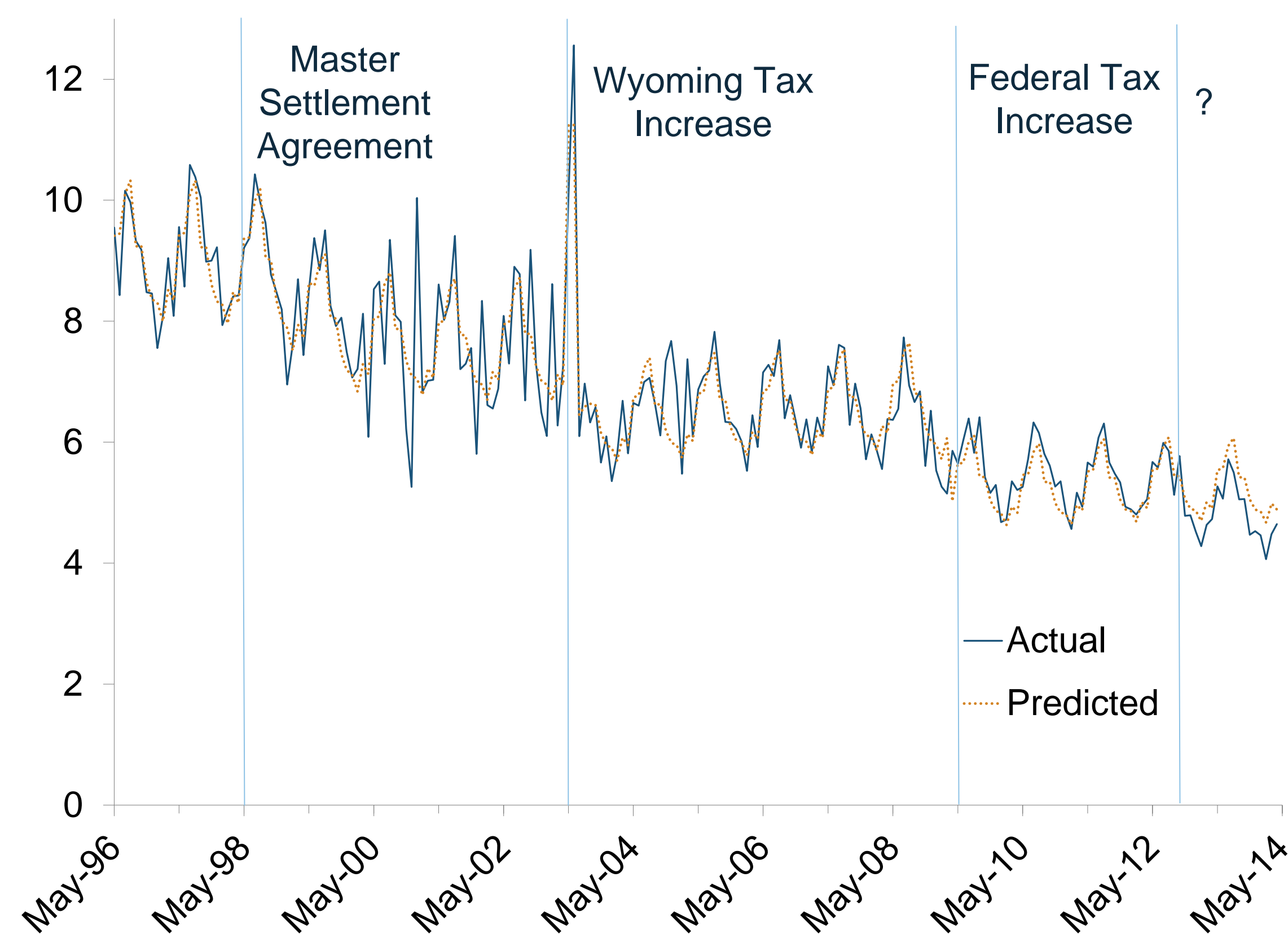


Putting a Statistical Model in Context: Making Sense of Unexpected Evaluation Findings in the Absence of Formal Research

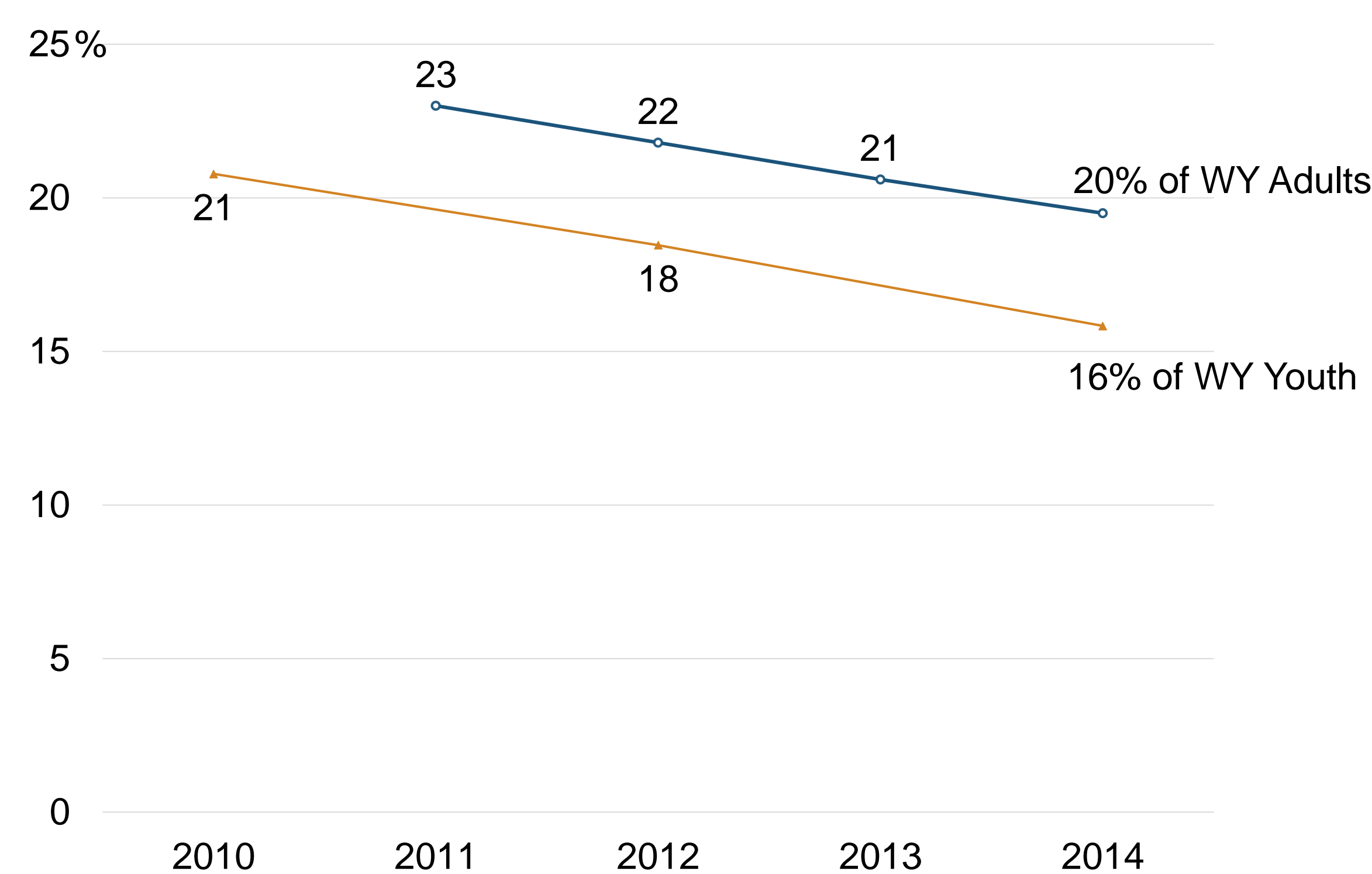
A statistical model of per capita cigarette tax stamp purchases showed an unexplained decline beginning in 2012.

Unexplained Decline in Cigarette Stamps Sold per Capita



This decline was not accounted for by declines in adult or high school smoking prevalence rates, which have been declining at a steady rate.

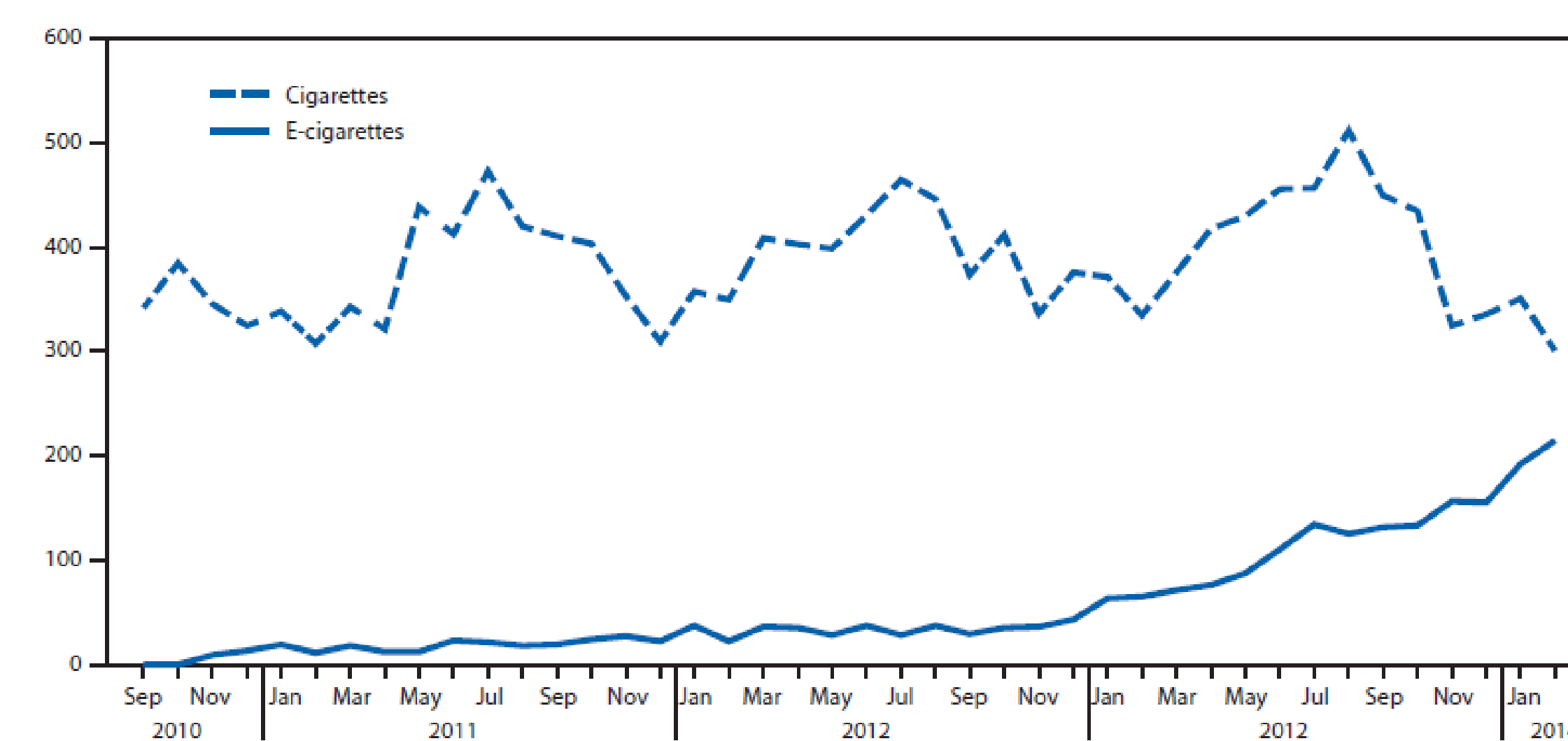
Steadily Declining Prevalence of Cigarette Smoking



Laran H. Despain, Associate Research Scientist
Nanette M. Nelson, Associate Research Scientist
Annual Conference of the American Evaluation Association

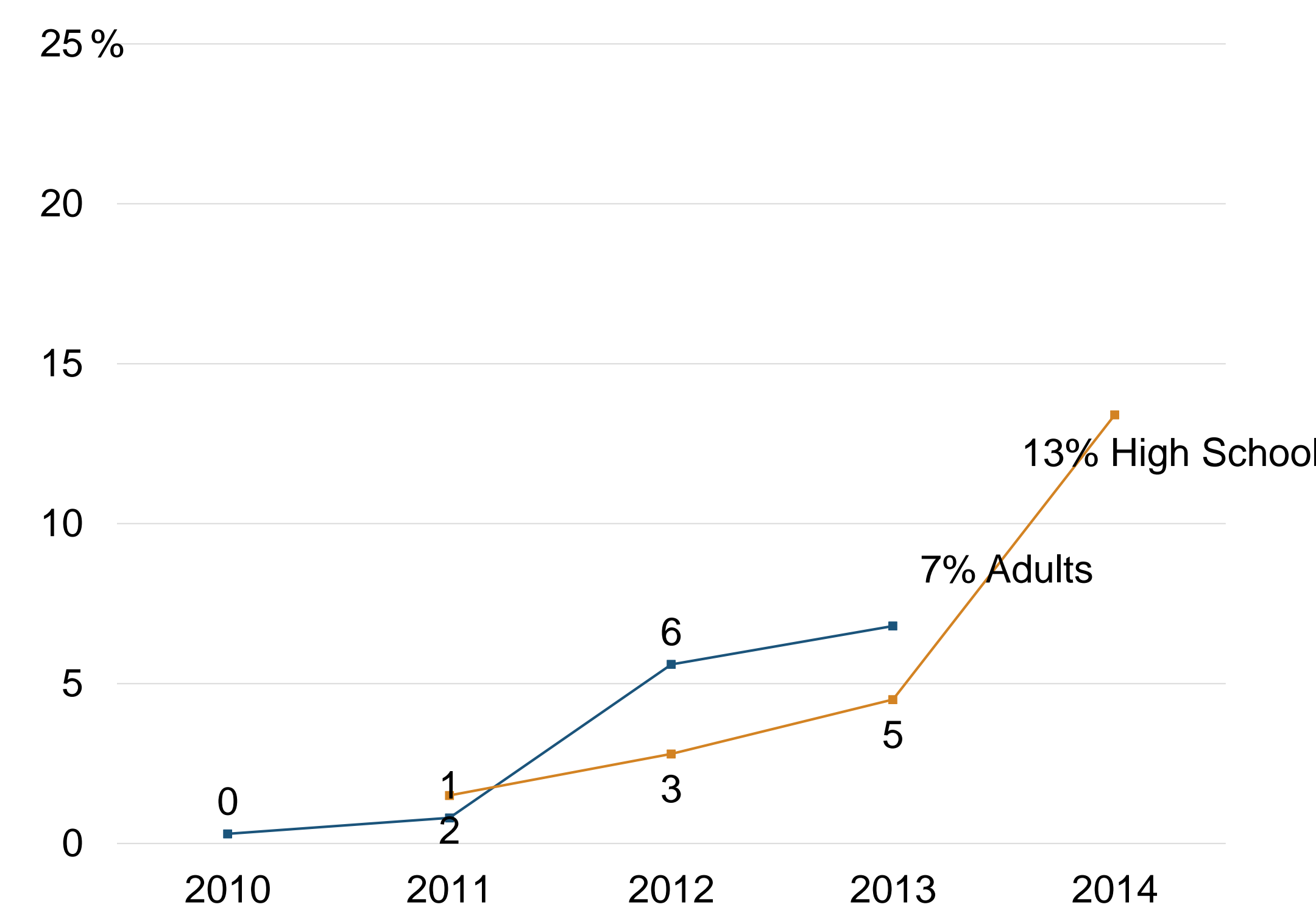
Because the lead author follows CDC on social media, he was aware of data showing a coincidental increase in calls to poison control centers regarding e-juice, the liquid used in electronic nicotine delivery systems (ENDS). This was the first piece of information linking (ENDS) to the decline in cigarette consumption.

CDC Data for Poison Control Calls



National surveys provided additional evidence showing that the decrease in cigarette consumption coincided with increased popularity of ENDS, based on adult and youth prevalence rates.

Rapidly Growing Prevalence of ENDS Use in the U.S.



Lesson Learned

We could not find clear research directly connecting the increased popularity of ENDS to changes in cigarette consumption. According to Hill's criteria of causation, the available evidence suggests that ENDS are a plausible factor to explain Wyoming's decline in cigarette consumption.

Hill's (1965) Criteria of Causation

Strength: Large increases in every indicator of ENDS popularity

Consistency: Various indicators of ENDS popularity

Specificity: Mixing national and state data is problematic

Temporality: The timing consistently coincides

Dose-response curve: Increases in ENDS popularity are greater than decrease in consumption

Plausibility: Substituting ENDS for cigarettes is a key public health concern

Coherence: Partial substitution or addition of ENDS to a smoking habit would explain the difference in rates

Experiment: Wyoming consumption data may serve as a pilot for analysis with a national data source

Analogy: The increased popularity of ENDS may decrease cigarette consumption in a way that compares to a small tax increase.

Another Lesson Learned

Spend time in gray literature and social media to stay abreast of hot topics related to programs you are evaluating