluntary online questionnaire with 23 closed-ended questions administered in 2026. Some respondents skipped individual questions, so each result is based on the valid answers to that question, and the number of valid answers (n) is reported. Perception items use verbal ordinal scales coded 1 (lowest) to 5, or 14 for four-point scales, with "Not sure" coded 3. The analysed items concern the biggest sponsorship challenge (Q14), the cause of discontinuation (Q15), the area needing most attention (Q19), the effect of the entertainment classification on the organisers' burden (Q23), belief that addressing the challenges could have sustained the race (Q20), commercial returns, competition, and sponsor audience alignment (Q17 Q18 Q21), public interest and interest in a return (Q9, Q10), familiarity with media issues, and awareness of diagnostic analytics and its value (Q4, Q11).

Tools of analysis:

Shares are reported with 95% Wilson confidence intervals (Wilson, 1927). To compare unequal categories on one scale, a Challenge Priority Index is computed for each question:

$$PI_j = (n_j / N) \times k \times 100(1)$$

where $n(j)$ is the number choosing category j , N the valid answers and k the number of categories; 100 means a category is chosen as often as expected under equal shares and 200 twice as often. H1 and H2 use the chi-square goodness-of-fit test with $E = N/k$, H3 an exact binomial test against an even split, H4, H6 and H8 the chi-square test of independence (Fisher's exact test where an expected count is below 5) (Pearson, 1900; Fisher, 1922), and H5 and H7 Spearman rank correlation (Spearman, 1904). Effect sizes are Cohen's w (1988) and Cramér's V (1946), group differences are also expressed as odds ratios, and Holm's (1979) procedure adjusts the eight p -values. Expected counts exceed 5 in the goodness-of-fit tests and in H4 and H6 (smallest 6.4), and a five-category goodness-of-fit test with this sample has about 64% power to detect a medium departure from equal shares ($w = 0.30$), so a non-significant result means "no clear evidence", not "no difference".

4. Result and analysis

4.1 Major sponsorship challenges (H1)

Respondents identified the main challenge to Formula 1 sponsorship in India (Q14, $n = 95$). Taxation and regulatory issues were selected by 56 respondents (58.9%; 95% CI 48.968.3), compared to 12 (12.6%) for limited audience and 9 (9.5%) each for limited media coverage, high sponsorship costs, and competition from other sports (Figure 1). The priority index for taxation and regulation stands at 295, nearly three times the equal-share benchmark, while no other challenge surpasses 63. H1 is rejected: $\chi^2 = 90.42$, $df = 4$, $p < 0.001$, Cohen's $w = 0.98$, indicating a very large effect. The lower confidence limit (48.9%) remains well above the 20% expected if all five challenges were equally probable.

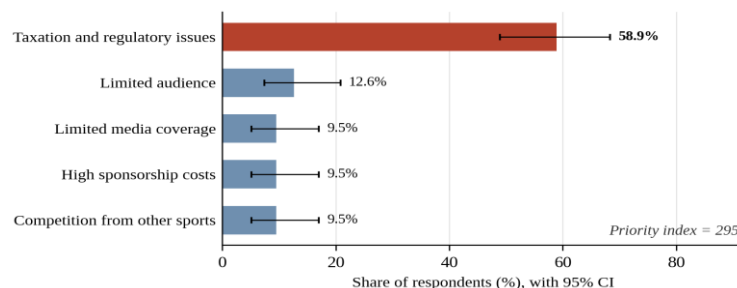


Figure 1. Biggest sponsorship challenge (Q14, $n = 95$). Bars show the share of respondents; whiskers are 95% Wilson intervals.

4.2 Why the race was discontinued (H2)

When asked what most influenced the discontinuation after 2013 (Q15, $n = 93$), 60 respondents (64.5%; 54.473.5) identified taxation and regulation, 24 (25.8%; 18.035.5) cited high hosting and operating costs, and 9 (9.7%) mentioned sponsorship challenges (Figure 2). H2 is rejected: $\chi^2 = 44.32$, $df = 2$, $p < 0.001$, $w = 0.69$. Financial and regulatory reasons were named by 84 of 93 respondents (90.3%; 82.694.8), indicating that sponsorship-specific issues accounted for fewer than one in ten responses. These results are consistent with Q14: the intervals for taxation as the biggest challenge (58.9%) and as the cause of discontinuation (64.5%) overlap, suggesting respondents view this issue as both the main sponsorship challenge and why the race ended.

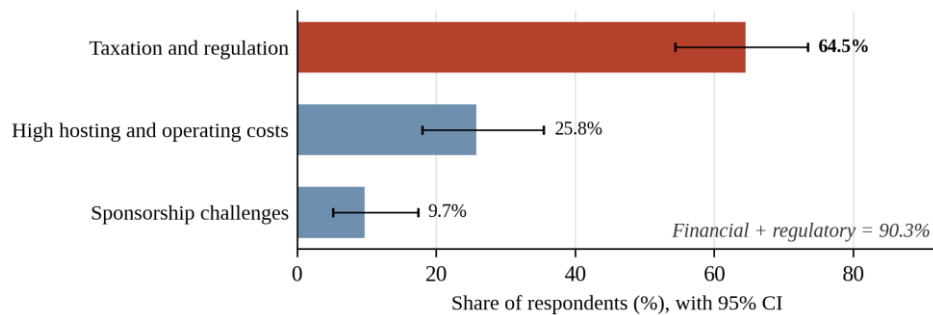


Figure 2. Factor that most influenced the discontinuation after 2013 (Q15, $n = 93$), with 95% Wilson intervals.

4.3 Entertainment rather than sport (H3)

The clearest result concerns the classification of Formula 1 as an entertainment event rather than a sport. Of 95 respondents, 79 (83.2%; 74.4–89.4) said that the classification probably or definitely increased the organisers' financial burden, including 56 (58.9%) who answered "definitely" (Figure 3, upper bar). Only 13 (13.7%) disagreed and 3 were unsure. The mean score is 4.24 ($SD = 1.16$, median = 5), the highest of any perception item, and an exact binomial test against an even split rejects H3 ($p < 0.001$).

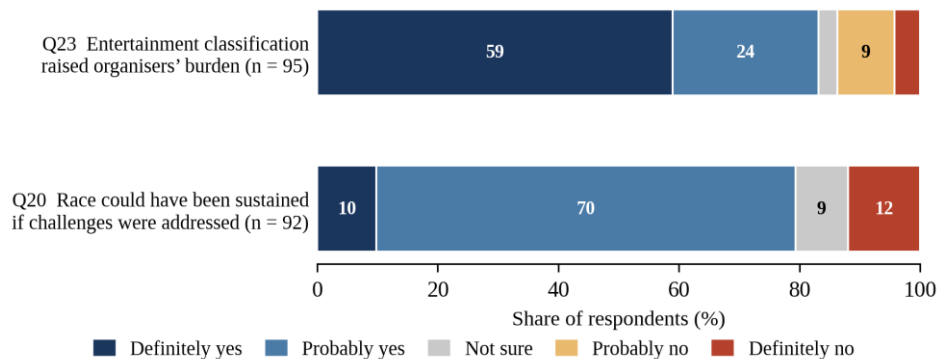


Figure 3. Perceived effect of the entertainment classification on the organisers' burden (Q23) and belief that the race could have been sustained if the challenges were addressed (Q20). Values are percentages of valid answers; segments below 7% are unlabelled.

Figure 4 places this result beside the market explanations, which draw far weaker support. Only 21.3% rate sponsor–audience alignment as very important (Q21), 21.1% rate competition from cricket and other sports as a significant factor (Q18) and 13.8% say limited commercial returns discouraged sponsors to a large extent (Q17). Their intervals (14.2–30.6, 14.1–30.3 and 8.3–22.2) lie far below that of the classification item (74.4–89.4). Lack of interest does not explain the outcome either: 67.4% rated public interest in Formula 1 in India as high and 81.1% would watch a return race (Q9, Q10).

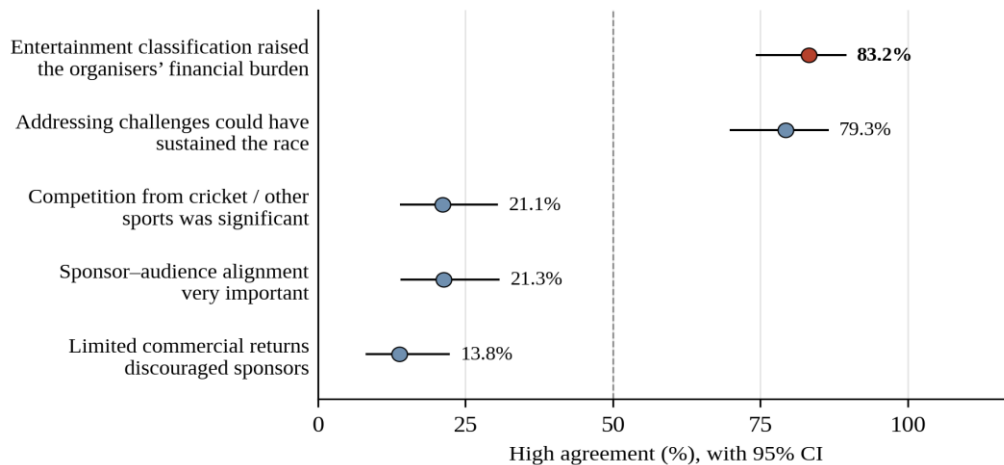


Figure 4. Agreement with competing explanations of the race's difficulties. Points show the share giving the highest two categories (highest only for Q21); whiskers are 95% Wilson intervals; the dashed line marks 50%.

4. 4 Perceived causes and belief in sustainability (H4, H5)

Belief that the race could have been sustained is common: 73 out of 92 respondents (79. 3%; 70. 086. 4) answered "probably" or "definitely yes" to Q20, while 11 (12. 0%) answered "definitely no" (Figure 3, lower bar). This belief is more prevalent among those who attribute the outcome to taxation and regulation (Figure 5): 52 of 58 (89. 7%; 79. 295. 2), compared to 20 of 32 (62. 5%; 45. 377. 1) among those citing other causes. H4 is rejected: $\chi^2 = 9.50$, $df = 1$, $p = 0.002$, Cramr's $V = 0.32$; Fisher's exact $p = 0.005$. The odds are 5.2 times higher (95% CI 1.715. 7), with a difference of 27.2 percentage points (8.645. 7). Regulation is that means viewed as a problem that can be addressed, rather than as an insurmountable barrier.

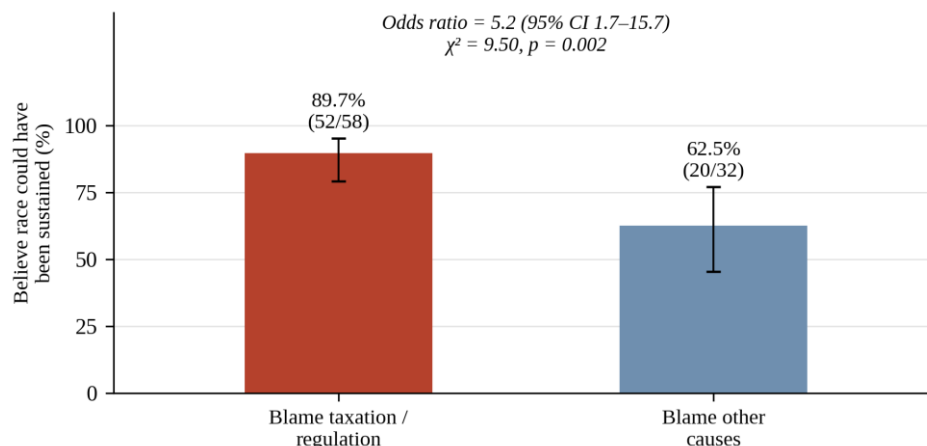


Figure 5. Belief that the race could have been sustained, by the cause respondents blame for discontinuation (Q15 $\times$ Q20, $n = 90$).

The main correlation involved in H5, the weak positive correlation between belief that the classification was a burden and belief in sustainability (Q23 Q20, Spearman = 0.22, 95% CI 0.01-0.41, $p = 0.035$, $n = 92$) leads to the rejection of H5 at the 5% level. This effect is also easily lost to the point of insignificance if those answering "not sure" are discarded the correlation coefficient drops to = 0.17 ($p = 0.131$) so should be taken as merely indicative.

4. 5 Differences by gender (H6)

Views on the biggest challenge vary by gender (Figure 6a): 44 of 59 men (74. 6%; 62. 283. 9) and 12 of 36 women (33. 3%; 20. 249. 7) identify taxation and regulation as the primary issue. H6 is rejected: $\chi^2 = 15.72$, $df = 1$, $p < 0.001$, $p = 0.41$, odds ratio 5.9. This result should be interpreted cautiously, as the difference is less pronounced among respondents aged 18 or older (65 of 95; = 3.97, $p = 0.046$; Fisher $p = 0.065$). But, the main finding for the entire sample remains: taxation and regulation are most frequently cited (63.1% for the biggest challenge and 61.9% for discontinuation in that subsample).

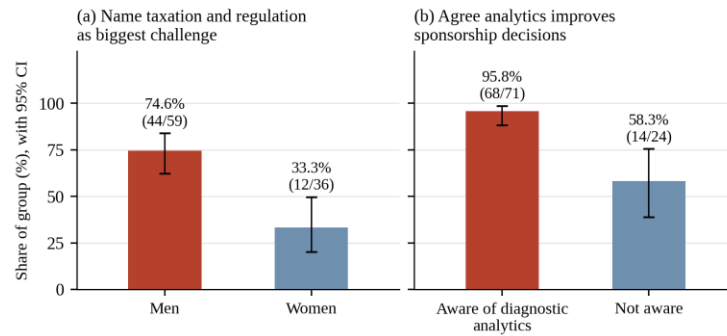


Figure 6. Group differences: (a) naming taxation and regulation as the biggest challenge, by gender (H6); (b) agreeing that analytics improves sponsorship decisions, by awareness of diagnostic analytics (H8). Whiskers represent 95% Wilson intervals.

4. 6 Media familiarity and interest in a return (H7)

Familiarity with media and broadcasting issues in Formula 1 is positively connected to interest in watching the race again (Figure 7). Among those who are very familiar, 58% are very interested, while 42% of those not familiar are very uninterested. The mean interest score (on a 15 scale) increases from 2.83 to 4.37 as familiarity rises. H7 is rejected: Spearman = 0.36, $p < 0.001$, and this relationship is also observed among respondents aged 18 or older ($r = 0.34$, $p = 0.005$). Low audience reach was the factor most commonly chosen for initial analysis (Q13: 34 of 94, 36.2%), followed by low fan engagement (21.3%) and low media exposure (17.0%). Media coverage was identified as the area needing the most attention in 2013 (Q19: 43.6%; 34.053.7; = 42.49, $df = 4$, $p < 0.001$, $w = 0.67$) (Figure 8). Increased promotion by sponsors was the most preferred method to build awareness (Q16: 50.5%).

Engagement therefore seems to be built through media access more than through general awareness of the sport.

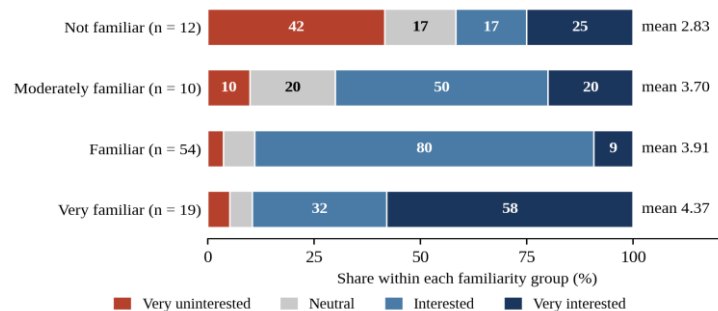


Figure 7. Interest in watching the race again by familiarity with media issues (n = 95). Values are percentages within each group; unlabelled segments are below 9%.

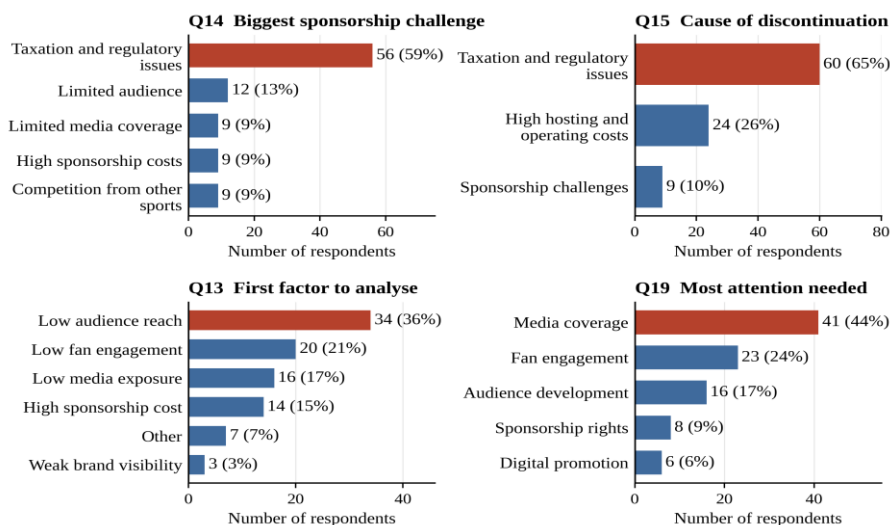


Figure 8. Summary of four diagnostic questions: biggest sponsorship challenge (Q14), cause of discontinuation after 2013 (Q15), first factor to analyse (Q13) and area needing most attention in 2013 (Q19). Bars show counts (percentages of valid answers); the highlighted bar is the most frequent answer.

4.7 Awareness of analytics (H8)

Attitudes toward analytics are generally positive: 86.3% agree that analytics can boost sponsorship decisions (Q11), with no respondents disagreeing. Agreement is particularly higher among the 71 participants familiar with diagnostic analytics (95.8%; 88.398.6) compared to the 24 who were not (58.3%; 38.875.5) (Figure 6b). H8 is rejected: $\chi^2 = 21.29$, $df = 1$, $V = 0.47$; since one expected count is less than 5, Fisher's exact test is applied ($p < 0.001$; odds ratio 16.2). Awareness and attitude are This way strongly associated, though the direction of this relationship cannot be determined from a single survey.

4.8 Summary of the tests

All eight null hypotheses are rejected at the 5% significance level. After applying the Holm adjustment to the eight tests, H1H3 remain below 0.001, as do H8 (0.0002) and H6 (0.0003). H7 has an adjusted p-value of 0.001, H4 is at 0.004, and H5 at 0.035. The two least robust findings are the classification sustainability correlation (H5) and the gender difference after excluding respondents under 18; both should be validated with a larger sample.

5. Discussion

A layered diagnosis emerges. On the surface, respondents would boost media coverage, audience reach, and sponsor promotion. Beneath this, they attribute discontinuation to taxation, regulation, and hosting costs (90.3%). At the root, they identify the entertainment classification as the factor that intensified these costs (83.2%). Marketing weakness is so the visible symptom, while fiscal and regulatory conditions are the underlying cause. This aligns with Maddox (2023) and Khan (2026), who highlight taxation and government support as central to the race's sustainability.

The importance of classification for sponsors. A tax liability that falls on the promoter is largely a fixed cost: it does not shrink when audiences are small and cannot easily be passed on to sponsors without raising the price of the package. Hämäläinen (2025) suggests that sponsors judge sponsorship by measurable returns, so a promoter burdened by costs outside its control has little room to offer better value, though good its marketing. The low rating of market explanations and the high interest in the sport are consistent with this reading: the race did not lack an audience so much as a cost structure that an audience could carry. The reasoning is interpretive, because the survey measures perceptions, not the size of any tax liability.

Remediable, not terminal. The belief that solutions were within reach to save the race (79.3%), the strongest among tax-then-classifiers (89.7%), suggests to me that the respondents regard the problem as policy dependent so classification and tax treatment are decisions to be made before a hosting agreement is entered into. Both media and analytics results point that same direction: interest seems to be to grow in familiarity with media, and some respondents who are familiar with diagnostic analytics appreciate it most, which justifies the use of analytical tools for cause detection on-site.

6. Findings, Suggestions and Conclusion

Findings

1. It is the highest perceived sponsorship problem (58.9%; priority index 295) and the highest perceived factor leading to discontinuation (64.5%), for a combined 90.3% of discontinuation answers and hosting fees (H1, H2: $p < 0.001$).
2. 83.2% state that there was a larger financial burden on the organisers to provide entertainment or more events by marketing Formula 1 as entertainment rather than sport than any market explanation, roughly four times the agreement (13.8%21.3%) (H3: $p < 0.001$).
3. It is not that people are not interested in the sport 67.4% rank public interest as high and 81.1% would watch a race if it were reopened.
4. Those that blame taxation and regulation are more than five times as likely to agree that the race could have been sustained (89.7% vs 62.5%; odds ratio 5.2; H4: $p = 0.002$). The classification belief is weakly related to this ($p = 0.22$; H5: $p = 0.035$).
5. Taxation is identified much more often by men than by women (74.6% vs 33.3%; H6), but the gender difference is almost neutralised among respondents aged 18 or more.
6. The more familiar with the media issues, the more interested in the return is ($p = 0.36$; H7), with media coverage (43.6%) and sponsor promotion (50.5%) being the more attractive improvements.
7. Those familiar with diagnostic analytics are more likely to believe it has a positive impact on sponsorship decisions (95.8% vs 58.3%; H8); 86.3% overall believe this.

6.2 Suggestions

Policymakers Settle the classification of major international motorsport events before hosting rights are awarded, either by treating them as sporting events or by granting rule-based, time-bound tax relief, and provide single-window clearances and policy continuity across the life of a multi-year contract. Promote. Model tax and duty cases with unfavourable categorisation before tender; ask government and sponsors to share costs; and do not pledge to a "host" fee that is tax contingent.

Sponsors and marketers invest in media partnerships, sponsor activation, social-media campaigns and fan engagement and follow the lead from exposure

through to brand awareness and ROI.

Analytics operations. Run dashboards that aggregate cost, tax exposure, ticket sales reach engagement and sponsor returns to enable the reasons behind poor performance to be identified while an event is live and not after it has ended.

Limitation and scope for further research

A convenience sample of 95 respondents is small young mostly students, so cannot be generalised, and the stated margin of error (roughly 10 percentage points) assumes random sampling. Most respondents in 2013 were children or young people, so could only draw on media reports and their own hindsight. The data are self-report perceptions of single ordinal scale items, comparisons between groups are based on small groups (e.g. $n = 24$ and 32), the analysis indicates association rather than causation, and there are no data on tax, costs, or sponsorship-revenue. Future research could survey sponsors, promoters, and officials directly, explore financial and tax data from the 2011 to 2013 events, apply multi-item scales to a larger and more balanced sample, and compare the Indian race with other emerging-market venues.

Conclusion

This study used a diagnostic analytics approach to examine why the Formula 1 Indian Grand Prix was discontinued. Respondents mainly attribute the event's challenges to issues with taxation, regulation, and hosting costs. Most believe that classifying Formula 1 as entertainment rather than as a sport increased the organisers' burden. Market factors like low returns, competition, and sponsor audience alignment are considered less significant. Interest in the sport remains strong, and most respondents think the race could have continued if these main challenges had been resolved.

Lessons for Indian hosting of future mega sporting events include determine regulatory and tax categorization at the outset; curtail the hosting expenditure, and then, invest in media coverage, sponsor activation and audience engagement. This paper advances a holistic, primary-data based diagnosis to literature that looked at each of these aspects in isolation, but its perception-based evidence must be cross-verified with promoter and tax data.

REFERENCES

- Al Jazeera. (2013, November 12). Indian Formula One: Racing for survival? <https://www.aljazeera.com/amp/features/2013/11/12/indian-formula-one-racing-for-survival>.
- Albano, B. & Tyler, B. D. (2021). Analysing International sponsorship exchange price premiums: What Causes Marketing Costs in Formula 1.
- Cobbs, J. B. (2022). The sponsorship performance cycle: Longitudinal evidence of sponsors' contribution to Formula One team achievement.
- Cohen, J. (1988). Statistical power analysis for the behavioural sciences (2nd edition). Lawrence Erlbaum Associates.
- Cramr, H. (1946). Mathematical methods of statistics. Princeton University Press.
- Fisher, R. A. (1922). On the interpretation of from contingency tables, and the calculation of P. Journal of the Royal Statistical Society, 85(1), 8794.
- Hämäläinen V. (2025). The Cost of F1 sponsoring: does sponsoring an F1 Team Generate Stock Returns?
- Holm, S. (1979). A sequentially rejective method for multiple hypothesis testing is presented. Scandinavian Journal of Statistics, 6(2), 6570.
- Jensen, J. A. (2024). Analysing international brand strategy: The sponsorship performance cycle in Formula One racing.
- Jensen, J. A. & Chan, K. (2017). Prioritizing sponsorship resources in Formula One racing: a longitudinal study.
- Khan, U. S. (2026). Motorsport and the city: a research on urban integration of formula 1 circuits and India Buddh International Circuit.
- Kothari, C. R. (2004). Research way: Methods and techniques (2nd revised edition). New Age International Publishers.
- Maddox, C. B. (2023). Stray dogs and luxury taxes: The fate of the Indian Grand Prix.
- Pearson, K. (1900). On the criterion that a given system of deviations from the probable with a correlated system of variables can reasonably be considered to have resulted from random sampling. Philosophical Magazine, Series 5, 50(302), 157175.
- Singh, N. (2013). Changing the game in sports marketing.
- Spearman, C. (1904). The proof and measurement of association between two things. American Journal of Psychology, 15(1), 72101.
- Wilson, E. B. (1927). Probable inference, the law of succession, and statistical inference. Journal of the American Statistical Association, 22(158), 209212.