

# Multivariate Assessment: Demand for Cigarettes

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Textbook:

**James H. Stock and Mark W. Watson**, *Introduction to Econometrics*, 4th Edition, Pearson.

Other references:

**Joshua D. Angrist and Jörn-Steffen Pischke**, *Mostly Harmless Econometrics: An Empiricist's Companion*, 1st Edition, Princeton University Press.

**Jeffrey M. Wooldridge**, *Introductory Econometrics: A Modern Approach*, 7th Edition, Cengage Learning.

The textbook comes with online resources and study guides. Other references will be given from time to time.

## Problems and Applications

Stock & Watson, Introduction (4th), Chapter 9, Exercise 1.

Suppose you have just read a careful statistical study of the effect of advertising on the demand for cigarettes. Using data from New York during the 1970s, the study concluded that advertising on buses and subways was more effective than print advertising. Use the concept of external validity to determine if these results are likely to apply to Boston in the 1970s, Los Angeles in the 1970s, and New York in 2018.

## Problems and Applications

Determine if these results are likely to apply to Boston in the 1970s, Los Angeles in the 1970s, and New York in 2018.

There are at least two issues with external validity and both have to do with the very different time periods. First, attitudes to smoking and advertising are very different now than in the 1970s. People are more likely to be swayed by advertising today, because the scientific arguments against smoking are much stronger and more likely to be convincing and because our society has become less tolerant of smoking and smokers: it is more likely a smoker's family and community's attitude to smoking would be negative and reinforce the message promoted by the ads. Secondly, the media used to communicate ads are very different now: in 2022 hardly anyone reads the printed press and while I cannot speak for everyone, I have not paid attention to billboards in years: a successful ad campaign today would likely have to be communicated through social media. It seems to me that urban smokers in cities like Boston or Los Angeles would not be too different from smokers in New York, so I do not think the geographical location would be a threat to external validity. In conclusion, the study's results would likely apply to Boston in the 1970s and Los Angeles in the 1970s, but would likely not apply to New York in 2018.