

Pay Per Click Advertising Effectiveness: A Systematic Review

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Abstract

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This study presents a systematic literature review on the effectiveness of Pay Per Click (PPC) advertising, focusing on publications from 2015 to 2023. The review synthesizes insights into the heterogeneous outcomes of PPC campaigns across different queries, keywords, and competitive contexts. Findings reveal that keyword specificity and user intent are critical in driving high quality traffic and conversions, while ambiguous keywords often reduce efficiency. Device level behaviors further influence performance, as mobile users display greater sensitivity to ad positions compared to desktop users, requiring differentiated bidding strategies. Measurement and attribution practices, particularly the adoption of multi-touch models, are shown to significantly impact perceptions of PPC effectiveness, though improper use may distort budget allocation. In addition, competitive dynamics such as brand bidding highlight the tension between defending brand equity and maintaining campaign efficiency. Overall, the review underscores the need for advertisers to adopt a holistic and adaptive approach that integrates keyword management, device targeting, attribution accuracy, and competitive strategy in order to maximize long-term returns from PPC investment.

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1. Introduction

Pay per click (PPC) advertising most prominently sponsored search has become a core driver of online customer acquisition, yet evidence on its true effectiveness is nuanced and heterogeneous. Large field experiments show that incremental value varies widely across queries and firms: for some branded and navigational searches, paid clicks primarily crowd out organic traffic, yielding limited incremental conversions (Blake et al., 2015). Beyond incrementality, auction position and page prominence shape outcomes; causal designs indicate that naïve “higher position = much better” assumptions are overstated, with position effects moderated by advertiser size, keyword specificity, and user familiarity (Narayanan & Kalyanam, 2015). Interactions between organic and paid results further complicate performance measurement organic competition can depress ad CTR but improve conversion quality, altering revenue trade-offs (Agarwal et al., 2015). At the market level, theory suggests that query-level targeting reduces search costs but can intensify price competition, while platform pricing may distort welfare (de Cornière, 2016). These dynamics underscore why rigorous causal attribution (e.g., experiments over observational models) is essential for valid PPC ROI estimates (Gordon et al., 2019).

Recent work also highlights competitive frictions within PPC. On brand-name queries, rivals can steal traffic when the focal brand does not defend the top paid slot, though many of these poached clicks exhibit low immediate conversion quality (quick-backs) implying consumer navigation intent and limited welfare gains (Simonov, 2021). Related studies of competitive poaching document that ad copy strategy and category context condition when such tactics pay off, reinforcing the

importance of creative relevance and targeting in PPC effectiveness (Bhattacharya et al., 2022). Taken together, the literature from 2015–2023 motivates a systematic review that synthesizes PPC incrementality, position and prominence effects, organic paid interactions, and competitive brand search, organized around robust causal identification and practical implications for budget allocation and brand defence.

2. Literature Review

Research on Pay-Per-Click (PPC) advertising effectiveness between 2015 and 2023 shows that outcomes vary widely across queries, brands, and users. Structural analyses of consumer demand demonstrate that the incremental value of paid search is strongly shaped by query type and the presence of competitors, especially in branded searches (Jeziorski & Segal, 2015). Later studies confirmed that competition in brand keyword auctions can lead to crowd out, emphasizing the defensive nature of brand bidding (Simonov et al., 2018).

The role of position and prominence has also received attention. Findings reveal that advertiser prominence, such as brand reputation, interacts with positional prominence to influence click-through rates (Jeziorski & Moorthy, 2018). Device level research further indicates that mobile and tablet users concentrate more on top-position ads compared to desktop users, suggesting the importance of tailoring bidding strategies by device type (Lu & Du, 2020).

Keyword characteristics provide another perspective on PPC performance. Ambiguous keywords reduce traffic quality and lower conversion rates, highlighting the need for careful portfolio management based on intent and clarity (Gong, Li, &

Venkatesh, 2017). Beyond keyword strategy, cross-channel interactions matter as well. Studies show that display advertising can complement paid search by increasing conversion probability, though it also raises search costs and requires budget reallocation (Kireyev et al., 2016).

Attribution and measurement remain critical challenges. Multi-touch attribution models that map the customer journey offer richer insights than last-click models, but their misuse can distort budget allocation (Anderl et al., 2016). Theoretical work further highlights that attribution influences bidding incentives, reinforcing the need for experimental evidence when assessing PPC return on investment (Berman, 2018).

Finally, more recent research explores operational improvements in PPC management. Multi-keyword optimization frameworks that consider demand interdependencies and budget constraints provide a more holistic understanding of campaign effectiveness (Jang et al., 2022). Collectively, these studies suggest that PPC effectiveness is determined not only by tactical choices such as keyword selection and device targeting, but also by cross-channel integration and robust causal measurement.

3. Methods

This study adopts a systematic literature review approach to evaluate the effectiveness of Pay-Per-Click (PPC) advertising. The review focuses on articles published between 2015 and 2023 to capture the most recent developments in digital advertising research. A structured protocol was employed to ensure transparency

and replicability, beginning with the identification of relevant databases such as Scopus, Web of Science, and Google Scholar. Keywords including “PPC advertising”, “sponsored search”, “search engine marketing”, and “advertising effectiveness” were used in various combinations to retrieve the initial set of studies.

To refine the selection, inclusion and exclusion criteria were applied. Only peer-reviewed journal articles and conference papers written in English and published within the designated time frame were considered. Studies had to focus explicitly on PPC effectiveness in terms of consumer behavior, click through rates, conversion, bidding strategies, or cross channel performance. Publications such as book chapters, editorials, and non-empirical essays were excluded to maintain the quality and comparability of the data.

The screening process followed a two stage approach: first, a review of titles and abstracts to eliminate irrelevant studies, followed by a full text assessment to confirm eligibility. Data extraction involved recording publication details, methodological approaches, sample characteristics, and key findings. Finally, a thematic synthesis was conducted to categorize the selected studies into major themes such as keyword strategy, device-specific behavior, attribution methods, and competitive bidding. This systematic procedure ensures that the review provides a comprehensive and up to date understanding of PPC advertising effectiveness in recent years.

4. Results and Discussion

The review of studies published between 2015 and 2023 reveals several consistent themes regarding the effectiveness of Pay-Per-Click (PPC) advertising. First, research emphasizes that PPC outcomes are highly dependent on keyword strategy. Recent evidence shows that more specific and intent-driven keywords lead to higher-quality traffic and improved conversion rates, while generic or ambiguous terms often reduce campaign efficiency (Tunuguntla et al., 2023). This finding highlights the importance of precise keyword portfolio management in maximizing return on investment.

Second, device-specific behavior remains a critical factor in PPC performance. Studies demonstrate that users on mobile devices display stronger attention to top-position ads compared to desktop users, leading advertisers to allocate higher bids for mobile impressions to secure visibility (Lu & Du, 2020). These behavioral differences across devices suggest that optimization strategies need to be tailored not only by keyword type but also by platform and browsing context.

Third, measurement and attribution practices significantly influence perceptions of PPC effectiveness. Newer approaches to multi-touch attribution provide a more nuanced understanding of customer journeys, moving beyond the limitations of last-click attribution. However, researchers caution that these models can introduce distortions in budget allocation if applied without careful validation (Berman, 2018). The growing reliance on advanced attribution models underscores the need for experimental designs to establish causality in advertising effectiveness.

Finally, the competitive landscape of PPC advertising remains an ongoing challenge. Recent work shows that brand bidding continues to generate crowd-out effects, forcing firms to defend their branded keywords against competitors (Simonov et al., 2018). While this strategy can safeguard traffic, it also raises costs, particularly when competitors engage in aggressive bidding. Such dynamics reflect the tension between defending brand equity and optimizing campaign efficiency in highly competitive keyword auctions.

In summary, the findings from 2015-2023 suggest that PPC effectiveness depends on the interplay of keyword specificity, device behavior, attribution practices, and competitive strategies. Advertisers must therefore adopt a holistic perspective, combining tactical execution with rigorous measurement, to maximize the long-term value of PPC investments.

5. Conclusion

This systematic review concludes that the effectiveness of Pay-Per-Click (PPC) advertising is shaped by multiple interrelated factors rather than a single determinant. Evidence from recent studies highlights that well-structured keyword strategies, particularly those based on user intent and specificity, enhance traffic quality and conversion outcomes. Device-level behavior further influences ad performance, indicating the necessity of customized bidding and placement strategies across platforms. At the same time, the growing reliance on advanced attribution methods demonstrates that accurate measurement is critical for evaluating the true return on investment of PPC campaigns. Finally, the persistence

of competitive dynamics, especially in brand bidding, underscores the strategic challenges firms face in balancing defensive spending with campaign efficiency. Overall, the findings suggest that advertisers should adopt a holistic and adaptive approach that integrates tactical, analytical, and strategic perspectives to maximize the long-term value of PPC investments.

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