

Welcome to Mastering Metrics!

Econ 140, Section 1

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Roadmap

1. Getting Started & Housekeeping
2. Time for your questions
3. Econ 140: The Big Picture
4. Correlation and Causation

Getting Started & Housekeeping

Introduce yourself ...

... and an interesting fact about you that you
would like us to know!

- What you can expect in this section and from me as GSI:

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- I am your learning companion. I see grades as feedback, not as an evaluation of your abilities or personality.

Your questions

Any questions?

... Remember – this is a safe space! Every question is useful!

Econ 140: The Big Picture

The Big Picture

- Why is applied econometrics so cool and so important?
- Why do we NOT use Excel? A cautionary tale
- Why econometrics and not data science?
 - Causality vs prediction
 - Economic models

Correlation and Causation

Dissecting Bad Causal Claims

Discuss in groups of 2: Why is this statement problematic?

**Over the past 60 years, more
spending on police hasn't
meant less crime**

The Washington Post

Intuitively, one might worry that reducing police spending would lead to a spike in crime. A review of spending on state and local police over the past 60 years, though, shows no correlation nationally between spending and crime rates.

In 1960, about \$2 billion was spent by state and local governments on police. There were about 1,887 crimes per 100,000 Americans, including 161 violent crimes. By 1980, spending had increased to \$14.6 billion — and crime rates had soared to 5,950 crimes per 100,000 Americans and 597 violent crimes. Over the next two decades, those rates thankfully fell, down to about 4,120 crimes per 100,000 people and 507 violent crimes. Spending spiked to more than \$67 billion. Eighteen years later — by 2018, the most recent year for which full data are available — crime rates had fallen further to 2,580 crimes per 100,000, including 381 violent crimes.

Figure 1: Police spending and Crime (Source)

Discuss in groups of 2: Why is this statement problematic?

Three's a crowd: Having more than 2 kids linked to weaker brain function



NEW YORK – Everything in moderation – even kids? Researchers from Columbia University and Université Paris-Dauphine report having more than two kids may have a negative impact on late-life cognition. The study shows that older parents with just two children appeared sharper cognitively than those with three.

Figure 2: Number of Children and Cognitive Function(Source)

Discuss in groups of 2: Why is this statement problematic?

Can hot baths protect your heart? - Harvard Health

News briefs

Taking a warm bath helps soothe aching joints, wash away stress, and promote sleep. Now, a study published online March 24, 2020, by the journal *Heart* suggests that daily hot baths are also associated with better heart health. Researchers analyzed self-reported health and lifestyle information from more than 30,000 middle-aged people in Japan. Participants responded to a questionnaire at the start of the study and were then followed for about 20 years. Compared with people who didn't take a tub bath more than twice a week, people who took a daily warm or hot bath had a 28% lower risk of cardiovascular disease and a 26% lower risk of stroke. The study is only observational and doesn't prove that daily tub bathing staves off heart problems. But previous research has shown that the effects of tub bathing on the body are similar to those of exercise. Use caution, however: taking baths in very hot water is also tied to sudden death due to overheating, confusion, or drowning. If you're going to take a bath, keep the temperature comfortable and don't risk overheating. Finally, this study says nothing about the possible cardiovascular benefits of hot showers.

Figure 3: Hot baths and health (Source)

Dissecting Bad Causal Claims IV

Discuss in groups of 2: Why is this statement problematic?

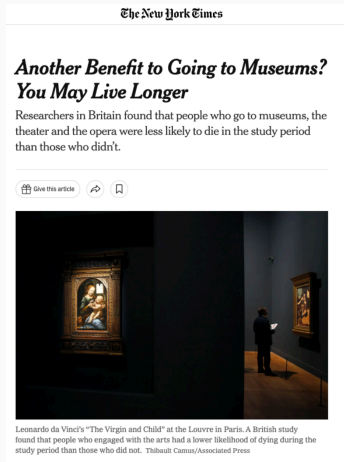


Figure 4: Museums and longevity (Source)

Dissecting Bad Causal Claims IV

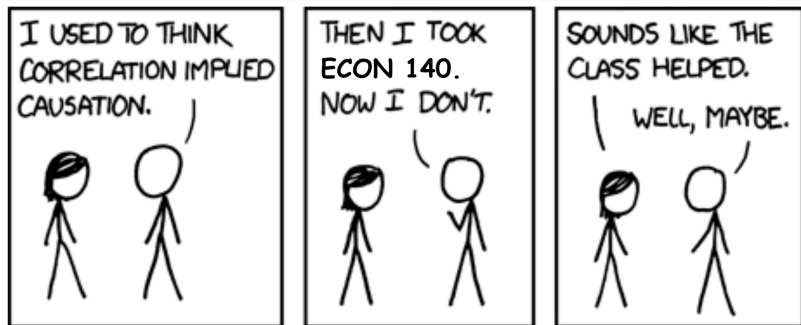


Figure 5: Correlation and causation

Quiz Time!

We have seen that

“Correlation Does Not Imply Causation”

What about:

“No Correlation Implies No Causation”?