

Supplementary Materials

Table A1 Probability of committing violence, conditional on different offending events in the prior year

Event in t	$P(\text{violent}_{t+1})$	$P(\text{violent co-off}_{t+1})$	$P(\text{violentsolo off}_{t+1})$	N
No crime	0.024	0.018	0.006	262,844
Any crime	0.091	0.075	0.017	60,552
Solo offending	0.070	0.049	0.021	21,933
Co-offending	0.104	0.089	0.014	38,619
Violent crime	0.205	0.182	0.022	11,810
Violent solo offending	0.109	0.071	0.039	2,481
Violent co-offending	0.230	0.212	0.018	9,329
Unconditional	0.037	0.029	0.008	323,396

Note: the table presents the aggregate probability of committing violence, violent co-offending, and violent solo offending in $t + 1$ conditioning on different events in t . The reported events in t are not mutually exclusive (e.g., solo offending includes both violent solo offending and non-violent solo offending).

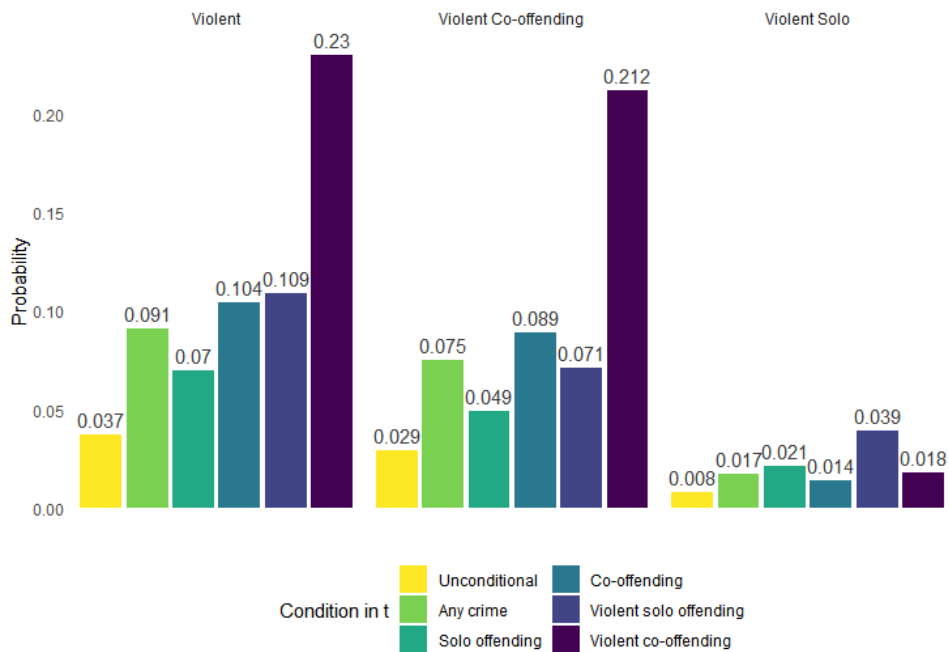


Fig. A1 Probability of committing violence, conditional on different offending events in the previous year

Table A2 Dynamic random-effects probit models for the probability of committing violence

Variable	Dependent variable: violence at time t			Dependent variable: violence at time t		
	β	SE	Sig.	β	SE	Sig.
Violence (t-1)	0.370	0.021	***			
Violent co-offending (t-1)				0.443	0.023	***
Violent solo offending (t-1)				0.137	0.034	***
Violence (t0)	0.107	0.020	***	0.105	0.020	***
Crime number	0.000	0.004		0.000	0.004	
Age at crime	-0.025	0.002	***	-0.025	0.002	***
Age at crime (t0)	-0.015	0.003	***	-0.015	0.003	***
Age at crime (Avg)	0.009	0.002	***	0.010	0.002	***
N crimes (t-1)	-0.024	0.003	***	-0.027	0.003	***
N crimes (t0)	-0.034	0.005	***	-0.033	0.005	***
N crimes (Avg)	0.224	0.010	***	0.222	0.010	***
Intercept	-0.711	0.059	***	-0.700	0.059	***
σ_u (offender)	0.053	0.008		0.049	0.008	
Wald Chi-square	$\chi^2=2400.90, p<0.001$			$\chi^2=2485.49, p<0.001$		
AIC	46,051.61			45,972.2		
BIC	46,148.88			46,078.31		
Observations	51,138			51,138		
N of unique offenders	9,119			9,119		

Notes: ***, **, and * indicate that the estimated coefficient is statistically significant at the 0.1, 1, and 5 per cent level, respectively. Standard errors are clustered at the offender level.

Table A3 Dynamic random-effects probit models for the probability of violent co-offending and violent solo offending

Variable	Dependent variable: violent co-offending at time t			Dependent variable: violent solo offending at time t		
	β	SE	Sig.	β	SE	Sig.
Violent co-offending (t-1)	0.506	0.025	***	-0.060	0.032	
Violent solo offending (t-1)	0.117	0.035	***	0.152	0.051	**
Violent co-offending (t0)	0.110	0.024	***			
Violent solo offending (t0)				0.085	0.047	
Crime number	-0.006	0.004		0.017	0.005	**
Age at crime	-0.020	0.002	***	-0.025	0.003	***
Age at crime (t0)	-0.009	0.003	**	-0.028	0.004	***
Age at crime (Avg)	0.005	0.002	*	0.015	0.004	***
N crimes (t-1)	-0.027	0.003	***	-0.010	0.004	*
N crimes (t0)	-0.038	0.005	***	0.006	0.005	
N crimes (Avg)	0.231	0.010	***	0.035	0.008	***
Intercept	-1.016	0.062	***	-1.152	0.088	***
σ_u (offender)	0.057	0.008	***	0.085	0.015	***
Wald Chi-square	$\chi^2=2306.33, p<0.001$			$\chi^2=320.66, p<0.001$		
AIC	39,819.05			16,552.8		
BIC	39,925.16			16,658.91		
Observations	51,138			51,138		
N of unique offenders	9,119			9,119		

Notes: ***, **, and * indicate that the estimated coefficient is statistically significant at the 0.1, 1, and 5 per cent level, respectively. Standard errors are clustered at the offender level.

Table A4 Comparison between predicted and observed values for the model reported in Table 4 (second model), considering up to crime number 8

Crime number	Offending behavior at $t - 1$ and $t - 2$	Predicted probability of violent offending in t	SE of predicted value	Observed probability of violent offending in t	N ids on which the observed value is computed
3	Violent co-offending (t-1 only)	0.330	0.008	0.345	1038
3	Violent co-offending (t-2 only)	0.209	0.006	0.259	868
3	Violent co-offending (both t-1 & t-2)	0.378	0.013	0.444	363
3	No violent co-offending in either t-1 or t-2	0.183	0.003	0.170	5894
3	Violent solo offending (t-1 only)	0.263	0.011	0.251	363
3	Violent solo offending (t-2 only)	0.229	0.010	0.247	409
3	Violent solo offending (both t-1 & t-2)	0.315	0.036	0.231	26
3	No violent solo offending in either t-1 or t-2	0.212	0.003	0.210	7365
4	Violent co-offending (t-1 only)	0.319	0.008	0.368	865
4	Violent co-offending (t-2 only)	0.200	0.006	0.217	803
4	Violent co-offending (both t-1 & t-2)	0.367	0.013	0.417	446
4	No violent co-offending in either t-1 or t-2	0.174	0.003	0.158	4980
4	Violent solo offending (t-1 only)	0.256	0.011	0.262	317
4	Violent solo offending (t-2 only)	0.222	0.010	0.230	331
4	Violent solo offending (both t-1 & t-2)	0.307	0.035	0.267	30
4	No violent solo offending in either t-1 or t-2	0.205	0.002	0.202	6416
5	Violent co-offending (t-1 only)	0.307	0.008	0.307	690
5	Violent co-offending (t-2 only)	0.190	0.006	0.220	724
5	Violent co-offending (both t-1 & t-2)	0.354	0.013	0.416	423
5	No violent co-offending in either t-1 or t-2	0.165	0.003	0.160	4193
5	Violent solo offending (t-1 only)	0.246	0.011	0.236	225
5	Violent solo offending (t-2 only)	0.213	0.009	0.252	298
5	Violent solo offending (both t-1 & t-2)	0.297	0.035	0.462	26
5	No violent solo offending in either t-1 or t-2	0.197	0.002	0.196	5481
6	Violent co-offending (t-1 only)	0.295	0.008	0.316	592
6	Violent co-offending (t-2 only)	0.181	0.005	0.213	644
6	Violent co-offending (both t-1 & t-2)	0.342	0.013	0.456	329
6	No violent co-offending in either t-1 or t-2	0.157	0.002	0.147	3460
6	Violent solo offending (t-1 only)	0.236	0.011	0.250	176
6	Violent solo offending (t-2 only)	0.204	0.009	0.249	213
6	Violent solo offending (both t-1 & t-2)	0.285	0.034	0.278	18
6	No violent solo offending in either t-1 or t-2	0.188	0.002	0.191	4618
7	Violent co-offending (t-1 only)	0.285	0.008	0.284	444
7	Violent co-offending (t-2 only)	0.174	0.005	0.220	482
7	Violent co-offending (both t-1 & t-2)	0.332	0.013	0.458	288
7	No violent co-offending in either t-1 or t-2	0.151	0.002	0.150	2802
7	Violent solo offending (t-1 only)	0.228	0.011	0.229	131
7	Violent solo offending (t-2 only)	0.196	0.009	0.184	147
7	Violent solo offending (both t-1 & t-2)	0.276	0.034	0.300	20
7	No violent solo offending in either t-1 or t-2	0.180	0.002	0.194	3718
8	Violent co-offending (t-1 only)	0.276	0.008	0.328	335
8	Violent co-offending (t-2 only)	0.166	0.005	0.218	395
8	Violent co-offending (both t-1 & t-2)	0.321	0.013	0.414	222
8	No violent co-offending in either t-1 or t-2	0.144	0.003	0.138	2196
8	Violent solo offending (t-1 only)	0.218	0.010	0.234	111
8	Violent solo offending (t-2 only)	0.188	0.009	0.188	117
8	Violent solo offending (both t-1 & t-2)	0.266	0.033	0.313	16
8	No violent solo offending in either t-1 or t-2	0.172	0.002	0.185	2904