

# Pacing in Real-Time Bidding for Online Display Advertising

**Ugurcan Dündar**

WU Vienna

**Nadia Abou Nabout**

WU Vienna

**Bernd Skiera**

Goethe-University Frankfurt, Germany

Cite as:

Dündar Ugurcan, Abou Nabout Nadia, Skiera Bernd (2022), Pacing in Real-Time Bidding for Online Display Advertising. *Proceedings of the European Marketing Academy*, 51st, (106684)

Paper from the 51st Annual EMAC Conference, Budapest, May 24-27, 2022



# Pacing in Real-Time Bidding for Online Display Advertising

## Abstract

When setting up real-time bidding campaigns, advertisers need to make a decision about how to allocate their budget over a day, which they refer to as pacing. In this paper, we analyze the profitability of two pacing heuristics used in practice. We benchmark them against a profit-maximizing pacing heuristic, which outperforms them when one can forecast hourly ad effectiveness perfectly. Yet, if predictions of hourly ad effectiveness are imperfect, the pacing heuristics used in practice might generate higher profits than the profit-maximizing pacing heuristic. To this end, we conduct two analyses: In a counterfactual analysis, we benchmark profitability of these pacing heuristics in three datasets from real RTB campaigns. Because the forecasting error in this analysis depends on the prediction models we use to forecast hourly ad effectiveness, we run a simulation study to understand when a specific pacing heuristic performs best by varying the forecasting errors on our predictions.

**Keywords:** *RTB; Pacing; Uncertainty*

**Track:** Digital Marketing & Social Media