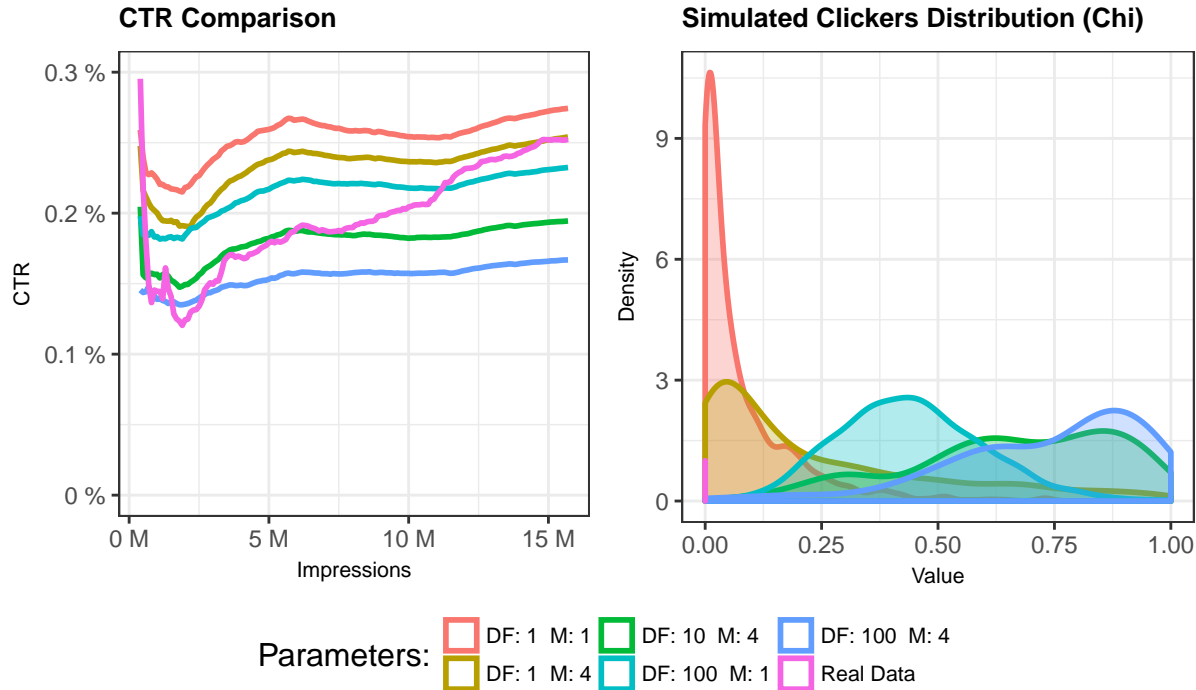


Target Multi-Campaign Simulation Analysis

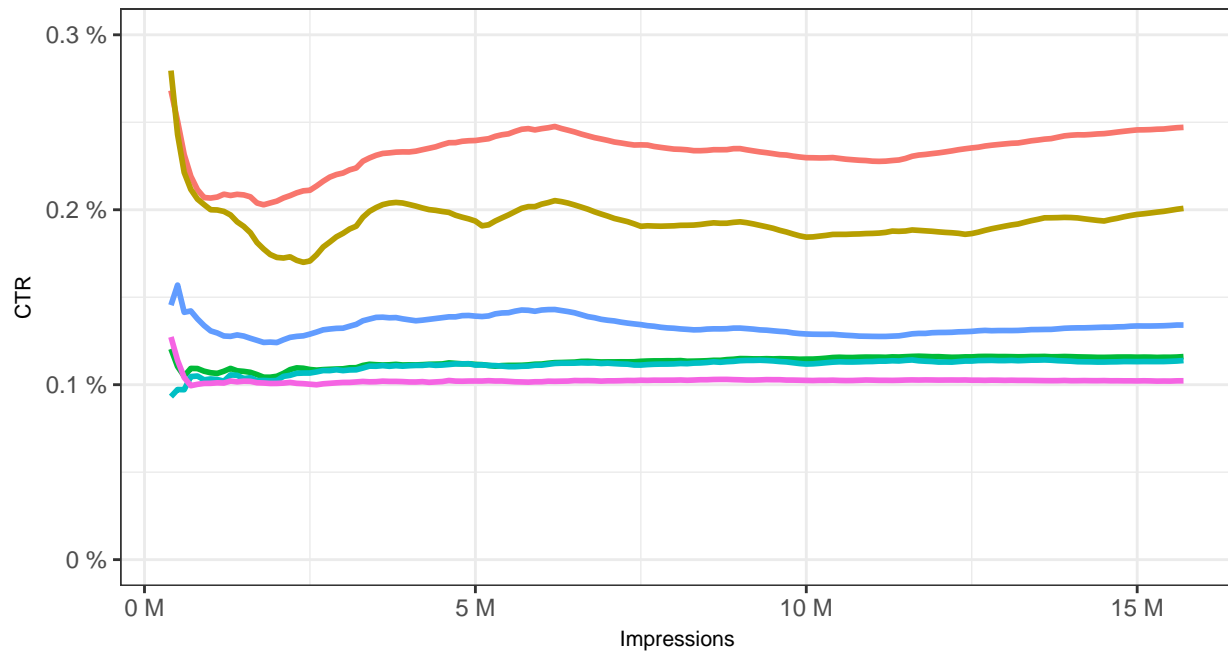
Comparison between real data and simulated data with added clickers. The clickers have behavior based altered by chi distribution with parametrised degrees of freedom and multiplication factor. Final formula for an user click/no click is: $\$ \text{Normal}(\text{prediction}, \text{stdev}) + \text{multiplier} * \text{Chi}(\text{df}) * \text{CTR} + \text{Uniform}(-0.1, 0.1) * \text{CTR} \$$

Targeted – Hindsight Simulation VS Real Data



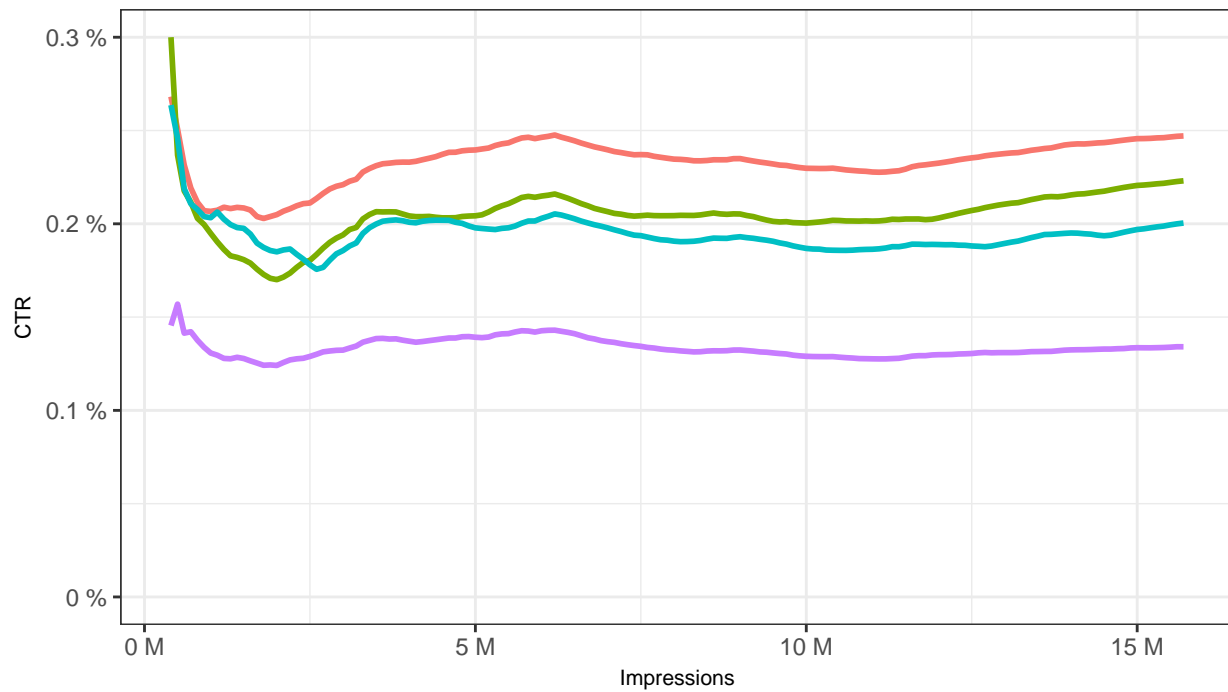
Comparison between Real data, Simulated Hindsight without added clickers and Simulated Lower bound without added clickers. For Hindsight click is determined using - $\text{Normal}(\text{prediction}, \text{stdev}) + \text{Uniform}(-0.1, 0.1) * \text{CTR}$ For Lower simulation click either real data click is used or one is generated based on the CTR of the campaign which is chosen.

Simulation – Lower and Hindsight Results



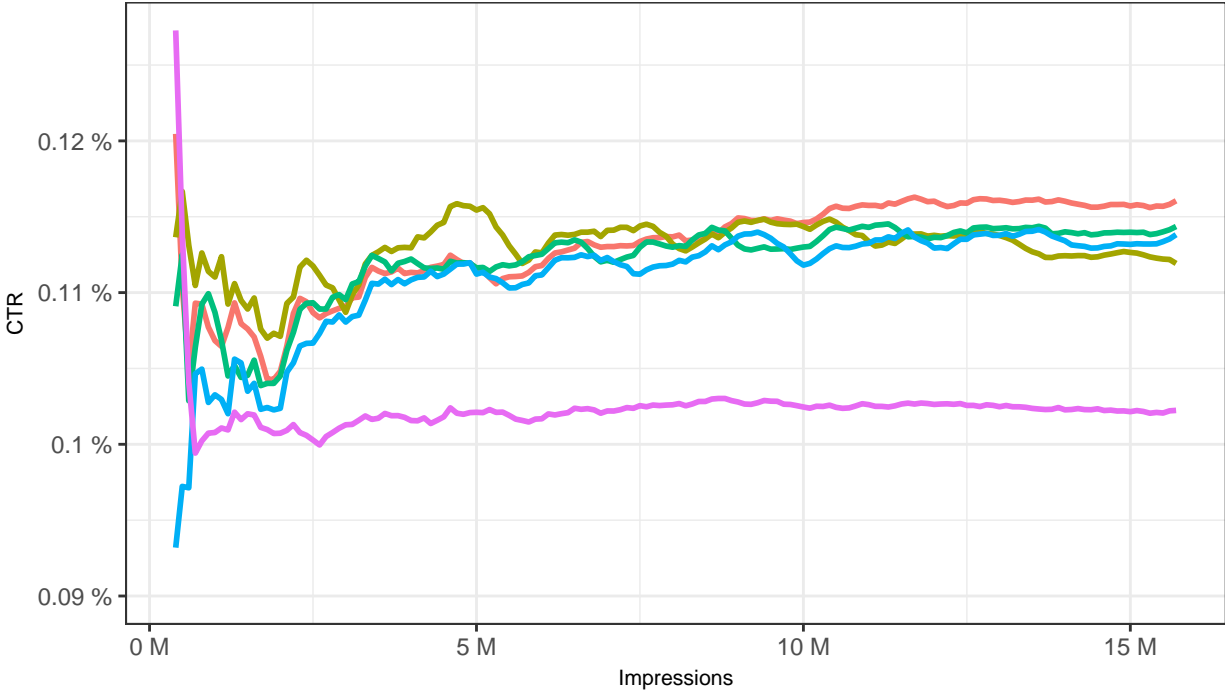
— LinUCB Hindsight — LinUCB Lower — Random Hindsight
— LinUCB Hindsight Target (80%) — LinUCB Lower Target (80%) — Random Lower

Hindsight Simulation Results



— LinUCB — LinUCB Target (60%) — LinUCB Target (80%) — Random

Lower Simulation Results



— LinUCB — LinUCB Target (100%) — LinUCB Target (60%) — LinUCB Target (80%) — Random