

Supplement 3.

Supplement 3: Table 1. Trend Line Analysis with Vaping-Related Deviations from Long-Term Trend, Log Form of Dependent Variable, Various Surveys, with Corrections for Autocorrelation (only for Equations w Durbin Watson Statistics in the Indeterminate Region)

Survey	Measure	Years Included	Long-term trend	P-value	Vaping trend	P-value	Adj. R-squared
MTF	10 th -grade, M & F	2004-2017	-0.043	<0.001	-0.086	0.01	0.911
MTF	12 th -grade, M & F	2004-2017	-0.03	<0.001	-0.056	0.002	0.958
MTF	Ages 22-24, M & F	2004-2016	-0.08	<0.001	-0.059	<0.001	0.970
MTF	12 th -grade, Daily, M & F	2004-2017	-0.039	<0.001	-0.08	0.03	0.962
MTF	Ages 22-24, Daily, M & F	2004-2016	-0.090	<0.001	-0.058	0.05	0.994
MTF	Ages 18-25, Half Pack, M & F	2004-2016	-0.065	<0.001	-0.048	0.05	0.989
NHIS	Current Smoker, 18-24, F	2004-2016	-0.054	<0.001	-0.078	0.02	0.945
MTF	10 th -grade, M & F	2004-2017	-0.020	<0.001	-0.025	0.05	0.922
MTF	Ages 22-24, M & F	2004-2016	-0.022	0.002	-0.012	0.17	0.888

Notes: MTF= Monitoring the Future survey, NHIS = National Health Interview Survey, M= Male, F=Female

Equations were corrected for autocorrelation by first estimating the correlation of the error term, $e_t = a + \rho e_{t-1}$, then adjusting the dependent variable y as $(y_t - \rho y_{t-1})$

Supplement 3: Table 2. Trend Line Analysis with Vaping-Related Deviations from Long-Term Trend, Various Surveys, with the Dependent Variable in Linear Form

Survey	Measure	Years Included	Long-term trend	P-value	Vaping trend	P-value	Durbin Watson Stat.	Adj. R-squared
Last 30-day Cigarette Use								
MTF	10th grade, M & F	2004-2017	-0.089	<0.001	-0.72	0.03	1.21*	0.954
MTF	12th grade, M & F	2004-2017	-0.92	<0.001	-0.86	0.002	1.28*	0.982
MTF	Ages 18-21, M & F	2004-2016	-1.09	<0.001	-0.77	0.04	1.23	0.975
MTF	Ages 22-24, M & F	2004-2016	-1.18	<0.001	-0.267	0.85	3.03*	0.970
NSDUH	Last 30 day Ages 18-25	2004-2016	-0.96	<0.001	-1.73	<0.001	2.23	0.981
Established Cigarette Use								
MTF	10th grade, Daily M & F	2004-2017	-0.43	<0.001	-0.27	0.09	1.97	0.960
MTF	12th grade, Daily, M & F	2004-2017	-0.69	<0.001	-0.45	0.03	1.19*	0.972
MTF	Ages 18-21, Daily, M & F	2004-2016	-0.85	<0.001	-0.58	0.06	1.62	0.970
MTF	Ages 22-24, Daily, M & F	2004-2016	-1.04	<0.001	-0.013	0.05	1.99	0.980
NSDUH	Ages 18-25, Daily M & F	2004-2016	-0.75	<0.001	-0.62	<0.001	2.04	0.994
NHIS	Current Smoker, 18-24, M	2004-2016	-0.79	0.002	-1.53	0.08	2.23	0.835
NHIS	Current Smoker, 18-24, F	2004-2016	-0.71	<0.001	-0.50	0.25	2.84*	0.781
Daily Use/Last 30 Day Use								
MTF	10th grade, M & F	2004-2017	-0.006	0.02	-0.005	0.48	3.11*	0.657
MTF	12th grade, M & F	2004-2017	-0.008	<0.001	-0.014	0.001	1.23*	0.953
MTF	Ages 18-21, M & F	2004-2016	-0.008	<0.001	-0.003	0.001	2.29	0.923
MTF	Ages 22-24, M & F	2004-2016	-0.010	<0.001	-0.004	-0.87	2.58*	0.888
NSDUH	Ages 18-25, M & F	2004-2016	-0.82	<0.001	-0.083	0.81	2.19	0.906

Notes: Durbin Watson Statistic (k=2, n= 13: dl=0.86, du= 1.56; k=2, n= 14, dl=0.91, du= 1.55), * = indeterminate region, MTF= Monitoring the Future survey, NSDUH =National Survey of Drug Use and Health, NHIS = National Health Interview Survey, M= Male, F=Female

Supplement 3: Table 3a. Trend Line Analysis of Last 30-day Use with Vaping-Related Deviations from Long-Term Trend, Log Form, Various Surveys, with Different Begin Dates for Vaping Trend: 2012, 2013, 2014

Survey	Measure	Years	Initial Year of Vaping trend	Long-term trend	P-value	Vaping trend	P-value	Durban-Watson Statistic	Adj R-squared
Last 30-day Use									
MTF	10th grade, M & F*	2004-2017	2014	-0.340	<.0001	-0.130	<.0001	2.44*	0.980
MTF	10th grade, M & F*	2004-2017	2013	-0.046	<.0001	-0.133	<.0001	1.87	0.975
MTF	10th grade, M & F*	2004-2017	2012	-0.058	<.0001	-0.140	<.0001	1.28*	0.954
MTF	12th grade, M & F*	2004-2017	2014	-0.046	<.0001	-0.096	<.0001	1.16*	0.985
MTF	12th grade, M & F*	2004-2017	2013	-0.040	<.0001	-0.086	<.0001	2.45*	0.990
MTF	12th grade, M & F*	2004-2017	2012	-0.034	<.0001	-0.078	<.0001	1.69	0.988
MTF	Ages 18-21, M & F	2004-2016	2014	-0.048	<.0001	-0.091	0.0005	2.28	0.973
MTF	Ages 18-21, M & F	2004-2016	2013	-0.047	<.0001	-0.061	0.01	2.02	0.951
MTF	Ages 18-21, M & F	2004-2016	2012	-0.049	0.0200	-0.045	0.0008	1.63	0.943
MTF	Ages 22-24, M & F	2004-2016	2014	-0.047	<.0001	-0.041	0.0100	3.00*	0.979
MTF	Ages 22-24, M & F	2004-2016	2013	-0.470	<.0001	-0.025	0.0800	2.74*	0.969
MTF	Ages 22-24, M & F	2004-2016	2012	-0.021	<.0001	-0.046	<.0001	2.48	0.968
NSDUH	Ages 18-25, M&F	2004-2016	2014	-0.027	<.0001	-0.075	<.0001	2.21	0.982
NSDUH	Ages 18-25, M&F	2004-2016	2013	-0.024	<.0001	-0.059	<.0001	2.09	0.976
NSDUH	Ages 18-25, M&F	2004-2016	2012	-0.021	0.0006	-0.050	0.0003	1.59	0.967

Notes: Durbin Watson Statistic (k=2, n= 13: dl=0.86, du= 1.56; k=2, n= 14, dl=0.91, du= 1.55),
 * = indeterminate region, MTF= Monitoring the Future survey, NSDUH =National Survey of Drug Use and Health,

Supplement 3: Table 3b. Trend Line Analysis of Established Use with Vaping-Related Deviations from Long-Term Trend, Log Form, Various Surveys, with Different Begin Dates for Vaping Trend: 2012, 2013, 2014

Survey	Measure	Years	Initial Year of Vaping trend	Long-term trend	P-value	Vaping trend	P-value	Durban - Watson Statistic	Adj R-squared
Daily Use									
MTF	Daily, 10th grade, M & F	2004-2017	2014	-0.070	<.0001	-0.15	0.0010	2.23	0.959
MTF	Daily, 10th grade, M & F	2004-2017	2013	-0.058	0.0003	-0.14	0.0003	2.81*	0.958
MTF	Daily, 10th grade, M & F	2004-2017	2012	-0.130	0.0002	-0.048	0.004	2.93*	0.959
MTF	Daily, 12th grade, M & F	2004-2017	2014	-0.061	<.0001	-0.13	<.0001	1.19*	0.986
MTF	Daily, 12th grade, M & F	2004-2017	2013	-0.053	<.0001	-0.12	<.0001	2.50*	0.989
MTF	Daily, 12th grade, M & F	2004-2017	2012	-0.061	<.0001	-0.13	<.0001	1.19*	0.986
MTF	Daily, Ages 18-21, M & F	2004-2016	2014	-0.063	<.0001	-0.15	<.0001	2.09	0.977
MTF	Daily, Ages 18-21, M & F	2004-2016	2013	-0.059	<.0001	-0.10	0.0020	1.95	0.974
MTF	Daily, Ages 18-21, M & F	2004-2016	2012	-0.055	<.0001	-0.085	0.0090	1.51*	0.940
MTF	Daily, Ages 22-24, M & F	2004-2016	2014	-0.062	<.0001	-0.050	0.0100	2.65*	0.982
MTF	Daily, Ages 22-24, M & F	2004-2016	2013	-0.062	<.0001	-0.034	0.0400	2.82*	0.977
MTF	Daily, Ages 22-24, M & F	2004-2016	2012	-0.029	<.0001	-0.020	0.0600	2.61*	0.976
NSDUH	Daily, Ages 18-25, M & F	2004-2016	2014	-0.044	<.0001	-0.083	<.0001	2.36*	0.988
NSDUH	Daily, Ages 18-25, M & F	2004-2016	2013	-0.041	<.0001	-0.065	<.0001	1.80*	0.984
NSDUH	Daily, Ages 18-25, M & F	2004-2016	2012	-0.038	<.0001	-0.054	0.0008	1.38*	0.976
NHIS	Current Smoker, Ages 18-24, M	2004-2016	2014	-0.033	0.002	-0.099	0.012	2.22	0.876
NHIS	Current Smoker, Ages 18-24, M	2004-2016	2013	-0.031	0.011	-0.073	0.028	2.27	0.857

NHIS	Current Smoker, Ages 18-24, M	2004-2016	2012	-0.038	0.0037	-0.032	0.18	2.59*	0.879
NHIS	Current Smoker, Ages 18-24, F	2004-2016	2014	-0.040	0.0002	-0.059	0.05	2.99*	0.899
NHIS	Current Smoker, Ages 18-24, F	2004-2016	2013	-0.039	0.0009	-0.039	0.14	2.78*	0.883
NHIS	Current Smoker, Ages 18-24, F	2004-2016	2012	-0.038	0.0037	-0.032	0.17	2.59*	0.879

Notes: Durbin Watson Statistic (k=2, n= 13: dl=0.86, du= 1.56; k=2, n= 14, dl=0.91, du= 1.55), * = indeterminate region, MTF= Monitoring the Future survey, NSDUH =National Survey of Drug Use and Health, NHIS = National Health Interview Study

Supplement 3: Table 3c. Trend Line Analysis of Daily/Last 30-day Use with Deviations from Long-Term Trend with Vaping, Log Form, Various Surveys, with Different Begin Dates for Vaping Trend: 2012, 2013, 2014

Survey	Measure	Years	Initial Year of Vaping trend	Long-term trend	P-value	Vaping trend	P-value	Durbin-Watson Statistic	Adj R-squared
Daily Use/Last 30-day Use									
MTF	10th grade, M & F	2004-2017	2014	-0.013	0.03	-0.013	0.46	3.16*	0.954
MTF	10th grade, M & F	2004-2017	2013	-0.013	0.05	-0.008	0.55	3.10*	0.974
MTF	10th grade, M & F	2004-2017	2012	-0.006	0.65	-0.012	0.08	3.05*	0.800
MTF	12th grade, M & F	2004-2017	2014	-0.015	<.0001	-0.037	0.0002	2.01	0.963
MTF	12th grade, M & F	2004-2017	2014	-0.015	<.0001	-0.034	0.0002	1.30*	0.963
MTF	12th grade, M & F	2004-2017	2013	-0.013	<.0001	-0.029	0.0001	2.45	0.958
MTF	12th grade, M & F	2004-2017	2012	-0.011	0.0030	-0.026	0.009	1.82	0.952
MTF	Ages 18-21, M & F	2004-2016	2014	-0.013	0.0004	-0.058	0.0002	2.33	0.941
MTF	Ages 18-21, M & F	2004-2016	2013	-0.013	0.0001	-0.029	0.0010	2.35	0.965
MTF	Ages 18-21, M & F	2004-2016	2012	-0.010	0.06	-0.035	0.0065	1.93	0.890
MTF	Ages 22-24, M & F	2004-2016	2014	-0.015	<.0001	-0.008	0.39	2.62*	0.891
MTF	Ages 22-24, M & F	2004-2016	2013	-0.014	0.0003	-0.009	0.26	3.10*	0.897
MTF	Ages 22-24, M & F	2004-2016	2012	-0.014	<.0001	-0.078	0.28	3.24*	0.896
NSDUH	Ages 18-25, M & F	2004-2016	2014	-0.017	<.0001	-0.05	0.51	2.29	0.937
NSDUH	Ages 18-25, M & F	2004-2016	2013	-0.017	<.0001	-0.04	0.55	2.22	0.936
NSDUH	Ages 18-25, M & F	2004-2016	2012	-0.017	<.0001	-0.0057	0.78	2.21	0.934

Notes: Durbin Watson Statistic (k=2, n= 13: dl=0.86, du= 1.56; k=2, n= 14, dl=0.91, du= 1.55), * = indeterminate region, MTF= Monitoring the Future survey, NSDUH =National Survey of Drug Use and Health, NHIS = National Health Interview Study