Appendix

Table A1. Calculation of time intervals using different tolerance levels

id	game	day	Played?	tol.1	tol.2	tol.3	tol.4	tol.5
id 1	game 1	1	Y	1	1	1	1	1
id 1	game 1	2	N	STOP	1	1	1	1
id 1	game 1	3	Y		1	1	1	1
id 1	game 1	4	N		STOP		1	1
id 1	game 1	5	N				1	1
id 1	game 1	6	N				1	1
id 1	game 1	7	Y				1	1
id 1	game 1	8	N				1	1
id 1	game 1	9	Y				1	1
id 1	game 1	10	Y				1	1
id 1	game1	11	N				STOP	

Criteria for sample selection

median time spent on smartphone in a single day
cut-off X-axis 99th percentile

median duration of smartphone session
cut-off X-axis 99th percentile

Covariates on id-level

median time spent on mobile games in a single day
cut-off X-axis 99th percentile

repertoire of mobile games on a specific day
cut-off X-axis 99th percentile
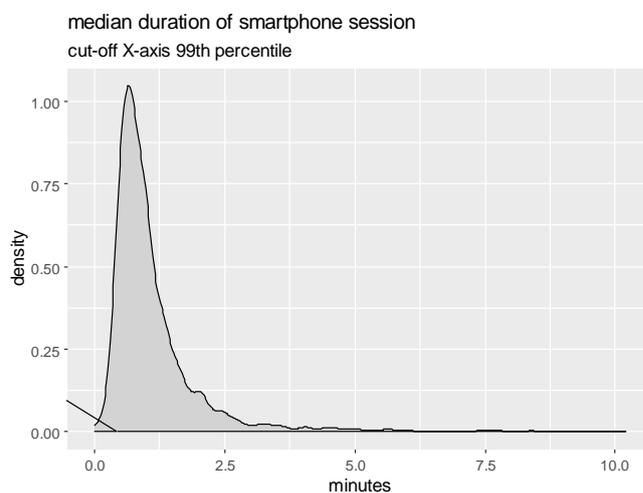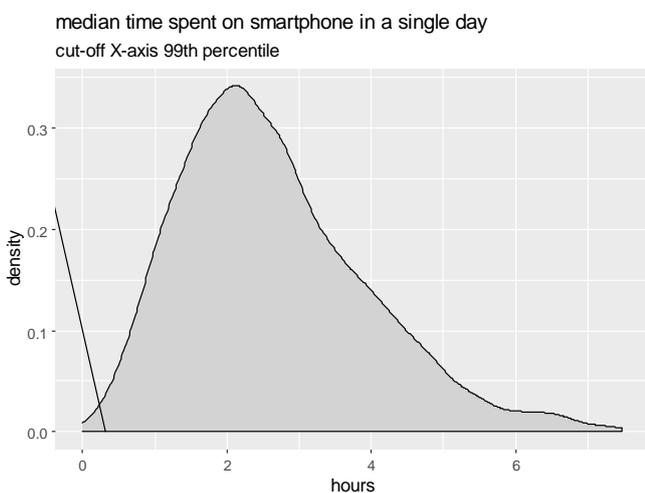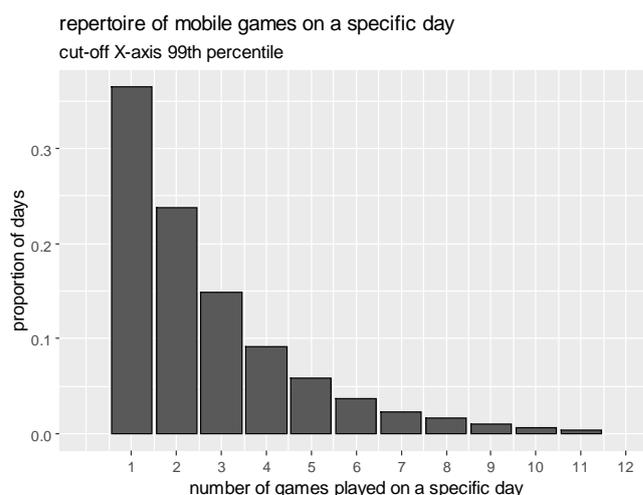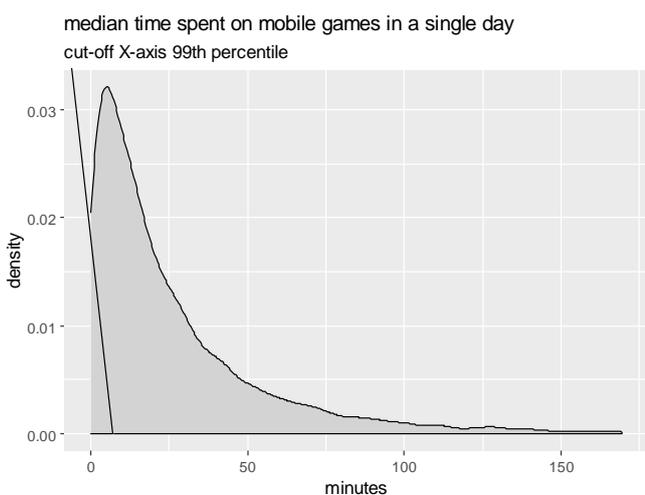
Figure A1. Distribution of id-specific variables

**Covariates on game-level**
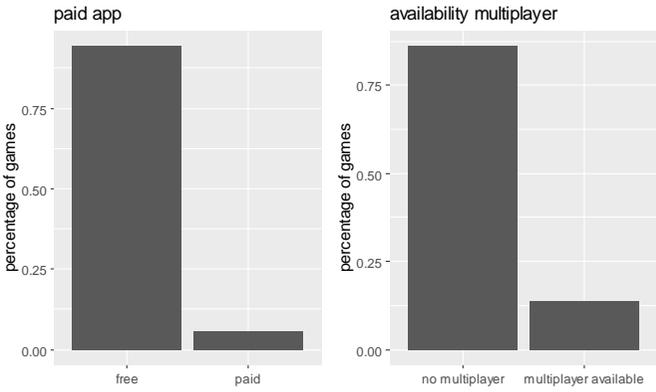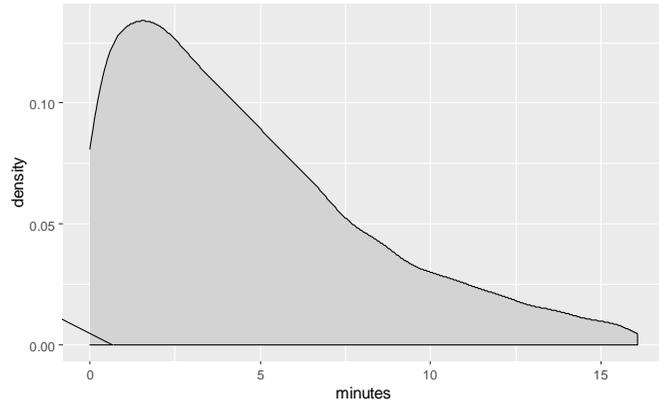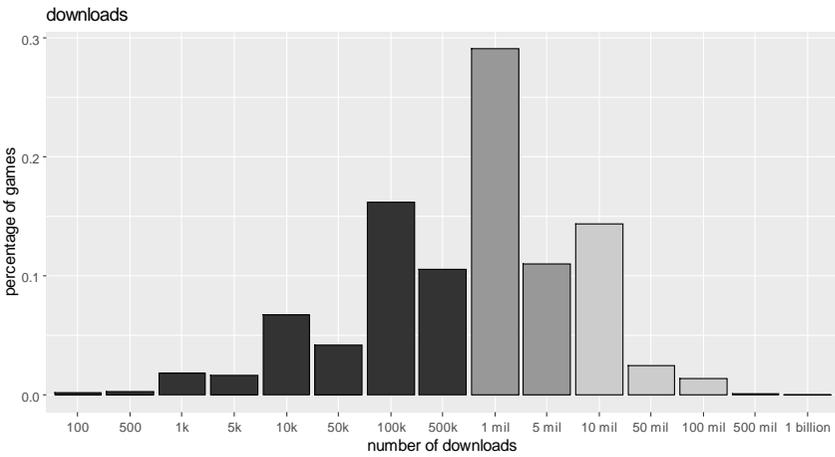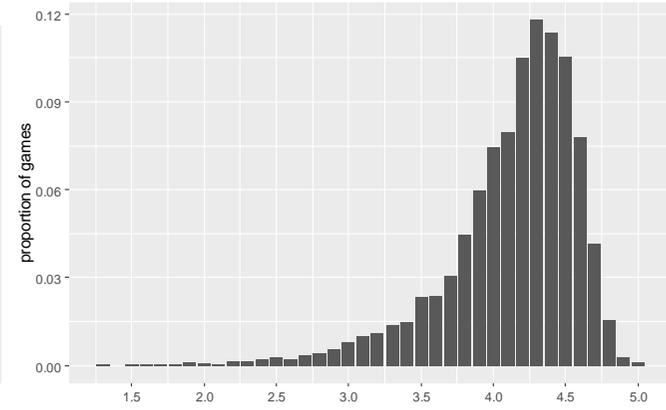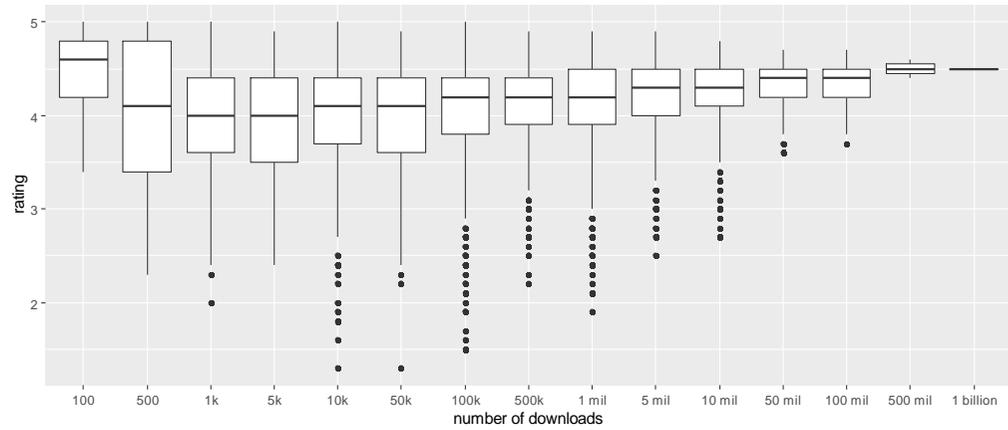
Figure A2. Distribution of game-specific variables

dfbetas for each predictor

Calculations based on final model (all blocks included)
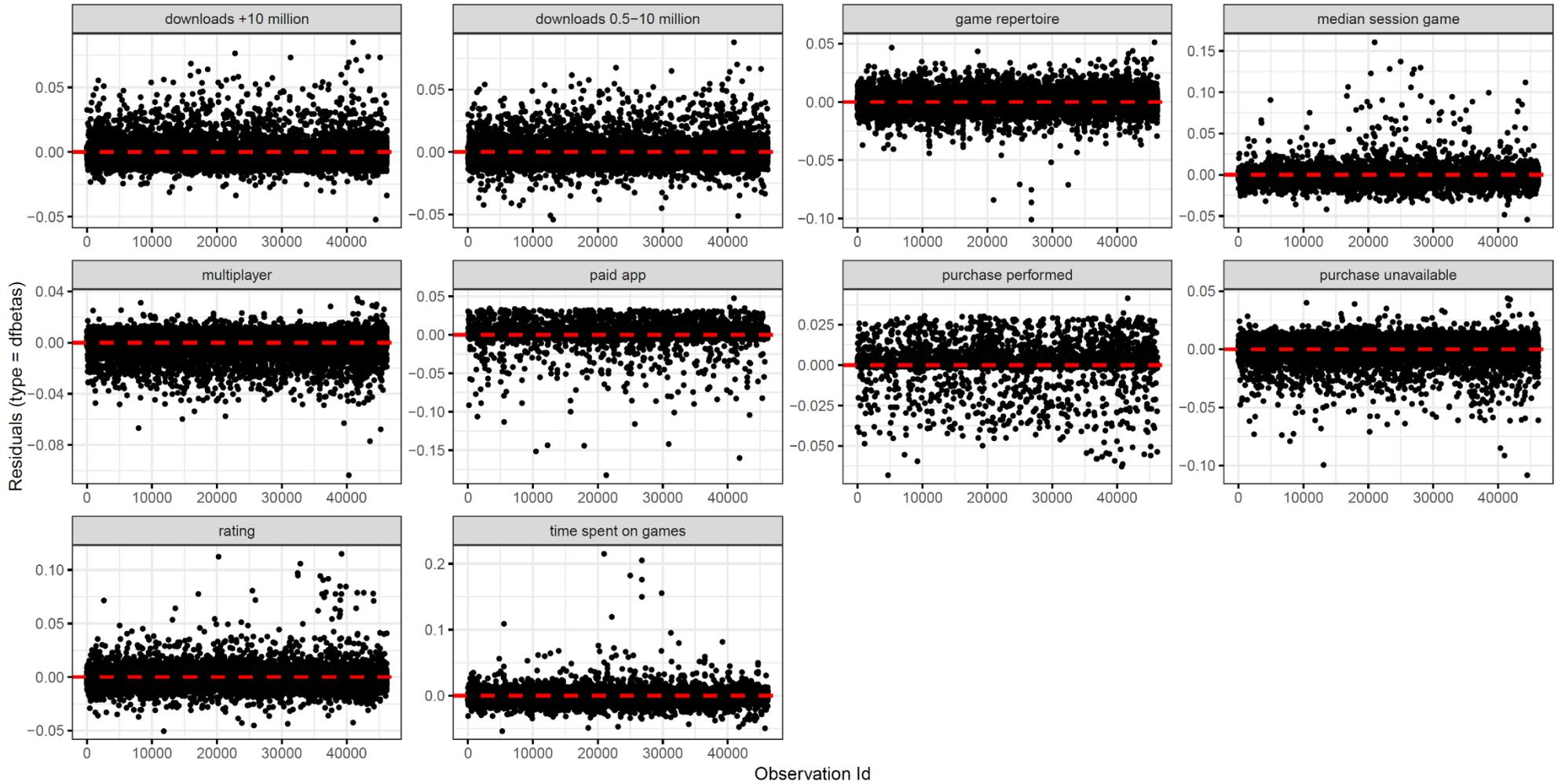
Figure A3. Dfbetas for each predictor

Table A2 . Estimated parameters of Cox regression with time-dependent covariates | *adaptations for model robustness checks*

Variable	Cluster variance by game-level *HR (95% CI)*	*Games shared at most by 3 subjects* *HR (95% CI)*	*Less conservative estimate of in-game purchases* *HR (95% CI)*	*Apps not available on Google Play included* *HR (95% CI)*
purchases: [a]				
purchase unavailable	1.21 (1.15-1.29)***	1.10 (1.03-1.17)**	1.19 (1.15-1.24)***	1.38 (1.34-1.43)***
purchase performed	0.72 (0.67-0.78)***	0.65 (0.52-0.82)***	0.72 (0.69-0.75)***	0.68 (0.64-0.73)***
paid app	1.00 (0.91-1.1)	0.98 (0.88-1.09)	1.00 (0.93-1.08)	
multiplayer	0.96 (0.9-1.01)	0.97 (0.9-1.05)	0.95 (0.92-0.97)***	
median session game rating	1.04 (1.01-1.07)*	0.95 (0.93-0.98)***	1.04 (1.02-1.05)***	1.03 (1.02-1.04)***
downloads: [b]	0.89 (0.83-0.96)***	0.84 (0.79-0.89)***	0.89 (0.86-0.92)***	
0.5-10 million	0.94 (0.88-0.99)*	0.97 (0.9-1.03)	0.94 (0.9-0.98)**	
+ 10 million	0.82 (0.77-0.87)***	0.96 (0.88-1.04)	0.82 (0.79-0.86)***	
time spent on games	0.79 (0.78-0.81)***	0.83 (0.81-0.86)***	0.80 (0.78-0.81)***	0.75 (0.74-0.77)***
game repertoire	1.70 (1.67-1.73)***	1.54 (1.45-1.63)***	1.69 (1.65-1.75)***	1.63 (1.58-1.68)***
Wald-score (*p*)				

a: reference category: 'purchases available, but not performed'
b: reference category: 'less than or equal to 0.5 million downloads"
* *p* < 0.05 ** *p* < 0.01 *** *p* < 0.001

deviance residuals
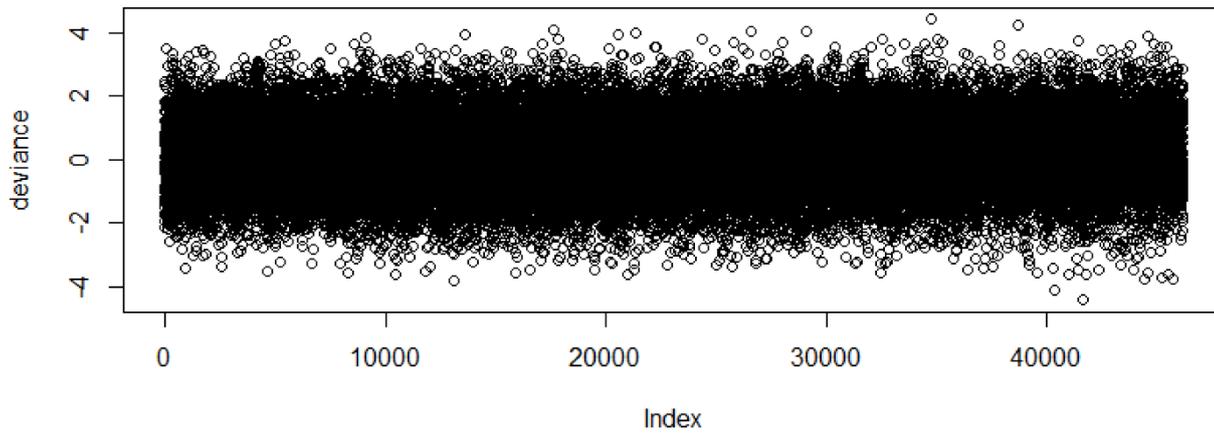
robustness checks

time-dependent coefficients in-game purchases for four model adaptations
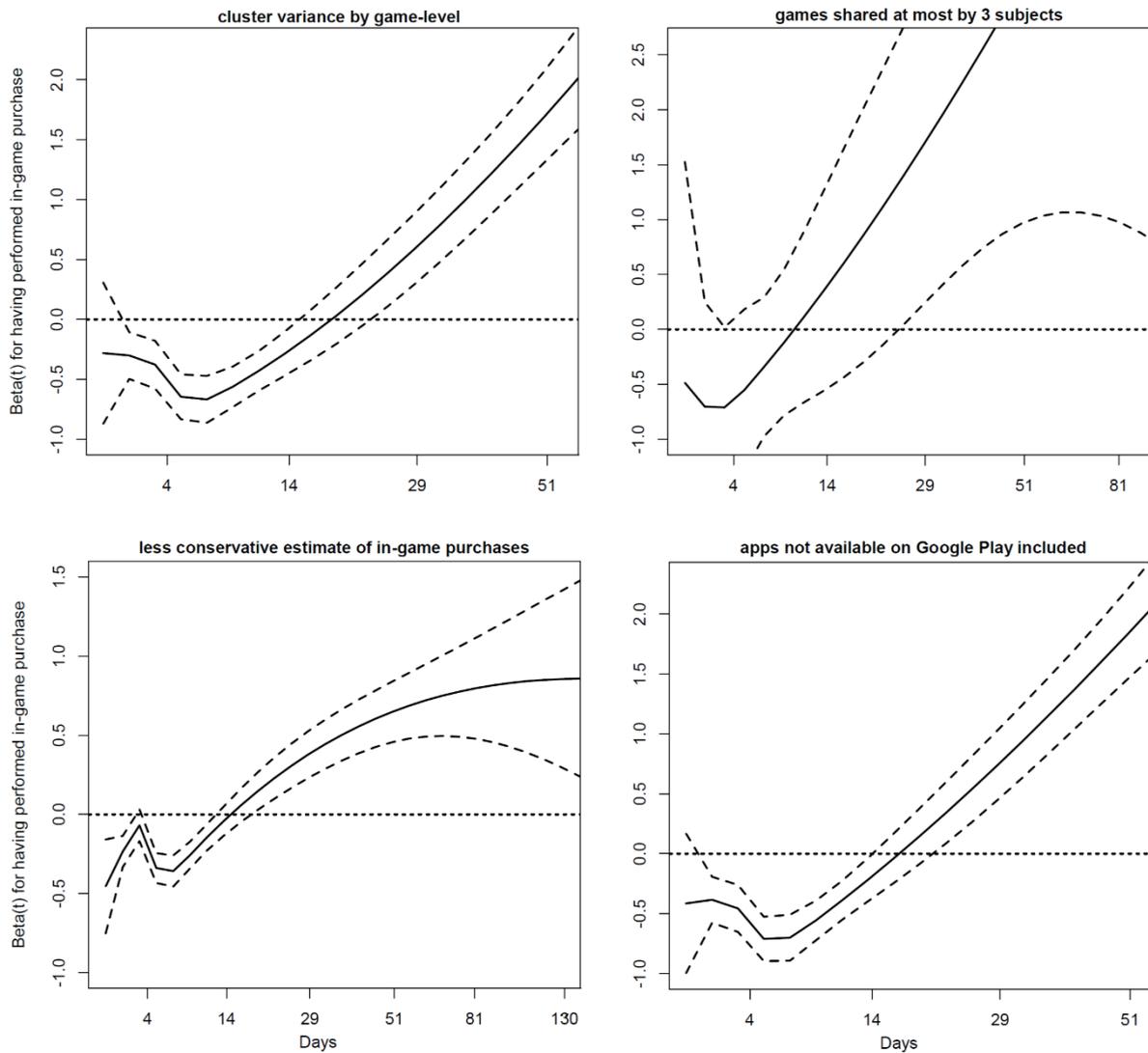
Figure A4. Martingale residuals and robustness checks