

2 **Table F1. Minimum number of *Sobol* draws required for desired level of log-likelihood and parameter estimates precision (95% confidence**
 3 **intervals in [] brackets)**

Choice tasks per individual	4	4	4	8	8	8	12	12	12
Individuals	400	800	1,200	400	800	1,200	400	800	1,200
5 attributes / $MTL_{0.05}$									
≤5% probability of simulation-driven error in the LR test ($MTL_{0.05}^{LL} \leq 3.3174$)	76 [63-90]	117 [100-137]	182 [155-213]	185 [159-214]	287 [254-325]	446 [391-509]	454 [392-523]	704 [621-798]	1,093 [954-1,254]
≤5% probability of simulation-driven error in the LR test ($MTL_{0.05}^{LL} \leq 1.9207$)	148 [125-174]	230 [199-265]	357 [307-415]	363 [316-414]	563 [504-629]	874 [774-989]	889 [775-1,018]	1,380 [1,226-1,554]	2,142 [1,878-2,454]
≤5% probability of simulation-driven error in the LR test ($MTL_{0.05}^{LL} \leq 1.3528$)	228 [194-266]	354 [308-406]	549 [475-636]	559 [491-632]	867 [782-963]	1,346 [1,196-1,517]	1,370 [1,199-1,562]	2,126 [1,894-2,392]	3,299 [2,900-3,778]
≤5% probability that parameter estimates differ by ≥10% from true values ($MTL_{0.05}^{\beta} \leq 0.1 \beta $)	450 [406-498]	332 [300-366]	245 [220-272]	404 [367-445]	298 [271-327]	220 [198-243]	363 [327-401]	268 [242-295]	197 [177-219]
≤5% probability that parameter estimates differ by ≥10% from true values ($MTL_{0.05}^{\beta} \leq 0.05 \beta $)	1,170 [1,061-1,288]	862 [786-946]	636 [575-702]	1,051 [959-1,150]	775 [710-844]	571 [520-627]	944 [856-1,039]	696 [634-764]	513 [464-566]
≤5% probability that parameter estimates differ by ≥10% from true values ($MTL_{0.05}^{\beta} \leq 0.01 \beta $)	10,759 [9,781-11,842]	7,931 [7,254-8,676]	5,847 [5,322-6,425]	9,666 [8,830-10,575]	7,125 [6,562-7,750]	5,253 [4,810-5,737]	8,684 [7,888-9,552]	6,401 [5,855-6,996]	4,719 [4,295-5,181]
5 attributes / $MTL_{0.01}$									
≤1% probability of simulation-driven error in the LR test ($MTL_{0.01}^{LL} \leq 3.3174$)	104 [88-123]	162 [140-188]	252 [217-293]	255 [222-292]	397 [355-444]	618 [547-699]	625 [545-715]	973 [864-1,095]	1,512 [1,328-1,726]
≤1% probability of simulation-driven error in the LR test ($MTL_{0.01}^{LL} \leq 1.9207$)	205 [175-238]	319 [278-364]	495 [430-572]	501 [442-566]	780 [705-864]	1,213 [1,081-1,362]	1,228 [1,078-1,395]	1,909 [1,707-2,140]	2,969 [2,621-3,386]
≤1% probability of simulation-driven error in the LR test ($MTL_{0.01}^{LL} \leq 1.3528$)	316 [272-365]	491 [432-557]	764 [667-876]	773 [685-868]	1,202 [1,092-1,325]	1,870 [1,670-2,095]	1,892 [1,667-2,146]	2,943 [2,635-3,297]	4,577 [4,038-5,218]
≤1% probability that parameter estimates differ by ≥10% from true values ($MTL_{0.01}^{\beta} \leq 0.1 \beta $)	659 [597-726]	486 [442-534]	359 [324-397]	592 [539-649]	437 [399-477]	322 [292-355]	532 [481-586]	393 [357-432]	290 [261-320]
≤1% probability that parameter estimates differ by ≥10% from true values ($MTL_{0.01}^{\beta} \leq 0.05 \beta $)	1,712 [1,556-1,879]	1,263 [1,154-1,382]	932 [846-1,027]	1,538 [1,406-1,680]	1,135 [1,041-1,234]	838 [764-916]	1,382 [1,255-1,518]	1,020 [932-1,116]	753 [683-828]
≤1% probability that parameter estimates differ by ≥10% from true values ($MTL_{0.01}^{\beta} \leq 0.01 \beta $)	15,720 [14,287-17,307]	11,601 [10,608-12,695]	8,562 [7,797-9,404]	14,128 [12,900-15,463]	10,426 [9,592-11,344]	7,695 [7,045-8,407]	12,697 [11,526-13,969]	9,370 [8,565-10,245]	6,915 [6,297-7,593]

Choice tasks per individual	4	4	4	8	8	8	12	12	12
Individuals	400	800	1,200	400	800	1,200	400	800	1,200
10 attributes / $MTL_{0.05}$									
$\leq 5\%$ probability of simulation-driven error in the LR test ($MTL_{0.05}^{\mu} \leq 3.3174$)	81 [56-113]	175 [128-230]	375 [280-491]	387 [297-491]	830 [678-1,001]	1782 [1445-2186]	1,837 [1,449-2,306]	3,942 [3,231-4,837]	8,462 [6,704-10,833]
$\leq 5\%$ probability of simulation-driven error in the LR test ($MTL_{0.05}^{\mu} \leq 1.9207$)	263 [193-346]	563 [439-708]	1,209 [945-1,528]	1,246 [1,003-1,529]	2,675 [2,257-3,160]	5,742 [4,698-7,101]	5,918 [4,667-7,509]	12,702 [10,191-16,052]	27,264 [20,889-36,562]
$\leq 5\%$ probability of simulation-driven error in the LR test ($MTL_{0.05}^{\mu} \leq 1.3528$)	556 [423-714]	1,193 [956-1,465]	2,562 [2,028-3,224]	2,640 [2,154-3,224]	5,667 [4,781-6,768]	12,163 [9,821-15,399]	12,535 [9,785-16,231]	26,905 [21,007-35,200]	57,748 [42,904-80,801]
$\leq 5\%$ probability that parameter estimates differ by $\geq 10\%$ from true values ($MTL_{0.05}^{\theta} \leq 0.1 \beta $)	5,182 [4,454-6,038]	3,124 [2,711-3,601]	1,884 [1,617-2,194]	4,338 [3,768-5,011]	2,616 [2,292-2,986]	1,577 [1,368-1,821]	3,631 [3,125-4,228]	2,190 [1,902-2,525]	1,320 [1,135-1,535]
$\leq 5\%$ probability that parameter estimates differ by $\geq 10\%$ from true values ($MTL_{0.05}^{\theta} \leq 0.05 \beta $)	25,294 [21,531-29,864]	15,251 [13,131-17,736]	9,196 [7,866-10,766]	2,1174 [18,232-24,777]	12,767 [11,123-14,674]	7,698 [6,674-8,913]	17,725 [15,140-20,819]	10,688 [9,249-12,388]	6,444 [5,556-7,497]
$\leq 5\%$ probability that parameter estimates differ by $\geq 10\%$ from true values ($MTL_{0.05}^{\theta} \leq 0.01 \beta $)	1,003,977 [806,569-1,262,736]	605,365 [494,545-747,850]	365,015 [298,783-449,838]	840,449 [683,177-1,045,805]	506,763 [418,157-620,541]	305,561 [252,422-372,977]	703,556 [570,100-877,886]	424,221 [348,425-519,026]	255,791 [211,056-312,096]
10 attributes / $MTL_{0.01}$									
$\leq 1\%$ probability of simulation-driven error in the LR test ($MTL_{0.01}^{\mu} \leq 3.3174$)	152 [111-201]	317 [245-400]	664 [518-837]	678 [543-831]	1,417 [1,197-1,662]	2,965 [2,457-3,580]	3,026 [2,431-3,741]	6,329 [5,240-7,703]	13,240 [10,548-16,893]
$\leq 1\%$ probability of simulation-driven error in the LR test ($MTL_{0.01}^{\mu} \leq 1.9207$)	469 [361-596]	980 [792-1,193]	2,050 [1,646-2,540]	2,092 [1,729-2,519]	4,377 [3,741-5,134]	9,155 [7,551-11,287]	9,342 [7,465-11,763]	19,543 [15,714-24,669]	40,880 [31,401-54,691]
$\leq 1\%$ probability of simulation-driven error in the LR test ($MTL_{0.01}^{\mu} \leq 1.3528$)	966 [763-1,205]	2,020 [1,665-2,432]	4,226 [3,418-5,252]	4,312 [3,567-5,208]	9,020 [7,637-10,785]	18,869 [15,247-23,884]	19,254 [15,090-24,854]	40,277 [31,421-52,774]	84,254 [62,809-117,281]
$\leq 1\%$ probability that parameter estimates differ by $\geq 10\%$ from true values ($MTL_{0.01}^{\theta} \leq 0.1 \beta $)	9,062 [7,818-10,552]	5,549 [4,838-6,373]	3,398 [2,934-3,935]	7,627 [6,649-8,794]	4,671 [4,115-5,312]	2,860 [2,496-3,280]	6,419 [5,553-7,448]	3,931 [3,437-4,513]	2,407 [2,088-2,779]
$\leq 1\%$ probability that parameter estimates differ by $\geq 10\%$ from true values ($MTL_{0.01}^{\theta} \leq 0.05 \beta $)	42,339 [36,058-50,011]	25,927 [22,323-30,142]	15,877 [13,630-18,535]	35,635 [30,668-41,668]	21,822 [19,003-25,116]	13,363 [11,596-15,426]	29,992 [25,628-35,232]	18,366 [15,898-21,275]	11,247 [9,711-13,045]
$\leq 1\%$ probability that parameter estimates differ by $\geq 10\%$ from true values ($MTL_{0.01}^{\theta} \leq 0.01 \beta $)	1,518,200 [1,220,658-1,908,915]	929,692 [757,707-1,149,623]	569,311 [465,252-703,039]	1,277,794 [1,037,273-1,589,909]	782,476 [644,666-959,871]	479,161 [394,743-585,573]	1,075,456 [871,228-1,343,284]	658,571 [540,144-806,879]	403,286 [331,926-492,888]