

Robustness Checks for Field Experiment 1

| | Pooled Logit | | | Probit | | | GEE | | |
|--|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | Information | Consideration | Post-Purchase | Information | Consideration | Post-Purchase | Information | Consideration | Post-Purchase |
| | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) |
| <i>Constant</i> | -6.2637*** (0.0678) | -6.6314*** (0.2009) | -7.0389*** (0.2881) | -3.1312*** (0.0295) | -3.2077*** (0.1280) | -3.2648*** (0.1728) | -6.2548*** (0.0874) | -6.6441*** (0.2030) | -6.6441*** (0.2030) |
| <i>HighDCP</i> | 1.3242*** (0.0807) | 0.7926** (0.2549) | 0.6833* (0.3560) | 0.4846*** (0.0308) | 0.2860** (0.0904) | 0.2042* (0.1170) | 1.3104*** (0.1023) | 0.8086** (0.2668) | 0.8086* (0.2668) |
| <i>MedDCPcategory</i> | 0.9351*** (0.0847) | 0.8915*** (0.2470) | 0.5350 (0.3501) | 0.3511*** (0.0318) | 0.3072*** (0.0873) | 0.1599 (0.1145) | 0.9209*** (0.1064) | 0.9036*** (0.2574) | 0.9036 (0.2574) |
| <i>MedDCPbrand</i> | 0.7959*** (0.0872) | 0.7386** (0.2618) | 0.4766 (0.3625) | 0.2870*** (0.0325) | 0.2548** (0.0914) | 0.1296 (0.1175) | 0.7814*** (0.1111) | 0.7602** (0.2728) | 0.7602 (0.2728) |
| <i>Time</i> | -0.0215** (0.0071) | 0.0022 (0.0175) | -0.0203 (0.0266) | -0.0068** (0.0023) | 0.0006 (0.0059) | -0.0072 (0.0080) | -0.0223** (0.0080) | 0.0030 (0.019) | 0.0030 (0.0190) |
| <i>HighDCP</i> × <i>Time</i> | -0.0304** (0.0093) | -0.0171 (0.0251) | -0.0004 (0.0362) | -0.0112*** (0.0031) | -0.0063 (0.0083) | 0.0006 (0.0113) | -0.0292** (0.0104) | -0.0181 (0.0277) | -0.0181 (0.0277) |
| <i>MedDCPcategory</i> × <i>Time</i> | -0.0151 (0.0095) | -0.0253 (0.0247) | 0.0161 (0.0346) | -0.0070** (0.0032) | -0.0086 (0.0082) | 0.0053 (0.0107) | -0.0139 (0.0106) | -0.0260 (0.0265) | 0.0260 (0.0265) |
| <i>MedDCPbrand</i> × <i>Time</i> | -0.0060 (0.0095) | -0.0309 (0.0272) | 0.0061 (0.0370) | -0.0024 (0.0032) | -0.0105 (0.0089) | 0.0031 (0.0114) | -0.0048 (0.0109) | -0.0324 (0.0287) | -0.0324 (0.0287) |
| <i>VisitsTotal</i> | 0.0586*** (0.0067) | 0.1166*** (0.0254) | 0.2378*** (0.0497) | 0.0144*** (0.0041) | 0.0467*** (0.0117) | 0.0818*** (0.0196) | 0.0589*** (0.0121) | 0.1169*** (0.0229) | 0.1169*** (0.0229) |
| <i>BannerRepetitions</i> | -0.0079*** (0.0011) | -0.0097** (0.0033) | -0.0047 (0.0062) | -0.0008** (0.0004) | -0.0020* (0.0012) | -0.0005 (0.0021) | -0.0076*** (0.0013) | -0.0096** (0.0037) | -0.0096 (0.0037) |
| <i>BannersTotal</i> | -0.0031*** (0.0006) | -0.0005 (0.0017) | -0.0078* (0.0045) | -0.0015*** (0.0002) | -0.0004 (0.0007) | -0.0029* (0.0016) | -0.0033*** (0.0007) | -0.0005 (0.0017) | -0.0005** (0.0017) |
| <i>Random Intercept</i> | | | | 0.1533*** (0.0126) | 0.1233 (0.0776) | 0.0898 (0.0977) | | | |
| Observations | 1,027,753 | 129,341 | 107,791 | 1,027,753 | 129,341 | 107,791 | 1,027,753 | 129,341 | 107,791 |
| -2 Log Likelihood | 34,960 | 3,632 | 1,958 | 34,615 | 3,628 | 1,958 | N/A | N/A | N/A |
| AIC | 34,982 | 3,654 | 1,980 | 34,639 | 3,652 | 1,982 | N/A | N/A | N/A |
| BIC | 35,112 | 3,761 | 2,085 | 34,741 | 3,733 | 2,060 | N/A | N/A | N/A |
| QIC | N/A | N/A | N/A | N/A | N/A | N/A | 34,995 | 3,657 | 1,981 |

Notes. DCP = Degree of content personalization. GEE = Generalized Estimating Equation. QIC = Quasi-likelihood under the independence model criterion. Time measured in days. * $p < .1$, ** $p < .05$, *** $p < .001$.

Robustness Checks for Field Experiment 2

| | Click-Through | | | View-Through | | |
|-------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| | Pooled Logit | Probit | GEE | Pooled Logit | Probit | GEE |
| | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) | Coefficient (std. error) |
| <i>Constant</i> | -6.3520*** (0.0737) | -3.1602*** (0.0342) | -6.3612*** (0.0799) | -3.4952*** (0.0220) | -2.0036*** (0.0114) | -3.4952*** (0.0354) |
| <i>Personalization</i> | 1.0748*** (0.0723) | 0.3621*** (0.0261) | 1.0765*** (0.0779) | -0.0693** (0.0219) | -0.0231** (0.0106) | -0.0693** (0.0241) |
| <i>Congruence</i> | -0.2432 (0.2970) | -0.0675 (0.0979) | -0.2364 (0.2961) | 0.5457*** (0.0545) | 0.2457*** (0.0267) | 0.5457*** (0.0588) |
| <i>Personalization × Congruence</i> | 0.0369 (0.3161) | 0.0147 (0.1058) | 0.0339 (0.3160) | 0.2296*** (0.0634) | 0.1173*** (0.0310) | 0.2296*** (0.0682) |
| <i>VisitsTotal</i> | 0.0730*** (0.0080) | 0.0229*** -0.0046 | 0.0739*** (0.0128) | 0.1209*** (0.0038) | 0.0463*** (0.0027) | 0.1209*** (0.0129) |
| <i>BannerRepetitions</i> | -0.0071*** (0.0014) | -0.0008* (0.0005) | -0.0065** (0.0021) | -0.0166*** (0.0009) | -0.0030*** (0.0003) | -0.0166*** (0.0014) |
| <i>BannersTotal</i> | -0.0021** (0.0008) | -0.0011** (0.0003) | -0.0024* (0.0014) | -0.00696*** (0.0005) | -0.0030*** (0.0002) | -0.007*** (0.0009) |
| <i>Time</i> | -0.0394*** (0.0048) | -0.0134*** (0.0016) | -0.0389*** (0.0053) | -0.0419*** (0.0021) | -0.0177*** (0.0008) | -0.0419*** (0.0023) |
| <i>Random Intercept</i> | | 0.1655*** (0.0166) | | | 0.0827*** (0.0063) | |
| Observations | 641,136 | 641,136 | 641,136 | 641,136 | 641,136 | 641,136 |
| -2 Log Likelihood | 23,884 | 23,670 | N/A | 107,815 | 107,747 | N/A |
| AIC | 23,900 | 23,688 | N/A | 107,831 | 107,765 | N/A |
| BIC | 23,991 | 23,766 | N/A | 107,922 | 107,842 | N/A |
| QIC | N/A | N/A | 23,909 | N/A | N/A | 107,863 |

Notes. GEE = Generalized Estimating Equation. QIC = Quasi-likelihood under the independence model criterion. Time measured in days.

* $p < .1$. ** $p < .05$. *** $p < .001$.

Marginal Effects Analysis for Interaction Terms in Field Experiments 1 and 2

Field Experiment 1. The interpretation of interaction terms in nonlinear probability models is not as straightforward as in linear models and the sign of a marginal effect is not necessarily the same as that of a coefficient of the corresponding interaction term (Ai and Norton 2003; Goldfarb and Tucker 2011). For the estimates of our initial model (see Table 2), we therefore calculated the marginal effects of the interactions between the investigated DCPs and *Time* to verify our findings. The marginal effects in the information state were $-.0000978$ ($p < .001$) for *HighDCP* \times *Time*; $-.0000502$ ($p < .001$) for *MedDCPcategory* \times *Time*; and $-.0000258$ ($p < .05$) for *MedDCPbrand* \times *Time*. In line with the estimated coefficients, they were all negative and the *HighDCP* \times *Time* interaction had the largest effect. In the consideration and post-purchase states, the respective marginal effects were not significant, also in accordance with our findings.

Field Experiment 2. Regarding click-through, the marginal effect of the *Personalization* \times *Congruence* interaction (see Table 4) is not significant, whereas it is positive and significant for view-through ($.0060735$, $p < .001$), in line with the estimated coefficients for the corresponding interaction terms.

Parameter Estimates for Field Experiment 2 with Varying View-through Windows

| | 30 Days | | 7 Days | | 1 Day | |
|--|-----------------------------|-----------------|-----------------------------|-----------------|-----------------------------|-----------------|
| | Coefficient (std. error) | <i>p</i> -Value | Coefficient (std. error) | <i>p</i> -Value | Coefficient (std. error) | <i>p</i> -Value |
| <i>Constant</i> | -3.6544*** (0.0270) | <0.0001 | -3.6953*** (0.0275) | <0.0001 | -3.9933*** (0.0313) | <0.0001 |
| <i>Personalization</i> | -0.0521** (0.0246) | 0.0338 | -0.0511** (0.0251) | 0.0415 | -0.0480* (0.0284) | 0.0909 |
| <i>Congruence</i> | 0.5802*** (0.0574) | <0.0001 | 0.5627*** (0.0589) | <0.0001 | 0.4659*** (0.0699) | <0.0001 |
| <i>Personalization</i> × <i>Congruence</i> | 0.2419*** (0.0665) | 0.0003 | 0.2384*** (0.0682) | 0.0005 | 0.2284** (0.0810) | 0.0048 |
| <i>VisitsTotal</i> | 0.1016*** (0.0058) | <0.0001 | 0.1032*** (0.0058) | <0.0001 | 0.1032*** (0.0059) | <0.0001 |
| <i>BannerRepetitions</i> | -0.0136*** (0.0009) | <0.0001 | -0.0126*** (0.0009) | <0.0001 | -0.0090*** (0.0010) | <0.0001 |
| <i>BannersTotal</i> | -0.0077*** (0.0005) | <0.0001 | -0.0073*** (0.0005) | <0.0001 | -0.0058*** (0.0005) | <0.0001 |
| <i>Time</i> | -0.0342*** (0.002) | <0.0001 | -0.0421*** (0.0021) | <0.0001 | -0.0675*** (0.0027) | <0.0001 |
| <i>Random Intercept</i> | 0.4055*** (0.0319) | <0.0001 | 0.3967*** (0.0314) | <0.0001 | 0.3336*** (0.0311) | <0.0001 |
| Observations | 641,136 | | 641,136 | | 641,136 | |
| -2 Log Likelihood | 111,897 | | 107,481 | | 82,327 | |
| AIC | 111,915 | | 107,499 | | 82,345 | |
| BIC | 111,992 | | 107,576 | | 82,422 | |

Notes. Time measured in days.

p* < .1. *p* < .05. ****p* < .001.

References

Ai C, Norton EC (2003) Interaction terms in logit and probit models. *Econom. Lett.* 80(1):123–129.

Goldfarb A, Tucker CE (2011) Online display advertising: Targeting and obtrusiveness. *Marketing Sci.* 30(3):389–404.