

## 2008 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:** 07/01/2008 to 09/06/2008  
**Survey Mean (Weighted):** 5%  
**Standard Error:** 0.8  
**95% Confidence Interval:** (4%, 7%)

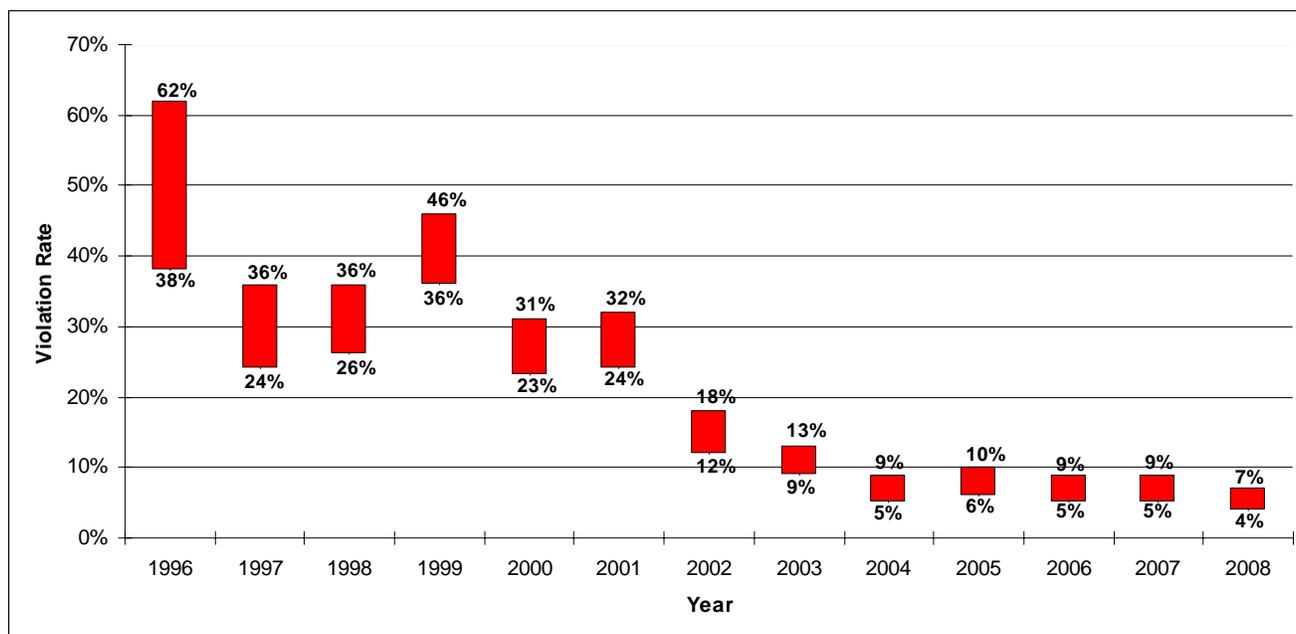
### Explanation

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%) and standard error (0.8) of the 2008 Synar survey. The rounded 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 primary design of the survey is to provide a statewide estimate. Estimates for the health districts, Allegheny County, Delaware County, Erie County and Philadelphia County can be obtained if the error is not too high. Individual county level estimates, other than those mentioned above, are not valid and not available. There is a common misconception that the data collected can be used to obtain a "rough" estimate of the county's violation rate. This is not true and county level data is not available.

### Comparison to Previous Surveys

The 2008 estimate (4% - 7%) is **not** statistically different from the 2007 estimate (5% - 9%). In fact, the 2008 estimate is **not** significantly different from the previous four surveys where the estimates were 2007 (5% - 9%), 2006 (5% - 9%), 2005 (6% - 10%) and 2004 (5% - 9%).



## 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%.

## Stratum Results

Stratum	Outlets Selected	Outlets Completed	PSUs Sampled	Total Violations	Mean	Std Error	95% Confidence *	
							Lower	Upper
Statewide	1846	1168	422	54	5.1	0.8	3.5	6.7
North Central	115	85	6	2	2.5	1.6	0.0	6.5
North East	252	160	12	9	5.5	2.6	0.0	11.2
North West	149	78	6	4	5.1	1.6	1.0	9.3
South Central	240	131	10	4	3.0	1.2	0.2	5.8
South East	348	209	16	17	8.1	2.7	2.4	13.8
South West	227	144	11	2	1.4	0.9	0.0	3.5
Allegheny	130	106	106	0	0.0	0.0	0.0	2.8 **
Delaware	60	39	39	3	Unreliable Estimate			***
Erie	100	59	59	2	3.4	2.4	0.0	8.1
Philadelphia	225	157	157	11	7.0	2.0	3.0	11.0

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

\*\*\*Sample error exceeds that produced by a SRS of n=50

## Contact

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