Supplemental data

Supplemental Table 1. Sensitivity Analyses of interrupted time series. Cigar unit sales net wholesale per quarter (millions of units), with no seasonality adjustment, date of intervention assumed 1 year early (2009 Q1), date of intervention assumed 1 year late (2011 Q1), limiting the model to Ontario and British Columbia Canada, 2004 to 2015 with model predicted sales. Enactment date of regulation: October 8th, 2009 except where otherwise stated.

	No seasonality N=48	Earlier date intervention 2009 Q1 N=48	Later Date Intervention 2011 Q1 N=48	Ontario and British Columbia only N=96
Baseline Intercept British Columbia		65.9** [55.6,76.2]	39.8** [28.8,50.7]	59.6** [37.9,81.4]
Baseline slope British Columbia	5.0** [4.2,5.8]	5.5** [4.5,6.5]	3.4** [1.6,5.1]	0.8** [0.6,0.9]
Post Intervention Intercept British Columbia	-52.7** [-78.4,-26.9]	-19.5 [-44.0,5.1]	-53.8* [-85.2,-22.4]	-8.2* [-13.1,-3.4]
Post intervention slope British Columbia	-6.9** [-8.2,-5.6]	-8.2** [-9.5,-6.8]	-4.9** [-7.0,-2.7]	-1.0** [-1.3,-0.7]
Difference in baseline intercept Ontario vs British Columbia (ref)				23.9** [20.0,27.8]
Difference in baseline slope Ontario vs British Columbia (ref)				0.2 [-0.1,0.4]
Difference in intervention intercept Ontario vs British Columbia (ref)				-0.4

	[-9.7,8.9]
Difference in post intervention slope Ontario vs British Columbia (ref)	-0.4 [-0.9,0.1]

*p<0.05, **p<0.001

Flavour descriptor as identified by brand descriptor
All analyses control for seasonality by quarter except where noted.

Supplemental Table 2. Interrupted time series regression results for the 2010 flavour ban in Canada. Outcome wholesale sales of cigars (millions of units) per quarter, total and by brands with or without flavour descriptors. N=48.

	All cigars (B, 95% CI) N=48	No Flavour Descriptor (B, 95% CI) N=48	Flavour Descriptor (B, 95% CI) N=48
Initial level (2004 Q1) β_0	45.7** [37.3,54.2]	44.9** [39.9,50.0]	0.8 [-9.3,11.0]
Pre Intervention slope $\beta_1 T_t$	4.9** [4.3,5.5]	-0.8* [-1.4,-0.3]	5.7** [5.0,6.5]
Post Intervention Level Change (2010 Q1) $\beta_2 X_t$	-49.6** [-73.5,-25.8]	9.6 [-1.3,20.5]	-59.2** [-86.0,-32.4]
Post Intervention Change in Trend $\beta_3 X_t T_t$	-6.9** [-8.1,-5.7]	0.8* [0.2,1.3]	-7.7** [-8.9,-6.5]
Seasonality (vs Q1)			
Q2	34.6** [25.3,44.0]	15.2** [10.7,19.7]	19.5** [9.5,29.4]
Q3	36.9** [27.6,46.2]	16.0** [9.5,22.5]	20.9** [10.8,31.0]
Q4	15.3* [6.0,24.7]	9.7** [5.5,13.9]	5.7 [-3.9,15.2]

*p<0.05, **p<0.001

Supplemental Table 3. Cumby-Huizinga test for autocorrelation for cigar sales of interrupted time series regression results for the 2009 flavour ban in Canada. Outcome wholesale sales of cigars (millions of units) per quarter. With and without controlling for seasonality. N=48

With Seasonality

H0: variable is MA process up to order q

HA: serial correlation present at specified lags >q

H0: q=0 (serially uncorrelated) HA: s.c. present at range specified				H0: q=specified lag HA: s.c. present at			
lags	chi2	df	p-val	lag	chi2	df	p-val
1 to 1	1.148	1	0.284	1	1.148	1	0.284
1 to 2	2.563	2	0.2776	2	1.023	1	0.3117
1 to 3	2.564	3	0.4638	3	0.175	1	0.6759
1 to 4	2.708	4	0.6078	4	0.066	1	0.7967
1 to 5	2.71	5	0.7445	5	0.003	1	0.953
1 to 6	3.907	6	0.6892	6	1.2	1	0.2734

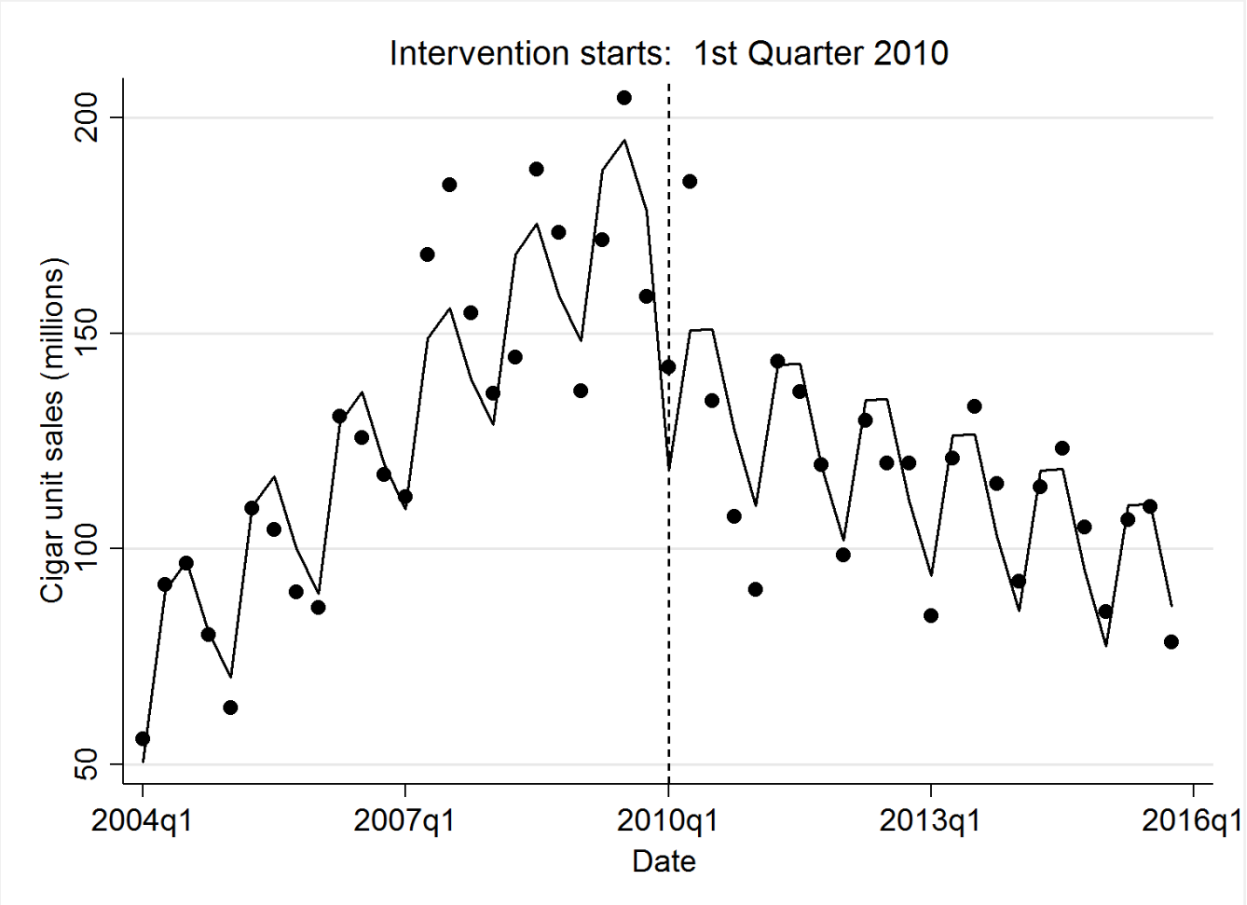
Without controlling for seasonality.

H0: variable is MA process up to order q

HA: serial correlation present at specified lags >q

H0: q=0 (serially uncorrelated) HA: s.c. present at range specified				H0: q=specified lag HA: s.c. present at			
lags	chi2	df	p-val	lag	chi2	df	p-val
1 to 1	0.024	1	0.8761	1	0.024	1	0.8761
1 to 2	15.241	2	0.0005	2	15.158	1	0.0001
1 to 3	15.276	3	0.0016	3	0.097	1*	0.7551
1 to 4	17.92	4	0.0013	4	7.427	1	0.0064
1 to 5	18.821	5	0.0021	5	0.036	1	0.8501
1 to 6	18.838	6	0.0044	6	3.324	1	0.0683

Supplemental figure 1. Model showing the seasonality effect of sales of cigars in Canada wholesale by quarter 2004-2015. N=48



Supplemental figure 2. Cigar unit sales net wholesale per quarter in Ontario, and British Columbia Canada, 2004 to 2015 with model predicted sales. N=48