

2010 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: 07/01/2010 to 08/15/2010
Survey Mean (Weighted): 6.1%
Standard Error: 1.0
95% Confidence Interval: (4, 8)

Explanation

It is estimated that 4% to 8% of Pennsylvania's cigarette outlets sell cigarettes to minors. The estimate was calculated using the weighted mean (6.1%) and standard error (1.0) of the 2010 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. 2010 Results Table

Stratum	Outlets	Outlets	PSUs	Total	Weighted	Std Error of the Mean	95% CL for Mean*	
	Selected	Completed	Sampled	Violations	Mean		Lower	Upper
Statewide	1973	1073	576	55	6.1	1.0	4.2	8.0
North Central	132	79	6	1	1.2	1.2	0.0	4.3
North East	280	160	12	9	5.4	2.5	0.0	11.0
North West	163	79	6	0	0.0	0.0	0.0	3.8 **
South Central	227	132	10	5	3.8	1.7	0.0	7.7
South East	381	208	16	9	4.3	1.9	0.4	8.3
South West	275	143	11	15	10.5	3.3	3.1	17.9
Allegheny	130	70	130	1	1.4	1.4	0.0	4.3
Delaware	60	31	60	1	Unreliable Estimate			***
Erie	100	53	100	0	0.0	0.0	0.0	5.7 **
Philadelphia	225	118	225	14	11.9	3.0	5.9	17.8

*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.

**The "Rule of Three (3/n)" was used to calculate upper bound (Sale = 0).

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

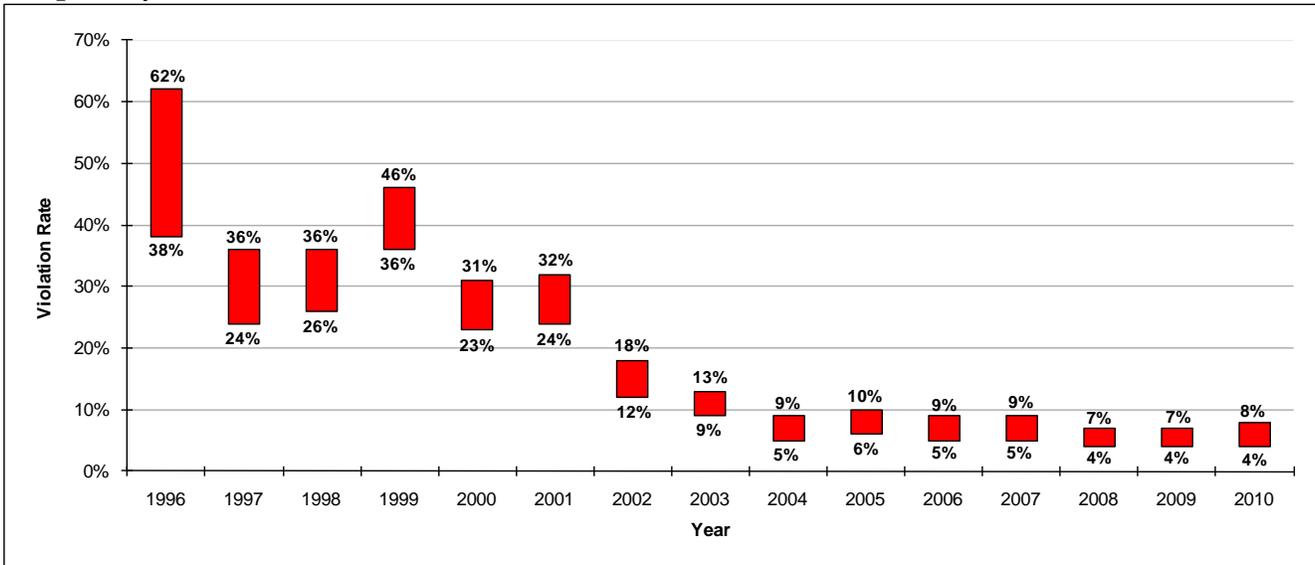
Comparison to Previous Surveys

The 2010 estimate (4.2% - 8.0%) is **NOT** statistically different from the 2009 estimate (3.8% - 7.2%).

In fact, the 2010 estimate is **NOT** significantly different from any of the previous 6 surveys:

2009 (3.8% - 7.2%), **2008** (3.5% - 6.7%), **2007** (5.0% - 8.6%), **2006** (5% - 9%), **2005** (6% - 10%)
2004 (5% - 9%)

Graph1. Synar Results 1996 - 2009



Qualifications

Results are considered final until after the Annual Synar Report is approved and submitted to CSAP.

Contact

Stephen Muccioli, PA Dept. of Health, Ph: 717-783-2548