

Online Appendix

Association of Marijuana Laws With Teen Marijuana Use: New Estimates From the Youth Risk Behavior Surveys.

Published online July 8, 2019 in *JAMA Pediatrics*

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Appendix Table 1. State-by-Year Observations in Pooled State and National YRBS

<i>State</i>	<i>1993</i>	<i>1995</i>	<i>1997</i>	<i>1999</i>	<i>2001</i>	<i>2003</i>	<i>2005</i>	<i>2007</i>	<i>2009</i>	<i>2011</i>	<i>2013</i>	<i>2015</i>	<i>2017</i>	<i>Total</i>
AL	5,005	3,805	4,317	2,048	1,806	1,667	971	476	2,424	1,627	1,792	1,736	92	27,766
AK	0	1,570	0	0	0	1,403	0	1,234	1,190	1,245	1,142	1,323	1,256	10,363
AZ	429	0	1,084	130	399	3,635	3,392	3,401	2,767	3,752	1,679	2,604	2,129	25,401
AR	392	2,496	2,301	1,409	1,652	270	1,429	1,928	1,854	1,277	1,715	2,588	1,937	21,248
CA	1,940	632	1,946	2,440	2,149	1,694	1,526	2,073	2,754	1,812	2,431	5,686	3,345	30,428
CO	257	99	267	0	642	0	1,456	0	1,634	1,632	290	265	1,308	7,850
CT	0	238	1,863	0	0	0	2,330	1,941	2,270	1,940	2,332	2,365	2,272	17,551
DE	0	211	0	2,106	2,820	3,284	2,583	2,318	2,201	2,351	2,484	2,528	2,724	25,610
DC	0	503	0	0	0	0	0	0	0	298	0	0	0	801
FL	0	533	668	852	5,019	5,266	4,873	4,998	5,468	7,146	6,593	6,741	6,300	54,457
GA	895	435	341	801	479	2,410	3,470	2,637	3,056	1,920	2,203	333	289	19,269
HI	0	0	0	303	0	0	1,569	1,123	1,614	4,056	4,404	5,601	5,493	24,163
ID	3,899	0	0	0	1,820	1,679	1,637	1,350	2,077	1,897	2,071	2,027	2,067	20,524
IL	4,174	3,213	0	225	431	311	473	2,858	4,303	4,325	3,666	3,885	5,666	33,530
IN	0	0	0	0	178	2,023	1,667	2,607	1,453	2,992	814	2,013	0	13,747
IA	0	240	2,270	0	0	0	1,575	1,657	0	1,506	0	0	1,594	8,842
KS	170	0	203	0	0	312	1,888	1,662	2,171	2,093	2,065	0	2,297	12,861
KY	0	346	1,431	0	0	1,519	3,687	3,695	1,665	1,828	2,231	2,403	2,484	21,289
LA	0	747	572	608	0	680	156	1,243	1,367	1,061	1,016	0	1,072	8,522
ME	247	1,524	2,026	197	1,489	1,800	1,292	1,250	8,026	8,596	7,972	8,697	8,659	51,775
MD	144	0	807	0	0	259	1,367	1,446	1,535	2,474	49,393	51,867	48,273	157,565
MA	356	271	1,609	4,196	4,074	3,522	3,321	3,654	2,563	2,854	2,589	3,176	3,108	35,293
MI	144	1,079	4,257	3,063	3,773	3,696	3,411	3,634	3,529	4,615	4,548	4,786	1,765	42,300
MN	319	0	0	0	0	0	95	0	186	0	290	740	59	1,689
MS	1,732	1,727	1,780	2,129	2,109	1,454	0	1,862	1,729	1,807	2,097	1,931	254	20,611
MO	181	5,299	1,438	2,137	2,077	1,786	1,947	1,839	1,661	343	1,797	1,574	1,719	23,798
MT	2,454	2,468	2,373	2,784	2,736	2,599	2,934	3,763	1,746	3,931	4,689	4,248	4,523	41,248
NE	3,541	0	0	0	0	2,854	3,637	0	0	2,601	1,714	1,594	1,353	17,294
NV	1,985	1,490	1,436	1,640	1,635	1,909	1,482	1,696	2,347	199	2,022	1,756	1,890	21,487
NH	2,638	2,064	0	0	0	1,288	1,243	1,555	1,435	1,344	1,581	14,230	11,429	38,807

<i>State</i>	<i>1993</i>	<i>1995</i>	<i>1997</i>	<i>1999</i>	<i>2001</i>	<i>2003</i>	<i>2005</i>	<i>2007</i>	<i>2009</i>	<i>2011</i>	<i>2013</i>	<i>2015</i>	<i>2017</i>	<i>Total</i>
NJ	0	0	726	234	2,218	297	1,775	673	2,174	1,706	1,996	207	0	12,006
NM	657	0	278	0	153	100	5,247	2,720	5,347	5,493	5,237	8,342	5,822	39,396
NY	483	273	3,995	3,940	299	9,789	9,547	13,232	14,627	12,739	10,017	9,791	10,737	99,469
NC	2,666	1,837	332	506	3,131	2,468	4,383	3,853	5,409	3,229	2,134	5,639	3,599	39,186
ND	0	1,488	0	1,776	1,558	1,631	1,696	1,697	1,747	1,847	1,903	2,056	2,046	19,445
OH	524	547	543	2,558	222	1,454	270	0	0	0	1,552	225	0	7,895
OK	0	0	223	0	394	1,346	1,901	2,819	1,372	1,126	1,458	1,916	1,699	14,254
OR	188	0	0	0	183	0	268	0	243	0	0	0	0	882
PA	357	658	271	480	0	316	410	210	3,059	423	261	3,187	4,312	13,944
RI	0	0	1,458	74	1,338	1,742	2,282	2,056	3,033	3,731	2,303	3,860	2,044	23,921
SC	4,530	5,292	5,851	5,165	0	876	1,515	1,180	1,035	1,358	1,507	1,277	1,256	30,842
SD	1,325	1,167	1,571	1,626	1,557	2,054	1,538	1,541	2,086	1,483	1,241	1,213	0	18,402
TN	3,685	0	571	263	593	1,896	1,904	2,152	2,152	2,834	1,780	388	1,930	20,148
TX	1,330	1,179	939	2,675	8,846	2,578	5,732	4,531	4,722	5,659	3,400	1,206	2,747	45,544
UT	4,274	3,105	1,337	1,455	1,019	1,516	1,667	2,042	1,508	1,618	2,097	0	1,844	23,482
VT	0	0	0	0	0	6,112	6,899	5,670	8,118	8,153	0	19,980	19,453	74,385
VA	0	64	0	723	0	242	343	425	96	1,566	7,525	4,210	4,461	19,655
WA	372	82	104	0	52	0	101	0	246	166	192	101	482	1,898
WV	3,069	2,040	1,788	1,288	260	1,697	1,523	1,578	2,007	2,341	1,735	1,755	1,683	22,764
WI	3,196	0	1,581	1,822	2,292	2,247	2,483	2,203	3,044	3,554	2,740	0	2,082	27,244
WY	0	1,660	1,988	1,571	2,657	1,492	2,364	2,050	2,716	2,346	2,880	2,251	0	23,975
Total	57,558	50,382	56,545	53,224	62,060	87,173	109,259	108,532	129,766	134,894	169,578	204,301	191,554	1,414,826

Appendix Table 2. State-by-Year Observations in National YRBS

<i>State</i>	<i>1993</i>	<i>1995</i>	<i>1997</i>	<i>1999</i>	<i>2001</i>	<i>2003</i>	<i>2005</i>	<i>2007</i>	<i>2009</i>	<i>2011</i>	<i>2013</i>	<i>2015</i>	<i>2017</i>	<i>Total</i>
AL	781	97	784	55	305	635	0	476	1,036	313	324	293	92	5,191
AZ	429	0	1,084	130	399	340	280	597	353	1,098	178	216	108	5,212
AR	392	284	360	0	0	270	0	411	297	0	304	0	455	2,773
CA	1,940	632	1,946	2,440	2,149	1,694	1,526	2,073	2,754	1,812	2,431	3,841	1,670	26,908
CO	257	99	267	0	642	0	0	0	190	242	290	265	0	2,252
CT	0	238	218	0	0	0	230	0	0	0	69	113	0	868
DE	0	211	0	0	0	360	0	0	0	226	0	0	0	797
DC	0	503	0	0	0	0	0	0	0	298	0	0	0	801
FL	0	533	668	852	1,045	1,394	533	734	222	1,374	974	759	546	9,634
GA	895	435	341	801	479	406	1,801	343	1,303	128	366	333	289	7,920
HI	0	0	0	303	0	0	0	0	229	0	0	0	0	532
ID	0	0	0	0	154	0	238	0	0	260	248	339	304	1,543
IL	265	234	0	225	431	311	473	580	1,463	975	625	880	1,140	7,602
IN	0	0	0	0	178	411	169	394	0	268	814	182	0	2,416
IA	0	240	775	0	0	0	237	245	0	0	0	0	0	1,497
KS	170	0	203	0	0	312	275	0	197	295	193	0	0	1,645
KY	0	346	0	0	0	0	526	356	0	212	668	0	590	2,698
LA	0	747	572	608	0	680	156	0	423	0	0	0	0	3,186
ME	247	151	235	197	203	194	0	0	0	0	0	0	0	1,227
MD	144	0	807	0	0	259	0	0	0	0	506	1,349	2,387	5,452
MA	356	271	1,609	0	251	210	256	708	0	283	0	263	0	4,207
MI	144	1,079	499	511	337	392	286	297	315	622	475	217	217	5,391
MN	319	0	0	0	0	0	95	0	186	0	290	740	59	1,689
MS	353	476	327	626	338	0	0	348	0	93	571	0	254	3,386
MO	181	542	0	550	459	261	102	345	85	343	265	163	0	3,296
MT	0	0	0	0	184	0	0	0	0	0	0	0	0	184
NE	395	0	0	0	0	0	0	0	0	0	0	0	0	395
NV	0	0	0	0	234	0	0	0	380	199	0	382	324	1,519
NJ	0	0	726	234	218	297	309	673	474	113	359	207	0	3,610
NM	657	0	278	0	153	100	0	218	598	0	0	309	319	2,632

<i>State</i>	<i>1993</i>	<i>1995</i>	<i>1997</i>	<i>1999</i>	<i>2001</i>	<i>2003</i>	<i>2005</i>	<i>2007</i>	<i>2009</i>	<i>2011</i>	<i>2013</i>	<i>2015</i>	<i>2017</i>	<i>Total</i>
NY	483	273	356	708	299	893	457	899	1,165	626	374	289	681	7,503
NC	296	114	332	506	662	0	628	556	0	1,087	370	0	662	5,213
OH	524	547	543	554	222	288	270	0	0	0	157	225	0	3,330
OK	0	0	223	0	394	0	232	278	0	0	0	367	144	1,638
OR	188	0	0	0	183	0	268	0	243	0	0	0	0	882
PA	357	658	271	480	0	316	410	210	1,046	423	261	460	825	5,717
RI	0	0	0	74	0	0	0	0	0	0	0	661	0	735
SC	387	0	517	781	0	876	284	0	0	0	0	0	0	2,845
SD	0	0	0	0	0	296	0	0	0	0	0	0	0	296
TN	512	0	571	263	593	0	392	162	0	286	0	388	0	3,167
TX	1,330	1,179	939	2,675	2,010	2,578	1,706	1,442	1,318	1,737	393	1,206	752	19,265
UT	0	0	0	0	0	176	269	193	0	0	0	0	106	744
VT	0	0	0	0	0	249	0	0	0	0	0	0	0	249
VA	0	64	0	723	0	242	343	425	96	201	1,107	0	941	4,142
WA	372	82	104	0	52	0	101	0	246	166	192	101	482	1,898
WV	301	0	0	0	260	0	228	245	460	254	0	235	242	2,225
WI	0	0	289	525	236	176	240	178	676	647	0	0	130	3,097
Total	12,675	10,035	15,844	14,821	13,070	14,616	13,320	13,386	15,755	14,581	12,804	14,783	13,719	179,409

Appendix Table 3. State-by-Year Observations in State YRBS

<i>State</i>	<i>1993</i>	<i>1995</i>	<i>1997</i>	<i>1999</i>	<i>2001</i>	<i>2003</i>	<i>2005</i>	<i>2007</i>	<i>2009</i>	<i>2011</i>	<i>2013</i>	<i>2015</i>	<i>2017</i>	<i>Total</i>
AL	4,224	3,708	3,533	1,993	1,501	1,032	971	0	1,388	1,314	1,468	1,443	0	22,575
AK	0	1,570	0	0	0	1,403	0	1,234	1,190	1,245	1,142	1,323	1,256	10,363
AZ	0	0	0	0	0	3,295	3,112	2,804	2,414	2,654	1,501	2,388	2,021	20,189
AR	0	2,212	1,941	1,409	1,652	0	1,429	1,517	1,557	1,277	1,411	2,588	1,482	18,475
CA	0	0	0	0	0	0	0	0	0	0	0	1,845	1,675	3,520
CO	0	0	0	0	0	0	1,456	0	1,444	1,390	0	0	1,308	5,598
CT	0	0	1,645	0	0	0	2,100	1,941	2,270	1,940	2,263	2,252	2,272	16,683
DE	0	0	0	2,106	2,820	2,924	2,583	2,318	2,201	2,125	2,484	2,528	2,724	24,813
FL	0	0	0	0	3,974	3,872	4,340	4,264	5,246	5,772	5,619	5,982	5,754	44,823
GA	0	0	0	0	0	2,004	1,669	2,294	1,753	1,792	1,837	0	0	11,349
HI	0	0	0	0	0	0	1,569	1,123	1,385	4,056	4,404	5,601	5,493	23,631
ID	3,899	0	0	0	1,666	1,679	1,399	1,350	2,077	1,637	1,823	1,688	1,763	18,981
IL	3,909	2,979	0	0	0	0	0	2,278	2,840	3,350	3,041	3,005	4,526	25,928
IN	0	0	0	0	0	1,612	1,498	2,213	1,453	2,724	0	1,831	0	11,331
IA	0	0	1,495	0	0	0	1,338	1,412	0	1,506	0	0	1,594	7,345
KS	0	0	0	0	0	0	1,613	1,662	1,974	1,798	1,872	0	2,297	11,216
KY	0	0	1,431	0	0	1,519	3,161	3,339	1,665	1,616	1,563	2,403	1,894	18,591
LA	0	0	0	0	0	0	0	1,243	944	1,061	1,016	0	1,072	5,336
ME	0	1,373	1,791	0	1,286	1,606	1,292	1,250	8,026	8,596	7,972	8,697	8,659	50,548
MD	0	0	0	0	0	0	1,367	1,446	1,535	2,474	48,887	50,518	45,886	152,113
MA	0	0	0	4,196	3,823	3,312	3,065	2,946	2,563	2,571	2,589	2,913	3,108	31,086
MI	0	0	3,758	2,552	3,436	3,304	3,125	3,337	3,214	3,993	4,073	4,569	1,548	36,909
MS	1,379	1,251	1,453	1,503	1,771	1,454	0	1,514	1,729	1,714	1,526	1,931	0	17,225
MO	0	4,757	1,438	1,587	1,618	1,525	1,845	1,494	1,576	0	1,532	1,411	1,719	20,502
MT	2,454	2,468	2,373	2,784	2,552	2,599	2,934	3,763	1,746	3,931	4,689	4,248	4,523	41,064
NE	3,146	0	0	0	0	2,854	3,637	0	0	2,601	1,714	1,594	1,353	16,899
NV	1,985	1,490	1,436	1,640	1,401	1,909	1,482	1,696	1,967	0	2,022	1,374	1,566	19,968
NH	2,638	2,064	0	0	0	1,288	1,243	1,555	1,435	1,344	1,581	14,230	11,429	38,807
NJ	0	0	0	0	2,000	0	1,466	0	1,700	1,593	1,637	0	0	8,396
<i>State</i>	<i>1993</i>	<i>1995</i>	<i>1997</i>	<i>1999</i>	<i>2001</i>	<i>2003</i>	<i>2005</i>	<i>2007</i>	<i>2009</i>	<i>2011</i>	<i>2013</i>	<i>2015</i>	<i>2017</i>	<i>Total</i>

NM	0	0	0	0	0	0	5,247	2,502	4,749	5,493	5,237	8,033	5,503	36,764
NY	0	0	3,639	3,232	0	8,896	9,090	12,333	13,462	12,113	9,643	9,502	10,056	91,966
NC	2,370	1,723	0	0	2,469	2,468	3,755	3,297	5,409	2,142	1,764	5,639	2,937	33,973
ND	0	1,488	0	1,776	1,558	1,631	1,696	1,697	1,747	1,847	1,903	2,056	2,046	19,445
OH	0	0	0	2,004	0	1,166	0	0	0	0	1,395	0	0	4,565
OK	0	0	0	0	0	1,346	1,669	2,541	1,372	1,126	1,458	1,549	1,555	12,616
PA	0	0	0	0	0	0	0	0	2,013	0	0	2,727	3,487	8,227
RI	0	0	1,458	0	1,338	1,742	2,282	2,056	3,033	3,731	2,303	3,199	2,044	23,186
SC	4,143	5,292	5,334	4,384	0	0	1,231	1,180	1,035	1,358	1,507	1,277	1,256	27,997
SD	1,325	1,167	1,571	1,626	1,557	1,758	1,538	1,541	2,086	1,483	1,241	1,213	0	18,106
TN	3,173	0	0	0	0	1,896	1,512	1,990	2,152	2,548	1,780	0	1,930	16,981
TX	0	0	0	0	6,836	0	4,026	3,089	3,404	3,922	3,007	0	1,995	26,279
UT	4,274	3,105	1,337	1,455	1,019	1,340	1,398	1,849	1,508	1,618	2,097	0	1,738	22,738
VT	0	0	0	0	0	5,863	6,899	5,670	8,118	8,153	0	19,980	19,453	74,136
VA	0	0	0	0	0	0	0	0	0	1,365	6,418	4,210	3,520	15,513
WV	2,768	2,040	1,788	1,288	0	1,697	1,295	1,333	1,547	2,087	1,735	1,520	1,441	20,539
WI	3,196	0	1,292	1,297	2,056	2,071	2,243	2,025	2,368	2,907	2,740	0	1,952	24,147
WY	0	1,660	1,988	1,571	2,657	1,492	2,364	2,050	2,716	2,346	2,880	2,251	0	23,975
Total	44,883	40,347	40,701	38,403	48,990	72,557	95,939	95,146	114,011	120,313	156,774	189,518	177,835	1,235,417

Appendix Table 4. States Contributing to RML Identifying Variation

State	RML Effective Date	Pooled State & National YRBS	State YRBS	National YRBS
AK	February 24, 2015	1995, 2003, 2007-2013, 2017	1995, 2003, 2007-2017	N/A
CA	November 9, 2016	1993-2017	2015, 2017	1993-2017
CO	December 10, 2012	1993-1997, 2001, 2005, 2009-2017	2005, 2009, 2011, 2017	1993-1997, 2001, 2009-2015
ME	January 31, 2017	1993-2017	1995, 1997, 2001-2017	1993-2003
MA	December 15, 2016	1993-2017	1999-2017	1993-1997, 2001-2007, 2011, 2015
NV	January 1, 2017	1993-2017	1993-2009, 2013-2017	2001, 2009, 2011, 2015, 2017
WA	December 6, 2012	1993-1997, 2001, 2005, 2009-2017	N/A	1993-1997, 2001, 2005, 2009-2017

Appendix Table 5. Weighted Logistic Estimates of the Relationship between Marijuana Legalization and Teen Marijuana Use, National YRBS^a

	(1)	(2)	(3)	(4)
	Marijuana Use	Frequent Marijuana Use	Marijuana Use ^b	Frequent Marijuana Use ^b
MML	0.91 [0.79, 1.05]	0.90 [0.72, 1.13]	0.92 [0.80, 1.06]	0.92 [0.72, 1.18]
RML	1.07 [0.95, 1.21]	0.94 [0.78, 1.14]	1.04 [0.88, 1.23]	0.92 [0.72, 1.18]
Adjusted for state and year indicators?	Yes	Yes	Yes	Yes
Adjusted for individual- and state-level characteristics?	No	No	Yes	Yes

Boldface indicates statistical significance ($p < 0.05$)

^a Each column reports weighted estimates from a separate logistic regression based on biennial data from the Youth Risk Behavior Surveys (1993-2017). Specifically, estimated ORs of marijuana use and frequent marijuana use (i.e., use at least 10 times in the past 30 days) are reported. Ninety-five % confidence intervals are in brackets. Standard errors, which were used to construct the 95% confidence intervals, were corrected for clustering at the state level. Sample weights used were those provided by the Centers for Disease Control and Prevention with the National YRBS data. All models were adjusted for 50 state and 12 year indicators. $N = 179,409$. Estimated average marginal effects were qualitatively similar to the estimated ORs.

^b Estimated ORs were adjusted for individual-level characteristics (age, gender, grade, and race), whether marijuana use and possession were decriminalized in the respondent's state, the presence of a state-level 0.08 blood alcohol concentration law, the state beer tax, state income per capita, state unemployment rate, 50 state and 12 year indicators.

Appendix Table 6. Weighted Logistic Estimates of the Relationship between Marijuana Legalization and Teen Marijuana Use, State YRBS^a

	(1)	(2)	(3)	(4)
	Marijuana Use	Frequent Marijuana Use	Marijuana Use ^b	Frequent Marijuana Use ^b
MML	0.97 [0.92, 1.01]	0.96 [0.90, 1.02]	0.96 [0.92, 1.01]	0.96 [0.90, 1.02]
RML	0.95 [0.88, 1.02]	0.82 [0.72, 0.93]	0.96 [0.88, 1.03]	0.83 [0.73, 0.93]
Adjusted for state and year indicators?	Yes	Yes	Yes	Yes
Adjusted for individual- and state-level characteristics?	No	No	Yes	Yes

Boldface indicates statistical significance ($p < 0.05$)

^a Each column reports weighted estimates from a separate logistic regression based on biennial data from the Youth Risk Behavior Surveys (1993-2017). Specifically, estimated ORs of marijuana use and frequent marijuana use (i.e., use at least 10 times in the past 30 days) are reported. Ninety-five % confidence intervals are in brackets. Standard errors, which were used to construct the 95% confidence intervals, were corrected for clustering at the state level. Sample weights were generated as the product of sample weights provided by each State YRBS (normalized to 1) and estimates of the state-by-year population of individuals ages 13-to-18 from the Surveillance, Epidemiology, and End Results (SEER) program. All models were adjusted for 50 state and 12 year indicators. $N = 1,235,402$. Estimated average marginal effects were qualitatively similar to the estimated ORs.

^b Estimated ORs were adjusted for individual-level characteristics (age, gender, grade, and race), whether marijuana use and possession were decriminalized in the respondent's state, the presence of a state-level 0.08 blood alcohol concentration law, the state beer tax, state income per capita, state unemployment rate, 50 state and 12 year indicators.

Appendix Table 7. Unweighted Logistic Estimates of the Relationship between Marijuana Legalization and Teen Marijuana Use, Pooled State and National YRBS^a

	(1)	(2)	(3)	(4)
	Marijuana Use	Frequent Marijuana Use	Marijuana Use ^b	Frequent Marijuana Use ^b
MML	0.95 [0.90, 1.00]	0.93 [0.86, 1.00]	0.95 [0.89, 1.01]	0.94 [0.87, 1.03]
RML	0.91 [0.85, 0.98]	0.91 [0.83, 0.99]	0.92 [0.87, 0.96]	0.91 [0.84, 0.98]
Adjusted for state and year indicators?	Yes	Yes	Yes	Yes
Adjusted for individual- and state-level characteristics?	No	No	Yes	Yes

Boldface indicates statistical significance ($p < 0.05$)

^a These estimates correspond to those reported in Anderson et al. (2019). Each column reports unweighted estimates from a separate logistic regression based on biennial data from the Youth Risk Behavior Surveys (1993-2017). Specifically, estimated ORs of marijuana use and frequent marijuana use (i.e., use at least 10 times in the past 30 days) are reported. Ninety-five % confidence intervals are in brackets. Standard errors, which were used to construct the 95% confidence intervals, were corrected for clustering at the state level. All models were adjusted for 50 state and 12 year indicators. $N = 1,414,826$. Estimated average marginal effects were qualitatively similar to the estimated ORs.

^b Estimated ORs were adjusted for individual-level characteristics (age, gender, grade, and race), whether marijuana use and possession were decriminalized in the respondent's state, the presence of a state-level 0.08 blood alcohol concentration law, the state beer tax, state income per capita, state unemployment rate, 50 state and 12 year indicators.

Appendix Table 8. Unweighted Logistic Estimates of the Relationship between Marijuana Legalization and Teen Marijuana Use, National YRBS^a

	(1)	(2)	(3)	(4)
	Marijuana Use	Frequent Marijuana Use	Marijuana Use ^b	Frequent Marijuana Use ^b
MML	0.77 [0.65, 0.92]	0.71 [0.55, 0.92]	0.81 [0.69, 0.96]	0.76 [0.59, 0.98]
RML	0.97 [0.85, 1.11]	0.93 [0.74, 1.17]	0.93 [0.80, 1.07]	0.88 [0.71, 1.08]
Adjusted for state and year indicators?	Yes	Yes	Yes	Yes
Adjusted for individual- and state-level characteristics?	No	No	Yes	Yes

Boldface indicates statistical significance ($p < 0.05$)

^a Each column reports unweighted estimates from a separate logistic regression based on biennial data from the Youth Risk Behavior Surveys (1993-2017). Specifically, estimated ORs of marijuana use and frequent marijuana use (i.e., use at least 10 times in the past 30 days) are reported. Ninety-five % confidence intervals are in brackets. Standard errors, which were used to construct the 95% confidence intervals, were corrected for clustering at the state level. All models were adjusted for 50 state and 12 year indicators. $N = 179,409$. Estimated average marginal effects were qualitatively similar to the estimated ORs.

^b Estimated ORs were adjusted for individual-level characteristics (age, gender, grade, and race), whether marijuana use and possession were decriminalized in the respondent's state, the presence of a state-level 0.08 blood alcohol concentration law, the state beer tax, state income per capita, state unemployment rate, 50 state and 12 year indicators.

Appendix Table 9. Unweighted Logistic Estimates of the Relationship between Marijuana Legalization and Teen Marijuana Use, State YRBS^a

	(1)	(2)	(3)	(4)
	Marijuana Use	Frequent Marijuana Use	Marijuana Use ^b	Frequent Marijuana Use ^b
MML	0.97 [0.93, 1.02]	0.96 [0.91, 1.02]	0.98 [0.93, 1.03]	0.98 [0.91, 1.05]
RML	0.90 [0.84, 0.95]	0.92 [0.85, 0.99]	0.91 [0.87, 0.94]	0.93 [0.86, 0.99]
Adjusted for state and year indicators?	Yes	Yes	Yes	Yes
Adjusted for individual- and state-level characteristics?	No	No	Yes	Yes

Boldface indicates statistical significance ($p < 0.05$)

^a Each column reports unweighted estimates from a separate logistic regression based on biennial data from the Youth Risk Behavior Surveys (1993-2017). Specifically, estimated ORs of marijuana use and frequent marijuana use (i.e., use at least 10 times in the past 30 days) are reported. Ninety-five % confidence intervals are in brackets. Standard errors, which were used to construct the 95% confidence intervals, were corrected for clustering at the state level. All models were adjusted for 50 state and 12 year indicators. $N = 1,235,417$. Estimated average marginal effects were qualitatively similar to the estimated ORs.

^b Estimated ORs were adjusted for individual-level characteristics (age, gender, grade, and race), whether marijuana use and possession were decriminalized in the respondent's state, the presence of a state-level 0.08 blood alcohol concentration law, the state beer tax, state income per capita, state unemployment rate, 50 state and 12 year indicators.

Appendix Table 10. Unweighted Logistic Estimates of the Relationship between Marijuana Legalization and Teen Marijuana Use, Pooled State and National YRBS^a

	(1)	(2)	(3)	(4)
	Marijuana Use	Frequent Marijuana Use	Marijuana Use ^b	Frequent Marijuana Use ^b
MML	0.95 [0.90, 1.00]	0.93 [0.87, 1.00]	0.95 [0.89, 1.01]	0.95 [0.87, 1.03]
Opening Marijuana Shops for Recreational Use	0.95 [0.84, 1.08]	0.87 [0.59, 1.28]	0.95 [0.85, 1.05]	0.86 [0.60, 1.22]
Adjusted for state and year indicators?	Yes	Yes	Yes	Yes
Adjusted for individual- and state-level characteristics?	No	No	Yes	Yes

Boldface indicates statistical significance ($p < 0.05$)

^a Each column reports unweighted estimates from a separate logistic regression based on biennial data from the Youth Risk Behavior Surveys (1993-2017). Specifically, estimated ORs of marijuana use and frequent marijuana use (i.e., use at least 10 times in the past 30 days) are reported. Ninety-five % confidence intervals are in brackets. Standard errors, which were used to construct the 95% confidence intervals, were corrected for clustering at the state level. All models were adjusted for 50 state and 12 year indicators. $N = 1,414,826$. Estimated average marginal effects were qualitatively similar to the estimated ORs.

^b Estimated ORs were adjusted for individual-level characteristics (age, gender, grade, and race), whether marijuana use and possession were decriminalized in the respondent's state, the presence of a state-level 0.08 blood alcohol concentration law, the state beer tax, state income per capita, state unemployment rate, 50 state and 12 year indicators.