

2009 Synar Results

Survey Purpose: To estimate the rate that outlets sell cigarettes to minors.
Population: PA outlets that sell cigarettes and are accessible to minors.
Survey Period: 07/01/2009 to 08/17/2009
Survey Mean (Weighted): 5.5%
Standard Error: 0.9
95% Confidence Interval: (3.8, 7.2)

Explanation

It is estimated that 4% to 7% of Pennsylvania's cigarette outlets sell cigarettes to minors. The estimate was calculated using the weighted mean (5.5%) and standard error (0.9) of the 2009 Synar survey. The results are "weighted" to account for unequal probabilities of selection and eligible outlets that were not completed. A 95% confidence interval based on the t-distribution is the tool used to make an inference about the entire population from the survey results. The interval, not the survey mean, should be used to describe Pennsylvania's violation rate because it incorporates the survey error.

Synar Requirements

Pennsylvania has met both of CSAP's major requirements:

- 1) The survey had a standard error of less than or equal to 1.82 and
- 2) The survey estimate was less than 20%.

Table1. 2009 Results Table

Stratum	Outlets		PSUs Sampled	Total Violations	Weighted Mean	Std Error of the Mean	95% CL for Mean*	
	Selected	Completed					Lower	Upper
Statewide	1552	1116	372	47	5.5	0.9	3.8	7.2
North Central	112	80	6	2	2.4	1.5	0.0	6.3
North East	228	161	12	3	1.9	1.4	0.0	5.0
North West	142	80	6	3	3.8	2.6	0.0	10.6
South Central	222	131	10	4	3.1	2.4	0.0	8.4
South East	341	209	16	7	3.4	1.2	0.8	5.9
South West	213	144	11	3	2.1	1.1	0.0	4.5
Allegheny	130	79	79	0	0.0	0.0	0.0	3.8
Delaware	60	36	36	6	Unreliable Estimate			
Erie	100	57	57	2	3.5	2.5	0.0	8.4
Philadelphia	225	139	139	17	12.2	2.8	6.7	17.7

*Bounds calculated with SAS which uses the t-distribution and calculates the degrees of freedom (df) by subtracting the total strata from the total clusters. For example, The df for North Central is 5 because there are 6 clusters and 1 stratum.

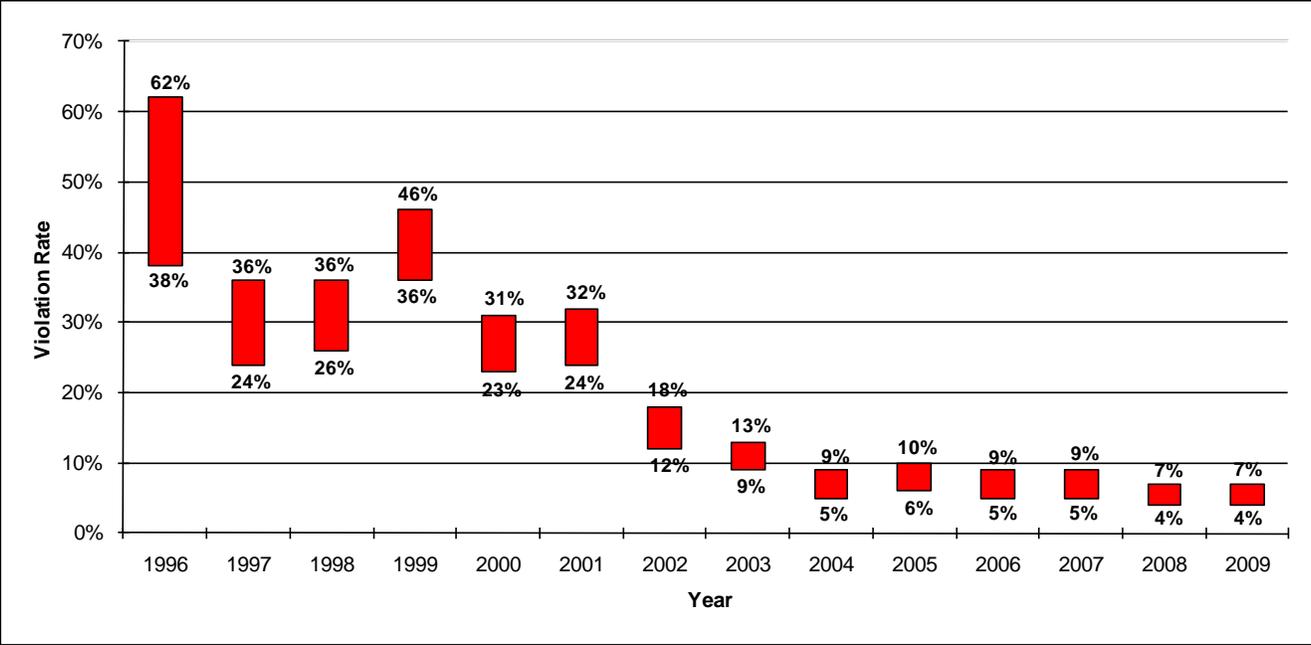
**Since sales = 0, the "Rule of Three (3/n)" was used to calculate upper bound.

***Sample error too high / sample size less than 50

Comparison to Previous Surveys

The 2009 estimate (3.8% - 7.2%) is **not** statistically different from the 2008 estimate (3.5% - 6.7%). In fact, the 2009 estimate is **not** significantly different from the previous 5 surveys: 2008 (3.5% - 6.7%), 2007 (5.0% - 8.6%), 2006 (5% - 9%), 2005 (6% - 10%) and 2004 (5% - 9%).

Graph1. Synar Results 1996 - 2009



Contact

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