

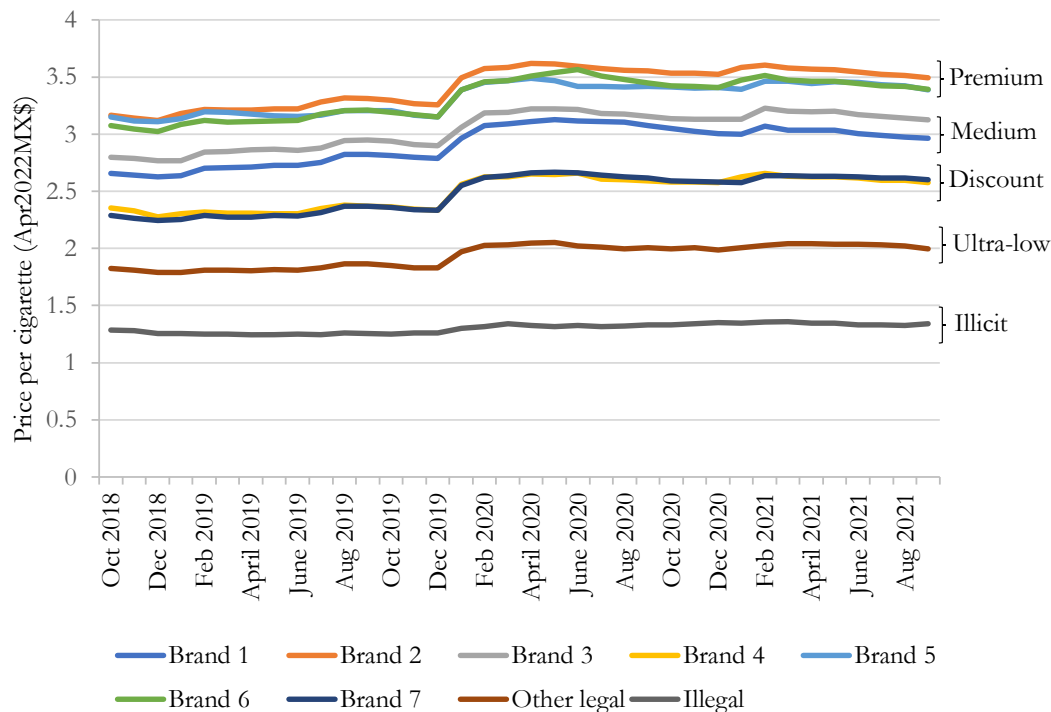
Supplemental material

Table A1. Analytic sample description

	Oct-Dec 2018		2019		2020		Jan-Sept 2021	
	mean (s.d.) %	n	mean (s.d.) %	n	mean (s.d.) %	n	mean (s.d.) %	n
Price per cigarette (Apr2022MX\$)	2.46 (0.71)	485	2.49 (0.76)	1,982	2.69 (0.86)	2,005	2.71 (0.87)	1,516
Cigarette sales volume	16.03 (50.46)	485	15.53 (48.71)	1,982	13.84 (42.46)	2,005	13.91 (41.67)	1,516
Capsules (1=yes)	33.61%	163	35.42%	702	38.45%	771	39.25%	595
Flavour								
Full flavour	49.48%	240	50.20%	995	51.37%	1,030	52.04%	789
Light	16.29%	79	14.13%	280	12.57%	252	11.87%	180
Mint	32.99%	160	34.21%	678	34.86%	699	34.89%	529
No filter	1.24%	6	1.46%	29	1.20%	24	1.19%	18
Market segment								
Premium	27.01%	131	26.29%	521	25.19%	505	25.92%	393
Medium	28.25%	137	27.75%	550	30.07%	603	30.54%	463
Low	12.78%	62	13.22%	262	10.17%	204	9.37%	142
Ultra low	25.36%	123	23.81%	472	23.54%	472	21.17%	321
Illicit	6.60%	32	8.93%	177	11.02%	221	12.99%	197
Cigarettes per pack								
<14	0.21%	1	0.55%	11	0.05%	1	—	0
14	16.91%	82	15.29%	303	13.27%	266	12.73%	193
15-18	8.04%	39	7.01%	139	5.14%	103	6.40%	97
20	67.63%	328	69.88%	1,385	73.92%	1,482	73.88%	1,120
24-25	7.22%	35	7.27%	144	7.63%	153	6.99%	106
Manufacturer								
PMM	41.44%	201	37.03%	734	30.62%	614	29.42%	446
BAT	35.26%	171	35.67%	707	37.71%	756	37.80%	573
JTI	8.04%	39	9.43%	187	11.37%	228	11.15%	169
Other	15.26%	74	17.86%	354	20.30%	407	21.64%	328

Notes: Own estimates based on data licensed from NielsenIQ. S.d. = standard deviation, MX\$ = Mexican pesos, n= observations. PMM = Philip Morris Mexico, BAT = British American Tobacco, JTI = Japan Tobacco International.

Figure A1. Trends in cigarette prices by brand in Mexico. October 2018 – September 2021 (Apr2022MX\$)



Notes: Own estimates based on data licensed from NielsenIQ. Mean real prices are weighted by monthly sales volume. Apr2022MX\$ = Mexican pesos of April 2022. Only the seven brands with the highest market share are shown separately. Brands 2, 5 and 6 are considered premium brands; brands 1 and 3 are considered mid-segment brands; brands 7 and 4 are considered discount brands; and other legal brands are considered ultra-low segment brands.

Table A2. Expected cigarette prices with full pass-through of the 2020 and 2021 tax increases in Mexico (constant pesos of April 2022, Apr22MX\$)

	Baseline year		Expected price with 100% pass-through of the tax adjustments	
	2019 (1)	% of final price (2)	2020 (3)	2021 (4)
A Retail price per 20-cigarette pack	49.9	100.0%	54.7	54.4
B Value Added Tax (VAT)	6.9	13.8%	7.5	7.5
C Retailer margin	3.7	7.5%	3.7	3.7
Excise tax (IEPS)				
D Ad valorem excise tax	19.9	39.8%	19.9	19.9
E Specific excise tax	8.1	16.3%	11.1	10.9
F Price to the retailer before taxes	12.4	24.9%	12.4	12.4

Notes: **Estimates at baseline (columns 1-2).** The real retail price (A) is the price per cigarette from Figure 1 (or Table A3) multiplied by 20. VAT (B) is 16% of the price to the retailer plus IEPS and retailer margin (C+D+E+F). The retailer margin (C) considered was 30% of the price to the retailer (F).³⁷ The ad valorem IEPS (D) is 160% of the price to the retailer (F), the specific IEPS (E) is Apr2022MX\$0.4070 per cigarette (equivalent to 2019MX\$35 cents per cigarette). **Expected price with 100% pass-through of the tax increases (columns 3-4).** These estimates consider that the real price to the retailer (F) remains constant. Then, A to E are based on F, with E = Apr2022MX\$0.5560 (equivalent to 2020MX\$49.44) cents per cigarette in 2020 and Apr2022MX\$0.5437 (equivalent to 2021MX\$51.08) in 2021.

Table A3. Cigarette prices in Mexico before and after the 2020 tax adjustment by selected attributes (Apr2022MX\$)

	2019			2020			Real change
	Mean	95% CI	n	Mean	95% CI	n	
All	2.49	[2.46 2.53]	1,982	2.69	[2.66 2.73]	2,005	8.0%
Capsules							
Yes	2.99	[2.96 3.02]	702	3.24	[3.20 3.27]	771	8.2%
No	2.22	[2.18 2.26]	1,280	2.35	[2.31 2.40]	1,234	6.0%
Flavour							
Full flavour	2.27	[2.22 2.32]	995	2.42	[2.37 2.47]	1,030	6.8%
Light	2.54	[2.46 2.62]	280	2.77	[2.67 2.87]	252	9.1%
Mint	2.82	[2.77 2.87]	678	3.06	[3.01 3.12]	699	8.7%
No filter	2.28	[2.11 2.44]	29	2.86	[2.75 2.98]	24	25.7%
Market segment							
Premium	3.2	[3.17 3.23]	521	3.47	[3.43 3.50]	505	8.4%
Medium	2.78	[2.74 2.81]	550	3.04	[3.00 3.08]	603	9.5%
Discount	2.43	[2.39 2.47]	262	2.73	[2.67 2.79]	204	12.5%
Ultra-low	1.89	[1.83 1.95]	472	2.04	[1.98 2.11]	472	8.1%
Illicit	1.25	[1.21 1.29]	177	1.34	[1.30 1.38]	221	7.0%
Cigarettes per pack							
<14	1.16	—	11	1.13	—	1	-2.3%
14	2.91	[2.86 2.97]	303	3.32	[3.25 3.39]	266	13.9%
15-18	2.45	[2.36 2.54]	139	2.83	[2.74 2.92]	103	15.5%
20	2.44	[2.40 2.49]	1,385	2.60	[2.55 2.64]	1,482	6.2%
24-25	2.24	[2.20 2.28]	144	2.49	[2.43 2.54]	153	11.0%
Manufacturer							
PMM	2.83	[2.78 2.88]	734	3.17	[3.12 3.22]	614	12.0%
BAT	2.65	[2.61 2.69]	707	2.93	[2.89 2.97]	756	10.4%
JTI	2.81	[2.75 2.87]	187	2.99	[2.92 3.06]	228	6.6%
Other	1.32	[1.29 1.34]	354	1.37	[1.34 1.40]	407	4.0%

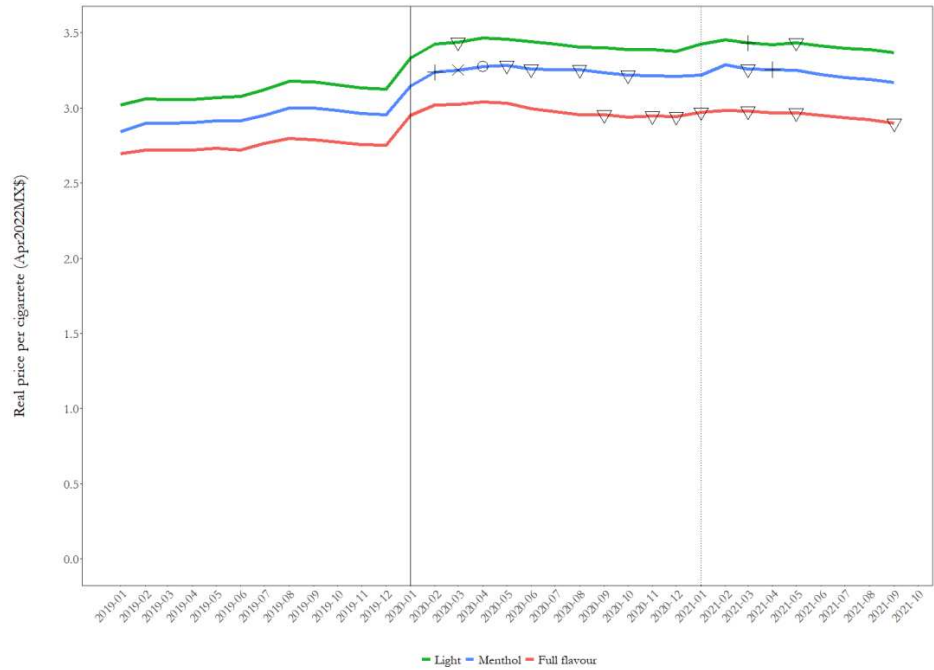
Notes: Own estimates based on data licensed from NielsenIQ. Apr2022MX\$ = Mexican pesos of April 2022,

n= observations (sample of packs), 95% CI = 95% confidence intervals. PMM = Philip Morris Mexico, BAT

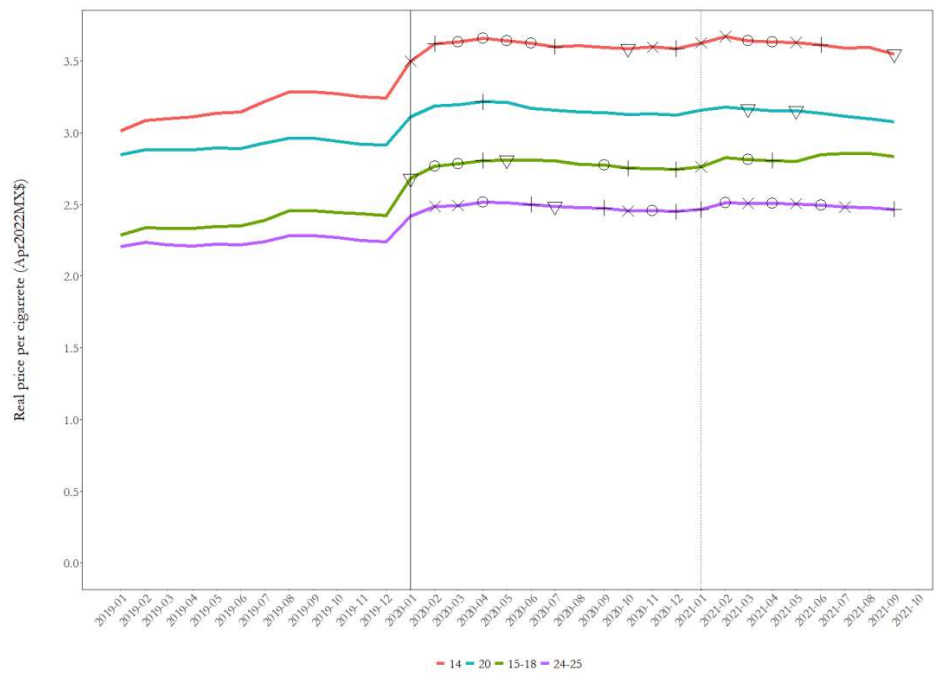
= British American Tobacco, JTI = Japan Tobacco International. Unweighted average prices.

Figure A2. Trends in cigarette prices by selected attributes in Mexico. October 2018 – September 2021 (vertical lines represent the entry into force of tobacco tax increases)

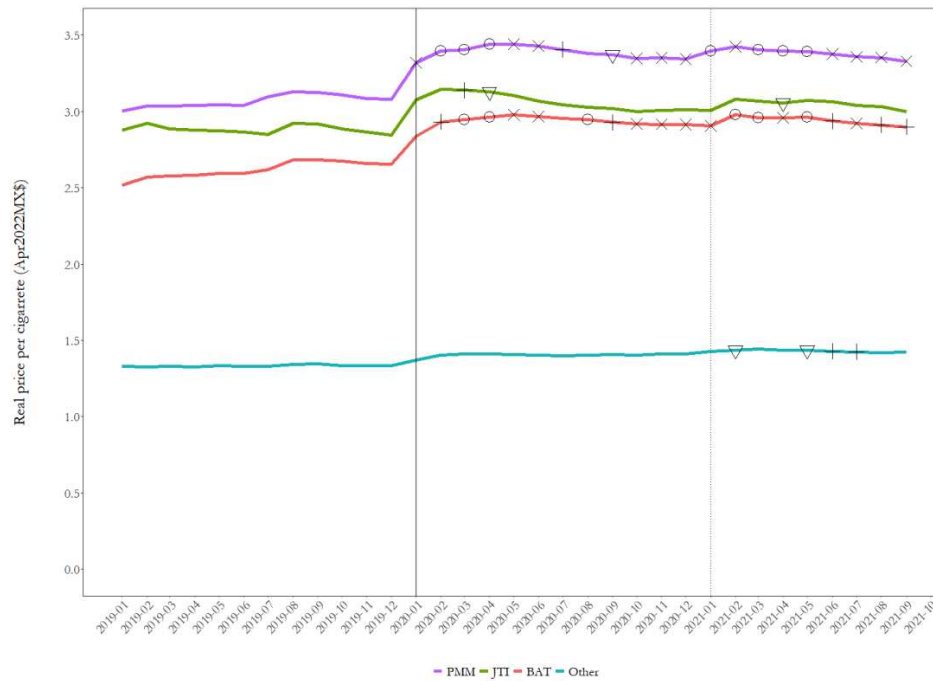
Panel A. Prices by flavour



Panel B. Prices by pack size (number of cigarettes per pack)



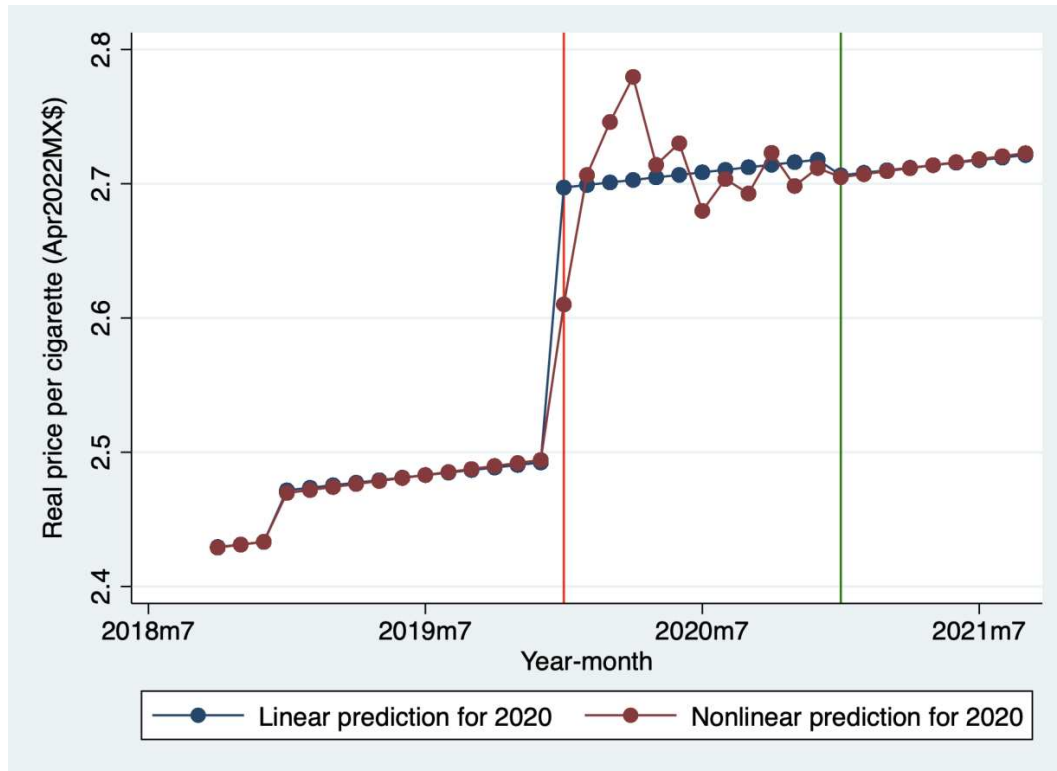
Panel C. Prices by manufacturer



Notes: Own estimates based on data licensed from NielsenIQ. Mean prices are weighted by monthly sales volume. Apr2022MX\$ = Mexican pesos of April 2022. Cross = <0.001 , x = $p<0.01$, circle = $p<0.05$, inverted triangle = $p<0.10$ in t-test to compare differences between each month of 2020/2021 and the same month of 2019. Panel A does not include unfiltered cigarettes due to the low number of observations in that category (see Table A3). PMM = Philip Morris Mexico, BAT = British American Tobacco, JTI = Japan Tobacco International.

Figure A3. Fixed effects models to estimate changes in cigarette prices after tax increases in Mexico

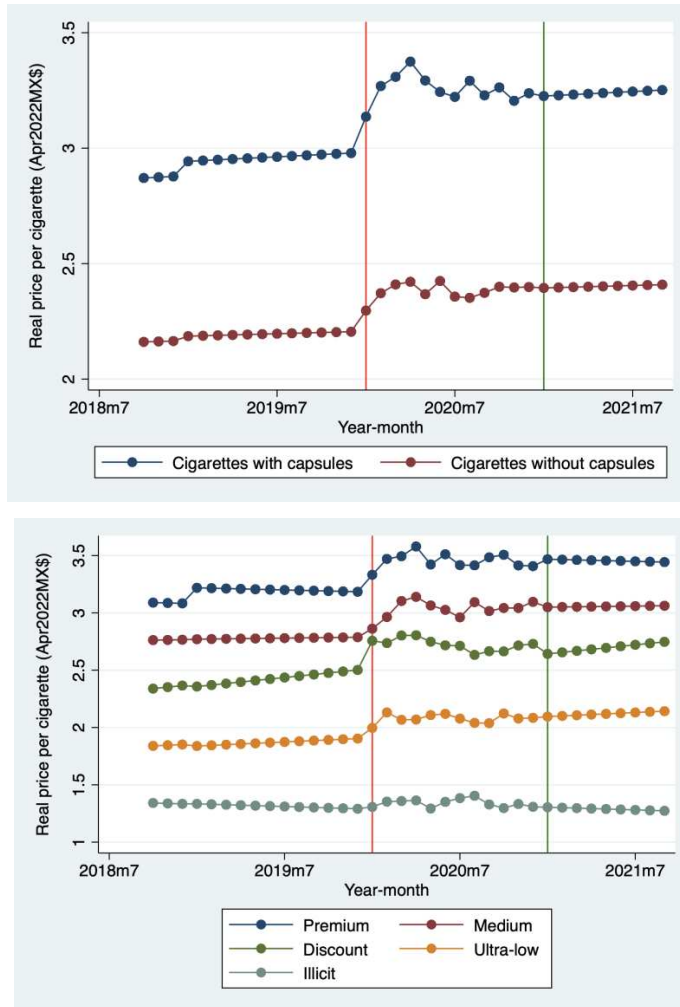
(vertical lines represent the entry of force of tobacco tax increases)

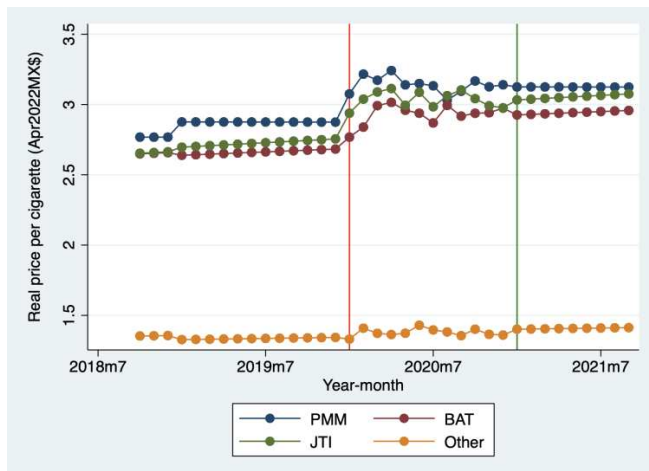
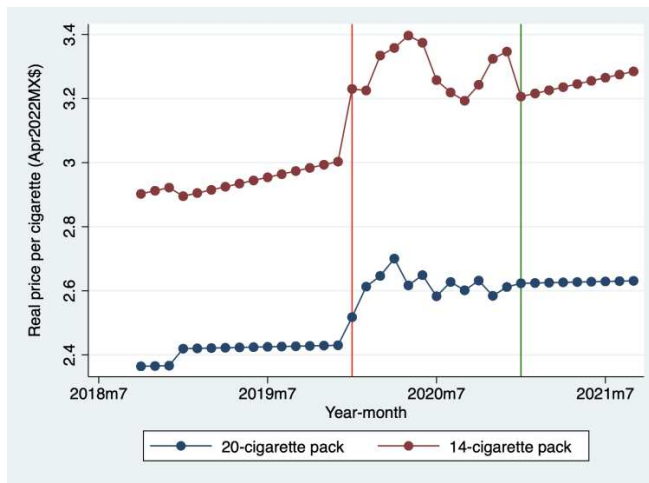
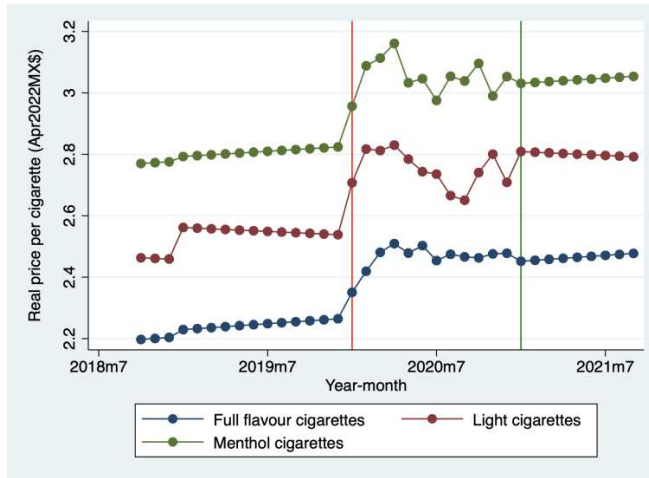


Notes: Own estimates based on data licensed from NielsenIQ. The linear prediction comes from the model in Table 1; the nonlinear prediction comes from the model in Table 2. Apr2022MX\$ = Mexican pesos of April 2022

Figure A4. Fixed effect models to estimate changes in cigarette prices in Mexico by selected attributes. Specification to allow for non-linear price changes after the 2020 tax increase

(vertical lines represent the entry of force of tobacco tax increases)





Notes: Own estimates based on data licensed from NielsenIQ. Apr2022MX\$ = Mexican pesos of April 2022. PMM = Philip Morris Mexico, BAT = British American Tobacco, JTI = Japan Tobacco International.

Table A2. Interrupted time series analysis of changes in cigarette prices after tax increases

	Y = Real price per cigarette (Apr2022MX\$)	
	no lag (1)	1 lag (2)
Trend	0.009*** (0.002)	0.009*** (0.002)
Tax_2020	0.232*** (0.032)	0.232*** (0.031)
Trend*Tax_2020	-0.014** (0.004)	-0.014** (0.004)
Tax_2021	0.051* (0.021)	0.051* (0.020)
Trend*Tax_2021	-0.005 (0.004)	-0.005 (0.004)
Constant	2.753*** (0.010)	2.753*** (0.011)
Observations	36	36

Notes: Own estimates based on data licensed from NielsenIQ. Standard errors in parentheses, ***p<0.001, **p<0.01, *p<0.05. Apr2022MX\$ = Mexican pesos of April 2022.

Table A3. Fixed effects model to estimate changes in real cigarette prices considering tax increase announcement instead of entry in force

Announcement of tax adjustment for cumulative inflation since 2011	November 2019	-0.030 (0.026)
	December 2019	-0.006 (0.026)
Entry in force of tax adjustment for cumulative inflation since 2011	January 2020	0.098*** (0.027)
	February 2020	0.190*** (0.028)
	March 2020	0.225*** (0.028)
	April 2020	0.254*** (0.030)
	May 2020	0.184*** (0.030)
	June 2020	0.195*** (0.031)
	July 2020	0.140*** (0.032)
	August 2020	0.159*** (0.034)
	September 2020	0.144*** (0.034)
	October 2020	0.169*** (0.035)
	November 2020	0.140*** (0.036)
	December 2020	0.149*** (0.038)
Entry in force tax adjustment for cumulative inflation in 2020	2021	0.128*** (0.038)
Observations		5,988
R-squared		0.883

Notes: Own estimates based on data licensed from NielsenIQ. Fixed effects by product; the model includes a linear trend. Standard errors in parentheses, ***p<0.001, **p<0.01, *p<0.05.

Table A4. Dynamic specification to estimate changes in real cigarette prices after tax increases

Tax 2020	0.176*** (0.016)
Tax 2021	-0.004 (0.015)
2018	-0.052** (0.018)
Trend	0.001 (0.001)
Price ₋₁	0.220*** (0.014)
Constant	1.943*** (0.036)
Observations	5,605
R-squared	0.903

Notes: Own estimates based on data licensed from NielsenIQ. Fixed effects by product, standard errors in parentheses, *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.