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Rethinking health campaign impact

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Two challenges

- Challenge of exposure
  - Designing and delivering the right message to the right people in the right channels at the right time with sufficient power to cause desired outcome
- Challenge of measuring impact
  - Evaluating process and outcomes
  - Linking your input to an outcome

Sources of campaign failures

Theory failures

Intervention failures

Political failures

Measurement failures

Robert Hornik, 1988

Theory failures

- Wrong social-behavioral theory used to to understand problem factors and devise strategy
  - Poor understanding of audience
  - Poor messages

Robert Hornik, 1988

Intervention failures

- Insufficiently powerful messages delivered with insufficient force for an insufficient time to create effect
  - Web of exposure
  - Channel synergy
  - “Noise”

Robert Hornik, 1988

Political failure

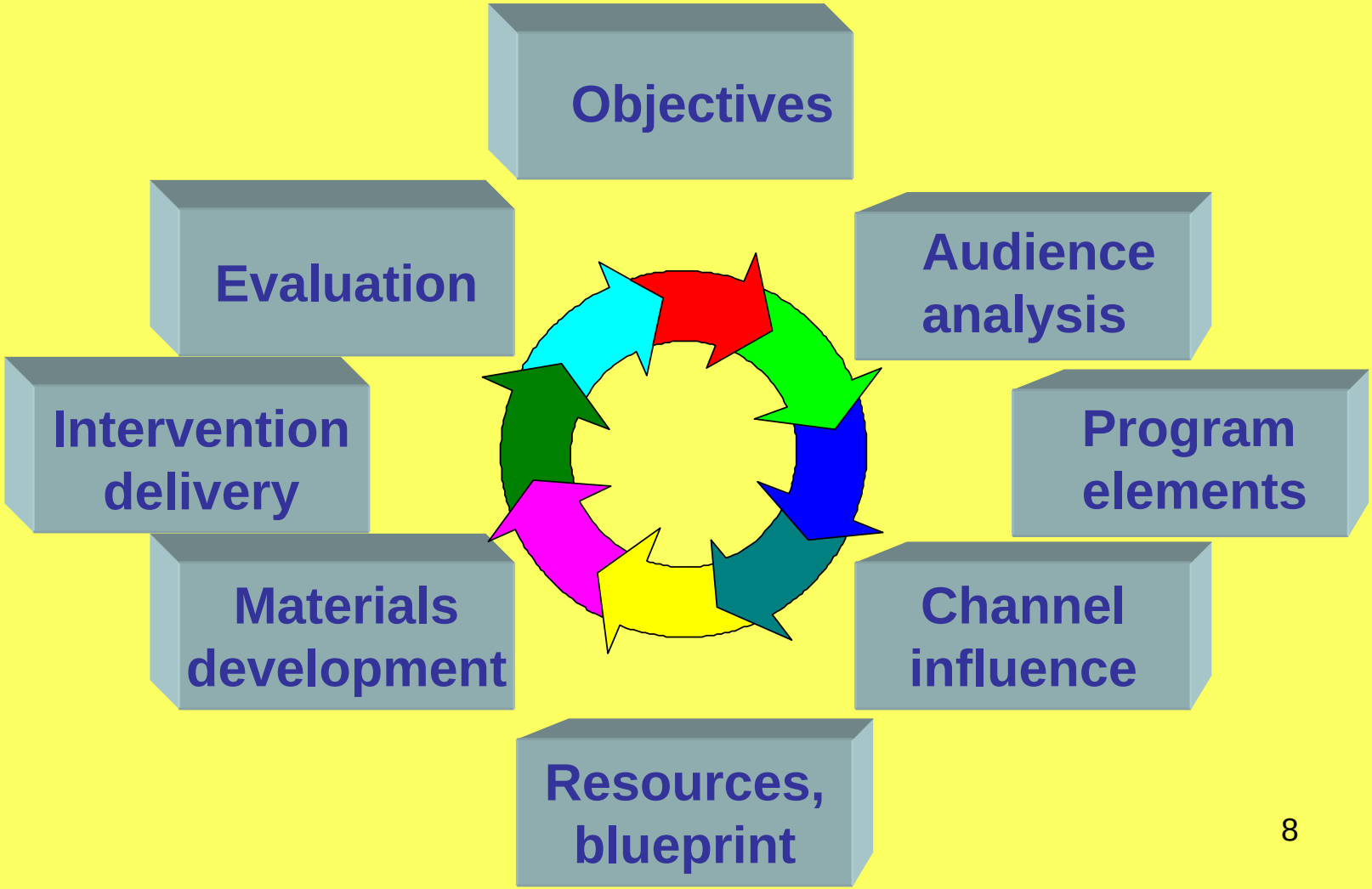
- Social and political environment, values, norms
  - Active opposition from decision-makers
  - Insufficient support from leaders
  - High conflict

Robert Hornik, 1988

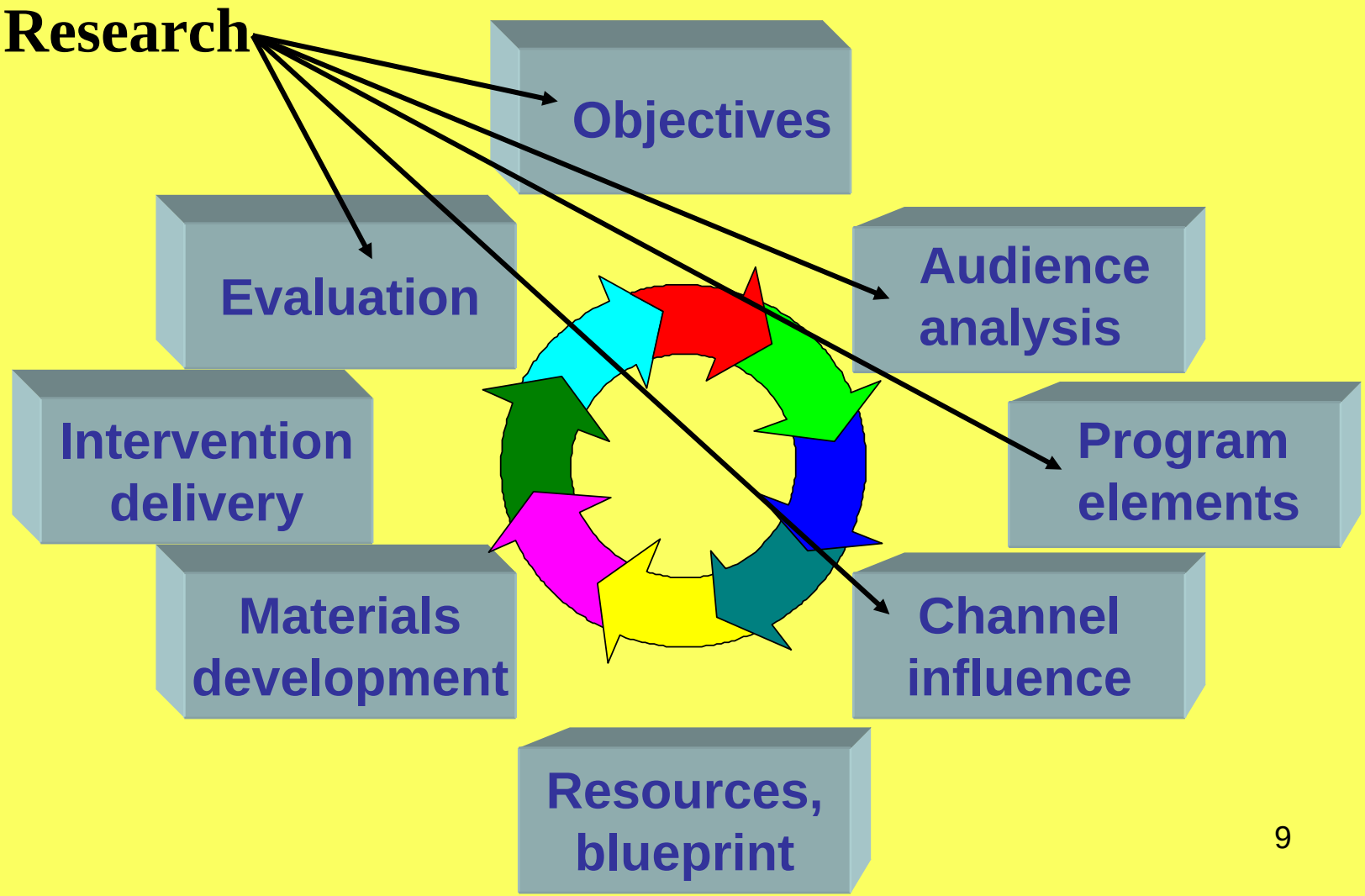
Measurement failure

- Evaluation design
- Traditional quasi-experimental approach
  - Pre-post, controlled (Intervention v. Reference)
- Problem of the secular trend
  - Change continuous, not constant, units not able to be isolated in classic design(s)
- “Degrees of freedom” problem
  - Units measured, frequency of measurement

Social Marketing cycle



Social Marketing cycle



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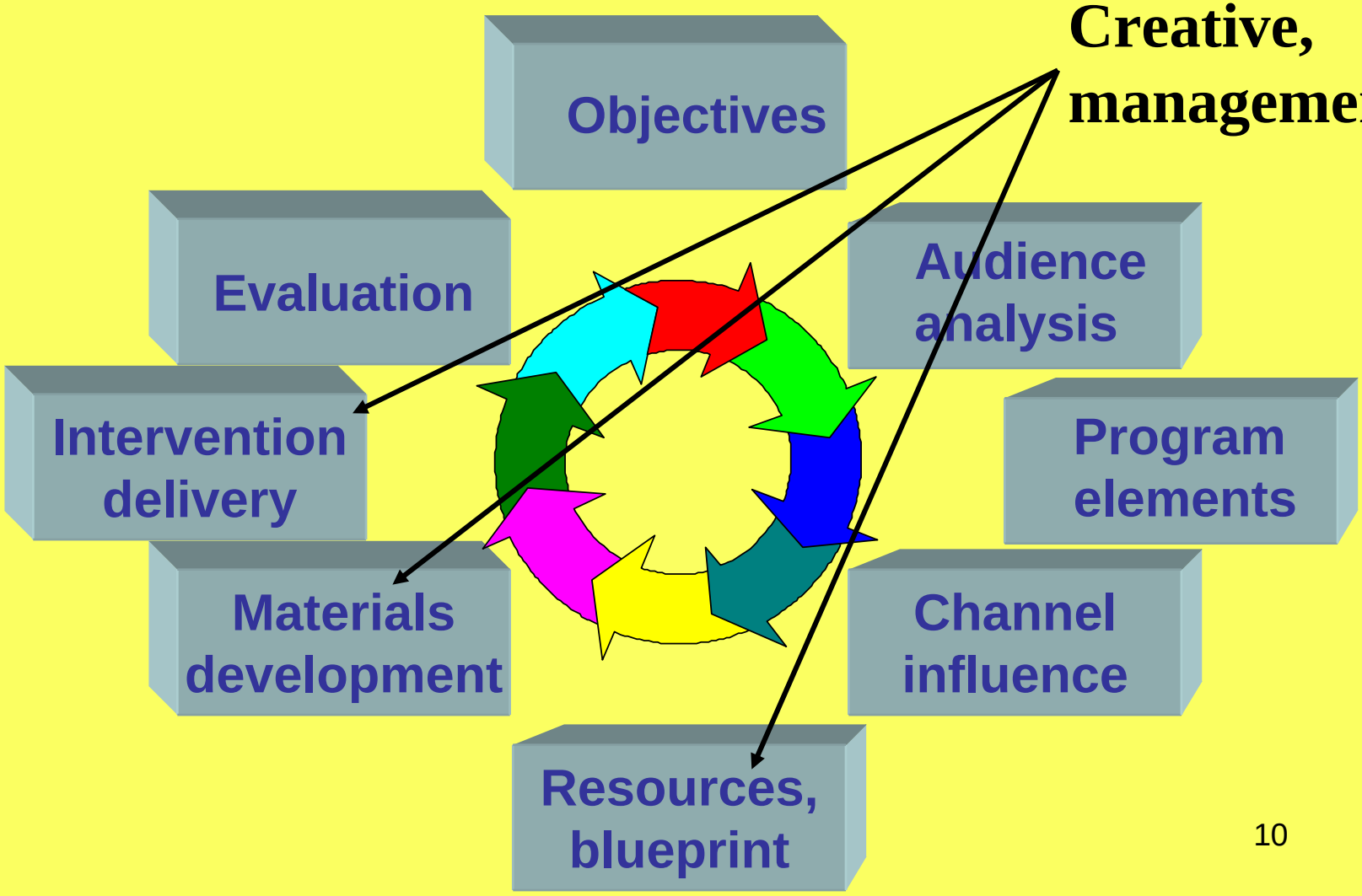


Maximizing exposure

- Planning: science and art
  - Formative research
    - Systems: community, media system, channels
    - Populations: etiology, prevalence, incidence, type of prevention available to address the problem; theory; audience social and behavioral factors related to the problem
    - Environment: values, norms, message appeal, frame, message elements

Maximizing exposure

- Planning: science and art
  - Process research
    - Did it reach targets?
    - With what power (reach and frequency)?
    - What intermediate effects?
    - Unintended effects?
    - Adjustments?

Measurement

- Evaluation
  - New models needed
    - Assignment of more units; more measurements of units
    - Recognition of growth and complexity of media environment making “controls” difficult
    - Change in health variables occur often in long-term
  - Time series approaches to evaluation of communication campaigns
  - Efforts to link input to outcomes

Time series strategies

- *Ideodynamic* approach (D. Fan)
- Linking media content to opinion, behavioral changes longitudinally: InfoTrend™ software
- Based on:
  - Content analysis rules (human and computer)
  - Automated retrieval of content from databases
  - Conversion of content to “persuasive force”
  - Content used to predict opinion, behavior, other relevant outcomes

Example: Youth Smoking

- Goal: Predict rise and fall of smoking within the past 30 days from 1991 to 2002 among US 8th, 10th & 12th graders
  - Funded by a grant from the NCI

Example: Youth Smoking

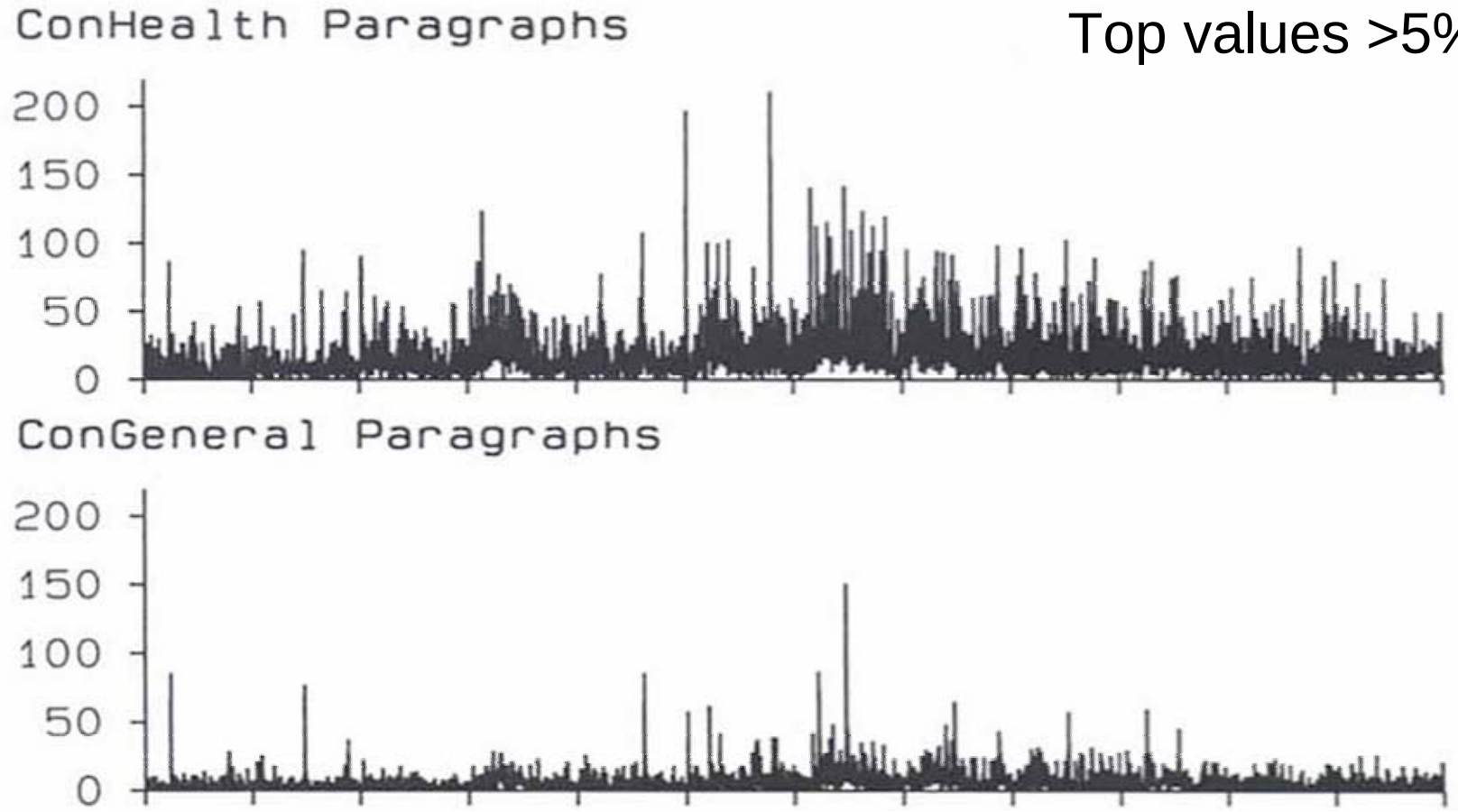
- Content persuasive impact model
  - *PriceCon*: rise in cig prices
  - *GetCon*: difficulty of obtaining cigs
  - *MediaPro*: ideas favoring smoking
  - *MediaCon*: ideas against smoking
- Dependent variables
  - Smok30Day: Monitoring the Future annual data (ISR at the U of Michigan)

Example: Youth Smoking

- N = 63,140 news stories
- N = 13, 430 Internet Use Groups postings (archived
- Relevant paragraphs retrieved and coded containing Pro and Con smoking content
- Differential equations applied to predict outcome of *Smok30Day*

Example: Youth Smoking

Combined media and newsgroup paragraphs plotted daily



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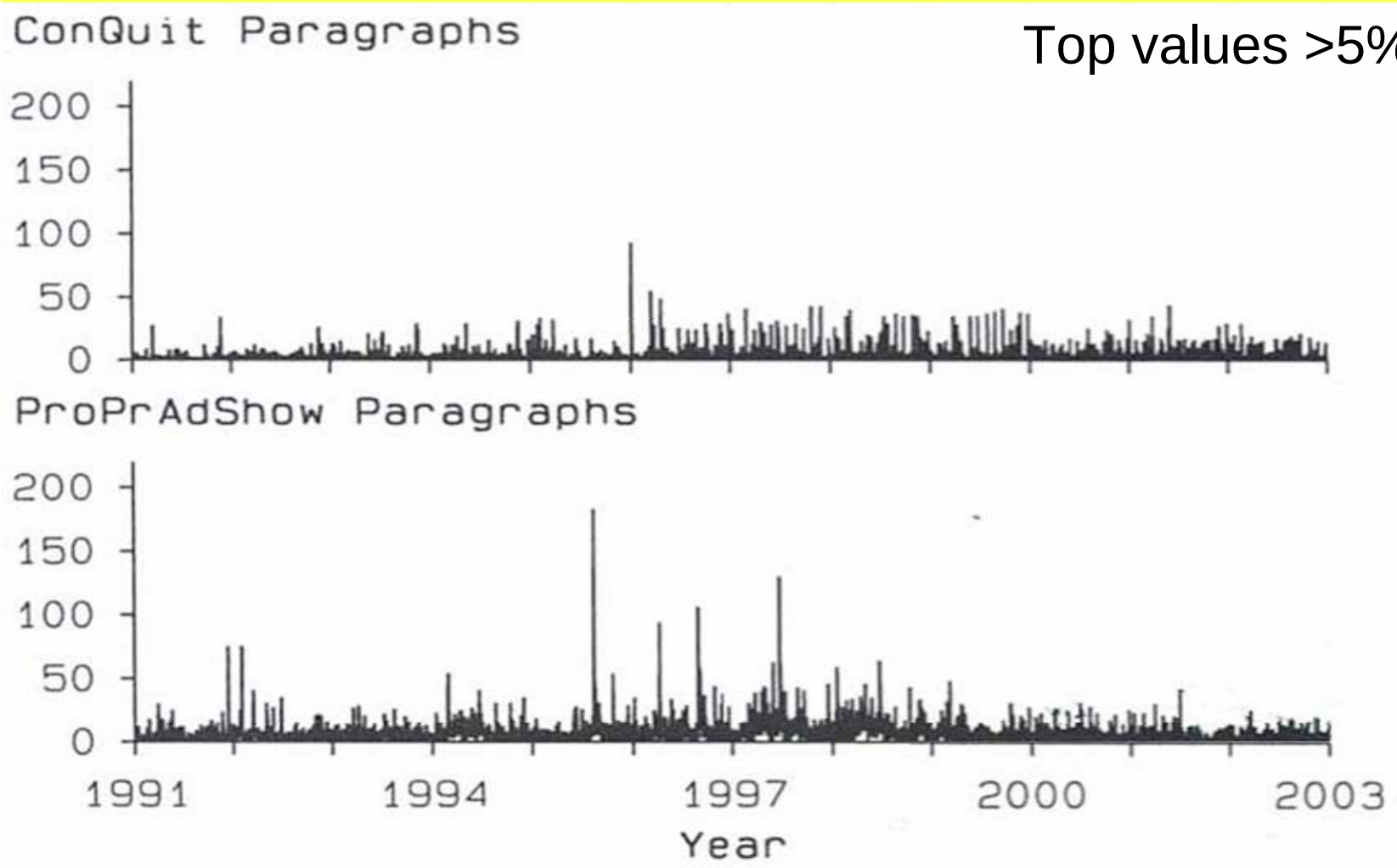

Top values >5%

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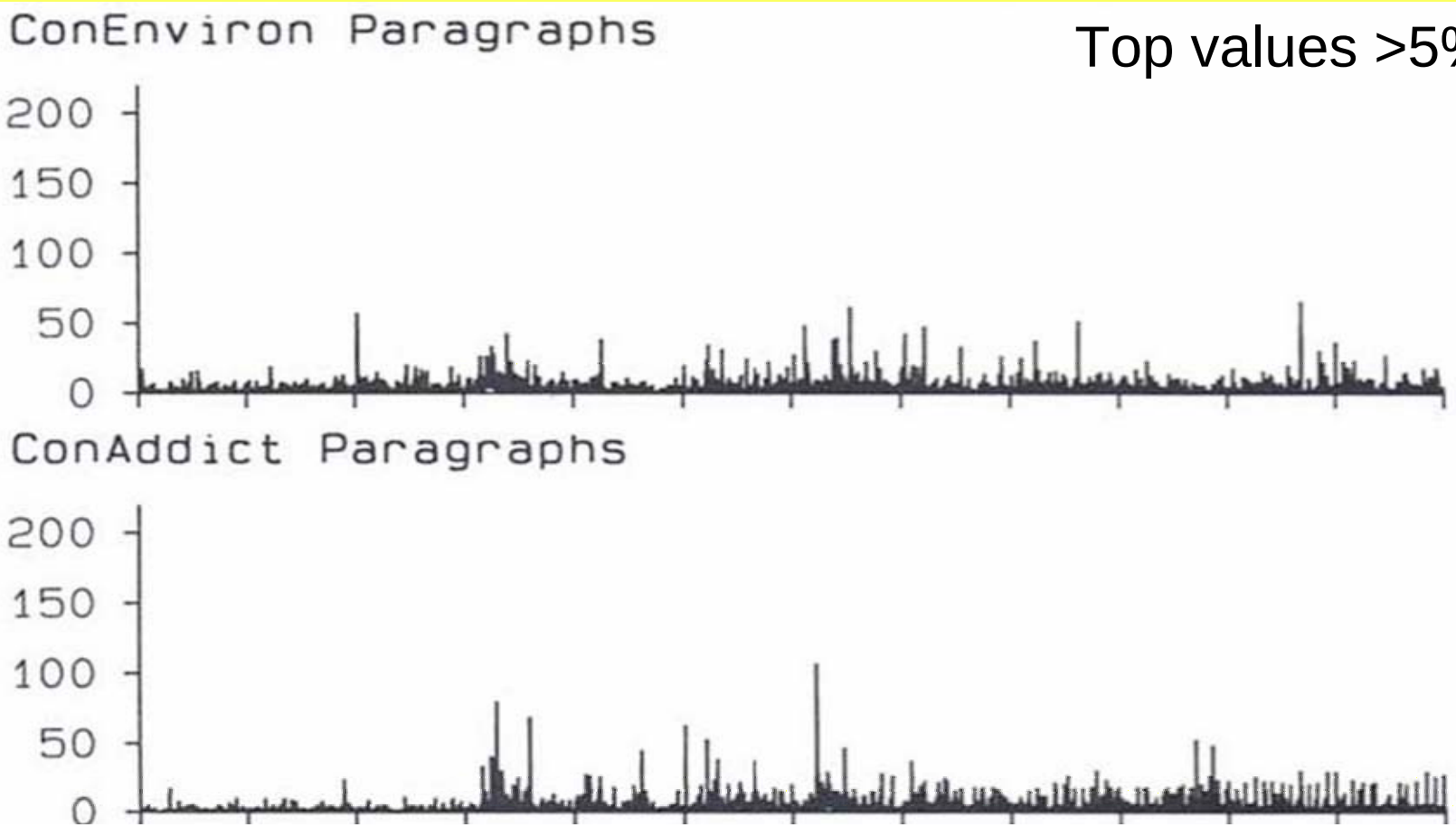

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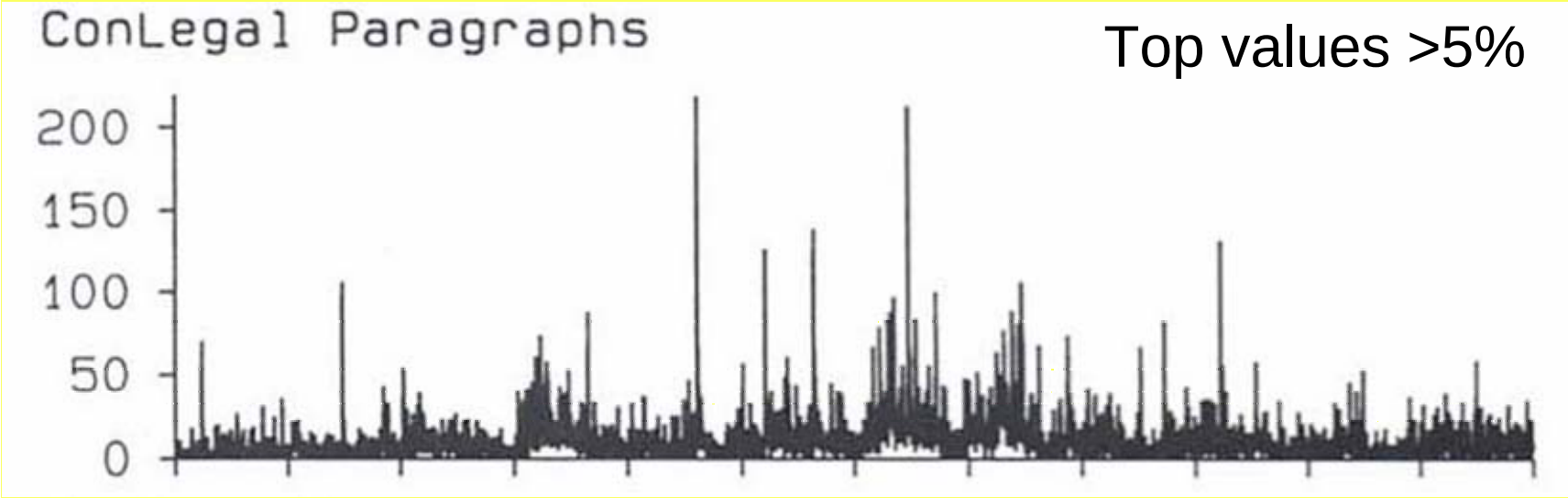

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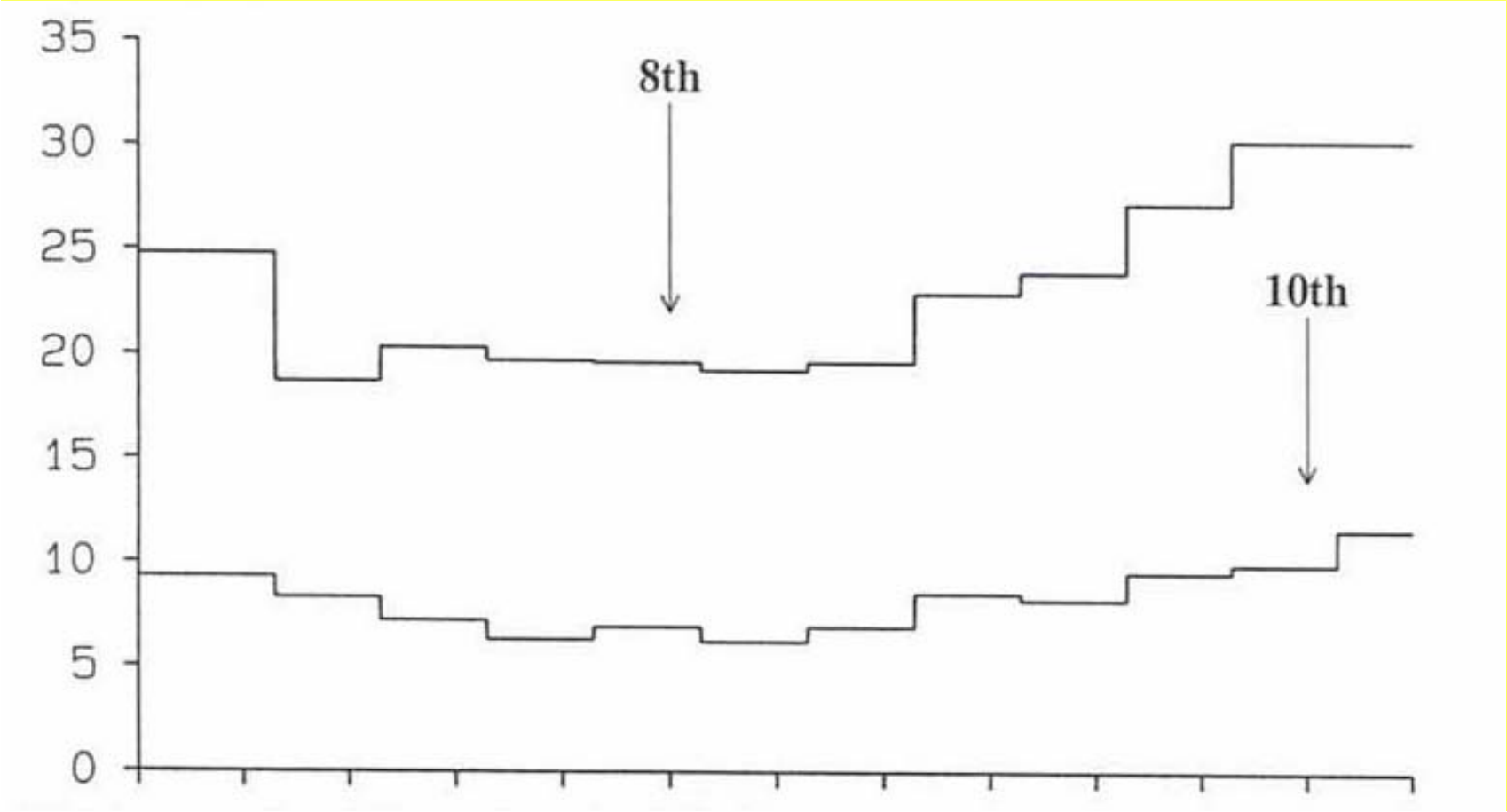
Monitoring the Future Data

"Cigs hard to get"



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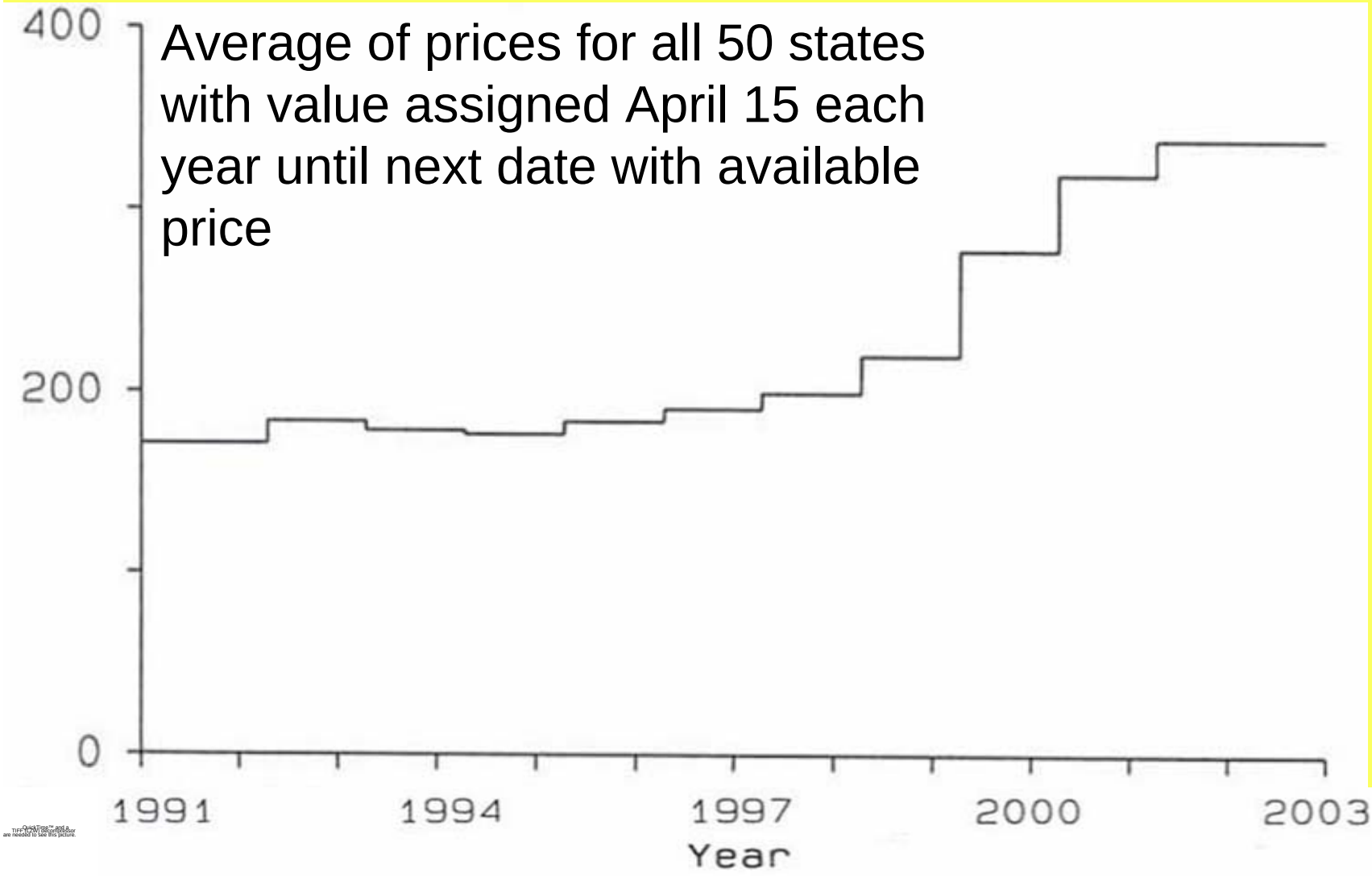
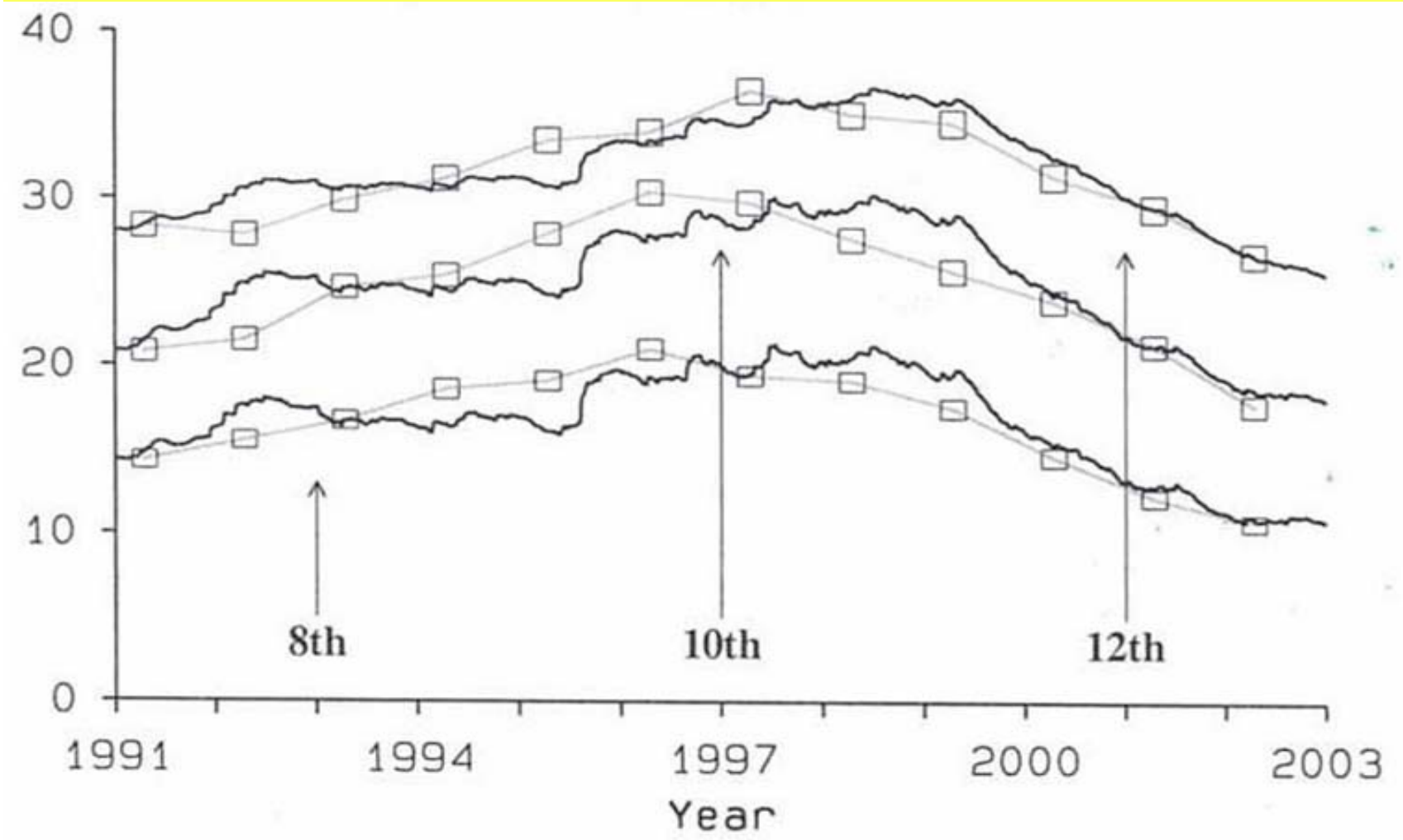
Cigarette Price Data

Average of prices for all 50 states with value assigned April 15 each year until next date with available price



Monitoring the Future Data

"Smok30Days" prediction from persuasive content

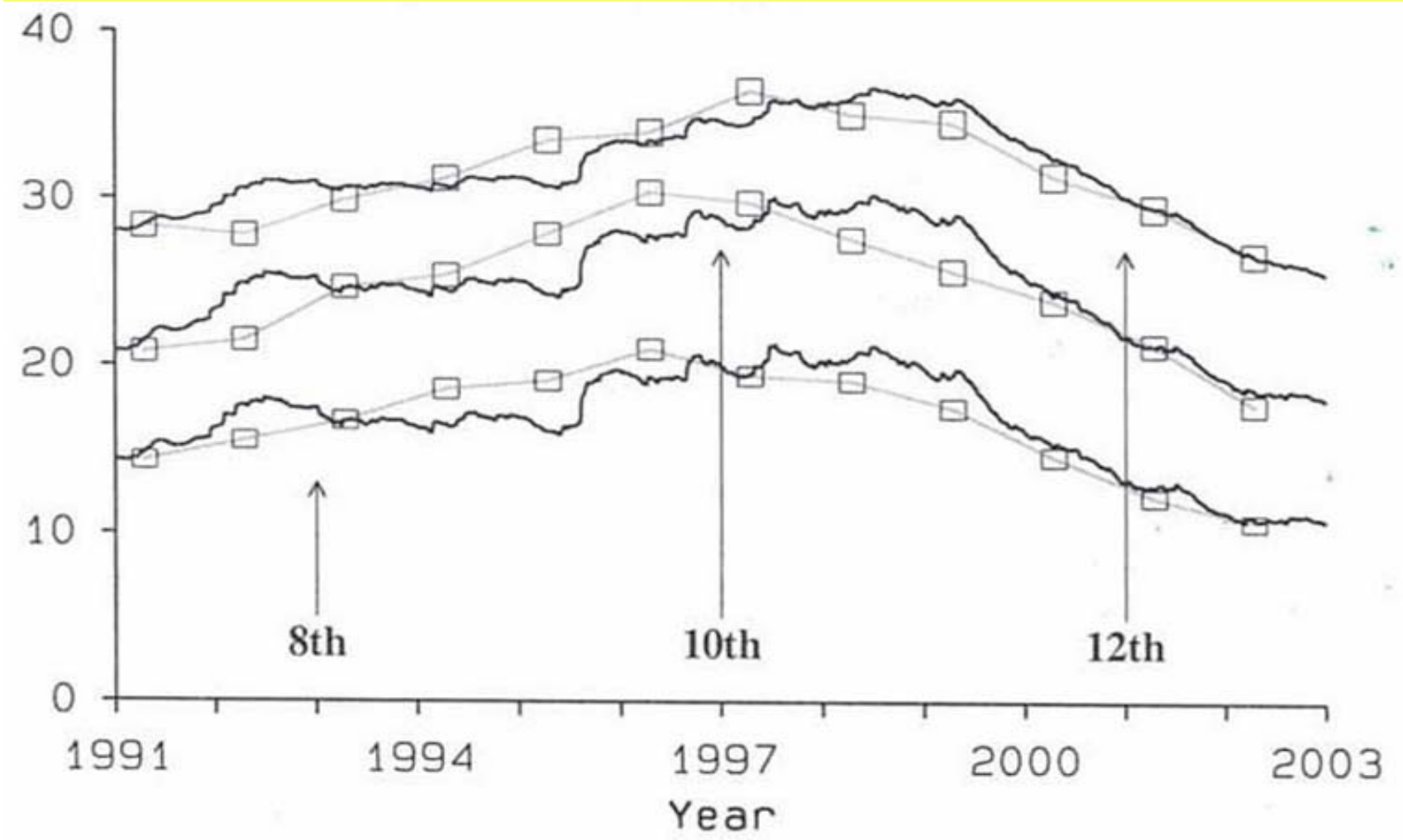


Interpretation Notes

- Media content (dark lines) plotted against Monitoring the Future *Smok30Days* (lines with symbols)
- Symbol width indicates survey period from about March 1 to May 31 at each measure
- Symbol height gives 95% confidence interval based on sample size

Monitoring the Future data

"Smok30Days" prediction from persuasive content



Results

- Over 12 years (1991-2002), persuasive force of media content both pro and con smoking significantly predicted youth smoking in the past 30 days
  - $R^2 = 0.64$ ($p < .005$) 8th Graders
  - $R^2 = 0.66$ ($p < .005$) 10th Graders
  - $R^2 = 0.72$ ($p < .005$) 12th Graders

Results

- Combining persuasive media content AND policy environment
- Adding *PriceCon* and *GetCon* into the model increased the prediction
  - $R^2 = 0.78$ ($p < .005$) 8th Graders
  - $R^2 = 0.78$ ($p < .005$) 10th Graders
  - $R^2 = 0.85$ ($p < .005$) 12th Graders

Conclusion

- Time series approaches measuring impact on health outcomes
  - Recognize media system ubiquity and complexity
  - Address secular trend composed of multiple information sources
  - Address weaknesses of “controlled” designs in community settings

Conclusion

- Time series approaches measuring impact on health outcomes
  - Maximizes use of available media content in very large amounts
  - Utilizes longitudinal analysis
  - Can be useful to campaign planners in shaping the information environment
  - Can permit inclusion of variables such as policy environment or degree of conflict

http://devel.ncrs.fs.fed.us/ma/default.asp?month=Apr%202005